

REALNETWORKS INC

FORM 10-K (Annual Report)

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the Fiscal Year Ended December 31, 2016

OR

[] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the transition period from to

Commission file number 0-23137

RealNetworks, Inc.

(Exact name of registrant as specified in its charter)

Washington

(State of incorporation)

91-1628146

(I.R.S. Employer Identification Number)

1501 First Avenue South, Suite 600, Seattle, Washington, 98134

(206) 674-2700

(Address of principal executive offices, zip code, telephone number)

Securities registered pursuant to Section 12(b) of the Act:

Table with 2 columns: Title of Each Class, Name of Each Exchange on Which Registered. Rows include Common Stock and Preferred Share Purchase Rights.

Securities registered pursuant to Section 12(g) of the Act:

None

(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes [] No [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes [] No [X]

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No []

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes [X] No []

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. []

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer [] Accelerated filer [X] Non-accelerated filer [] Smaller reporting company []

(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes [] No [X]

The aggregate market value of the common stock held by non-affiliates of the registrant was \$ 99 million on June 30, 2016, based on the closing price of the common stock on that date, as reported on the Nasdaq Global Select Market. Shares held by each executive officer and director have been excluded in that such persons may be deemed to be affiliates. In the case of 10% or greater shareholders, we have not deemed such shareholders to be affiliates unless there are facts and circumstances which would indicate that such shareholders exercise any control over our company. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of shares of the registrant's common stock outstanding as of February 24, 2017 was 37,017,924.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant has incorporated by reference the information required by Part III of this Annual Report from its Proxy Statement relating to its 2017 Annual Meeting of Shareholders or an amendment to this Form 10-K, to be filed within 120 days after the end of its fiscal year ended December 31, 2016.

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PART I.

This Annual Report on Form 10-K and the documents incorporated herein by reference contain forward-looking statements that have been made pursuant to the provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current expectations, estimates, and projections about RealNetworks' industry, products, management's beliefs, and certain assumptions made by management. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates," and similar expressions are intended to identify forward-looking statements. All statements contained in this report that do not relate to matters of historical fact should be considered forward-looking statements. Forward-looking statements include statements with respect to:

- the expected benefits and other consequences of our growth plans, strategic initiatives, and restructurings;*
- our expected introduction, and related monetization, of new and enhanced products, services and technologies across our businesses;*
- future revenues, operating expenses, income and other taxes, tax benefits, net income (loss) per diluted share available to common shareholders, acquisition costs and related amortization, and other measures of results of operations;*
- the effects of our past acquisitions and expectations for future acquisitions and divestitures;*
- plans, strategies and expected opportunities for future growth, increased profitability and innovation;*
- the expected financial position, performance, growth and profitability of, and investment in, our businesses and the availability of resources;*
- the effects of legislation, regulations, administrative proceedings, court rulings, settlement negotiations and other factors that may impact our businesses;*
- the continuation and expected nature of certain customer relationships;*
- impacts of competition and certain customer relationships on the future financial performance and growth of our businesses;*
- our involvement in potential claims, legal proceedings and government investigations, and the potential outcomes and effects of such potential claims, legal proceedings and governmental investigations on our business, prospects, financial condition or results of operations;*
- the effects of U.S. and foreign income and other taxes on our business, prospects, financial condition or results of operations; and*
- the effect of economic and market conditions on our business, prospects, financial condition or results of operations.*

These statements are not guarantees of future performance and actual actions or results may differ materially. These statements are subject to certain risks, uncertainties and assumptions that are difficult to predict, including those noted in the documents incorporated herein by reference. Particular attention should also be paid to the cautionary language in Item 1A entitled "Risk Factors." RealNetworks undertakes no obligation to update publicly any forward-looking statements as a result of new information, future events or otherwise, unless required by law. Readers should, however, carefully review the risk factors included in other reports or documents filed by RealNetworks from time to time with the Securities and Exchange Commission, particularly the Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K.

Item 1. Business

Overview

RealNetworks creates innovative applications and services that make it easy to connect with and enjoy digital media. We invented the streaming media category in 1995 and continue to connect consumers with their digital media both directly and through partners, aiming to support every network, device, media type and social network. We provide the digital media services and products we create to consumers, mobile carriers and other businesses.

Consumers use our services and software to store, organize, play and manage their digital media content. Our consumer products and services include our photo and video sharing and storage application, our casual games, our direct-to-consumer ringback tone and productivity tool, and RealPlayer®, our widely distributed media player. Network service providers, such as mobile carriers, use our products and services to create and deliver digital media and messaging services, such as ringback tones, music on demand, intercarrier messaging, and photo and video sharing technology for their subscribers. The distribution and license of our products, services and technologies are dependent on contracts with third parties.

We were incorporated in 1994 in the State of Washington. Our common stock is listed on the NASDAQ Stock Market under the symbol “RNWK.”

In this Annual Report on Form 10-K for the year ended December 31, 2016, RealNetworks, Inc., together with its subsidiaries, is referred to as “RealNetworks”, the “Company”, “we”, “us”, or “our”. “RealPlayer,” “RealTimes,” “RealMedia,” and other trademarks of ours appearing in this report are our property.

Segments

In the first quarter of 2016, we reorganized the management of our businesses, and as a result we report revenue and operating income (loss) in three segments: (1) Consumer Media, (2) Mobile Services, and (3) Games. We allocate to our reportable segments certain corporate expenses which are directly attributable to supporting the business, including but not limited to a portion of finance, legal, human resources and headquarters facilities. Remaining expenses, which are not directly attributable to supporting the business, are reported as corporate items. Also reported in our corporate segment are restructuring charges, lease exit and related charges, as well as stock compensation charges. Concurrent with the first quarter of 2016 segment change, we also changed our corporate expense allocation methodology to increase accountability, resulting in an increase in costs allocated to the Consumer Media and Mobile Services businesses. We have recast the historical financial information presented to reflect the new segments and new expense allocation methodology.

Consumer Media

Within our Consumer Media business, our RealPlayer media player software includes features and services that enable consumers to discover, play, download, manage and edit digital video, stream audio and video, download and save photos and videos from the web, transfer and share content on social networks, and edit their own photo and video content.

In our Consumer Media segment, revenue is derived from online sales to consumers of our PC-based RealPlayer products, including RealPlayer Plus, the premium version of our media player, and from the distribution of third-party software products to consumers who wish to download additional applications when downloading our software products. We also generate revenue through our RealPlayer subscription products, including our SuperPass service. SuperPass is our subscription service that provides consumers with access to a broad range of digital entertainment content for a monthly fee.

In addition to consumer products, we also license our technology, including our recently introduced RealMedia High Definition, or RMHD, codec technology to a variety of electronic equipment and microchip manufacturers who embed our codecs in their phones, laptops, smart TVs and other devices. We also promote the use of our codec technology to producers of media content and users of RealPlayer, which recently incorporated RMHD codec technology, to encourage the adoption of our RMHD technology by device manufacturers.

Mobile Services

Mobile Services consists primarily of the digital media services we provide to mobile and online service providers as software as a service (SaaS) offerings. Included in our SaaS offerings are our RealTimes, ringback tone and intercarrier messaging service, which are provided to a large number of mobile carriers around the world. Also included in our SaaS offerings is our music on demand service, which is provided in Korea. In connection with our SaaS services, we also offer business intelligence, subscriber management and billing for the carriers who obtain our offerings for their customers.

We generate a significant portion of our revenue from sales within our Mobile Services business to a few mobile telecommunications carriers and our low-margin music on demand customer in Korea. In the near term, we expect that we

will continue to generate a significant portion of our total revenue in this segment and our consolidated revenue from these customers.

Our photo and video sharing product, RealTimes® was launched in the second quarter of 2015. RealTimes gives consumers more options and control over their digital memories. With the RealTimes product, consumers can find, watch, save and share their photos and videos on multiple devices and across multiple platforms, as well as create photo and video collages, or "RealTimes Stories." RealTimes is distributed both directly to consumers and through partners. We offer both an entry-level free version for consumers, as well as a premium subscription version. Within our Mobile Services group, we focus on leveraging current and prospective wireless carrier relationships to increase distribution of RealTimes. In the fourth quarter of 2015 we entered into two carrier agreements for our RealTimes product and added two more in 2016.

Our ringback tone services enable callers to hear subscriber-selected music or messages instead of the traditional electronic ringing sound while waiting for the person they have called to answer. We primarily offer ringback tone services via mobile telecommunications carriers, where, in return for providing, operating and managing the ringback tone service for the carrier customers, we generally enter into revenue-sharing arrangements with the carriers based on monthly subscription fees, content download fees or a combination of such fees paid by subscribers.

Our intercarrier messaging platform enables operators to send and receive SMS messages worldwide between networks and service providers, regardless of network technology. Our platform processes billions of SMS messages per day between users on hundreds of different networks. Our intercarrier messaging services are delivered through various carrier partners within the U.S. and internationally. The revenue we earn from our intercarrier messaging service is subject to a revenue-sharing arrangement with our service partner.

Our low-margin music on demand service, provided through our partner in Korea, offers a wide range of songs for downloading or streaming to PCs and mobile devices through various payment arrangements.

Games

We develop, publish, license and distribute casual games, which are offered via mobile devices, digital downloads, online subscription play, third-party portals, and social networks. Casual games typically have simple graphics, rules and controls, are quick to learn, and often include time-management, board, card, puzzle, word and hidden-object games.

We have a large and diverse portfolio of original games developed by our in-house game studios, games developed by us from content we license from other intellectual property holders, games developed through partnerships with external game developers, and games licensed to us by third parties that we distribute to our customers. We distribute games principally in North America, Europe and Latin America through our GameHouse and Zylom websites and through websites owned or managed by third parties.

We monetize our games largely through sales of game licenses and subscriptions. We develop mobile games for play on handsets, smartphones and tablets, which can be purchased in app stores. Consumers can also play and purchase games from our catalog of online and downloadable PC games. We typically introduce new games by offering a free trial before purchase on an individual basis or as part of one of our subscription services. In addition to revenue from sales of game licenses and subscriptions, we also generate revenue from display advertising that is shown to consumers during online play.

See Note 18. Segment Information , in this Form 10-K for additional details on our segments and geographic concentrations.

Rhapsody

At December 31, 2016 , we owned approximately 42% of the issued and outstanding stock of Rhapsody. See Note 4. Rhapsody Joint Venture , in this 10-K for additional details. Rhapsody provides music products and services that enable consumers to have access to digital music content from a variety of devices. The Rhapsody unlimited subscription service offers unlimited access to a catalog of tens of millions of music tracks by way of on-demand streaming and conditional downloads. Rhapsody also operates a radio-like service, branded as "UnRadio" in the U.S., through which users can listen to online radio stations based on selected artists or genres and download favorite tracks played on those stations for offline playback. Rhapsody currently offers music services worldwide (under the Napster brand) and generates revenue primarily through subscriptions to its music services either directly to consumers or through distribution partners, such as mobile carriers.

Customers

Our customers include consumers and businesses located throughout the world. Sales to customers outside the U.S., primarily in Asia and Europe, were 66% , 63% and 61% of our revenue during the years ended December 31, 2016 , 2015 and 2014 , respectively. See Note 18. Segment Information , for details on geographic concentrations and see Note 6. Allowance for Doubtful Accounts Receivable and Sales Returns , for details on customer revenue concentrations.

Research and Development

We devote a substantial portion of our resources to developing new products, enhancing existing products, expanding and improving our fundamental technology, and strengthening our technological expertise in all our businesses. During the years ended December 31, 2016, 2015, and 2014, we expended 25%, 35% and 34%, respectively, of our revenue on research and development activities.

Sales, Marketing and Distribution

Our marketing programs are aimed at increasing brand awareness of our products and services and stimulating demand. We use a variety of methods to market our products and services, including paid search advertising, affiliate marketing programs, advertising in print, electronic and other online media, direct mail and email offers to qualified potential and existing customers, and providing product specific information through our websites. We also cross-market products and services offered by some of our businesses through the RealPlayer and Games marketing and distribution channels. We also have subsidiaries and offices in several countries that market and sell our products outside the U.S.

Our products and services are marketed through direct and indirect channels. We use public relations, trade shows, events and speaking opportunities to market our products and services. We also use a variety of online channels, including social media, to promote and sell our products and services directly.

In our Consumer Media business, we market and sell our various RealPlayer services directly through our own websites such as Real.com, as well as indirectly through third party distribution partners.

Our Mobile Services sales, marketing and business development team works closely with many of our enterprise, infrastructure, wireless, broadband and media customers to identify new business opportunities for our entertainment applications, services and systems. Through ongoing communications with the product and marketing divisions of our customers, we tailor our SaaS offerings to their strategic needs and the needs of their subscribers.

Our games are marketed directly from our websites and through third-party distribution channels, such as mobile phone application stores, search engines, online portals, major social networks and content publishers.

Customer Support

Customer support is integral to the provision of nearly all of our consumer products and services. Consumers who purchase and use our consumer software products and services can get assistance primarily via the Internet or email, depending on the product or service. For most of our consumer products, we contract with third-party outsource support vendors to provide the primary staffing for our first-tier customer support globally. We also provide various support service options for our business customers and for software developers using our software products and associated services. Support service options include online support services and on-site support personnel covering technical and business-related support topics.

Competition

The market for software and services for digital media delivery over the Internet and wireless networks is intensely competitive. Many of our current and potential competitors have longer operating histories, greater name recognition or brand awareness, more employees or significantly greater resources than we do.

In our Consumer Media segment, our RealPlayer media player continues to face competition from alternative streaming media playback applications which have obtained very broad market penetration. The RMHD codec is competing against other next generation video codecs. We have independently developed and offer our proprietary codec, while many of our competitors have come together in patent pools to market and license competing codecs. Although we believe this approach can be a strength, in order to be successful we must overcome the inherent market penetration that arises when multiple companies promote a shared codec solution.

In our Mobile Services segment, our RealTimes product faces significant competition from both well known, firmly established companies and entrepreneurial, nimble startups which provide photo and video sharing services. In addition, as we continue to develop this product and expand its reach, we expect to see growing competition from companies offering innovative features for engaging with users' video and photo content. Our SaaS business competes with a large and diverse number of domestic and international companies, and each of our SaaS offerings tends to face competitors specific to that product or service. Our SaaS business continues to experience significant competitive pricing pressure from carriers and the proliferation of smartphone applications and services, some of which do not depend on our carrier customers for distribution to consumers. Many of our SaaS services require a high degree of integration with carrier or service provider networks and thus require a high degree of operational expertise. In addition, our ability to enhance services with new features as the digital entertainment market evolves is critical to our competitive position, as is our knowledge of the consumer environment to which these services are targeted.

Our Games business competes with a variety of distributors, publishers and developers of casual games for mobile and PC platforms and for social networks. In addition, the market for casual games has become increasingly price competitive in recent years. Our in-house content development studios compete with other developers and publishers of mobile games based on our ability to develop and publish high quality games that resonate with consumers, our effectiveness at building our brands, and our ability to secure broad distribution. Our mobile games compete with a range of developers. Our family of websites serving the PC casual games market competes with other high volume distribution channels for downloadable, online and social games.

Intellectual Property

As of December 31, 2016, we had 19 U.S. patents, 53 South Korean patents, 15 patents in other countries and more than 30 pending patent applications worldwide relating to various aspects of our technology. We regularly analyze our patent portfolio and prepare additional patent applications on current and anticipated features of our technology in various jurisdictions across the world.

In addition to our patent portfolio, we have assembled, over time, an international portfolio of trademarks and service marks that covers certain of our products and services. We also have applications pending for additional trademarks and service marks in jurisdictions around the world, and have several unregistered trademarks. Many of our marks begin with the word “Real” (such as RealPlayer). We are aware of other companies that use “Real” in their marks alone or in combination with other words, and we do not expect to be able to prevent all third-party uses of the word “Real” for all goods and services.

Our ability to compete across our businesses partly depends on the superiority, uniqueness and value of the technology that we both develop and license from third parties. To protect our proprietary rights, we rely on a combination of patent, trademark, copyright and trade secret laws, confidentiality agreements with our employees and third parties, and protective contractual provisions. These efforts to protect our intellectual property rights may not be effective in preventing misappropriation of our technology, or may not prevent the development and design by others of products or technologies similar to or competitive with those we develop.

Employees

At December 31, 2016, we had approximately 534 employees, of which 160 were based in the Americas, 151 were based in Asia, and 223 were based in Europe. None of our employees are subject to a collective bargaining agreement.

Position on Charitable Responsibility

In periods when we have achieved sustained profitability, we intend to donate 5% of our net income to charitable organizations, which will reduce our net income for those periods. The non-profit RealNetworks Foundation, established in 2001, manages a substantial portion of our charitable giving efforts. Through the Foundation, we support our employees' philanthropic efforts by matching their donations of time and money to charitable organizations.

Available Information

Our corporate Internet address is www.realnetworks.com. We make available free of charge on www.investor.realnetworks.com our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and amendments to these reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (SEC). However, the information found on our corporate website is not part of this or any other report.

Item 1A. Risk Factors

You should carefully consider the risks described below together with all of the other information included in this Form 10-K. The risks and uncertainties described below are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we presently deem less significant may also impair our business operations. If any of the following risks actually occurs, our business, financial condition or operating results, and the trading price of our common stock, could be materially harmed.

The measures we have taken or may take to streamline or grow our business could have material adverse effects on our business or financial results if they prove to be unsuccessful or if we do not execute these measures effectively.

Since 2012, we have taken steps to reduce costs, restructure, and simplify our business and operations. We have also taken steps to identify, fund or pursue initiatives intended to create or support growth in our business or financial results. These measures and initiatives have impacted virtually all of our segments at various times. We continue to assess opportunities to further streamline our operations and make our businesses more efficient, and to grow our business through new initiatives.

The simultaneous execution of all of these measures is complex and ambitious. There is no assurance that we will be able to effectively plan or execute plans to implement such measures, either in a timely manner or at all, and our failure to do so would have a material adverse impact on our business and financial results. The pursuit of these measures requires us to allocate limited resources among our diverse business units, business functions and initiatives and we can provide no assurance that the way we allocate our resources will prove to be effective in achieving the business outcomes we seek. The measures we take to reduce costs, restructure and simplify our business, or take to identify, fund or pursue new initiatives have in the past required, and may in the future require, significant cash outlays in excess of cash gains, and we cannot guarantee that these expenditures will have the desired return or that our cash reserves will be sufficient to complete the intended measures.

Measures that reduce costs, restructure, or simplify our business may reduce our human and capital resources. These measures may not result in profitability, and may result in increased expenses in affected periods. These measures also may negatively affect our ability to maintain, develop or deploy products or services and compete effectively, or our ability to operate our business effectively, or both.

Changes in our business as a result of measures to streamline or grow our business may create uncertainty. Our operations, business, or financial results may be adversely affected if there is customer or employee uncertainty surrounding the future direction of our product and service offerings and strategy for our businesses. If these adverse effects were to occur, or if our investors become uncertain about our offerings and strategy, our stock price may be adversely affected, and we and our shareholders may not realize the intended financial, operational and other benefits from such measures.

We need to successfully monetize our existing, new and future products and services in order to sustain and grow our businesses.

The process of developing and distributing products, services and technology is complex, costly and uncertain, and is subject to a number of risks.

Providing products and services (including license of our intellectual property) that are attractive and useful to subscribers and consumers is in part subject to unpredictable and volatile factors beyond our control, including end-user preferences, competing products and services, the rapid pace of change in the market and a limited number of dominant distribution partners. Our historically core products and services are primarily distributed through desktop computers and feature phones, and we have developed newer products and services for emerging mobile device platforms. If we do not appropriately develop or enhance our products and services, they may become obsolete. Any failure by us to timely respond to or accurately anticipate consumers' changing needs and desires, emerging technological trends or important changes in the market or competition for products and services that we introduce, or that we are investing in, are developing or have launched, could result in an increase in the current rate of decline in our market share, flat or declining revenue, or the loss of market opportunities. In addition, third parties that control access to and distribution to users through these new platforms may present obstacles to reaching our traditional customer base and other unknown distribution challenges.

We also must make long-term investments, develop or obtain appropriate intellectual property and commit significant resources before knowing whether the products and services that we are developing or have introduced will meet the demands of a large enough group of consumers. If the products and services are not successful, we may not realize a sufficient return on our investment, or may experience a loss on our investments. The investment or dedication of limited cash or other resources to particular projects for products and services may negatively affect our ability to pursue opportunities for other such projects. In addition, these long-term measures may deplete our cash reserves. In that event, we may not have sufficient cash and other resources to pursue the development or acquisition of new products or services or otherwise sustain or grow our business. Any of these events could have a material adverse impact on our business and financial results.

Moreover, if we are unsuccessful in securing profitable distribution channels with new partners, including mobile telecommunications carriers, strengthening or renewing channels with existing partners, and monetizing our products and services, our revenue and earnings may not grow or will continue to decline, and our businesses will suffer.

We invest heavily in the development of new products and services, including enhanced features for such products and services. We expect to continue to invest both in further development and in sales and marketing efforts aimed at monetizing certain of these products and services and new products and services. If we are unable to generate sustained interest in these products and services, and therefore drive revenue growth, our financial results and cash position will continue to be materially negatively impacted.

Furthermore, products and services may be subject to legal challenge. Responding to any such claims may require us to enter into royalty and licensing agreements on unfavorable terms, require us to stop distributing or selling, or to redesign our

products or services, or to pay damages, any of which could materially harm our operating results and our ability to grow our businesses.

Our businesses face substantial competitive challenges that may prevent us from being successful in those businesses, and may negatively impact future growth in those businesses.

Many of our current and potential competitors in our businesses have longer operating histories, greater name or brand recognition, more employees and significantly greater resources than we do. In addition, current and potential competitors may include relatively new businesses that develop or use innovative technologies, products or features that could disrupt the market for technologies, products or features we currently market or are seeking to develop. In attempting to compete with any or all of these competitors, we may experience some or all of the following consequences, any of which would adversely affect our operating results and the trading price of our stock:

- reduced prices or margins,
- loss of current and potential customers, or partners and potential partners who distribute our products and services or who provide content that we distribute to our customers,
- changes to our products, services, technologies, licenses or business practices or strategies,
- lengthened sales cycles,
- inability to meet demands for more rapid sales or development cycles,
- industry-wide changes in content distribution to customers or in trends in consumer consumption of digital media products and services,
- pressure to prematurely release products or product enhancements, or
- degradation in our stature or reputation in the market.

The market for our Mobile Services business is highly competitive and evolving rapidly. Increased use of smartphones has resulted in a proliferation of applications and services that compete with our SaaS services. For example, our ringback tones solution faces competition from alternative kinds of applications and services that carriers can deploy or offer to their subscribers, or that consumers can acquire independently of their carrier. Increased competition has in the past resulted in pricing pressure, forcing us to lower the selling price of our services. We expect this pricing pressure to continue to materially harm our operating results and financial condition.

Our RealTimes product and music on demand service also face strong competition from other technology companies and cloud service providers of substantially similar offerings, including some that are firmly established in the marketplace and have access to extensive resources, and some that specialize in video and photo sharing services or music streaming services. We have seen and expect to continue to see growing competition from companies offering innovative features for these kinds of products and services, some of which are offered for free. To be competitive, our RealTimes product must provide sufficiently engaging and compelling features for users' digital content, enticing consumers directly to the application and creating an appealing value proposition for our distribution partners. Similarly, to be competitive, our music on demand service must provide appealing music content to meet consumer preferences at an acceptable cost. There is no assurance that current and potential customers and distribution partners will prefer our product, services and feature offerings to those of our competitors, which could materially harm our operating results and financial condition.

Our Consumer Media software and services for media playback and production (RealPlayer, RealMedia VB and RealMedia HD) compete with alternative media playback technologies and audio and video content formats that have obtained broad market penetration. RealMedia VB and RealMedia HD are codecs, technology that enables compression and decompression of the media content in a (usually proprietary) format. We license our codec technology primarily to computer, smartphone and other mobile device manufacturers. Similar to our RealPlayer software and services, our codec technology faces strong competition, from alternative technologies. To compete effectively, codec technologies must appeal to, and be adopted for use by, a wide range of parties: producers and providers of media content, consumers of media content, and device manufacturers who pre-load codec technologies into their devices. Promoting adoption of our codec technologies to a wide and diverse target market is a complex undertaking. Whether our current or future technologies and formats for producing, streaming or playing back media content, including related codec technology, will be widely and successfully adopted is highly uncertain. If we are unable to compete successfully, our Consumer Media business could continue to decline.

The branded services in our Games business compete with other developers, aggregators and distributors of mobile, online, and downloadable games. Our competitors vary in size and capabilities, which present us with a range of competitive factors and conditions to address. Some of these competitors have high volume distribution channels and greater financial resources than we do. Our Games business also competes with many other smaller companies that may be able to adjust to market conditions. We also face significant price competition in the casual games market, and some of our competitors may be able to offer games for free, or reduce prices more aggressively than us. We expect competition to continue to intensify in this

market from these and other competitors. Our games development studios compete primarily with other developers of mobile, online, and downloadable games, and must continue to develop popular and high-quality game titles. Our Games business must also continue to execute on opportunities to expand the play of our games on a variety of non-PC platforms, including mobile, in order to maintain our competitive position and to grow the business. If we are unable to achieve future growth in our revenue, our Games business will suffer.

The distribution and license of our products, services and technologies are dependent on contracts with third parties, which subjects us to significant risks that could negatively impact our revenue or otherwise harm our operating results.

The distribution and license of our products, services and technologies are primarily dependent on contracts with third parties, such as mobile telecommunications carriers, providers of services to carriers, online service providers, OEMs, mobile device manufacturers and others. The loss of contracts, a reduction in the other parties, marketing or promotion of our offerings, or the termination or non-renewal or renegotiation of contract terms that are less favorable to us could result in the loss of future revenues and could result in the loss of anticipated profits. In our Consumer Media and Mobile Services segments, we derive a material portion of our revenue from contracts with third parties.

In addition, by their nature and terms, our contracts with third parties are of a fixed duration and may terminate or may be renegotiated, or may be subject to early termination by the other party. As a result, we must seek additional contracts with third parties on an ongoing basis to sustain and grow our business. Whether, or the terms on which, new parties or the parties with existing contracts wish to enter into, continue or terminate such contracts will depend in part on whether our current or future products, services or technologies are technologically and commercially effective and provide appealing or competitive features and capabilities. We expect to face continuing and increased technical and commercial competition for the products, services and technologies we seek to provide, and there is no assurance that the parties with which we currently have contracts will continue or extend current contracts on the same or more favorable terms, or that we will obtain alternative or additional contracts for our services and technologies. The failure to do any of these things could materially harm our operating results and financial condition.

Negotiation of the terms of some of these contracts can be very competitive and may not always result in contract terms favorable to us. For example:

- Many of our contracts with carriers provide for revenue sharing arrangements, but we have limited control over the prices charged by the carriers for these services. Furthermore, most of these contracts do not provide for guaranteed minimum payments or usage levels. Because most of our carrier contracts are nonexclusive, it is possible that our carrier could purchase similar services from third parties and cease to use our services in the future. As a result, our revenue derived under carrier contracts could be substantially reduced depending on the pricing and usage decisions of the carriers.
- Some of our contracts with carriers require us to incur significant set-up costs prior to the launch of services with that carrier. In addition to current period costs, we may be required to record impairments or other charges in future periods related to our carrier contracts, which would negatively impact our results of operations.
- Most of our contracts do not obligate the other party to market or distribute any of our offerings to their customers. Despite the lack of marketing commitments, revenue related to our offerings is, to a large extent, dependent upon the marketing and promotion activities of our carrier, and without this marketing we may not be able to generate the revenue or profit we anticipate from these contracts.
- Many of our contracts are short term and many allow for early termination by the other party with or without cause. These contracts are therefore subject to renegotiation of pricing or other key terms that could be adverse to our interests and leave us vulnerable to non-renewal by the other party. The termination, expiration, or non-renewal of a contract could lead to a decrease in future revenues and may cause a decrease or uncertainty in the earnings that we report, adversely affecting our financial results.
- Our intercarrier messaging services are used by various carrier partners within the U.S. and internationally. The revenue we earn from these services is derived from a revenue-sharing contract with our service partner, by which we receive a portion of the revenue they collect from their carrier customers for the use of our services. We have limited control over the prices charged by our service partner for our intercarrier messaging services, and the contract does not provide for guaranteed minimum payments or usage levels for our services. As a result, our revenue derived under our contract with our service partner for intercarrier messaging services could be substantially reduced depending on the pricing and usage decisions of the service partner.

Nearly all of our contracts in which we provide to another party services or rights to use our technology include some form of obligation by us to indemnify the other party for certain liabilities and losses incurred by them, including liabilities resulting from third party claims for damages that arise out of the use of our technology. These indemnification terms provide us with certain procedural safeguards, including the right to control the defense of the indemnified party. We have in the past incurred costs to defend and settle such claims. Claims against which we may be obligated to defend others pursuant to our contracts could in the future result in payments that could materially harm our business and financial results.

A majority of the revenue that we generate in our Mobile Services segment is dependent upon our relationships with a few customers, and any deterioration of these relationships could materially harm our revenue.

We generate a significant portion of our revenue from sales within our Mobile Services business to a few carrier customers and our music on demand customer in Korea. In the near term, we expect that we will continue to generate a significant portion of our total revenue from these customers. If these customers fail to market or distribute our services or terminate or fail to renew their business contracts with us, or if our relationships with these customers deteriorate in any significant way, we may be unable to replace the affected business arrangements with acceptable alternatives. Failure to maintain our relationships with these customers, or replace them with comparable revenue streams, could have a material negative impact on our revenue or financial results.

We may not be successful in maintaining and growing our distribution of digital media products.

Maintaining and growing the distribution of digital media products through our websites and our other distribution channels has historically been important to our business, including growth through the introduction of new products and services distributed through these channels. Consumers are not downloading and using our digital media products consistent with past usage, so our ability to generate revenue from those products has been, and we expect will be continue to be, reduced, leading to lower than expected adoption of newly introduced products and services. Our inability to maintain continued high volume distribution of our digital media products could also continue to hold back the growth and development of related revenue streams from these market segments, including the distribution of third-party products and sales of our subscription services, and therefore harm our business and our prospects. Our revenue from the distribution of third-party products will also continue to be negatively impacted if those products are not more widely downloaded and used by consumers, including due to the relative market saturation of such products. Most of our revenue from the distribution of third-party products has historically been derived from a single customer, and the terms of this relationship have significantly changed since the third quarter of 2014. Our distribution revenue has been, and may continue to be, materially negatively impacted by these factors and we cannot guarantee that future revenue will rebound to historical levels.

Our operating results are difficult to predict and may fluctuate, which may contribute to continued weakness in our stock price.

The trading price for our common stock has a history of volatility. As a result of the rapidly changing markets in which we compete, our operating results may fluctuate or continue to decline from period to period, which may contribute to volatility or continued weakness of our stock price.

In past periods, our operating results have been affected by personnel reductions and related restructuring charges, lease exit and related charges, other one-time events, and impairment charges for certain of our equity investments, goodwill and other long-lived assets. In addition to these factors, the general difficulty in forecasting our operating results and metrics could result in actual results that differ significantly from expected results, causing volatility and continued weakness in our stock price.

Certain of our product and service investment decisions (for example, research and development and sales and marketing efforts) are based on predictions regarding business and the markets in which we compete. Fluctuations in our operating results, particularly when experienced beyond what we expected, could cause the trading price of our stock to fluctuate. Weakness in our operating performance is likely to cause continued weakness in our stock price.

Any impairment to our goodwill and definite-lived assets could result in a significant charge to our earnings.

In accordance with accounting principles generally accepted in the United States, we are required to test goodwill for possible impairment on an annual basis based upon a fair value approach, or more frequently in the event of certain indications of possible impairment. We review definite-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. These events or circumstances could include a significant change in

the business climate, including a significant sustained decline in a reporting unit's market value, changes in our operating plans and forecasts, legal factors, operating performance indicators, competition, sale or disposition of a significant portion of our business, a significant sustained decline in our market capitalization and other factors. If we were to determine that an impairment had occurred, we would be required to record an impairment charge, which could have a significant negative, and unpredicted, impact on our financial results. The total carrying value of our goodwill and definite-lived assets as of December 31, 2016 was \$19 million .

Continued loss of revenue from our subscription services may continue to harm our operating results.

Our operating results have been and may continue to be adversely impacted by the loss of subscription revenue related to our more traditional products and services. Subscribers may cancel their subscriptions to our services for many reasons, including a perception that they do not use the services sufficiently or that the service does not provide enough value, a lack of attractive or exclusive content generally or as compared with competitive service offerings, or because customer service issues are not satisfactorily resolved. Revenue from our SuperPass subscription service, for example, has continued to decline over several periods, due to changes in consumer preferences and changes on our part to focus on other products and services we offer, and we expect these trends to continue.

Government regulation of the Internet is evolving, and unfavorable developments could have an adverse effect on our operating results.

We are subject to regulations and laws specific to the marketing, sale and delivery of goods and services over the Internet. These laws and regulations, which continue to evolve, cover taxation, user privacy, data collection and protection, copyrights, electronic contracts, sales procedures, automatic subscription renewals, credit card processing procedures, consumer protections, digital games distribution, broadband Internet access and content restrictions. We cannot guarantee that we have been or will be fully compliant in every jurisdiction, as it is not entirely clear how existing laws and regulations governing issues such as privacy, taxation and consumer protection apply or will be enforced with respect to the products and services we sell through the Internet. Moreover, as Internet commerce continues to evolve, increasing regulation and/or enforcement efforts by federal, state and foreign agencies and the prospects for private litigation claims related to our data collection, privacy policies or other e-commerce practices become more likely. In addition, the adoption of any laws or regulations or the imposition of other legal requirements that adversely affect our ability to market, sell, and deliver our products and services could decrease our ability to offer or customer demand for our service offerings, resulting in lower revenue. Future regulations, or changes in laws and regulations or their existing interpretations or applications, could also require us to change our business practices, raise compliance costs or other costs of doing business and result in additional historical or future liabilities for us, resulting in adverse impacts on our business and our operating results.

As a consumer-facing business, we receive complaints from our customers regarding our consumer marketing efforts and our customer service practices. Some of these customers may also complain to government agencies, and from time to time, those agencies have made inquiries to us about these practices. In addition, we may receive complaints or inquiries directly from governmental agencies that have not been prompted by consumers. In May of 2012, we resolved an investigation and complaint filed against us by the Washington State Office of the Attorney General, or Washington AG, relating to our consumer marketing practices through the entry of a consent decree filed in King County, Washington Superior Court. While we resolved that matter, we cannot provide assurance that the Washington AG or other governmental agencies will not bring future claims regarding our marketing, or consumer services or other practices.

We face financial and operational risks associated with doing business in non-U.S. jurisdictions and operating a global business, that have in the past and could in the future have a material adverse impact on our business, financial condition and results of operations.

A significant portion of our revenue is derived from sales outside of the U.S. and most of our employees are located outside of the U.S.. Consequently, our business and operations depend significantly on global and national economic conditions and on applicable trade regulations and tariffs. The growth of our business is also dependent in part on successfully managing our international operations. Our non-U.S. sales, purchases and operations are subject to risks inherent in conducting business abroad, many of which are outside our control, including the following:

- periodic local or geographic economic downturns and unstable political conditions;
- price and currency exchange controls;
- fluctuation in the relative values of currencies;
- difficulty in repatriating money, whether as a result of tax laws or otherwise;

- compliance with current and changing tax laws, and the coordination of compliance with U.S. tax laws and the laws of any of the jurisdictions in which we do business;
- difficulties protecting intellectual property;
- compliance with labor laws and other laws governing employees;
- local labor disputes;
- changes in trading policies, regulatory requirements, tariffs and other barriers, or the termination or renegotiation of existing trade agreements;
- impact of changes in immigration or other policies impacting our ability to attract, hire, and retain key talent; and
- difficulties in managing a global enterprise, including staffing, collecting accounts receivable, and managing suppliers, distributors and representatives.

Because consumers may consider the purchase of our digital entertainment products and services to be a discretionary expenditure, their decision whether to purchase our products and services may be influenced by macroeconomic factors that affect consumer spending such as unemployment, access to credit, negative financial news, and declines in income. In addition, mobile telecommunication carriers and other business partners may reduce their business or advertising spending with us or for our products and services they distribute to users in the face of adverse macroeconomic conditions, such as financial market volatility, government austerity programs, tight credit, and declines in asset values. We have in the past recorded material asset impairment charges due in part to weakness in the global economy, and we may need to record additional impairments to our assets in future periods in the event of renewed weakness and uncertainty in the global or a relevant national economy. Accordingly, any significant weakness in the national and/or global economy could materially impact our business, financial condition and results of operations in a negative manner.

Our international operations involve risks inherent in doing business globally, including difficulties in managing operations due to distance, language, and cultural differences, local economic conditions, different or conflicting laws and regulations, taxes, and exchange rate fluctuations. The functional currency of our foreign subsidiaries is the local currency of the country in which each subsidiary operates. We translate our subsidiaries' revenues into U.S. dollars in our financial statements, and continued volatility in foreign exchange rates, particularly if the U.S. dollar strengthens against the euro or the Korean won, may result in lower reported revenue or net assets in future periods. If we do not effectively manage any of the risks inherent in running our international businesses, our operating results and financial condition could be harmed.

