HP and VMware advantage

Creating an on-demand infrastructure foundation for the New Style of Business
Agenda

- HP and VMware partnership
- The New Style of Business
- Transform to an on-demand IT infrastructure
- Modernize the data center
- Automate tasks and orchestrate processes
- Converge and hyper-converge
- Move to hybrid cloud
- Manage and transform from traditional to new
- Embrace mobility
- Wrap up
- Your next steps
Working together for you
Helping you look forward to more

15 years
of partnership, engineering, and joint investment

Open
Standards-based solutions for easy growth, integration, and evolution

One
support provider—HP—for all VMware systems

Industry first
Announced development of federated network solution to provide unified automation of, and visibility into, physical and virtual data center networks

More than 1,100
HP support professionals trained on VMware
## HP and VMware – 360-degree partnership

| VMware overview | • $5.2 billion USD in revenue with approximately 13,000 employees supporting clients in all regions of the world  
• Global leader in virtualization technologies |
| --- | --- |
| HP – 360-degree partner | Go-to-market partner: Jointly investing in IT infrastructure, cloud, and mobility solutions  
Joint customers: HP uses VMware software; VMware uses HP Converged Infrastructure  
Preferred infrastructure provider: 15-year track record with more than 500,000 customers. Largest percentage of VMware customers run on HP hardware. |
| Delivering more for you | • 15-year strategic alliance  
• Tight integration and management simplicity, leading to lower total cost of ownership (TCO)  
• Innovation and industry leadership  
• Faster time-to-value |
The New Style of Business
Creating disruptive waves of new demands and opportunities

New types of apps, data, and risks

New ways to build, operate, and consume

New business models, solutions, and revenue
Driving the New Style of Business

**Infrastructure**
Build the best foundation
- Server
- Storage
- Networking
- Converged solutions

**Software**
Turn data into insight, and insights into action
- App delivery
- IT operations management
- Big Data
- Security

**Cloud**
Deliver speed and agility
- Private cloud
- Managed private cloud
- Managed virtual private cloud
- Public cloud

**Services**
Manage and transform traditional to new
- Consulting services
- App transformation
- Support services
- Managed services
Transform to an on-demand IT infrastructure
Why transform to an on-demand IT Infrastructure?
Build a foundation for the New Style of Business to create and deliver new value instantly and continuously

Better business outcomes

> Increased agility and flexibility
> Reduced cost
> Revenue and profit growth
> Reduced risk
> Improved customer experience
> Enhanced employee experience
IT must transform to create the foundation for the New Style of Business

Contain costs

- Efficiently host workloads and services
- Provide hardened systems and networks
- Store and manage data
- Software automates business systems

Create outcomes

- Continuously create and deliver new services
- Manage and mitigate risk
- Provide real-time insight and understanding
- Software differentiates products and services
Deploying an on-demand IT infrastructure

1. **Enable agile IT operations**
   Transform management of infrastructure and clouds with analytics and automation

2. **Speed to market with cloud**
   Access unlimited scale and speed in a secure way

3. **Create an on-demand infrastructure foundation**
   Make traditional IT environments more efficient and create agility for the next generation of applications, services

4. **Deliver transformation services**
   Offer 360-degree support (technology, consulting, and financing) to extend your business to more customers

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**Applications**

- Traditional
- Cloud-native
- Mobile

**Control**
- Operations management
- Cloud management platform
- Integrated infrastructure management

**Infrastructure**

- Servers
- Storage
- Networks
- Converged systems
- Virtualization capabilities

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Create an on-demand infrastructure foundation

- Converge and modernize
- Automate tasks
- Orchestrate processes
- Transform delivery
- Hybrid cloud
Modernize the data center
Simple, scalable virtualization
Building on a strong foundation for better outcomes today and tomorrow

• Protecting your investments
  – Clear upgrade paths for any virtualization plans

• Providing comprehensive solutions
  – Servers
  – Storage
  – Networking

• Defining a phased approach
  – HP Technology Services offers the assistance you need from assessment through deployment and support
HP ProLiant Gen9 portfolio and innovations

