HP Virtualization with Intel and VMware

End-to-end virtualization of IT resources

We're working with best-of-breed partners to bring you complete virtualization solutions to enable a flexible and efficient IT environment for your changing business requirements today and well into the future.

The virtualization opportunity

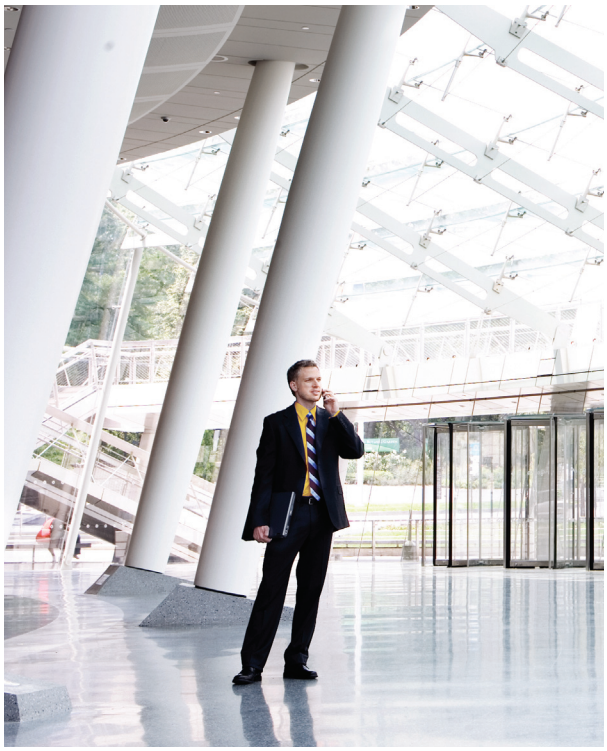
Lower costs, increase utilization, gain agility.

IT organizations worldwide are leveraging the benefits of virtualization to create highly flexible IT environments that reduce costs and improve business agility.

These forward-looking organizations recognize that virtualizing servers and storage lets you get more from your existing resources, focus on delivering business value to your company and even reduce energy costs. These are among the benefits of shifting to new, energy-efficient solutions from HP, Intel® and VMware®.

Now more than ever, it's clear that virtualization makes good business sense. For many companies, the question isn't, "Should we virtualize?" but rather, "How can we transition to a virtualized environment to increase business benefits and cost effectiveness?"

At HP, we recognize the importance of our relationship with our partners. We're working with best-of-breed partners to bring you complete virtualization solutions to enable a flexible and efficient IT environment for your changing business requirements today and well into the future. These solutions help your organization move beyond consolidation to use virtualization to respond dynamically to the demands of your business, whether you are in a large or small organization.



Leverage a proven solution.

Now you can take advantage of a complete virtualization solution, built on Intel-powered HP servers and VMware software. This proven, validated solution can help put your organization on a predictable path to achieving the broad benefits of a fully virtualized IT environment.

The perfect intersection of past, present and future

Many companies still have legacy applications running on outdated stand-alone hardware. Despite being more costly to support and less energy efficient, these systems are kept in service because they do work that needs to be done, and upgrading simply isn't a priority. However, now it's possible to virtualize legacy environments quickly and easily, thereby lowering support costs and improving performance and energy efficiency.

Companies with more current technology can also benefit. Today's companies are harnessing the power of virtualization to consolidate resources, enhance energy efficiency, increase compute capabilities and reduce total cost of ownership (TCO), all while achieving greater business flexibility. Today's solutions can accommodate a variety of hardware architectures in the same resource pool. By investing in an end-to-end virtualized environment now, you can add new hardware to existing virtualization pools whenever your organization needs additional compute power.

The HP/Intel/VMware virtualization solution

The ultimate virtualization platform

Assembling an effective solution from available hardware and software is the key to generating greater value from virtualization. Working together, HP, Intel and VMware have created the ultimate platform for delivering the benefits of virtualization to companies with widely varying needs.

The result is a tightly integrated solution that incorporates everything you need to achieve the many benefits of virtualization. We deliver all the resources you need—Intel-based HP hardware, VMware software and HP services—including planning, deployment and management—to put virtualization to work for your critical IT initiatives, including server and storage consolidation, disaster recovery and dynamic resource scheduling.

Core solution components

HP

HP infrastructure and tools allow unified management of the virtual environment. HP offers virtualization-ready servers—thanks to seamless integration—that enable you to deploy virtual machines right out of the box. These components run on Intel processor-based HP ProLiant servers, the top-selling industry-standard server brand. HP ProLiant servers leverage energy-efficient Intel Xeon® processors optimized for virtualization with technologies such as Intel Virtualization Technology (Intel VT), FlexMigration and FlexPriority.

Coupled with VMware software, the HP ProLiant server with the Intel Xeon Processor 7400 series is a scalable virtualization platform of choice. To complement these servers, HP offers scalable storage that is change-ready to allow fast provisioning and simple management of capacity for both your physical and virtual machines.

To increase your efficiency, you can manage your physical and virtual environment seamlessly with tools in the HP Insight software portfolio. The HP server and storage management portfolio lets you monitor, deploy and control your HP ProLiant servers and HP BladeSystem servers from almost anywhere at any time. And the HP Services organization and HP channel partners can help you evaluate your needs, plan your solution, and deploy and operate your virtualized environment.