Our business is conducted in accordance with existing international trade relationships, and trade laws and regulations. Changes in geopolitical relationships and laws or policies governing the terms of foreign trade could create uncertainty regarding our ability to operate and conduct commercial relationships in affected jurisdictions, which could have a material adverse effect on our business and financial results. Additionally, our global operations may also be adversely affected by political events, domestic or international terrorist events and hostilities or complications due to natural or human-caused disasters. These uncertainties could have a material adverse effect on the continuity of our business and our results of operations and financial condition.

Rhapsody could continue to recognize losses, or we may modify our relationship with Rhapsody in ways which could negatively impact our results of operations and financial condition, or the perceived value of our common stock.

On March 31, 2010, we completed the restructuring of our digital audio music service joint venture, Rhapsody America LLC. As a result of the restructuring, we no longer have operational control over Rhapsody and Rhapsody's operating performance is no longer consolidated with our consolidated financial statements. We disclose only limited strategic, business and financial information regarding Rhapsody in our financial statements and disclosures, in accordance with generally accepted accounting principles applicable in the U.S.. Rhapsody has generated accounting losses since its inception. We have recognized losses on our investment in the convertible preferred stock of Rhapsody since the restructuring. We continue to track additional losses incurred by Rhapsody whether or not we recognize them. In certain circumstances, proper accounting treatment may cause us to recognize additional losses on our investment in Rhapsody. Consequently, Rhapsody's past or future performance may have an adverse effect on our financial condition, results of operations, or perceived value. See Note 4. Rhapsody Joint Venture, in this form 10-K, for further discussion of our relationship with Rhapsody, including information about the accounting treatment related to the investment in Rhapsody.

As a significant shareholder of Rhapsody we may be requested to assist Rhapsody in various financial or operational ways. In particular, we may be required to decide whether or not it is in the long term interests of RealNetworks to take an action with respect to Rhapsody. These actions may include, among others, an additional loan or investment which may reduce our available cash or liquidity, or result in the recognition of additional losses associated with our investment in Rhapsody. The extent of any such potential request for assistance is likely to be influenced by whether Rhapsody experiences a decline or does not succeed in growing or improving its business or its financial condition. Some or all of our decisions or actions related to Rhapsody could have, or increase the risk to us of, an adverse effect on our financial

condition, results of operations or perceived value.

We depend on timely financial information from Rhapsody in order to timely prepare and file our periodic SEC reports.

Given the current proportion of the outstanding equity of Rhapsody that we hold, we need to receive Rhapsody's unaudited quarterly financial statements and related information in order to timely prepare our quarterly consolidated financial statements and also to report certain of Rhapsody's financial results, as may be required, in our quarterly reports on Form 10-Q. In addition, under certain circumstances, we may be required to include Rhapsody's annual audited financial statements in our annual report on Form 10-K in future periods. As we no longer exert operational control over Rhapsody, we cannot guarantee that Rhapsody will deliver its financial statements and related information to us in a timely manner, or at all, or that the unaudited financial statement information provided by Rhapsody will not contain inaccuracies that are material to our reported results. Any failure to timely obtain Rhapsody's quarterly financial statements or to include its audited financial statements in our future annual reports on Form 10-K, if required, could cause our reports to be filed in an untimely manner, which would preclude us from utilizing certain registration statements and could negatively impact our stock price. See Note 4. Rhapsody Joint Venture, for further information related to our investment in Rhapsody.

The continued loss of key personnel, or difficulty recruiting and retaining them, could significantly harm our business or jeopardize our ability to meet our growth objectives.

Our success depends substantially on the contributions and abilities of certain key executives and employees. We have experienced a significant amount of executive-level turnover in the past several years, which has had and could continue to have a negative impact on our ability to retain key employees. Rob Glaser, our founder, Chairman and initial chief executive officer, resigned as chief executive officer in 2010, was appointed as interim chief executive officer in July 2012, and was named permanent chief executive officer in July 2014. In addition, each member of our executive team was either hired or promoted to his or her executive position within the past four years. We cannot provide assurance that we will effectively manage these executive-level transitions, which may impact our ability to retain key executives and employees and which could harm our business and operations to the extent there is customer or employee uncertainty arising from such transitions.

Our success is also substantially dependent upon our ability to identify, attract and retain highly skilled management, technical and sales personnel. Qualified individuals are in high demand and competition for such qualified personnel in our industry, particularly engineering talent, is extremely intense, and we may incur significant costs to attract or retain them. Changes in immigration or other policies in the U.S. or other jurisdictions that make it more difficult to hire and retain key talent, or to assign individuals to any of our locations as needed to meet business needs, could adversely affect our ability to attract key talent or deploy individuals as needed, and thereby adversely affect our business and financial results. In addition, our ability to attract and retain personnel has been and may continue to be made more difficult by the uncertainty created by our executive-level turnover and by our continued restructuring efforts, which have involved reductions in our workforce. There can be no assurance that we will be able to attract and retain the key personnel necessary to sustain our business or support future growth.

Acquisitions and divestitures involve costs and risks that could harm our business and impair our ability to realize potential benefits from these transactions.

As part of our business strategy, we have acquired and sold technologies and businesses in the past and expect that we will continue to do so in the future. The failure to adequately manage transaction costs and address the financial, legal and operational risks raised by acquisitions and divestitures of technology and businesses could harm our business and prevent us from realizing the benefits of these transactions. In addition, we may identify and acquire target companies, but those companies may not be complementary to our current operations and may not leverage our existing infrastructure or operational experience, which may increase the risks associated with completing acquisitions.

Transaction-related costs and financial risks related to completed and potential future purchase or sale transactions may harm our financial position, reported operating results, or stock price. Previous acquisitions have resulted in significant expenses, including amortization of purchased technology, amortization of acquired identifiable intangible assets and the incurrence of charges for the impairment of goodwill and other intangible assets, which are reflected in our operating expenses. New acquisitions and any potential additional future impairment of the value of purchased assets, including goodwill, could have a significant negative impact on our future operating results. In compliance with accounting principles generally accepted in the United States, we evaluate these assets for impairment at least annually. Factors that may be considered a change in circumstances, indicating that our goodwill or definite-lived assets may not be recoverable, include reduced future revenue and cash flow estimates due to changes in our forecasts, and unfavorable changes to valuation multiples and discount rates due to

changes in the market. If we were to conclude that any of these assets were impaired, we would have to recognize an impairment charge that could significantly impact our financial results.

Purchase and sale transactions also involve operational risks that could harm our existing operations or prevent realization of anticipated benefits from a transaction. These operational risks include:

- difficulties and expenses in assimilating the operations, products, technology, information systems, and/or personnel of the acquired company;
- retaining key management or employees of the acquired company;
- entrance into unfamiliar markets, industry segments, or types of businesses;
- operating, managing and integrating acquired businesses in remote locations or in countries in which we have little or no prior experience;
- diversion of management time and other resources from existing operations;
- impairment of relationships with employees, affiliates, advertisers or content providers of our business or acquired business; and
- assumption of known and unknown liabilities of the acquired company, including intellectual property claims.

We may be unable to adequately protect our proprietary rights or leverage our technology assets, and may face risks associated with third-party claims relating to intellectual property rights associated with our products and services.

Our ability to compete across our businesses partly depends on the superiority, uniqueness and value of our technology, including both internally developed technology and technology licensed from third parties. To protect our proprietary rights, we rely on a combination of patent, trademark, copyright and trade secret laws, confidentiality agreements with our employees and third parties, and protective contractual provisions. Our efforts to protect our intellectual property rights may not assure our ownership rights in our intellectual property, protect or enhance the competitive position of our products, services and technology, or effectively prevent misappropriation of our technology.

From time to time we receive claims and inquiries from third parties alleging that our technology used in our business may infringe the third parties' proprietary rights. These claims, even if not meritorious, could force us to make significant investments of time, attention and money in defense, and give rise to monetary damages, penalties or injunctive relief against us. We may be forced to litigate, to enforce or defend our patents, trademarks or other intellectual property rights, or to determine the validity and scope of other parties' proprietary rights in intellectual property. To resolve or avoid such disputes, we may also be forced to enter into royalty or licensing agreements on unfavorable terms or redesign our product features, services and technology to avoid actual or claimed infringement of misappropriation or technology. Any such dispute would likely be costly and distract our management, and the outcome of any such dispute (such as additional licensing arrangements or redesign efforts) could fail to improve our business prospects or otherwise harm our business or financial results.

Nearly all of our contracts by which we provide to another party services or rights to use our technology include some form of obligation by us to indemnify the other party for certain liabilities and losses incurred by them, including liabilities resulting from third party claims for damages that arise out of the use of our technology. Also, in 2012 we sold most of our patents, including patents that covered streaming media, to Intel Corporation, in a contract by which we agreed to indemnify Intel for certain third-party infringement claims against these patents up to the purchase price we received in the sale. Claims against which we may be obligated to defend others pursuant to our contracts expose us to the same risks and adverse consequences described above regarding claims we may receive directly alleging that our trademarks or technology used in our business may infringe a third party's proprietary rights.

Disputes regarding the validity and scope of patents or the ownership of technologies and rights associated with streaming media, digital distribution, and online businesses are common and likely to arise in the future. We also routinely receive challenges to our trademarks and other proprietary intellectual property that we are using in our business activities. We are likely to continue to receive claims of third parties against us, alleging contract breaches, infringement of copyrights or patents, trademark rights, trade secret rights or other proprietary rights, or alleging unfair competition or violations of privacy rights.

We believe that our patent portfolio before the sale to Intel may have in the past discouraged third parties from bringing infringement or other claims against us relating to the use of our technologies in our business. Accordingly, we cannot predict whether the sale of these patent assets to Intel will result in additional infringement or other claims against us from third parties.

Our business and operating results will suffer and we may be subject to market risk and legal liability if our systems or networks fail, become unavailable, unsecured or perform poorly so that current or potential users do not have adequate access to our products, services and websites.

Our ability to provide our products and services to our customers and operate our business depends on the continued operation and security of our information systems and networks and those of our service providers. A significant or repeated reduction in the performance, security or availability of our information systems and network infrastructure or that of our service providers could harm our ability to conduct our business, and harm our reputation and ability to attract and retain users, customers, advertisers and content providers. Many of our products are interactive Internet applications that by their very nature require communication between a client and server to operate.

We sell many of our products and services through online sales transactions directly with consumers, and their credit card information is collected and stored by our payment processors. The systems of our third party service providers may not prevent future improper access or disclosure of credit card information or personally identifiable information. We have an extensive privacy policy concerning the collection, use and disclosure of user data involved in interactions between our client, third party payment providers, and server products. A security breach that leads to disclosure of consumer account information, or any failure by us to comply with our posted privacy policy or existing or new privacy legislation, could harm our reputation, impact the market for our products and services, or subject us to litigation. We have on occasion experienced system errors and failures that caused interruption in availability of products or content or an increase in response time. Problems with our systems and networks, or the third party systems and networks that we utilize, could result from a failure to adequately maintain and enhance these systems and networks, natural disasters and similar events, power failures, intentional actions to disrupt systems and networks and many other causes. Many of our services do not currently have fully redundant systems or a formal disaster recovery plan, and we may not have adequate business interruption insurance to compensate us for losses that may occur from a system outage.

Changes in regulations applicable to the Internet and e-commerce that increase the taxes on the services we provide could materially harm our business and operating results.

As Internet commerce continues to evolve, increasing taxation by state, local or foreign tax authorities becomes more likely. For example, taxation of electronically delivered products and services or other charges imposed by government agencies may also be imposed. We believe we collect transactional taxes and are compliant and current in all jurisdictions where we believe we have a collection obligation for transaction taxes. Any regulation imposing greater taxes or other fees for products and services could result in a decline in the sale of products and services and the viability of those products and services, harming our business and operating results. A successful assertion by one or more states or foreign tax authorities that we should collect and remit sales or other taxes on the sale of our products or services could result in substantial liability for past sales.

In those countries where we have a tax obligation, we collect and remit value added tax, or VAT, on sales of “electronically supplied services” provided to European Union residents. The collection and remittance of VAT subjects us to additional currency fluctuation risks.

We may be subject to additional income tax assessments and changes in applicable tax regulations could adversely affect our financial results.

We are subject to income taxes in the U.S. and numerous foreign jurisdictions. Significant judgment is required in determining our worldwide provision for income taxes, income taxes payable, and net deferred tax assets. In the ordinary course of business, there are many transactions and calculations where the ultimate tax determination is uncertain. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different than that which is reflected in our historical financial statements. An audit or litigation can result in significant additional income taxes payable in the U.S. or foreign jurisdictions which could have a material adverse effect on our financial condition and results of operations.

The U.S. is considering corporate tax reform that may significantly change the corporate tax rate and U.S. international tax rules. Additionally, longstanding international tax norms that determine each country’s jurisdiction to tax cross-border international trade are evolving. Given the unpredictability of these possible changes and their potential interdependency, it is very difficult to assess whether the overall effect of such potential tax changes would be cumulatively positive or negative for our earnings and cash flow, but such changes could adversely impact our financial results.

Our Chairman of the Board and Chief Executive Officer beneficially owns approximately 36% of our stock, which gives him significant control over certain major decisions on which our shareholders may vote or which may discourage an acquisition of us.

Robert Glaser, our Chairman of the Board and Chief Executive Officer, beneficially owns approximately 36% of our common stock. As a result, Mr. Glaser and his affiliates will have significant influence to:

- elect or defeat the election of our directors;
- amend or prevent amendment of our articles of incorporation or bylaws;
- effect or prevent a merger, sale of assets or other corporate transaction; and
- control the outcome of any other matter submitted to the shareholders for vote.

The stock ownership of Mr. Glaser and his affiliates may discourage a potential acquirer from making a tender offer or otherwise attempting to obtain control of RealNetworks, which in turn could reduce our stock price or prevent our shareholders from realizing a premium over our stock price.

Provisions of our charter documents, shareholder rights plan, and Washington law could discourage our acquisition by a third party.

Our articles of incorporation provide for a strategic transactions committee of the board of directors. Without the prior approval of this committee, and subject to certain limited exceptions, the board of directors does not have the authority to:

- adopt a plan of merger;
- authorize the sale, lease, exchange or mortgage of assets representing more than 50% of the book value of our assets prior to the transaction or on which our long-term business strategy is substantially dependent;
- authorize our voluntary dissolution; or
- take any action that has the effect of any of the above.

Mr. Glaser has special rights under our articles of incorporation to appoint or remove members of a strategic transactions committee at his discretion that could make it more difficult for RealNetworks to be sold or to complete another change of control transaction without Mr. Glaser's consent. RealNetworks has also entered into an agreement providing Mr. Glaser with certain contractual rights relating to the enforcement of our charter documents and Mr. Glaser's roles and authority within RealNetworks. These rights and his role as Chairman of the Board of Directors, together with Mr. Glaser's significant beneficial ownership, create unique potential for concentrated influence of Mr. Glaser over potentially material transactions involving RealNetworks and decisions regarding the future strategy and leadership of RealNetworks.

We have adopted a shareholder rights plan, which was amended and restated in December 2008, and amended in April 2016, which provides that shares of our common stock have associated preferred stock purchase rights. The exercise of these rights would make the acquisition of RealNetworks by a third party more expensive to that party and has the effect of discouraging third parties from acquiring RealNetworks without the approval of our board of directors, which has the power to redeem these rights and prevent their exercise.

Washington law imposes restrictions on some transactions between a corporation and certain significant shareholders. The foregoing provisions of our charter documents, shareholder rights plan, our agreement with Mr. Glaser, and Washington law, as well as our charter provisions that provide for a classified board of directors and the availability of "blank check" preferred stock, could have the effect of making it more difficult or more expensive for a third party to acquire, or of discouraging a third party from attempting to acquire, control of us. These provisions may therefore have the effect of limiting the price that investors might be willing to pay in the future for our common stock.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

Our corporate and administrative headquarters and certain research and development and sales and marketing personnel are located at our facility in Seattle, Washington.

We lease properties primarily in the following locations that are utilized by all of our business segments, unless otherwise noted below, to house our research and development, sales and marketing, and general and administrative personnel:

Location	Area leased (sq. feet)	Lease expiration
Seattle, Washington (1)	86,000	August 2024, with an option to renew for two five-year periods
Eindhoven, Netherlands (2)	23,000	June 2022

(1) As of December 31, 2016, we have reduced our use of the facility by 69%. The space which we no longer occupy is currently under sublease for all or a portion of the remaining lease term. For further information, please see Note 11. Lease Exit and Related Charges in this 10-K.

(2) This facility is utilized only by our Games segment.

In addition, we lease smaller facilities in the U.S. and foreign countries, some of which support the operations of all of our business segments while others are dedicated to a specific business segment. We believe that our properties are in good condition, adequate and suitable for the conduct of our business. For additional information regarding our obligations under leases, see Note 16. Commitments and Contingencies , in this 10-K.

Item 3. *Legal Proceedings*

See Note 16. Commitments and Contingencies , in this 10-K.

Item 4. *Mine Safety Disclosures*

Not applicable.

PART II.

Item 5. *Market for Registrant’s Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities*

Our common stock is traded on The NASDAQ Stock Market under the symbol RNWK.

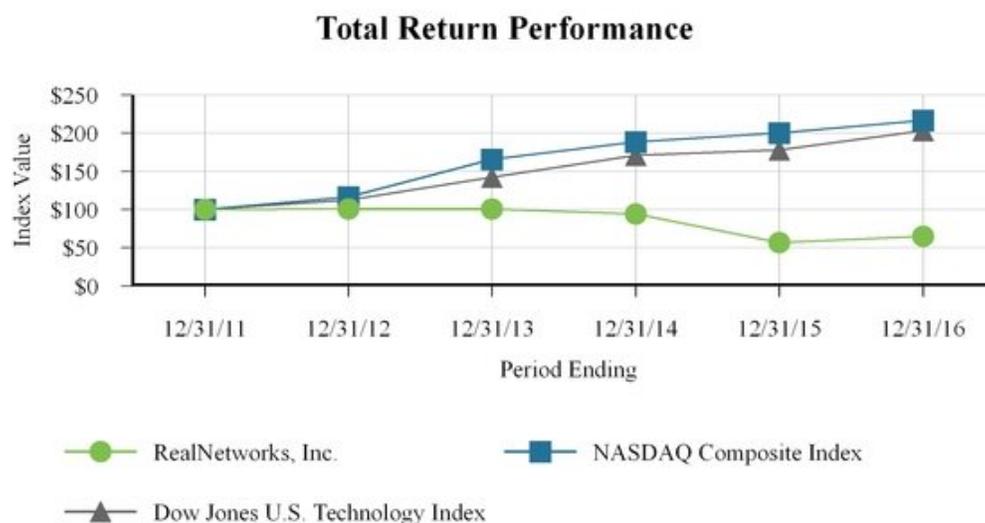
The high and low intraday sales prices for our common stock were as follows:

	Years Ended December 31,					
	2016			2015		
	High	Low	High	Low	High	Low
First Quarter	\$ 4.43	\$ 3.04	\$ 7.24	\$ 6.50		
Second Quarter	4.65	4.00	7.15	5.40		
Third Quarter	5.10	3.97	5.86	3.75		
Fourth Quarter	5.14	4.09	4.50	3.75		

As of January 31, 2017, there were approximately 175 holders of record of our common stock. Most shares of our common stock are held by brokers and other institutions on behalf of shareholders.

The declaration and payment of any future dividends, as well as the amount thereof, are subject to the discretion of our board of directors and will depend upon our results of operations, financial condition, capital levels, cash requirements, future prospects and other factors deemed relevant by our board of directors. Accordingly, there can be no assurance that we will declare and pay any dividends in the future. No cash dividends were paid in 2016 or 2015.

Comparison of 5 year cumulative total return to shareholders on RealNetworks, Inc., common stock with the cumulative total return on the NASDAQ Composite Index and the Dow Jones U.S. Technology Index for the period beginning on December 31, 2011 and ended on December 31, 2016.



The total return on our common stock and each index assumes the value of each investment was \$100 on December 31, 2011, and that all dividends were reinvested. Return information is historical and not necessarily indicative of future performance.

Item 6. Selected Financial Data

The following selected consolidated financial data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the Consolidated Financial Statements and Notes to Consolidated Financial Statements included elsewhere in this report.

	Years Ended December 31,				
	2016	2015	2014	2013	2012
(In thousands, except per share data)					
Consolidated Statements of Operations Data:					
Net revenue	\$ 120,468	\$ 125,296	\$ 156,212	\$ 206,196	\$ 258,842
Cost of revenue	64,968	70,297	76,381	79,091	103,731
Extinguishment of liability	—	—	(10,580)	—	—
Gross profit	55,500	54,999	90,411	127,105	155,111
Sale of patents and other technology assets, net of costs	—	—	—	—	116,353
Operating expenses:					
Research and development	29,923	43,626	52,765	60,880	63,194
Sales and marketing	31,608	48,231	66,926	80,011	90,301
General and administrative	27,415	24,549	34,001	36,643	43,891
Restructuring and other charges	1,489	5,279	4,992	5,765	15,225
Lease exit and related charges (gains)	2,239	2,501	880	3,089	3,290
Loss on litigation settlements	—	—	—	11,525	—
Total operating expenses	92,674	124,186	159,564	197,913	215,901
Operating income (loss)	(37,174)	(69,187)	(69,153)	(70,808)	55,563
Other income (expense), net (A)	1,746	(13,494)	(1,382)	16,721	1,796
Income (loss) before income taxes	(35,428)	(82,681)	(70,535)	(54,087)	57,359
Income tax expense (benefit)	1,122	(834)	1,280	4,903	12,518
Net income (loss) attributable to common shareholders	\$ (36,550)	\$ (81,847)	\$ (71,815)	\$ (58,990)	\$ 44,841
Diluted net income (loss) per share attributable to common shareholders	\$ (0.99)	\$ (2.26)	\$ (2.00)	\$ (1.66)	\$ 1.28
Shares used to compute diluted net income (loss) per share	36,781	36,165	35,947	35,553	35,122

(A) Includes a \$21.4 million pretax gain from the sale of equity securities in 2013. Additional details regarding this gain are available in our 2015 10-K.

	As of December 31,				
	2016	2015	2014	2013	2012
(In thousands)					
Consolidated Balance Sheets Data:					
Cash, cash equivalents, and short-term investments	\$ 77,052	\$ 99,129	\$ 161,706	\$ 226,155	\$ 271,414
Working capital	66,304	91,373	136,429	191,522	237,646
Total assets	130,437	161,343	250,299	342,781	433,897
Shareholders’ equity	88,581	120,683	197,198	268,981	342,728

Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

Overview

RealNetworks creates innovative applications and services that make it easy to connect with and enjoy digital media. Following a reorganization that took effect in the first quarter of 2016, we manage our business and report revenue and operating income (loss) in three segments: (1) Consumer Media (2) Mobile Services, and (3) Games.

Within our Consumer Media segment, revenue is derived from the sales of our PC-based RealPlayer® products, including RealPlayer Plus and related products, and from the licensing of our intellectual property, primarily our codec technology, including our recently introduced RealMedia High Definition, or RMHD, technology. These products and services are delivered directly to consumers and through partners, such as OEM's and mobile device manufacturers.

Our Mobile Services business generates revenue primarily from the sale of its SaaS services, which include ringback tones, music on demand, and intercarrier messaging. This business also includes revenue related to RealTimes®, our photo and video sharing application that is primarily sold through mobile telecommunication carriers and related partners, which we introduced in May of 2015.

Our Games business, through its GameHouse and Zylom brands, derives revenue from sales of mobile games, games licenses, online games subscription services, and advertising on games sites.

We sold the Slingo and social casino portion of our games business to Gaming Realms plc, a London-based online gaming company, for \$18.0 million in August 2015. The purpose of the sale was to derive value from this business and to allow greater focus on our traditional casual games business. This transaction is further described in Note 3. Acquisitions and Disposals, to the consolidated financial statements included in Item 8 of Part II of this Form 10-K.

We allocate certain corporate expenses which are directly attributable to supporting our businesses, including but not limited to a portion of finance, legal, human resources and headquarters facilities, to our reportable segments. Remaining expenses, which are not directly attributable to supporting the business, are reported as corporate items. These corporate items include restructuring charges, lease exit and related charges, as well as stock compensation expense. Concurrent with the first quarter 2016 segment change described above, we also changed our expense allocation methodology to increase accountability, resulting in an increase in corporate costs allocated to the Consumer Media and Mobile Services businesses. The historical financial information presented below has been recast to reflect the new corporate expense allocation.

In 2016 our consolidated revenue declined by \$4.8 million compared with 2015, due to a \$5.6 million decrease in Games revenue, of which \$4.9 million is related to the Slingo and social casino business that was sold in August of 2015, and a decrease of \$3.6 million in Consumer Media revenue. These decreases were offset, in part, by an increase of \$4.3 million in Mobile Services revenue. See below for further information regarding fluctuations by segment.

As of December 31, 2016, we had \$77.1 million in unrestricted cash, cash equivalents and short-term investments, compared to \$99.1 million as of December 31, 2015. The 2016 decrease of cash, cash equivalents, and short-term investments from December 31, 2015 was due primarily to our ongoing cash flows used in operating activities.

In addition to our revenue growth plans, we have continued to reduce costs and better align our operating expenses with our revenue profile through various restructuring actions, as described below in Consolidated Operating Expenses. These actions drove the \$31.5 million decline in our operating expenses during 2016 compared to 2015.

Summary of Results

Consolidated results of operations were as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Total revenue	\$ 120,468	\$ 125,296	\$ 156,212	\$ (4,828)	(4)%	\$ (30,916)	(20)%
Cost of revenue	64,968	70,297	76,381	(5,329)	(8)%	(6,084)	(8)%
Extinguishment of liability	—	—	(10,580)	—	—%	10,580	100%
Gross profit	55,500	54,999	90,411	501	1%	(35,412)	(39)%
Gross margin	46%	44%	58%	2%		(14)%	
Total operating expenses	92,674	124,186	159,564	(31,512)	(25)%	(35,378)	(22)%
Operating income (loss)	\$ (37,174)	\$ (69,187)	\$ (69,153)	\$ 32,013	46%	\$ (34)	—%

2016 compared with 2015

Revenue decreased by \$4.8 million , or 4% . The reduction in revenue resulted from a decline of \$5.6 million in our Games segment, and a decline of \$3.6 million in our Consumer Media segment. These declines were offset in part by an increase of \$4.3 million in our Mobile Services segment. For further detail regarding the changes, please see the discussions of segment revenues below. Gross margin increased to 46% from 44% , driven by margin increases in Consumer Media and Mobile Services, offset by decreased margin in our games business due to increased app store fees.

Operating expenses decreased by \$31.5 million as compared to the prior year due to savings of \$11.1 million realized from the sale of the Slingo and social casino games business and from the impact of our continuing cost reduction efforts. These efforts were the primary reason for reductions to personnel and related costs of \$9.3 million, marketing costs of \$7.9 million, restructuring of \$4.1 million and facilities and related depreciation expense, due to the reduction of our corporate office space, of \$2.8 million. These reductions were offset in part by the benefit recognized in the first quarter of 2015 relating to warrants received from Rhapsody, an expense benefit received in 2015 for the release of certain previously accrued sales taxes, and higher stock compensation expense in 2016 resulting from the first quarter 2016 authorization and grant of fully vested equity awards as payment for 2015 incentive bonuses.

2015 compared with 2014

Revenue decreased by \$30.9 million , or 20% . The reduction in revenue resulted from a decline of \$10.5 million in our Consumer Media segment, a decline of \$6.4 million in our Games segment, and a decline of \$14.0 million in our Mobile Services segment. Revenue decreases were due to declining revenue in all three of our segments; subscriptions for our Games business decreased when compared to 2014, but are now stabilizing, and our Consumer Media segment has been negatively impacted by the change in our third party distribution arrangements. Gross margin decreased to 44% from 58% , primarily as a result of our transition to a new third party distribution arrangement in Q2 2014 at significantly lower rates compared to our previous partner and to an increase in our bandwidth expense due to our continued investment in our RealTimes product. Additionally, a higher proportion of lower margin revenue in our music on demand business in Korea and the extinguishment of certain accrued royalty liabilities of \$10.6 million in Q1 2014 both contributed to the decline in gross margin in 2015 when compared with 2014.

Operating expenses decreased by \$35.4 million primarily due to reductions in personnel and related costs of \$24.4 million, reductions in marketing costs of \$7.4 million, and lower facilities and infrastructure related expenses of \$2.0 million.

Segment Operating Results

Consumer Media

Consumer Media segment results of operations were as follows (dollars in thousands):

	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2016-2015 Change</u>	<u>% Change</u>	<u>2015-2014 Change</u>	<u>% Change</u>
Total revenue	\$ 25,051	\$ 28,613	\$ 39,121	\$ (3,562)	(12)%	\$ (10,508)	(27)%
Cost of revenue	7,074	13,257	13,466	(6,183)	(47)%	(209)	(2)%
Gross profit	17,977	15,356	25,655	2,621	17 %	(10,299)	(40)%
Gross margin	72%	54%	66%	18%		(12)%	
Total operating expenses	18,399	26,526	41,950	(8,127)	(31)%	(15,424)	(37)%
Operating income (loss)	\$ (422)	\$ (11,170)	\$ (16,295)	\$ 10,748	96 %	\$ 5,125	31 %

2016 compared with 2015

Total Consumer Media revenue in 2016 decreased by \$3.6 million , or 12% as compared to the prior year. Of the decrease, \$2.2 million is due primarily to the timing of contracts and contract renewals for intellectual property licenses. Continuing declines in our subscription products of \$1.5 million also contributed to the decrease in Consumer Media revenue.

Cost of revenue decreased by \$6.2 million , resulting in an increase in gross margin of 18 percentage points. The decrease to cost of revenue was driven by lower bandwidth costs of \$3.8 million, as well as a reduction in salaries and personnel expenses of \$1.0 million and customer support costs of \$0.4 million.

Operating expenses decreased by \$8.1 million compared to the prior year. The decrease was primarily due to reductions in salaries and personnel costs of \$4.5 million, marketing costs of \$2.4 million and professional services of \$1.5 million.

2015 compared with 2014

Total Consumer Media revenue decreased by \$10.5 million, or 27%. This decrease was primarily due to our 2014 transition to a new third party distribution arrangement at significantly lower rates compared to our previous partner. This transition caused our third party distribution revenue to decrease by \$8.8 million when compared to 2014. Our SuperPass subscription revenue declined by \$2.6 million due to fewer subscribers for this legacy product line and RealPlayer license revenue decreased by \$1.6 million. These declines in revenue were offset in part by a \$2.1 million increase in our IP licensing business.

Gross margin decreased by 12 percentage points, due primarily to our transition to a new third party distribution arrangement at significantly lower rates compared to our previous partner and an increase in bandwidth expenses associated with our cloud-based products.

Operating expenses decreased by \$15.4 million primarily due to decreased personnel and related expenses of \$7.1 million and a reduction in marketing expenses of \$7.3 million, mainly related to our third party distribution arrangements.

Mobile Services

Mobile Services segment results of operations were as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Total revenue	\$ 70,278	\$ 65,935	\$ 79,981	\$ 4,343	7%	\$ (14,046)	(18)%
Cost of revenue	50,026	47,834	52,193	2,192	5%	(4,359)	(8)%
Gross profit	20,252	18,101	27,788	2,151	12%	(9,687)	(35)%
Gross margin	29%	27%	35%	2%		(8)%	
Total operating expenses	34,439	44,311	53,527	(9,872)	(22)%	(9,216)	(17)%
Operating income (loss)	\$ (14,187)	\$ (26,210)	\$ (25,739)	\$ 12,023	46%	\$ (471)	(2)%

2016 compared with 2015

Mobile Services revenue increased by \$4.3 million, or 7%. The increase was driven by increases of \$6.1 million in our low-margin music on demand business in Korea, as well as an increase of \$1.9 million from system implementations for our carrier partners. These increases were offset in part by a decline in revenue of \$2.2 million in our ringback tones business, as well as \$0.8 million from our Helix product, which we no longer sell.

Gross margin improved by \$2.2 million, or 2 percentage points, as compared to the prior year. The increase is due primarily to savings related to our SaaS service offerings, such as professional services, third-party customer service, ringback tones and from our RealTimes mobile services.

Operating expenses decreased by \$9.9 million due to a decrease in personnel and related expenses of \$4.7 million and in marketing expense of \$4.1 million.

2015 compared with 2014

Mobile Services revenue decreased by \$14.0 million, or 18%. This decrease was due to a decrease of \$7.6 million in our Ringback Tone revenue and a decrease in licensing revenue of \$3.8 million due to the cessation of our Helix business in Q4 2014, as well as declines in our intercarrier messaging business of \$1.3 million.

Gross margin declined by 8 percentage points in 2015, due primarily to a higher proportion of lower margin music on demand revenue, compared to the prior year, as well as additional customer service costs.

Operating expenses decreased by \$9.2 million, due primarily to a reduction in personnel and related expenses of \$8.5 million as well as a decrease in infrastructure expense of \$1.2 million. These decreases were offset in part by an increase to marketing expense of \$1.4 million.

Games

Games segment results of operations were as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Total revenue	\$ 25,139	\$ 30,748	\$ 37,110	\$ (5,609)	(18)%	\$ (6,362)	(17)%
Cost of revenue	7,919	9,291	11,074	(1,372)	(15)%	(1,783)	(16)%
Gross profit	17,220	21,457	26,036	(4,237)	(20)%	(4,579)	(18)%
Gross margin	68%	70%	70%	(2)%		—%	
Total operating expenses	19,644	29,086	37,170	(9,442)	(32)%	(8,084)	(22)%
Operating income (loss)	\$ (2,424)	\$ (7,629)	\$ (11,134)	\$ 5,205	68 %	\$ 3,505	31 %

2016 compared with 2015

Games revenue decreased by \$5.6 million, or 18% as compared to the prior year. Of the total decline, \$4.9 million is related to the sale of our Slingo and social casino business in August of 2015, as well as a decrease of \$1.4 million in our subscription game business and \$1.0 million in retail games. These declines were offset in part by an increase of \$2.1 million due to growth in our mobile games business.

Cost of revenue decreased by \$1.4 million, or 15%, as compared to the prior year, due to savings of \$2.0 million realized following the sale of the Slingo and social casino games business. This decrease was offset in part by an increase of \$0.7 million in app store fees related to our mobile revenue growth in the casual games business.

Operating expenses decreased by \$9.4 million, or 32%. This reduction in operating expenses was due to savings of \$11.1 million from the 2015 sale of our Slingo and social casino games business. These decreases were partially offset by increases of \$2.3 million for salaries and related personnel costs from our continuing casual games business.

2015 compared with 2014

Games revenue decreased by \$6.4 million, or 17%. \$1.9 million of the total decline in revenue related to the sale of our Slingo and social casino business in August of 2015. The remaining decline of \$4.5 million was primarily due to a decrease in subscription revenue. The revenues for PC download games and advertising also declined compared to the prior year but were almost entirely offset by an increase in mobile casual games revenue.

Cost of revenue decreased by \$1.8 million, or 16%. \$0.9 million of the total decline in cost of revenue is attributed to the sale of our Slingo and social casino games business. The remaining \$0.9 million decrease was due to the decline in advertising expense and in partner royalties expense for our PC download and subscription games sales channels.

Operating expenses decreased by \$8.1 million, or 22%. These reductions in operating expenses were driven by the sale of our Slingo and social casino business in August of 2015.

Corporate

We allocate certain corporate expenses which are directly attributable to supporting the business to our reportable segments. These allocated corporate expenses include, but are not limited to a portion of finance, legal, human resources and headquarters facilities. Remaining expenses, which are not directly attributable to supporting the business, are reported as corporate items. All restructuring, extinguishment of liability, and lease exit and related charges, are included in the corporate segment.

Corporate segment results of operations were as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Cost of revenue	\$ (51)	\$ (85)	\$ (352)	\$ 34	(40)%	\$ 267	(76)%
Extinguishment of liability	—	—	(10,580)	—	—	\$ 10,580	100 %
Total operating expenses	20,192	24,263	26,917	(4,071)	(17)%	(2,654)	(10)%
Operating income (loss)	\$ (20,141)	\$ (24,178)	\$ (15,985)	\$ 4,037	17 %	\$ (8,193)	(51)%

2016 compared with 2015

Operating expenses decreased by \$4.1 million, or 17%. The decrease was primarily due to \$4.1 million lower restructuring charges in 2016 compared to 2015, as well as a reduction of \$1.5 million in salary, benefit and professional service expenses, and lower expenses for facilities and support services as a result of our reduction of office space at our corporate headquarters and ongoing cost reduction efforts. These decreases were offset in part by the prior year release of \$2.4 million for previously accrued sales taxes, a benefit of \$1.2 million relating to the warrants received from Rhapsody in the first

quarter of 2015 and an increase in stock compensation expense of \$0.8 million in 2016 due in part to the authorization and granting of fully vested equity awards for our 2015 incentive bonuses in the first quarter of 2016.

2015 compared with 2014

In 2014 certain accrued royalty liabilities of \$10.6 million associated with our historical music business, which had originally been recorded based on statutory rates, were extinguished.

