HP BladeSystem Virtualization Solution Block

Eliminating barriers to virtual server performance

Barriers are sometimes viewed as locked doors to the impossible. Breaking those barriers opens new possibilities.

On October 14th, 1947, Chuck Yeager stood at the threshold of a door that had been locked since 1903 when man first took flight. They said it couldn't be done, but Yeager disagreed. He had a machine built from the ground up to smash through the sound barrier: the Bell X-1—an incredible piece of technology—enabled Yeager to reach a new level.

Similar to breaking speed records, reaching new heights of server performance begins with the right technology. And HP BladeSystem was built from the ground up to handle the job. HP BladeSystem unites compute, storage, network, power and cooling components. Using advanced server, management and storage technology— coupled with VMware's embedded hypervisor—HP BladeSystem redefines IT infrastructure so that you can eliminate the barriers to a virtualized server environment.

Soaring to new levels

VMware's ESXi hypervisor technology provides enterprise-level virtualization of your application workloads. This hardware-integrated hypervisor is built on a next-generation thin architecture, which reduces demands on the IT infrastructure, enabling support of a greater number of virtual machines (VMs).

To move beyond the limitations of less capable systems— limited server memory, insufficient number of input/output (I/O) connections and complicated external storage—HP offers breakthrough technologies that can launch virtualization skyward. For example, the HP ProLiant BL495c Server Blade is the first blade built from the ground up to support the unique demands of virtual machines. With 16 memory slots, this blade eliminates bottlenecks and boosts memory capacity to 128 GB per server. That means more VMs can be supported per server. Paired with an HP Virtual Connect Flex-10 10 Gb Ethernet Module, the HP ProLiant BL495c Server Blade provides unparalleled I/O capacity—offering not only eight network connections out of the box, but also reducing connection costs by up to 75 percent per server.

HP Virtual Connect offers the lowest cost, most flexible way to connect virtual machines to your network. HP Virtual Connect Flex-10 is the world's first technology to fine-tune network bandwidth and quadruple network interface card (NIC) capacity at the server. Each FlexNIC can be adjusted from 100 Mbps to 10 Gbps—assigning higher speeds for more critical VMs and lower speeds for others. Using HP Virtual Connect Enterprise Manager (VCEM), you can manage up to 100 HP BladeSystem c-Class enclosures, helping you respond quickly to business demands and significantly reduce operating costs.

To further expand your virtualization capabilities, you can add an HP Virtual Connect 4 Gb Fibre Channel Module with HP Server Side NPIV, which enables each virtual machine—up to 128 per server blade—to have its own storage resource. And the storage resource remains associated with that VM, even as the VM is dynamically moved. To virtualize your storage resources, you can choose the HP StorageWorks 3 Gb SAS BL Switch and the shared storage HP StorageWorks 2000sa Modular Smart Array (MSA2000sa). Together, these technologies redefine direct attached storage (DAS), while improving flexibility and resource utilization. For analyzing capacity and provisioning both physical and virtual machines in exactly the same way, you can depend on HP Insight Dynamics-Virtual Server Environment (VSE)—the world's first integrated management solution.

So when you're ready to break through the barriers to server performance, consider the HP BladeSystem Virtualization Solution Block with VMware ESXi. Discover how virtualization can help you dramatically improve efficiency while significantly cutting costs.

We've begun the pre-flight checklist to virtualization— "BL495c...Check", "HP Virtual Connect with Flex-10 and HP Server Side NPIV… Check", "HP StorageWorks options…Check", "integrated hypervisor technology…Check"—"Throttle up."

HP BladeSystem solution

- HP BladeSystem Solution Blocks – proven application solution definitions that reduce time and effort needed to create, combine and upgrade business applications on an HP BladeSystem platform
- HP StorageWorks shared storage – simple allocation and management capabilities of HP servers and storage
- HP Virtual Connect Flex-10 10 Gb Ethernet and HP Virtual Connect 4 Gb Fiber Channel Modules – virtualize your network connections

Storage
HP StorageWorks MSA2000sa

Applications
HP ProLiant BL495c Server Blade
- Messaging, enterprise resource planning (ERP), customer relationship management (CRM), etc.
- VMware Integrated hypervisor

Core services
HP ProLiant BL495c Server Blade
- Directory services, DNS, DHCP

Optional servers
HP ProLiant server blade
- Additional applications

HP StorageWorks 3 Gb SAS BL Switch

HP Virtual Connect (VC)
VC modules
- 2 or 4 VC 10 Gb Ethernet with Flex-10
- 2 or 4 VC 2 Gb Fibre Channel with HP Server-Side NPIV

Business continuity
HP Ultrium tape blade
- HP Data Protector Express Software
- HP StorageWorks Storage Mirroring Software

Management
HP ProLiant BL495c Server Blade
- HP Insight Control Environment (ICE-BL)
- HP Virtual Connect Manager

HP PCI Expansion Blade

HP BladeSystem Virtualization Solution Block sample "small" configuration

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HP StorageWorks 3 Gb SAS BL Switch
- Provides server administrator an efficient storage option through centrally-managed shared storage capabilities of the HP StorageWorks MSA2000sa
- 3 Gbps SAS connectivity without an expensive infrastructure
- Saves time by reducing the need to coordinate day-to-day server and storage tasks

HP ProLiant BL495c Server Blade
- Higher memory capacity for virtual environments
- More network connections for unmatched connectivity in virtual environments
- Reduces virtual server licensing costs by supporting more virtual machines per server

HP Virtual Connect Flex-10 10 Gb Ethernet Module
- Working with a Flex-10-enabled blade server allows on-the-fly network flexibility for virtual server hosting and eliminates the network and performance bottlenecks
- Support more virtual machines per server blade and the needed I/O without buying as many NICs and interconnect modules
- Total control for tuning NIC bandwidth and moving workloads fast without impacting the local area network (LAN), the storage area network (SAN) or the people who manage them

HP Insight Dynamics-VSE
- Integrated to let IT analyze and optimize their virtual and physical environments in the same way
- Best fit capacity planning with Smart Solver
- Bring the flexibility of virtualization to physical servers

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Technology for better business outcomes

For more information, www.hp.com/go/bladesolutions, www.hp.com/go/virtualize, www.hp.com/go/solutionblocks

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