



Technology Brief  
Server Virtualization on  
Intel® Architecture  
IT Data Centers

# Gain High Value Through Affordable Server Consolidation

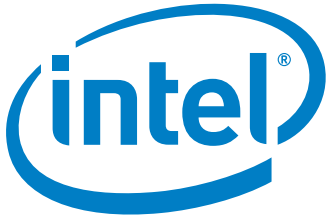
## Using Virtualization Boosts Data Center Flexibility While Reducing Costs

Over the years, businesses have watched their data centers expand to include hundreds or even thousands of systems running diverse operating systems and applications. As server numbers have grown, so have the costs of operation, including people, space, power, and cooling.

Virtualization can transform the way IT organizations provision and manage their systems and applications. With today's server virtualization software, multiple operating systems and software stacks can be consolidated on a single Intel® processor-based platform, and platform resources can be dynamically allocated to meet specific business and application requirements.

### Key Benefits of Server Virtualization for IT Data Centers

- **Flexible server consolidation.** Through server virtualization, you can quickly and easily consolidate diverse operating systems and applications on powerful Intel® architecture-based platforms, allowing you to do more with less.
- **Enhanced availability and security.** Software faults and network attacks, when they occur, are isolated within a virtual partition. You can easily create duplicate virtual machines for failover protection so that in case one application instance fails, business continuity is not interrupted—a cost-effective approach that reduces corporate risk and potential losses from downtime.
- **Simpler operating system and hardware migrations.** Server virtualization allows you to migrate legacy applications and their existing operating system onto virtual partitions without modification.
- **Increased business agility.** You can provision or resize a virtual partition in minutes to accommodate new applications and increased workloads. You also have the flexibility to seamlessly move virtual machines from one physical system to another, greatly simplifying maintenance.
- **Easier server management.** Virtualization allows you to deploy and manage virtual servers efficiently from a common interface. You can allocate server resources (processor, memory, and I/O) dynamically, and seamlessly move running applications, workloads and sessions from one physical server to another. Virtualization provides control over each partition, letting you manage any virtual machine without affecting other activities on the platform.
- **Increased server usage.** Server virtualization maximizes use of the hardware capabilities, boosting return on investment.



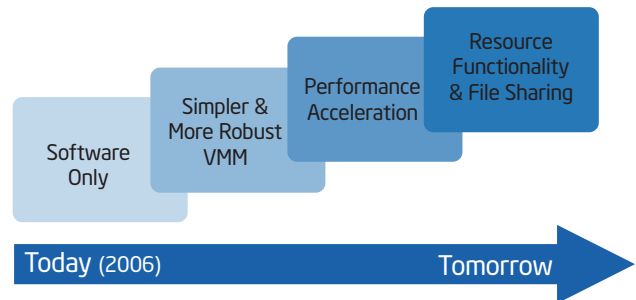
- **Simplified IT infrastructure.** With fewer systems performing the same number of tasks, IT infrastructure can be streamlined, making management and maintenance easier.
- **Reduced costs.** In addition to reducing management complexity, maintenance requirements, and platform footprint, server virtualization helps lower data center operating costs for maintenance, power consumption and cooling.
- **Streamlined test and development.** A single platform can host multiple test environments and multiple iterations of each software stack. New and upgraded versions of an operating system or application can be tested on the same production platform without disrupting the production environment, helping to eliminate the need for costly duplicate environments.

### Robust Virtualization Technologies

Intel delivers a number of advanced server technologies that are expected to enable clear advantages in consolidated environments.

- **High-performance server platforms.** Virtualization and consolidation place greater demands on server platforms, requiring better performance, scalability, and availability to maintain appropriate service levels for multiple business applications. Today, Intel architecture offers a wide variety of optimized tools and resources capable of delivering high server consolidation ratios, often as high as 20:1, using affordable, Intel® Xeon® and Itanium® processor-based platforms that deliver the highest levels of value, flexibility, and choice.
- **Software virtualization solution.** Intel® Virtualization Technology provides fundamental architectural support to enable simplified virtual machine manager development and provides new capabilities, such as the ability to host 64-bit guest operating systems and support for unmodified operating systems.

### Intel® Virtualization Technology Evolution



**Figure 1.** Intel® Virtualization Technology enables simpler and more robust virtualization and consolidation today, and will evolve rapidly to deliver increasing benefits.

### Looking Forward

Server consolidation is a key strategy for reducing costs, and today's virtualization software solutions make it easy to run multiple applications safely and securely on a single Intel® processor-based server. When used with rapid software provisioning tools, virtualization can also enable flexible and dynamic management of hardware resources to address shifting workload requirements. These capabilities are delivering substantial value for many businesses today, and are expected to provide even greater value going forward as data center loads and requirements continue to increase.

For more information, visit:

[www.intel.com/business/bss/products/server/virtualization.htm](http://www.intel.com/business/bss/products/server/virtualization.htm)

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