**Network**
- VXLAN/NVGRE Offload and RDMA over Converged Ethernet for rack and tower servers
- Virtual Connect 16 Gb Fibre Channel

**Storage**
- 12 Gb/s Smart Array Controllers
- 12 Gb/s PCIe Workload Accelerators
- SAS Value Endurance SSDs

**Embedded management**
- HP iLO Federation
- UEFI
- HP RESTful API
- HP SUM

**Converged management**
- HP OneView
- Mobile apps for remote access

**Security**
- Serviceguard for Linux
- HP Secure Encryption

**Power and cooling**
- Flexible Slot Power Supplies
- High-performance efficient fans

**Services**
- HP Insight Online
- HP Proactive Care

HP ProLiant Gen9 rack and blade servers currently ship with HP Insight Control. Customers can purchase HP OneView today, but it is not compatible with HP ProLiant Gen9 rack and blade servers at this time. HP OneView will support HP ProLiant Gen9 rack and blade servers in late 2015.
HP Networking and VMware solutions
Automating and unifying physical and virtual data center networks

With the federation of HP VAN SDN Controller and VMware NSX controller, HP and VMware are creating virtualized networks with the ability to:

- Unify virtual and physical devices and bridge virtual and physical networks
- Simplify network lifecycle management and deploy additional bandwidth rapidly
- Provide end-to-end visibility into availability and performance
- Enable rapid root-cause analysis and troubleshooting

**Beta available today**

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### 5900v vSwitch for vSphere

*Industry’s first OpenFlow-enabled vSwitch*

Leverage HP software-defined technology
Targeted for Converged Systems stack

**Available today**

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### 5930 Top of Rack Switch

*VMware NSX OVSDB support*

Direct NSX integration
40 Gbit/s Ethernet
VXLAN

**Available today**

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Helping you embrace virtualized, software-defined networking

HP and VMware Global Server OEM Agreement

HP and VMware are dedicated to helping you...

- **Accelerate** the deployment of new, high-performing applications
- **Simplify** data center fabric and operations
- **Improve** security

...with complete, end-to-end network virtualization consulting and support capabilities delivered by a **global sales and support organization**
Advantages of 3PAR StoreServ with VMware vSphere

Superior architecture

- Modern architecture designed specifically to support virtualization
- System-wide striping, mixed workload support, and quad controllers
- Native data mobility features with Peer Motion and Peer Persistence
- Guaranteed double virtual machine (VM) density\(^2\)
- Guaranteed 50 percent less capacity requirements\(^2\)

Best integration

- Silicon-level Integration with vStorage VAAI application programming interfaces (APIs)
- Consistent day one support of any new VMware integration (first with VASA and UNMAP)
- Rated best-in-class for VMware integration by DCIG
- Early and in-depth development involvement on VVols ensures the best VVols experience

Simplest management

- 8X faster to deploy VMs than competitive solutions\(^3\)
- Only vendor to offer a single vCenter plug-in that supports servers, storage, and networking
- Custom 3PAR specific dashboards for vCenter Operations Manager

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\(^2\)As compared to your legacy storage array. See HP 3PAR Get Thin Guarantee [hp.com/storage/getthin](http://hp.com/storage/getthin) and Get Virtual Guarantee [hp.com/storage/getvirtual](http://hp.com/storage/getvirtual) programs for more details

\(^3\)Based on November 2013 analysis by HP comparing provisioning time of four LUNs to a cluster of VMware ESX hosts and creating a consistency group snapshot of the four LUNs using similar steps and host configuration for HP 3PAR StoreServ 7400 storage vs. EMC VX5700 storage
## HP and VMware integration and strength

### #1
First and only vendor to integrate server, storage, and networking management capabilities together in VMware vCenter Server

### 12
HP and VMware have been leading partners for more than 12 years, delivering proven solutions from the data center, to the desktop and into the cloud.

