SEP
Backup & Disaster Recovery

CITRIX®

Citrix XenServer & XenDesktop Backups with SEP

Table of Contents

Introduction

SEP is a robust and secure backup solution for businesses of any size. The Citrix Ready certified SEP module for XenServer, XenDesktop and XenApps provides fast and efficient backups for virtual machines (VM) running on XenServer. SEP's patented Multi-Streaming Technology backs up multiple streams simultaneously. Entire company infrastructures can be managed by a single, fully integrated interface for physical, virtual and cloud environments.

SEP's backup and recovery solution for Citrix provides:

- Built-in encryption capabilities
- Agentless backups
- VM backup consistency
- Change Block Tracking (CBT)
- License Activation Loss Prevention
- Platform-independent functionality
- A single enterprise management interface
- Certified solution for Citrix XenServer, XenDesktop & XenApps

Citrix XenServer Backup Methods

There are several ways to back up VMs on Citrix XenServer with SEP:

- Offline Backup – occurs when the VM is powered down
- Online Live Memory Backup – includes the VM's active RAM
- Online Quiesced Backup – uses the XenServer VSS provider to allow a complete backup without interruption to the production system
- Online Normal Backup – completed without interruption to the production system

All backup methods are fully accessible from and integrated into the SEP central interface.

Offline Backup

The offline backup solution will perform a backup of the VM by shutting down the operating system. This option allows the backup to occur when no changes are occurring on the VM. While this guarantees the consistency of the VM at a specific point in time, it is not an optimal solution for applications that require high availability.

Pros:

- All data is in a consistent state
- Operating system independent
- Application independent

Cons:

- The VM is off for the entire backup

Online Live Memory Backup

The online memory backup solution will perform a backup of the VM and its memory. This guarantees the full consistency of the VM and the current state of the memory.

Pros:

- Consistent state of the machine for that point in time
- VM does not have to be powered off

Cons:

- Locks the VM in a "frozen" state while backing up the memory, keeping it from responding while the memory file is locked
- Must be used in conjunction with file or database specific component backups to guarantee a fully recoverable dataset

Online Quiesced Backup

The online quiesced backup solution will perform a backup of an active VM on the fly. This provides better performance for active users or processes accessing the VM, eliminating any downtime during the backup. This process uses Citrix XenTools to take advantage of the Citrix VSS provider to allow consistent application backups for applications that are VSS-aware, like Exchange and SQL. The Citrix VSS provider is only available for Windows Server 2003 and above. The final backup will also retain the VM configuration, storage information and VIF's.

Pros:

- No downtime required on the VM
- VSS-aware applications setup a consistent state of the files for backup

Cons:

- VSS capabilities are only available for Windows
- Does not work with all applications

Online Normal Backup

The online normal backup solution will perform a backup of an active VM on the fly. This provides better performance for active users or processes accessing the VM, eliminating any downtime during the backup. This process will back up the VM configuration, storage information, and VIF's on any operating system.

Pros:

- No downtime required on the VM

Cons:

- Cannot guarantee the consistency of the data that is in active memory
- Does not work with all applications

Agentless Backups

The SEP server is able to communicate natively with the XenServer environment using Easy Access Technology (EAT), eliminating the need for a backup agent on the hypervisor. This optimizes backup performance and reduces the need to communicate with agents on the VMs (note: depending on the state of application data, this should not be the only backup method utilized to provide consistent backups). Communication to the Citrix XenServer can be initiated from the SEP backup server or a SEP Remote Device Server, optimizing the backup strategy for network performance while still providing centralized management.

Since SEP communicates directly with the hypervisor, it does not matter what operating system is running as a VM. Windows, Linux or any other operating system is treated as a VM and backed up directly via the hypervisor. The SEP server uses Snapshot Detection and Citrix XenTools to analyze the operating system of the VM and can initiate a VSS snapshot on the Windows VM.

