New Features

What are the new features in XenServer v4?

Live Migration with XenMotion™ - allowing users to move a running guest virtual machine to another host server with virtually no service interruption.

Unified Management via XenCenter™ - providing unified management through XenCenter™ for Windows graphical administration console including guided wizards, configuration of multiple XenServer hosts and multiple resource pools, VM lifecycle management, storage configuration and management, guest VM export and import and guest templates.

Power and Scale for Real-World Applications through Xen64™ - delivering the savings and time-to-market advantages of virtualization to the applications and workloads that drive the business including scalable resources (memory, CPUs, networking, storage); 64-bit hypervisor with 64-bit and 32-bit guest support; resource QoS control; and, dynamic guest reconfiguration.

Dynamic Resource Management within Resource Pools - resulting in the ability to add new computing and storage resources in an automated fashion from a single console with no downtime.

Integration Empowerment - The lightweight, open architecture of the Xen platform and the new XenAPI™ together offer solution partners unprecedented access to integrate with Citrix technology, enabling faster time to market for a wide range of solutions integrated with XenServer.

Hardware Support

Do I need a system with a 64bit x86 processor to run your software?
Yes, our products require a 64bit x86 processor.

Can I run your server software on a system with a 32bit processor?
No, our virtualization server software cannot be run on a 32bit processor based system. You can however run the Linux P2V capture tool and our XenCenter Management Client on a 32bit system.
Do I need a system with hardware virtualization support for running Linux operating systems?
You can currently run all of our supported Linux guests on a 64bit x86 system without the need for hardware virtualization support.

NOTE In previous releases a system with hardware virtualization support was required to do the initial installation of the latest Linux releases. This is no longer the case.

Do I need a system with hardware virtualization support for running Windows operating systems?
Yes, to run Windows operating systems you will need a 64bit x86 CPU based system that supports Intel VT or AMD-V hardware virtualization technology in the CPU and BIOS.

What is required to run Windows virtual machines?
To run Windows operating systems you will need a 64bit x86 system that supports AMD-V or Intel VT hardware virtualization technology in the CPU and BIOS.

Which Intel VT processors do you recommend for running XenServer products?
We recommend the following Intel VT CPUs:
- Intel Xeon 51xx series processors (Dual-Core)
- Intel Xeon 53xx series processors (Quad-Core)
- Intel Xeon 71xx series processors (Dual-Core)
- Intel Xeon 30xx series processors (Dual-Core)
- Intel Xeon 32xx series processors (Quad-Core)

Can I use other Intel VT processors with the XenServer products?
Yes, other 64bit Intel processors including the Core 2 Duo and Core 2 Quad processors contain VT technology and should work with the XenServer products. You can find a list of 64bit VT-enabled processors on the Intel website. Also be sure to check with your system vendor to make sure you BIOS supports Intel VT.
**Which AMD-V processors do you recommend for running the XenServer products?**

We recommend the following AMD-V CPUs:

- AMD Opteron 12xx series processors
- AMD Opteron 22xx series processors
- AMD Opteron 82xx series processors
- AMD Opteron 83xx series processors

**Can I use other AMD-V processors with the XenServer products?**

Yes, many other 64bit AMD processors contain the AMD-V technology and should work with our products. You can find a list of AMD-V-enabled processors on the AMD website. Also be sure to check with your system vendor to make sure you BIOS supports AMD-V.

AMD Sempron processors do not currently contain AMD-V technology.

**Can your products run on a 64bit Intel VT or AMD-V laptop system?**

Yes, the products can be run on 64bit laptops for demonstration purposes, but we recommend running on a server system for production use.

**Can your products run on a 64bit Intel VT or AMD-V desktop system?**

Yes, the products can be run on 64bit desktop systems, but we recommend running on a server system for production use.

**What does the AMD-V and Intel VT technology do?**

The hardware virtualization technology from AMD and Intel allow the Xen engine to efficiently handle certain virtualization-unsafe x86 instructions that a virtual machine may call during its normal course of operation. In first-generation virtualization systems, complex software layers must watch all executing machine code to rewrite unsafe x86 instructions on the fly. The Intel VT and AMD-V technology intercept these unsafe instructions and pass control to the Xen hypervisor to return a valid response to the virtual machine without a complex and performance-hindering layer of software.
How can I tell if my Intel based system has Intel VT Technology?
You should check with your system supplier to determine if your system has Intel VT technology. Generally, systems with Intel VT will have an option to turn on Intel Virtualization Technology in the BIOS under Processor, CPU, or Advanced Configuration menus.