### HP Servers
- vSphere is deployed on more HP x86 servers than any other competitor\(^4\)
- HP servers featured six times in the Top 20 and four times in the Top 10 – 32 core category in VMmark\(^5\)
- Customers are nearly 2X more likely to choose HP ProLiant BladeSystem\(^6\)

### HP Storage
- Rated best-in-class with vSphere integration – DCIG 2014
- Rated #1 for Server Virtualization and VDI – Gartner 2014
- 2X VM density and 2X less capacity requirements with HP Storage and VMware – guaranteed
- 3PAR StoreServ is THE fiber channel reference platform for VMware's VVols engineering team
- HP has the most certified storage models for vSphere

### Firsts with vSphere integration:
- iSCSI SAN-certified for vSphere Metro Storage Cluster (vMSC)
- Storage vendor to complete VASA development and certification
- Virtual Storage Appliance (VSA) in the VMware marketplace

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\(^4\) IDC Virtualization Tracker Q4 2013 (39.9 percent of x86 VMware shipments are on HP – more than any other competitor)

\(^5\) VMware HCL as of 15 August 2012

\(^6\) VMmark as of 11 February 2014
Supporting small/midsized business growth

Complete portfolio of HP and VMware virtualization solutions

The broadest range of solutions for meeting customer objectives to simplify management and lower costs through virtualization

- Simple consolidation
  - Entry tower
  - Entry rack HA
  - Midrange rack HA
  - Mainstream HA
  - Scalable rack HA

- Cost-effective scalability
  - Scalable blades HA
  - Cost-effective scalability

- Hyper-converged
  - Low-cost high availability (HA)
  - Mainstream HA

- Enterprise solutions
  - Mid-market: ConvergedSystem 300
  - Enterprise: ConvergedSystem 700/700x

- HA solution integration and cloud extensibility
  - HP Flex Bundles for VMware
  - Small/midsized business solutions

7 Networking switches optional
Bridge the gap between the physical and virtual

From VMware vRealize tools, access HP’s deep management ecosystem

With HP OneView for VMware vRealize, Operations Manager, and Log Insight

• **Simplify** administration with single-console access
• **Reduce** by automating responses to hardware events
• **Take control** by launching your trusted HP management tools
• **Proactively manage** changes with detailed relationship dashboards
• **On-demand** server and storage capacity
• **Maintain stability and reliability** with online firmware inventory and deployment
• **Deep analytics and troubleshooting** via integration in VMware vCenter Operations and Log Insight
Converge and hyper-converge
Converge and modernize with HP and VMware

Start with virtualization

- Best-in-class speed, cost, and enterprise-class Tier 1 features

Step up to convergence

- Total system experience that simplifies IT
- Workload-optimized solutions that improve business agility

Go one step further to hyper-convergence

- Complete virtual infrastructure in less than 15 minutes
Application and infrastructure delivery made easy

HP ConvergedSystem 700 with VMware

- Modular architecture scalable to meet changing business demands
- Interoperability with third-party components
  - Networking: HPN, Cisco, OpenFlow
- Deploy physical server, storage, and fabric through policy-based templates

Increase business agility
Deliver new services and applications to end users 40X faster

Boost staff productivity
More than 100% increase – now spend more time innovating and less time maintaining infrastructure

Reduce cost and complexity
50% less tools to learn and manage
Transform to a hybrid infrastructure

**HP Converged Architecture (HP CA)**

**Fast:**
- Deploy workloads 66X faster

**Simple:**
- Easily integrate into your existing environment

**Efficient:**
- Get choice and flexible integration, delivered by HP partners

**HP CA700 for VMware**

**Simplify and manage the entire stack as one**
- Virtualization and VDI
- Easy path to HP Helion CloudSystem
- Converged management across compute, storage, and fabric

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8 66X faster service delivery based on IDC white paper sponsored by HP, “Achieving Organizational Transformation with HP Converged Infrastructure Solutions for SDDC,” January 2014, IDC #246385
HP ConvergedSystem for SAP HANA
Real-time business decisions for a real-time enterprise

Fast
Reduce time to insight and action with HP ConvergedSystem, optimized for in-memory computing

Efficient
Workload-optimized systems allow you to refocus investments on innovation, not operations

Simple
Easily stand up and manage new services for the fastest time-to-value

Increase **business agility** with solutions that enable you to quickly adapt to market and customers’ needs.
Hyper-converged platform for virtualization

HP ConvergedSystem 200–HC StoreVirtual

Applications running on VMware vSphere
All virtualized workloads running on same appliance utilizing a powerful server platform