Security

SEP is capable of providing many options to enhance security and assist in meeting compliance requirements:

- Backup data streams can be encrypted to protect against unauthorized access to the VM backup
- Logs can be sent to a syslog server to maintain a single centralized location for tracking information
- Notifications can be sent to email addresses or mobile phones to provide immediate alerts for failed or completed jobs

SEP

Backup & Disaster Recovery

Feature-Rich

Additional features of using SEP for Citrix XenServer backups:

- SEP leverages Citrix XenServer's integrated software compression to stream small files to the backup media
- SEP's patented Multi-Streaming Technology can also be leveraged to simultaneously backup and restore multiple VM's to multiple nodes within the XenServer cluster
- SEP is optimized to allow backups for VMs on 64-bit platforms
- The same technology can be used for Citrix XenServer and Citrix XenDesktop
- A Remote Device Server can be configured to allow backups to occur at a remote location and still be operated by the central management console

Remote Network

SEP Backup Server

SEP RDS Server

Remote XenServer Hypervisor 1
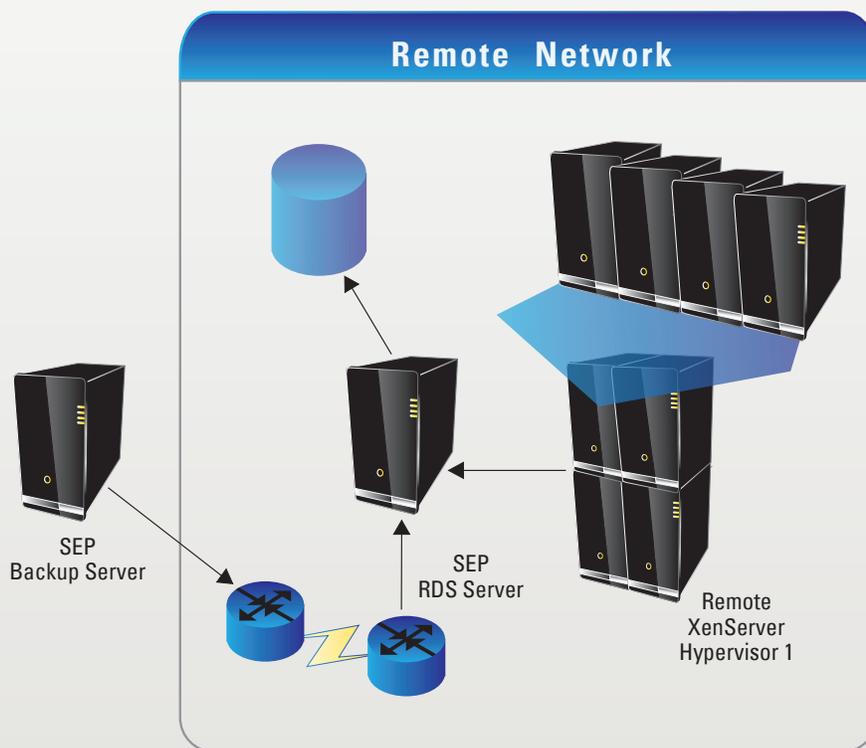
High Availability

SEP fully supports the backup of all VMs in a high availability Citrix XenServer cluster environment. As SEP communicates directly with the XenServer resource pool, backup tasks are able to properly follow virtual machines if they have failed over to a different XenServer cluster host.

These diagrams show how SEP can find any VM on the cluster and is then able to initiate a backup.
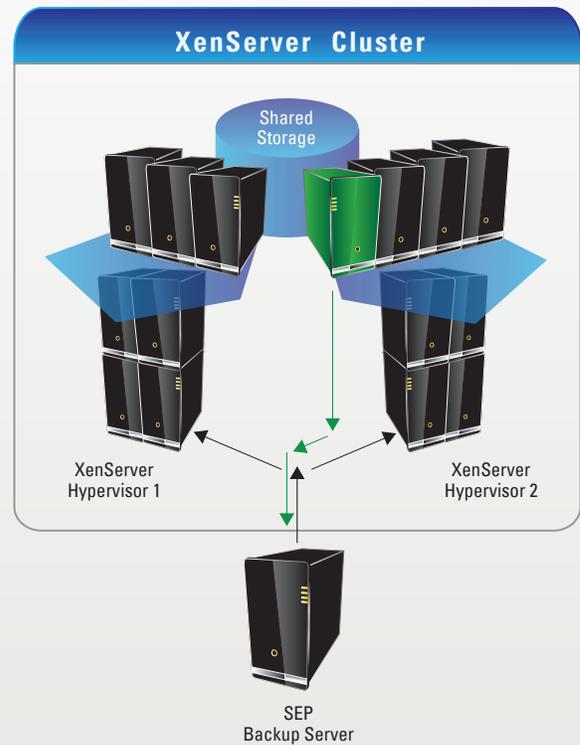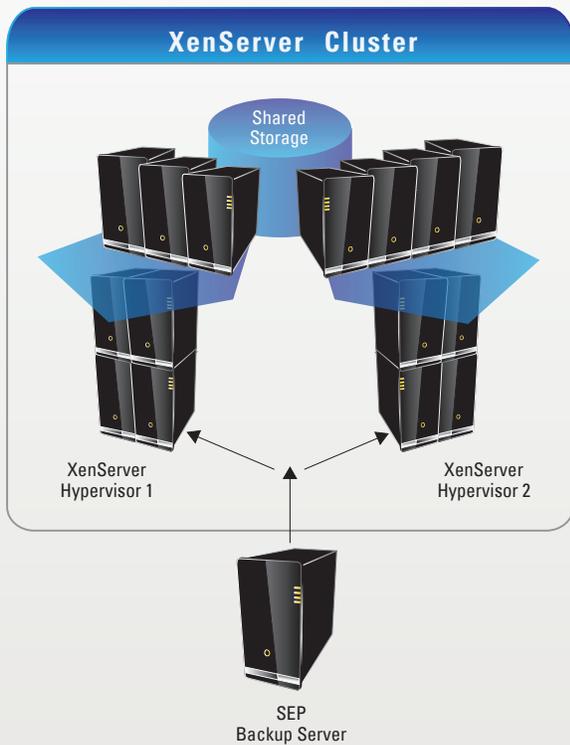
Restore