In addition, the first part of the XenServer product installer performs a check on your system that alerts you if Intel VT technology is not detected before making and changes to your server.

How can I tell if my AMD based system has AMD-V Technology?
You should check with your system supplier to determine if you system has AMD-V technology. A good rule of thumb is that AMD processors that support DDR2 memory have the AMD-V technology.

In addition, the first part of the XenServer product installer performs a check on your system that alerts you if AMD-V technology is not detected.

Do your products support dual-core or higher core processors?
Yes our products support multi-core processors, including quad-core processors from both AMD and Intel.

Product Limits

What is the maximum amount of memory that your products can use on a system?
XenServer Enterprise is based on the 64bit version of Xen which allows it to use up to 128GB of physical memory.

XenServer Standard is also based on the 64bit version of Xen which allows it to use up to 128GB of physical memory.

XenServer Express is also based on the 64bit version of Xen but is limited to using up to 4GB of physical memory.

How many processors can your products use?
XenServer Enterprise can use up to 32 physical CPU sockets with up to 32 CPU cores.

XenServer Standard can use up to 32 physical CPU sockets with up to 32 CPU cores.
XenServer Express can use up to 2 physical CPU sockets with up to 8 CPU cores.

**How many virtual machines can run on your products?**

XenServer Enterprise and XenServer Standard support running up to 50 virtual machines per server at the same time. Keep in mind that the actual maximum number of VMs that can be run per server is generally bound by the amount of memory on the box and the memory requirements for your virtual machines.

XenServer Express supports running up to 4 virtual machines at the same time.

**How many virtual machines can be created on your products?**

We don’t currently limit the number of virtual machines that can be created on our products. We do have limits on the number of simultaneous virtual machines that can be active and running at the same time.

**How many physical NICs do your products support?**

All three products support up to 4 physical network interfaces.

### Virtual Machine Limits

**How many virtual machines can run per server on your products?**

XenServer Enterprise and XenServer Standard support running up to 50 virtual machines per server at the same time.

XenServer Express supports running up to 4 virtual machines per server at the same time.

**How many virtual CPUs can you allocate to a virtual machine?**

Linux and Windows VMs can use up to 8 virtual CPUs.

**How much memory can you allocate to a virtual machine?**

XenServer Enterprise and XenServer Standard allow that

- a Linux VM can use up to 32GB of memory
- a Windows VM can use up to 32GB

XenServer Express allows a VM to use up to 4GB of memory.
How many virtual disk drives can be allocated to a virtual machine?
A virtual machine can be allocated up to 8 virtual disk drives. This number also includes a virtual DVD-ROM device.

How many virtual network interfaces can be allocated to a virtual machine?
A virtual machine can be allocated up to 7 virtual network interfaces.

Virtual Machine Resource Sharing and Controls

How are CPU resources split between the virtual machines?
In the default setup, CPU resources are split between virtual machines using a fair share balancing algorithm. This ensures all of the virtual machines get their cut of the system’s CPU resources. We have a smart CPU load balancing scheduler that automatically moves the virtual machine CPUs between physical CPU cores to provide the best performance.

Can you give a virtual machine more or less access to CPU resources?
With our top of the line XenServer Enterprise product, you have a number of CPU resource control options. Through the graphical management tools you can set CPU weights for different priorities. Additionally, through the CLI you can set CPU usage caps and also pin a virtual CPU to a specific physical CPU core.

How are disk I/O resources split between the virtual machines?
We also use a fair share resource split for disk I/O resources. With XenServer Enterprise you can also use the CLI and the command line to give a virtual machine higher or lower priority access to disk I/O resources.

How are network I/O resources split between the virtual machines?
For network I/O we also use a fair share resource split between the virtual machines. With XenServer Enterprise you can also set bandwidth throttling limits per virtual machine in the graphical management tools and the CLI.
VM Platform Support

Can your products run 32bit operating systems?
Yes, all three products support running 32bit operating systems.

Can your products run 64bit operating systems?
Yes, all three products support running 64bit Windows operating systems.

Can your products run a mix of 32bit and 64bit operating systems?
Yes, all three products support running a mix of 32bit and 64bit operating systems at the same time on the same server.

What versions of 64bit Windows can be run on your products?
XenServer virtual machines can run 64bit Windows 2003 Standard, Enterprise, and Data Center

What versions of 32bit Windows can be run on your products?
XenServer virtual machines can be any of the following 32bit Windows operating systems:

- Windows 2003 Standard, Enterprise, Data Center, and SBS
- Windows XP Service Pack 2
- Windows 2000 Service Pack 4

Can I install other versions of Windows not mentioned in your Windows support section?
While you might be able to install and run other Windows versions not mentioned in our support section, our products only include high speed paravirtualized device drivers designed for the supported Windows versions.

