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VMware Introduces New Open Source Projects to Accelerate Enterprise Adoption of Cloud-Native Applications

New Identity and Access Management Project Extends Enterprise-Scale and Security to Cloud-Native Applications; New Lightweight Linux Operating System Optimized for Cloud-Native Applications; Pivotal's Lattice Offers Clustered Container Management for Cloud-Native Applications; Collaboration Includes Ecosystem Support From CoreOS, HashiCorp, Intel, JFrog and Mesosphere

PALO ALTO, CA -- (Marketwired) -- 04/20/15 -- VMware, Inc. (NYSE: VMW) today announced two new open source projects built to enable enterprise adoption of cloud-native applications -- Project Lightwave, an identity and access management project that will extend enterprise-scale and security to cloud-native applications; and Project Photon, a lightweight Linux operating system optimized for cloud-native applications.

Designed to help enterprise developers securely build, deploy and manage cloud-native applications, these new open source projects will integrate into VMware's unified platform for the hybrid cloud -- creating a consistent environment across the private and public cloud to support cloud-native and traditional applications. By open sourcing these projects, VMware will work with a broad ecosystem of partners and the developer community to drive common standards, security and interoperability within the cloud-native application market -- leading to improved technology and greater customer choice.

"Through these projects VMware will deliver on its promise of support for any application in the enterprise -- including cloud-native applications -- by extending our unified platform with Project Lightwave and Project Photon," said Kit Colbert, vice president and chief technology officer for Cloud-Native Applications, VMware, Inc. "Used together, these new open source projects will provide enterprises with the best of both worlds. Developers benefit from the portability and speed of containerized applications, while IT operations teams can maintain the security and performance required in today's business environment."

VMware will conduct a live webcast today at 10:00 a.m. Pacific to outline its vision for cloud-native applications, share details about these new open source projects, and showcase technology demonstrations from its ecosystem partners. Register here to view the event.

Helping Enterprises Embrace Traditional and Cloud-Native Applications

With today's announcement VMware is looking to help enterprise developers securely build, deploy and manage modern, distributed applications. The open source projects are lightweight, highly scalable technologies optimized for securing and running containerized applications in a virtual environment. The projects are designed to bring both developers and IT operations teams together by streamlining engineering throughout the application lifecycle from developer desktop to production. Over time, these technologies are expected to be further integrated within VMware's software-defined data center and end-user computing portfolios to help enterprises embrace containerized applications and benefit from VMware's industry-leading compute, networking, security, storage, and management solutions.

- Project Lightwave will be the industry's first container identity and access management technology that extends enterprise-ready security capabilities to cloud-native applications. The distributed nature of these applications, which can feature complex networks of microservices and hundreds or thousands instances of applications, will require enterprises to maintain the identity and access of all interrelated components and users. Project Lightwave will add a new layer of container security beyond container isolation by enabling companies to enforce access control and identity management capabilities across the entire infrastructure and application stack, including all stages of the application development lifecycle. In addition, the technology will enable enterprises to manage access control so that only authorized users will be capable of running authorized containers on authorized hosts through integration with a container host runtime such as Project Photon. Features and capabilities will include:
  - Centralized Identity Management - Project Lightwave will deliver single sign-on, authentication, and authorization using name and passwords, tokens and certificates to provide enterprises with a single solution for securing cloud-native applications.
  - Multi-tenancy - Project Lightwave's multi-tenancy support will enable an enterprise's infrastructure to be used by a variety of applications and teams.
  - Open Standards Support - Project Lightwave will incorporate multiple open standards such as Kerberos, LDAP v3, SAML, X.509 and WS-Trust, and is designed to interoperate with other standards-based technologies in the data center.
  - Enterprise-ready scalability - Project Lightwave is being built with a simple, extensible multi-master replication model allowing horizontal scalability while delivering high performance.
Certificate authority and key management - Project Lightwave will simplify certificate-based operations and key management across the infrastructure.