All-inclusive Data Services
Scalability, high availability, and thin provisioning powered by HP StoreVirtual technology

Converged System 200-HC StoreVirtual

HP OneView Management
Bring up with HP OneView InstantON
Day-to-day operations with HP OneView for vCenter
Automate tasks and orchestrate processes
Your number one management stack

Simplify and streamline data center management
Add powerful analytics to help you avoid blind spots
Deploy market-leading products to automate data center operations

HP OneView with VMware vRealize integration
HP Ops Analytics for OneView
HP IT Management Software

Converged management of servers, storage, and networking
Single-click integration with HP OneView to extend your management capabilities
Enabling more responsive, effective, and efficient data centers
# HP OneView converged management

Delivering compelling business benefits to IT organizations

<table>
<thead>
<tr>
<th>Function</th>
<th>Product</th>
<th>Impact on IT operations</th>
<th>Business benefits</th>
</tr>
</thead>
</table>
| Infrastructure        | HP OneView    | • Streamline and expedite  
                      | automation             | • Improve productivity and quality  
                      |                       | • Free up resources     | SLA (Service Level Agreement)  
                      |                       |                           | Quality  

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<th>Product</th>
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| Virtualization        | VMware vCenter| • Standardize and consolidate  
                      | management              | • Increase efficiency  
                      |                        | • Enhance workload mobility  
                      |                        | • Get cost-effective HA  | Cost expenditure (CAPEX)  
                      |                        |                           | Operational expenditure (OPEX)  

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Move to hybrid cloud
Gain speed and agility with cloud

Supply from anywhere | IT becomes an internal service provider | Business is enabled

Off-premise

On-premise

Internal Service Catalog

Development Platform

Fast and easy access to IT resources

Application innovation
Hybrid cloud
Delivering unbeatable private or Hybrid Converged System 700 with VMware vSphere

HP ConvergedSystem 700 with VMware vSphere
Easy on-ramp to cloud

Add **HP Helion CloudSystem**

Add VMware vCloud software

Built on the industry’s best converged infrastructure
OpenStack – easing your path to the cloud
Choice and Open Cloud solutions from HP and VMware

HP Helion CloudSystem Enterprise with VMware
Enterprise-grade, end-to-end private and hybrid cloud solution that delivers advanced infrastructure services with platform and application services for hybrid cloud environments

HP Helion CloudSystem Foundation with VMware
Essential cloud management capabilities for an open, secure, and agile path to the New Style of Business

HP Helion CloudSystem with VMware vCloud Suite
Best infrastructure for supporting your approach to hybrid cloud
Manage and transform from traditional to new
Get the services you need

One call, one vendor, for all your services needs

HP delivers comprehensive services—hardware, software, strategy, education, management—for your VMware-based virtualized environment
Better react to changing business dynamics

NEW HP Support and Consulting Services for VMware

- HP Software-defined Compute Accelerator for VMware
- HP Software-defined Compute Implementation Service
- HP Client Virtualization Services
- HP Network Virtualization Services
- HP Education Services for VMware
Your partners for the life of your data center

- **Ensure the right solution**
  - Transformation Experience Workshops
  - Platform Migration Strategy
  - Advisory Services
  - Workload Advisory Services

- **Advise and transform**

- **Integrate**

- **Smooth deployments**
  - HP Migration Services
  - HP Implementation Services
  - HP Education Services

- **Increase agility**
  - Flexible Capacity
  - Hybrid Support

- **Flex**

- **Support**

- **Improve stability**
  - Proactive Care
  - Foundation Care
  - Datacenter Care

HP Technology Services for the New Style of Business
Embrace mobility
Enjoy unprecedented density and performance

New virtual desktop infrastructure solutions from HP and VMware

HP + VMware Horizon 6.1 + NVIDIA GRID =

- Broadest choice of VDI-optimized solutions
- Highest density graphics virtualization
- Simplicity of HP OneView converged management
- Full lifecycle support options
- Reduced costs, setup and provisioning time, and installation errors

Support up to 3,500 users
Better user experience, better benefits

Enabling anywhere, anytime information access
- Access patient information 24x7 at the point of care

