

HP VirtualSystem

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January 2012



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HP VirtualSystem principle

We've done the work:

- Balanced building blocks of servers, storage, and networking
- HP management software + VMware or Microsoft or Citrix virtualization
- Optimized for typical workloads
- Customer tailorable
- Factory built, bundled support

Making it easier for you to:

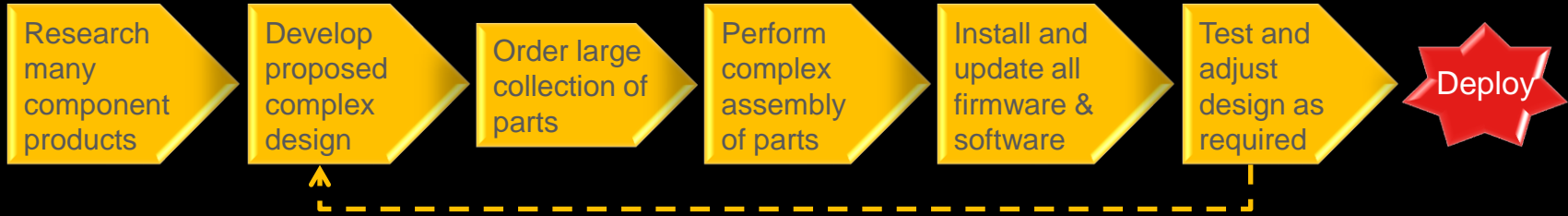
- Order
- Install
- Manage
- Scale up or out
- Integrate into your infrastructure
- Support



Benefits of HP VirtualSystem

Predictable and error free deployment

Without HP VirtualSystem:



With HP VirtualSystem:



Business benefits of VirtualSystem approach



ITX Enterprises, Inc. technology support and services company Utah

"99% reduction in
system time-to-value due"

"Twice as much staff time
for innovation compared
to prior environment"



HP VirtualSystem Portfolio

Infrastructure building blocks for any size business



- **HP VirtualSystem VS3**
- Enterprise business solution for large, demanding data centers
- Optimized for storage scalability and performance
- HP BladeSystem / 5000 Series networking / 3PAR SAN

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- **HP VirtualSystem VS2**
- Enterprise business single rack solution for server or client virtualization
- Optimized for compute density, flexibility
- HP BladeSystem / 5000 Series networking / P4800 BladeSystem SAN

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- **HP VirtualSystem VS1**
- Mid-sized business all-in-one solution
- Optimized for modular compute / storage scalability
- HP ProLiant rack servers/ 5000 Series networking / P4500 SAN

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HP VirtualSystem VS1

Optimized performance and scale for mid-sized business

- ProLiant rack server form factor for mid-market flexibility
- P4500 SAN for enterprise features, modular scalability; VMware vStorage integration
- HP 5000 Series switching for efficient intra-rack L2 networking, simple uplinks to core



HP 5000 Series switches

10 GbE and 1 GbE

Fully redundant

HP ProLiant DL380 G7 servers

Minimum 2

Maximum 8

HP DL360 G7 management servers

Virtualized, redundant

Delete option

HP P4500 SAN

Minimum 2 (14.4 TB)

Maximum 8 (57.6 TB)



HP VirtualSystem VS2

Single rack all-in-one virtualization solution for enterprise workloads

- HP BladeSystem based for wire-once FlexFabric infrastructure
- P4800 SAN for BladeSystem integration, enterprise features, vStorage integration
- Virtual Connect Flex-10 for flexible network partitioning, no added network tier
- HP 5000 Series switching for efficient intra-rack L2 networking, simple uplinks to core



HP 5000 Series switches

10 GbE and 1 GbE

Fully redundant

HP DL360 G7 management servers

Virtualized, redundant

Delete option

HP BladeSystem / BL460c G7 servers

Minimum 6♦

Maximum 12♦

♦ Customer expandable based on workload

HP P4800 BladeSystem SAN

Minimum 1 (42 TB)

Maximum 2 (84 TB)



HP VirtualSystem VS3

Enterprise class solution for large, demanding data centers

- BladeSystem based - ready for HP CloudSystem
- 3PAR F-Series SAN for leadership multi-tenant, autonomic tiering and thin provisioning
- Virtual Connect FlexFabric for converged network and storage connectivity
- HP 5000 Series switching for efficient intra-rack L2 networking, simple uplinks to core