- **Project Photon**, a natural complement to Project Lightwave, is a lightweight Linux operating system for containerized applications. Optimized for VMware vSphere® and VMware vCloud® Air™ environments, Project Photon will enable enterprises to run both containers and virtual machines natively on a single platform, and deliver container isolation when containers run within virtual machines. Future enhancements to this project will enable seamless portability of containerized applications from a developer's desktop to dev/test environments. Features and capabilities include:
  - **Broad Container Solutions Support** - Project Photon supports Docker, rkt and Garden (Pivotal) container solutions enabling customers to choose the container solution that best suits their needs.
  - **Container Security** - Project Photon offers containerized applications increased security and isolation in conjunction with virtual machines as well as authentication and authorization through integration with Project Lightwave enabling customers to further secure their applications to the container layer.
  - **Flexible Versioning and Extensibility** - An industry-first, Project Photon provides administrators and enterprise developers with extensibility and flexibility over how to best update their container host runtime by supporting both rpm for image-based system versioning, and a yum-compatible, package-based lifecycle management system, allowing for fine-grained package management.

Today, Pivotal also announced **Lattice** which packages open source components from Cloud Foundry for deploying, managing and running containerized workloads on a scalable cluster. Together, VMware and Pivotal will provide end-to-end cloud-native solutions from infrastructure to applications. VMware's resilient infrastructure for cloud-native applications complements Pivotal's Cloud Foundry application platform solutions.

To encourage broad feedback and testing from customers, partners, prospects, and the community at large, Project Photon and Project Lightwave will be released as open source projects. By open sourcing the software, developers will be able to contribute directly to the projects to help drive increased product interoperability and new features. Project Photon is available for download today through GitHub. Project Photon has been packaged as a Vagrant box so users can easily test its capabilities on any platform. The Photon Vagrant box is available for download through HashiCorp's Atlas here. Project Lightwave is expected be made available for download later in 2015.

**Driving Greater Business Agility with New Open Source Projects and Ecosystem Support**

Enterprises are exploring cloud-native software development and operations methodologies popularized by Web scale companies to build applications that benefit from greater agility, elasticity, efficiency, and time to value. The adoption of modern, distributed applications is enabled by scalable cloud infrastructure and technologies such as containers. VMware is focused on helping enterprises adopt cloud-native applications by introducing an open and secure container runtime architecture that can deliver identity authentication and authorization for containers, and a Linux operating system optimized for containers.

VMware is working with a broad set of ecosystem partners to build industry support for its cloud-native projects. Together VMware and its partners are reshaping application infrastructure to help enterprises achieve greater business outcomes in an on-demand, continuously changing market. Specifically, VMware is collaborating with:

- **CoreOS** - Project Photon ships with rkt, CoreOS' Linux container runtime and the first implementation of the Application Container specification (appc). Today VMware supports appc to ensure containers work across different platforms, and looks forward to being an active member of the appc community.
- **HashiCorp** - Project Photon will be packaged as a Vagrant box and available to download on HashiCorp's Atlas here.
- **Intel** - VMware and Intel will work together to support security initiatives in the cloud-native applications space from hardware to infrastructure to the application layer.
- **JFrog** - Project Photon and Project Lightwave will be made available via JFrog's Bintray Distribution as a Service solution.
- **Mesosphere** - The Mesosphere Datacenter Operating System (DCOS) will integrate with VMware's Photon and Lightwave projects, making it easier for enterprises to adopt containers at scale. Mesosphere’s DCOS will leverage VMware's authentication and authorization features to validate workloads and enforce security policies for distributed systems and container orchestration.
- **Pivotal** - Project Photon, Project Lightwave, and Lattice will collectively provide a lightweight, secure infrastructure and scheduling solution with end-to-end capabilities for supporting cloud-native applications.

