

# Triple...

...the reasons to virtualize your business



# Agenda

- The benefits of virtualization
- HP BladeSystem infrastructure
- HP StorageWorks storage
- HP ProCurve networking
- Getting started: HP Virtualization Smart Bundles



# The Benefits of Virtualization

# Benefits of Virtualization

- Do more with less: Manage your business
  - Reduce data center complexity
  - Reduce costs, both CapEx and OpEx
- Reduce risk: Protect your business
  - Ensure systems availability and disaster recovery
  - Automate management of IT infrastructure
- Scale your business on demand
  - Accelerate time to market
  - Quickly implement incremental resources to support growth

# Converged Infrastructure

Doing more with less

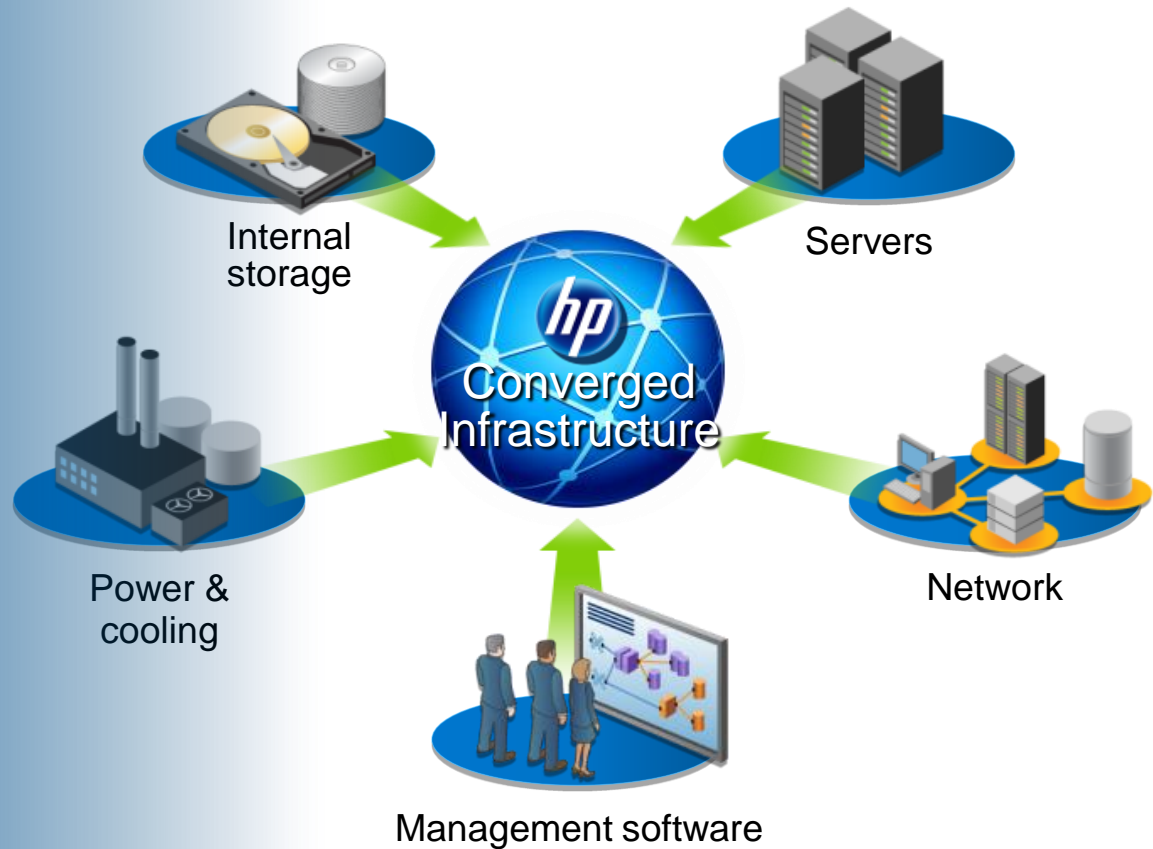
Manage



Protect



Grow



# Triple the reasons to virtualize your business

## HP BladeSystem

Affordable, easy-to-manage, energy-efficient server infrastructure



## HP StorageWorks

Better capacity utilization, pay as you grow architecture



## HP ProCurve

Cost-effective, easy to deploy and scalable networking solutions



# HP BladeSystem Infrastructure

# HP BladeSystem

- Trusted HP components...  
smaller, efficient packaging
  - More affordable
  - Simple to manage
  - Use less power
  - Are ready to grow with you and your business