HP DL360 G7 management servers

Virtualized, redundant

Delete option

HP 5000 Series switches

10 GbE and 1 GbE

Fully redundant



HP BladeSystem / BL460c G7 servers

Minimum 16

Maximum 64

HP 3PAR F-series SAN



Minimum 38.4 TB

Maximum 163.2 TB

◆ Medium configuration has 32 servers, 92.8 TB



HP VirtualSystem CV2 solutions

	Configuration	C7000 Enclosures	Blades /Cores	Memory	Storage	Key Benefits
 Microsoft and Citrix	Base SAN	1	3*/36	228GB	(1)P4800 2-nodes	<ul style="list-style-type: none"> • Ideal for POC, easy growth • Persistent or non-persistent VM's
	Extended SAN	2	16*/192	1,536GB	(2) P4800 2-nodes	<ul style="list-style-type: none"> • Ideal for Production • Persistent or non-persistent VM's
	Base DAS	1	2**/24	192GB	(1)MDS600	<ul style="list-style-type: none"> • Ideal for POC, easy growth • Non-persistent VM's ONLY • Cost Optimized
	Extended DAS	2	24**/288	2,304GB	(2) MDS600	<ul style="list-style-type: none"> • Ideal for Production • Non-persistent VM support ONLY • Cost Optimized
 VMware	Base SAN	1	2*/24	192GB	(1)P4800 2-nodes	<ul style="list-style-type: none"> • Ideal for POC, for easy growth • Persistent or non-persistent VM's • SSD for improved user experience
	Extended SAN	2	18*/216	1,728GB	(2) P4800 2-nodes	<ul style="list-style-type: none"> • Ideal for Production • Persistent or non-persistent VM's • SSD for improved user experience

VirtualSystem solution design principles

Balanced and optimized for “typical workloads”



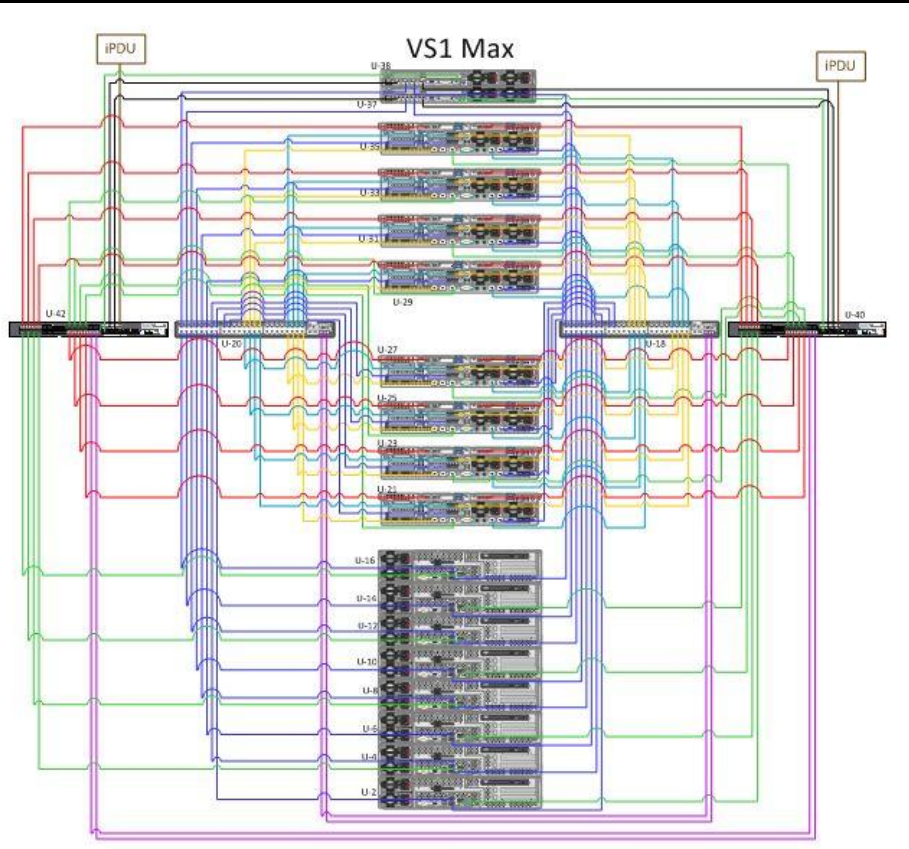
- Server component: CPU and memory for 1-2 VM/core customer average
- Storage component: Average 30-50 IOPS/VM, 60/40 random R/W 20 ms response
- Network component: Optimize local and external connections
- Management component: Insight Control for vCenter and System Center
- Support component: Comprehensive with some flexibility