What versions of 64bit Linux can be run on your products?
We will support 64bit Linux operating systems in a future release.
What versions of 32bit Linux can be run on your products?
XenServer virtual machines can be any of the following 32bit Linux operating systems:

- Red Hat Linux 5
- Red Hat Linux 4 updates 1, 2, 3, 4, 5
- Red Hat Linux 3 updates 6, 7, 8
- Novell SLES 10 Service Pack 1
- Novell SLES 9 Service Pack 2 and Service Pack 3
- Debian Sarge, Etch
- CentOS 5
- CentOS 4 update 5

Can I install other versions or distributions of Linux not mentioned in your Linux support section?
Our products have been tested running only the distributions and specific versions listed in our support section. You may be able to install other versions of Linux on machines with Intel VT and AMD-V technology but you would not be able to get official support from Citrix in this configuration.

Can I run Linux virtual machines on the XenServer Standard product?
Yes, previous versions of XenServer Standard were limited to running Windows virtual machines. The current release of XenServer Standard is able to run both Windows and Linux virtual machines.

Do your products support Solaris x86?
No, our products do not currently support Solaris x86 based virtual machines.

Do your products support Novell Netware?
No, our products do not currently support Novell Netware based virtual machines.

Do your products support FreeBSD, NetBSD, or other variants?
No, our products do not currently support BSD based virtual machines.
Creating Virtual Machines

What types of virtual machines can I create with the included physical to virtual (P2V) tools?
You can convert the following operating systems with the XenServer P2V tools:

- Red Hat Linux 3 updates 6, 7, 8
- Red Hat Linux 4 updates 1, 2, 3, 4
- CentOS 4 updates 1, 2, 3, 4
- Novell SuSe Enterprise 9 Service Pack 2 and Service Pack 3

Can I run your Linux P2V capture tool on a server with 32bit hardware?
Yes, you can run our P2V capture tool on systems with 32bit software. When you boot the first CD with the capture tool hit the F2 key to see advanced boot options and you will find a legacy p2v boot option to run on older 32bit hardware.

Is there a limit to the number of P2V conversions that can be run for Linux?
No, our products include an unlimited number of Linux P2V conversions.

How can I convert (P2V) physical Windows systems to a virtual machine on your products?
We have partnered with Leostream and Platespin to provide Windows P2V solutions for our customers. You can learn more about these solutions on their websites:

http://www.leostream.com
http://www.platespin.com

What types of virtual machines can I create from vendor installation media like a CD or ISO?
You can install the following operating systems onto VMs from CDs or ISOs:

- Windows 2003 Server
- Windows XP
- Windows 2000
Can I create Linux virtual machines from an ISO or CD?
We don’t currently support creating Linux VMs by installing the operating system from an ISO or CD. You can, however, copy your Linux CD contents to a network server and install from that.

What types of virtual machines can I create from vendor install source on a network?
You can install the following operating systems onto VMs from a vendor install source:

- Red Hat Linux 5
- Red Hat Linux 4 updates 1, 4, 5
- CentOS 5
- CentOS 4 update 5
- Novell SLES 10 SP1

What types of virtual machines can be created from existing virtual machines?
Any virtual machine created on our products can be turned into a VM template. A VM template can then be used to create additional VMs.

What types of virtual machines can be created with a VM import operation?
Any virtual machine created on our products can be created with a VM import operation.

Can virtual machines exported from XenServer Express, XenServer Standard, or XenServer Enterprise be moved between the product offerings?
Yes, virtual machines from any of our three commercial products are compatible with each other.
VM Conversion from Other Virtualization Solutions

Can you convert a virtual machine from other virtualization products to your products?
Yes, Citrix provides a free VM conversion tool that allows you to convert existing VMWare and Microsoft VMs to the XenServer import format. You can download the VM conversion tool from the link below.
You can also use products from Leostream and Platespin to convert other vendor’s virtual machines to be usable on a XenServer system.

Can you convert a virtual machine from Open Source Xen to your products?
There is currently no direct automated mechanism to move VMs from open source Xen to the XenServer products. In a future release the OVA (open virtual appliance) format will allow VMs to be moved between different Xen environments.
Citrix does have partners who are able to custom conversion work to transfer OSS Xen virtual machines to the platform.