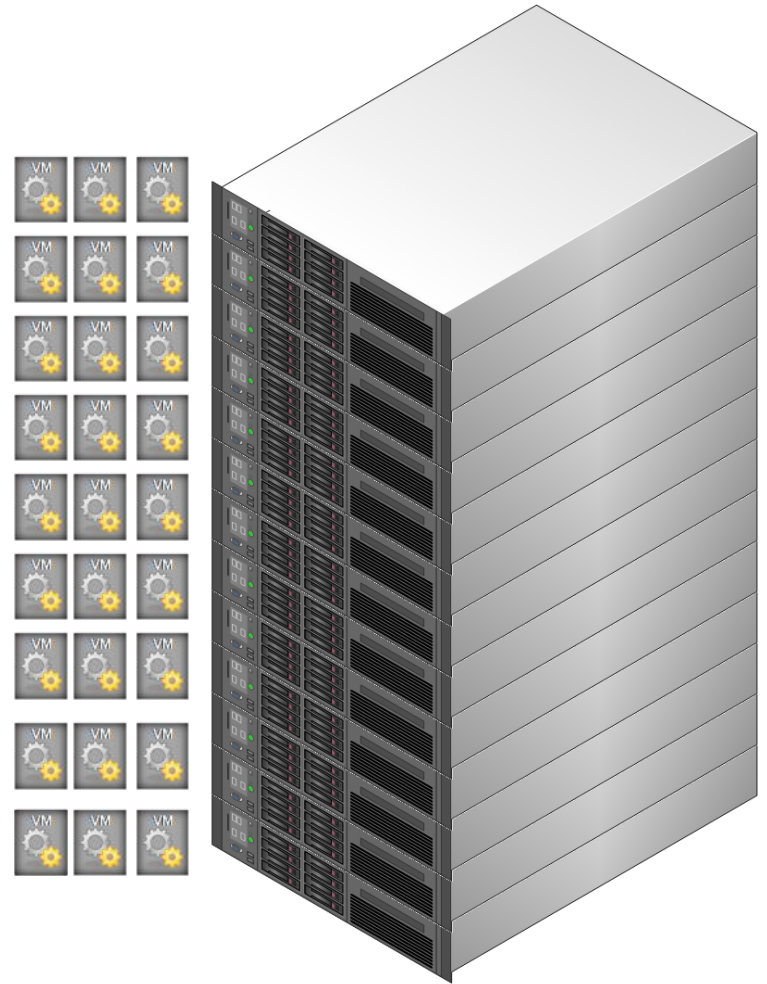


**It is simply a better infrastructure to quickly deliver quality services to your business.**

# Virtualization with Traditional Servers

## HP BladeSystem

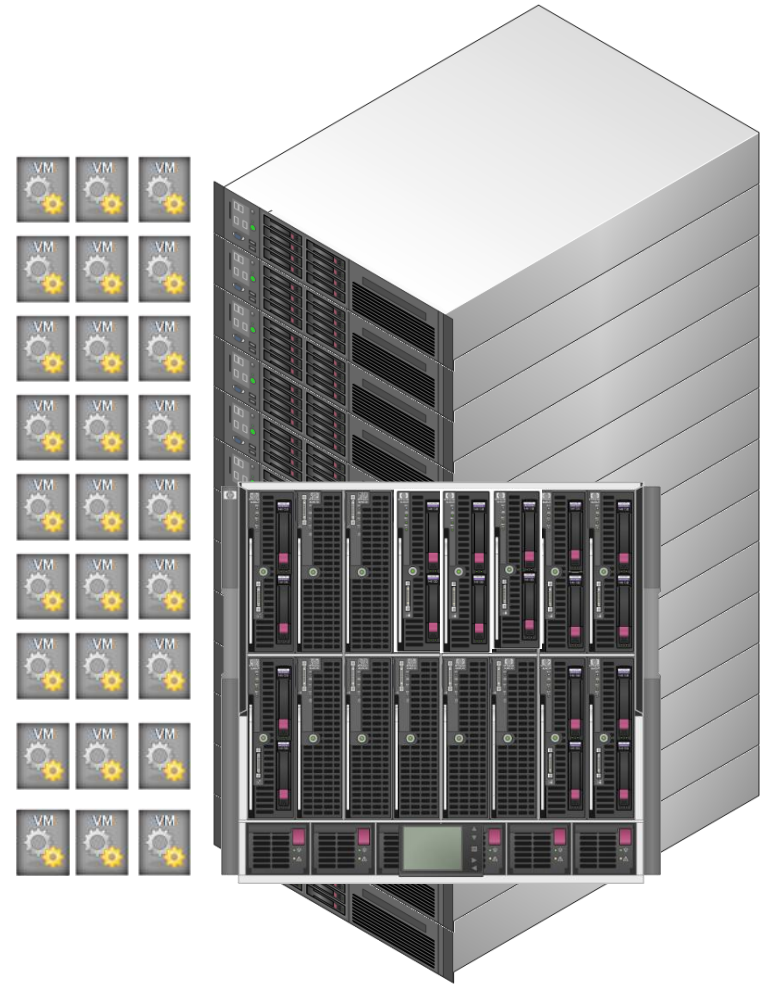
- Though simple the beginning..
- As needs grow so do the following:
  - Data center footprint
  - PDU/Power requirements
  - Cooling requirements
  - Support costs (more servers=more bodies)
  - Switching
  - Network Cables



# Simplify with HP BladeSystem

## HP BladeSystem

- Start only with what you need!
- Scale compute resources
  - Just add blades when need arises
  - No additional Data Center foot print
  - Reduces cooling requirements
  - Less OpEx (less hardware)
  - Internal switching with Flex Fabric
  - Cable-less



# All-in-one infrastructure for storage, servers and everything else

## Right-sized to fit just right



- Rack or Tower
- 4-8 storage or server blades
- Built to be virtual

## No special power or cooling required



- Plugs in the wall or UPS
- Rated to 36°C
- Save 30% on power, use less AC

## Zero-cable storage expansion and data protection



- Bladed tape
- Blade DAS
- Bladed NAS
- Bladed SAN

## Useful, hassle-free tools to manage your way



- Just like regular servers or storage
- KVM, DVD, or remotely
- Simple, single package software

# BladeSystem delivers real business value...

Dell rack infrastructure



HP BladeSystem with  
Virtual Connect Flex-10



34% less power  
58% less rack space  
97% fewer cables  
52% lower interconnect cost  
29% less total solution cost

**\$211,116**

**\$70k reduction**

**\$149,376**

Comparison of 16 Dell PowerEdge P610 rack servers versus HP BL460c G6 servers. Includes associated fabric and power infrastructure