Operating expenses decreased by \$2.7 million, or 10%. The decrease was due to a reduction in personnel and related costs of \$3.5 million, including the benefit of \$1.2 million relating to warrants received from Rhapsody, as well as a benefit of \$2.4 million for the release of certain previously accrued sales taxes. These decreases were offset in part by an increase to restructuring expense of \$1.9 million

Consolidated Operating Expenses

Our operating expenses consist primarily of salaries and related personnel costs including stock based compensation, consulting fees associated with product development, sales commissions, amortization of certain intangible assets capitalized in our acquisitions, professional service fees, advertising costs, and restructuring charges. Operating expenses were as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Research and development	\$ 29,923	\$ 43,626	\$ 52,765	\$ (13,703)	(31)%	\$ (9,139)	(17)%
Sales and marketing	31,608	48,231	66,926	(16,623)	(34)%	(18,695)	(28)%
General and administrative	27,415	24,549	34,001	2,866	12 %	(9,452)	(28)%
Restructuring and other charges	1,489	5,279	4,992	(3,790)	(72)%	287	6 %
Lease exit and related charges	2,239	2,501	880	(262)	(10)%	1,621	184 %
Total consolidated operating expenses	\$ 92,674	\$ 124,186	\$ 159,564	\$ (31,512)	(25)%	\$ (35,378)	(22)%

Research and development expenses decreased by \$13.7 million, or 31%, in the year ended 2016 as compared to 2015. The decrease was primarily due to a \$5.1 million reduction from the sale of our Slingo and social casino games business, a \$5.1 million reduction in personnel and related expenses, and a \$2.9 million decrease in infrastructure costs, including reduced expenses for facilities and support services as a result of reduction of office space at our corporate headquarters.

Research and development expenses decreased by \$9.1 million, or 17%, in the year ended 2015 as compared to 2014, primarily due to reduced personnel and related costs savings of \$8.4 million, of which \$3.4 million was related to our Slingo and social casino business.

Sales and marketing expenses decreased by \$16.6 million, or 34%, in the year ended 2016, compared with 2015. The decrease was primarily due to a \$4.9 million reduction from the sale of our Slingo and social casino games business, a decrease of \$7.6 million in marketing expenses, a \$2.6 million decrease in personnel and related expenses, as well as decreased facilities and support services.

Sales and marketing expenses decreased by \$18.7 million, or 28%, in the year ended 2015, compared with 2014. The decrease was primarily due to reductions in personnel and related expenses of \$9.7 million and decreased marketing expenses of \$7.3 million, mainly related to the change in our third party distribution arrangements. The Slingo and social casino business contributed \$1.6 million of reduced personnel and related expenses, and \$1.4 million of reduced marketing expenses.

General and administrative expenses increased by \$2.9 million, or 12%, in the year ended 2016, compared with 2015. The increased costs year over year are partially due to the prior year release of \$2.4 million for previously accrued sales taxes, the impact of the benefit received in 2015 relating to warrants received from Rhapsody of \$1.2 million, and accelerated depreciation expense in 2016 due in part to a reduction in space at our corporate headquarters. These increases were offset in part by further reductions in personnel and related expenses of \$1.6 million and savings recognized from the sale of our Slingo and social casino games business of \$1.2 million.

General and administrative expenses decreased by \$9.5 million, or 28%, in the year ended 2015, compared with 2014. The decrease was primarily related to a reduction in personnel and related expenses of \$6.3 million and an expense benefit of \$2.4 million in 2015 for the release of certain previously accrued sales taxes.

Restructuring and other charges and Lease exit and related charges consist of costs associated with the ongoing reorganization of our business operations and our ongoing expense re-alignment efforts. The restructuring expense amounts in

all years primarily related to severance costs due to workforce reductions. For additional details on these charges see Note 10. Restructuring Charges and Note 11. Lease Exit and Related Charges .

Other Income (Expenses)

Other income (expenses), net was as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
Interest income, net	\$ 449	\$ 680	\$ 556	\$ (231)	(34)%	\$ 124	22 %
Gain (loss) on investments, net	8,473	(159)	2,371	8,632	NM	(2,530)	(107)%
Equity in net loss of Rhapsody	(6,533)	(14,521)	(4,452)	7,988	(55)%	(10,069)	226 %
Other income (expense), net	(643)	506	143	(1,149)	(227)%	363	254 %
Total other income (expense), net	\$ 1,746	\$ (13,494)	\$ (1,382)	\$ 15,240	113 %	\$ (12,112)	(876)%

Gain (loss) on investments, net, increased \$8.6 million as compared to the prior-year period. The increase was due to the collection and recognition of the first anniversary payment of \$4.0 million from our 2015 sale of the Slingo and social casino business, the net gain of \$2.5 million from the sale of our remaining J-Stream investment, and a gain of \$2.0 million, net of transaction costs, from the sale of a domain name. For additional details on the J-Stream transactions see Note 5. Fair Value Measurements .

As described further in Note 4. Rhapsody Joint Venture , we account for our investment in Rhapsody under the equity method of accounting. The net carrying value of our investment in Rhapsody is not necessarily indicative of the underlying fair value of our investment.

Income Taxes

During the years ended December 31, 2016 , 2015 , and 2014 , we recognized income tax expense of \$1.1 million , income tax benefit of \$0.8 million , and income tax expense of \$1.3 million , respectively, related to U.S. and foreign income taxes.

The tax expense for the year ended December 31, 2016 was largely the result of foreign withholding taxes and income taxes in foreign jurisdictions. The tax benefit for the year ended December 31, 2015 was largely the result of an income tax benefit related to the sale of the Slingo and social casino games business in the quarter ended September 30, 2015, offset by foreign withholding taxes and income taxes in foreign jurisdictions. The tax expense for the year ended December 31, 2014 was largely the result of foreign withholding taxes and income taxes in foreign jurisdictions.

We assess the likelihood that our deferred tax assets will be recovered based upon our consideration of many factors, including the current economic climate, our expectations of future taxable income, our ability to project such income, and the appreciation of our investments and other assets. We maintain a partial valuation allowance of \$176.3 million for our deferred tax assets due to uncertainty regarding their realization as of December 31, 2016. The net increase in the valuation allowance since December 31, 2015 of \$2.4 million was the result of an increase in current year deferred tax assets for which the Company maintains a valuation allowance.

We generate income in a number of foreign jurisdictions, some of which have higher tax rates and some of which have lower tax rates relative to the U.S. federal statutory rate. Changes to the blend of income between jurisdictions with higher or lower effective tax rates than the U.S. federal statutory rate could affect our effective tax rate. For the year ended December 31, 2016, decreases in tax expense from income generated in foreign jurisdictions with lower tax rates in comparison to the U.S. federal statutory rate were offset by increases in tax expense from income generated in foreign jurisdictions having comparable, or higher tax rates in comparison to the U.S. federal statutory rate.

As of December 31, 2016 and 2015 , we had \$0.5 million and \$0.3 million of unrecognized tax benefits, respectively. The increase in unrecognized tax benefits is due to federal research and development tax credit carryforward risks. As of December 31, 2016, there are no unrecognized tax benefits remaining that would affect our effective tax rate if recognized, as the offset would increase the valuation allowance. We do not anticipate that the total amount of unrecognized tax benefits will significantly change within the next twelve months.

We file numerous consolidated and separate income tax returns in the U.S. including federal, state and local, as well as foreign jurisdictions. With few exceptions, we are no longer subject to U.S. federal income tax examinations for tax years before 2013 or state, local, or foreign income tax examinations for years before 1993. We are currently under audit by various states and foreign jurisdictions for certain tax years subsequent to 1993.

Geographic Revenue

Revenue by geographic region was as follows (dollars in thousands):

	2016	2015	2014	2016-2015 Change	% Change	2015-2014 Change	% Change
United States	\$ 41,505	\$ 46,893	\$ 61,660	\$ (5,388)	(11)%	\$ (14,767)	(24)%
Europe	13,700	15,166	26,575	(1,466)	(10)%	(11,409)	(43)%
Korea	43,236	37,832	39,852	5,404	14 %	(2,020)	(5)%
Rest of World	22,027	25,405	28,125	(3,378)	(13)%	(2,720)	(10)%
Total Revenue	\$ 120,468	\$ 125,296	\$ 156,212	\$ (4,828)	(4)%	\$ (30,916)	(20)%

Revenue in the U.S. decreased by \$5.4 million , or 11% , in the year-ended 2016 , compared with 2015 . The decrease was primarily due to the sale of the Slingo and social casino games business in 2015, which contributed \$4.9 million to the decline.

Revenue in the U.S. declined by \$14.8 million , or 24% , in the year-ended 2015 , compared with 2014 . The decline was mainly due to a reduction in revenue from the change in our third party software agreements of \$7.3 million and from our Ringback Tones business of \$4.6 million. The sale of our Slingo and social casino business contributed \$1.9 million to the decline.

Revenue in Europe decreased by \$1.5 million , or 10% , in the year-ended 2016 , compared with 2015 , primarily due to lower revenue in our continuing games business as compared to the prior period.

Revenue in Europe decreased by \$11.4 million , or 43% , in the year-ended 2015 , compared with 2014 . The decrease was primarily due to lower revenue from our Games business of \$5.0 million and a decline in our SaaS revenue of \$4.1 million.

Revenue in Korea increased by \$5.4 million , or 14% , in the year-ended 2016 , compared with 2015 . The increase was due to a \$6.1 million increase in our low-margin music on demand business, offset in part by other declines in our Mobile Services business.

Revenue in Korea decreased by \$2.0 million , or 5% , in the year-ended 2015 , compared with 2014 . The decrease was due to a decline from intellectual property licensing of \$1.5 million.

Revenue in the rest of world decreased by \$3.4 million , or 13% , in the year-ended 2016 , compared with 2015 . The decrease was due to lower revenues of \$1.6 million in our Consumer Media business and \$1.5 million in our Mobile Services business.

Revenue in the rest of world decreased by \$2.7 million , or 10% , in the year-ended 2015 , compared with 2014 . The decrease was due to various declines and the shutdown of our Helix business, offset by an increase in our IP revenue in China of \$2.8 million.

Liquidity and Capital Resources

The following summarizes working capital, cash, cash equivalents, short-term investments, and restricted cash and investments (in thousands):

	December 31,	
	2016	2015
Working capital	\$ 66,304	\$ 91,373
Cash, cash equivalents, and short-term investments	77,052	99,129
Restricted cash and investments	2,700	2,890

The decrease in 2016 working capital as compared to December 31, 2015, which includes cash, cash equivalents, and short term investments, was primarily due to our ongoing negative cash flow used in our operations of \$24.3 million .

The following summarizes cash flow activity (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Cash provided by (used in) operating activities	\$ (24,328)	\$ (68,982)	\$ (60,244)
Cash provided by (used in) investing activities	11,552	15,728	15,561
Cash provided by (used in) financing activities	(345)	341	(637)

Cash used in operating activities consisted of net income (loss) adjusted for certain non-cash items such as depreciation and amortization, as well as the effect of changes in certain operating assets and liabilities.

Cash used in operating activities was \$44.7 million less in 2016 as compared to 2015. The decrease in cash used in operating activities was primarily due to the improvement in our operating loss in 2016 as compared to 2015. Further contributing to the decrease was the change in operating assets and liabilities during 2016 compared to 2015. In the current year, we used cash of \$1.2 million from the net change in operating assets and liabilities while in 2015 the net change in operating assets and liabilities used \$16.5 million.

Cash used in operating activities was \$8.7 million more in 2015 than in 2014. This increase in cash used was due mainly to the changes in operating assets and liabilities. In 2015, we used cash of \$16.5 million from the net change, while in 2014 the net change provided \$2.5 million. This increased usage was offset in part by the improvement in our operating loss in 2015 as compared to 2014 when excluding the non-cash benefit from the liability extinguishment in 2014.

For the year ended December 31, 2016, cash provided by investing activities of \$11.6 million was due to sales and maturities, net of purchases, of short-term investments totaling \$8.5 million, cash proceeds from the sale of our Slingo and social casino games business of \$4.0 million, cash proceeds of \$3.3 million from the sale of J-Stream, and cash proceeds from the sale of a domain name of \$2.1 million. These proceeds were offset in part by the advance paid to Rhapsody of \$3.5 million and purchases of equipment, software and leasehold improvements of \$2.4 million.

For the year ended December 31, 2015, cash provided by investing activities of \$15.7 million was due to sales and maturities, net of purchases, of short-term investments totaling \$6.6 million and the cash proceeds from the sale of our Slingo and social casino games business of \$10.0 million.

For the year ended December 31, 2014, cash provided by investing activities of \$15.6 million was mainly from sales and maturities, net of purchases, of short-term investments totaling \$16.5 million. In addition, cash proceeds from the sale of available for sale securities of \$2.8 million in 2014 mainly offset purchases of equipment, software and leasehold improvements of \$2.5 million.

Financing activities for the year ended December 31, 2016 used cash totaling \$0.3 million which was from \$0.9 million for tax payments from shares withheld upon vesting of restricted stock offset in part by proceeds received from the issuance of common stock of \$0.5 million.

Financing activities for the year ended December 31, 2015 provided cash totaling \$0.3 million which was mainly from proceeds received from the issuance of common stock of \$0.4 million, offset by \$0.1 million for tax payments from shares withheld upon vesting of restricted stock.

Financing activities for the year ended December 31, 2014 used cash totaling \$0.6 million which was mainly due to tax payments from shares withheld upon vesting of restricted stock and the payment of contingent consideration related to acquisitions of businesses, partially offset by proceeds received from the issuance of common stock.

While we currently have no planned significant capital expenditures for 2017 other than those in the ordinary course of business, we do have contractual commitments for future payments related to office leases.

We believe that our unrestricted current cash, cash equivalents, and short-term investments will be sufficient to meet our anticipated cash needs for working capital and capital expenditures for at least the next 12 months.

In the future, we may seek to raise additional funds through public or private equity financing, or through other sources such as future credit facilities. Such sources of funding may or may not be available to us at commercially reasonable terms. The sale of additional equity securities could result in dilution to our shareholders. In addition, in the future, we may enter into cash or stock acquisition transactions or other strategic transactions that could reduce cash available to fund our operations or result in dilution to shareholders.

Our cash equivalents and short-term investments consist of investment-grade securities, as specified in our investment policy guidelines. The policy limits the amount of credit exposure to any one non-U.S. government or non-U.S. agency issue or issuer to a maximum of 5% of the total portfolio. These securities are subject to interest rate risk and will decrease in value if interest rates increase. Because we have historically had the ability to hold our fixed income investments until maturity, we do not expect our operating results or cash flows to be significantly affected by a sudden change in market interest rates in our securities portfolio.

We conduct our operations primarily in five functional currencies: the U.S. dollar, the Korean won, the Japanese yen, the British pound and the euro. We currently do not actively hedge our foreign currency exposures and are therefore subject to the risk of exchange rate fluctuations. We are exposed to foreign exchange rate fluctuations as the financial results of foreign subsidiaries are translated into U.S. dollars in consolidation. Our exposure to foreign exchange rate fluctuations also arises from intercompany payables and receivables to and from our foreign subsidiaries.

As of December 31, 2016, approximately \$18.8 million of the \$77.1 million of cash, cash equivalents, and short-term investments was held by our foreign subsidiaries. If these funds are needed for our operations in the U.S., we may be required to accrue and pay U.S. taxes to repatriate these funds. However, our intent is to permanently reinvest these funds outside of the U.S. and our current plans do not demonstrate a need to repatriate them to fund our U.S. operations. Additionally, the Company currently has significant net operating losses and other tax attributes that could be used to offset potential U.S. income tax that could result if these amounts were distributed to the U.S. We utilize a variety of tax planning and financing strategies in an effort to ensure that our worldwide cash is available in the locations in which it is needed. We do not expect restrictions or potential taxes on repatriation of amounts held outside of the U.S. to have a material effect on our overall liquidity, financial condition or results of operations.

As of December 31, 2016, we have not provided for U.S. federal and state income taxes on approximately \$13.1 million of undistributed earnings of our foreign subsidiaries, since such earnings are considered permanently reinvested outside the U.S. or may be remitted tax-free to the U.S. If these amounts were distributed to the U.S. in the future in the form of dividends or otherwise, we could be subject to additional U.S. income taxes. It is not practicable to determine the U.S. federal income tax liability or benefit on such earnings due to the timing of such future distributions, the availability of foreign tax credits, and the complexity of the computation if such earnings were not deemed to be permanently reinvested. If future events, including material changes in estimates of cash, working capital, and long-term investment requirements necessitate that these earnings be repatriated, an additional provision for U.S. income and foreign withholding taxes may be necessary.

Contractual Obligations

Please refer to Note 16. Commitments and Contingencies, for details on our contractual obligations, which consist of operating leases for office facilities. For income tax liabilities for uncertain tax positions we cannot make a reasonably reliable estimate of the amount and period of any related future payments. As of December 31, 2016 we had \$0.5 million of gross unrecognized tax benefits for uncertain tax positions.

Off-Balance Sheet Arrangements

We have operating lease obligations for office facility leases with future cash commitments that are not required to be recorded on our consolidated balance sheet. Accordingly, these operating lease obligations constitute off-balance sheet arrangements. In addition, since we do not maintain accruals associated with certain guarantees, as discussed in Note 17. Guarantees, those guarantee obligations also constitute off-balance sheet arrangements.

Critical Accounting Policies and Estimates

The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reported period. Our critical accounting policies and estimates are as follows:

- Revenue recognition;
- Estimating music publishing rights and music royalty accruals;
- Estimating recoverability of deferred costs;
- Estimating allowances for doubtful accounts and sales returns;
- Estimating losses on excess office facilities;
- Valuation of equity method investments;
- Valuation of definite-lived assets;
- Valuation of goodwill;
- Stock-based compensation; and
- Accounting for income taxes.

Revenue Recognition. We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred, the sales price is fixed or determinable, and collection is probable. Physical products are considered delivered to the customer once they have been shipped and title and risk of loss have been transferred. For online sales, the products or services are considered delivered at the time the product or services are made available, digitally, to the end user.

We recognize revenue on a gross or net basis. In most arrangements, we contract directly with end user customers, and are the primary obligor. In such arrangements, we recognize revenue on a gross basis. In some cases, we utilize third-party distributors who are the primary obligor to sell products or services directly to end user customers. In such instances, we recognize revenue on a net basis.

In our direct to consumer operations, we derive revenue primarily through (1) subscriptions sold by our Games segment and subscriptions of SuperPass within our Consumer Media segment (2) sales of content downloads, software and licenses offered by our Consumer Media, Mobile Services, and Games segments and (3) the sale of advertising and the distribution of third-party products on our websites and in our games.

Consumer subscription products are paid in advance, typically for monthly, quarterly or annual duration. Subscription revenue is recognized ratably over the related subscription time period. Revenue from sales of content downloads, software and licenses is recognized at the time the product is made available, digitally, to the end user. Revenue generated from advertising on our websites and from advertising and the distribution of third-party products included in our products is recognized as revenue at the time of delivery.

We also generate revenue through business-to-business channels by providing services within our Mobile Services segment enabling mobile carriers to deliver audio and video content to their customers and by selling software licenses and products and related support and other services. Revenue generated from services provided to mobile carriers that enable the delivery of audio and video content to their customers is recognized as the services are provided. Setup fees to build these services are recognized ratably upon launch of the service over the remaining expected term of the service.

Non-software revenue arrangements containing multiple elements are divided into separate units of accounting, after being evaluated for specific criteria. If the criteria for separation are met, revenue is allocated to the individual units using the relative price method. If the criteria are not met, the elements are treated as one unit of accounting and revenue recognition is delayed until all elements have been delivered. In the case of revenue arrangements containing software, elements are divided into separate units of accounting only when vendor-specific objective evidence has been established. In cases where vendor-specific objective evidence has not been established, undelivered elements are combined into one unit of accounting and are not recognized in revenue until all elements have been delivered.

Estimating Music Publishing Rights and Music Royalty Accruals. We have made estimates of amounts that may be owed related to music royalties for our historical domestic and international music services. Material differences may impact the amount and timing of our expense for any period if management made different judgments or utilized different estimates. Under copyright law, we may be required to pay licensing fees for digital sound recordings and compositions we have delivered. Copyright law generally does not specify the rate and terms of the licenses, which are determined by voluntary negotiations among the parties or, for certain compulsory licenses where voluntary negotiations are unsuccessful, by arbitration. Our estimates are based on contracted or statutory rates, when established, or management's best estimates based on facts and circumstances regarding the specific music services and agreements in similar geographies or with similar agencies. While we have based our estimates on historical experience and on various other assumptions that management believes to be reasonable under the circumstances, actual results may differ materially from these estimates under different assumptions or conditions.

During the quarter ended March 31, 2014, certain accrued royalty liabilities of \$10.6 million associated with our historical music business, which had originally been recorded based on statutory rates, were extinguished.

Estimating Recoverability of Deferred Costs. We defer costs on projects for service revenue and system sales. Deferred costs consist primarily of direct and incremental costs to customize and install systems, as defined in individual customer contracts, including costs to acquire hardware and software from third parties and payroll costs for our employees and other third parties. We recognize such costs as a component of cost of revenue, the timing of which is dependent upon the revenue recognition policy by contract. For revenue recognized under the completed contract method, costs are deferred until the products are delivered, or upon completion of services or, where applicable, customer acceptance. For revenue recognized under the percentage of completion method, costs are recognized as products are delivered or services are provided in accordance with the percentage of completion calculation. For revenue recognized ratably over the term of the contract, costs are recognized ratably over the term of the contract, commencing on the date of revenue recognition. At each balance sheet date, we review deferred costs to ensure they are ultimately recoverable. Any anticipated losses on uncompleted contracts are recognized when evidence indicates the estimated total cost of a contract exceeds its estimated total revenue.

Assessing the recoverability of deferred project costs is based on significant assumptions and estimates, including future revenue and cost of sales. Significant or sustained decreases in revenue or increases in cost of sales in future periods could result in impairments of deferred project costs. We cannot accurately predict the amount and timing of any such impairments. Should the value of deferred project costs become impaired, we would record the appropriate charge, which could have a material adverse effect on our financial condition or results of operations.

Estimating Allowances for Doubtful Accounts and Sales Returns. We make estimates of the uncollectible portion of our accounts receivable. We specifically analyze the age of accounts receivable and historical bad debts, customer credit-worthiness and current economic trends when evaluating the adequacy of the allowance for doubtful accounts. Similarly, we make estimates of potential future product returns related to current period revenue. We analyze historical returns, current economic trends, and changes in customer demand and acceptance of our products when evaluating the adequacy of the sales returns

allowance. Significant judgments and estimates are made and used in connection with establishing allowances for doubtful accounts and sales returns. Material differences may result in the amount and timing of our revenue for any period if we were to make different judgments or utilize different estimates or actual future experience was different from the judgments and estimates.

Estimating losses on excess office facilities. We make significant estimates in determining the appropriate amount of accrued loss on excess office facilities, including estimates of sublease income expected to be received. If we make different estimates, our loss on excess office facilities could be significantly different from that recorded, which could have a material impact on our operating results.

Valuation of Equity Method Investments. We use the equity method of accounting for investments in circumstances where we have the ability to exert significant influence, but not control, over an investee or joint venture. We record our percentage interest in the investee's recorded income or loss and changes in the investee's capital under this method, which will increase or decrease the reported value of our investment. See Note 4. Rhapsody Joint Venture, for additional information. We initially record our investment based on a fair value analysis of the investment.

We evaluate impairment of an investment valued under the equity method if events and circumstances warrant. An impairment charge would be recorded if a decline in value of an equity investment below its carrying amount were determined to be other than temporary. In determining if a decline is other than temporary, we consider factors such as the length of time and extent to which the fair value of the investment has been less than the carrying amount of the investee or joint venture, the near-term and longer-term operating and financial prospects of the investee or joint venture and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery.

Valuation of Definite-Lived Assets. Definite-lived assets consist primarily of property, plant and equipment, as well as amortizable intangible assets acquired in business combinations. Definite-lived assets are amortized on a straight line basis over their estimated useful lives. We review definite-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. Recoverability of these assets is measured by comparison of their carrying amount to future undiscounted cash flows the assets are expected to generate. If definite-lived assets are considered to be impaired, the impairment to be recognized equals the amount by which the carrying value of the assets exceeds their fair market value.

The impairment analysis of definite-lived assets is based upon estimates and assumptions relating to our future revenue, cash flows, operating expenses, costs of capital and capital purchases. These estimates and assumptions are complex and subject to a significant degree of judgment with respect to certain factors including, but not limited to, the cash flows of our long-term operating plans, market and interest rate risk, and risk-commensurate discount rates and cost of capital. Significant or sustained declines in future revenue or cash flows, or adverse changes in our business climate, among other factors, and their resulting impact on the estimates and assumptions relating to the value of our definite-lived assets could result in the need to perform an impairment analysis in future periods which could result in a significant impairment. While we believe our estimates and assumptions are reasonable, due to their complexity and subjectivity, these estimates and assumptions could vary from period to period. Changes in these estimates and assumptions could materially affect the estimate of future undiscounted cash flows and related fair market values of these assets and result in significant impairments, which could have a material adverse effect on our financial condition or results of operations. For further discussion, please see the risk factor entitled, "Any impairment to our goodwill and definite-lived assets could result in a significant charge to our earnings" under Item 1A Risk Factors.

Valuation of Goodwill. We test goodwill for impairment on an annual basis, in our fourth quarter, or more frequently if circumstances indicate reporting unit carrying values may exceed their fair values. Circumstances that may indicate a reporting unit's carrying value exceeds its fair value include, but are not limited to: poor economic performance relative to historical or projected future operating results; significant negative industry, economic or company specific trends; changes in the manner of our use of the assets or the plans for our business; and loss of key personnel.

When evaluating goodwill for impairment, based upon our annual test or due to changes in circumstances described above, we first perform a qualitative assessment to determine if the fair value of a reporting unit is more likely than not less than the reporting unit's carrying amount including goodwill. If this assessment indicates it is more likely than not, we then compare the carrying value of the reporting unit to the estimated fair value of the reporting unit. If the carrying value of the reporting unit exceeds the estimated fair value, we then calculate the implied estimated fair value of goodwill for the reporting unit and compare it to the carrying amount of goodwill for the reporting unit. If the carrying amount of goodwill exceeds the implied estimated fair value, an impairment charge to current operations is recorded to reduce the carrying value to implied estimated value.

Significant judgments and estimates are required in determining the reporting units and assessing the fair value of the reporting units. These estimates and assumptions are complex and subject to a significant degree of judgment with respect to

certain factors including, but not limited to, the cash flows of long-term operating plans, market and interest rate risk, and risk-commensurate discount rates and cost of capital.

Stock-Based Compensation. Stock-based compensation cost is estimated at the grant date based on the award's fair value and is recognized as expense over the requisite service period, which is the vesting period. For stock options, the fair value is calculated using the Black-Scholes option-pricing model or other appropriate valuation models such as Monte Carlo simulation. The valuation models require various highly judgmental assumptions including volatility in our common stock price and expected option life. If any of the assumptions used in the valuation models change significantly, stock-based compensation expense for new awards may differ materially in the future from the amounts recorded in our consolidated statement of operations. For all awards, we are required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. We use historical data to estimate pre-vesting forfeitures.

Accounting for Income Taxes. We use the asset and liability method of accounting for income taxes. Under this method, income tax expense is recognized for the amount of taxes payable or refundable for the current year. In addition, deferred income tax expense and deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the financial reporting and tax basis of assets and liabilities and for operating losses and tax credit carryforwards. Deferred tax assets and liabilities and operating loss and tax credit carryforwards are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences and operating loss and tax credit carryforwards are expected to be recovered or settled. We must make assumptions, judgments and estimates to determine the current and deferred provision for income taxes, deferred tax assets and liabilities and any valuation allowance to be recorded against deferred tax assets. Our judgments, assumptions, and estimates relative to the current provision for income tax take into account current tax laws, our interpretation of current tax laws and possible outcomes of future audits conducted by foreign and domestic tax authorities. Changes in tax law or our interpretation of tax laws and future tax audits could significantly impact the amounts provided for income taxes in our consolidated financial statements.

Each reporting period we must periodically assess the likelihood that our deferred tax assets will be recovered from future sources of taxable income, and to the extent that recovery is not more likely than not, a valuation allowance must be established. The establishment of a valuation allowance and increases to such an allowance result in either increases to income tax expense or reduction of income tax benefit in the statement of operations and comprehensive income. In certain instances, changes in the valuation allowance may be allocated directly to the related components of shareholders' equity on the consolidated balance sheet. Factors we consider in making such an assessment include, but are not limited to, past performance and our expectation of future taxable income, macroeconomic conditions and issues facing our industry, existing contracts, our ability to project future results and any appreciation of our investments and other assets.

As of December 31, 2016, \$18.8 million of the \$77.1 million of cash, cash equivalents, and short-term investments was held by our foreign subsidiaries.

As of December 31, 2016, we have not provided for U.S. federal and state income taxes on certain undistributed earnings of our foreign subsidiaries, since such earnings are considered indefinitely reinvested outside the U.S. or may be remitted tax-free to the U.S. If these amounts were distributed to the U.S., in the form of dividends or otherwise, RealNetworks could be subject to additional U.S. income and foreign withholding taxes. It is not practicable to determine the foreign withholding and U.S. federal income tax liability or benefit on such earnings due to the timing of such future distributions, the availability of foreign tax credits, and the complexity of the computation if such earnings were not deemed to be permanently reinvested. If future events, including material changes in estimates of cash, working capital, and long-term investment requirements necessitate that these earnings be distributed, an additional provision for U.S. income and foreign withholding taxes may be necessary.

Recently Issued Accounting Standards

See Note 2. Recent Accounting Pronouncements .

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The following discussion about our market risk involves forward-looking statements. All statements that do not relate to matters of historical fact should be considered forward-looking statements. Actual results could differ materially from those projected in any forward-looking statements.

Interest Rate Risk. Our exposure to interest rate risk from changes in market interest rates relates primarily to our short-term investment portfolio. Our short-term investments consist of investment grade debt securities as specified in our investment policy. Investments in both fixed and floating rate instruments carry a degree of interest rate risk. The fair value of fixed rate securities may be adversely impacted due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Additionally, a declining rate environment creates reinvestment risk because as securities mature the proceeds are reinvested at a lower rate, generating less interest income. See Note 5. Fair Value Measurements for additional information. Due in part to these factors, our future interest income may be adversely impacted due to changes in interest rates. In addition, we may incur losses in principal if we are forced to sell securities that have declined in market value due to changes in interest rates. Because we have historically had the ability to hold our short-term investments until maturity, we would not expect our operating results or cash flows to be significantly impacted by a sudden change in market interest rates. There have been no material changes in our investment methodology regarding our cash equivalents and short-term investments during the quarter ended December 31, 2016. Based on our cash, cash equivalents, short-term investments, and restricted cash equivalents as of December 31, 2016, a hypothetical 10% increase/decrease in interest rates would not increase/decrease our annual interest income or cash flows by more than a nominal amount.

Investment Risk. As of December 31, 2016, we had an investment in voting capital stock of a privately held technology company for business and strategic purposes. See Note 1. Description of Business and Summary of Significant Accounting Policies - *Equity Method Investments*, and Management's Discussion and Analysis of Financial Condition and Results of Operations - *Critical Accounting Policies and Estimates (Valuation of equity method investments)* in this 10-K for details on our accounting treatment for this investment, including the analysis of other-than-temporary impairments.

Foreign Currency Risk. We conduct business internationally in several currencies and thus are exposed to adverse movements in foreign currency exchange rates.

Our exposure to foreign exchange rate fluctuations arise in part from: (1) translation of the financial results of foreign subsidiaries into U.S. dollars in consolidation; (2) the remeasurement of non-functional currency assets, liabilities and intercompany balances into U.S. dollars for financial reporting purposes; and (3) non-U.S. dollar denominated sales to foreign customers. We manage a portion of these risks through the use of financial derivatives, but fluctuations could impact our results of operations and financial position.

Where appropriate, we manage foreign currency risk for certain material short-term intercompany balances through the use of foreign currency forward contracts. These contracts require us to exchange currencies at rates agreed upon at the contract's inception. Because the impact of movements in currency exchange rates on forward contracts offsets the related impact on the short-term intercompany balances, these financial instruments help alleviate the risk that might otherwise result from certain changes in currency exchange rates. We do not designate our foreign exchange forward contracts related to short-term intercompany accounts as hedges and, accordingly, we adjust these instruments to fair value through results of operations. However, we may periodically hedge a portion of our foreign exchange exposures associated with material firmly committed transactions, long-term investments, highly predictable anticipated exposures and net investments in foreign subsidiaries. To the extent we continue to experience adverse economic conditions, our unhedged exposures are impacted by movements in currency exchange rates and we may record losses related to such unhedged exposures in future periods that may have a material adverse effect on our financial condition and results of operations.

Our foreign currency risk management program reduces, but does not entirely eliminate, the impact of currency exchange rate movements.

We have cash balances denominated in foreign currencies which are subject to foreign currency fluctuation risk. The majority of our foreign currency denominated cash is held in Korean won and euros. A hypothetical 10% increase or decrease in the Korean won and euro relative to the U.S. dollar as of December 31, 2016 would not result in a material impact on our financial position, results of operations or cash flows.

Item 8. *Financial Statements and Supplementary Data*

REALNETWORKS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share data)

	December 31, 2016	December 31, 2015
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 33,721	\$ 47,315
Short-term investments	43,331	51,814
Trade accounts receivable, net of allowances	22,162	22,511
Deferred costs, current portion	760	460
Prepaid expenses and other current assets	4,910	7,140
Total current assets	104,884	129,240
Equipment and software	46,231	66,702
Leasehold improvements	3,317	3,122
Total equipment, software, and leasehold improvements	49,548	69,824
Less accumulated depreciation and amortization	44,294	61,024
Net equipment, software, and leasehold improvements	5,254	8,800
Restricted cash equivalents and investments	2,700	2,890
Available for sale securities	—	1,721
Other assets	1,742	2,307
Deferred costs, non-current portion	1,246	212
Deferred tax assets, net	816	957
Other intangible assets, net	938	2,136
Goodwill	12,857	13,080
Total assets	\$ 130,437	\$ 161,343
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 18,225	\$ 17,050
Accrued and other current liabilities	15,425	17,320
Commitment to Rhapsody	1,500	—
Deferred revenue, current portion	3,430	3,497
Total current liabilities	38,580	37,867
Deferred revenue, non-current portion	240	105
Deferred rent	748	620
Deferred tax liabilities	87	88
Other long-term liabilities	2,201	1,980
Total liabilities	41,856	40,660
Commitments and contingencies		
Shareholders' equity:		
Preferred stock, \$0.001 par value, no shares issued and outstanding:		
Series A: authorized 200 shares	—	—
Undesignated series: authorized 59,800 shares	—	—
Common stock, \$0.001 par value authorized 250,000 shares; issued and outstanding 37,501 shares in 2016 and 36,298 shares in 2015	37	36
Additional paid-in capital	633,928	627,316
Accumulated other comprehensive loss	(61,645)	(59,480)
Retained deficit	(483,739)	(447,189)
Total shareholders' equity	88,581	120,683
Total liabilities and shareholders' equity	\$ 130,437	\$ 161,343

See accompanying notes to consolidated financial statements.

REALNETWORKS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(In thousands, except per share data)

	Years Ended December 31,		
	2016	2015	2014
Net revenue (A)	\$ 120,468	\$ 125,296	\$ 156,212
Cost of revenue (B)	64,968	70,297	76,381
Extinguishment of liability	—	—	(10,580)
Gross profit	55,500	54,999	90,411
Operating expenses:			
Research and development	29,923	43,626	52,765
Sales and marketing	31,608	48,231	66,926
General and administrative	27,415	24,549	34,001
Restructuring and other charges	1,489	5,279	4,992
Lease exit and related charges	2,239	2,501	880
Total operating expenses	92,674	124,186	159,564
Operating income (loss)	(37,174)	(69,187)	(69,153)
Other income (expenses):			
Interest income, net	449	680	556
Gain (loss) on sale of equity and other investments, net	8,473	(159)	2,371
Equity in net loss of Rhapsody investment	(6,533)	(14,521)	(4,452)
Other income (expense), net	(643)	506	143
Total other income (expenses), net	1,746	(13,494)	(1,382)
Income (loss) before income taxes	(35,428)	(82,681)	(70,535)
Income tax expense (benefit)	1,122	(834)	1,280
Net income (loss)	\$ (36,550)	\$ (81,847)	\$ (71,815)
Basic net income (loss) per share	\$ (0.99)	\$ (2.26)	\$ (2.00)
Diluted net income (loss) per share	\$ (0.99)	\$ (2.26)	\$ (2.00)
Shares used to compute basic net income (loss) per share	36,781	36,165	35,947
Shares used to compute diluted net income (loss) per share	36,781	36,165	35,947
Comprehensive income (loss):			
Unrealized investment holding gains (losses), net of reclassification adjustments	\$ (1,303)	\$ (955)	\$ (4,145)
Foreign currency translation adjustments, net of reclassification adjustments	(862)	(3,273)	(3,412)
Total other comprehensive income (loss)	(2,165)	(4,228)	(7,557)
Net income (loss)	(36,550)	(81,847)	(71,815)
Comprehensive income (loss)	\$ (38,715)	\$ (86,075)	\$ (79,372)
(A) Components of net revenue:			
License fees	\$ 27,846	\$ 28,422	\$ 28,308
Service revenue	92,622	96,874	127,904
	\$ 120,468	\$ 125,296	\$ 156,212
(B) Components of cost of revenue:			
License fees	\$ 6,062	\$ 6,381	\$ 8,012
Service revenue	58,906	63,916	68,369
	\$ 64,968	\$ 70,297	\$ 76,381

See accompanying notes to consolidated financial statements.

