



**Hewlett Packard**  
Enterprise

## **Why HPE hyper-convergence?**

HPE Hyper Converged 380

# Contents

Introduction.....	4
Q: What is hyper-convergence, and why is it important?.....	4
Q: Why HPE for hyper-converged systems?.....	4
Q: What are the target markets for hyper-converged systems?.....	5
Q: What was announced on March 15, 2016?.....	5
Q: What is unique about the software-defined intelligence component of the solution?.....	5
Q: Will the new HPE OneView UX be available for the HC 250?.....	6
Q: Is the HC 380 software and HPE OneView UX portable to existing DL380 customer equipment?.....	6
Q: How many HPE Hyper Converged Systems does HPE support?.....	6
Q: When will HC 380 systems be available to order?.....	6
General.....	6
Q: Are there plans for workload reference architectures?.....	6
Q: What are the benefits of running a private or hybrid cloud on a hyper-converged platform?.....	6
Q: Is HPE Helion CloudSystem factory-integrated?.....	6
Positioning.....	7
Q: What are the main differences between the HC 250 and HC 380?.....	7
Q: Is HC 380 using the same chassis as HC 250/Apollo?.....	7
Q: Is there any performance increase with the HC 380 vs. the HC 250?.....	7
Q: How many nodes are in a HC 380 chassis?.....	7
Q: How many nodes are in a HC 250 chassis?.....	7
Q: Is HPE OneView part of the HC 380 solution?.....	7
Q: Is OneView for vCenter (OV4VC) still available in HC 380?.....	7
Q: How is the HC 380 on “the pathway to Composable?”.....	7
Q: How do HPE Hyper Converged systems fit into HPE’s overall converged strategy?.....	7
Q: Can the HC 380 be used for file-serving environments?.....	7
Q: Does the solution support deduplication and compression?.....	8
Data protection.....	8
Q: For data protection in a cluster, what is the default replication factor?.....	8
Q: What level of redundancy is provided with the 2-node design?.....	8
Q: In the 2-node environment, what happens if you lose a node or disk?.....	8

## Frequently asked questions

Software and licensing .....	8
Q: What is the HPE OneView InstantOn capability for HPE Hyper Converged 380? .....	8
Q: If we are currently using HPE ProLiant DL380 Servers, will our existing OneView software be usable with the HC 380 instead of just the plugins to the hypervisor? .....	8
Q: What licenses are required to run the HC 380? .....	8
Q: When will the HC 380 be available for Microsoft Hyper-V? .....	8
Q: How are we handling VMware updates with regard to HC 380? .....	8
Configuration .....	8
Q: Is HPE HC 380 available with a rack option? .....	8
Q: Why does the HC 380 only scale to 16 nodes? .....	8
Q: How many HC 380 systems can be clustered together? .....	9
Q: Are we supporting vCenter? .....	9
Q: Can a customer use their existing vCenter server to manage HC 380? .....	9
Q: What are the primary components of HPE Helion CloudSystem built on HC 380? .....	9
Q: Can customers mix the HPE ConvergedSystem 240-HC StoreVirtual, HPE ConvergedSystem 242-HC StoreVirtual, HC 250 and the HC 380 in the same cluster or management group? .....	9
Q: Do we plan to support a mix of Hyper-V and vSphere in the same cluster with HC 380 in the future? .....	9
Q: Can changes be made to VM memory or CPU? .....	9
Q: Are customer configurations possible for the HC 380? .....	9
Q: Will there be standard configurations with a combination of SSD/SAS drives? .....	9
Q: How configurable is virtualized networking for the HC 380 and do I need to open VMware vCenter to do network configuration? .....	9
Q: How is the HC 380 handling storage? Is it using vSAN? .....	9
Q: What are the plans for including support of external storage on the Hyper Converged 380? .....	9
Q: What is the useable capacity of HPE StoreVirtual systems? .....	10
Installation Services .....	10
Q: Who can install the HC 380? .....	10
Support .....	10
Q: Where can I go for education services? .....	11

## Introduction

### **Q: What is hyper-convergence, and why is it important?**

**A:** Hyper-convergence is an emerging IT model for providing simpler, faster virtualization solutions while addressing multiple customer pain points, including:

- Business demands need more out of IT
- Infrastructure needs to keep up with fast-moving business environments
- Limited IT staff
- Difficulties in deploying and managing traditional infrastructure
- Use of too many tools which are complex and hard to maintain
- VM sprawl

Hyper-converged is a software-defined architecture that tightly integrates compute, storage, and virtualization resources in a density-optimized platform that is centrally managed and preferably supported by a single vendor.