What is a “typical workload”

Example benchmark tile			Typical Workload A per host pair				Typical Workload B per host pair			
	Reads/sec	Writes/sec	VMs	Reads/sec	Writes/sec	IOPS/VM	VMs	Reads/sec	Writes/sec	IOPS/VM
AppServer	0.01	2.5	22	0.22	55		20	0.2	50	
DBserver	2.6	235	1	2.6	235		2	5.2	470	
IdleServer	0	0.85	0	0	0		0	0	0	
InfraServer	313	1.5	1	313	1.5		1	313	1.5	
MailServer	641	386	1	641	386		2	1282	772	
WebServer	0.03	1.23	23	0.69	28.29		23	0.69	28.29	
TOTAL	956.64	627.08	48	957.51	705.79	35	48	1601.09	1321.79	61
Percent	60%	40%		58%	42%			55%	45%	

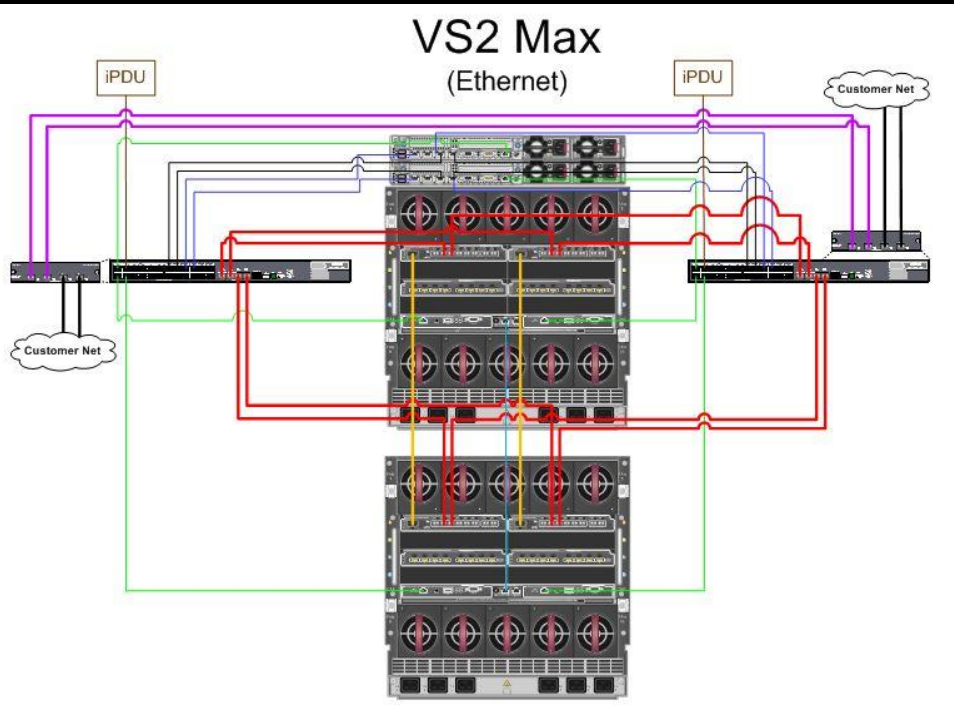


VirtualSystem network wiring diagram – VS1



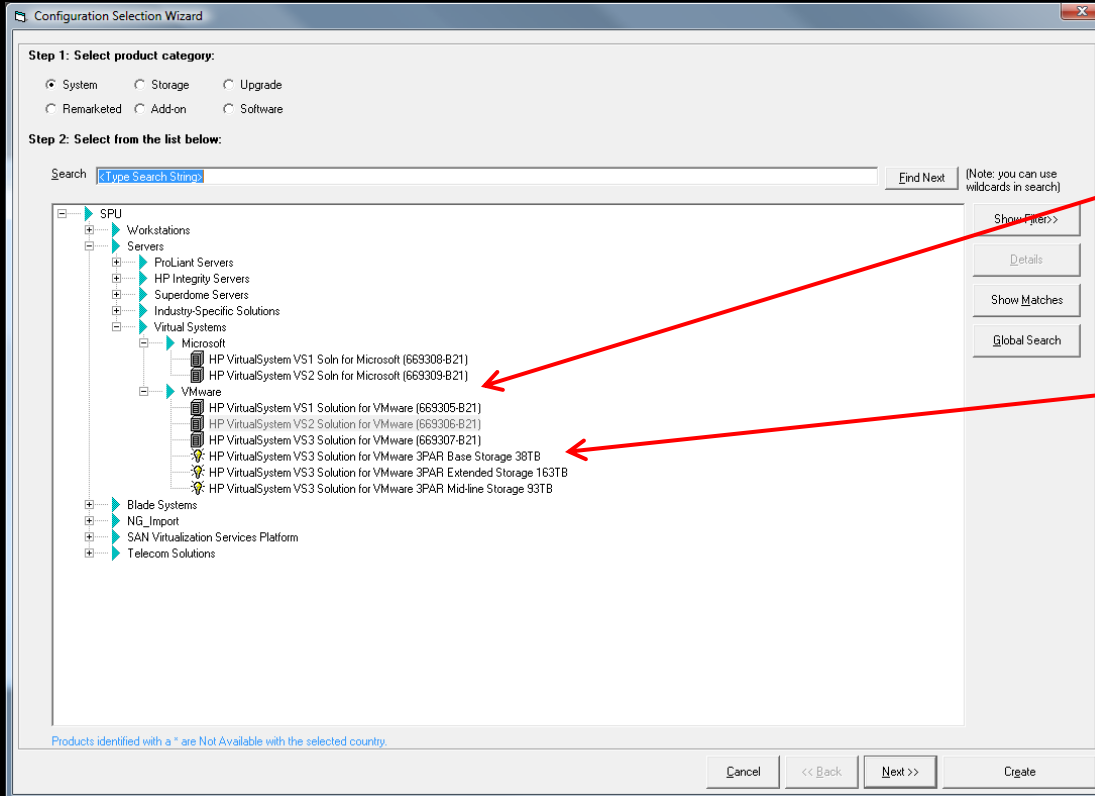
- VirtualSystem provides a pre-wired solution ready for the datacenter
- VS1 IO connections (112):
 - (16) Production Network
 - (36) iSCSI data
 - (16) Live Migration/vMotion (fault tolerant)
 - (4) Management
 - (18) iLO/OA/Mgmt
 - (16) Heartbeat for Hyper-V
 - (4) IRF switch stacking links for fault tolerance and virtualization
 - (2) Intelligent PDU Management

VirtualSystem network wiring diagram – VS2



- VirtualSystem provides a pre-wired solution ready for the datacenter