REALNETWORKS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended December 31,		
	2016	2015	2014
Cash flows from operating activities:			
Net income (loss)	\$ (36,550)	\$ (81,847)	\$ (71,815)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	7,057	10,410	11,959
Stock-based compensation	5,424	4,698	5,204
Equity in net loss of Rhapsody	6,533	14,521	4,452
Lease exit and related charges	2,239	2,501	668
Deferred income taxes, net	130	(1,558)	(237)
Loss (gain) on investments, net	(8,473)	159	(2,371)
Realized translation loss (gain)	272	(264)	(48)
Extinguishment of liability	—	—	(10,580)
Fair value of warrants granted in 2015, net of subsequent mark to market adjustments in 2016 and 2015	280	(1,053)	—
Net change in certain operating assets and liabilities:			
Trade accounts receivable	(129)	(8,236)	8,732
Deferred costs, prepaid expenses and other assets	964	2,606	1,982
Accounts payable	1,571	(465)	(769)
Accrued and other liabilities	(3,646)	(10,454)	(7,421)
Net cash provided by (used in) operating activities	<u>(24,328)</u>	<u>(68,982)</u>	<u>(60,244)</u>
Cash flows from investing activities:			
Purchases of equipment, software, and leasehold improvements	(2,438)	(1,319)	(2,460)
Proceeds from sale of equity and other investments	4,967	459	2,754
Purchases of short-term investments	(75,766)	(72,136)	(81,216)
Proceeds from sales and maturities of short-term investments	84,249	78,775	97,683
Decrease in restricted cash equivalents and investments	190	110	—
Acquisitions	(150)	(161)	(733)
Advance to Rhapsody	(3,500)	(5,000)	—
Repayment from Rhapsody	—	5,000	—
Proceeds from the sale of Slingo and social casino business	4,000	10,000	—
Other	—	—	(467)
Net cash provided by (used in) investing activities	<u>11,552</u>	<u>15,728</u>	<u>15,561</u>
Cash flows from financing activities:			
Proceeds from issuance of common stock (stock options and stock purchase plan)	535	426	812
Tax payments from shares withheld upon vesting of restricted stock	(880)	(85)	(407)
Payment of contingent consideration	—	—	(1,042)
Net cash provided by (used in) financing activities	<u>(345)</u>	<u>341</u>	<u>(637)</u>
Effect of exchange rate changes on cash and cash equivalents	(473)	(3,025)	(2,662)
Net increase (decrease) in cash and cash equivalents	<u>(13,594)</u>	<u>(55,938)</u>	<u>(47,982)</u>
Cash and cash equivalents, beginning of year	47,315	103,253	151,235
Cash and cash equivalents, end of year	<u>\$ 33,721</u>	<u>\$ 47,315</u>	<u>\$ 103,253</u>

Supplemental disclosure of cash flow information:

Cash received from income tax refunds	\$	534	\$	1,102	\$	654
Cash paid for income taxes	\$	2,072	\$	1,491	\$	1,882
Non-cash investing activities:						
Increase (decrease) in accrued purchases of equipment, software, and leasehold improvements	\$	26	\$	(150)	\$	(297)
Acquisition of intangible assets	\$	—	\$	102	\$	—

See accompanying notes to consolidated financial statements.

REALNETWORKS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(In thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings (Deficit)	Total Shareholders' Equity
	Shares	Amount				
Balances, December 31, 2013	35,833	\$ 36	\$ 610,167	\$ (47,695)	\$ (293,527)	\$ 268,981
Common stock issued for exercise of stock options, employee stock purchase plan, and vesting of restricted shares, net of tax payments from shares withheld upon vesting of restricted stock	266	—	405	—	—	405
Share of Rhapsody equity transactions	—	—	1,980	—	—	1,980
Stock-based compensation	—	—	5,204	—	—	5,204
Other comprehensive income (loss)	—	—	—	(7,557)	—	(7,557)
Net income (loss)	—	—	—	—	(71,815)	(71,815)
Balances, December 31, 2014	36,099	\$ 36	\$ 617,756	\$ (55,252)	\$ (365,342)	\$ 197,198
Common stock issued for exercise of stock options, employee stock purchase plan, and vesting of restricted shares, net of tax payments from shares withheld upon vesting of restricted stock	199	—	341	—	—	341
Share of Rhapsody equity transactions	—	—	4,521	—	—	4,521
Stock-based compensation	—	—	4,698	—	—	4,698
Other comprehensive income (loss)	—	—	—	(4,228)	—	(4,228)
Net income (loss)	—	—	—	—	(81,847)	(81,847)
Balances, December 31, 2015	36,298	\$ 36	\$ 627,316	\$ (59,480)	\$ (447,189)	\$ 120,683
Common stock issued for exercise of stock options, employee stock purchase plan, and vesting of restricted shares, net of tax payments from shares withheld upon vesting of restricted stock	1,203	1	(345)	—	—	(344)
Share of Rhapsody equity transactions	—	—	1,533	—	—	1,533
Stock-based compensation	—	—	5,424	—	—	5,424
Other comprehensive income (loss)	—	—	—	(2,165)	—	(2,165)
Net income (loss)	—	—	—	—	(36,550)	(36,550)
Balances, December 31, 2016	37,501	\$ 37	\$ 633,928	\$ (61,645)	\$ (483,739)	\$ 88,581

See accompanying notes to consolidated financial statements.

REALNETWORKS, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Years ended December 31, 2016, 2015 and 2014

Note 1. Description of Business and Summary of Significant Accounting Policies

Description of Business. RealNetworks, Inc. and subsidiaries is a leading global provider of network-delivered digital media applications and services that make it easy to manage, play and share digital media. The Company also develops and markets software products and services that enable the creation, distribution and consumption of digital media, including audio and video.

Inherent in our business are various risks and uncertainties, including a limited history of certain of our product and service offerings. RealNetworks' success will depend on the acceptance of our technology, products and services and the ability to generate related revenue.

In this Annual Report on Form 10-K for the year ended December 31, 2016 (10-K), RealNetworks, Inc. and subsidiaries is referred to as "RealNetworks", the "Company", "we", "us", or "our".

Basis of Presentation. The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. Intercompany balances and transactions have been eliminated in consolidation.

The consolidated financial statements reflect all adjustments that, in the opinion of management, are necessary for a fair presentation of the results of operations for the periods presented. Operating results for the year ended December 31, 2016 are not necessarily indicative of the results that may be expected for any subsequent periods.

Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the U.S. (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents, Short-Term Investments, and Available-for-Sale Securities. We consider all short-term investments with a remaining contractual maturity at date of purchase of three months or less to be cash equivalents.

We have classified as available-for-sale all marketable debt and equity securities for which there is determinable fair market value and there are no restrictions on our ability to sell. Available-for-sale securities are carried at fair value with unrealized gains and losses reported in accumulated other comprehensive income (loss) (AOCI) in shareholders' equity, net of any applicable income taxes. Investments with remaining contractual maturities of five years or less are classified as short-term because the investments are marketable and highly liquid, and we have the ability to utilize them for current operations. Realized gains and losses and any declines in value judged to be other-than-temporary on available-for-sale securities are included in other income (expense), net. Realized and unrealized gains and losses on available-for-sale securities are determined using the specific identification method.

Trade Accounts Receivable. Trade accounts receivable consist of amounts due from customers and do not bear interest. The allowance for doubtful accounts and sales returns is our estimate of the amount of probable credit losses and returns in our existing accounts receivable. We determine the allowances based on analysis of historical bad debts, customer concentrations, customer credit-worthiness, return history and current economic trends. We review the allowances for doubtful accounts and sales returns quarterly. Past due balances over 90 days and specified other balances are reviewed individually for collectability. All other balances are reviewed on an aggregate basis. Account balances are written off against the allowance after all reasonable means of collection have been exhausted and the potential for recovery is considered remote. We do not have any off-balance sheet credit exposure related to our customers.

Concentration of Credit Risk. Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash and cash equivalents, short-term investments, and accounts receivable. Short-term investments consist of U.S. government and government agency securities, corporate notes and bonds, and municipal securities. We derive a portion of our revenue from a large number of individual consumers spread globally. We also derive revenue from several large customers. If the financial condition or results of operations of any one of the large customers deteriorates substantially, our operating results could be adversely affected. To reduce credit risk, management performs ongoing credit evaluations of the financial condition of significant customers. We do not generally require collateral and we maintain an allowance for estimated credit losses on customer accounts when considered necessary.

Depreciation and Amortization. Depreciation of equipment and software, as well as amortization of leasehold improvements is computed using the straight-line method over the lesser of the estimated useful lives of the assets or the related lease term. The useful life of equipment and software is generally three to five years.

Depreciation and amortization expense of these assets during the years ended December 31, 2016, 2015, and 2014 was \$6.0 million, \$8.1 million and \$8.5 million, respectively.

Equity Method Investment. We use the equity method in circumstances where we have the ability to exert significant influence, but not control, over an investee or joint venture. We initially record our investment based on a fair value analysis of the investment. We record our percentage interest in the investee's recorded income or loss and changes in the investee's capital under this method, which will increase or decrease the reported value of our investment. See Note 4, Rhapsody Joint Venture for additional information.

We evaluate impairment of an investment accounted for under the equity method if events and circumstances warrant. An impairment charge would be recorded if a decline in the fair value of an equity investment below its carrying amount were determined to be other than temporary. In determining if a decline is other than temporary, we consider factors such as the length of time and extent to which the fair value of the investment has been less than the carrying amount of the investee or joint venture, the near-term and longer-term operating and financial prospects of the investee or joint venture and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery.

Deferred Costs. We defer certain costs on projects for service revenues and system sales. Deferred costs consist primarily of direct and incremental costs to customize and install systems, as defined in individual customer contracts, including costs to acquire hardware and software from third parties and payroll and related costs for employees and other third parties. Deferred costs are capitalized during the implementation period.

We recognize such costs as a component of cost of revenue, the timing of which is dependent upon the revenue recognition policy by contract. At each balance sheet date, we review deferred costs to ensure they are ultimately recoverable. Any anticipated losses on uncompleted contracts are recognized when evidence indicates the estimated total cost of a contract exceeds its estimated total revenue or if actual deferred costs exceed estimated contractual revenue. Assessing the recoverability of deferred costs is based on significant assumptions and estimates, including future revenue and cost of sales. Significant or sustained decreases in revenue or increases in cost of sales in future periods could result in impairments of deferred project costs and prepaid royalty advances. We cannot accurately predict the amount and timing of any such impairments. Should deferred project costs or prepaid royalty advances become impaired, we would record the appropriate charge, which could have a material adverse effect on our financial condition and results of operations.

In 2014 we impaired \$0.7 million in deferred project costs and the charge was included in cost of revenue in the accompanying consolidated statements of operations and comprehensive income (loss). No such charges were incurred in 2016 or 2015.

Definite-Lived Tangible and Intangible Assets. Definite-lived tangible assets include equipment, software and leasehold improvements and are carried at cost less accumulated depreciation and amortization. Definite-lived intangible assets consist primarily of the fair value of customer agreements and contracts, and developed technology acquired in business combinations and are amortized over their estimated useful lives.

We review these assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. If the carrying amount of an asset group is not recoverable, an impairment loss is recognized if the carrying amount of the asset group exceeds its estimated fair value, which is generally determined as the present value of estimated future cash flows to a market participant. Our impairment analysis is based on significant assumptions of future results, including operating and cash flow projections. Significant or sustained declines in future revenue or cash flows, or adverse changes in our business climate, among other factors, could result in the need to record an impairment charge in future periods.

Goodwill. We test goodwill for impairment on an annual basis, in our fourth quarter, or more frequently if circumstances indicate reporting unit carrying values may exceed their fair values. Circumstances that may indicate a reporting unit's carrying value exceeds its fair value include, but are not limited to: poor economic performance relative to historical or projected future operating results; significant negative industry, economic or company specific trends; changes in the manner of our use of the assets or the plans for our business; and loss of key personnel.

When evaluating goodwill for impairment, based upon our annual test or due to changes in circumstances described above, we first perform a qualitative assessment to determine if the fair value of a reporting unit is more likely than not less than the reporting unit's carrying amount including goodwill. If this assessment indicates it is more likely than not, we then compare the carrying value of the reporting unit to the estimated fair value of the reporting unit. If the carrying value of the reporting unit exceeds the estimated fair value, we then calculate the implied estimated fair value of goodwill for the reporting unit and compare it to the carrying amount of goodwill for the reporting unit. If the carrying amount of goodwill exceeds the implied estimated fair value, an impairment charge to current operations is recorded to reduce the carrying value to implied.

estimated value. Significant judgment is required in determining the reporting units and assessing fair value of the reporting units.

Fair Value. Fair value is the price that would be received from selling an asset or paid in transferring a liability in an orderly transaction between market participants at the measurement date. Our fair value measurements consider the principal or most advantageous market in which we would transact and the market-based risk measurements or assumptions that market participants would use in pricing the asset or liability, such as inherent risk, transfer restrictions and credit risk.

Fair values are determined based on three levels of inputs:

- Level 1: Quoted prices in active markets for identical assets or liabilities
- Level 2: Directly or indirectly observed inputs for the asset or liability, including quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active
- Level 3: Significant unobservable inputs that reflect our own estimates of assumptions that market participants would use

Research and Development. Costs incurred in research and development are expensed as incurred. Software development costs are capitalized when a product's technological feasibility has been established through the date the product is available for general release to customers. Other than internal use software, we have not capitalized any software development costs, as technological feasibility is generally not established until a working model is completed, at which time substantially all development is complete.

Revenue Recognition. We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred, the sales price is fixed or determinable, and collection is probable. Physical products are considered delivered to the customer once they have been shipped and title and risk of loss have been transferred. For online sales, the products or services are considered delivered at the time the products or services are made available, digitally, to the end user.

We recognize revenue on a gross or net basis. In most arrangements, we contract directly with end user customers, and are the primary obligor. In such arrangements, we recognize revenue on a gross basis. In some cases, we utilize third-party distributors who are the primary obligor to sell products or services directly to end user customers. In such instances, we recognize revenue on a net basis.

In our direct to consumer operations, we derive revenue through (1) subscriptions sold by our Games segment and subscriptions of SuperPass within our Consumer Media segment, (2) sales of content downloads, software and licenses offered by our Consumer Media, Mobile Services, and Games segments and (3) the sale of advertising and the distribution of third-party products on our websites and in our games.

Consumer subscription products are paid in advance, typically for monthly, quarterly or annual duration. Subscription revenue is recognized ratably over the related subscription time period. Revenue from sales of content downloads, software and licenses is recognized at the time the product is made available, digitally, to the end user. Revenue generated from advertising on our websites and from advertising and the distribution of third-party products included in our products is recognized as revenue at the time of delivery.

We also generate revenue through business-to-business channels by providing services within our Mobile Services segment enabling mobile carriers to deliver audio and video content to their customers and by selling software licenses and products and related support and other services. Revenue generated from services provided to mobile carriers that enable the delivery of audio and video content to their customers is recognized as the services are provided. Setup fees to build these services are recognized ratably upon launch of the service over the remaining expected term of the service.

Non-software revenue arrangements containing multiple elements are divided into separate units of accounting, after being evaluated for specific criteria. If the criteria for separation are met, revenue is allocated to the individual units using the relative fair value method. If the criteria are not met, the elements are treated as one unit of accounting and revenue recognition is delayed until all elements have been delivered. In the case of revenue arrangements containing software, elements are divided into separate units of accounting only when vendor-specific objective evidence has been established. In cases where vendor-specific objective evidence has not been established, undelivered elements are combined into one unit of accounting and are not recognized in revenue until all elements have been delivered.

Advertising Expenses. We expense the cost of advertising and promoting our products as incurred. These costs are included in sales and marketing expense and totaled \$6.1 million in 2016, \$16.5 million in 2015 and \$23.1 million in 2014.

Foreign Currency. The functional currency of the Company's foreign subsidiaries is the currency of the country in which the subsidiary operates. Assets and liabilities of foreign operations are translated into U.S. dollars using rates of exchange in effect at the end of the reporting period. The net gain or loss resulting from translation is shown as translation adjustment and

included in AOCI in shareholders' equity. Income and expense accounts are translated into U.S. dollars using average rates of exchange. Gains and losses from foreign currency transactions are included in the consolidated statements of operations.

Derivative Financial Instruments. We conduct business internationally in several currencies and thus we are exposed to adverse movements in foreign currency exchange rates. A portion of these risks may be managed through the use of financial derivatives, but fluctuations in foreign exchange rates could impact our results of operations and financial position.

Where appropriate, we manage foreign currency risk for certain material short-term intercompany balances through the use of foreign currency forward contracts. These contracts require us to exchange currencies at rates agreed upon at the contract's inception. Because the impact of movements in currency exchange rates on forward contracts offsets the related impact on the short-term intercompany balances, these financial instruments help alleviate the risk that might otherwise result from certain changes in currency exchange rates. We do not designate foreign exchange forward contracts related to short-term intercompany accounts as hedges and, accordingly, we adjust these instruments to fair value through our results of operations. However, we may periodically hedge a portion of our foreign exchange exposures associated with material firmly committed transactions and long-term investments.

All derivatives, whether designated in hedging relationships or not, are recorded on the balance sheet at fair value. If the derivative is designated a hedge, then depending on the nature of the hedge, changes in fair value will either be recorded immediately in results of operations, or be recognized in AOCI until the hedged item is recognized in results of operations.

We had nominal amounts of derivatives outstanding at either December 31, 2016 or 2015 .

Accounting for Taxes Collected from Customers. Our revenues are reported net of sales and other transaction taxes that are collected from customers and remitted to taxing authorities.

Income Taxes. We compute income taxes using the asset and liability method, under which deferred income taxes are provided for temporary differences between financial reporting basis and tax basis of our assets and liabilities and operating loss and tax credit carryforwards. We record a valuation allowance when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of the deferred tax assets depends on the ability to generate sufficient taxable income of the appropriate character in the appropriate taxing jurisdictions. Adjustments to the valuation allowance could be required in the future if we estimate that the amount of deferred tax assets to be realized is more or less than the net amount we have recorded. Any increase or decrease in the valuation allowance could have the effect of increasing or decreasing the income tax provision in the statement of operations.

Deferred tax assets and liabilities and operating loss and tax credit carryforwards are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences and operating loss and tax credit carryforwards are expected to be recovered or settled.

We file numerous consolidated and separate income tax returns in the U.S. including federal, state and local, as well as foreign jurisdictions. With few exceptions, we are no longer subject to U.S. federal income tax examinations for tax years before 2013 or state, local, or foreign income tax examinations for years before 1993. We are currently under audit by various states and foreign jurisdictions for certain tax years subsequent to 1993.

We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. We recognize accrued interest and penalties related to uncertain tax positions as a component of income tax expense.

Stock-Based Compensation. Stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which is the vesting period. We use the Black-Scholes option-pricing model or other appropriate valuation models such as Monte Carlo simulation to determine the fair value of stock-based option awards. The fair value of restricted stock awards is based on the closing market price of our common stock on the award date. Generally, we recognize the compensation cost for awards on a straight-line basis for the entire award, over the applicable vesting period. For performance-based awards, expense is recognized when it is probable the performance goal will be achieved, however if the likelihood becomes improbable, that expense is reversed. For market-based stock options, fair value is measured at the grant date using the Monte Carlo simulation model and we recognize compensation cost for these awards on a straight-line basis over the requisite service period for each separately vesting portion of the awards. For our employee stock purchase plan, compensation expense is measured based on the discount the employee is entitled to upon purchase.

The valuation models for stock-based option awards require various highly judgmental assumptions including volatility in our common stock price and expected option life. If any of the assumptions used in the valuation models change significantly,

stock-based compensation expense for new awards may differ materially in the future from the amounts recorded in the consolidated statements of operations. For all awards, we also estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates.

Net Income Per Share. Basic net income (loss) per share (EPS) is computed by dividing net income (loss) by the weighted average number of common shares outstanding during the period. Diluted EPS is computed by dividing net income (loss) by the weighted average number of common and dilutive potential common shares outstanding during the period.

Note 2. Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued new revenue recognition guidance, which was subsequently updated and amended in 2015 and 2016. The guidance requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The new guidance will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. While we are evaluating all of our revenue streams, we currently expect the greatest impact in certain areas where we will be required to estimate usage which drives the underlying revenue. Under current guidance, we do not recognize revenues until we achieve fixed and determinable status, which would be at a later date. However, our analysis is not complete and we may identify other areas of additional impact. The guidance permits two methods of adoption: the full retrospective method where the standard would be applied to each prior reporting period presented and the cumulative effect of applying the standard would be recognized at the earliest period shown, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. While we are currently evaluating the method of adoption and the quantitative impact of the new revenue standard, as amended, we currently expect to adopt using the modified retrospective method in the first quarter of fiscal year 2018.

In February 2016, the FASB issued new guidance related to the accounting for leases by lessees. A major change in the new guidance is that lessees will be required to present right-of-use assets and lease liabilities on the balance sheet. The new guidance will be effective for us on January 1, 2019, including interim periods within 2019. We will be evaluating the effect that the guidance will have on our consolidated financial statements and related disclosures.

In March 2016, the FASB issued new guidance that is intended to simplify several aspects of the accounting for stock-based compensation, including the treatment of forfeitures, income taxes and statutory tax withholding requirements. The new guidance will be effective for us on January 1, 2017; with early adoption permitted beginning January 1, 2016. We adopted this guidance on January 1, 2017. The adoption of this guidance will not have any impact on our consolidated financial statements and related disclosures.

There have been no other recent accounting pronouncements or changes in accounting pronouncements to be implemented that are of significance or potential significance to RealNetworks.

Note 3. Acquisitions and Disposals

2015 Sale of Slingo and social casino business. On July 24, 2015, we entered into an agreement to sell the Slingo and social casino portion of our games business to Gaming Realms plc. Of the total transaction price of \$18.0 million, \$10.0 million was paid in cash at closing on August 10, 2015, and \$4.0 million was paid in cash in August 2016. The remaining \$4.0 million will be payable either all in cash or a mix of cash and Gaming Realms plc stock, at our election, in August 2017. We recognized the gain related to the 2016 payment in Gain (loss) on investments, net, on the statement of operations in 2016. Based on several factors, including the timing of the receipt of the remaining consideration, we deferred the remaining gain of \$4.0 million and will recognize that gain upon realization. As this sale did not represent a strategic shift in our business and we do not believe it will have a major impact on our future operations and financial results, it did not meet the criteria for discontinued operations under GAAP. As such, we recorded in 2015 the related foreign currency gain of \$0.5 million in Other income and expense and an income tax benefit of \$1.6 million from the reversal of a Slingo deferred tax liability as described below.

With the transaction, Gaming Realms plc assumed the operations of our Slingo and social casino businesses, including substantially all of the related assets and liabilities, as well as the stock of Backstage Technologies Incorporated.

The disposed assets and liabilities consisted of intangible assets of \$5.7 million, net property, plant and equipment of \$0.3 million, and other net assets of \$0.4 million, as well as a deferred tax liability of \$1.6 million related to the indefinite-lived Slingo trade name, which was included as part of the intangible assets disposed of in the sale. Goodwill totaling \$3.6 million was also disposed of as part of the transaction based on the relative fair values of the business disposed of and the portion of the games reporting unit retained.

Note 4. Rhapsody Joint Venture

As of December 31, 2016 we owned approximately 42% of the issued and outstanding stock of Rhapsody and account for our investment using the equity method of accounting.

Rhapsody was initially formed in 2007 as a joint venture between RealNetworks and MTV Networks, a division of Viacom International Inc. (MTVN), to own and operate a business-to-consumer digital audio music service known as Rhapsody.

Following certain restructuring transactions effective March 31, 2010, we began accounting for our investment in Rhapsody using the equity method of accounting. As part of the 2010 restructuring transactions, RealNetworks contributed \$18.0 million in cash, the Rhapsody brand and certain other assets, including content licenses, in exchange for shares of convertible preferred stock of Rhapsody, carrying a \$10.0 million preference upon certain liquidation events.

We recorded our share of losses of Rhapsody of \$6.5 million, \$14.5 million, and \$4.5 million for the years ended December 31, 2016, 2015 and 2014, respectively. Because of the \$10.0 million liquidation preference on the preferred stock we hold in Rhapsody, under the equity method of accounting we did not record any share of Rhapsody losses that would reduce our carrying value of Rhapsody, which is impacted by Rhapsody equity transactions, below \$10.0 million, until Rhapsody's book value was reduced below \$10.0 million which occurred in the first quarter of 2015. As of December 31, 2015, the carrying value of our Rhapsody equity investment was zero, as we did not have further commitment to provide future support to Rhapsody. Unless we commit to provide future financial support to Rhapsody, we do not record our share of Rhapsody losses that would reduce our carrying value of Rhapsody below zero, and instead we track those suspended losses separately.

In December 2016, RealNetworks entered into an agreement to loan up to \$5 million to Rhapsody for general operating purposes, as did the other 42% owner of Rhapsody, Columbus Nova. In December, \$3.5 million of the loan was made by each lender. Both loans contain an additional commitment to loan to Rhapsody the remaining \$1.5 million of the \$5 million total at its request, during any point from January 1, 2017 to January 31, 2017. As of December 31, 2016, this additional commitment was reflected on our consolidated balance sheets as Commitment to Rhapsody. Both parties subsequently funded the remaining \$1.5 million commitment on January 24, 2017. The loans are subordinate to all existing loans, and bear an interest rate of 10% per annum, which accretes into the outstanding principal balance and will be due at the December 7, 2017 maturity date. We have recognized previously suspended Rhapsody losses, which we have discussed above, up to the full \$5.0 million funding commitment in the Equity in net loss of Rhapsody investment line item in our consolidated statements of operations.

In March 2015, RealNetworks extended a \$5.0 million loan to Rhapsody, as did the other 42% owner of Rhapsody. The loans had original maturity dates of June 2018, or earlier, if Rhapsody's certain loan to an external strategic partner was repaid in full. The loans to Rhapsody bore interest at the greater of prime plus 5.25% or 9% per annum. During 2015, Rhapsody's external strategic partner repaid its loan to Rhapsody and Rhapsody then repaid its loan to us and the other 42% owner in full. Under the loan, Rhapsody paid us approximately \$0.2 million of interest in 2015.

Summarized financial information for Rhapsody, which represents 100% of their financial information, is as follows (in thousands):

	Year ended December 31, 2016	Year ended December 31, 2015	Year ended December 31, 2014
Net revenue	\$ 208,085	\$ 201,987	\$ 173,484
Gross profit	38,407	32,761	32,145
Net loss	(14,913)	(35,479)	(21,336)

	As of December 31, 2016	As of December 31, 2015
Current assets	\$ 55,831	\$ 53,274
Non-current assets	18,273	20,520
Current liabilities	104,906	92,794
Non-current liabilities	20,238	20,295

Note 5. Fair Value Measurements

Items Measured at Fair Value on a Recurring Basis

The following tables present information about our financial assets that have been measured at fair value on a recurring basis as of December 31, 2016 and 2015, and indicates the fair value hierarchy of the valuation inputs utilized to determine fair value (in thousands).

	Fair Value Measurements as of				Amortized Cost as of
	December 31, 2016				December 31, 2016
	Level 1	Level 2	Level 3	Total	
Cash and cash equivalents:					
Cash	\$ 32,585	\$ —	\$ —	\$ 32,585	\$ 32,585
Money market funds	136	—	—	136	136
Corporate notes and bonds	—	1,000	—	1,000	1,000
Total cash and cash equivalents	32,721	1,000	—	33,721	33,721
Short-term investments:					
Corporate notes and bonds	—	43,331	—	43,331	43,343
Total short-term investments	—	43,331	—	43,331	43,343
Restricted cash equivalents and investments	—	2,700	—	2,700	2,700
Warrant issued by Rhapsody (included in Other assets)	—	—	773	773	—
Total	\$ 32,721	\$ 47,031	\$ 773	\$ 80,525	\$ 79,764

	Fair Value Measurements as of				Amortized Cost as of
	December 31, 2015				December 31, 2015
	Level 1	Level 2	Level 3	Total	
Cash and cash equivalents:					
Cash	\$ 23,152	\$ —	\$ —	\$ 23,152	\$ 23,152
Money market funds	5,061	—	—	5,061	5,061
Corporate notes and bonds	—	19,102	—	19,102	19,102
Total cash and cash equivalents	28,213	19,102	—	47,315	47,315
Short-term investments:					
Corporate notes and bonds	—	51,814	—	51,814	51,862
Total short-term investments	—	51,814	—	51,814	51,862
Restricted cash equivalents and investments	—	2,890	—	2,890	2,890
Equity investments in publicly traded securities	1,721	—	—	1,721	362
Warrant issued by Rhapsody (included in Other assets)	—	—	1,053	1,053	\$ —
Total	\$ 29,934	\$ 73,806	\$ 1,053	\$ 104,793	\$ 102,429

Restricted cash equivalents and investments as of December 31, 2016 and 2015 relate to cash pledged as collateral against letters of credit in connection with lease agreements.

Realized gains or losses on sales of short-term investment securities for 2016, 2015, and 2014 were not significant. Gross unrealized gains and gross unrealized losses on short-term investment securities as of December 31, 2016 and 2015 were not significant.

Investments with remaining contractual maturities of five years or less are classified as short-term because the investments are marketable and highly liquid, and we have the ability to utilize them for current operations. Contractual maturities of short-term investments as of December 31, 2016 are as follows (in thousands):

	Estimated Fair Value
Within one year	\$ 41,135
Between one year and five years	2,196
Total short-term investments	\$ 43,331

Our equity investment in a publicly traded company as of December 31, 2015 consisted of J-Stream Inc., a Japanese media services company. This equity investment is accounted for as available for sale. In 2016, we sold the remaining portion of the J-Stream shares we held, resulting in cash proceeds of \$3.3 million and a pre-tax gain of \$2.5 million, net, reported in Other income (expense), net, in the consolidated statement of operations. In 2015, we sold a portion of the J-Stream shares we held, resulting in cash proceeds of \$0.5 million and a pre-tax gain of \$0.4 million, net, reported in Other income (expense), net. In 2014, we sold a portion of the J-Stream shares we held, resulting in cash proceeds of \$2.8 million and a pre-tax gain of \$2.4 million.

In February 2015, Rhapsody issued warrants to purchase Rhapsody common shares to each of RealNetworks and Rhapsody's one other stockholder. The warrants were issued as compensation for past services provided by RealNetworks and the other stockholder, and both warrants covered the same number of underlying shares. The exercise price of the warrants was equal to the fair value of the underlying shares on the issuance date, and we used the Black-Scholes option-pricing model to calculate the fair value of the warrant, using an expected term of 5 years and expected volatility of 55%. On the date of issuance, we recognized and recorded the \$1.2 million fair value of the warrant issued to RealNetworks within Other assets in the consolidated balance sheets, and as an expense reduction within General and administrative expense in the consolidated statements of operations. The warrants are free-standing derivatives and as such their fair value is determined each quarter using updated inputs in the Black-Scholes option-pricing model. During the twelve months ended December 31, 2016 the decrease in the fair value of the warrants was approximately \$0.3 million.

Items Measured at Fair Value on a Non-recurring Basis

Certain of our assets and liabilities are measured at estimated fair value on a non-recurring basis, using Level 3 inputs. These instruments are subject to fair value adjustments only in certain circumstances (for example, when there is evidence of impairment). We did not record any impairments on those assets required to be measured at fair value on a non-recurring basis in 2016, 2015 or 2014.

See Note 11. Lease Exit and Related Charges, for a discussion of the losses related to reductions in the use of RealNetworks' office space, which were recorded at the estimated fair value of remaining lease obligations, less expected sub-lease income.

Note 6. Allowance for Doubtful Accounts Receivable and Sales Returns

Activity in the allowance for doubtful accounts receivable (in thousands):

	Years ended December 31,		
	2016	2015	2014
Balance, beginning of year	\$ 765	\$ 1,288	\$ 966
Addition (reduction) to allowance	36	(355)	433
Amounts written off	(152)	(77)	—
Effects of foreign currency translation	(16)	(91)	(111)
Balance, end of year	\$ 633	\$ 765	\$ 1,288

Activity in the allowance for sales returns (in thousands):

	Years ended December 31,		
	2016	2015	2014
Balance, beginning of year	\$ 158	\$ 354	\$ 569
Addition (reduction) to allowance	15	(186)	(209)
Amounts written off	(3)	(9)	(6)
Effects of foreign currency translation	(1)	(1)	—
Balance, end of year	\$ 169	\$ 158	\$ 354
Total, Allowance for Doubtful Accounts Receivable and Sales Returns	\$ 802	\$ 923	\$ 1,642

One customer accounted for 64% of trade accounts receivable at December 31, 2016. One customer accounted for 52% and one other customer accounted for 12% of trade accounts receivable as of December 31, 2015.

One customer accounted for 32% or \$38.9 million , of consolidated revenue during the year ended December 31, 2016 , in our Mobile Services segment.

One customer accounted for 26% , or \$32.9 million , of consolidated revenue during the year ended December 31, 2015 , which is reflected in our Mobile Services segment.

One customer accounted for 20% , or \$31.9 million , of consolidated revenue during the year ended December 31, 2014 , which is reflected in our Mobile Services segment.

Note 7. Other Intangible Assets

Other intangible assets (in thousands):

	As of December 31,					
	2016			2015		
	Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net
Amortizing intangible assets:						
Customer relationships	\$ 29,308	\$ 28,781	\$ 527	\$ 30,182	\$ 29,236	\$ 946
Developed technology	23,574	23,263	311	24,047	23,244	803
Patents, trademarks and tradenames	3,530	3,430	100	3,717	3,398	319
Service contracts	5,205	5,205	—	5,269	5,201	68
Total	\$ 61,617	\$ 60,679	\$ 938	\$ 63,215	\$ 61,079	\$ 2,136

An asset purchase relating to our Games business was completed in the second quarter of 2016, and resulted in an intangible asset of \$0.2 million .

In the third quarter of 2016 we recognized a gain of \$2.0 million , net of transaction costs, to Gain (loss) on investments, net, as the result of a sale of a domain name with no book value to a third party.

As discussed in Note 3. Acquisitions and Disposals , \$5.7 million worth of intangible assets, net, related to the third quarter 2015 sale of our Slingo and social casino portion of our games business, were disposed.

Amortization expense related to other intangible assets during the years ended December 31, 2016 , 2015 , and 2014 was \$1.0 million , \$2.3 million , and \$3.4 million , respectively.

Estimated future amortization of other intangible assets (in thousands):

2017	\$ 642
2018	296
Total	\$ 938

No impairments of other intangible assets were recognized in 2016 , 2015 or 2014 .

Note 8. Goodwill

Changes in goodwill (in thousands):

	December 31,	
	2016	2015
Balance, beginning of year		
Goodwill	\$ 323,733	\$ 328,008
Accumulated impairment losses	(310,653)	(310,653)
	13,080	17,355
Increases (decreases) due to current year acquisitions (disposals)	—	(3,620)

Effects of foreign currency translation	(223)	(655)
	<u>(223)</u>	<u>(4,275)</u>
Balance, end of year		
Goodwill	323,510	323,733
Accumulated impairment losses	(310,653)	(310,653)
	<u>\$ 12,857</u>	<u>\$ 13,080</u>

Goodwill by segment (in thousands):

	December 31,	
	2016	2015
Consumer Media	\$ 580	\$ 580
Mobile Services	1,979	2,202
Games	10,298	10,298
Total goodwill	<u>\$ 12,857</u>	<u>\$ 13,080</u>

As discussed in Note 3. Acquisitions and Disposals , \$3.6 million of goodwill was disposed of in the third quarter 2015 sale of our Slingo and social casino portion of our games business.

No impairments of goodwill were recorded in 2016 , 2015 , or 2014 .

Note 9. Accrued and Other Current Liabilities

Accrued and other current liabilities (in thousands):

	December 31, 2016	December 31, 2015
Royalties and other fulfillment costs	\$ 2,629	\$ 3,094
Employee compensation, commissions and benefits	5,136	5,958
Sales, VAT and other taxes payable	3,258	2,976
Other	4,402	5,292
Total accrued and other current liabilities	<u>\$ 15,425</u>	<u>\$ 17,320</u>

Note 10. Restructuring Charges

Restructuring and other charges in 2016 , 2015 and 2014 consist of costs associated with the ongoing reorganization of our business operations and our ongoing expense re-alignment efforts. The expense amounts in all three years primarily relate to severance costs due to workforce reductions.

Restructuring charges are as follows (in thousands):

	Employee Separation Costs
Costs incurred and charged to expense for the year ended December 31, 2016	\$ 1,489
Costs incurred and charged to expense for the year ended December 31, 2015	\$ 5,279
Costs incurred and charged to expense for the year ended December 31, 2014	\$ 4,992

Changes to the accrued restructuring liability (which is included in Accrued and other current liabilities) for 2016 , 2015 and 2014 , (in thousands):

	Employee Separation Costs
Accrued liability as of December 31, 2013	\$ 756

Costs incurred and charged to expense for the year ended December 31, 2014	4,992
Cash payments	(5,299)
Accrued liability as of December 31, 2014	449
Costs incurred and charged to expense for the year ended December 31, 2015	5,279
Cash payments	(4,324)
Accrued liability as of December 31, 2015	1,404
Costs incurred and charged to expense for the period to date in 2016	1,489
Cash payments	(2,684)
Accrued liability as of December 31, 2016	\$ 209

Note 11. Lease Exit and Related Charges

As a result of the reduction in use of RealNetworks' office space, primarily in our corporate headquarters in Seattle, Washington, and certain other locations, losses have been recognized representing rent and contractual operating expenses over the remaining life of the leases, including contractual, or estimates of, sublease income expected to be received, and related write-downs of leasehold improvements to their estimated fair value.