As customers transition to a software-defined data center (SDDC), hyper-converged products will serve as self-contained, modular building blocks that can handle changing workloads and accommodate new business.

### **Q: Why HPE for hyper-converged systems?**

**A:** HPE Hyper Converged 380 is an all-in-one compute, storage, and virtualization solution that is:

- Intuitive—new HPE OneView user experience (UX) is so easy, no manuals required
- Affordable—lowest cost to start, scale, and protect
- Smart—tools and analytics at your fingertips
- Integrated—lifecycle management, data fabric with mobility

HPE has a long track record and successful partnerships with VMware® in building virtualized environments that are based on:

- The world's best-selling server HPE ProLiant DL380 Gen9<sup>1</sup>
- All form factors and management tools
- Thousands of certified professionals to design and build solutions
- Intensive end-to-end service capabilities to support the various customers demanding IT environments that can support business-critical workloads

These attributes are not common to all players in the hyper-converged market, especially those companies who are entering the market and offering solutions built on an OEM hardware basis but do not have the partnerships, expertise, or track record in designing and servicing such environments. For those customers who already have HPE ProLiant servers in their data centers, this offers a great advantage to customers who are well accustomed to its quality and performance.

The software-defined storage (SDS) component of the solution is a unique, highly reliable, and flexible storage solution that was built for converged and hyper converged solutions. With over 200,000 live installations, it's based on HPE StoreVirtual VSA, which has been under continuous development since 2007 and part of our storage strategy since the acquisition of LeftHand in 2009.

<sup>1</sup> Source: CQ3'15 IDC Server Tracker

**Q: What are the target markets for hyper-converged systems?**

**A:** The target markets for hyper-converged systems primarily include small and midsize businesses, enterprise remote sites (regional and branch offices), and enterprise lines-of-business (LOBs) that support their own application deployments. These customers are looking for simple and flexible solutions that can be managed without heavy IT overhead. Common use cases include general-purpose virtualization, virtual desktop infrastructure (VDI), and cloud.

**Q: What was announced on March 15, 2016?**

**A:** HPE announced the Hyper Converged 380 (HC 380), an all-in-one compute, software-defined storage, and software-defined intelligence virtualization solution that is available in 2-16-node configurations. This configurable, scalable, agile, and highly available virtualization system delivers a simple solution stack with extended flexibility and manageability. It's built on the powerful, industry-standard HPE ProLiant DL 380 Gen9 (2x Intel® Xeon® processor E5), combined with VMware vSphere hypervisor.

This factory-integrated solution is available in three workload configurations: General-purpose virtualization, cloud, and virtual desktop infrastructure (VDI). VDI is offered as a reference architecture for persistent/non-persistent VDI and accelerated graphics. Unlike many hyper-converged systems, the HC 380 can be customized at the time of order and offers multiple flexible configuration options for virtualized workloads.

 <p><b>Hybrid IT</b> Small to Medium</p>	 <p><b>VDI</b> Small to Medium</p>	 <p><b>ROBO</b> Medium to Enterprise</p>	 <p><b>LOB Applications</b> Medium to Enterprise</p>
<ul style="list-style-type: none"> <li>• VM vending with path to private and hybrid cloud</li> <li>• Multi-cloud ready (HPE CloudSystem, VMware, Azure)</li> <li>• Solution level HW support through HPE CloudSystem</li> <li>• DR-compliance done easily</li> <li>• Data protection through VSA integration with StoreOnce</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal for mixed VDI workloads—dedicated [persistent] and shared [non-persistent] virtual workspaces and applications</li> <li>• High performance GPU for accelerated graphics</li> <li>• Advanced analytics enable higher SLAs and lower costs</li> </ul>	<ul style="list-style-type: none"> <li>• Simple to deploy with automated lifecycle management across multiple sites</li> <li>• Data protection-backup and DR to a central site</li> <li>• Built on the world's best-selling server</li> </ul>	<ul style="list-style-type: none"> <li>• Respond to LOBs quickly</li> <li>• Expand capacity quickly</li> <li>• Affordable and flexible for new projects [2-node entry and Flexible Capacity]</li> <li>• Built on the world's best-selling server</li> <li>• DR-compliance done easily with HA</li> </ul>
<p><b>Single vendor HPE global support</b></p>			

