Modernize your data center with HP Networking

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HP Networking strategy

Simplification

Open Standards  Convergence  Virtualization  Automation
## Trends driving data center transformation

<table>
<thead>
<tr>
<th>Virtualization</th>
<th>Big Data</th>
<th>Cloud</th>
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<tbody>
<tr>
<td>You got a Virtual Network!!</td>
<td>Do you know your data?</td>
<td>Ready or not, clouds are here!!</td>
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</table>
Manage your data center transformation with HP

**Virtualization**
- VAN
- FlexFabric Virtual Switch
- ToR switches with VEPA

**Big Data**
- Scale with IRF, SPB & TRILL
- Large scale core switches with 36Tbps switching

**Cloud**
- Multi-tenancy with MDC
- DCI with EVI
- SDN controller and apps
HP FlexNetwork Architectures enables innovation
Flatter, high-performance, low-latency two-tier networks

- **FlexFabric**
  Converges and secures data center network, compute, and storage in the physical and virtual worlds

- **FlexCampus**
  Converges wired and wireless networks to deliver secure identity-based access

- **FlexBranch**
  Converges network functionality, security and services for simplicity

**FlexManagement**
Converges Network Management and Orchestration

- Open
- Scalable
- Secure
- Agile
- Consistent
FlexFabric – the future of data center networking

Simple

Up to 75% simpler*

Scalable

Up to 2x fabric scaling**

Automated

HP Virtual Application Networks

Months to minutes

*Based on HP IRF 4 to 1 switch management

**Based on FlexFabric 12916
**HP FlexFabric basics**

**Simple**
- IRF/TRILL reduce complexity up to 75%*
- FlexFabric 5900 and 5900v unify physical and virtual

**Scalable**
- FlexFabric 12900 switch doubles cloud scale
- HP 11908 delivers 34% higher 40 GbE for EoR**

**Automated**
- Industry largest portfolio of OpenFlow switches
- VAN & SDN deploy applications in minutes

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*Based on HP IRF 4 to 1 switch management
**Based on FlexFabric11908
HP FlexFabric benefits

**Simple**
- Simpler 2-tier architecture
- Fewer devices to manage
- One license
- Lower cost of acquisition

**Scalable**
- Agile response to business
- Highly scalable
- Interconnect remote DCs
- Anywhere and always

**Automated**
- Apps in minutes
- Resources for innovation
- Carrier-class reliability
- Lowering operating costs
Simplify DC networks with FlexFabric

Legacy 3-tier Networks

- Complexity, latency & cost

Up to 80% of traffic

HP Simpler Networks

- Simplicity, Efficiency & Innovations

Up to 80% of traffic
Data centers – simpler to manage with HP IRF
Simplify DC networks with Comware 7

Comware 7

- Unix Style OS
  - Memory Isolation
  - Preemptive Scheduler
- Separate Control & Data planes
  - Data Plane in kernel space for higher performance
- New High End features
  - Single Box Seamless Upgrade (ISSU)
  - Virtual Device with CPU & Memory separation

Benefits

- One OS for core and access
- Lower costs: no license or hidden costs for features
- Higher availability with hitless ISSU updates
- Scalability with IRF, TRILL & SPB

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*Based on FlexFabric 12500 1 to 4 partitioning
Scale DC networks with Data Center Interconnect

**Multitenant Device Context**
- Up to 4 tenants per core switch
- Up to 75% reduction of devices & cost

**Ethernet Virtual Interconnect**
- Interconnect up to 8 data centers

*Based on FlexFabric 12500 1 to 4 partitioning*
Deploy private clouds with EVI & MDC

<table>
<thead>
<tr>
<th>Cloud Bursting</th>
<th>Long-distance Workload &amp; Data Mobility</th>
<th>Disaster Recovery &amp; Business Continuity</th>
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<tbody>
<tr>
<td>Private Cloud 1</td>
<td>Ethernet Extension Any Transport</td>
<td>Private Cloud 2</td>
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</table>

- 75% Reduction of Devices Lowers Cost
- DCI in minutes from months
- 80% faster vMotion w/ IRF *
- 500X faster vMotion failover w/ IRF *

* "Higher Speed, Lower Downtime, With HP IRF Technology." Network Test, August 2011