In 2015, we recorded \$2.5 million of losses primarily relating to an approximate 43% reduction of office space at our leased corporate headquarters in Seattle, Washington. In 2016, we recorded additional losses of \$2.2 million primarily relating to reduction of our office space at our corporate headquarters, resulting in total reduction of 69% as of December 31, 2016.

We continue to regularly evaluate the market for office space. If the market for such space changes further in future periods, we may have to revise our estimates which may result in future adjustments to expense for excess office facilities.

Changes to the accrued loss on excess office facilities (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Accrued loss, beginning of year	\$ 2,595	\$ 234	\$ 254
Additions and adjustments to the lease loss accrual, including sublease income estimate revision, and related asset write-downs	2,428	2,981	668
Less amounts paid, net of sublease income	(1,837)	(620)	(688)
Accrued loss, end of year	3,186	2,595	234
Less current portion (included in Accrued and other current liabilities)	(1,024)	(822)	(234)
Accrued loss, non-current portion (included in Other long term liabilities)	\$ 2,162	\$ 1,773	\$ —

Note 12. Shareholders' Equity

Accumulated Other Comprehensive Income (Loss)

Changes in components of accumulated other comprehensive income (loss) (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Investments			
Accumulated other comprehensive income (loss), beginning of period	\$ 1,297	\$ 2,252	\$ 6,397

Unrealized gains (losses), net of tax effects of \$10, \$0, and \$0	1,647	(562)	(1,774)
Reclassification adjustments for losses (gains) included in other income (expense), net of tax effects of \$0, \$0, and \$4	(2,950)	(393)	(2,371)
Net current period other comprehensive income	(1,303)	(955)	(4,145)
Accumulated other comprehensive income (loss) balance, end of period	\$ (6)	\$ 1,297	\$ 2,252
Foreign currency translation			
Accumulated other comprehensive income (loss), beginning of period	\$ (60,777)	\$ (57,504)	\$ (54,092)
Translation adjustments	(1,134)	(3,009)	(3,364)
Reclassification adjustments for losses (gains) included in other income (expense)	272	(264)	(48)
Net current period other comprehensive income	(862)	(3,273)	(3,412)
Accumulated other comprehensive loss balance, end of period	\$ (61,639)	\$ (60,777)	\$ (57,504)
Total accumulated other comprehensive income (loss), end of period	\$ (61,645)	\$ (59,480)	\$ (55,252)

Preferred Stock. Each share of Series A preferred stock entitles the holder to one thousand votes and dividends equal to one thousand times the aggregate per share amount of dividends declared on the common stock. There are no shares of Series A preferred stock outstanding.

Undesignated preferred stock will have rights and preferences that are determinable by the Board of Directors if and when determination of a new series of preferred stock has been established.

Note 13. Employee Stock and Benefit Plans

Equity Compensation Plans. Under our equity incentive plans we may grant various types of equity awards to employees and Directors. We have granted time-vest and performance-vest stock options and time-vest and performance-vest restricted stock. Generally, options vest based on continuous employment, over a four -year period. The options generally expire seven years from the date of grant and are exercisable at the market value of the common stock at the grant date. Time-vest restricted stock awards generally vest based on continuous employment over a two or four -year period. Performance-based awards vest if the specified performance targets are met and the grantee remains employed over the required period. The performance targets for these awards are generally based on the achievement of company-specific financial results. For these performance-based awards, expense is recognized when it is probable the performance goal will be achieved. We have also issued market-based performance stock options to certain employees. These awards vest if the market condition is met and the grantee remains employed over the requisite service period.

We issue new shares of common stock upon exercise of stock options and the vesting of restricted stock. As of December 31, 2016 there were 6.5 million shares of common stock authorized for future equity awards. Each restricted stock unit granted reduces and each restricted stock unit forfeited or canceled increases the shares available for future grant by a factor of 1.6 shares. Each stock option granted reduces and each stock option forfeited or canceled increases the shares available for future grant by a factor of one share. We also have an employee stock purchase plan, under which 0.3 million shares of common stock are authorized for future issuance as of December 31, 2016 .

Stock-based compensation expense recognized in our consolidated statements of operations includes amounts related to stock options, restricted stock, and employee stock purchase plans and was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Total stock-based compensation expense	\$ 5,424	\$ 4,698	\$ 5,204

The total stock-based compensation amounts disclosed above are recorded in the respective line items within operating expenses in the consolidated statement of operations. Included in the expense for 2016 was stock compensation expense

recorded for 2015 incentive bonuses paid in fully vested restricted stock units which were authorized and granted in 2016. No stock-based compensation was capitalized as part of the cost of an asset as of December 31, 2016, 2015, or 2014. As of December 31, 2016, we had \$6.7 million of total unrecognized compensation cost, net of estimated forfeitures, related to stock awards. The unrecognized compensation cost is expected to be recognized over a weighted-average period of approximately two years.

As discussed in Note 1. Description of Business and Summary of Significant Accounting Policies, the valuation models for stock option awards require various highly judgmental assumptions. The assumption for the expected term of the options represents the estimated period of time until exercise and is based on historical experience of similar awards, including the contractual terms, vesting schedules, and expectations of future employee behavior. Expected stock price volatility is based on historical volatility of our common stock for the related expected term. The risk-free interest rate is based on the implied yield available on U.S. Treasury zero-coupon issues with a term equivalent to the expected term of the stock options. The dividend yield is estimated at zero because we do not currently anticipate paying dividends in the foreseeable future.

The fair value of options granted, excluding the options related to the 2016 Exchange described below, used the following weighted average assumptions:

	Years ended December 31,		
	2016	2015	2014
Expected dividend yield	—%	—%	—%
Risk-free interest rate	1.59%	1.47%	1.40%
Expected term (years)	5.1	4.8	4.5
Volatility	35%	38%	41%

Restricted stock unit and award activity was as follows (shares are in thousands):

	Shares	Weighted Average Grant Date Fair Value Per Share	Total Grant Date Fair Value of Vested Awards (000's)
Nonvested shares, December 31, 2013	490	\$ 7.80	
Granted	159	7.60	
Vested	(193)	8.35	\$ 1,608
Forfeited/Canceled	(56)	7.73	
Nonvested shares, December 31, 2014	400	\$ 7.47	
Granted	296	5.44	
Vested	(109)	7.01	\$ 763
Forfeited/Canceled	(263)	7.27	
Nonvested shares, December 31, 2015	324	\$ 5.94	
Granted	832	3.75	
Vested	(802)	3.83	\$ 3,069
Forfeited/Canceled	(22)	5.61	
Nonvested shares, December 31, 2016	332	\$ 5.59	

At December 31, 2016 the aggregate intrinsic value of restricted stock awards was \$1.6 million and the weighted average remaining contractual term was approximately 1 year.

Stock option activity (shares are in thousands):

	Options Outstanding		Weighted Average Grant Date Fair Value
	Number of Shares	Weighted Average Exercise Price	
Outstanding, December 31, 2013	6,625	\$ 10.21	
Options granted at common stock price	2,036	7.44	\$ 2.51
Options exercised	(44)	7.26	

Options cancelled	(1,893)		14.47	
Outstanding, December 31, 2014	6,724	\$	8.19	
Options granted at common stock price	907		5.31	\$ 1.70
Options exercised	(14)		1.92	
Options cancelled	(2,100)		8.59	
Outstanding, December 31, 2015	5,517	\$	7.58	
Options granted at common stock price	1,230		4.50	\$ 1.51
Options cancelled as part of stock option exchange	(1,961)		8.11	
Options granted as part of stock option exchange	1,961		4.73	\$ 0.74
Options exercised	(90)		3.69	
Options cancelled	(796)		8.81	
Outstanding, December 31, 2016	5,861	\$	5.73	
Exercisable, December 31, 2016	1,940	\$	7.04	
Vested and expected to vest, December 31, 2016	5,550	\$	5.79	

In 2016 and 2015 we granted 400,000 and 200,000 market-based stock options, respectively, which are included in the stock option tables above.

As of December 31, 2016, the weighted average remaining contractual life of the options was as follows: outstanding options 5.8 years; exercisable options 4.3 years; and vested and expected to vest options 5.7 years.

As of December 31, 2016, the aggregate intrinsic value of the options was as follows: outstanding options \$1.0 million; exercisable options \$0.1 million; and vested and expected to vest options \$0.9 million.

The aggregate intrinsic value of stock options exercised in 2016 was \$0.1 million and was insignificant in both 2015 and 2014.

Employee Stock Purchase Plan. Our Employee Stock Purchase Plan (ESPP) allows an eligible employee to purchase shares of our common stock at a price equal to 85 percent of the fair market value of the common stock at the end of the semi-annual offering periods, subject to certain limitations. Under the ESPP, 53,600, 94,400 and 78,500 shares were purchased during the years ended December 31, 2016, 2015 and 2014, respectively.

Retirement Savings Plan. We have a salary deferral plan (401(k) Plan) that covers substantially all employees. Eligible employees may contribute a portion of their eligible compensation to the plan up to limits stated in the plan documents, not to exceed the dollar amounts set by applicable laws. During the years ended December 31, 2016, 2015, and 2014, we matched 50% of the first three percent of participating employees' contributions, and contributed \$0.3 million, \$0.6 million, and \$0.7 million, respectively, in matching contributions. We can terminate the matching contributions at our discretion. We have no other post-employment or post-retirement benefit plans.

Stock Option Exchange. In September 2016, our shareholders approved amendments to our stock plans to allow for an option exchange program. The program, which launched on November 3, 2016, offered eligible employees and certain other service providers an opportunity to exchange certain outstanding options, with a per share exercise price in excess of \$4.33 (the "Eligible Options"), for new awards. The Company granted these new options on December 6, 2016, with an exercise price of \$4.73, the fair market price of the Company's common stock as quoted on the Nasdaq Global Select Market at the close of business on that day. Members of the Company's Board of Directors, including our CEO, were not eligible for this program. In connection with the program, options to purchase 2.0 million shares of the Company's common stock were exchanged, representing 58% of total shares of common stock underlying the Eligible Options. As a result of the exchange, an additional \$1.5 million, gross of estimated forfeitures, will be recognized over approximately 2 years, or the remaining average vesting period.

Note 14. Income Taxes

Components of income (loss) before income taxes (in thousands):

	Years ended December 31,		
	2016	2015	2014
United States operations	\$ (34,100)	\$ (76,450)	\$ (67,186)

Foreign operations	(1,328)	(6,231)	(3,349)
Income (loss) before income taxes	<u>\$ (35,428)</u>	<u>\$ (82,681)</u>	<u>\$ (70,535)</u>

Components of income tax expense (benefit) (in thousands):

	Years ended December 31,		
	2016	2015	2014
Current:			
United States federal	\$ 712	\$ 176	\$ 547
State and local	59	(44)	69
Foreign	221	592	901
Total current	<u>992</u>	<u>724</u>	<u>1,517</u>
Deferred:			
United States federal	3	(1,636)	21
State and local	1	1	(40)
Foreign	126	77	(218)
Total deferred	<u>130</u>	<u>(1,558)</u>	<u>(237)</u>
Total income tax expense (benefit)	<u>\$ 1,122</u>	<u>\$ (834)</u>	<u>\$ 1,280</u>

Income tax expense differs from “expected” income tax expense (computed by applying the U.S. federal income tax rate of 35%) due to the following (in thousands):

	Years ended December 31,		
	2016	2015	2014
United States federal tax expense (benefit) at statutory rate	\$ (12,400)	\$ (28,938)	\$ (24,687)
State taxes, net of United States federal tax expense (benefit)	(533)	(1,240)	(1,083)
Change in valuation allowance	13,148	27,821	27,759
Non-deductible stock compensation	144	218	270
Impact of non-U.S. jurisdictional tax rate difference	132	648	529
Research and development tax credit	(338)	(243)	(325)
Increase (reversal) of unrecognized tax benefits	135	(1,269)	(901)
Non-U.S. withholding tax	452	141	393
Other	382	2,028	(675)
Total income tax expense (benefit)	<u>\$ 1,122</u>	<u>\$ (834)</u>	<u>\$ 1,280</u>

Net deferred tax assets are comprised of the following (in thousands):

	December 31,	
	2016	2015
Deferred tax assets:		
United States federal net operating loss carryforwards	\$ 93,985	\$ 84,426
Deferred expenses	1,136	1,591
Research and development tax credit carryforwards	24,702	24,442
Alternative minimum tax credit carryforward	3,561	3,626
Net unrealized loss on investments	97	97
Accrued loss on excess office facilities	1,178	959
Stock-based compensation	4,112	11,441
State net operating loss carryforwards	11,354	10,079
Foreign net operating loss carryforwards	29,863	30,657
Deferred revenue	156	82
Equipment, software, and leasehold improvements	4,636	4,263
Intangibles	7	12

Net unrealized gains and basis differences on investments	1,874	—
Other	1,624	5,150
Gross deferred tax assets	178,285	176,825
Less valuation allowance	176,274	173,872
Gross deferred tax assets, net of valuation allowance	\$ 2,011	\$ 2,953
Deferred tax liabilities:		
Other intangible assets	\$ (50)	\$ (404)
Net unrealized gains and basis differences on investments	—	(78)
Other	(794)	(218)
Prepaid expenses	(438)	(1,384)
Gross deferred tax liabilities	(1,282)	(2,084)
Net deferred tax assets (liabilities)	\$ 729	\$ 869

Income tax receivables were insignificant and \$0.1 million at December 31, 2016 and 2015 , respectively.

In 2016 , we continued to record a valuation allowance on the deferred tax assets that we believe are not more likely than not to be realized. The net change in valuation allowance was a \$2.4 million increase and a \$24.4 million increase during the years ended December 31, 2016 and 2015 , respectively.

We maintain a valuation allowance of \$176.3 million for our deferred tax assets due to uncertainty regarding their realization as of December 31, 2016 . The net increase in the valuation allowance since December 31, 2015 of \$2.4 million was the result of an increase in current year deferred tax assets for which the Company maintains a valuation allowance.

RealNetworks' U.S. federal net operating loss carryforwards totaled \$268.5 million at and \$241.2 million at December 31, 2016 and 2015 , respectively. The increase is mainly due to the current year U.S. taxable loss. The remaining net operating loss carryforwards as of December 31, 2016 are from prior U.S. taxable losses and from acquired subsidiaries that are limited under Internal Revenue Code Section 382. These net operating loss carryforwards expire between 2024 and 2036.

RealNetworks' alternative minimum tax credit carryforward remained at \$3.6 million from December 31, 2015 to December 31, 2016 . The alternative minimum tax credit can be carried forward indefinitely.

RealNetworks' U.S. federal research and development tax credit carryforward totaled \$24.7 million and \$24.4 million at December 31, 2016 and 2015 , respectively. The research and development credit carryforwards expire between 2020 and 2036.

As of December 31, 2016 and 2015 , we had \$0.5 million and \$0.3 million of unrecognized tax benefits, respectively. The increase in unrecognized tax benefits is due to federal research and development tax credit carryforward risks. As of December 31, 2016, there are no unrecognized tax benefits remaining that would affect our effective tax rate if recognized, as the offset would increase the valuation allowance. We do not anticipate that the total amount of unrecognized tax benefits will significantly change within the next twelve months.

We recognize interest and penalties related to unrecognized tax benefits within the provision for income taxes. As of December 31, 2016 , and 2015 we have no accrued interest or penalties related to uncertain tax positions.

Reconciliation of the beginning and ending balances of the total amounts of unrecognized tax benefits (in thousands):

	Years ended December 31,		
	2016	2015	2014
Balance, beginning of year	\$ 320	\$ 3,541	\$ 4,505
Increases related to prior year tax positions	38	—	—
Decreases related to prior year tax positions	—	(33)	(196)
Settlements with taxing authorities	—	(3,285)	—
Increases related to current year tax positions	135	97	130
Expiration of the statute of limitations	—	—	(898)
Balance, end of year	\$ 493	\$ 320	\$ 3,541

Note 15. Earnings (Loss) Per Share

Basic and diluted net income (loss) per share (EPS) (in thousands, except per share data):

	Years ended December 31,		
	2016	2015	2014
Net income (loss)	\$ (36,550)	\$ (81,847)	\$ (71,815)
Weighted average common shares outstanding used to compute basic EPS	36,781	36,165	35,947
Dilutive effect of stock based awards	—	—	—
Weighted average common shares outstanding used to compute diluted EPS	36,781	36,165	35,947
Basic EPS	\$ (0.99)	\$ (2.26)	\$ (2.00)
Diluted EPS	\$ (0.99)	\$ (2.26)	\$ (2.00)

Approximately 4.8 million , 5.7 million , and 6.3 million shares of potentially issuable shares from stock awards were excluded from the calculation of diluted EPS for the years ended December 31, 2016 , 2015 , and 2014 , respectively, because of their antidilutive effect.

Note 16. Commitments and Contingencies

Commitments. We have commitments for future payments related to office facilities leases. We lease office facilities under various operating leases expiring through 2024. Future minimum payments as of December 31, 2016 are as follows (in thousands):

	Office Leases
2017	\$ 5,302
2018	4,499
2019	4,765
2020	4,477
2021	4,325
Thereafter	10,528
Total minimum payments (a)	\$ 33,896

(a) Minimum payments have not been reduced by minimum sublease rentals of \$12.1 million due in the future under noncancelable subleases.

Of the total office lease future minimum payments, \$3.2 million is recorded in accrued lease exit and related charges at December 31, 2016 .

Rent expense during the years ended December 31, 2016 , 2015 , and 2014 , was \$4.2 million , \$5.8 million , and \$6.8 million , respectively.

We could in the future become subject to legal proceedings, governmental investigations and claims in the ordinary course of business, including employment claims, contract-related claims, and claims of alleged infringement of third-party patents, trademarks and other intellectual property rights. Such claims, even if not meritorious, could force us to expend significant financial and managerial resources. In addition, given the broad distribution of some of our consumer products, any individual claim related to those products could give rise to liabilities that may be material to us. In the event of a determination adverse to us, we may incur substantial monetary liability, and/or be required to change our business practices. Either of these could have a material adverse effect on our consolidated financial statements.

Note 17. Guarantees

In the ordinary course of business, RealNetworks is subject to potential obligations for standard warranty and indemnification provisions that are contained within many of our customer license and service agreements. Our warranty provisions are consistent with those prevalent in our industry, and we do not have a history of incurring losses on warranties;

therefore, we do not maintain accruals for warranty-related obligations. With regard to indemnification provisions, nearly all of our carrier contracts obligate us to indemnify our carrier customers for certain liabilities that may be incurred by them. We have received in the past, and may receive in the future, claims for indemnification from some of our carrier customers.

In relation to certain patents and other technology assets we sold to Intel in the second quarter of 2012, we have specific obligations to indemnify Intel for breaches of the representations and warranties that we made and covenants that we agreed to in the asset purchase agreement for certain potential future intellectual property infringement claims brought by third parties against Intel. The amount of any potential liabilities related to our indemnification obligations to Intel will not be determined until a claim has been made, but we are obligated to indemnify Intel up to the amount of the gross purchase price that we received in the sale.

Note 18. Segment Information

In the first quarter of 2016, we reorganized the management of our business and as a result, we now report three segments: (1) Consumer Media, which includes our PC-based RealPlayer products, including RealPlayer Plus and related products and intellectual property licensing; (2) Mobile Services, which includes our SaaS services and our RealTimes[®] product that is primarily sold through mobile carriers; and (3) Games, which includes all our games-related businesses, including sales of mobile games, sales of games licenses, online games subscription services, advertising on games sites and social network sites, and microtransactions from online and social games..

We allocate to our reportable segments certain corporate expenses which are directly attributable to supporting the businesses, including but not limited to a portion of finance, legal, human resources and headquarters facilities. Remaining expenses, which are not directly attributable to supporting the business, are reported as corporate items. Also reported in our corporate segment are restructuring, lease exit and related charges, as well as stock compensation charges, and the 2014 extinguishment of the liability associated with our historical musical business. Concurrent with the first quarter of 2016 segment change described above, we also changed our corporate expense allocation methodology to increase accountability, resulting in an increase in costs allocated to the Consumer Media and Mobile Services business.

RealNetworks reports the three reportable segments based on factors such as how we manage our operations and how our Chief Operating Decision Maker (CODM) reviews results. The CODM reviews financial information presented on both a consolidated basis and on a business segment basis. The accounting policies used to derive segment results are the same as those described in Note 1. Description of Business and Summary of Significant Accounting Policies .

The historical financial information presented has been recast to reflect the new segments and the new corporate expense presentation. Segment results for the years ended December 31, 2016 , 2015 and 2014 were as follows (in thousands):

Consumer Media

	2016	2015	2014
Revenue	\$ 25,051	\$ 28,613	\$ 39,121
Cost of revenue	7,074	13,257	13,466
Gross profit	17,977	15,356	25,655
Operating expenses	18,399	26,526	41,950
Operating income (loss)	\$ (422)	\$ (11,170)	\$ (16,295)

Mobile Services

	2016	2015	2014
Revenue	\$ 70,278	\$ 65,935	\$ 79,981
Cost of revenue	50,026	47,834	52,193
Gross profit	20,252	18,101	27,788
Operating expenses	34,439	44,311	53,527
Operating income (loss)	\$ (14,187)	\$ (26,210)	\$ (25,739)

Games

	2016	2015	2014
Revenue	\$ 25,139	\$ 30,748	\$ 37,110
Cost of revenue	7,919	9,291	11,074
Gross profit	17,220	21,457	26,036
Operating expenses	19,644	29,086	37,170
Operating income (loss)	\$ (2,424)	\$ (7,629)	\$ (11,134)

Corporate

	2016	2015	2014
Cost of revenue	\$ (51)	\$ (85)	\$ (352)
Extinguishment of liability	—	—	(10,580)
Operating expenses	20,192	24,263	26,917
Operating income (loss)	\$ (20,141)	\$ (24,178)	\$ (15,985)

Our customers consist primarily of consumers and corporations located in the U.S., Europe, Republic of Korea and various foreign countries (Rest of the World). Revenue by geographic region (in thousands):

	Years ended December 31,		
	2016	2015	2014
United States	\$ 41,505	\$ 46,893	\$ 61,660
Europe	13,700	15,166	26,575
Republic of Korea	43,236	37,832	39,852
Rest of the World	22,027	25,405	28,125
Total	\$ 120,468	\$ 125,296	\$ 156,212

Long-lived assets (consists of equipment, software, leasehold improvements, other intangible assets, and goodwill) by geographic region (in thousands):

	December 31,		
	2016	2015	2013
United States	\$ 13,052	\$ 16,821	\$ 33,421
Europe	3,920	4,898	6,696
Republic of Korea	168	282	547
Rest of the World	1,909	2,015	3,048
Total long-lived assets	\$ 19,049	\$ 24,016	\$ 43,712

Note 19. Related Party Transactions

See Note 4. Rhapsody Joint Venture and Note 5. Fair Value Measurements for details on transactions involving Rhapsody.

Note 20. Quarterly Information (Unaudited)

The following table summarizes the unaudited statement of operations for each quarter of 2016 and 2015 (in thousands, except per share data):

	Total	Dec. 31	Sept. 30 (2)	June 30	Mar. 31
2016					
Net revenue	\$ 120,468	\$ 31,453	\$ 31,051	\$ 29,734	\$ 28,230
Gross profit	55,500	14,095	14,311	14,036	13,058
Operating (loss) income	(37,174)	(6,369)	(8,389)	(7,637)	(14,779)
Net income (loss)	(36,550)	(9,976)	(3,056)	(8,347)	(15,171)
Basic net income (loss) per share (1)	(0.99)	(0.27)	(0.08)	(0.23)	(0.42)
Diluted net income (loss) per share (1)	(0.99)	(0.27)	(0.08)	(0.23)	(0.42)
2015					
Net revenue	\$ 125,296	\$ 29,922	\$ 30,823	\$ 33,954	\$ 30,597
Gross profit	54,999	14,094	12,733	14,122	14,050
Operating (loss) income	(69,187)	(7,506)	(21,962)	(20,707)	(19,012)
Net income (loss)	(81,847)	(8,413)	(21,184)	(27,781)	(24,469)
Basic net income (loss) per share (1)	(2.26)	(0.23)	(0.59)	(0.77)	(0.68)
Diluted net income (loss) per share (1)	(2.26)	(0.23)	(0.59)	(0.77)	(0.68)

- (1) The sum of the quarterly net income per share amounts will not necessarily equal net income per share for the year due to the use of weighted average quarterly shares and the effects of rounding.
- (2) Included in third quarter 2016 net income was a \$4.0 million pretax gain related to the 2015 sale of Slingo, described in Note 3. Acquisitions and Disposals, and a \$2.0 million pretax gain related to the sale of an intangible asset, described in Note 7. Other Intangible Assets.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders RealNetworks, Inc.:

We have audited the accompanying consolidated balance sheets of RealNetworks, Inc. and subsidiaries as of December 31, 2016 and 2015 , and the related consolidated statements of operations and comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2016 . These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of RealNetworks, Inc. and subsidiaries as of December 31, 2016 and 2015 , and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016 , in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), RealNetworks, Inc.'s internal control over financial reporting as of December 31, 2016 , based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 27, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP
Seattle, Washington
February 27, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders RealNetworks, Inc.:

We have audited RealNetworks, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). RealNetworks, Inc.'s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting (Item 9A). Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, RealNetworks, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of RealNetworks, Inc. and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2016, and our report dated February 27, 2017 expressed an unqualified opinion on those consolidated financial statements.

/s/ KPMG LLP
Seattle, Washington
February 27, 2017

Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure*

Not applicable.

Item 9A. *Controls and Procedures*

Disclosure Controls and Procedures

Our management, with the participation of the principal executive officer and principal financial officer, has evaluated the effectiveness of our “disclosure controls and procedures” (as such term is defined under Rule 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the Exchange Act)). Based on their evaluation, the principal executive officer and principal financial officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective for the purpose of ensuring that the information required to be disclosed in the reports that we file or submit under the Exchange Act (1) is recorded, processed, summarized, and reported within the time period specified in the Securities and Exchange Commission rules and forms and (2) is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on our evaluation, our management concluded that, as of December 31, 2016, RealNetworks maintained effective internal control over financial reporting.

KPMG LLP, an independent registered public accounting firm, has issued an attestation report on the effectiveness of our internal control over financial reporting as of December 31, 2016. This attestation is included within Item 8.

Changes in Internal Control over Financial Reporting

Our management, with the participation of the principal executive officer and principal financial officer, has evaluated the changes to our internal control over financial reporting that occurred during the fiscal quarter ended December 31, 2016 as required by paragraph (d) of Rules 13a-15 and 15d-15 of the Exchange Act and has concluded that there were no such changes that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. *Other Information*

Not applicable.

PART III.

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by this item is incorporated by reference to the information contained in part in the sections captioned “Proposal 1–Election of Directors,” “Board of Directors,” and “Voting Securities and Principal Holders” of the Proxy Statement relating to RealNetworks’ 2017 Annual Meeting of Shareholders or in an amendment to this 10-K, to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016 .

Item 11. *Executive Compensation*

The information required by this Item is incorporated by reference to the information contained in the section captioned “Executive Compensation” of the Proxy Statement relating to RealNetworks’ 2017 Annual Meeting of Shareholders or in an amendment to this 10-K, to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016 .

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters

The information required by this item is incorporated by reference to the information contained in the section captioned “Voting Securities and Principal Holders” of the Proxy Statement relating to RealNetworks’ 2017 Annual Meeting of Shareholders or in an amendment to this 10-K, to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016 .

Equity Compensation Plans

As of December 31, 2016 , we had awards outstanding under four equity compensation plans. These plans, which have all been approved by our shareholders, include the RealNetworks, Inc. 1995 Stock Option Plan (1995 Plan), the RealNetworks, Inc. 1996 Stock Option Plan, as amended and restated (1996 Plan), the RealNetworks, Inc. 2005 Stock Incentive Plan, as amended and restated (2005 Plan), and the RealNetworks, Inc. 2002 Director Stock Option Plan (2002 Plan). In addition, we maintain the RealNetworks, Inc. 2007 Employee Stock Purchase Plan, as amended and restated October 2010 (2007 ESPP).

In 2005, our shareholders approved the 2005 Plan and upon this approval of the 2005 Plan, we terminated the 1995 Plan, the 1996 Plan, and the 2002 Plan. In 2007, our shareholders approved an amended and restated 2005 Plan, and upon this approval, we terminated the RealNetworks, Inc. Director Compensation Stock Plan. As a result of the termination of these Plans, all new equity awards will be issued under the 2005 Plan. In 2007, our shareholders also approved the 2007 ESPP.

The following table aggregates the data from our plans (in thousands):

Plan Category	Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights (in 000's)(a)	Weighted-average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (in 000's)(c)
Equity compensation plans approved by security holders	6,193	\$ 5.73	6,479 (1)(2)
Equity compensation plans not approved by security holders	—	-	—
Total	6,193	\$ 5.73	6,479 (3)

- (1) On January 1, 2008, the 2007 ESPP became effective. Column (c) above excludes an aggregate of 0.3 million shares of the Company’s common stock that are authorized for issuance pursuant to the 2007 ESPP.
- (2) Includes shares available for future issuances pursuant to the RealNetworks, Inc. 2007 Director Compensation Stock Plan (2007 Director Plan), a sub-plan that operates and is administered under the 2005 Plan. Under the 2007 Director Plan, outside directors may elect to receive all or a portion of his or her quarterly director compensation in shares of the Company’s common stock in lieu of cash. Shares issued to directors under the 2007 Director Plan are issued from the shares reserved under the 2005 Plan.
- (3) The total securities in column (a) include 5,861 stock options and 332 restricted stock units and awards. The weighted average exercise prices in columns (b) relate to the stock options only; restricted stock units and awards have no exercise price.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is incorporated by reference to the information contained in the section captioned “Executive Compensation—Policies and Procedures with Respect to Related Person Transactions” and “Election of Directors—Director Independence” of the Proxy Statement relating to RealNetworks’ 2017 Annual Meeting of Shareholders or in an amendment to this 10-K, to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016 .

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference to the information contained in the section captioned “Proposal 2—Ratification of Appointment of Independent Registered Public Accounting Firm” of the Proxy Statement relating to RealNetworks’ 2017 Annual Meeting of Shareholders or in an amendment to this 10-K, to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016 .

PART IV.

Item 15. *Exhibits and Financial Statement Schedules*

(a)(1) Index to Consolidated Financial Statements

The following consolidated financial statements of RealNetworks, Inc. and subsidiaries are filed as part of this report:

Consolidated Balance Sheets — December 31, 2016 and 2015

Consolidated Statements of Operations and Comprehensive Income (Loss) — Years Ended December 31, 2016 , 2015 , and 2014

Consolidated Statements of Cash Flows — Years Ended December 31, 2016 , 2015 , and 2014

Consolidated Statements of Shareholders' Equity — Years Ended December 31, 2016 , 2015 , and 2014

Notes to Consolidated Financial Statements

Reports of Independent Registered Public Accounting Firm

(a)(2) Financial Statement Schedules

All financial statement schedules have been omitted since they are either not required, not applicable, or because the information required is included in the consolidated financial statements or the notes thereto.

(a)(3) Index to Exhibits

See Index to Exhibits below.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Seattle, State of Washington, on February 27, 2017 .

REALNETWORKS, INC.

BY: /s/ ROBERT GLASER

Robert Glaser

Chairman of the Board and Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below hereby constitutes and appoints Robert Glaser and Michael Parham, and each of them severally, his or her true and lawful attorneys-in-fact and agents, with full power to act without the other and with full power of substitution and resubstitution, to execute in his or her name and on his or her behalf, individually and in each capacity stated below, any and all amendments and supplements to this Report, and any and all other instruments necessary or incidental in connection herewith, and to file the same with the Commission.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated below on February 27, 2017 .

Signature	Title
/s/ <u>ROBERT GLASER</u> Robert Glaser	Chairman of the Board and Chief Executive Officer (Principal Executive Officer)
/s/ <u>MARJORIE THOMAS</u> Marjorie Thomas	Senior Vice President, Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)
/s/ <u>BRUCE A. JAFFE</u> Bruce A. Jaffe	Director
/s/ <u>CHRISTOPHER R. JONES</u> Christopher R. Jones	Director
/s/ <u>DAWN G. LEPORE</u> Dawn G. Lepore	Director
/s/ <u>JANICE ROBERTS</u> Janice Roberts	Director
/s/ <u>MICHAEL B. SLADE</u> Michael B. Slade	Director
/s/ <u>DOMINIQUE TREMPONT</u> Dominique Trempont	Director

Exhibit Index

Exhibit No.	Exhibit Description	Incorporated by Reference			
		Form	SEC File No.	Exhibit	Filing Date
2.1	Transaction, Contribution and Purchase Agreement dated as of February 9, 2010 among Rhapsody America LLC, RealNetworks, Inc., RealNetworks Digital Music of California, Inc., Viacom International Inc. and DMS Holdco Inc.	8-K	000-23137	2.1	04/06/10
2.2	• Asset Purchase Agreement dated as of January 26, 2012, by and between RealNetworks, Inc. and Intel Corporation. Certain schedules and exhibits referenced in the Asset Purchase Agreement have been omitted in accordance with Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule or exhibit will be furnished supplementally to the Securities and Exchange Commission upon request.	8-K	000-23137	2.1	01/30/12
3.1	Amended and Restated Articles of Incorporation	10-Q	000-23137	3.1	08/11/00
3.2	Articles of Amendment to the Amended and Restated Articles of Incorporation	8-K	000-23137	3.1	08/31/11
3.3	Amended and Restated Bylaws effective July 23, 2010	8-K	000-23137	3.1	07/29/10
4.1	Amended and Restated Shareholder Rights Plan dated as of December 2, 2008, by and between RealNetworks, Inc. and Mellon Investor Services LLC including the form of Certificate of Designation, the form of Rights Certificate and the Summary of Rights attached thereto as Exhibits A, B and C, respectively	8-K	000-23137	4.1	12/03/08
4.2	Amendment to Amended and Restated Shareholder Rights Plan, dated as of April 15, 2016, between RealNetworks, Inc. and Computershare, Inc. (as successor to Mellon Investor Services, LLC.), as rights agent	8-K	000-23137	4.1	04/15/16
10.1	Shareholder Rights Plan Exception Agreement, dated as of April 15, 2016, between RealNetworks, Inc. and Ariel Investments, LLC	8-K	000-23137	10.1	04/15/16
10.2	† RealNetworks, Inc. 1995 Stock Option Plan	S-8	333-63333	99.1	09/14/98
10.3	† * RealNetworks, Inc. 1996 Stock Option Plan, as amended and restated on September 19, 2016				
10.4	† RealNetworks, Inc. 2000 Stock Option Plan, as amended and restated on June 1, 2001	10-Q	000-23137	10.2	08/13/01
10.5	† Amendment No. 1 to the RealNetworks, Inc. 2000 Stock Option Plan, as amended and restated on June 1, 2001 (effective December 17, 2009)	8-K	000-23137	10.2	12/21/09
10.6	† * Amendment No. 2 to the RealNetworks, Inc. 2000 Stock Option Plan, as amended and restated on June 1, 2001 (effective September 19, 2016)				
10.7	† RealNetworks, Inc. 2002 Director Stock Option Plan	10-Q	000-23137	10.2	07/25/02
10.8	† Form of Stock Option Agreement under the RealNetworks, Inc. 1996 Stock Option Plan, as amended and restated	10-Q	000-23137	10.1	11/14/02
10.9	† Form of Stock Option Agreement under the RealNetworks, Inc. 2000 Stock Option Plan, as amended and restated	10-Q	000-23137	10.2	11/14/02
10.10	† Forms of Stock Option Agreement under the RealNetworks, Inc. 2002 Director Stock Option Plan	10-Q	000-23137	10.3	11/14/02
10.11	† RealNetworks, Inc. 2007 Employee Stock Purchase Plan as amended and restated effective October 18, 2010	10-K	000-23137	10.10	03/16/11
10.12	† RealNetworks, Inc. 2007 Director Compensation Stock Plan	10-K	000-23137	10.9	02/29/08
10.13	† * RealNetworks, Inc. 2005 Stock Incentive Plan, as amended and restated effective September 19, 2016				
10.14	† Form of Non-Qualified Stock Option Terms and Conditions for use under the RealNetworks, Inc. 2005 Stock Incentive Plan, as amended and restated	10-K	000-23137	10.13	03/18/13

Exhibit No.	Exhibit Description	Incorporated by Reference			
		Form	SEC File No.	Exhibit	Filing Date
10.15	† Form of Restricted Stock Units Terms and Conditions for use under the RealNetworks, Inc. 2005 Stock Incentive Plan, as amended and restated	10-K	000-23137	10.14	03/18/13
10.16	† Form of Performance Restricted Stock Units Terms and Conditions for use under the RealNetworks, Inc. 2005 Stock Incentive Plan, as amended and restated	10-K	000-23137	10.15	03/18/13
10.17	Office Building Lease dated May 2, 2013 between 1501 First Avenue South Limited Partnership, as landlord, and RealNetworks, Inc., as tenant	10-Q	000-23137	10.2	08/08/13
10.18	† Form of Director and Officer Indemnification Agreement	S-1	333-36553	10.14	09/26/97
10.19	Voting Agreement dated September 25, 1997 by and among RealNetworks, Robert Glaser, Accel IV L.P., Mitchell Kapor and Bruce Jacobsen	S-1	333-36553	10.17	09/26/97
10.2	Agreement dated September 26, 1997 by and between RealNetworks and Robert Glaser	S-1	333-36553	10.18	09/26/97
10.21	† Offer Letter dated July 24, 2014 between RealNetworks, Inc. and Robert Glaser	10-Q	000-23137	10.2	11/06/14
10.22	† Offer Letter dated May 31, 2014 between RealNetworks, Inc. and Michael Mulica	10-Q	000-23137	10.1	08/07/14
10.23	† Transition and Release Agreement dated March 30, 2016 between RealNetworks, Inc. and Michael Mulica	10-Q	000-23137	10.2	05/06/16
10.24	† Offer Letter dated January 7, 2013 between RealNetworks, Inc. and Max Pellegrini	10-Q	000-23137	10.1	05/08/13
10.25	† Promotion Letter dated August 24, 2012 between RealNetworks, Inc. and Michael Parham	10-Q	000-23137	10.3	08/08/13
10.26	† Offer Letter dated between RealNetworks, Inc. and Marjorie Thomas	10-K	000-23137	10.25	02/25/15
10.27	† Offer Letter dated September 13, 2016 between RealNetworks, Inc. and William Patrizio	10-Q	000-23137	10.26	11/04/16
10.28	† Form of Amended and Restated Change in Control and Severance Agreement for Executive Officers	10-Q	000-23137	10.5	08/09/11
10.29	† Form of MBO Plan Document under the RealNetworks, Inc. 2013 Executive Compensation Program	8-K	000-23137	10.1	03/29/13
10.30	† Form of MBO Plan Document under the RealNetworks, Inc. 2014 Executive Compensation Program	8-K	000-23137	10.1	02/13/14
10.31	† Form of MBO Plan Document under the RealNetworks, Inc. 2015 Executive Compensation Program	8-K	000-23137	10.1	02/24/15
10.32	† Form of MBO Plan Document under the RealNetworks, Inc. 2016 Executive Compensation Program	8-K	000-23137	10.1	05/03/16
10.33	• Amended and Restated Settlement Agreement dated as of March 10, 2006 between RealNetworks, Inc. and Microsoft Corporation	10-K	000-23137	10.24	03/16/06
10.34	• Transaction, Contribution and Purchase Agreement dated as of August 20, 2007 by and among Rhapsody America LLC, RealNetworks, Inc., RealNetworks Digital Music of California, Inc., Viacom International Inc. and DMS Holdco Inc.	10-Q	000-23137	10.1	11/09/07
10.35	Amended and Restated Stockholder Agreement dated as of November 30, 2011 among Rhapsody International Inc., RealNetworks, Inc., RealNetworks Digital Music of California, Inc., Viacom International Inc., Napster, LLC, Best Buy Co., Inc. and DMS Holdco Inc.	10-K	000-23137	10.43	02/29/12
10.36	• License Agreement, dated as of January 26, 2012, by and between RealNetworks, Inc. and Intel Corporation	8-K/A	000-23137	10.1	04/11/12

Exhibit No.	Exhibit Description	Incorporated by Reference			
		Form	SEC File No.	Exhibit	Filing Date
21.1	* Subsidiaries of RealNetworks, Inc.				
23.1	* Consent of KPMG LLP				
24.1	* Power of Attorney (included on signature page)				
31.1	* Certification of Robert Glaser, Chief Executive Officer of RealNetworks, Inc., pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				
31.2	* Certification of Marjorie Thomas, Senior Vice President, Chief Financial Officer and Treasurer of RealNetworks, Inc., pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				
32.1	** Certification of Robert Glaser, Chief Executive Officer of RealNetworks, Inc., pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				
32.2	** Certification of Marjorie Thomas, Senior Vice President, Chief Financial Officer and Treasurer of RealNetworks, Inc., pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				
101.INS	* XBRL Instance Document				
101.SCH	* XBRL Taxonomy Extension Schema Document				
101.CAL	* XBRL Taxonomy Extension Calculation Linkbase Document				
101.LAB	* XBRL Taxonomy Extension Label Linkbase Document				
101.PRE	* XBRL Taxonomy Extension Presentation Linkbase Document				
101.DEF	* XBRL Taxonomy Extension Definition Linkbase Document				
†	Indicates management contract or compensatory plan.				
♦	Portions of this exhibit are omitted and were filed separately with the Securities and Exchange Commission pursuant to an application requesting confidential treatment under Rule 24b-2 of the Securities Exchange Act of 1934.				
*	Filed herewith.				
**	Furnished herewith.				