# Storage for the Virtual Infrastructure

Addressing the new requirements for storage

# Exploring Today's Storage Challenges

## Virtual Infrastructure

- Virtualization triggers new storage requirements

## High Availability and Fault Tolerance

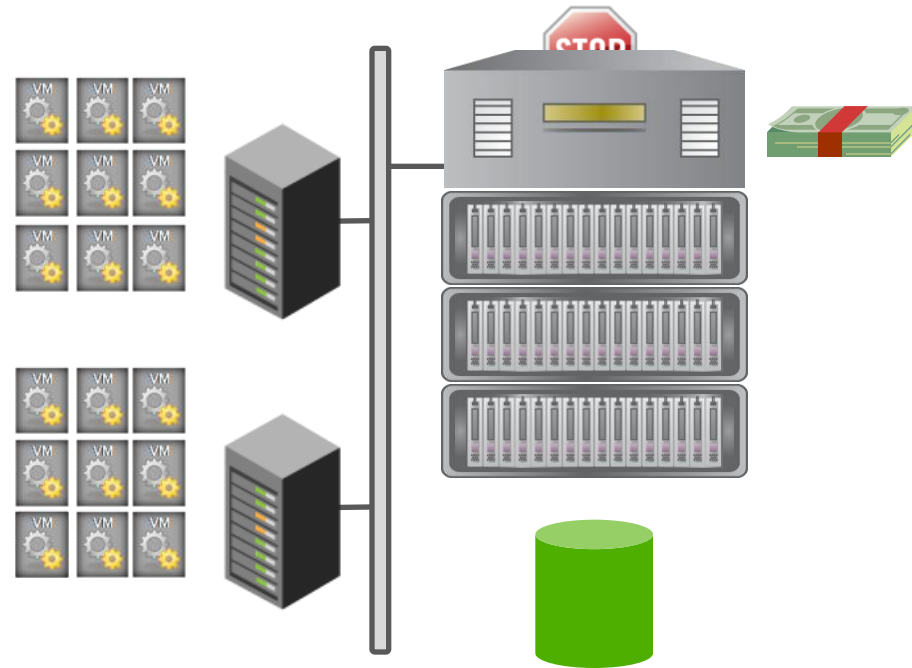
- HA for virtual servers requires matching storage features

## Disaster Recovery

- Preparing for the unforeseen
- Removing the barrier to remote site IT alignment

# Problem: Server Virtualization Puts New Requirements on Storage

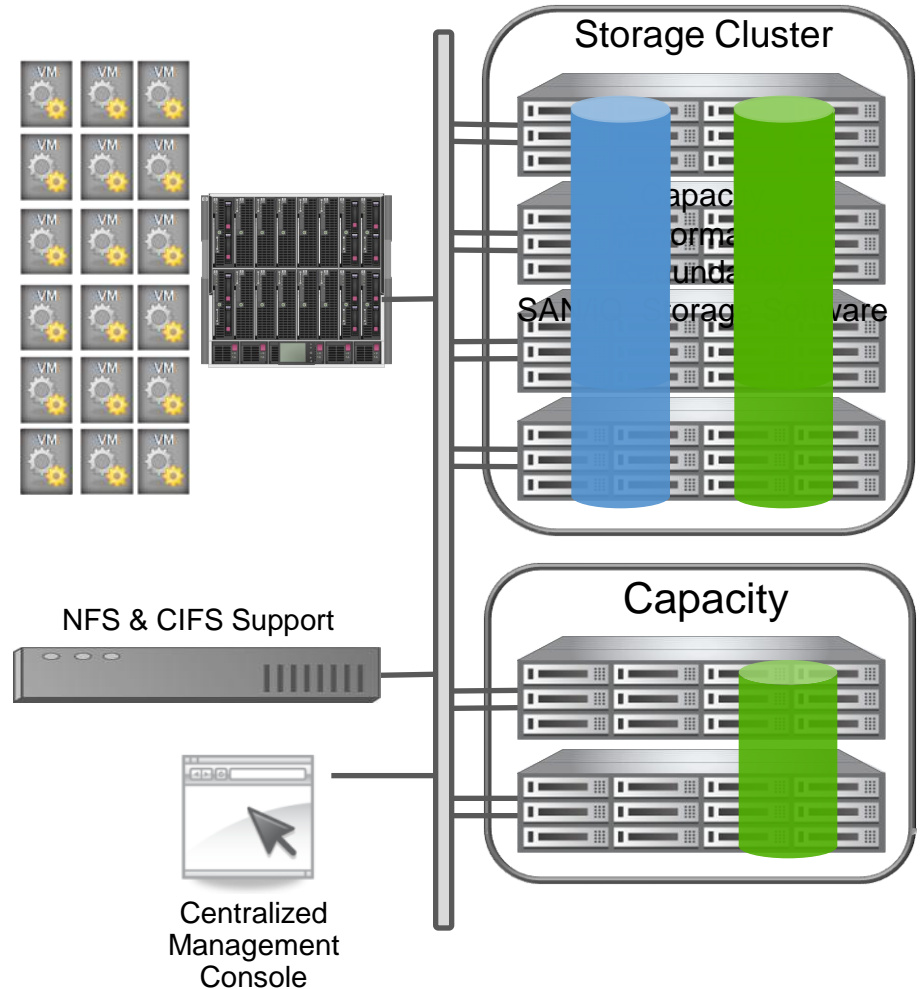
- Virtual machine sprawl pushes storage limits:
  - Can cause erratic storage growth
  - Bottlenecked performance
- Essential storage features can be an additional charge



# Fully featured SANs that Scale On-Demand

## HP P4000 G2 SAN Solutions

- All inclusive, robust feature-set
- Scale capacity and performance together, online
- Superior capacity utilization
- Support for NFS and CIFS
- Simple to install and manage