Storage Support

What types of local storage can be used with your products?
All three XenServer products support IDE/PATA, Serial ATA (SATA), SCSI, and Serial Attached SCSI (SAS)

What types of non-shared remote storage can be used with your products?
The following forms of non-shared remote storage can be used:
Hardware FC: Connections to storage area networks via fiber channel HBA’s from Emulex and QLogic.
Hardware iSCSI: iSCSI storage connections made with a hardware iSCSI adapter
What types of shared remote storage can be used with your products?
The following forms of shared remote storage can be used:

**Software iSCSI**: iSCSI storage connections made with our built-in software iSCSI initiator

**NFS**: NFS storage connections made with our built-in NFS client.

What products support shared remote storage?
Shared remote storage is only available in our *XenServer Enterprise* product.

What products support non-shared remote storage and local storage?
All of the XenServer Family of Products support non-shared remote storage and local storage.

What is the difference between remote storage that is shared and non-shared?

*Non-shared* remote storage (such as FC SAN or an iSCSI SAN via hardware iSCSI adapters) can be used with our product, but will act like locally attached disk. When virtual machines are stored on non-shared remote storage, they cannot be live relocated between systems; they also cannot be automatically placed on other servers when they are started. With non-shared storage, the VMs on that storage can only be seen by one virtualization server.

*Shared* remote storage (such as connections to an iSCSI SAN via our built-in software initiator or our NFS client) allow a VM to be accessed by multiple virtualization servers. This allows for VMs to be XenMotioned between systems. It also allows for automatic placement of virtual machines as they are started.

Do your products support software iSCSI?
Yes, we include a software iSCSI initiator with the product. We use the open-iSCSI initiator. Our Software iSCSI initiator can be used for remote connections to shared remote storage.

Do your products support hardware iSCSI adapters?
Yes, we support using the QLogic 405X series of iSCSI HBAs for remote connections to non-shared remote storage.
Do your products support NFS based storage?
Yes, XenServer Enterprise supports NFS based shared remote storage.

Can I use a regular software NFS share from a general purpose server with your XenServer Enterprise product for remote shared storage?
While you can use a regular NFS share from a general purpose server, we highly recommend using a hardware NFS appliance for proper levels of performance. We recommend that a hardware NFS appliance with high speed non-volatile caching be used (for example, Network Appliance Filers).

Can I boot your products from an iSCSI based SAN?
We don’t currently support booting the product from an iSCSI-based SAN.

Can I boot your products from a fiber channel SAN?
Yes, the products support boot from SAN with Emulex and QLogic HBAs that have boot from SAN capabilities.

Do your products support multipathing for fiber channel SAN?
Our products do not currently support multipathing for fiber channel SANs. Dynamic Multipathing support is planned for a future release.

Do your products support shared storage between systems?
XenServer Enterprise includes shared storage technology for Software iSCSI and NFS.

Do your products support using raw disk?
Yes, our products use LVM technology to create a storage repository which contains one or more disks or LUNs. This storage repository is then split up automatically to create virtual disk drives for the VMs. Note that the virtual machine will see a virtual disk drive, not the raw disk.
Do the XenServer products support virtual disk formats such as VHD?

When using remote shared NFS storage, *XenServer Enterprise* will store virtual hard disks in the Microsoft VHD format. We also have a converter tool that allows you to convert a VHD (Microsoft Format) or VMDK (VMWare format) VM to our VM import format.

Does your product support software RAID?

Yes, the product allows the use of the Linux mdadm tools to create software RAID volumes. A technote on setting up software RAID can be found in the Citrix XenServer Knowledge Base. We generally recommend that you use a true hardware RAID solution for the best system performance.

Does your product support hardware RAID?

Yes, the product supports using standard hardware RAID controllers that are included with OEM systems. We also recommend 3Ware and Areca controllers for 3rd party RAID controllers. You can find a complete list of adapters on our online HCL. Our HCL can be found at http://hcl.xensource.com.

Does your product support HostRAID or FakeRAID hardware/software RAID solutions?

No, our product does not currently support using lower end hardware/software HostRAID or FakeRAID solutions. We recommend using true hardware RAID controllers with our products.

Do your products support thin clones of existing virtual machines?

Yes, *XenServer Enterprise*, when using remote NFS shared storage or local storage with VHD-based VMs, supports thin-cloning of an existing VM template. Thin cloning allows you to create copies from a virtual machine template with minimal disk space usage. The original VM template is used as a base read-only disk, and any copies you create from this template will only require disk space to store differences in your newly created virtual machine.