REALNETWORKS, INC.

AMENDED AND RESTATED 1996 STOCK OPTION PLAN (as amended and restated as of September 19, 2016)

1

PURPOSE AND EFFECTIVENESS

1.1 Purpose . The purpose of the 1996 Stock Option Plan (the "Plan") is to provide a method by which selected individuals rendering services to RealNetworks, Inc., a Washington corporation (the "Company"), may be offered an opportunity to invest in capital stock of the Company, thereby increasing their personal interest in the growth and success of the Company. The Plan is also intended to aid in attracting persons of exceptional ability to become officers and employees of the Company.

1.2 Effective Date ; Shareholder Approval. The Plan shall be effective at the time specified in the resolutions of the Board adopting the Plan (the "Effective Date"). The Plan shall be subject to the requirement of RCW 21.20.310(10) that the Administrator of Securities of the Department of Financial Institutions of the State of Washington be provided with notification of the adoption of the Plan. No Option shall be granted hereunder until this notification requirement has been satisfied. The issuance of Incentive Stock Options shall be subject to approval of the Plan by holders of shares of Common Stock constituting at least a majority of the shares of Common Stock represented in person or by proxy at the meeting at which the approval is sought. If this shareholder approval requirement is not satisfied within twelve (12) months after the Effective Date, all Incentive Stock Options issued under the Plan shall automatically become Nonqualified Stock Options.

1.3 Acquired Company Awards. Notwithstanding anything in the Plan to the contrary, the Administrative Committee may grant Options under the Plan in substitution for options issued under other plans, or assume under the Plan options issued under other plans, if the other plans are or were plans of other acquired entities ("Acquired Entities") (or the parent of the Acquired Entity) and the new Option is substituted, or the old option is assumed, by reason of a merger, consolidation, acquisition of property or of stock, reorganization or liquidation (the "Acquisition Transaction"). In the event that a written agreement pursuant to which the Acquisition Transaction is completed is approved by the Board and said agreement sets forth the terms and conditions of the substitution for or assumption of outstanding options of the Acquired Entity, said terms and conditions shall be deemed to be the action of the Administrative Committee without any further action by the Administrative Committee, except as may be required for compliance with Rule 16b-3 under the Exchange Act, and the persons holding such awards shall be deemed to be Holders.

2

DEFINITIONS

2.1 Certain Defined Terms . Capitalized terms not defined elsewhere in the Plan shall have the following meanings (whether used in the singular or plural):

"Administrative Committee" is defined in Section 3.1.

"Affiliate" of the Company means any corporation, partnership, or other business association that, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with the Company.

"Approved Transaction" means (a) any merger, consolidation or binding share exchange pursuant to which shares of Common Stock are changed or converted into or exchanged for cash, securities or other property, other than any such transaction in which the persons who hold Common Stock immediately prior to the transaction have immediately following the transaction the same proportionate ownership of the common stock of, and the same voting power with respect to, the surviving corporation; (b) any merger, consolidation or binding share exchange in which the persons who hold Common Stock immediately prior to the transaction have immediately following the transaction less than a majority of the combined voting power of the outstanding capital stock of the Company ordinarily (and apart from rights accruing under special circumstances) having the right to vote in the election of directors; (c) any liquidation or dissolution of the Company; and (d) any sale, lease, exchange or other transfer not in the ordinary course of business (in one transaction or a series of related transactions) of all, or substantially all, of the assets of the Company.

"Board" means the Board of Directors of the Company.

"Code" means the Internal Revenue Code of 1986, as amended from time to time, or any successor statute or statutes thereto. Reference to any specific section of the Code shall include any successor section.

"Common Stock" means the Common Stock, par value \$.001 per share, of the Company.

"Company" means RealNetworks, Inc., a Washington corporation.

"Control Purchase" means any transaction (or series of related transactions), consummated without the approval or recommendation of the Board, in which (a) any person, corporation or other entity (including any "person" as defined in Sections 13(d)(3) and 14(d)(2) of the Exchange Act, but excluding the Company and any employee benefit plan sponsored by the Company) purchases any Common Stock (or securities convertible into Common Stock) for cash, securities or any other consideration pursuant to a tender offer or exchange offer; or (b) any person, corporation or other entity (including any "person" as defined in Sections 13(d)(3) and 14(d)(2) of the Exchange Act, but excluding the Company and any employee benefit plan sponsored by the Company) becomes the "beneficial owner" (as that term is defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the combined voting power of the then outstanding securities of the Company ordinarily (and apart from rights accruing under special circumstances) having the right to vote in the election of directors (calculated as provided in Rule 13d-3(d) under the Exchange Act in the case of rights to acquire the Company's securities).

"Disability" means the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than twelve (12) months.

"Disinterested Person" is defined in Section 3.2(b).

"Effective Date" is defined in Section 1.2.

"Eligible Person" is defined in Section 5.

"Equity Securities" has the meaning given that term in Rule 3a11-1 promulgated under the Exchange Act, as amended from time to time, or any successor rule thereto.

"Exchange Act" means the Securities Exchange Act of 1934, as amended from time to time, or any successor statute or statutes thereto. Reference to any specific section of the Exchange Act shall include any successor section.

"Executive Officer" means any employee of the company who is an "officer" within the meaning of Rule 16a-1(f) of the Exchange Act, as amended from time to time, or any successor rule thereto.

"Fair Market Value" on any day means, if the Common Stock is publicly traded, the last sales price (or, if no last sales price is reported, the average of the high bid and low asked prices) for a share of Common Stock on that day (or, if that day is not a trading day, on the next preceding trading day), as reported by the principal exchange on which the Common Stock is listed, or, if the Common Stock is publicly traded but not listed on an exchange, as reported by The Nasdaq Stock Market, or, if such prices or quotations are not reported by The Nasdaq Stock Market, as reported by any other available source of prices or quotations selected by the Administrative Committee. If the Common Stock is not publicly traded, or if the Fair Market Value is not determinable by any of the foregoing means, the Fair Market Value on any day shall be determined in good faith by the Administrative Committee on the basis of such considerations as the Administrative Committee deems appropriate.

"Holder" means an Eligible Person who has received an Option under this Plan or, if rights continue under the Option following the death of the Eligible Person, the person who succeeds to those rights by will or by the laws of descent and distribution.

"Incentive Stock Option" means an Option that is an incentive stock option within the meaning of Section 422 of the Code.

"Nonqualified Stock Option" means an Option that is designated as a nonqualified stock option.

"Option" means an option with respect to shares of Common Stock awarded pursuant to Article 6.

"Option Agreement" is defined in Section 6.5.

"Plan" is defined in Section 1.1.

"Securities Act" means the Securities Act of 1933, as amended from time to time, or any successor statute or statutes thereto. Reference to any specific section of the Securities Act shall include any successor section.

"10% Shareholder" means a person who owns (or is considered as owning within the meaning of Section 424 of the Code) stock possessing more than 10% of the total combined voting power of all classes of capital stock of the Company.

3

ADMINISTRATION

3.1 Administrative Committee . The Plan shall be administered by the Board unless the Board, either voluntarily or as required by Section 3.2 below, appoints a separate committee of the Board to administer the Plan (the Board, or such committee, if it is administering the Plan, will be referred to in the Plan as the "Administrative Committee"). The Administrative Committee shall select one of its members as its chairman and shall hold its meetings at such times and places as it shall deem advisable. A

majority of its members shall constitute a quorum and all determinations shall be made by a majority of that quorum. Any determination reduced to writing and signed by all of the members of the Administrative Committee shall be fully as effective as if it had been made by a majority vote at a meeting duly called and held.

3.2 Appointment of Administrative Committee. The Board may appoint a committee consisting of two or more of its members to administer the Plan. Once appointed, the committee shall continue to serve until otherwise directed by the Board. From time to time the Board may increase the size of the committee and appoint additional members, remove members (with or without cause) and appoint new members in their place, fill vacancies however caused, and/or remove all members of the committee and thereafter directly administer the Plan.

3.3 Powers; Regulations . The Administrative Committee shall have full power and authority, subject only to the express provisions of the Plan (a) to designate the Eligible Persons to whom Options are to be granted under the Plan; (b) to determine the number of shares subject to, and all of the other terms and conditions (which need not be identical) of, all Options so granted; (c) to interpret the provisions of the Plan and the Option Agreements evidencing the Options so granted; (d) to correct any defect, supply any information and reconcile any inconsistency in such manner and to such extent as shall be deemed necessary or advisable to carry out the purpose of the Plan; (e) to supervise the administration of the Plan; and (f) to take such other actions in connection with or in relation to the Plan as it deems necessary or advisable. The Administrative Committee is authorized to establish, amend and rescind such rules and regulations not inconsistent with the terms and conditions of the Plan as it deems necessary or advisable for the proper administration of the Plan. In making determinations hereunder, the Administrative Committee may give such consideration to the recommendations of management of the Company as the Administrative Committee deems desirable.

3.4 Limits on Authority . Exercise by the Administrative Committee of its authority under the Plan shall be consistent (a) with the intent that all Incentive Stock Options issued under the Plan be qualified under the terms of Section 422 of the Code (including any amendments thereto and any similar successor provision), and (b) if the Company registers any class of Equity Security pursuant to Section 12 of the Exchange Act, with the intent that the Plan be administered in a manner so that, to the extent possible, the grant of Options and all other transactions with respect to the Plan, to Options and to any Common Stock acquired upon exercise of Options, shall be exempt from the operation of Section 16(b) of the Exchange Act.

3.5 Exercise of Authority . Each action and determination made or taken pursuant to the Plan by the Administrative Committee, including but not limited to any interpretation or construction of the Plan and the Option Agreements, shall be final and conclusive for all purposes and upon all persons. No member of the Administrative Committee shall be liable for any action or determination made or taken by the member or the Administrative Committee in good faith with respect to the Plan.

4

SHARES SUBJECT TO THE PLAN

4.1 Number of Shares . Subject to the provisions of this Article 4, the maximum number of shares of Common Stock with respect to which Options may be granted during the term of the Plan shall be the sum of (a) 60,200,000, plus (b) an additional 4,646,744 shares of Common Stock previously reserved for issuance pursuant to Section 4.1 of the Company's 1995 Stock Option Plan (the "1995 Plan"), plus (c) any of the 2,520,480 shares of Common Stock subject to options currently outstanding under the 1995 Plan to the extent the options terminate without having been exercised in full.

Shares of Common Stock will be made available from the authorized but unissued shares of the Company or from shares reacquired by the Company. If any Option terminates for any reason without having been exercised in full, the shares of Common Stock subject to the Option for which it has not been exercised shall again be available for purposes of the Plan.

4.2 Adjustments . If the Company subdivides its outstanding shares of Common Stock into a greater number of shares of Common Stock (by stock dividend, stock split, reclassification or otherwise) or combines its outstanding shares of Common Stock into a smaller number of shares of Common Stock (by reverse stock split, reclassification or otherwise), or if the Administrative Committee determines, in its sole discretion, that any stock dividend, extraordinary cash dividend, reclassification, recapitalization, reorganization, split-up, spin-off, combination, exchange of shares, warrants or rights offering to purchase Common Stock, or other similar corporate event (including a merger or consolidation other than one that constitutes an Approved Transaction) affects the Common Stock such that an adjustment is required in order to preserve the benefits or potential benefits intended to be made available under this Plan, then the Administrative Committee shall, in its sole discretion and in such manner as the Administrative Committee may deem equitable and appropriate, make adjustments to any or all of (a) the number and kind of shares with respect to which Options may thereafter be granted under this Plan; (b) the number and kind of shares subject to outstanding Options, and (c) the purchase price under outstanding Options; *provided, however*, that the number of shares subject to an Option shall always be a whole number. The Administrative Committee may, if deemed appropriate, provide for a cash payment to any Holder of an Option in connection with any adjustment made pursuant to this Section 4.2.

5

ELIGIBILITY

The persons eligible to participate in the Plan and to receive Options under the Plan ("Eligible Persons") shall be (a) employees (including officers and directors who are also employees) of the Company or any of its Affiliates, and (b) consultants (and directors who are not employees) rendering services to the Company or any of its Affiliates in the capacity of independent contractors. Options may be granted to Eligible Persons even if they hold or have held Options under this Plan or options or similar awards under any other plan of the Company or any of its Affiliates.

6

STOCK OPTIONS

6.1 Grant of Options . Subject to the limitations of the Plan, the Administrative Committee shall designate from time to time each Eligible Person who is to be granted an Option, the time when the Option shall be granted, the number of shares subject to the Option, whether the Option is to be an Incentive Stock Option or a Nonqualified Stock Option and, subject to Section 6.2, the purchase price of the shares of Common Stock subject to the Option; *provided, however*, that Incentive Stock Options may only be granted to Eligible Persons who are employees of the Company or an Affiliate that constitutes a "parent corporation" or a "subsidiary corporation" within the meaning of Section 424 of the Code. Each Option granted under this Plan shall also be subject to such other terms and conditions not inconsistent with this Plan as the Administrative Committee, in its sole discretion, determines. Subject to the limitations of the Plan, the same Eligible Person may receive Incentive Stock Options and Nonqualified Stock Options at the same time and pursuant to the same Option Agreement, provided that Incentive Stock Options and Nonqualified Stock Options are clearly designated as such.

6.2 Purchase Price . The price at which shares may be purchased upon exercise of an Option shall be fixed by the Administrative Committee and may be more than, less than or equal to the Fair Market Value of the Common Stock as of the date the Option is granted; *provided, however*, that the purchase price of an Incentive Stock Option shall be (a) at least 110% of the Fair Market Value as of the date of grant of the Common Stock subject thereto, if the Incentive Stock Option is being granted to a 10% Shareholder, and (b) at least 100% of the Fair Market Value as of the date of grant of the Common Stock subject thereto, if the Incentive Stock Option is being granted to any other Eligible Person.

6.3 Limitations on Grants .

(a) Annual Limitation on Grants of Incentive Stock Options . The aggregate Fair Market Value of the shares of Common Stock with respect to which, during any calendar year, one or more Incentive Stock Options under this Plan (and/or one or more options under any other plan maintained by the Company or any of its Affiliates for the granting of options intended to qualify under Section 422 of the Code) become exercisable for the first time by a Holder shall not exceed \$100,000 (said value to be determined as of the respective dates on which the options are granted to the Holder). If (i) a Holder holds one or more Incentive Stock Options under this Plan (and/or one or more options under any other plan maintained by the Company or any of its Affiliates for the granting of options intended to qualify under Section 422 of the Code), and (ii) the aggregate Fair Market Value of the shares of Common Stock with respect to which, during any calendar year, such options become exercisable for the first time exceeds \$100,000 (said value to be determined as provided above), then such option or options are intended to qualify under Section 422 of the Code with respect to the maximum number of such shares as can, in light of the foregoing limitation, be so qualified, with the shares so qualified to be the shares subject to the option or options earliest granted to the Holder. If an Option that would otherwise qualify as an Incentive Stock Option becomes exercisable for the first time in any calendar year for shares of Common Stock that would cause such aggregate Fair Market Value to exceed \$100,000, then the portion of the Option in respect of such shares shall be deemed to be a Nonqualified Stock Option.

(b) Annual Limitation on Grants Following Exchange Act Registration . If the Company registers any class of any Equity Security pursuant to Section 12 of the Exchange Act, then, from the effective date of the registration until six (6) months after the termination of the registration, the number of shares subject to one or more Options granted during any calendar year to an Eligible Person shall not exceed one million (1,000,000).

6.4 Term of Options . Subject to the provisions of the Plan with respect to termination of Options upon death, Disability or termination of services, the term of each Option shall be for such period as the Administrative Committee shall determine, but not more than (a) five (5) years from the date of grant in the case of Incentive Stock Options held by 10% Shareholders; (b) ten (10) years from the date of grant in the case of Incentive Stock Options held by persons other than 10% Shareholders; and (c) twenty (20) years from the date of grant in the case of all other Options, *provided, however*, that the term for a Nonqualified Stock Option granted more than one (1) year following the Effective Date shall be ten (10) years unless otherwise determined by the Administrative Committee.

6.5 Option Agreement . Each Option granted under the Plan shall be evidenced by an agreement (the "Option Agreement") which shall designate the Option as an Incentive Stock Option or a Nonqualified Stock Option and contain such terms and provisions not inconsistent with the provisions of the Plan as the Administrative Committee from time to time approves. Each grantee of an Option shall be notified promptly of the grant, an Option Agreement shall be executed and delivered by the Company to the grantee within sixty (60) days after the date the Administrative Committee approves the grant, and, in the discretion of the Administrative Committee, the grant shall terminate if the Option Agreement is not signed by the grantee (or his or her attorney) and delivered to the Company within sixty (60) days after it is delivered to the grantee. An Option Agreement may contain (but shall not be required to contain) such

provisions as the Administrative Committee deems appropriate to insure that the penalty provisions of Section 4999 of the Code will not apply to any stock received by the Holder from the Company. An Option Agreement may be modified from time to time pursuant to Section 7.6(b).

6.6 Exercise of Options . An Option granted under the Plan shall become and remain exercisable during the term of the Option to the extent provided in the Option Agreement evidencing the Option and in this Plan and, unless the Option Agreement otherwise provides, may be exercised to the extent exercisable, in whole or in part, at any time and from time to time during such term; *provided, however*, that subsequent to the grant of an Option, the Administrative Committee, at any time before complete termination of the Option, may accelerate the time or times at which the Option may be exercised in whole or in part (without reducing the term of the Option). If an Option is scheduled to become exercisable on one or more dates specified in its Option Agreement, and its Holder has a leave of absence without pay, such date or dates shall be postponed for a period equal to the duration of the leave unless the Administrative Committee determines otherwise.

6.7 Manner of Exercise .

(a) Form of Payment . An Option shall be exercised by written notice to the Company upon such terms and conditions as the Option Agreement evidencing the Option may provide and in accordance with such other procedures for the exercise of Options as the Administrative Committee may establish from time to time. The method or methods of payment of the purchase price for the shares to be purchased upon exercise of an Option and of any amounts required by Section 7.8 shall be determined by the Administrative Committee and may consist of (i) cash, (ii) check, (iii) promissory note, (iv) whole shares of Common Stock already owned by the Holder, (v) the withholding of shares of Common Stock issuable upon exercise of the Option, (vi) the delivery, together with a properly executed exercise notice, of irrevocable instructions to a broker to deliver promptly to the Company the amount of sale or loan proceeds required to pay the purchase price, (vii) any combination of the foregoing methods of payment, or (viii) such other consideration and method of payment as may be permitted for the issuance of shares under applicable securities and other laws. The permitted methods or methods of payment of the amounts payable upon exercise of an Option, if other than in cash, shall be set forth in the Option Agreement evidencing the Option and may be subject to such conditions as the Administrative Committee deems appropriate. Without limiting the generality of the foregoing, if a Holder is permitted to elect to have shares of Common Stock issuable upon exercise of an Option withheld to pay all or any part of the amounts payable in connection with the exercise, then the Administrative Committee shall have the sole discretion to approve or disapprove the election, which approval or disapproval shall be given after the election is made.

(b) Value of Shares . Shares of Common Stock delivered in payment of all or any part of the amounts payable in connection with the exercise of an Option, and shares of Common Stock withheld for the payment, shall be valued for such purpose at their Fair Market Value as of the exercise date.

(c) Issuance of Shares . The Company shall effect the issuance of the shares of Common Stock purchased under the Option as soon as practicable after the exercise thereof and payment in full of the purchase price therefor and of any amounts required by Section 7.8, and within a reasonable time thereafter the issuance shall be evidenced on the books of the Company. Following the exercise of an Incentive Stock Option, the Administrative Committee shall cause the information statement required by Section 6039 of the Code to be furnished to the Holder within the time and in the manner prescribed by law.

6.8 Legends . Each certificate representing shares of Common Stock issued under the Plan upon exercise of an Option shall, unless the Administrative Committee otherwise determines, contain on its face the notice "**SEE TRANSFER RESTRICTIONS ON REVERSE**" and on its reverse

a legend in form substantially as follows, together with any other legends that are required by the terms and conditions of the Plan or that the Administrative Committee in its discretion deems necessary or appropriate:

NOTICE: TRANSFER AND OTHER RESTRICTIONS

THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, OR ANY STATE SECURITIES LAWS, AND MAY NOT BE OFFERED, SOLD, TRANSFERRED, ENCUMBERED, OR OTHERWISE DISPOSED OF EXCEPT UPON SATISFACTION OF CERTAIN CONDITIONS. INFORMATION CONCERNING THESE RESTRICTIONS MAY BE OBTAINED FROM THE CORPORATION. ANY OFFER OR DISPOSITION OF THESE SECURITIES WITHOUT SATISFACTION OF SAID CONDITIONS WILL BE WRONGFUL AND WILL NOT ENTITLE THE TRANSFEREE TO REGISTER OWNERSHIP OF THE SECURITIES WITH THE CORPORATION.

THE SECURITIES REPRESENTED BY THIS CERTIFICATE ARE ALSO SUBJECT TO RESTRICTIONS ON TRANSFER, AND MAY BE SUBJECT TO REPURCHASE BY THE CORPORATION OR ONE OR MORE OF ITS SHAREHOLDERS PURSUANT TO THE PROVISIONS OF THE CORPORATION'S 1996 STOCK OPTION PLAN AND/OR AN AGREEMENT BETWEEN THE HOLDER AND THE CORPORATION AND/OR AN AGREEMENT AMONG THE CORPORATION AND ITS SHAREHOLDERS. INFORMATION CONCERNING THESE RESTRICTIONS MAY BE OBTAINED FROM THE CORPORATION.

The Company may cause the transfer agent for the Common Stock to place a stop transfer order with respect to such shares.

6.9 Nontransferability . Unless the Administrative Committee determines otherwise at the time an Option is granted (or at any later time when the Administrative Committee, by written notice to the Holder, releases in whole or in part the restrictions under this Section 6.9), an Option shall not be transferable other than by will or the laws of descent and distribution, and may be exercised during the lifetime of the Holder thereof only by the Holder (or his or her court appointed legal representative). Options shall not be transferable other than by will or the laws of descent and distribution, and Options may be exercised during the lifetime of the Holder thereof only by the Holder (or his or her court appointed legal representative).

6.10 Repurchase of Shares .

(a) Right of Repurchase . If so specified by the Administrative Committee at the time an Option is granted to a Holder who is an employee of the Company or any of its Affiliates or a party to a consulting arrangement with the Company or any of its Affiliates, the Company shall have the right, but shall not be required, to repurchase from the Holder all or part of (i) the shares of Common Stock that the Holder acquires upon the exercise of the Option, and (ii) any other shares of Common Stock or other securities issued or acquired with respect to the shares specified in the preceding clause (i) or this clause (ii) in connection with any stock dividend, stock split, reclassification, recapitalization, reorganization, split-up, spin-off, combination, exchange of shares, warrants or rights offering to purchase Common Stock, or other similar corporate event. Such right shall be exercisable at any time and from time to time during the period of ninety (90) days commencing on the date of termination of the Holder's employment or consulting agreement with the Company or any of its Affiliates for "cause," as defined in Section 7.2(b).

(b) Exercise of Repurchase Right . The Company's right of repurchase under this Section 6.10 shall be exercised by delivery written notice to the Holder specifying the number of shares or other securities to be repurchased and the effective date of the repurchase, which date shall not be earlier than the date of the notice nor later than the date of termination of the Company's right of repurchase. If a Holder transfers shares or other securities that are subject to the Company's right of repurchase, the shares or other securities shall remain subject to the Company's right of repurchase during the period specified in the last sentence of Section 6.10(a) (exercise of the right of repurchase in such even shall be effected by notice to the person or entity holding the shares or other securities at the time of exercise).

(c) Repurchase Price . With respect to each share or other security to be repurchased by the Company upon its exercise of its right of repurchase under this Section 6.10, the repurchase price shall be the Fair Market Value of the share or security as of the effective date of the repurchase. The Company may elect to pay the amount owed to the Holder (or to the person or entity holding the share or other security to be repurchased) either (i) in cash, in which case the amount shall be paid, without interest, within thirty (30) days following the effective date of the repurchase, or (ii) in three equal installments, with the first installment payable on the first anniversary of the effective date of the repurchase, and the remaining installments payable on the corresponding date in each of the next two years, with each installment to include interest on the unpaid principal computed at the prime rate published in the Wall Street Journal for the first business day of the month in which the effective date of the repurchase occurs, for the period from the effective date of the repurchase or the date of the most recent installment, as the case may be, to the due date of the installment being paid.

(d) Termination of Right of Repurchase . Any right of repurchase of the Company under this Section 6.10 shall terminate upon the occurrence of a Control Purchase or an Approved Transaction (other than an Approved Transaction in connection with which the Administrative Committee determines, in accordance with the last sentence of Section 7.1, that Options otherwise subject to such right of repurchase will not vest or become exercisable on an accelerated basis and/or will not terminate if not exercised prior to consummation of the Approved Transaction). Any right of repurchase of the Company under this Section 6.10 shall also terminate upon the effective date of the registration by the Company of any class of any Equity Security pursuant to Section 12 of the Exchange Act.

6.11 Class of Common Stock. The class of shares subject to each Option and the class of shares to be received upon exercise of each Option shall depend upon the employment status of the Eligible Person at the date the Option is granted and at the date the Option is exercised. If the Eligible Person is an employee (including officers and directors who are also employees) of the Company or one of its Affiliates as of the date the Option is granted, the shares subject to the Option shall be shares of Series B Common Stock, which are automatically convertible into the shares of Series C Common Stock upon the occurrence of certain events (a "Conversion Event") as described in the Company's Articles of Incorporation, as amended from time to time (the "Articles"), provided, that if a Conversion Event occurs prior to the exercise of an Option, the shares subject to the Option shall be shares of Series C Common Stock, with the rights defined in the Articles. If the Eligible Person is a consultant (other than a director) rendering services to the Company or any of its Affiliates in the capacity of an independent contractor as of the date the Option is granted, the shares subject to the Option shall be shares of Series C Common Stock, with the rights defined in the Articles, regardless of the Eligible Person's employment status with the Company at the date the Option is exercised.

6.12 Delegation to Executive Officer of Authority to Grant Options. The Board may delegate to an Executive Officer the authority to determine from time to time (a) the Eligible Persons to whom Options are to be granted; (b) the number of shares of Common Stock for which the Options are exercisable and the purchase price of such shares; (c) whether the Options are Incentive Stock Options or Nonqualified Stock Options; and (d) all of the other terms and conditions (which need not be identical) of the Options; **provided, however**, that (i) the authority delegated to the Executive Officer under this Section 6.12 shall not exceed that of the Administrative Committee under the foregoing provisions of this

Article 6 and shall be subject to such limitations, in addition to those specified in this Section 6.12, as may be specified by the Board at the time of delegation; (ii) the Executive Officer may not be delegated authority under this Section 6.12 to grant any Option to any person who is an Executive Officer or a director of the Company at the time of the grant; (iii) the purchase price of each share of Common Stock under an Option granted under this Section 6.12 shall not be less than the Fair Market Value of such share on the date of grant of the Option; and (iv) the Executive Officer shall promptly provide a report to the Administrative Committee of each person to whom an Option has been granted under this Section 6.12 and the material terms and conditions of the Option.

7

GENERAL PROVISIONS

7.1 Acceleration of Options — Approved Transactions; Control Purchase . In the event of any Approved Transaction or Control Purchase, each outstanding Option under the Plan shall become exercisable in full in respect of the aggregate number of shares covered thereby, notwithstanding any contrary vesting schedule in the Option Agreement evidencing the Option (except to the extent the Option Agreement expressly provides otherwise), effective upon the Control Purchase or immediately prior to consummation of the Approved Transaction. In the case of an Approved Transaction, the Company shall provide notice of the pendency of the Approved Transaction, at least fifteen (15) days prior to the expected date of consummation thereof, to each Holder of an outstanding Option. Each Holder shall thereupon be entitled to exercise the Option at any time prior to consummation of the Approved Transaction. Any such exercise as to any portion of the Option that will only become vested immediately prior to the consummation of the Approved Transaction in accordance with the foregoing acceleration provision shall be contingent on such consummation. Any such exercise as to any other portion of the Option will not be contingent on such consummation unless so elected by the Holder in a notice delivered to the Company simultaneously with the exercise. Upon consummation of the Approved Transaction, all Options shall expire to the extent such exercise has not occurred. Notwithstanding the foregoing, except to the extent otherwise provided in one or more Option Agreements evidencing Options, the Administrative Committee may, in its discretion, determine that any or all outstanding Options will not vest or become exercisable on an accelerated basis in connection with an Approved Transaction and/or will not terminate if not exercised prior to consummation of the Approved Transaction, if the Board or the surviving or acquiring corporation, as the case may be, shall take, or made effective provision for the taking of, such action as in the opinion of the Administrative Committee is equitable and appropriate in order to substitute new Options for such Options, or to assume such Options (which assumption may be effected by any means determined by the Administrative Committee, in its discretion, including, but not limited to, by a cash payment to each Holder, in cancellation of the Options held by him or her, of such amount as the Administrative Committee determines, in its sole discretion, represents the then value of the Options) and in order to make such new or assumed Options, as nearly as practicable, equivalent to the old Options (before giving effect to any acceleration of the vesting or exercisability thereof), taking into account, to the extent applicable, the kind and amount of securities, cash or other assets into or for which the Common Stock may be changed, converted or exchanged in connection with the Approved Transaction.

7.2 Termination of Services . The provisions of this Section 7.2 shall apply to any Holder who is an employee of the Company or any of its Affiliates or a party to a written consulting agreement with the Company or any of its Affiliates.

(a) General . If such a Holder's employment or consulting agreement terminates prior to the complete exercise of an Option, then the Option shall, except to the extent the Option Agreement evidencing the Option expressly provides otherwise, thereafter be exercisable, to the

extent that the Holder was entitled to exercise the Option on the date of such termination, for a period of three (3) months following such termination (but not later than the scheduled expiration date of the Option); **provided, however**, that (i) if the Holder's employment or consulting agreement terminates by reason of Disability, then, except to the extent the Option Agreement evidencing the Option expressly provides otherwise, the Option shall be exercisable, to the extent that the Holder was entitled to exercise the Option on the date of such termination, for a period of one (1) year following such termination (but not later than the scheduled expiration of the Option), (ii) if a Holder's employment or consulting agreement terminates due to his or her death, any Option held by such Holder, to the extent that the Holder would have been entitled to exercise such Option, may be exercised in full, whether or not the vesting requirements set forth in the Option Agreement have been satisfied, within one year after his or her death (but not later than the scheduled expiration of the Option) by the personal representative of his or her estate or by the person or persons to whom the Holder's rights under the option shall pass by will or by the applicable laws of descent and distribution, (iii) if a Holder dies within the three (3) month period following cessation of the Holder's employment or consulting relationship (twelve (12) months in the case of Disability), any Option held by such Holder, to the extent that the Holder would have been entitled to exercise such Option, may be exercised within one year after his or her death (but not later than the scheduled expiration of the Option) by the personal representative of his or her estate or by the person or persons to whom the Holder's rights under the option shall pass by will or by the applicable laws of descent and distribution, and (iv) any termination by the Company or any of its Affiliates for cause will be treated in accordance with the provisions of Section 7.2(b) (except to the extent the Option Agreement expressly provides otherwise).

(b) Termination by Company for Cause . If a Holder's employment or consulting agreement with the Company or any of its Affiliates is terminated for cause, then all Options held by the Holder shall immediately terminate and, accordingly, may not be exercised, except to the extent one or more of the Option Agreements evidencing the Options expressly provides otherwise. For purposes of this Plan, "cause" shall have the meaning given that term in any employment agreement or consulting agreement to which the Holder is a party or, in the absence thereof, the conduct that shall constitute "cause" for purposes of this Plan shall be insubordination, a knowing violation of a state or federal law involving the commission of a crime against the Company or any of its Affiliates or a felony, any misrepresentation, deception, fraud or dishonesty that is materially injurious to the Company or any of its Affiliates, incompetence, moral turpitude, the refusal to perform the Holder's duties and responsibilities for any reason other than illness or incapacity, and any other misconduct of any kind that the Administrative Committee determines constitutes "cause" for purposes of this Plan; **provided, however**, that if a termination occurs within twelve (12) months after an Approved Transaction or Control Purchase, termination for cause shall mean only a felony conviction for fraud, misappropriation or embezzlement. Following termination of a Holder's employment or consulting agreement, if the Holder engages in any act that would have constituted cause if the Holder had remained employed by or in a consulting relationship with the Company or any of its Affiliates, then the Administrative Committee shall be entitled to terminate any Options held by the Holder.