# The Industry's First Bladed SAN

## HP StorageWorks P4800 BladeSystem SAN Solution

### Management

- Deliver predictable results
- Network cable free

### Performance and scalability

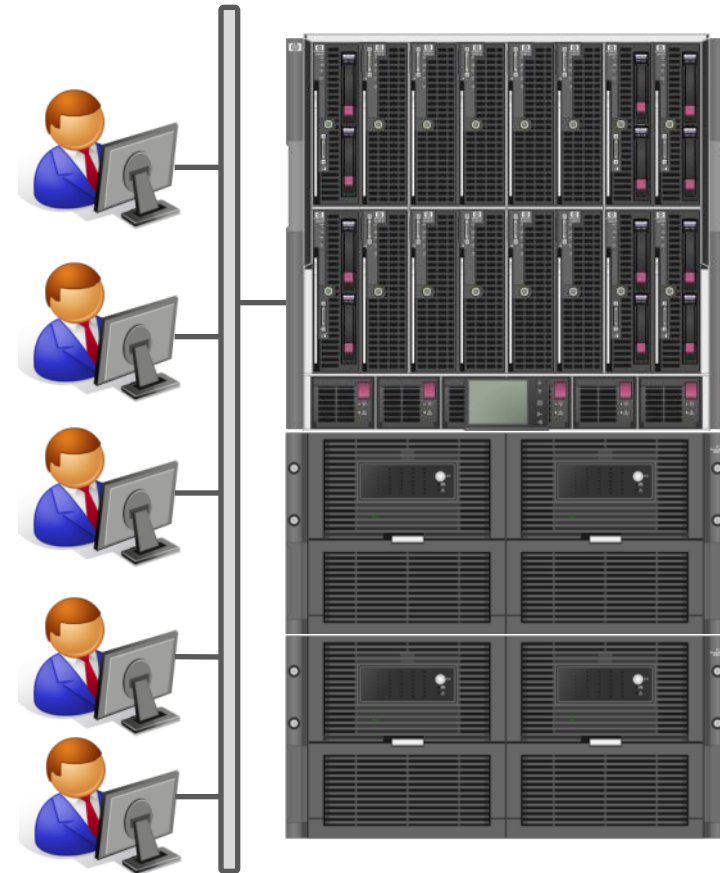
- High storage and performance density
- Dynamically scale as needs grow

### Business continuity assured

- No single point of failure
- Non-disruptive software upgrades

### Cost

- Efficient capacity utilization
- All SAN features included (e.g. thin provisioning)