Figure 1. Hyper Converged 380 target use cases

**Q: What is unique about the software-defined intelligence component of the solution?**

**A:** The HC 380 comes with a brand-new consumer-inspired and intuitive HPE OneView user experience (UX) that is built from the ground up. The UX consolidates the following tasks into one console:

- Virtual machine (VM) vending (create, edit, delete)
- Hardware/driver and appliance UI frictionless updates
- Advanced capacity and performance analytics (optional)
- Backup and restore of appliance configuration details
- Role-based access
- Integration with existing LDAP or Active Directory
- Physical and virtual hardware monitoring

**Q: Will the new HPE OneView UX be available for the HC 250?**

**A:** Yes, it is on the roadmap for late 2016.

**Q: Is the HC 380 software and HPE OneView UX portable to existing DL380 customer equipment?**

**A:** At this time, the HC 380 software and HPE OneView UX are only available on the HC 380 appliance.

**Q: How many HPE Hyper Converged Systems does HPE support?**

**A:** In addition to Hyper Converged 380, HPE currently supports two other solutions—Hyper Converged 250 (for VMware) and Hyper Converged 250 for Microsoft® Cloud Platform System (CPS).

**Q: When will HC 380 systems be available to order?**

**A:** March 31, 2016

**General**

**Q: Are there plans for workload reference architectures?**

**A:** Yes, the following reference architectures are in plan for phase 1:

- HC 380 + VMware Horizon (April 2016 timeframe)
- HPE HC 380 + Citrix® XenDesktop®/VMware vSphere hypervisor (May 2016 timeframe)

**Q: What are the benefits of running a private or hybrid cloud on a hyper-converged platform?**

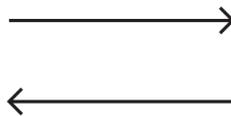
**A:** Hyper-converged cloud solutions, such as the HPE Helion CloudSystem built on HC 380, deliver complementary benefits. While cloud brings resource pooling and service-orientation to the hyper-converged platform, the platform brings better economy to cloud by leveraging native disks to form a storage cluster. Working together, the solution presents a compelling return on investment for cloud customers. A hybrid cloud solution can run on-premise services in the hyper-converged resource pool while simultaneously managing off-premise services or bursting to external public cloud providers (Azure Connect and Amazon Connect). HPE Helion CloudSystem is an open, secure, and integrated cloud solution that offers an easy path to hybrid cloud-enabling customers to quickly build and manage both traditional and cloud-native workloads.

**Cloud + hyper-convergence = Maximum IT efficiency!**

Hyper-convergence



Cloud



- Delivers 4X the compute in 75 percent less space
- No centralized SAN
- Provides straightforward linear scale-out architecture

- Self-service; create and consume virtual resources on the fly
- Elastic resource pools scale up and down
- Offer services to users via Marketplace

**Figure 2.** Complementary benefits of “hyper-converged cloud”

**Q: Is HPE Helion CloudSystem factory-integrated?**

**A:** Yes, it is factory-integrated.

## Positioning

### **Q: What are the main differences between the HC 250 and HC 380?**

**A:** The HC 380 is based on the HPE ProLiant DL380 Server and provides a brand-new user experience, the HPE OneView User Experience (UX)

### **Q: Is HC 380 using the same chassis as HC 250/Apollo?**

**A:** No. The HC 380 is built on the HPE ProLiant DL380 Server.

### **Q: Is there any performance increase with the HC 380 vs. the HC 250?**

**A:** We expect higher performance/capacity for the HC 380 vs. the HC 250 for key workloads such as VDI and general virtualization, given higher memory/CPU cores mix and higher SSD to SAS drive mix.