Increasing clinicians’ productivity
- Support end-user mobility, providing a consistent native desktop experience on any device

Ensuring security and mitigating risks
- Enable regulatory compliance with a highly available, protected infrastructure
- Reduce risk with proven reference architectures that include HP BladeSystem with Virtual Connect, HP 3PAR StoreServ Storage, and HP networking
Wrap up
Working together for you
Helping you look forward to more

When you choose a standards-based solution from HP and VMware, your business benefits from:

• Faster application deployment
• Greatly improved performance
• Streamlined operations made possible through automation
• An innovative IT that’s easier to manage and less costly to own
• A better user experience, giving users the fast response times and continuous availability they need to do their jobs

9
Your next steps

• Schedule a one-on-one workshop
  • Learn more about how your organization can move to the New Style of Business using innovative solutions from industry leaders you trust — HP and VMware

• Visit these websites
  • hp.com/go/VMware
  • VMware.com
Thank you
HP Storage solutions for VMware server virtualization

**Entry**
- **MSA**
- **StoreVirtual VSA**

- **Entry-level SAN for SMB virtualization deployments**
- **Scalable and affordable software-defined storage**

**Midrange**
- **StoreVirtual Hyper-converged**
- **3PAR StoreServ 7000c**

- **Deploy a complete virtualized environment in <15 minutes**
- **Bulletproof Tier 1 storage at a midrange price built for virtualization**

**Enterprise/cloud**
- **3PAR StoreServ 7450c**
- **3PAR StoreServ 10000**

- **All-flash array that delivers performance without compromise**
- **Optimized, efficient, secure, and highly available file storage gateways**

**Manage and analyze**

- **HP OneView for vCenter, StoreFront Analytics for vRealize Operations Manager**

- **Ideal for customers new to virtualization with limited budgets who desire simple and easy-to-use shared storage**
- **Ideal for smaller SMB customers, proof of concept, remote offices, and public cloud providers**
- **Ideal for customers looking for rapid deployment with pre-configured servers, storage, networking and VMware vSphere**
- **Ideal for customers who desire the best VMware integration and have demanding and mixed VM workloads**
- **Ideal for customers who desire an affordable all-flash array without comprising capacity, efficiency, and availability**
- **Ideal for customers who desire the best possible performance, efficiency, scalability, and availability**

**Protect and recover**

- **HP StoreOnce Backup, HP Data Protector, HP Recovery Manager Central**

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# 3PAR StoreServ: The right architecture makes all the difference

<table>
<thead>
<tr>
<th>#1 Rating for server and client virtualization by Gartner</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 VM density guaranteed!</td>
</tr>
<tr>
<td>90% Less time managing storage</td>
</tr>
<tr>
<td>99.9999 Six-nines uptime guarantee</td>
</tr>
<tr>
<td>8X Faster to deploy VMs</td>
</tr>
<tr>
<td>2X Faster to deploy VMs</td>
</tr>
<tr>
<td>89% Less VM latency with wide striping</td>
</tr>
<tr>
<td>50% Less capacity required</td>
</tr>
<tr>
<td>#1 Rated best-in-class for vSphere integration by DCIG</td>
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</tbody>
</table>

- Faster VMware VAAI operations with silicon integration
- Least capacity required
- Less time managing storage
- Six-nines uptime guarantee
- Support for new vSphere features such as VVols
- Day 1 guaranteed!
- 0 Auto Zero Detect

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Cost-optimized storage
HP StoreVirtual portfolio

When time-to-value matters
Hyper-converged appliance
HP ConvergedSystem 200–HC StoreVirtual

When cloud matters
Integrated cloud storage
Helion OpenStack | CloudSystem

All-inclusive, common data services
- Synchronous replication
- Linear, federated scale-out
- Peer Motion mobility
- Sub-volume auto-tiering
- Thin provisioning
- Metro stretch cluster
- High availability
- Disaster recovery
- Hypervisor and app integration

Simple | Scalable | Highly available | Federated

When agility matters
Virtual storage software
StoreVirtual VSA

When scale matters
Dedicated storage appliance
StoreVirtual 4000 Storage