# Comprehensive High Availability

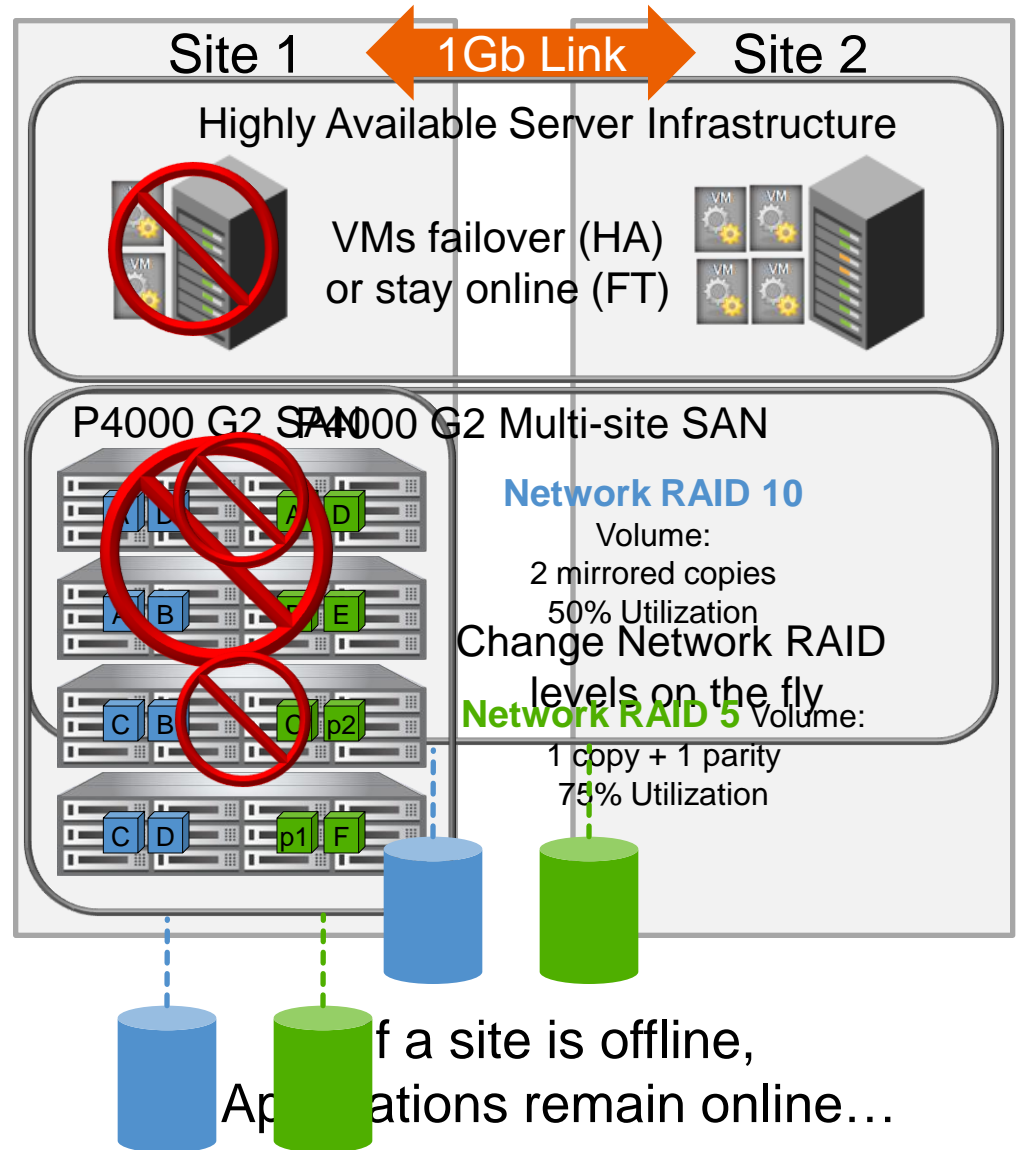
HP P4000 G2 SAN Solutions

Complete SAN protection

- No single point of failure

Real-time site protection  
with Multi-site SAN

- Automatic Failover/Failback



# Cost Effective Disaster Recovery

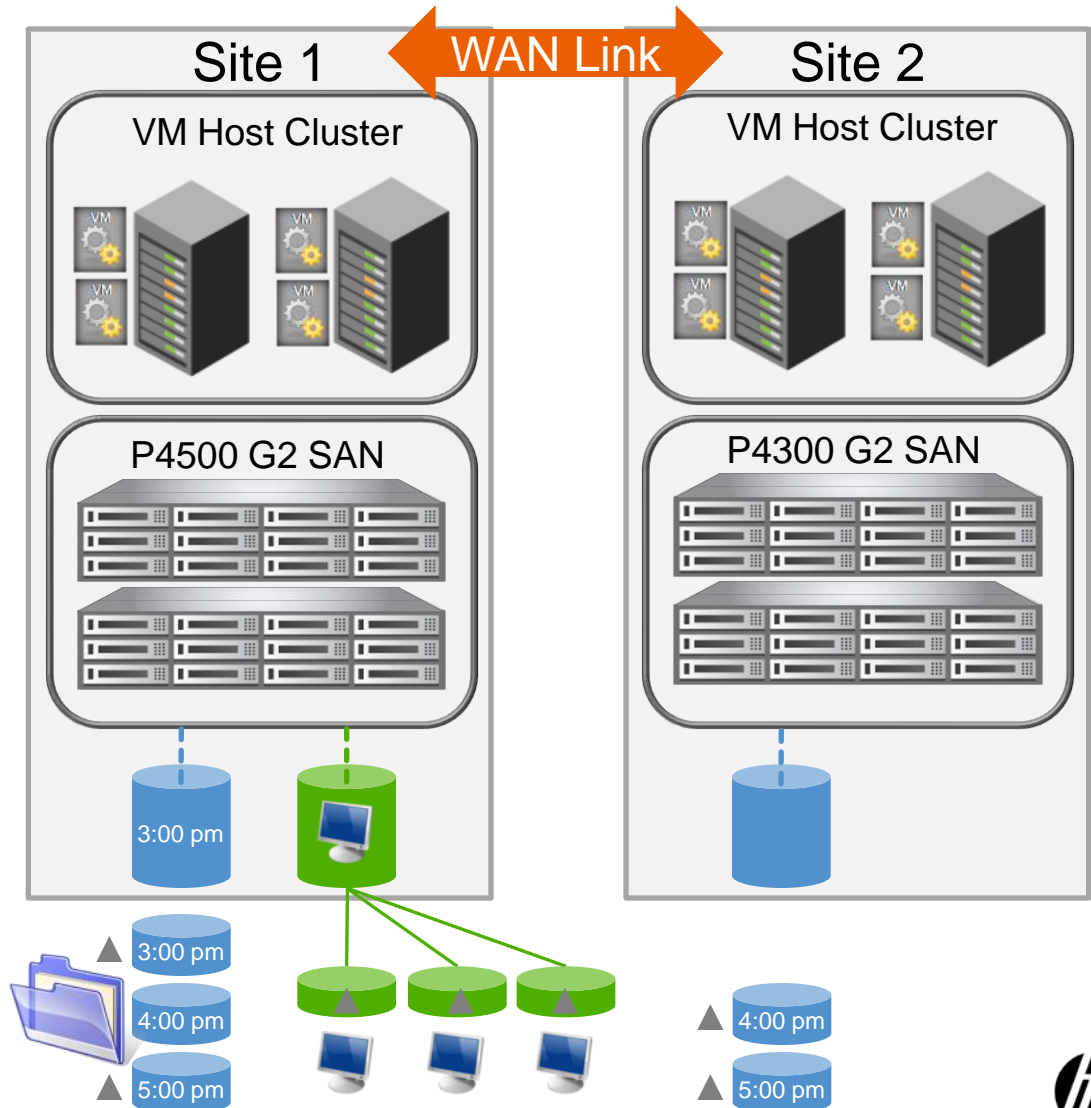
HP P4000 G2 SAN Solutions

## Space Efficient Data Recovery

- Thin provisioned snapshots
  - Application aware
- Replicate snaps offsite for DR
  - Replicate to dissimilar P4000 systems

## Clone VMs and Desktops

- Thin provisioned clones for greater capacity utilization



# HP StorageWorks P4000 G2 SAN Solutions



	<b>HP P4300 G2 Starter SANs</b>	<b>HP P4500 G2 Virtualization SAN</b>	<b>HP P4500 G2 Scalable Capacity SAN</b>	<b>HP P4800 G2 BladeSystem SAN</b>	<b>HP P4000 Virtual SAN Appliance</b>
<b>Description</b>	Consolidating storage for virtualization projects (SAS)  or  Windows/Linux file and print servers (MDL SAS)	For virtual environments: the Virtualization SAN offers performance optimized shared storage, cost effective high availability, scalable performance, and non-disruptive configuration changes.	Perfect for consolidating large Windows, Linux, Unix data volumes, the Scalable Capacity SAN simplifies storage and grows your environment non-disruptively.	Perfect for powering Client Virtualization deployments, the P4800 G2 Blade-System SAN delivers leading storage flexibility, ease, \$/GB and storage density coupled with BladeSystem integration.	Leverage the power of a physical SAN by transforming captive server and SAN disk drives into a virtual SAN, facilitating shared storage and DR for small and remote offices.
<b>Disk Drives</b>	16; scales to 256	24; scales to 384	60; scales to 384	140	Varies
<b>Starting Capacity</b>	7.2 TB 15K SAS or 16TB 7.2K MDL SAS	14.4 TB 15K SAS	120 TB 7.2K MDL SAS	63TB 15K SAS	Varies
<b>Included Support</b>	3 years HW and SW, next business day (NBD)				1 year SW, NBD
<b>Included Features</b>	Storage Clustering – Network RAID 5/6/10 – Thin Provisioning – Application Integrated Snapshots – SmartClone – Remote Copy				
<b>Management</b>	All storage solutions can be managed together via centralized console – regardless of location.				