### **Q: How many nodes are in a HC 380 chassis?**

**A:** 1 node per chassis. Start with 2-nodes and scale to 16 in a single cluster.

### **Q: How many nodes are in a HC 250 chassis?**

**A:** Up to 4 nodes per chassis. Start with 2 (VMware) or 3 nodes (Microsoft) per chassis, and scale to 16 4 chassis/16 nodes (VMware) or 1 full chassis/4 nodes (Microsoft). The HC 250 for Microsoft will scale higher later this year.

### **Q: Is HPE OneView part of the HC 380 solution?**

**A:** The HC 380 product has integrated HPE OneView to enhance the customer experience. HPE OneView is a software stack used to deliver hardware lifecycle management via the user interface. The HC 380 is an appliance-driven embedded experience that is also leveraged to perform hardware monitoring and alerts, along with the HPE OneView user experience and VMware vCenter alerts.

### **Q: Is OneView for vCenter (OV4VC) still available in HC 380?**

**A:** Yes, OV4VC is still available in HC 380.

### **Q: How is the HC 380 on “the pathway to Composable?”**

**A:** Composable infrastructure is designed to run traditional workloads as efficiently as possible while accelerating value creation for a new breed of applications that leverage mobility, Big Data and cloud-native technologies. Composable infrastructure consists of fluid resource pools of compute, storage, and flexible fabric defined by intelligent software and controlled by a unified API.

Unlike competitors, HPE is offering solutions that put customers firmly on the path to this next-generation infrastructure. Composable infrastructure eliminates VM sprawl and IT islands, giving customers more control, efficiency, and utilization of resources. Elements of composability within the HPE Hyper Converged 380 include the integrated software-defined intelligence of the HPE HC 380 Management user interface and the data fabric switch. Because HPE has a long-term vision for composability, we are powering the HC 380 with technology that gives you confidence in terms of upgradability and investment protection.

### **Q: How do HPE Hyper Converged systems fit into HPE’s overall converged strategy?**

**A:** HPE’s Hyper Converged systems are part of our broader strategy for making the benefits of converged infrastructure, cloud, and open SDDC environments available to a broader range of organizations and use cases. We are working closely with our partners to implement this open, flexible strategy to provide an automated approach that works across customers’ current and future infrastructures.

### **Q: Can the HC 380 be used for file-serving environments?**

**A:** Customers can use the HC 380 to host virtual file servers in smaller environments, particularly in branch offices and small- to medium-sized business environments. In these situations, the HC 380 system would not provide these file services natively, but would run virtual machines (VMs) that present file shares to other machines and their users; popular options include Microsoft Windows Server® or a version of Linux®. To provide more capacity in these scenarios, customers can extend an HC 380 system’s capacity by using additional HPE StoreVirtual storage resources (i.e., StoreVirtual VSA or StoreVirtual x86 appliances).

**Q: Does the solution support deduplication and compression?**

**A:** The HC 380 will not support deduplication and compression at first release, although HPE is considering these features for later release.

**Data protection****Q: For data protection in a cluster, what is the default replication factor?**

**A:** Data is replicated across all nodes in the cluster. For 2 nodes, the data is mirrored. For 3+ nodes, data is striped across all nodes of the cluster.

**Q: What level of redundancy is provided with the 2-node design?**

**A:** The 2-node design provides a mirrored level of redundancy.

**Q: In the 2-node environment, what happens if you lose a node or disk?**

**A:** The data protection layout is the industry's best. Our cluster can choose an external quorum partner which allows all cluster functionality to continue.

**Software and licensing****Q: What is the HPE OneView InstantOn capability for HPE Hyper Converged 380?**

**A:** HPE OneView InstantOn (OVIO) offers simple self-installation, that enables customers to get the appliance up and running in fewer than 60 minutes. The HC 380 solution is pre-configured and through HPE OVIO, only requires the entry of IP addresses, credentials, and the appropriate virtualization software license information to quickly set up the system.

**Q: If we are currently using HPE ProLiant DL380 Servers, will our existing OneView software be usable with the HC 380 instead of just the plugins to the hypervisor?**

**A:** For HC 380, OneView is embedded in the experience. In the near future, you will hear how you can manage this with other OneView environments.

**Q: What licenses are required to run the HC 380?**

**A:** The HC 380 includes the necessary entitlements for bundled HPE components. VMware vSphere Enterprise or Enterprise Plus license is required and may be optionally purchased from HPE, HPE channel partners or an existing customer ELA/license may be used. These licenses include support for the VMware software (if purchased through HPE), as well as for all components of the hyper-converged appliance.