Thin cloning also allows you to create new VMs very quickly. Since you don’t need to copy any virtual disk drives, new VMs can be created in only seconds.
Do your products support fast cloning of existing virtual machines?
Yes, *XenServer Enterprise*, when using remote NFS shared storage or local storage with VHD-based VMs, supports fast cloning of existing virtual machine templates. The original VM template is used as a base read-only disk, and any copies you create from this template will only require a small virtual disk drive to track changes. This allows XenServer Enterprise to create new VMs in only seconds.

Do your products provide disk snapshot support?
Virtual disk snapshotting will be provided in a future release.

Do your products support AoE (ATA over Ethernet)?
No, our products do not currently support AoE based storage.

Networking Support

Do your products support virtual networks that only operate between VMs?
Yes, administrators can create virtual networks that connect VMs running on the same physical system together over an internal virtual network.

Do your products support multiple physical networks?
Yes, administrator can create multiple physical networks that attach to NICs on the physical system.

Can VMs connect to multiple networks?
Yes, VMs are able to connect to multiple virtual and physical networks.

Do your products support single VLANs to a physical NIC?
Yes, the networking system allows the use of VLANs that connect to physical network interfaces on the physical box. In this setup one VLAN is connected to each physical NIC on the box.
Do your products support multiple VLANs to a physical NIC?
Yes, when using XenServer Enterprise the networking system allows splitting multiple VLANs on a single physical link into multiple virtual network switches.

Do your virtual networks pass all packets to all VMs?
No, our virtual networks act like a layer 2 switch. The virtual machines will only see traffic designated for that virtual machine.

Can I put the virtual NICs and networks into promiscuous mode?
Yes, you can put a virtual NIC into promiscuous mode to see all traffic on a virtual switch. Please search our knowledge base for the details.

Do your products support bonding or teaming of physical NICs?
This feature is planned for a future release.

Memory Support

Do your products support memory sharing between VMs?
Xen and the XenServer family of products do not currently support memory sharing. Sharing memory between virtual machines imposes a performance penalty on VM memory operations. Generally you don’t see much savings from memory sharing in other products, since the operating system and applications don’t use most of the memory on a system. The data and file caches which are unique per VM use most of the memory which can’t be shared.

Do your commercial products support memory ballooning?
The core Xen technology currently supports memory ballooning and this capability will be included in our commercial products in a future release.

What is the maximum amount of memory that your products can use on a physical server system?
XenServer Enterprise is based on the 64bit version of Xen, which allows it to use up to 128GB of physical memory.

XenServer Standard is also based on the 64bit version of Xen which allows it to use up to 128GB of physical memory.
**Citrix XenServer FAQ 4.01i**

*XenServer Express* is also based on the 64bit version of Xen but is limited to using up to 4GB of physical memory.

## Suspending and Resuming Virtual Machines

**Do your products support suspend and resume of Linux virtual machines?**

Yes, this is supported for Linux virtual machines.

### NOTE

Red Hat 3.x based VMs can only be suspended and resumed when allocated a single virtual CPU, all other Linux VMs can be suspended and resumed with multiple virtual CPUs.

**Do your products support suspend and resume of Windows virtual machines?**

Yes, this is supported for all supported Windows virtual machines.

## Resource Pools

**What is a Resource Pool?**

A Resource Pool is a collection of multiple similar *XenServer Enterprise* servers that are connected together in a unified pool of resources. These connected servers share remote storage and common networking connections. A Resource Pool allows for XenMotion (Live Migration) of VMs, shared configurations, and automatic placement of VMs. Resource pools provide shared authentication between servers.

**What features are enabled by creating a Resource Pool?**

Resource Pools enable XenMotion of VMs, automatic placement of virtual machines, shared authentication, and shared configurations for networking and remote storage.
**Which of your products support creation of Resource Pool?**

Resource pools can only be created with the *XenServer Enterprise* product and can only contain other XenServer Enterprise servers.

**What system controls a Resource Pool?**

In a Resource Pool one of the XenServer Enterprise servers is set as a master for the Pool. This master controls locking access to shared storage and coordinates configuration changes. All of the other XenServer Enterprise servers in a Resource Pool have the ability to become a master.

**What happens if the master server in a Resource Pool has a failure?**

If a master server in a Resource Pool has a failure, all the other servers in the Resource Pool will continue to operate and run their virtual machines. If the master server cannot be brought back online, any of the other XenServer Enterprise servers in the Resource Pool can be promoted to a master to control the Pool. All of the configuration data for a Resource Pool, its servers, configurations, and virtual machines are copied to every member of the Resource Pool automatically during normal operation.