# HP ProCurve Networking



# Networking Challenges

## Challenges of Virtualization

- Performance bottlenecks with I/O density
- Scalability
- Network load monitoring and quick capacity planning
- Network reliability & availability
  - Integrated management
  - Component redundancy
  - Lifetime warranty

## HP ProCurve values

- Freedom of choice:
  - Gigabit, 10 Gigabit, New generation 10GbE
  - Solution for network of any size
  - Industry standards based technology
- Network security and network management
- #2 network vendor



Source: Edison Group comparative cost survey, Feb. '09. and IDC whitepaper "Business Value of Storage Virtualization", Feb. '09

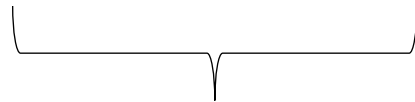
# ProCurve and Virtual Connect

Virtual Connect Ethernet  
modules

ProCurve  
6600 Series

ProCurve  
5400 Series

ProCurve  
8200 Series



## HP Virtual Connect

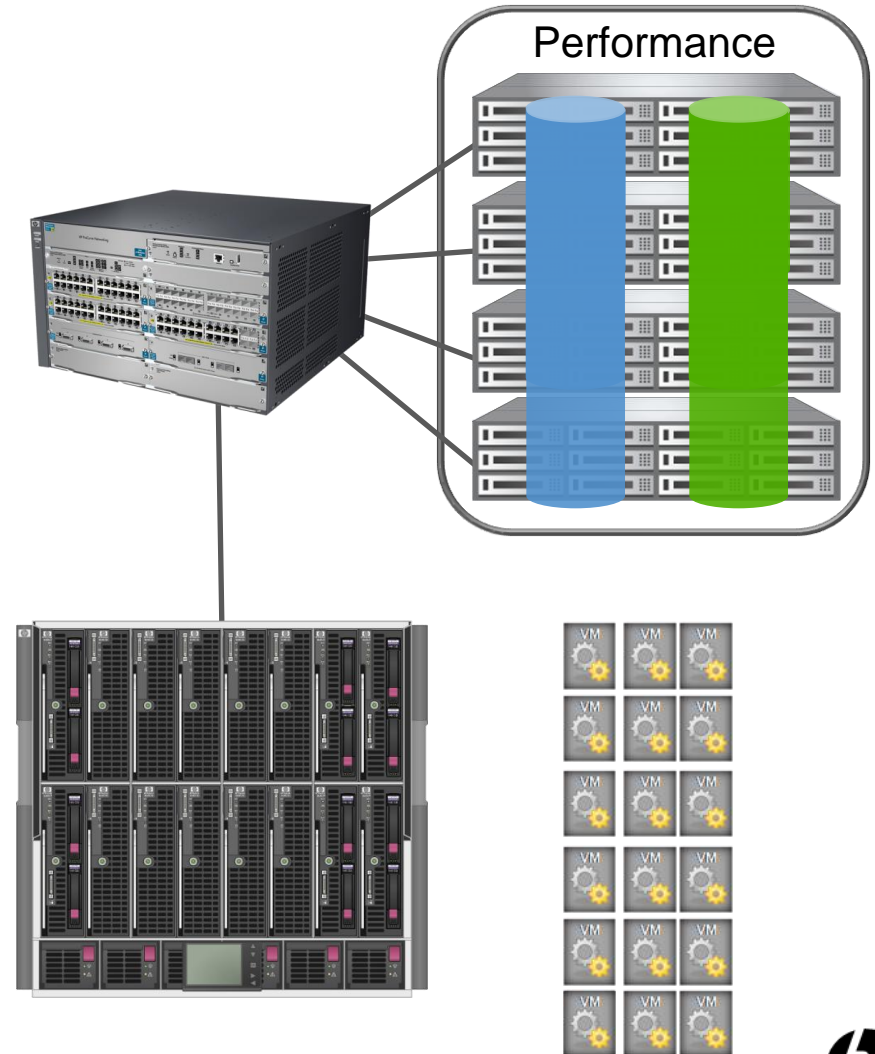
- Add, move, or replace servers in minutes, transparently to LANs & SANs
- Converge Ethernet connections 4 to 1
- Manage thousands of server connections
- Connects to any industry standard switch
- Over 2 million ports installed

## HP ProCurve

- Leader in standards based infrastructure
- Consistency edge to core for exceptional TCO
- Intelligence to the edge
- Automated, policy based multi-vendor provisioning