Customers with an Enterprise License Agreement can exclude the purchase of new VMware licenses, but will be required to input their license numbers during appliance setup with the HPE OneView InstantOn software.

The HC solutions are supported with vSphere Enterprise/Enterprise Plus and must be configured accordingly in SBW and Watson.

**Q: When will the HC 380 be available for Microsoft Hyper-V?**

**A:** Microsoft Hyper-V is on the roadmap for later this year. The HC 250 currently supports Hyper-V.

**Q: How are we handling VMware updates with regard to HC 380?**

**A:** Initially, updates will be handled via the standard VMware update tools and process. However, these updates will be addressed via the future release of the HPE OneView user experience.

**Configuration****Q: Is HPE HC 380 available with a rack option?**

**A:** Yes, a rack can be placed on the same order as a HC 380.

**Q: Why does the HC 380 only scale to 16 nodes?**

**A:** The maximum number of nodes VMware supports are 64 nodes in a vSphere cluster. We have found that customers in practice do not build very large hyper-converged clusters; however, the maximum number of nodes will be raised in a future release.

**Q: How many HC 380 systems can be clustered together?**

**A:** The HC 380 systems with VMware scale-out to 16 nodes in one cluster. Two HC 380 appliances, with up to 16 nodes each, can be combined in one storage management zone using advanced HPE StoreVirtual VSA through the CMC.

**Q: Are we supporting vCenter?**

**A:** Yes, we will support an external vCenter to manage HC.

**Q: Can a customer use their existing vCenter server to manage HC 380?**

**A:** Yes. HC 380 supports integration with an existing vCenter server as long as it supports vSphere 6.x clusters.

**Q: What are the primary components of HPE Helion CloudSystem built on HC 380?**

**A:** The HPE Helion CloudSystem 9 on HC 380 includes the following components:

- HPE Hyper Converged 380 System for the compute and storage resource pool
- HPE CloudSystem Foundation or Enterprise software for the cloud management platform
- Optional Installation and Startup Service for HPE CloudSystem Foundation or HPE CloudSystem Enterprise

**Q: Can customers mix the HPE ConvergedSystem 240-HC StoreVirtual, HPE ConvergedSystem 242-HC StoreVirtual, HC 250 and the HC 380 in the same cluster or management group?**

**A:** Not with this first release; the storage utilization requires homogenous storage configuration between nodes within a cluster.

**Q: Do we plan to support a mix of Hyper-V and vSphere in the same cluster with HC 380 in the future?**

**A:** No, mixing these hypervisors is not currently in plan.

**Q: Can changes be made to VM memory or CPU?**

**A:** Yes, but depending on the OS and vSphere integration with drivers, it may require a reboot.

**Q: Are customer configurations possible for the HC 380?**

**A:** Yes. There are a multitude of CPU/memory/disk drive configuration options.

**Q: Will there be standard configurations with a combination of SSD/SAS drives?**

**A:** Yes.

**Q: How configurable is virtualized networking for the HC 380 and do I need to open VMware vCenter to do network configuration?**

**A:** Currently, advanced network configuration is done via vCenter.

**Q: How is the HC 380 handling storage? Is it using vSAN?**

**A:** HC 380 shared storage is provided by HPE StoreVirtual VSA.

**Q: What are the plans for including support of external storage on the Hyper Converged 380?**

**A:** HC 380 provides a simple and predictable growth model. If your business demands non-linear scaling of compute and storage, you can add external HPE StoreVirtual Storage Arrays. You can add and manage these arrays from within VMware vCenter and integrate it with the virtualization environment.