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FlexManagement for end-to-end DC networks

Single pane-of-glass network management

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<th>Feature</th>
<th>Description</th>
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<tr>
<td>Unified multi-vendor resource management</td>
<td>Align demands for business-critical service delivery with network management</td>
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<tr>
<td>Single-pane visibility across networking</td>
<td>Comprehensive visibility across all layers and functions; overcomes complexity of multi-OS environments</td>
</tr>
<tr>
<td>Integrated access and user management</td>
<td>Improves endpoint defense, control, and visibility of company owned and user owned devices (BYOD)</td>
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<tr>
<td>Robust reporting and compliance</td>
<td>Common operations view with extensions for provisioning and orchestration</td>
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</tbody>
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Devices supported*: 6085

Manufacturers*: 220

From Cisco*: 1400+
New innovations for data center networks

**Simple**
- FlexFabric Virtual Switch 5900v with EVB/VEPA
- FlexFabric 5900 Series Switch with EVB/VEPA

**Scalable**
- Virtual Services Router
- HP FlexFabric 11900 Switch
- HP FlexFabric 12900 Switch
- HSR 6800 Router

**Automated**
- OpenFlow 1.3
- IMC SDN Manager
Virtual networking brings new reality to data centers

- New virtual network
- Connects virtual machines
- Built with virtual port groups, virtual NICs and virtual switches
- Outside the view or reach of networking administrators
- Poses new challenges
Virtualization challenges

Monitor & secure VM-to-VM traffic

VM to VM traffic is not visible, not monitored & not secured

Track VM profiles with vMotion

VM profiles do not migrate with VMs and are not tracked during vMotion
FlexFabric Virtual Switch 5900v with EVB/VEPA

Unify network policy for virtual and physical networks

- HP virtual switch 5900v - Advanced virtual networking beyond basic vSwitch
- HP IMC management - Integrated management for virtual and physical networks with automated VM network policy
- HP FlexFabric 5900AF Top-of-Rack Switch - Server access switches with industry standards EVB/VEPA. Host offload and accelerated execution of networking processes
Benefits of HP FlexFabric Virtual Switch solution

- Lower cost by eliminating need for dedicated hardware appliance
- Use consistent IMC management tools for virtual & physical networks
- Advance networking beyond basic vSwitch. Apply traditional networking policies (ACLs and QoS) to VM-VM traffic at line rate
- Monitor, manage and secure VM-VM traffic
- Automate migration of VM profile and policy with vMotion
- Offload host server freeing CPU cycles for business application
- Accelerate virtual network processing using 5900AF ToR switch

Single Policy and Management for Physical & Virtual  
ZERO dedicated management appliances
Virtual Application Networks deliver automation, agility
Industry’s most complete software-defined data center network fabric
Virtual Cloud Network application

Network virtualization for scalable multitenant data centers

- Scalable cloud automation
- Scalable cloud multitenancy
- Private-public cloud integration
SDN Services – Pragmatic path to SDN

HP Italy Innovation and Transformation Center test case

- HP TS patent-pending services provisioning
- User-friendly portal request, flexible, predictable
- Speeds provisioning times from weeks to minutes

Current provision estimate 2 weeks
- Dozens of interactions
- Pre-provisioned
- Rigid, unpredictable
- Expensive, no deprovisioning

Provision 5 minutes
De-provision 7 minutes

VAN Server Connect
IMC
FlexFabric delivers simplicity, scale & automation
HP Datacenter Care for Networking

HP’s most flexible support for heterogeneous IT environments

The “power of one” delivering business results
HP networking is right for your data center

- Industry’s only complete SDN solution
- Industry simplest data center architecture
- Best single pane-of-glass networking management
- Robust one network OS for the data center
- Application-centric solutions for improving your business
- Leading virtualization and cloud solutions

Lower Your Costs with Simplicity
Improve Performance with Scalability
Work Smarter with Automation
HP is your best partner

- HP runs on HP Networking
- HP delivers forward looking data center solutions
- HP leads the industry with SDN
- Earned +30,000 clients across 170 countries
- Comprehensive DC transformation consulting
- Flexible financial services for DC Transformation
- Leading training & certification for IT professionals
Thank you