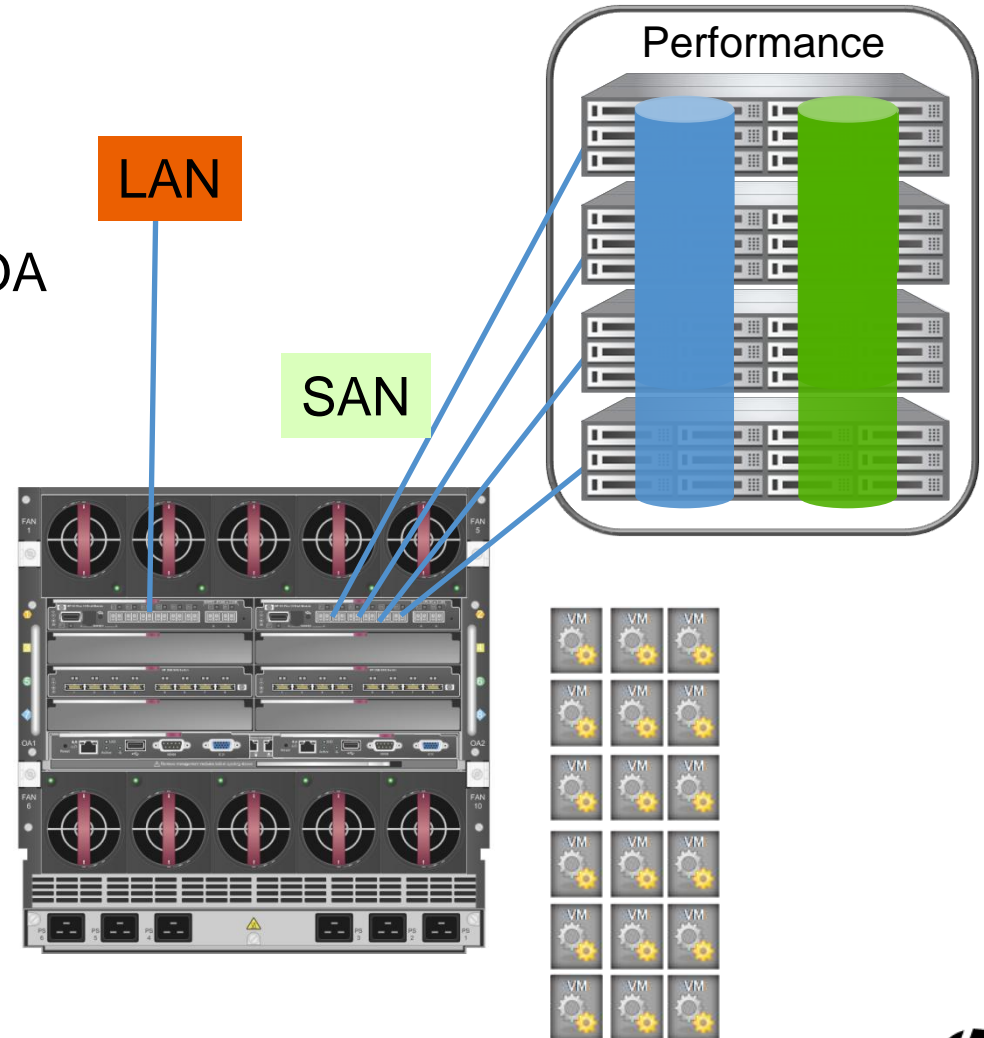
# HP ProCurve zl Solution

- Lifetime warranty
- Redundant
- Modular
- 6 or 12 slots
- Multi-protocol



# HP Virtual Connect

- Lowest TCO
- Zero foot print
- Centralized management w/ OA



# Getting started

# Triple the reasons to virtualize your business

## –3 compelling reasons

- Save on infrastructure management
- Reduce risk
- Automate IT infrastructure management

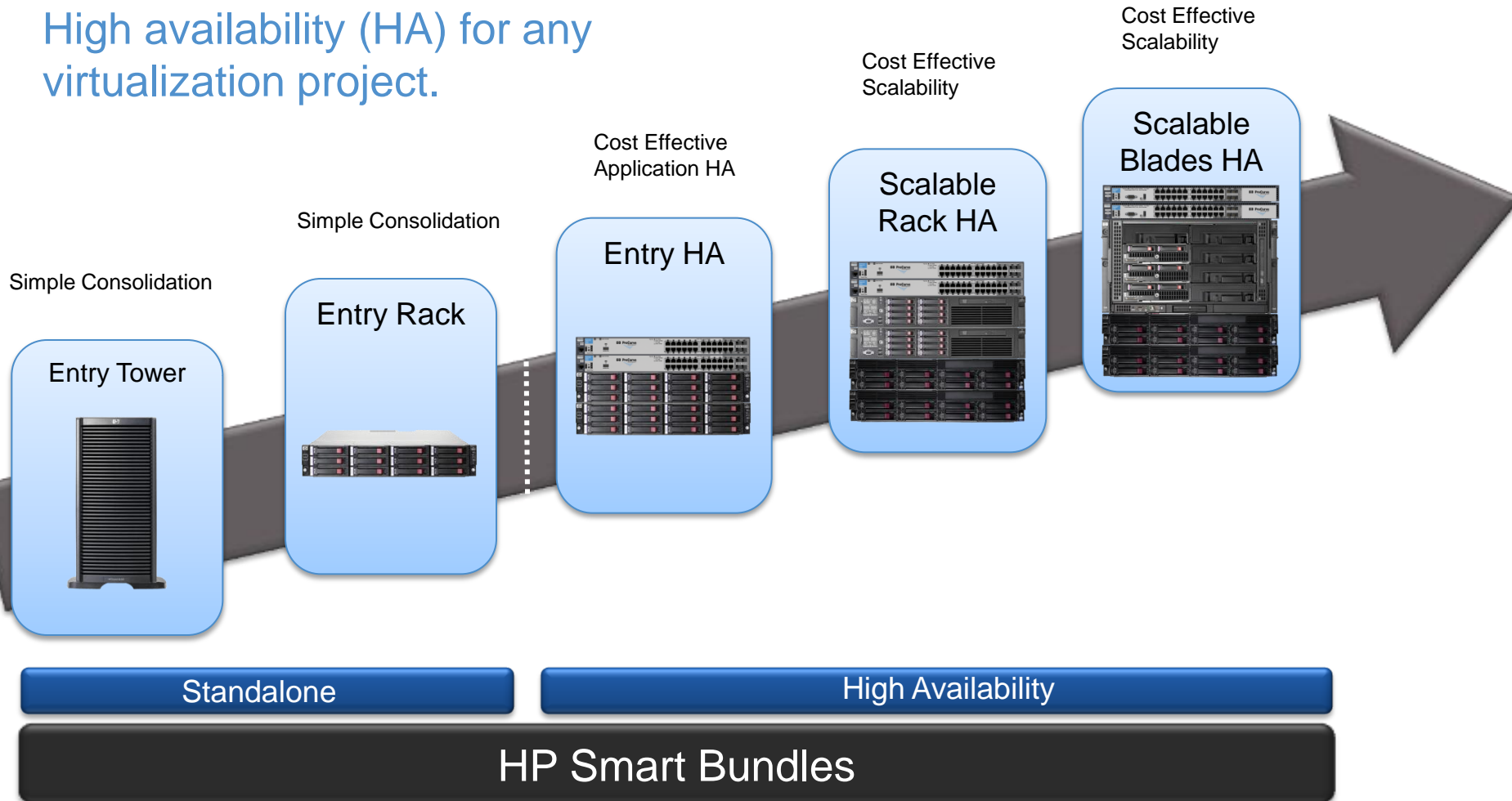
## –3 ideal building blocks

- HP BladeSystem
- HP StorageWorks
- HP ProCurve



# HP Virtualization Smart Bundles with VMware

High availability (HA) for any virtualization project.