**Q: What is the useable capacity of HPE StoreVirtual systems?**

**A:** See the chart in figure 3.

Storage Block Description	SSDs	HDDs	Usable capacity [TB] per block	Max usable TB per chassis	Virt	Cloud	VDI
4.9 TB Hybrid Block-Write Intensive	2 x 400 GB WI [804665-B21]	6 x 900 GB SAS [785069-B21]	4.9	14.7	√	√	√
6.8 TB Hybrid Block-Write Intensive	2 x 800 GB WI [804671-B21]	6 x 1.2 TB SAS [781518-B21]	6.8	20.4	√	√	√
3.48 TB Hybrid Block-Mixed Use	2 x 480 GB MU [816985-B21]	6 x 600 GB SAS [781516-B21]	3.48	10.44	√	√	x
4.98 TB Hybrid Block-Mixed Use	2 x 480 GB MU [816985-B21]	6 x 900 GB SAS [785069-B21]	4.98	14.94	√	√	x
6.8 TB Hybrid Block-Mixed Use	2 x 800 GB MU [804625-B21]	6 x 1.2 TB SAS [781518-B21]	6.8	20.4	√	√	x
4.2 TB Hard Drive Block	0	8 x 600 GB SAS [781516-B21]	4.2	12.6	√	√	x
6.3 TB Hard Drive Block	0	8 x 900 GB SAS [785069-B21]	6.3	18.9	√	√	x
8.4 TB Hard Drive Block	0	8 x 1.2 TB SAS [781518-B21]	8.4	25.2	√	√	x

Choice of Storage Blocks providing capacity range from 3.5 TB to 25.2 TB  
 - Each block comprises 8 disks: either (2xSSD + 6xHDD) or (8xHDD)  
 - Order quantity of 1, 2 or 3 blocks for 8, 16 or 24 drives per node

Cannot mix block types within a node

Cluster nodes must be homogeneous

Cloud use-case requires total ~9 TB usable per cluster

**MU:** Mixed Use [1-10DWPD]

**WI:** Write Intensive (>10DWPD)

Usable Capacity: **Estimate** based on RAID1 SSD layer and RAID5 HDD layer. Does not include solution management storage overhead, nor RAID10.

**Figure 3.** HPE HC 380 Storage Block Choices

**Installation Services**

**Q: Who can install the HC 380?**

**A:** The HC 380 can be customer installable, provided the customer possesses the needed skill sets; particularly a networking skillset. The HC 380 appliance ships with instructions on how to download the Hyper Converged 380 Customer User and Installation guides, however, for an enhanced customer installation experience, services can be provided by HPE or an HPE Channel partner.

**Support**

HPE Hyper Converged 380 solution support helps you simplify your IT operations and provides invaluable peace of mind. Our support service team lets you spend more time developing apps and adding value to the business rather than maintaining your infrastructure. Through comprehensive infrastructure lifecycle management, proactive advice and 24x7 solution monitoring, our team of experts help you maximize your workload uptime and avoid problems before they occur. By connecting your system to our support processes, you will be automatically notified of potential risks and the resolution process will be initiated before a problem occurs. If you are experiencing any issue with your solution, you will have immediate access to our team of solution experts whose priority is workload restoration, followed by immediate diagnostics and failure analysis. The HPE Hyper Converged 380 solution support is available in 30+ languages with a local presence across 140 countries.

## Frequently asked questions

### Q: Where can I go for education services?

**A:** HPE's education services focuses on your most important asset, your people, and making sure they have the right skills to deliver business outcomes. With over 35 years of experience we lead the industry when it comes to leading-edge, skills-based IT training, certification training, and training services focused on end-user acceptance during a technology change. We represent unmatched expertise across a broad range of HPE products, industry partner technologies, and IT service management disciplines by combining technical knowledge, business insights, and hands-on experience in our training delivery. Book a class today and learn how to get the most from your technology investment. Visit [hpe.com/services/education](http://hpe.com/services/education).

### Learn more at

[hpe.com/info/hc](http://hpe.com/info/hc)

[intranet.hp.com/eg/sales/convergedsystems/Pages/HC-Portfolio.aspx](http://intranet.hp.com/eg/sales/convergedsystems/Pages/HC-Portfolio.aspx)



Sign up for updates

★ Rate this document



---

© Copyright 2016 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Intel Xeon is a trademark of Intel Corporation in the U.S. and other countries. Microsoft and Windows Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Citrix and XenDesktop are registered trademarks of Citrix Systems, Inc. and/or one more of its subsidiaries and may be registered in the United States Patent and Trademark Office and in other countries. Linux is the registered trademark of Linus Torvalds in the U.S. and other countries. VMware is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions.

4AA6-5214ENW, May 2016