**Supporting Quotes**

- "We welcome VMware's participation with the Application Container specification and look forward to working with VMware to bring standardization of application containers to our industry and community. By working together we are advancing the industry in areas of security and portability, and providing greater choice to those implementing application containers.” - Alex Polvi, CEO of CoreOS

- "We're excited about technologies that make hybrid deployments an easier process. Project Photon and Project Lightwave are certainly a step in the right direction by making container runtimes and container management more accessible to the enterprise. We're happy to contribute to the ecosystem by making Project Photon experimentation a simple and enjoyable process through Vagrant and Atlas." - Mitchell Hashimoto, founder and CEO, HashiCorp
“Intel and VMware have worked together closely to drive hypervisor innovation for more than 15 years. Today, we are extending our collaboration to innovate around cloud infrastructure technologies with lightweight Linux for containers. We look forward to further innovation and adoption in the public, private, and hybrid cloud environments.” - Jonathan Donaldson, vice president and general manager Software Defined Infrastructure Group, Intel

“JFrog supports VMware's Photon and Lightwave projects by making them available for the community through Bintray. VMware users will now enjoy ultrafast CDN services, download stats and powerful integration with their Continuous-Integration environment. Bintray supports hundreds of millions of downloads per month for different software packages and images distribution. We are excited to welcome the Photon and Lightwave communities on board.” - Shlomi Ben Haim, CEO, JFrog

“Enterprise developers are taking advantage of containers and new platforms like Mesosphere to build cloud-native applications, but these modern workloads create new demands for operations and security. Mesosphere’s Datacenter Operating System will leverage VMware's highly-secure infrastructure offerings to enable a new class of distributed applications that have the hardened security and operational simplicity required for production environments.” - Florian Leibert, CEO and co-founder of Mesosphere

“Pivotal created Lattice so developers and small teams can quickly access the capabilities found in Cloud Foundry. And together Lattice and Project Photon deliver Cloud Foundry's industry-leading container technology to developers building next-generation microservices applications.” - James Watters, vice president and general manager of Cloud Platform at Pivotal

Additional Resources

- Register now to view today’s live online event starting at 10:00 a.m. Pacific
- Read a blog post by Kit Colbert, vice president and CTO, Cloud-Native Apps, VMware
- Read CoreOS’ blog post, "VMware Ships rkt and Supports Application Container Spec"
- Read HashiCorp's blog post
- Read Mesosphere's blog post
- Read Pivotal's blog post
- View Project Lightwave demonstration
- View Project Photon video
- Learn more about VMware Cloud-Native Applications
- Connect with VMware on Twitter and Facebook

About VMware

VMware is a leader in cloud infrastructure and business mobility. Built on VMware's industry-leading virtualization technology, our solutions deliver a brave new model of IT that is fluid, instant and more secure. Customers can innovate faster by rapidly developing, automatically delivering and more safely consuming any application. With 2014 revenues of $6 billion, VMware has more than 500,000 customers and 75,000 partners. The company is headquartered in Silicon Valley with offices throughout the world and can be found online at www.vmware.com.

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Forward-Looking Statements

This press release contains forward-looking statements including, among other things, statements regarding the expected benefits of Project Lightwave and Project Photon, their expected benefits for customers, plans to work with a broad ecosystem of partners and for further integration within VMware’s software-defined data center and end user computing portfolios, timing of the expected availability of Project Lightwave and its expected features. These forward-looking statements are subject to the safe harbor provisions created by the Private Securities Litigation Reform Act of 1995. Actual results could differ materially from those projected in the forward-looking statements as a result of certain risk factors, including but not limited to (i) changes to priorities and spending allocations; (ii) adverse changes in general economic or market conditions; (iii) delays or reductions in information technology spending; (iv) competitive factors, including but not limited to pricing pressures, industry consolidation, entry of new competitors into the enterprise software and cloud computing markets, and new product and marketing initiatives by our competitors; (v) our customers’ ability to develop, and to transition to, new products and computing strategies such as cloud computing and software-defined data centers; (vi) the uncertainty of customer acceptance of emerging technology; (vii) rapid technological and market changes in virtualization software and application platforms for enterprise computing; (viii) changes to product development timelines; (ix) the successful interoperability and integration of the technologies involved; (x) VMware's ability to protect its proprietary technology; and (xi) VMware's ability to attract and retain highly qualified employees.

These forward looking statements are based on current expectations and are subject to uncertainties and changes in condition, significance, value and effect as well as other risks detailed in documents filed with the Securities and Exchange Commission,
including our most recent reports on Form 10-K and Form 10-Q and current reports on Form 8-K that we may file from time to time, which could cause actual results to vary from expectations. VMware assumes no obligation to, and does not currently intend to, update any such forward-looking statements after the date of this release.

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