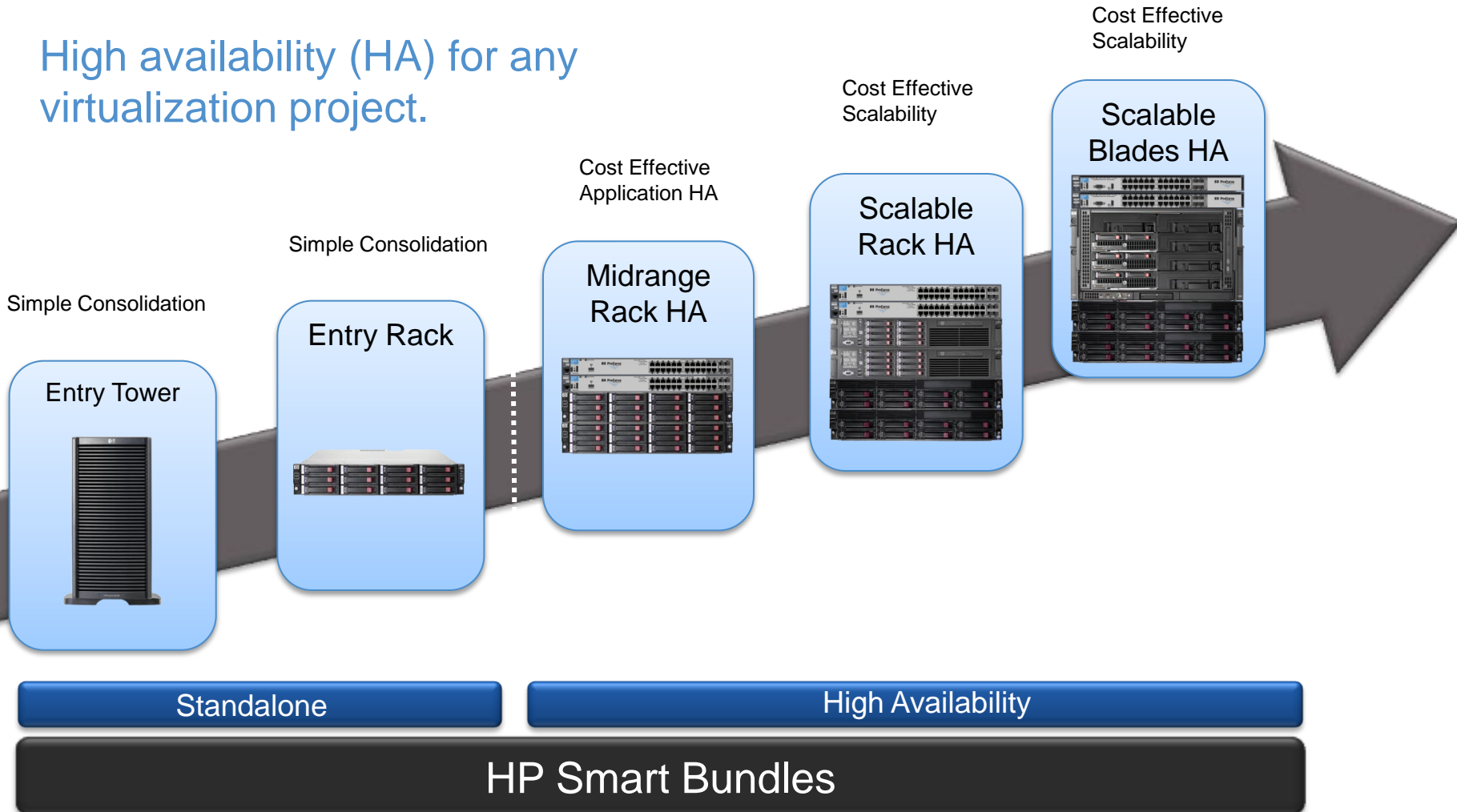


\* ProCurve switches optional

For more information visit [www.hp.com/go/virtkit/vmware](http://www.hp.com/go/virtkit/vmware)

# HP Virtualization Smart Bundles with Hyper-V

High availability (HA) for any virtualization project.



\* ProCurve switches optional

# Which HP Virtualization bundle is right for you?

Essential	Advanced	Ultimate
<ul style="list-style-type: none"> <li>• HP BladeSystem c3000 enclosure</li> <li>• 3 HP ProLiant BL460c 1P server blades</li> </ul>	<ul style="list-style-type: none"> <li>• HP BladeSystem c3000 enclosure</li> <li>• 3 HP ProLiant BL460c G6 2P server blades</li> </ul>	<ul style="list-style-type: none"> <li>• HP BladeSystem c7000 enclosure</li> <li>• 6 HP ProLiant BL490c G6 2P server blades</li> </ul>
<ul style="list-style-type: none"> <li>• HP GbE2c Layer 2/3 Ethernet Blade Switch</li> </ul>	<ul style="list-style-type: none"> <li>• HP Virtual Connect Flex-10</li> <li>• 2 x HP ProCurve 2910al-24G</li> </ul>	<ul style="list-style-type: none"> <li>• HP Virtual Connect Flex-10</li> <li>• 2 x HP ProCurve 6600-24XG</li> </ul>
<ul style="list-style-type: none"> <li>• HP StorageWorks MSA2324sa</li> </ul>	<ul style="list-style-type: none"> <li>• HP StorageWorks P4300 SAS Starter SAN Solution</li> </ul>	<ul style="list-style-type: none"> <li>• HP StorageWorks EVA4400</li> <li>• Cluster Extension &amp; Continuous Access Software</li> </ul>
<ul style="list-style-type: none"> <li>• VMware vSphere or Microsoft Windows Server 2008 R2 including Hyper-V</li> <li>• HP Insight Control software</li> <li>• Installation and Start-up Services</li> <li>• 3-year 24/7 support (HW: 4-hour onsite response; SW: 2-hour telephone response)</li> </ul>		

# Next Steps

- Contact your HP Authorized Reseller
- Visit <http://www.hp.com/go/triple>

HP Enterprise Business. Outcomes that matter.