- VS2 IO connections (31):
 - (8) Virtual Connect
 - (2) Virtual Connect stacking links
 - (4) iSCSI data
 - (6) Management
 - (6) iLO/OA/Mgmt
 - (2) IRF switch stacking links for fault tolerance and virtualization
 - (1) C7000 stacking link
 - (2) Intelligent PDU Management

VirtualSystem (VMware): Ordering Options*



Select MSFT or VMware Solution

VS3-3PAR Configurations Require Whiteboards and will be Two Separate Orders in the Short-term.

*For detailed instructions on quoting/ordering in Watson, please ask for a copy of the VS in Watson training deck

VirtualSystem (VMware): Ordering Options

Config Worksheet for HP VirtualSystem VS2 Solution for VMware (669306-B21) #1 from Whiteboard 1

System Overview

HP VirtualSystem VS2 Solution for VMware (669306-B21)

Configuration choices for: HP VirtualSystem VS2 Solution for VMware (669306-B21) [#1]

System | Services | Per Event Services

HP VirtualSystem Configuration Choice:
Base Configuration - 6 x BL460c G7 Host Server Blades, 1 x P4800 42TB SAS SAN

Memory Choice:
96 GB

Include Management Server(s)?

Include MS OS License (Enterprise Edition) for Management Servers?

Include VMware vSphere 6-License Package (TD455B)?