**Where is the configuration data for a Resource Pool, its servers, and VMs stored?**

A copy of this data is stored on every XenServer Enterprise server in the Resource Pool. This allows any server to take over operation of the Resource Pool in the event of a failure.

**What types of configurations can be made at a Resource Pool level?**

Shared remote storage and shared networking configurations can be made at a Resource Pool level. A shared configuration is made once on the Resource Pool. The master server will then automatically configure all the member servers with this configuration change. Also any servers added to the resource pool in the future will receive these same configurations automatically.

**Will new servers added to a Resource Pool automatically be configured with shared network and storage settings?**

Yes, any time a new XenServer Enterprise server is added to a Resource Pool, it will be configured with any shared storage and network settings.
XenMotion of Virtual Machines
(Live Migration)

What is XenMotion?
XenMotion is a feature that allows you to move a running virtual machine from one physical XenServer Enterprise server to another without any downtime.

Which of your products support XenMotion?
XenMotion is only provided in our XenServer Enterprise product.

What are the requirements to enable XenMotion?
You need at least two XenServer Enterprise Servers running in a resource pool. The XenServer Enterprise servers need to have similar processor configurations, some type of remote shared storage such as iSCSI or NFS, and a gigabit network connecting them.

How similar do the processors need to be in my XenServer Enterprise servers?
To use XenMotion, the processors need to be the same type, but can have slight differences such as CPU speed. So, for example, all the systems would need to have Intel Xeon 51xx series processors. They could be different speeds, so you can mix systems with Intel Xeon 5130 and Xeon 5140 processors. The same is true of AMD processors.

Can you XenMotion a VM between an Intel and AMD system?
No, you can only XenMotion a VM between systems with the same type and manufacture of processor.

Does XenMotion require you to have the same exact configurations for your server systems?
While you do need to have the same type of processor in each system, other configurations can differ. You can have different amounts of memory, different storage controllers, and different network controllers in each system.
Can you XenMotion VMs between two systems with the same CPU but different clock speeds?
Yes, the processors need to be the same type, but can have slight differences such as CPU speed. So all the systems would need to have Intel Xeon 51xx series processors. They can be different speeds so you can mix systems with Intel Xeon 5130 and Xeon 5140 processors.

What type of storage does a VM need to be stored on to enable XenMotion?
A VM needs to be stored on remote shared storage to allow for XenMotion. Examples of this are connections to NFS or iSCSI (via Software iSCSI initiator) based storage.

What speed of networking is required for XenMotion?
We recommend that you use Gigabit Ethernet between your physical servers.

How much downtime will occur during a XenMotion?
The actual downtime during a XenMotion is generally 100-150ms. This downtime is so slight that services running in the VM will not be interrupted. Most of the 100-150ms downtime is caused by your network switching equipment moving traffic to a new port.

High Availability and Load Balancing

Do your products support load balancing of VMs between systems?
You can manually load balance VMs between physical servers in a resource pool using our XenMotion feature. Automatic load balancing of VMs is planned for a future release. This capability is available from some of our ISV management partners now.

Do your products support high availability of virtual machines between multiple physical systems?
We plan to add high availability for virtual machines in a future product release.
Open Source Xen

Can your commercial XenCenter console connect to a server running open source Xen?
Currently the Administrator console can only connect to a XenServer Express, XenServer Standard, or XenServer Enterprise system.

What version of Xen do your commercial products currently use?
We currently use Xen 3.1 + a large number of fixes from xen-unstable.

Is the Xen version used in your commercial products the same as the open source version of Xen?
Yes, our commercial products use the same Xen core from the open source project. The commercial products expose the stable subset of features found in the Xen open source project in an easy to install and use offering. We also include a large number of value-added components not found in open source Xen. Examples are the GUI based management tools, the easy installer system, and the high speed Windows drivers.

Can you convert a virtual machine from Open Source Xen to your products?
There is currently no automated mechanism to move VMs from open source Xen to the XenServer commercial products. In the future the OVA (open virtual appliance) format will allow VMs to be moved between different Xen environments.
Citrix does have partners who are able to custom conversion work to transfer OSS Xen virtual machines to the platform.

XenCenter Management Client

What platforms will the XenCenter client run on?
The XenCenter client will run on Windows operating systems.
How does the XenCenter client communicate with the server?
The XenCenter client communicates with the server over a standard TCP/IP port.

Is the communication between the XenCenter client and the XenServer secure?
Yes, the products use 128-bit SSL encryption to secure all communications between the admin console and the XenServer system.