(c) Miscellaneous . The Administrative Committee may determine whether any given leave of absence of a Holder constitutes a termination of the Holder's employment or consulting agreement; **provided, however**, that for purposes of the Plan —

(i) a leave of absence, duly authorized in writing by the Company or any of its Affiliates for military service or sickness, or for any other purpose approved by the Company or any of its Affiliates, if the period of the leave does not exceed ninety (90) days, and

(ii) a leave of absence in excess of ninety (90) days, duly authorized in writing by the Company or any of its Affiliates, provided the Holder's right to return to service with the Company or the Affiliate is guaranteed either by statute or by contract —

shall not be deemed a termination of the Holder's employment or consulting agreement. Options granted under the Plan shall not be affected by any change of a Holder's employment or consulting agreement so long as the Holder continues to be an employee of or consultant to the Company or any of its Affiliates. Except to the extent an Option Agreement evidencing an Option expressly provides otherwise, if a Holder has an employment or consulting agreement with an Affiliate of the Company that ceases to be an Affiliate, such event shall be deemed to constitute a termination of the Holder's employment or consulting agreement for a reason other than death or Disability.

7.3 Right to Terminate Services . Nothing contained in the Plan or in any Option Agreement, and no action of the Company or the Administrative Committee with respect thereto, shall confer or be construed to confer on any Holder any right to continue in the service of the Company or any of its Affiliates or interfere in any way with the right of the Company or any of its Affiliates, subject to the provisions of any agreement between the Holder and the Company or any of its Affiliates, to terminate at any time, with or without cause, the employment or consulting agreement with the Holder.

7.4 Nonalienation of Benefits . Except as provided in Section 6.9, no right or benefit under the Plan shall be subject to anticipation, alienation, sale, assignment, hypothecation, pledge, exchange, transfer, encumbrance or charge, and any attempt to anticipate, alienate, sell, assign, hypothecate, pledge, exchange, transfer, encumber or charge the same shall be void. No right or benefit hereunder shall in any manner be liable for or subject to the debts, contracts, liabilities or torts of the person entitled to the right or benefit.

7.5 Shareholders Agreement . Unless the Option Agreement evidencing an Option expressly provides otherwise, the Holder of the Option shall be required, as a condition to the issuance of any shares of Common Stock that the Holder acquires upon the exercise of the Option, to execute and deliver to the Company a shareholders agreement in such form as may be in use by the Company at the time of such exercise, or a counterpart thereof, together with, unless the Holder is unmarried, a spousal consent in the form required thereby, unless the Holder has previously executed and delivered such documents and they are in effect at the time the shares are to be issued.

7.6 Termination and Amendment .

(a) General . Unless the Plan shall previously have been terminated as hereinafter provided, no Options may be granted under the Plan on or after the tenth (10th) anniversary of the Effective Date. The Board or the Administrative Committee may at any time prior to the tenth (10th) anniversary of the Effective Date terminate the Plan, and may, from time to time, suspend or discontinue the Plan or modify or amend the Plan in such respects as it shall deem advisable; *provided, however*, that any such modification or amendment shall comply with all applicable laws and stock exchange listing requirements and, with respect to Incentive Stock Options granted or to be granted under the Plan, shall be subject to any approval by shareholders of the Company required under the Code.

(b) Modification . No termination, modification or amendment of the Plan may adversely affect the rights of the Holder of an outstanding Option in any material way unless the Holder consents thereto. No modification, extension, renewal or other change in any Option granted under the Plan shall be made after the grant of the Option, unless the same is consistent with the provisions of the Plan. With the consent of the Holder and subject to the terms and conditions of the Plan (including Section 7.6(a)), the Administrative Committee may amend outstanding Option Agreements with any Holder, including, without limitation, any amendment that would (i) accelerate the time or times at which the Option may be exercised, and/or (ii) extend the scheduled expiration date of the Option. Without limiting the generality of the foregoing, the Administrative Committee may, but solely with the Holder's consent unless otherwise provided in the Option Agreement, agree to cancel any Option under the Plan and issue a new Option in substitution therefor, provided that the Option so substituted shall satisfy all of the requirements of the Plan as of the date the new Option is granted. Nothing contained in the foregoing

provisions of this Section 7.6(b) shall be construed to prevent the Administrative Committee from providing in any Option Agreement that the rights of the Holder with respect to the Option are subject to such rules and regulations as the Administrative Committee may, subject to the express provisions of the Plan, adopt from time to time, or impair the enforceability of any such provision.

7.7 Government and Other Regulations . The obligation of the Company with respect to Options shall be subject to all applicable laws, rules and regulations and such approvals by any governmental agencies as may be required, including, without limitation, the effectiveness of any registration statement required under the Securities Act, and the rules and regulations of any securities exchange or association on which the Common Stock may be listed or quoted. As long as the Common Stock is not registered under the Exchange Act, the Company intends that all offers and sales of Options and shares of Common Stock issuable upon exercise of Options shall be exempt from registration under the provisions of Section 5 of the Securities Act, and the Plan shall be administered in a manner so as to preserve such exemption. The Company also intends that the Plan shall constitute a written compensatory benefit plan, within the meaning of Rule 701(b) promulgated under the Securities Act, and that each Option granted under the Plan at a time when the Common Stock is not registered under the Exchange Act shall, unless otherwise provided by the Administrative Committee at the time the Option is granted, be granted in reliance on the exemption from the registration requirements of Section 5 of the Securities Act provided by Rule 701. As long as the Common Stock is registered under the Exchange Act, the Company shall use its reasonable efforts to comply with any legal requirements to file in a timely manner all reports required to be filed by it under the Exchange Act.

7.8 Withholding . The Company's obligation to deliver shares of Common Stock upon exercise of an Option shall be subject to applicable federal, state and local tax withholding requirements. Federal, state and local withholding tax due at the time an Option is exercised may, in the discretion of the Administrative Committee, be paid in shares of Common Stock already owned by the Holder or through the withholding of shares otherwise issuable to the Holder, upon such terms and conditions as the Administrative Committee shall determine. If the Holder shall fail to pay, or make arrangements satisfactory to the Administrative Committee for the payment of, all such federal, state and local taxes, then the Company or any of its Affiliates shall, to the extent not prohibited by law, have the right to deduct from any payment of any kind otherwise due to the Holder an amount equal to any federal, state or local taxes of any kind required to be withheld by the Company or any of its Affiliates with respect to the Option.

7.9 Separability . With respect to Incentive Stock Options, if this Plan does not contain any provision required to be included herein under Section 422 of the Code, such provision shall be deemed to be incorporated herein with the same force and effect as if such provision had been set out at length herein; *provided, however*, that to the extent any Option that is intended to qualify as an Incentive Stock Option cannot so qualify, the Option, to that extent, shall be deemed to be a Nonqualified Stock Option for all purposes of the Plan.

7.10 Non-Exclusivity of the Plan -. Neither the adoption of the Plan by the Board nor the submission of the Plan to the shareholders of the Company for approval shall be construed as creating any limitations on the power of the Board to adopt such other incentive arrangements as it may deem desirable, including, without limitation, the granting of stock options and the awarding of stock and cash otherwise than under the Plan, and such arrangements may be either generally applicable or applicable only in specific cases.

7.11 Exclusion from Pension and Profit-Sharing Computation -. By acceptance of an Option, unless otherwise provided in the Option Agreement evidencing the Option, the Holder shall be deemed to have agreed that the Option is special incentive compensation that will not be taken into account, in any manner, as salary, compensation or bonus in determining the amount of any payment

under any pension, retirement or other employee benefit plan, program or policy of the Company or any of its Affiliates.

7.12 No Shareholder Rights . No Holder or other person shall have any voting or other shareholder rights with respect to shares of Common Stock subject to an Option until the Option has been duly exercised, full payment of the purchase price has been made, all conditions under the Option and this Plan to issuance of the shares have been satisfied, and a certificate for the shares has been issued. No adjustment shall be made for cash or other dividends or distributions to shareholders for which the record date is prior to the date of such issuance.

7.13 Governing Law . The Plan shall be governed by, and construed in accordance with, the laws of the State of Washington.

7.14 Company's Rights . The grant of Options pursuant to the Plan shall not affect in any way the right or power of the Company to make reclassifications, reorganizations or other changes of or to its capital or business structure or to merge, consolidate, liquidate, sell or otherwise dispose of all or any part of its business or assets.

7.15 One-time Option Exchange. Notwithstanding any other provision of the stock plan to the contrary, upon approval of the company's shareholders of this Section in connection with the Company's 2016 Annual Meeting of Shareholders, the Committee may provide for, and the company may implement, a one-time-only option exchange offer, pursuant to which certain outstanding Options could, at the election of the person holding such Option, be tendered to the company for cancellation in exchange for the issuance of an Option, with a lower per share exercise price, that covers the same number of shares as the number of shares that were subject to the corresponding cancelled Option, provided that such one-time-only option exchange offer is commenced within 12 months following the date of such shareholder approval.

REALNETWORKS, INC.

**Amendment No. 2 to the RealNetworks, Inc. 2000 Stock Option Plan,
as amended and restated on June 1, 2001
(effective September 19, 2016)**

1. Section 7.13 of the RealNetworks, Inc. 2000 Stock Option Plan, as amended and restated on June 1, 2001, and as further amended effective December 17, 2009, is hereby amended and restated in its entirety to read as follows:

“7.13 Notwithstanding any other provision of the stock plan to the contrary, upon approval of the company’s shareholders of this Section in connection with the Company’s 2016 Annual Meeting of Shareholders, the Committee may provide for, and the company may implement, a one-time-only option exchange offer, pursuant to which certain outstanding Options could, at the election of the person holding such Option, be tendered to the company for cancellation in exchange for the issuance of an Option, with a lower per share exercise price, that covers the same number of shares as the number of shares that were subject to the corresponding cancelled Option, provided that such one-time-only option exchange offer is commenced within 12 months following the date of such shareholder approval.”

This Amendment No. 2 was approved by the Board of Directors of RealNetworks, Inc. on July 28, 2016 and by the shareholders of RealNetworks, Inc. on September 19, 2016, and became effective on September 19, 2016.

REALNETWORKS, INC.
2005 Stock Incentive Plan,
as amended and restated effective September 19, 2016

1. PURPOSE OF THE PLAN

1.1 *Purpose.* The purpose of the RealNetworks, Inc. 2005 Stock Incentive Plan (the “*Plan*”), as amended and restated effective as of September 19, 2016 (the “*Restatement Date*”), is to assist RealNetworks, Inc., a Washington corporation (the “*Company*”), and its subsidiaries in attracting and retaining selected individuals to serve as employees, directors, consultants and/or advisors of the Company who are expected to contribute to the Company’s success and to achieve long-term objectives which will inure to the benefit of all shareholders of the Company through the additional incentives inherent in the Awards hereunder.

2. DEFINITIONS

2.1 “*Award*” shall mean any Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Performance Award, Other Share-Based Award or any other right, interest or option relating to Shares or other property (including cash) granted pursuant to the provisions of the Plan.

2.2 “*Award Agreement*” shall mean any agreement, contract or other instrument or document, including through an electronic medium, evidencing any Award granted by the Committee hereunder.

2.3 “*Board*” shall mean the board of directors of the Company.

2.4 “*Code*” shall mean the Internal Revenue Code of 1986, as amended from time to time.

2.5 “*Committee*” shall mean the Compensation Committee of the Board or a subcommittee thereof formed by the Compensation Committee to act as the Committee hereunder. The Committee shall consist of no fewer than two Directors, each of whom is (a) a “Non-Employee Director” within the meaning of Rule 16b-3 of the Exchange Act, (b) an “outside director” within the meaning of Section 162(m) of the Code, and (c) an “independent director” for purpose of the rules and regulations of the NASDAQ Stock Market.

2.6 “*Covered Employee*” shall mean a “covered employee” within the meaning of Section 162(m) of the Code.

2.7 “*Director*” shall mean a non-employee member of the Board.

2.8 “*Determination Date*” shall mean the latest possible date that will not jeopardize the qualification of an Award granted under the Plan as “performance-based compensation” under Section 162(m) of the Code.

2.9 “*Employee*” shall mean any employee of the Company or any Subsidiary and any prospective employee conditioned upon, and effective not earlier than, such person’s becoming an employee of the Company or any Subsidiary. Solely for purposes of the Plan, an Employee shall also mean any consultant or advisor who provides services to the Company or any Subsidiary, so long as such person (a) renders bona fide services that are not in connection with the offer and sale of the Company’s securities in a capital-raising transaction and (b) does not directly or indirectly promote or maintain a market for the Company’s securities.

2.10 “*Exchange Act*” shall mean the Securities Exchange Act of 1934, as amended.

2.11 “*Fair Market Value*” shall mean, with respect to any property other than Shares, the market value of such property determined by such methods or procedures as shall be established from time to time by the Committee. The Fair Market Value of Shares as of any date shall be the per Share closing price of the Shares as reported on the NASDAQ Stock Market on that date (or if there was no reported price on such date, on the last preceding date on which the price was reported); if the Company is not then listed on the NASDAQ Stock Market but is listed on the New York Stock Exchange, the Fair Market Value of the Shares shall be the per Share closing price of the Shares as reported on the New York Stock Exchange on that date (or if there was no reported price on such date, on the last preceding date on which the price was reported); or, if the Company is not then listed on the NASDAQ Stock Market or the New York Stock Exchange, the Fair Market Value of Shares shall be determined by the Committee in its sole discretion using appropriate criteria.

2.12 “*Freestanding Stock Appreciation Right*” shall have the meaning set forth in Section 6.1.

2.13 “*Incentive Stock Option*” shall mean an Option that by its terms qualifies and is intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

2.14 “*Limitations*” shall have the meaning set forth in Section 11.6.

2.15 “*Nonstatutory Stock Option*” shall mean an Option that by its terms does not qualify or is not intended to qualify as an Incentive Stock Option.

2.16 “ *Option* ” shall mean any right granted to a Participant under the Plan allowing such Participant to purchase Shares at such price or prices and during such period or periods as the Committee shall determine.

2.17 “ *Other Share-Based Award* ” shall have the meaning set forth in Section 9.1.

2.18 “ *Participant* ” shall mean an Employee or Director who is selected by the Committee to receive an Award under the Plan.

2.19 “ *Payee* ” shall have the meaning set forth in Section 14.2.

2.20 “ *Performance-Based Award* ” shall mean an Award that is subject to the terms and conditions set forth in Section 11. All Performance-Based Awards are intended to constitute qualified performance-based compensation under Section 162(m) of the Code.

2.21 “ *Performance Award* ” shall mean any Award of Performance Shares or Performance Units granted pursuant to Section 10.

2.22 “ *Performance Goals* ” shall mean the goal or goals (or combined goals) determined by the Committee (in its discretion) to be applicable to a Participant with respect to an Award. As determined by the Committee, the Performance Goals applicable to an Award may provide for a targeted level or levels of achievement using one or more of the following measures: net revenue; revenue growth; earnings per share; net income; division, group or corporate financial goals; total shareholder return; attainment of strategic and operational initiatives; appreciation in and/or maintenance of the price of the Shares or any other publicly-traded securities of the Company; market share; gross profits; earnings before taxes, earnings before interest and taxes; earnings before interest, taxes, depreciation and amortization; comparisons with various stock market indices; reductions in costs; cash flow, cash flow per share; return on invested capital; cash flow return on investment; and improvement in or attainment of expense levels on working capital levels of the Company or any Subsidiary, division, business segment or business unit of the Company for or within which the Participant is primarily employed. Prior to the Determination Date, the Committee shall determine whether any element(s) or item(s) shall be included in or excluded from the calculation of any Performance Goal with respect to any Participants and whether a Performance Goal shall be measured in accordance with generally accepted accounting principles (“GAAP”) or a basis other than GAAP.

2.23 “ *Performance Period* ” shall mean that period established by the Committee at the time any Performance Award or other performance-based Award is granted or at any time thereafter during which any performance goals specified by the Committee with respect to such Award are to be measured.

2.24 “ *Performance Share* ” shall mean any grant pursuant to Section 10 of a unit valued by reference to a designated number of Shares, which value may be paid to the Participant by delivery of such property as the Committee shall determine, including cash, Shares, other property, or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish at the time of such grant or thereafter.

2.25 “ *Performance Unit* ” shall mean any grant pursuant to Section 10 of a unit valued by reference to a designated amount of property (including cash) other than Shares, which value may be paid to the Participant by delivery of such property as the Committee shall determine, including cash, Shares, other property, or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish at the time of such grant or thereafter.

2.26 “ *Permitted Assignee* ” shall have the meaning set forth in Section 13.4.

2.27 “ *Prior Plans* ” shall mean, collectively, the Company’s 1996 Stock Option Plan, 2000 Stock Option Plan, 2002 Director Stock Option Plan, and the Director Compensation Stock Plan.

2.28 “ *Restricted Stock* ” shall mean any Share issued with the restriction that the holder may not sell, transfer, pledge or assign such Share and with such other restrictions as the Committee, in its sole discretion, may impose (including any restriction on the right to vote such Share and the right to receive any dividends), which restrictions may lapse separately or in combination at such time or times, in installments or otherwise, as the Committee may deem appropriate.

2.29 “ *Restricted Stock Unit* ” shall mean a bookkeeping entry representing an amount equal to the Fair Market Value of one Share, granted pursuant to Section 8. Each Restricted Stock Unit represents an unfunded and unsecured obligation of the Company.

2.30 “ *Section 409A* ” shall mean Section 409A of the Code, the Treasury Regulations and Internal Revenue Service guidance thereunder, as each may be amended from time to time.

2.31 “ *Shares* ” shall mean the shares of common stock of the Company, par value \$0.001 per share.

2.32 “ *Stock Appreciation Right* ” shall mean the right granted to a Participant pursuant to Section 6.

2.33 “ *Subsidiary* ” shall mean any corporation (other than the Company) in an unbroken chain of corporations beginning with the Company if, at the time of the granting of the Award, each of the corporations other than the last corporation in the unbroken chain owns stock possessing 50% or more of the total combined voting power of all classes of stock in one of the other corporations in the chain.

2.34 “ *Substitute Awards* ” shall mean Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, by a company acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines.

2.35 “ *Tandem Stock Appreciation Right* ” shall have the meaning set forth in Section 6.1.

2.36 “ *Vesting Period* ” shall mean the period of time specified by the Committee during which vesting restrictions for an Award are applicable.

3. SHARES SUBJECT TO THE PLAN

3.1 *Number of Shares* . Subject to adjustment as provided in Section 13.2, the maximum number of Shares authorized and available for grant under the Plan shall be equal to 14,541,477 Shares.

3.2 *Lapsed Awards* . If, after December 17, 2009, any Shares subject to an Award or to an award under the Prior Plans are forfeited or expire, or any Award or award under the Prior Plans is settled for cash, the Shares subject to such Award or to such award under the Prior Plans shall, to the extent of such forfeiture, expiration or cash settlement, again be available for Awards under the Plan. Notwithstanding anything to the contrary contained herein, the following Shares shall not be added to the Shares authorized for grant under Section 3.1: (a) Shares tendered by the Participant or withheld by the Company in payment of the purchase price of an Option or an option granted under the Prior Plans, or to satisfy any tax withholding obligation with respect to an Option or Stock Appreciation Right or options or stock appreciation rights granted under the Prior Plans, and (b) Shares subject to a Stock Appreciation Right or stock appreciation right granted under the Prior Plans that are not issued in connection with its stock settlement on exercise thereof, and (c) Shares reacquired by the Company on the open market or otherwise using cash proceeds from the exercise of Options or options granted under the Prior Plans.

3.3 *Substitute Awards* . Substitute Awards may be issued under the Plan and such Substitute Awards shall not reduce the Shares authorized for grant under the Plan or the numerical limitations applicable to a Participant under Section 11.6, nor shall Shares subject to a Substitute Award again be available for Awards under the Plan to the extent of any forfeiture, expiration or cash settlement as provided in Section 3.2 above. Additionally, in the event that a company acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines has shares available under a pre-existing plan approved by shareholders and not adopted in contemplation of such acquisition or combination, the shares available for grant pursuant to the terms of such pre-existing plan (as adjusted, to the extent appropriate, using the exchange ratio or other adjustment or valuation ratio or formula used in such acquisition or combination to determine the consideration payable to the holders of common stock of the entities party to such acquisition or combination) may be used for Awards under the Plan and shall not reduce the Shares authorized for grant under the Plan; provided that Awards using such available shares shall not be made after the date awards or grants could have been made under the terms of the pre-existing plan, absent the acquisition or combination, and shall only be made to individuals who were not Employees or Directors prior to such acquisition or combination.

3.4 *Character of Shares* . Any Shares issued hereunder may consist, in whole or in part, of authorized and unissued shares or shares purchased in the open market or otherwise.

4. ELIGIBILITY AND ADMINISTRATION

4.1 *Eligibility* . Any Employee or Director shall be eligible to be selected as a Participant.

4.2 *Administration*. The Plan shall be administered by the Committee. The Committee shall have full power and authority, subject to the provisions of the Plan and subject to such orders or resolutions not inconsistent with the provisions of the Plan as may from time to time be adopted by the Board, to:

4.2.1 determine the Fair Market Value;

4.2.2 select the Employees and Directors to whom Awards may from time to time be granted hereunder;

4.2.3 determine the type or types of Awards, not inconsistent with the provisions of the Plan, to be granted to each Participant hereunder;

4.2.4 determine the number of Shares to be covered by each Award granted hereunder;

4.2.5 approve forms of Award Agreements for use under the Plan;

4.2.6 determine the terms and conditions, not inconsistent with the provisions of the Plan, of any Award granted hereunder. Such terms and conditions include, but are not limited to, the exercise price, the time or times when Awards may be exercised (which may be based on performance criteria), any vesting acceleration or waiver of forfeiture restrictions, and any restriction or limitation regarding any Award or the Shares relating thereto, based in each case on such factors as the Committee will determine;

4.2.7 determine whether, to what extent and under what circumstances Awards may be settled in cash, Shares or other property, subject to the terms of the Plan;

4.2.8 determine whether, to what extent, and under what circumstances cash, Shares, other property and other amounts payable with respect to an Award made under the Plan shall be deferred, in compliance with applicable laws (including but not limited to Section 409A), either automatically or at the election of the Participant;

4.2.9 determine whether, to what extent and under what circumstances any Award shall be reduced, canceled, suspended or subject to recoupment in addition to any otherwise applicable vesting or performance conditions of an Award, as may be specified in an Award Agreement at the time of the Award, or later if (a) the Company later adopts a policy requiring such reduction, cancellation, forfeiture or recoupment, or (b) pursuant to an amendment of an outstanding Award;

4.2.10 interpret and administer the Plan and any instrument or agreement entered into under or in connection with the Plan, including any Award Agreement;

4.2.11 correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent that the Committee shall deem desirable to carry it into effect;

4.2.12 modify or amend each Award (subject to Section 13.1);

4.2.13 allow Participants to satisfy tax withholding obligations in such manner as prescribed in Section 14.2 of the Plan;

4.2.14 establish such rules and regulations and appoint such agents as it shall deem appropriate for the proper administration of the Plan and any sub-plans established for the purpose of satisfying applicable non-U.S. laws and/or for qualifying for favorable tax treatment under applicable non-U.S. laws;

4.2.15 authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Award previously granted by the Committee pursuant to such procedures as the Committee may determine;

4.2.16 impose such restrictions, conditions or limitations as it determines appropriate as to the timing and manner of any resales by a Participant or other subsequent transfers by the Participant of any Shares issued as a result of or under an Award, including without limitation, (a) restrictions under an insider trading policy, and (b) restrictions as to the use of a specified brokerage firm for such resales or other transfers; and

4.2.17 make any other determination and take any other action that the Committee deems necessary or desirable for administration of the Plan.

4.3 Decisions of the Committee shall be final, conclusive and binding on all persons or entities, including the Company, any Participant, and any Subsidiary and shall be given the maximum deference permitted by law. Notwithstanding the foregoing or anything else to the contrary in the Plan, any action or determination by the Committee specifically affecting or relating to an Award to a Director shall require the prior approval of the Board.

4.4 Different Committees with respect to different Participants may administer the Plan. To the extent not inconsistent with applicable law, including Section 162(m) of the Code, or the rules and regulations of the NASDAQ Stock Market, the Committee may delegate to (a) a committee of one or more directors of the Company any of the authority of the Committee under the Plan, including the right to grant, cancel or suspend Awards, and (b) to the extent permitted by law, to one or more executive officers or a committee of executive officers the right to grant Awards to Employees who are not Directors or executive officers of the Company and the authority to take action on behalf of the Committee pursuant to the Plan to cancel or suspend Awards to Employees who are not Directors or executive officers of the Company. Such delegations may be revoked at any time.

5. OPTIONS

5.1 *Grant of Options.* Options may be granted hereunder to Participants either alone or in addition to other Awards granted under the Plan. Any Option shall be subject to the terms and conditions of this Section 5 and to such additional terms and conditions, not inconsistent with the provisions of the Plan, as the Committee shall deem desirable.

5.2 *Award Agreements.* All Options granted pursuant to this Section 5 shall be evidenced by an Award Agreement in such form and containing such terms and conditions as the Committee shall determine which are not inconsistent with the provisions of the Plan. The terms of Options need not be the same with respect to each Participant. Granting of an Option pursuant to the Plan shall impose no obligation on the recipient to exercise such Option. Any individual who is granted an Option pursuant to this Section 5 may hold more than one Option granted pursuant to the Plan at the same time.

5.3 *Option Price.* Other than in connection with Substitute Awards, the option price per each Share purchasable under any Option granted pursuant to this Section 5 shall not be less than 100% of the Fair Market Value of such Share on the date of grant of such Option. Other than pursuant to Section 13.2, the Committee shall not without the approval of the Company's shareholders (a) lower the option price per Share of an Option after it is granted, (b) cancel an Option in exchange for cash or another Award other than in connection with Substitute Awards or a Change of Control, and (c) take any other action with respect to an Option that would be treated as a repricing under the rules and regulations of the NASDAQ Stock Market.

5.4 *Option Term.* The term of each Option shall be fixed by the Committee in its sole discretion; provided that no Option shall be exercisable after the expiration of seven (7) years from the date the Option is granted, except in the event of death or disability.

5.5 *Exercise of Options.*

5.5.1 *Exercise.* Any Option granted hereunder will be exercisable according to the terms of the Plan and at such times or under such conditions as determined by the Committee and set forth in the Award Agreement. An Option will be deemed exercised by the Participant or by a Permitted Assignee thereof (or by the Participant's executors, administrators, guardian or legal representative, as may be provided in an Award Agreement) as to all or part of the Shares covered thereby, when the Company or its designated agent receives a notice of exercise (in such form as the Committee may specify from time to time) specifying the number of Shares to be purchased, accompanied by payment of the full purchase price for the Shares being purchased. The Committee will determine the acceptable form of consideration for exercising the Option, including the method of payment. In the case of an Incentive Stock Option, the Committee will determine the acceptable form of consideration at the time of grant. Unless otherwise provided in an Award Agreement, full payment of the purchase price shall be made at the time of exercise and shall be made (a) in cash or cash equivalents (including certified check or bank check or wire transfer of immediately available funds), (b) by tendering previously acquired Shares (either actually or by attestation), valued at their then Fair Market Value and provided that accepting such Shares will not result in any adverse accounting consequences to the Company, as the Committee determines in its sole discretion, (c) with the consent of the Committee, by delivery of other consideration (including, where permitted by law and the Committee, other Awards) having a Fair Market Value on the exercise date equal to the total purchase price, (d) with the consent of the Committee, by withholding Shares otherwise issuable in connection with the exercise of the Option, (e) with the consent of the Committee, consideration received by the Company under a cashless exercise program (whether through a broker, net exercise program or otherwise) implemented by the Company in connection with the Plan, (f) with the consent of the Committee, by net exercise, (g) through any other method to the extent permitted by applicable law and specified in an Award Agreement, or (h) any combination of any of the foregoing. The notice of exercise, accompanied by such payment, shall be delivered to the Company at its principal business office or such other office as the Committee may from time to time direct, and shall be in such form, containing such further provisions consistent with the provisions of the Plan, as the Committee may from time to time prescribe. In no event may any Option granted hereunder be exercised for a fraction of a Share. No adjustment shall be made for cash dividends or other rights for which the record date is prior to the date of such issuance. Exercising an Option in any manner will decrease the number of Shares thereafter available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

5.5.2 *Automatic Exercise.* Notwithstanding the foregoing, an Award Agreement may provide that if on the last day of the term of an Option the Fair Market Value of one Share exceeds the option price per Share, the Participant has not exercised the Option or a Tandem Stock Appreciation Right (if applicable) and the Option has not expired, the Option shall be deemed to have been exercised by the Participant on such day with payment made by withholding Shares otherwise issuable in connection with the exercise of the Option. In such event, the Company shall deliver to the Participant the number of Shares for which the Option was deemed exercised, less the number of Shares required to be withheld for the payment of the total purchase price and required withholding taxes; provided, however, any fractional Share shall be settled in cash, rounded down to the nearest \$.01.

5.6 *Form of Settlement.* In its sole discretion, the Committee may provide, at the time of grant, that the Shares to be issued upon an Option's exercise shall be in the form of Restricted Stock or other similar securities, or may reserve the right so to provide after the time of grant.

5.7 Incentive Stock Options. The Committee may grant Incentive Stock Options to any employee of the Company or any Subsidiary, subject to the requirements of Section 422 of the Code. Each Option will be designated in the Award Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year (under all plans of the Company and any Subsidiary or parent of the Company) exceeds one hundred thousand dollars (\$100,000), such Options will be treated as Nonstatutory Stock Options. For purposes of this Section 5.7, Incentive Stock Options will be taken into account in the order in which they were granted. The Fair Market Value of the Shares will be determined as of the time the Option with respect to such Shares is granted. Further, notwithstanding anything in Section 3.1 to the contrary and solely for the purposes of determining whether Shares are available for the grant of Incentive Stock Options under the Plan, the maximum aggregate number of Shares with respect to which Incentive Stock Options may be granted under the Plan shall be 5,000,000 Shares. In addition, and notwithstanding anything in this Section 5 to the contrary, if an Incentive Stock Option is granted to a Participant who at the time such grant owns (within the meaning of Section 422 of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or of its parent corporation or of any Subsidiary (a) the option price per Share under the Incentive Stock Option shall be not less than 110% of the Fair Market Value of a Share on the date of grant of the Incentive Stock Option and (b) such Incentive Stock Option shall expire and no longer be exercisable no later than 5 years from the date of grant.

5.8 Termination of Relationship as Employee or Director. If a Participant ceases to provide services as an Employee or Director, other than upon the Participant's service termination as the result of the Participant's death or Disability, the Participant may exercise his or her Option within such period of time as is specified in the Award Agreement to the extent that the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, the Option will remain exercisable for three (3) months following the Participant's termination. Unless otherwise provided by the Committee, if on the date of termination the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will revert to the Plan. If after termination the Participant does not exercise his or her Option within the time specified by the Committee, subject to Section 5.5.2, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

5.9 Disability of Employee or Director. If a Participant ceases to be an Employee or Director as a result of the Participant's Disability, the Participant may exercise his or her Option within such period of time as is specified in the Award Agreement to the extent the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, the Option will remain exercisable for twelve (12) months following the Participant's termination. Unless otherwise provided by the Committee, if on the date of termination the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will revert to the Plan. If after termination the Participant does not exercise his or her Option within the time specified herein, subject to Section 5.5.2, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

5.10 Death of Participant. If a Participant dies while a Service Provider, the Option may be exercised following the Participant's death within the period of time as is specified in the applicable Award Agreement to the extent that the Option is vested on the date of death (but in no event may the Option be exercised later than the expiration of the term of the Option as set forth in the applicable Award Agreement), by the Participant's designated beneficiary, provided the beneficiary has been designated prior to Participant's death in a form acceptable to the Committee. If no such beneficiary has been designated by the Participant, then the Option may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Option is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. In the absence of a specified time in the Award Agreement, the Option will remain exercisable for twelve (12) months following Participant's death. Unless otherwise provided by the Committee, if at the time of death, the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option immediately will revert to the Plan. If the Option is not so exercised within the time specified herein, subject to Section 5.5.2, the Option will terminate, and the Shares covered by the Option will revert to the Plan.

6. STOCK APPRECIATION RIGHTS

6.1 Grant and Exercise. The Committee may provide Stock Appreciation Rights to an Employee or Director (a) in conjunction with all or part of any Option granted under the Plan or at any subsequent time during the term of such Option ("Tandem Stock Appreciation Right"), (b) in conjunction with all or part of any Award (other than an Option) granted under the Plan or at any subsequent time during the term of such Award, or (c) without regard to any Option or other Award (a "Freestanding Stock Appreciation Right"), in each case upon such terms and conditions as the Committee may establish in its sole discretion.

6.2 Terms and Conditions. Stock Appreciation Rights shall be evidenced by an Award Agreement and be subject to such terms and conditions, not inconsistent with the provisions of the Plan, as shall be determined from time to time by the Committee, including the following:

6.2.1 *Amount of Payment*. Upon the exercise of a Stock Appreciation Right, the holder shall have the right to receive for each exercised Share under the Award, the excess of (i) the Fair Market Value of one Share on the date of exercise (or such other amount less than such Fair Market Value as the Committee shall so determine at any time during a specified period before the date of exercise) over (ii) the per Share grant price of the Stock Appreciation Right as specified by the Committee in its sole discretion, which per Share grant price, except in the case of Substitute Awards or in connection with an adjustment provided in Section 13.2, shall not be less than the Fair Market Value of one Share on such date of grant or, if applicable, the exercise price of the related Option with respect to a Tandem Stock Appreciation Right granted subsequent to the related Option (subject to the requirements of Section 409A).

6.2.2 *Form of Payment*. The Committee shall determine in its sole discretion whether payment shall be made in cash, in whole Shares or other property, or any combination thereof.

6.2.3 *Tandem Stock Appreciation Rights*.

6.2.3.1 Any Tandem Stock Appreciation Right may be granted at the same time as the related Option is granted or at any time thereafter before exercise or expiration of such Option.

6.2.3.2 Any Tandem Stock Appreciation Right related to an Option may be exercised only when the related Option would be exercisable and the Fair Market Value of a Share subject to the related Option exceeds the option price at which a Share can be acquired pursuant to the Option. In addition, if a Tandem Stock Appreciation Right exists with respect to less than the full number of Shares covered by a related Option, then an exercise or termination of such Option shall not reduce the number of Shares to which the Tandem Stock Appreciation Right applies until the number of Shares then exercisable under such Option equals the number of Shares to which the Tandem Stock Appreciation Right applies.

6.2.3.3 Any Option related to a Tandem Stock Appreciation Right shall no longer be exercisable to the extent the Tandem Stock Appreciation Right has been exercised.

6.2.3.4 The exercise price of a Tandem Stock Appreciation Right may be less than the Fair Market Value on the date of grant if the Tandem Stock Appreciation Right is added to an Option following the date of the grant of the Option (subject to the requirements of Section 409A).

6.3 *Freestanding Stock Appreciation Rights*. Subject to Section 13.2, a Freestanding Stock Appreciation Right generally shall have the same terms and conditions as Options, including (a) a per Share exercise price not less than Fair Market Value of one Share on the date of grant or, if applicable, on the date of grant of an Option with respect to a Freestanding Stock Appreciation Right granted in exchange for an Option (subject to the requirements of Section 409A) except in the case of Substitute Awards or in connection with an adjustment provided in Section 13.2, (b) a term not greater than seven (7) years, and (c) the exercisability provisions set forth in Sections 5.8 through 5.10.

6.4 *Automatic Exercise*. An Award Agreement may provide that if on the last day of the term of a Stock Appreciation Right the Fair Market Value of one Share exceeds the exercise price per Share of the Stock Appreciation Right, the Participant has not exercised the Stock Appreciation Right or the tandem Option (if applicable), and neither the Stock Appreciation Right nor the Option has expired, the Stock Appreciation Right shall be deemed to have been exercised by the Participant on such day. In such event, the Company shall make payment to the Participant in accordance with this Section 6, reduced by the number of Shares (or cash) required for withholding taxes; any fractional Share shall be settled in cash, rounded down to the nearest \$.01.

6.5 *No Repricing of Stock Appreciation Rights*. Without the approval of the Company's shareholders, other than pursuant to Section 13.2, the Committee shall not (a) reduce the grant price of any Stock Appreciation Right after the date of grant (b) cancel any Stock Appreciation Right in exchange for cash or another Award (other than in connection with a Change of Control, as defined in Section 2.4, or a Substitute Award), or (c) take any other action with respect to a Stock Appreciation Right that would be treated as a repricing under the rules and regulations of the NASDAQ Stock Market.

6.6 *Other Terms and Conditions*. The provisions of Stock Appreciation Rights need not be the same with respect to each Participant. The Committee may impose such terms and conditions on Stock Appreciation Rights, including such conditions or restrictions on the terms of exercise and the exercise price of any Stock Appreciation Right, as the Committee shall determine in its sole discretion.

7. RESTRICTED STOCK

7.1 *Grants*. Awards of Restricted Stock may be issued hereunder to Participants either alone or in addition to other Awards granted under the Plan, and such Restricted Stock Awards shall also be available as a form of payment of Performance Awards and other earned cash-based incentive compensation. A Restricted Stock Award shall be subject to vesting restrictions during the Vesting Period as specified by the Committee. The Committee has absolute discretion to determine whether any consideration (other than services) is to be received by the Company or any Subsidiary as a condition precedent to the issuance of Restricted Stock.