Quantity of additional VMware vSphere Licenses (TD454A)?
10

Shown are the minimum number of vSphere licenses required by this configuration. Customers may choose to purchase additional licenses. The number above may be replaced with a larger number.

Accessories

- Power Cables
- Power Supply
- Displays
- Hardware for OpenCall
- HP Datacenter Environmental Edge
- Ethernet Cables
- Backplane and Upgrades
- SDI Products
- External Cables
- Printers
- HPC Unique Accessories
- Rack Accessories
- Mass Storage Accessories
- Cabling Kits
- Console

Buttons: Add, Add In, Prefs, SEU..., End

Buttons: Cancel Changes, Apply, Close

(Price pending)

Single P/N
Select
Base/Extended

Memory Options:
96 GB or 192 GB

Mgmt Servers
Optional

SW Licenses
Optional

VirtualSystem (VMware): Ordering Options

Configuration Selection Wizard

Step 3: Select Configuration Preferences:

Selected Model: HP VirtualSystem VS2 Solution for VMware (669306-B21)

Country/Region: United States

Language: English

Power: 220 Volts Power 3 Phase Power

Operating System: No Operating System

Rack SPU Power Protect SPU

Use Rack Tie Kits Power Protect External Devices

Preferred Rack: 10642G2 Cabinet /42U

Preferred UPS: HP R5500 VA NA/JP UPS - (AF426A)

Cancel << Back Next >> Create

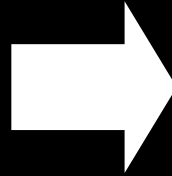
Power is
Optional:
Single/Three
Phase

Power is also
Regionalized

Delivery via HP Factory Express – value in freeing up IT

System Configuration	SW Integration	Solution services
<ul style="list-style-type: none">• Hardware and rack configuration• System settings• Cabling• Asset tagging and labeling	<ul style="list-style-type: none">• SW load and configuration• Image recovery• Solution-level testing	<ul style="list-style-type: none">• Single point of contact• On-site set-up & activation• Project management• Engineering and logistics