What port does the XenCenter client use to communicate with the server?
The admin console and XenServer server use TCP port 443 for communication?

Can you connect multiple XenServer Standard and XenServer Enterprise servers to the same XenCenter client?
Yes, you can connect multiple XenServer Standard and XenServer Enterprise servers to the same XenCenter client.

Can you connect multiple XenServer Express servers to the same XenCenter client?
No, the XenServer Express license only allows you to connect a single active XenServer Express server to the XenCenter client at the same time.

Can you connect a XenServer Express server to a XenCenter client with multiple XenServer Standard and XenServer Enterprise servers already connected to it?
Yes, you can connect a single XenServer Express server to a XenCenter client with existing multiple connections to XenServer Standard or XenServer Enterprise servers.

Can you connect multiple Resource Pools to a XenCenter client?
Yes, you can connect multiple resource pools to the same XenCenter client?
How can I gain access to Linux Virtual Machine consoles?
The XenCenter client provides built-in access to a Linux virtual machines text console. You can also access the graphical output from a Linux Virtual machine by running a VNC server in the Linux virtual machine. An integrated VNC console is included in the XenCenter client which will connect to the VNC server in the Linux VM.

How can I gain access to a Windows Virtual Machine console?
The XenCenter client provides built-in access to a Windows virtual machine console via a console tab. In addition, if RDP (Windows Remote Desktop) is detected within the virtual machine, a quick connect icon is provided to launch and connect with a built-in RDP client.

Can the XenCenter client connect to XenServer 3.x servers?
No, the XenCenter client cannot connect to older XenServer 3.x servers. You can run the XenCenter client on the same system as the 3.x Administrator Console.

Performance Information

Do your management tools collect performance information?
Yes, our product will collect CPU usage, memory usage, and network I/O rates from the whole system and each individual VM.

Where does the performance information come from?
The data is collected from a variety of sources including the Xen engine, standard Linux interfaces such as proc and sysfs, and standard Windows interfaces such as WMI. We collect data from within each virtual machine and the base virtualization platform.

Do you show the performance information in real-time?
Yes, the XenCenter client will display real-time performance information in the performance tab for the whole server and individual virtual machines.

Do you trend performance information over time?
Yes, the XenCenter client will display the last 15 minutes of data in a moving graph.
Do you store historical performance information?
We do not currently store historical performance information. This capability will be provided in a future release.

Command Line Interface

Do your products include a command line interface?
Yes, all three products include a full command line interface.

Can I run the CLI on the server system?
Yes, the CLI can be run from the virtualization server.

Can I run the CLI on a remote system?
Yes, the CLI can be run on a remote system and communicate with the server over the network.

What platforms does the CLI run on?
The CLI can run on both Linux and Windows systems.

How does the CLI communicate with the XenServer?
The CLI communicates with the XenServer server over a standard TCP/IP port.

Is the communication between the CLI and the XenServer secure?
Yes, our commercial products use 128-bit SSL encryption to secure all communications between the CLI and the server.

What port does the CLI use to communicate with the server?
The CLI and server use TCP port 443 for communication.

Does your CLI support command completion using the tab key?
Yes, when using the CLI on a Linux system, command completion will work with the tab key.
Command completion does not work when running the CLI on Windows.
Server Install

Do your commercial virtualization products install on top of an existing operating system?
No, the XenServer virtualization servers run on your bare metal hardware to provide the very best in virtualization performance.

Do Xen and your commercial XenServer products run on Linux?
No, Xen actually runs on your bare metal hardware and is the first thing that boots. After the Xen hypervisor is loaded it will start a special privileged virtual machine that contains a minimal Linux environment. This environment contains management code and Linux device drivers that Xen uses to talk with the hardware.

Where do the XenServer products get their device driver support?
The commercial products get their device driver support from the standard Linux kernel. As a result our products support a wide variety of hardware and storage technology.

What kernel version do XenServer Express, XenServer Standard, and XenServer Enterprise use?
The products use the Linux kernel for its device support and currently use the 2.6.18 Linux kernel in its privileged virtual machine. While we use the 2.6.18 kernel we have included a large number of driver updates which brings hardware support up to 2.6.21+ levels.

Can I use PXE to do a network install of the XenServer products?
Yes, you can install the XenServer virtualization server via PXE. You can also automatically install the server via PXE by using a pre-created answer file.
API/SDK

Do the XenServer family of products have an API?
Yes, all three products include an XML-RPC based API.

What bindings do you provide for your API?
We currently provide bindings for C, C#, and Python.