To help manage storage, HP offers HP Storage Essentials, a comprehensive Storage Resource Management solution that integrates with the HP Insight software portfolio, which discovers, maps monitors and manages your storage, application and server infrastructures. Today HP Storage Essentials seamlessly manages virtualized server and storage and will enable agentless discovery of virtual servers and VMware hypervisors to provide complete VMware server-to-storage area network (SAN) topological views, configuration and reports.

Leveraging this visibility, your storage administrators can:

- Optimize virtual server configuration, capacity provision and utilization.
- Diagnose issues faster by better understanding the connectivity of virtual machines and SAN elements.

Together, HP and VMware are simplifying, automating and increasing disaster recovery reliability for virtual environments. The two companies have worked together to develop an integrated offering combining VMware Site Recovery Manager (SRM), HP StorageWorks Enterprise Virtual Arrays (EVAs) and HP Continuous Access Replication Software.

In addition, HP support for VMware SRM combined with HP Data Protector Software provides new choices for cost-effective, reliable and automated site disaster recovery solutions designed for all sizes of organizations deploying business-critical applications on HP infrastructure running VMware Virtual Infrastructure.

Intel

Delivering on the promise of virtualized environments operating at native speed requires a holistic view of the hardware platform. Adding hardware-assist to any individual system component increases performance for that part of the system, but without addressing the other parts the system, impact is limited. This is why Intel created virtualization hardware-assist features for its processors. Intel also developed hardware-assist technology for Intel chipsets and network interface silicon, resulting in optimized virtualization performance across the entire platform.

Whether your goal is to deploy more virtual machines than ever before, or to deliver high-availability solutions with the agility to address disaster recovery and real-time workload balancing, the Intel Xeon processor 7400 is specifically built to be your virtualization standard. With up to 39 percent[1] better performance in a virtualized environment than previous-generation Xeon platforms, the Xeon processor 7400 series brings 24 cores on a 4S system along with 16 MB of shared L3 cache per processor, offering the performance and headroom to consolidate the data center down to new levels.

And with Intel® VT FlexMigration, you can easily move workloads across multiple generations of Xeon processor-based platforms without disrupting services.

IT managers can now build one compatible group of platforms for live migration across all of your Intel Core microarchitecture-based servers, including two-socket Intel Xeon processor 5000 series-based servers and the scalable four-socket Intel Xeon processor 7000 series.

The ability to conduct live VM migration offers tremendous flexibility for fail-over, load-balancing, disaster-recovery and real-time server maintenance scenarios. Intel VT FlexMigration also provides your IT team with the capability to add future Intel Xeon processor-based systems to the same resource pool. This gives you the power to choose the right server platform to best optimize performance, cost, power and reliability.

Intel works closely with its partners to optimize and validate today's solutions—and collaborates on future technologies to enable integration with future VMware solutions and HP platforms.

VMware software

VMware's broad suite of proven virtualization solutions addresses a range of complex challenges facing IT organizations. These include:

- **Server consolidation and infrastructure optimization:** VMware technology—including the industry's only complete virtual infrastructure—helps your organization consolidate servers and increase utilization rates, reduce power and cooling costs, and manage and automate IT processes for increased availability, performance and scalability.
- **Business continuity:** With exclusive features such as automated load balancing and live migration of virtual machines, VMware technology allows your organization to increase uptime and reduce the cost and complexity of meeting availability and disaster recovery objectives.

The VMware partnership and technical collaboration with HP and Intel enables your organization to deploy a reliable and scalable platform for building a complete virtualized data center solution.

A one-stop solution

Powerful partners in a one-stop solution, HP, Intel and VMware deliver a comprehensive virtualization solution, as well as ongoing support from the worldwide HP support organization. This partnership is an outstanding resource for identifying your needs and developing a clear virtualization strategy. It also gives you access to a range of services for VMware deployments, including capacity assessment, analysis, consolidation and migration.

Virtualization benefits

Consolidate IT resources.

- Improve server utilization.
- Reduce data center floor space requirements.
- Cut power and cooling costs.
- Simplify management.

Enhance disaster recovery and availability.

- Maintain the availability of critical applications.
- Reduce the risk of data loss and business interruption.
- Recover more quickly from disruptions.

Bring virtualization to development and test environments.

- Automate test and development processes.

Enable new usage models.

- Gain flexible resource management.
- Enable workload balancing and optimization to increase efficiency and respond faster to business changes.
- Gain support for legacy applications and operating systems.
- Balance real-time computing demands with capacity.

Getting started

HP, Intel and VMware offer a variety of free online resources to help you explore virtualization opportunities for your company. You can access these resources—including online planning tools and downloadable white papers—at the following sites:

www.hp.com/go/vmware

www.intel.com/go/virtualization

www.vmware.com/go/intel

To find out more about how your company can benefit from HP Software and VMware Virtual Infrastructure solutions, visit www.hp.com/go/vmware or contact your HP sales representative or HP channel partner.

[1] Processor performance per watt comparison of Intel measured vConsolidate 1.1 Profile 2 benchmark on VMware ESX Server 3.5 results on four-socket populated Intel® Xeon® X7350 (Quad-Core, 8M cache, 2.93 GHz, 1066 FSB) and Intel® Xeon® X7460 (6-Core, 16M cache 2.66 GHz, 1066 FSB, 45 nm). Actual performance may vary. Source; TR#970 as of August 15, 2008.

To learn more, visit www.hp.com/go/vmware

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Technology for better business outcomes