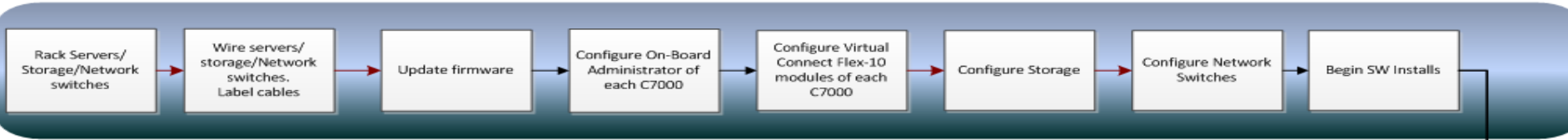
Without VirtualSystem



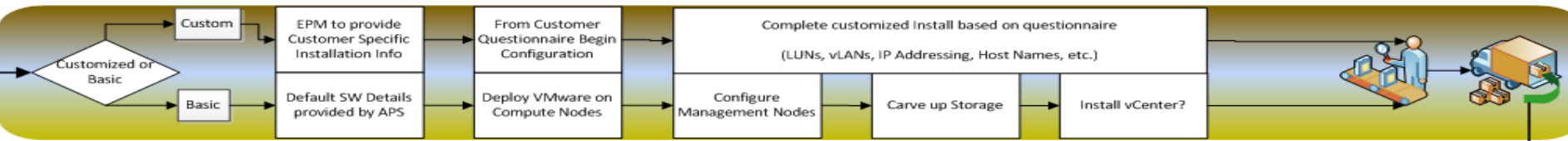
With VirtualSystem



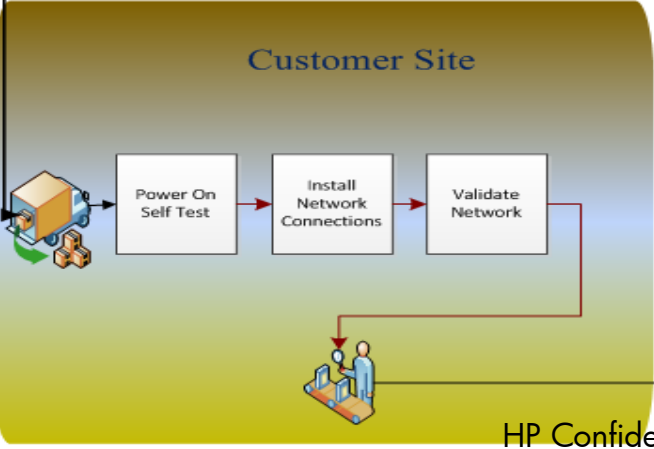
Factory Express



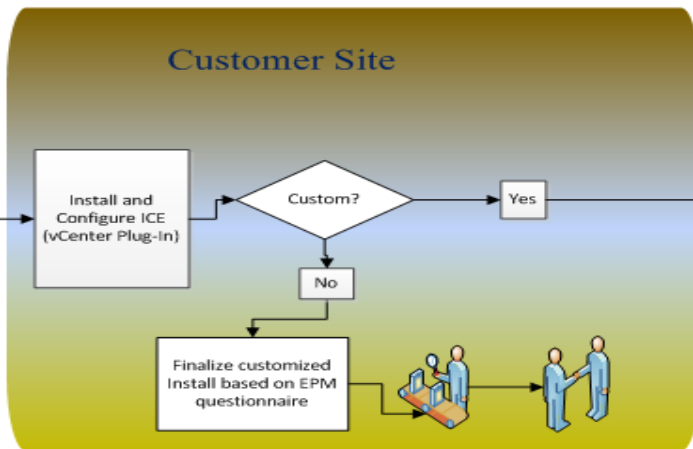
Factory Integration Services



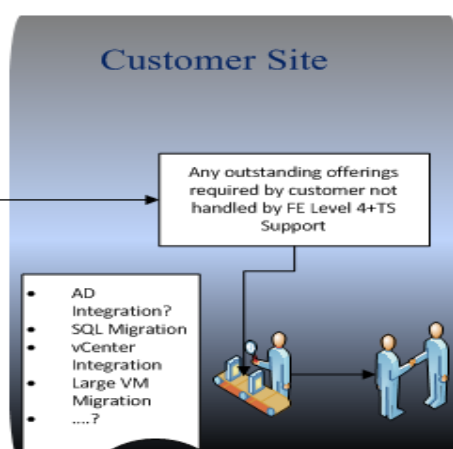
Finalize FE Level 4



TS Support



TS Consulting



- AD Integration?
- SQL Migration
- vCenter Integration
- Large VM Migration
-?

HP VirtualSystem for VMware – Performance Leadership!

Industry leading **virtualized** SAP benchmark results

VirtualSystem VS2



First ever industry standard benchmark on a converged system

#1 record for 2P performance on SAP SD 3-Tier benchmark

2x better performance than any previous virtualized result

Faster than IBM Power results on physical hardware

Real-World Configuration - built on a practical, deployable customer configuration – no tricks or games.

Configuration details and certification numbers of two-processor three-tier results

HP ProLiant BL460c G7, 6C 3.06GHz Intel Xeon X5675, (2P/12C/24T), 96GB memory, Cert# 2011044, MS Windows Server 2008 R2 Datacenter Edition on VMware ESX5.0, SQL Server 2008 Enterprise Edition X64, SAP EHP4 for SAP ERP 6.0, 32,125 SD Users and 175320 SAPS

IBM p550, 2C 4.20GHz POWER6, (2P/4C/8T), 64GB memory, Cert# 2008001, AIX 5L Version 5.3, MaxDB2 9.5, SAP ECC 6.0 (2005), 32,000 SD users and 161,520 SAPS

Fujitsu PRIMERGY RX300 S5, 4 Core, 2.93GHz Intel Xeon X5570, (2P/8C/16T), 96GB memory, Cert#2010016, SuSE Linux Enterprise Server 10 on VMware ESX Server 4.0, MaxDB 7.8 SuSE Linux Enterprise Server 10 on VMware ESX Server 4.0, MaxDB 7.8, SAP EHP4 for SAP ERP 6.0, 16,000 SD Users and 87,800 SAPS



HP advantages over competitive offerings

Winning virtualization solutions from HP



Fabric	2X performance 50% less energy 65% lower TCO
Compute	3X I/O throughput 2X memory
Storage	50% lower cost 10X management efficiency
Management	83% reduction in downtime 1 integrated management console





Thank
you