7.2 Award Agreements . The terms of any Restricted Stock Award granted under the Plan shall be set forth in an Award Agreement which shall contain provisions determined by the Committee and not inconsistent with the Plan. The terms of Restricted Stock Awards need not be the same with respect to each Participant.

7.3 Rights of Holders of Restricted Stock . Unless otherwise provided in the Award Agreement, beginning on the date of grant of the Restricted Stock Award and subject to execution of the Award Agreement, a Participant holding Shares of Restricted Stock granted under the Plan may exercise full voting rights with respect to those Shares and will be entitled to receive all dividends and other distributions paid with respect to such Shares. Except as otherwise provided in an Award Agreement, any Shares or any other property (other than cash) distributed as a dividend or otherwise with respect to any Restricted Stock Award as to which the restrictions have not yet lapsed shall be subject to the same restrictions as such Restricted Stock Award. Notwithstanding the provisions of this Section 7.3, cash dividends with respect to any Restricted Stock Award and any other property (other than cash) distributed as a dividend or otherwise with respect to any Restricted Stock Award that vests based on achievement of performance goals shall be subject to restrictions and risk of forfeiture to the same extent as the Restricted Stock with respect to which such cash, Shares or other property has been distributed.

7.4 Issuance of Shares . Any Restricted Stock granted under the Plan may be evidenced in such manner as the Committee may deem appropriate, including book-entry registration or issuance of a stock certificate or certificates, which certificate or certificates shall be held by the Company as escrow agent until the restrictions on the Shares of Restricted Stock have lapsed. Such certificate or certificates shall be registered in the name of the Participant and shall bear an appropriate legend referring to the restrictions applicable to such Restricted Stock. Except as otherwise provided in this Section 7, Shares of Restricted Stock covered by each Restricted Stock Award granted under the Plan will be released from escrow as soon as practicable after the last day on which the Award remained subject to restrictions, or at such other time as the Committee may determine. The Committee may, in its sole discretion, subject to the limitations imposed under Section 162(m) of the Code and the regulations thereunder in the case of a Restricted Stock Award intended to comply with the performance-based exception under Code Section 162(m), waive the forfeiture period and any other conditions set forth in any Award Agreement subject to such terms and conditions as the Committee shall deem appropriate.

7.5 Return of Restricted Stock to Company . On the date set forth in the Award Agreement, the Restricted Stock for which restrictions have not lapsed will revert to the Company and, subject to Section 3, again will become available for grant under the Plan.

8. RESTRICTED STOCK UNITS

8.1 Grants . Subject to the terms and provisions of the Plan, the Committee, at any time and from time to time, may grant Restricted Stock Units to Participants in such amounts as the Committee, in its sole discretion, will determine. After the Committee determines that it will grant Restricted Stock Units under the Plan, it will advise the Participant in an Award Agreement of the terms, conditions, and restrictions related to the grant (as determined by the Committee and not inconsistent with the Plan), including the number of Restricted Stock Units and whether such Awards shall have Dividend Equivalents pursuant to Section 13.6.

8.2 Vesting Criteria and Other Terms . The Committee will set vesting criteria in its discretion, which, depending on the extent to which the criteria are met, will determine the number of Restricted Stock Units that will be paid out to the Participant. The Committee may set vesting criteria based upon continued employment or service, the achievement of specific performance objectives (Company-wide, departmental, divisional, business unit, or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws or any other basis determined by the Committee in its discretion.

8.3 Earning Restricted Stock Units . Upon meeting the applicable vesting criteria, the Participant will be entitled to receive a payout as determined by the Committee. Notwithstanding the foregoing, at any time after the grant of Restricted Stock Units, the Committee, in its sole discretion, subject to the limitations imposed under Section 162(m) of the Code and the regulations thereunder in the case of a Restricted Stock Award intended to comply with the performance-based exception under Code Section 162(m), may reduce or waive any vesting criteria that must be met to receive a payout.

8.4 Form and Timing of Payment . Payment of earned Restricted Stock Units will be made as soon as practicable after the date(s) determined by the Committee and set forth in the Award Agreement; provided, however, that the timing of payment shall in all cases comply with Section 409A to the extent applicable to the Award. The Committee, in its sole discretion, may settle earned Restricted Stock Units in cash, Shares, other property, or a combination thereof.

8.5 Cancellation . On the date set forth in the Award Agreement, all unearned Restricted Stock Units will be forfeited to the Company and, subject to Section 3, again will become available for grant under the Plan.

9. OTHER SHARE-BASED AWARDS

9.1 *Grants* . Other Awards of Shares and other Awards valued in whole or in part by reference to, or are otherwise based on, Shares or other property (collectively “ *Other Share-Based Awards* ”), including deferred stock units, may be granted hereunder to Participants. Other Share-Based Awards shall also be available as a form of payment of other Awards granted under the Plan and other earned cash-based compensation (including Directors’ fees). Prior to granting any Other Share-Based Awards to be settled upon a Change of Control, the Committee shall consider the implications of Section 409A on, and take any action or adopt any provision with respect to, such Other Share-Based Award that it deems necessary or appropriate in its sole discretion.

9.2 *Award Agreements* . The terms of Other Share-Based Awards granted under the Plan shall be set forth in an Award Agreement, or in a sub-plan forming part of the Plan, which shall contain provisions determined by the Committee and not inconsistent with the Plan. The terms of such Awards need not be the same with respect to each Participant. Notwithstanding the provisions of this Section 9, any property (other than cash) distributed as a dividend or otherwise with respect to the number of Shares covered by an Other Share-Based Award that vests based on achievement of performance goals shall be subject to restrictions and risk of forfeiture to the same extent as the Shares covered by such Award with respect to which such cash, Shares or other property has been distributed. Other Share-Based Awards may be subject to vesting restrictions during the Vesting Period as specified by the Committee.

9.3 *Payment* . Except as provided in Section 11 or as may be provided in an Award Agreement, Other Share-Based Awards may be paid in cash, Shares, other property, or any combination thereof, in the sole discretion of the Committee at the time of payment. Other Share-Based Awards may be paid in a lump sum or in installments or, in accordance with procedures established by the Committee, on a deferred basis subject to the requirements of Section 409A.

9.4 *Deferral of Director Fees and Other Compensation* . Directors shall, if determined by the Board, receive Other Share-Based Awards in the form of deferred stock units in lieu of all or a portion of their annual retainer. In addition, to the extent permitted by the Committee, (a) Directors may elect to receive Other Share-Based Awards in the form of deferred stock units in lieu of all or a portion of their annual and committee retainers and annual meeting fees, and (b) Employees may elect to receive Other Share-Based Awards in the form of deferred stock units in lieu of all or a portion of their compensation for services to the Company. The Committee shall, in its absolute discretion, establish such rules and procedures as it deems appropriate for such elections and for the payment of the deferred stock units, including (but not limited to) with respect to the requirements of Section 409A.

9.5 *Cancellation of Performance Awards* . On the date set forth in the Award Agreement, all unearned or unvested Performance Awards will be forfeited to the Company, and, subject to Section 3, again will be available for grant under the Plan.

10. PERFORMANCE AWARDS

10.1 *Grants* . Performance Awards in the form of Performance Shares or Performance Units, as determined by the Committee in its sole discretion, may be granted hereunder to Participants, for no consideration or for such minimum consideration as may be required by applicable law, either alone or in addition to other Awards granted under the Plan. The performance goals to be achieved for each Performance Period shall be conclusively determined by the Committee and may be based upon the criteria set forth in Section 11.2.

10.2 *Value of Performance Units/Shares* . Each Performance Unit will have an initial value that is established by the Committee on or before the date of grant. Each Performance Share will have an initial value equal to the Fair Market Value of a Share on the date of grant.

10.3 *Award Agreements* . The terms of any Performance Award granted under the Plan shall be set forth in an Award Agreement which shall contain provisions determined by the Committee and not inconsistent with the Plan, including whether such Awards shall have Dividend Equivalents (subject to the requirements of Section 13.6). The terms of Performance Awards need not be the same with respect to each Participant.

10.4 *Terms and Conditions* . The performance criteria to be achieved during any Performance Period and the length of the Performance Period shall be determined by the Committee upon the grant of each Performance Award. The Committee may set vesting criteria based upon continued employment or service, the achievement of specific performance objectives (Company-wide, departmental, divisional, business unit, or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws or any other basis determined by the Committee in its discretion. After the applicable Performance Period has ended, the holder of Performance Units/Shares will be entitled to receive a payout of the number of Performance Units/Shares earned by the Participant over the Performance Period, to be determined as a function of the extent to which the corresponding performance objectives or other vesting provisions have been achieved. The amount of the Award to be distributed shall be conclusively determined by the Committee.

10.5 *Payment* . Except as provided in Section 11 or as may be provided in an Award Agreement, Performance Awards will be distributed only after the end of the relevant Performance Period. Performance Awards may be paid in cash, Shares, other property, or any combination thereof, in the sole discretion of the Committee at the time of payment. Performance Awards may be paid in a lump sum or in installments following the close of the Performance Period or, in accordance with procedures established by the Committee, on a deferred basis subject to the requirements of Section 409A.

11. CODE SECTION 162(m) PROVISIONS

11.1 *Covered Employees* . The purpose of this Section 11 is to provide the Committee the ability to qualify Awards (other than Options and Stock Appreciation Rights) that are granted pursuant to the Plan as qualified performance-based compensation under Section 162(m) of the Code. If the Committee, in its discretion, decides to grant a Performance-Based Award to a Covered Employee, the provisions of this Section 11 will control over any contrary provision in the Plan; provided, however, that the Committee may in its discretion grant other Awards to such Covered Employees that are based on performance goals or other specific criteria or goals but that do not satisfy the requirements of this Section 11. The designation of a Covered Employee as being subject to Section 162(m) of the Code will not in any manner entitle the Covered Employee to receive an Award under the Plan. Moreover, designation of a Covered Employee subject to Section 162(m) of the Code for a particular Performance Period will not require designation of such Covered Employee in any subsequent Performance Period and designation of one Covered Employee will not require designation of any other Covered Employee in such period or in any other period. Unless otherwise provided in the applicable Award Agreement, a Covered Employee must be employed by the Company or its Subsidiary on the day a Performance-Based Award for a Performance Period is paid to the Covered Employee.

11.2 *Performance Criteria* . If the Committee determines that a Restricted Stock Award, Performance Award, Restricted Stock Unit Award or Other Share-Based Award is subject to this Section 11, the lapsing of restrictions thereon and the distribution of cash, Shares or other property pursuant thereto, as applicable, shall be subject to the achievement of one or more objective Performance Goals established by the Committee, which shall be based on the attainment of specified levels of one or any combination of the Performance Goals. Such Performance Goals may be based solely by reference to the Company's performance or the performance of a Subsidiary, division, business segment or business unit of the Company, or based upon the relative performance of other companies or upon comparisons of any of the indicators of performance relative to other companies. The Committee may also exclude the impact of an event or occurrence which the Committee determines should appropriately be excluded, including (a) restructurings, discontinued operations, extraordinary items, and other unusual or non-recurring charges, (b) an event either not directly related to the operations of the Company or not within the reasonable control of the Company's management, or (c) the cumulative effects of tax or accounting changes in accordance with generally accepted accounting principles. Such Performance Goals shall be set by the Committee within the time period prescribed by, and shall otherwise comply with the requirements of, Section 162(m) of the Code, and the regulations thereunder.

11.3 *Procedures* . To the extent necessary to comply with the performance-based compensation requirements of Section 162(m) of the Code, with respect to any Award granted subject to Performance Goals, the Committee will, in writing and no later than the Determination Date, (a) designate one or more Participants who are Covered Employees, (b) select the Performance Goals applicable to the Performance Period, (c) establish the Performance Goals, and amounts or methods of computation of such Awards, as applicable, which may be earned for such Performance Period, and (d) specify the relationship between Performance Goals and the amounts or methods of computation of such Awards, as applicable, to be earned by each Covered Employee for such Performance Period. Following the completion of each Performance Period, the Committee will certify in writing whether the applicable Performance Goals have been achieved for such Performance Period.

11.4 *Adjustments* . Notwithstanding any provision of the Plan (other than Section 12), with respect to any Award that is subject to this Section 11, the Committee may adjust downwards, but not upwards, the amount payable pursuant to such Award, and the Committee may not waive the achievement of the applicable Performance Goals, unless otherwise permitted by Section 162(m) of the Code.

11.5 *Restrictions* . The Committee shall have the power to impose such other restrictions on Awards subject to this Section 11 as it may deem necessary or appropriate to ensure that such Awards satisfy all requirements for "performance-based compensation" within the meaning of Section 162(m) of the Code. Notwithstanding any other provision of the Plan, any Award which is granted to a Covered Employee and is intended to constitute qualified performance-based compensation under Section 162(m) of the Code will be subject to any additional limitations set forth in the Code (including any amendment to Section 162(m)) or any regulations and ruling issued thereunder that are requirements for qualification as qualified performance-based compensation as described in Section 162(m) of the Code, and the Plan will be deemed amended to the extent necessary to conform to such requirements.

11.6 Limitations on Grants to Individual Participant .

11.6.1 *Section 162(m) Limitations* . Subject, in each case, to adjustment as provided in Section 13.2, the Company may grant (a) Options or Stock Appreciation Rights during any 12-month period to a Participant for up to a maximum of 2,000,000 Shares and (b) up to a maximum of an additional 900,000 Shares with respect to Restricted Stock Awards, Performance Awards, Restricted Stock Unit Awards and/or Other Share-Based Awards during any 12-month period that are intended to comply with the performance-based exception under Code Section 162(m) and are denominated in Shares (collectively, the “*Share-Based Limitations*”). In addition to the foregoing Share-Based Limitations, a Participant may receive up to an additional \$3,000,000 during any 12-month period with respect to Performance Awards that are intended to comply with the performance-based exception under Code Section 162(m) and are denominated in cash (the “*Cash-Based Limitation*,” and collectively with the Share-Based Limitations, the “*Limitations*”). If an Award is cancelled, the cancelled Award shall continue to be counted toward the applicable Limitations.

11.6.2 *Director Limitations* . Notwithstanding the foregoing in Section 11.6.1 and subject in each case to adjustments as provided in Section 13.2, the Company, during any 12-month period, may grant to a Director (a) Options or Stock Appreciation Rights for up to a maximum of 650,000 Shares and (b) up to a maximum of an additional 300,000 Shares with respect to Restricted Stock Awards, Performance Awards, Restricted Stock Unit Awards and/or Other Share-Based Awards that are denominated in Shares. In addition, a Director may receive up to an additional \$1,000,000 during any 12-month period with respect to Performance Awards that are denominated in cash.

12. CHANGE OF CONTROL PROVISIONS

12.1 *Impact on Certain Awards* . Award Agreements may provide that in the event of a Change of Control of the Company (as that term may be defined therein), (a) Options and Stock Appreciation Rights outstanding as of the date of the Change of Control immediately vest and become fully exercisable, (b) that Options and Stock Appreciation Rights outstanding as of the date of the Change of Control may be cancelled and terminated without payment therefor if the Fair Market Value of one Share as of the date of the Change of Control is less than the per Share Option exercise price or Stock Appreciation Right grant price, (c) restrictions and deferral limitations on Restricted Stock lapse and the Restricted Stock becomes free of all restrictions and limitations and becomes fully vested, (d) all Performance Awards shall be considered to be earned and payable (either in full or pro rata based on the portion of Performance Period completed as of the date of the Change of Control), and any limitations or other restrictions shall lapse and such Performance Awards shall be immediately settled or distributed, and (e) the restrictions and deferral limitations and other conditions applicable to any Other Share-Based Awards, Restricted Stock Unit Awards, or any other Awards shall lapse, and such Other Share-Based Awards, Restricted Stock Unit Awards, or such other Awards shall become free of all restrictions, limitations or conditions and become fully vested.

12.2 *Assumption or Substitution of Certain Awards* .

12.2.1 Unless otherwise provided in an Award Agreement, in the event of a Change of Control of the Company of which the successor company assumes or substitutes for an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, or Other Share-Based Award (or in which the Company is the ultimate parent corporation and continues the Award), then each outstanding Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, or Other Share-Based Award shall not be accelerated as described in Sections 12.1(a), (c) and (e). For the purposes of this Section 12.2, an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, or Other Share-Based Award shall be considered assumed or substituted for if following the Change of Control the Award confers the right to purchase or receive, for each Share subject to the Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, or Other Share-Based Award immediately prior to the Change of Control, the consideration (whether stock, cash or other securities or property) received in the transaction constituting a Change of Control by holders of Shares for each Share held on the effective date of such transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the transaction constituting a Change of Control is not solely common stock of the successor company, the Committee may, with the consent of the successor company, provide that the consideration to be received upon the exercise or vesting of an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, or Other Share-Based Award, for each Share subject thereto, will be solely common stock of the successor company substantially equal in fair market value to the per Share consideration received by holders of Shares in the transaction constituting a Change of Control. The determination of such substantial equality of value of consideration shall be made by the Committee in its sole discretion and its determination shall be conclusive and binding. Notwithstanding the foregoing, on such terms and conditions as may be set forth in an Award Agreement, in the event of a termination of a Participant’s employment in such successor company within a specified time period following such Change of Control, each Award held by such Participant at the time of the Change of Control shall be accelerated.

12.2.2 The Committee, in its discretion, may determine that, upon the occurrence of a Change of Control of the Company, each Option and Stock Appreciation Right outstanding shall terminate within a specified number of days after notice to the Participant, and/or that each Participant shall receive, with respect to each Share subject to such Option or Stock Appreciation Right, an amount equal to the excess of the Fair Market Value of such Share immediately prior to the occurrence of such Change of Control

over the exercise price per Share of such Option and/or Stock Appreciation Right; such amount to be payable in cash, in one or more kinds of stock or property (including the stock or property, if any, payable in the transaction) or in a combination thereof, as the Committee, in its discretion, shall determine; provided, however, that if the Fair Market Value of one Share as of the date of the Change of Control is less than the per Share Option exercise price or Stock Appreciation Right grant price, the Committee may, in its discretion, cancel and terminate each such outstanding Option and/or Stock Appreciation Right without payment.

13. GENERALLY APPLICABLE PROVISIONS

13.1 *Amendment and Termination of the Plan* . The Board may, from time to time, alter, amend, suspend or terminate the Plan as it shall deem advisable, subject to any requirement for shareholder approval imposed by applicable law, including the rules and regulations of the NASDAQ Stock Market provided that the Board may not amend the Plan in any manner that would result in noncompliance with Rule 16b-3 of the Exchange Act; and further provided that the Board may not, without the approval of the Company's shareholders, amend the Plan to (a) increase the number of Shares that may be the subject of Awards under the Plan (except for adjustments pursuant to Section 13.2), (b) expand the types of awards available under the Plan, (c) materially expand the class of persons eligible to participate in the Plan, (d) amend Sections 5.3, 6.3, or 6.5 to eliminate the requirements relating to minimum exercise price and shareholder approval, (e) increase the maximum permissible term of any Option specified by Section 5.4 or the maximum permissible term of a Freestanding Stock Appreciation Right specified in Section 6.3, or (f) increase the numerical limitations in Section 11.6. The Board may not, without the approval of the Company's shareholders, except as set forth in Section 13.2, (i) lower, after it is granted, the option price per Share of an Option or the grant price per Share of a Stock Appreciation Right, (ii) cancel an Option or Stock Appreciation Right in exchange for cash or another Award (other than in connection with Substitute Awards or a Change of Control, as defined in Section 2.4), or (iii) take any other action with respect to an Option or Stock Appreciation Right that would be treated as a repricing under the rules and regulations of the NASDAQ Stock Market. In addition, no amendments to, or termination of, the Plan shall in any way impair the rights of a Participant under any Award previously granted without such Participant's consent. Termination of the Plan will not affect the Committee's ability to exercise the powers granted to it hereunder with respect to Awards granted under the Plan prior to the date of such termination.

13.2 *Adjustments* . In the event of any merger, reorganization, consolidation, recapitalization, dividend or distribution (whether in cash, shares, other securities or other property, other than a regular cash dividend), stock split, reverse stock split, spin-off, split-up, combination, repurchase or exchange of Shares or other securities of the Company, or similar transaction or other change in corporate structure affecting the Shares or the value thereof, such adjustments and other substitutions shall be made to the Plan and to Awards as the Committee deems equitable or appropriate taking into consideration the accounting and tax consequences, including such adjustments in the aggregate number, class and kind of securities that may be delivered under the Plan, the numerical limitations in Section 11.6, the maximum number of shares that may be issued pursuant to Incentive Stock Options, and in the number, class, kind and option or exercise price of securities subject to outstanding Awards granted under the Plan (including, if the Committee deems appropriate, the substitution of similar options to purchase the shares of, or other awards denominated in the shares of, another company) as the Committee may determine to be appropriate in its sole discretion; provided, however, that the number of Shares subject to any Award shall always be a whole number.

13.3 *Dissolution or Liquidation* . In the event of the proposed dissolution or liquidation of the Company, the Committee will notify each Participant as soon as practicable prior to the effective date of such proposed transaction. To the extent it has not been previously exercised (with respect to an Option or Stock Appreciation Right) or vested (with respect to an Award other than an Option or Stock Appreciation Right), an Award will terminate immediately prior to the consummation of such proposed action.

13.4 *Transferability of Awards* . Except as provided below, no Award and no Shares subject to Awards described in Section 9 that have not been issued or as to which any applicable restriction, performance or deferral period has not lapsed, may be sold, assigned, transferred, pledged or otherwise encumbered, other than by will or the laws of descent and distribution, and such Award may be exercised during the life of the Participant only by the Participant or the Participant's guardian or legal representative. To the extent and under such terms and conditions as determined by the Committee, a Participant may assign or transfer an Award (each transferee thereof, a "Permitted Assignee") to (a) the Participant's spouse, children or grandchildren (including any adopted and step children or grandchildren), parents, grandparents or siblings, (b) to a trust for the benefit of one or more of the Participant or the persons referred to in clause (a), (c) to a partnership, limited liability company or corporation in which the Participant or the persons referred to in clause (a) are the only partners, members or shareholders or (d) for charitable donations; provided that such Permitted Assignee shall be bound by and subject to all of the terms and conditions of the Plan and the Award Agreement relating to the transferred Award and shall execute an agreement satisfactory to the Company evidencing such obligations; and provided further that such Participant shall remain bound by the terms and conditions of the Plan.

13.5 *Leaves of Absence/Transfer Between Locations* . Unless the Committee provides otherwise or as otherwise required by applicable law, vesting of Awards granted hereunder will be suspended during any unpaid leave of absence, such that vesting shall cease on the first day of any unpaid leave of absence and shall only recommence upon return to active service. A Participant will not cease to be an employee of the Company or its Subsidiary in the case of (i) any leave of absence approved by the Company or (ii) transfers between locations of the Company or between the Company or its Subsidiary. For purposes of Incentive Stock Options, no such leave may exceed

three (3) months, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, then six (6) months following the first (1st) day of such leave any Incentive Stock Option held by the Participant will cease to be treated as an Incentive Stock Option and will be treated for tax purposes as a Nonstatutory Stock Option.

13.6 *Deferral; Dividend Equivalents* . The Committee shall be authorized to establish procedures pursuant to which the payment of any Award may be deferred, subject to the requirements of Section 409A. Subject to the provisions of the Plan and any Award Agreement, the recipient of an Award other than an Option or Stock Appreciation Right may, if so determined by the Committee, be entitled to receive, currently or on a deferred basis, amounts equivalent to cash, stock or other property dividends on Shares (“ *Dividend Equivalents* ”) with respect to the number of Shares covered by the Award, as determined by the Committee, in its sole discretion. The Committee may provide that the Dividend Equivalents (if any) shall be deemed to have been reinvested in additional Shares or otherwise reinvested and may provide that the Dividend Equivalents are subject to the same vesting or performance conditions as the underlying Award. Notwithstanding the foregoing, Dividend Equivalents distributed in connection with an Award that vests based on the achievement of performance goals shall be subject to restrictions and risk of forfeiture to the same extent as the Award with respect to which such cash, stock or other property has been distributed.

13.7 *One-Time Option Exchange* . Notwithstanding any other provision of the stock plan to the contrary, upon approval of the company’s shareholders of this Section in connection with the Company’s 2016 Annual Meeting of Shareholders, the Committee may provide for, and the company may implement, a one-time-only option exchange offer, pursuant to which certain outstanding Options could, at the election of the person holding such Option, be tendered to the company for cancellation in exchange for the issuance of an Option, with a lower per share exercise price, that covers the same number of shares as the number of shares that were subject to the corresponding cancelled Option, provided that such one-time-only option exchange offer is commenced within 12 months following the date of such shareholder approval.

14. MISCELLANEOUS

14.1 *Award Agreements* . Each Award Agreement shall either be (a) in writing in a form approved by the Committee and executed by the Company by an officer duly authorized to act on its behalf, or (b) an electronic notice in a form approved by the Committee and recorded by the Company (or its designee) in an electronic recordkeeping system used for the purpose of tracking one or more types of Awards as the Committee may provide; in each case and if required by the Committee, the Award Agreement shall be executed or otherwise electronically accepted by the recipient of the Award in such form and manner as the Committee may require. The Committee may authorize any officer of the Company to execute any or all Award Agreements on behalf of the Company. The Award Agreement shall set forth the material terms and conditions of the Award as established by the Committee consistent with the provisions of the Plan.

14.2 *Tax Withholding*. The Company shall have the right to make all payments or distributions pursuant to the Plan to a Participant (or a Permitted Assignee thereof) (any such person, a “ *Payee* ”) net of any applicable federal, state and local taxes required to be paid or withheld as a result of (a) the grant of any Award, (b) the exercise of an Option or Stock Appreciation Right, (c) the delivery of Shares or cash, (d) the lapse of any restrictions in connection with any Award or (e) any other event occurring pursuant to the Plan. The Company or any Subsidiary shall have the right to withhold from wages or other amounts otherwise payable to such Payee such withholding taxes as may be required by law, or to otherwise require the Payee to pay such withholding taxes. If the Payee shall fail to make such tax payments as are required, the Company or its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to such Payee or to take such other action as may be necessary to satisfy such withholding obligations. The Committee shall be authorized to establish procedures for election by Participants to satisfy such obligation for the payment of such taxes by tendering previously acquired Shares (either actually or by attestation, having a Fair Market Value equal to the minimum statutory amount required to be withheld), or by directing the Company to retain Shares (having a Fair Market Value equal to the minimum statutory amount required to be held) otherwise deliverable in connection with the Award. The Fair Market Value of the Shares to be withheld or delivered will be determined as of the date that the taxes are required to be withheld.

14.3 *Right of Discharge Reserved; Claims to Awards*. Nothing in the Plan nor the grant of an Award hereunder shall confer upon any Employee or Director the right to continue in the employment or service of the Company or any Subsidiary or affect any right that the Company or any Subsidiary may have to terminate the employment or service of (or to demote or to exclude from future Awards under the Plan) any such Employee or Director at any time for any reason. Except as specifically provided by the Committee, the Company shall not be liable for the loss of existing or potential profit from an Award granted in the event of termination of an employment or other relationship. No Employee or Director shall have any claim to be granted any Award under the Plan, and there is no obligation for uniformity of treatment of Employees or Directors under the Plan.

14.4 *Prospective Recipient* . The prospective recipient of any Award under the Plan shall not, with respect to such Award, be deemed to have become a Participant, or to have any rights with respect to such Award, until and unless such recipient shall have executed an agreement or other instrument evidencing the Award and delivered a copy thereof to the Company, and otherwise complied with the then applicable terms and conditions.

14.5 *Date of Grant.* The date of grant of an Award will be, for all purposes, the date on which the Committee makes the determination granting such Award, or such other later date as is determined by the Committee. Notice of the determination will be provided to each Participant within a reasonable time after the date of such grant.

14.6 *Substitute Awards.* Notwithstanding any other provision of the Plan, the terms of Substitute Awards may vary from the terms set forth in the Plan to the extent the Committee deems appropriate to conform, in whole or in part, to the provisions of the awards in substitution for which they are granted.

14.7 *Cancellation of Award.* Notwithstanding anything to the contrary contained herein, an Award Agreement may provide that the Award shall be canceled if the Participant, without the consent of the Company, while employed by the Company or any Subsidiary or after termination of such employment or service, engages in activity that violates any agreement between the Company or any Subsidiary and Participant or upon the occurrence of other specified events, as determined by the Committee in its sole discretion. Such events may include, but shall not be limited to, fraud, breach of a fiduciary duty, restatement of financial statements as a result of fraud or willful errors or omissions, termination of employment for cause, violation of material Company and/or Subsidiary policies, breach of non-competition, confidentiality, or other restrictive covenants that may apply to the Participant, or other conduct by the Participant that is detrimental to the business or reputation of the Company and/or its Subsidiaries. The Committee may provide in an Award Agreement that if within the time period specified in the agreement the Participant establishes a relationship with a competitor or engages in an activity referred to in the preceding sentence, the Participant will forfeit any gain realized on the vesting or exercise of the Award and must repay such gain to the Company. The Committee also may require the application of this Section 14.7 with respect to any Award previously granted to a Participant even without any specified terms being included in any applicable Award Agreement to the extent required under applicable laws.

14.8 *Stop Transfer Orders.* All certificates for Shares delivered under the Plan pursuant to any Award shall be subject to such stop-transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations and other requirements of the Securities and Exchange Commission, any stock exchange upon which the Shares are then listed, and any applicable federal or state securities law, and the Committee may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

14.9 *Investment Representations.* As a condition to the exercise of an Award, the Company may require the person exercising such Award to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

14.10 *Inability to Obtain Authority.* The inability of the Company to obtain authority from any regulatory body having jurisdiction or to complete or comply with the requirements of any registration or other qualification of the Shares under any state, federal or foreign law or under the rules and regulations of the Securities and Exchange Commission, the stock exchange on which Shares of the same class are then listed, or any other governmental or regulatory body, which authority, registration, qualification or rule compliance is deemed by the Company's counsel to be necessary or advisable for the issuance and sale of any Shares hereunder, will relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority, registration, qualification or rule compliance will not have been obtained.

14.11 *Nature of Payments.* All Awards made pursuant to the Plan are in consideration of services performed or to be performed for the Company or any Subsidiary, division or business unit of the Company. Any income or gain realized pursuant to Awards under the Plan and any Stock Appreciation Rights constitute a special incentive payment to the Participant and shall not be taken into account, to the extent permissible under applicable law, as compensation for purposes of any of the employee benefit plans of the Company or any Subsidiary except as may be determined by the Committee or by the Board or board of directors of the applicable Subsidiary.

14.12 *Other Plans.* Nothing contained in the Plan shall prevent the Board from adopting other or additional compensation arrangements, subject to shareholder approval if such approval is required; and such arrangements may be either generally applicable or applicable only in specific cases.

14.13 *Severability.* The provisions of the Plan shall be deemed severable. If any provision of the Plan shall be held unlawful or otherwise invalid or unenforceable in whole or in part by a court of competent jurisdiction, such provision shall (a) be deemed limited to the extent that such court of competent jurisdiction deems it lawful, valid and/or enforceable and as so limited shall remain in full force and effect, and (b) not affect any other provision of the Plan or part thereof, each of which shall remain in full force and effect. If the making of any payment or the provision of any other benefit required under the Plan shall be held unlawful or otherwise invalid or unenforceable by a court of competent jurisdiction, such unlawfulness, invalidity or unenforceability shall not prevent any other payment or benefit from being made or provided under the Plan, and if the making of any payment in full or the provision of any other benefit required under the Plan in full would be unlawful or otherwise invalid or unenforceable, then such unlawfulness, invalidity or unenforceability shall not prevent such payment or benefit from being made or provided in part, to the extent that it would not be unlawful, invalid or unenforceable, and the maximum payment or benefit that would not be unlawful, invalid or unenforceable shall be made or provided under the Plan.

14.14 *Construction.* As used in the Plan, the words “ *include* ” and “ *including* ,” and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words “ *without limitation* .”

14.15 *Unfunded Status of the Plan.* The Plan is intended to constitute an “unfunded” plan for incentive compensation. With respect to any payments not yet made to a Participant by the Company, nothing contained herein shall give any such Participant any rights that are greater than those of a general creditor of the Company. In its sole discretion, the Committee may authorize the creation of trusts or other arrangements to meet the obligations created under the Plan to deliver the Shares or payments in lieu of or with respect to Awards hereunder; provided, however, that the existence of such trusts or other arrangements is consistent with the unfunded status of the Plan.

14.16 *Governing Law* . The Plan and all determinations made and actions taken thereunder, to the extent not otherwise governed by the Code or the laws of the United States, shall be governed by the laws of the State of Washington, without reference to principles of conflict of laws, and construed accordingly.

14.17 *Effective Date; Termination.* This amendment and restatement of the Plan shall be effective on the Restatement Date. Awards may be granted under the Plan at any time and from time to time on or prior to the tenth anniversary of the earlier of the adoption of the amendment and restatement of the Plan or the approval of the Plan by the Company’s shareholders, on which date the Plan will expire except as to Awards then outstanding under the Plan. Such outstanding Awards shall remain in effect until they have been exercised or terminated, or have expired.

14.18 *Foreign Employees.* Awards may be granted to Participants who are foreign nationals or employed outside the United States, or both, on such terms and conditions different from those applicable to Awards to Employees employed in the United States as may, in the judgment of the Committee, be necessary or desirable in order to recognize differences in local law or tax policy. The Committee also may impose conditions on the exercise or vesting of Awards in order to minimize the Company’s obligation with respect to tax equalization for Employees on assignments outside their home country.

14.19 *Compliance with Section 409A.* This Plan is intended to comply and shall be administered in a manner that is intended to comply with or be exempt from Section 409A and shall be construed and interpreted, including without limitation with respect to ambiguities and/or ambiguous terms, in accordance with such intent, except as otherwise specifically determined in the sole discretion of the Committee. To the extent that an Award or the payment, settlement or deferral thereof is subject to Section 409A, the Award shall be granted, paid, settled or deferred in a manner that will comply with Section 409A, except as otherwise determined by the Committee. Each payment or benefit under this Plan and under each Award Agreement is intended to constitute a separate payment for purposes of Section 1.409A-2(b)(2) of the Treasury Regulations. Any provision of this Plan that would cause the grant of an Award or the payment, settlement or deferral thereof to fail to satisfy Section 409A shall be amended to comply with Section 409A on a timely basis, which may be made on a retroactive basis, in accordance with regulations and other guidance issued under Section 409A.

14.20 *Captions.* The captions in the Plan are for convenience of reference only, and are not intended to narrow, limit or affect the substance or interpretation of the provisions contained herein.

14.21 *Conditions to Issuance of Shares.* The granting of Awards and the issuance of Shares under the Plan shall be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be necessary or appropriate. Shares (or if applicable, cash or other property) shall not be issued pursuant to an Award unless, as determined by the Company, the issuance and delivery of the Shares (or if applicable, cash or other property) complies with all such laws, rules, regulations and approvals and will be further subject to the approval of counsel for the Company with respect to such compliance.

S U B S I D I A R I E S O F R E A L N E T W O R K S , I N C .

Name of Subsidiary	Jurisdiction of Incorporation
Atrativa Latin America Ltda.	Brazil
Beijing RealNetworks Technology Co. Ltd.	China
GameHouse Europe B.V.	The Netherlands
GameHouse Spain S.L.	Spain
Listen.com, Inc.	California
Muzicall Ltd.	United Kingdom
PT RealNetworks Indonesia	Indonesia
RealNetworks Asia Pacific Co., Ltd.	Republic of Korea
RealNetworks Australia Pty. Limited	Australia
RealNetworks Digital Music of California, Inc.	California
RealNetworks, d.o.o.	Croatia
RealNetworks GmbH	Austria
RealNetworks Hong Kong, Limited	Hong Kong
RealNetworks India Pvt. Ltd.	India
RealNetworks K.K.	Japan
RealNetworks Ltd.	United Kingdom
RN Acquisition Corp.	Washington
RN International Holdings B.V.	The Netherlands
RN International Holdings C.V.	The Netherlands

Consent of Independent Registered Public Accounting Firm

The Board of Directors

RealNetworks, Inc.:

We consent to the incorporation by reference in the registration statements (No. 333-114088) on Form S-3 and (Nos. 333-63333, 333-12844, 333-42579, 333-147279, 333-172871, and 333-199898) on Form S-8 of RealNetworks, Inc. of our reports dated February 27, 2017, with respect to the consolidated balance sheets of RealNetworks, Inc. as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2016, and the effectiveness of internal control over financial reporting as of December 31, 2016, which reports appear in the December 31, 2016 annual report on Form 10-K of RealNetworks, Inc.

(signed) KPMG LLP

Seattle, Washington

February 27, 2017

**CERTIFICATION PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Robert Glaser, certify that:

1. I have reviewed this report on Form 10-K of RealNetworks, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2017

/s/ ROBERT GLASER

Robert Glaser

Title: Chairman and Chief Executive Officer

(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Marjorie Thomas, certify that:

1. I have reviewed this report on Form 10-K of RealNetworks, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2017

/s/ MARJORIE THOMAS

Marjorie Thomas

Title: Senior Vice President, Chief Financial Officer and Treasurer (Principal
Financial and Accounting Officer)