Can the API be accessed by a remote system?
Yes, the API can be called from a remote system.

Can the API be accessed on a local XenServer system?
Yes, the API can be called from a local XenServer system.

What port can the API be accessed on?
The API can be accessed on the TCP port 443.

Is API communication made over a secure connection?
Yes, all API communication can be made over the https protocol.

Do you provide documentation for the API?
Yes, XenServer provides full documentation for the XML-RPC API.

Do you provide code samples for the API?
Yes, the XenServer SDK VM includes a number of code samples. Some of the code samples demonstrate creating a VM, running VM power operations, and watching for events.
What is the XenServer SDK?
The SDK is a Linux virtual machine that contains the language bindings and code samples. This lets you get up and running quickly as the build environment is already setup in the SDK VM.

What license is the API binding code provided under?
The API binding code is provided under an LGPL license.

Is the API going to be submitted to open source Xen?
The XenAPI as implemented in this SDK is also being implemented in open source Xen.

Does the XenCenter client and CLI also use this API?
Yes, the XenCenter client and CLI only make use of this same public API.

Moving between XenServer products

Is there an upgrade path from XenServer Express to XenServer Standard?
Yes, you can take an existing XenServer Express install and simply add a new license key which turns that instance into a XenServer Standard instance.

Is there an upgrade path from XenServer Express to XenServer Enterprise?
Yes, you can take an existing XenServer Express install and simply add a new license key which turns that instance into a XenServer Enterprise instance.

Is there an upgrade path from XenServer Standard to XenServer Enterprise?
Yes, you can take an existing XenServer Standard install and simply add a new license key which turns that instance into a XenServer Enterprise instance.
Can virtual machines exported from XenServer Express, XenServer Standard, or XenServer Enterprise be moved between the product offerings?
Yes, virtual machines from any of our three commercial products are compatible with each other.

Upgrading to newer versions of XenServer products

Can I upgrade from your 3.2 products to your 4.0 product?
Yes, you can upgrade a 3.2 system to 4.0. Simply insert the 4.0 installation CD in your system and boot. When you run the installation process, it will discover your existing 3.2 installation and ask if you want to upgrade it.

Can I upgrade from your 3.1 products to your 4.0 product?
Yes, you can upgrade a 3.1 system to 4.0, but not directly. First you must upgrade your 3.1 system to the latest 3.x release, which is version 3.2. Insert the 3.2 installation CD in your system and boot. When you run the installation process for 3.2, it will discover your existing 3.1 installation and ask if you want to upgrade it. Once your system has been upgraded to 3.2, you can upgrade to the 4.0 release following the instructions in the 3.2 to 4.0 upgrade process.

Can I upgrade from your 3.0 product right to 4.0?
No, you will need to move your 3.0 virtual machines over to a 3.1 system. Once you are on the 3.1 version, you can upgrade the same system to 3.2, leaving your virtual machines and their settings intact. You can then upgrade from 3.2 to the 4.0 release.

Can the XenCenter client connect to XenServer 3.x servers?
No, the XenCenter client cannot connect to older XenServer 3.x servers.
Licensing

How are your products licensed?

*XenServer Enterprise* is licensed per server by the number of physical CPU sockets on the motherboard. The base license is for a 2 socket system and can be purchased for up to a 16 socket system. XenServer Enterprise is sold as a yearly subscription or a perpetual license.

*XenServer Standard* is licensed per server by the number of physical CPU sockets on the motherboard. The base license is for a 2 socket system and can be purchased for up to a 16 socket system. XenServer Standard is sold as a yearly subscription or a perpetual license.

*XenServer Express* is freely available and can use up to 2 sockets on a system.

What is the difference between a socket and a CPU or CPU core?

A socket is the physical component on the system motherboard that you plug a physical processor package into. Modern processor packages contain multiple CPUs on the same package. Generally these multiple CPUs are called cores.

Are dual core and quad core processors still only count as a single socket?

Yes, for example a machine with two physical processors each with 4 cores would be counted as a 2 socket system.
Support

Do you provide technical support for your commercial products?
Yes, Citrix provides direct support for our commercial products. The product includes base support which entitles customers to basic online support via our support portal. Customers can also additionally purchase phone support via incident packs. Contact your authorized reseller for additional details.

Do you provide technical support for your open source products?
No, Citrix does not currently provide technical support for our open source products. We do have a number of partners who are willing to provide support. Please contact Citrix for more details.

What products are eligible for support?
Both XenServer Standard and XenServer Enterprise are eligible for support. XenServer Express is not eligible for support.