The simplicity of the SEP management interface allows for quick and easy restores. SEP includes the capability to use a point-in-time backup to restore any snapshot, from any time. A VM can be restored to the same location or to a different location. This allows a VM to be restored without downtime on any Citrix XenServer connected to the network. These features can be used to schedule VM replication or even to export VMs to onsite or off-site systems. After a replication restore has been completed, the startup type can be set to "offline" to avoid network conflicts. This allows the use of the same UID for the restored VM or even assignment of a new UID during replication.
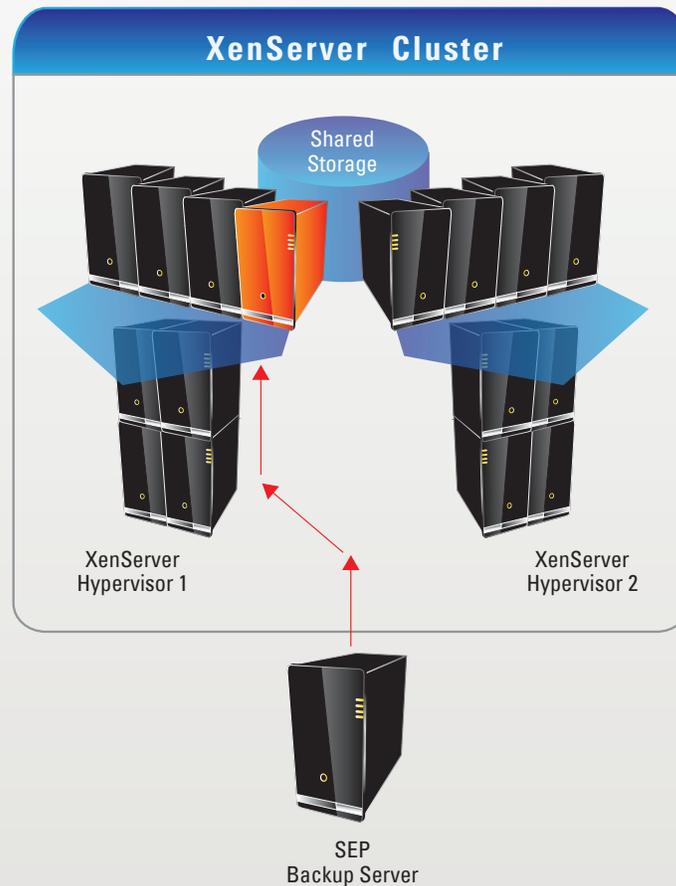
Citrix XenDesktop Environment

The Citrix XenDesktop environment is composed of several different components that work together to provide the virtual desktop infrastructure. For smaller environments, these components can be installed on a single server and larger deployments can be broken out into many back-end servers. SEP provides the same backup capabilities, regardless of the topology that has been implemented for the Citrix XenDesktop solution. In particular, the Citrix XenDesktop components that must be included in the backup strategy of the virtual desktop environment are:

- Citrix Desktop Delivery Controller Datastore
- Citrix License Server
- Active Directory Domain Controller
- Citrix XenServer Cluster to Host the Virtual Desktops
    - Windows Desktop Master Image
    - Windows Quick Deploy Desktops
    - Windows Dedicated Virtual Desktops
    - Metadata, Host-Specific Information, Templates
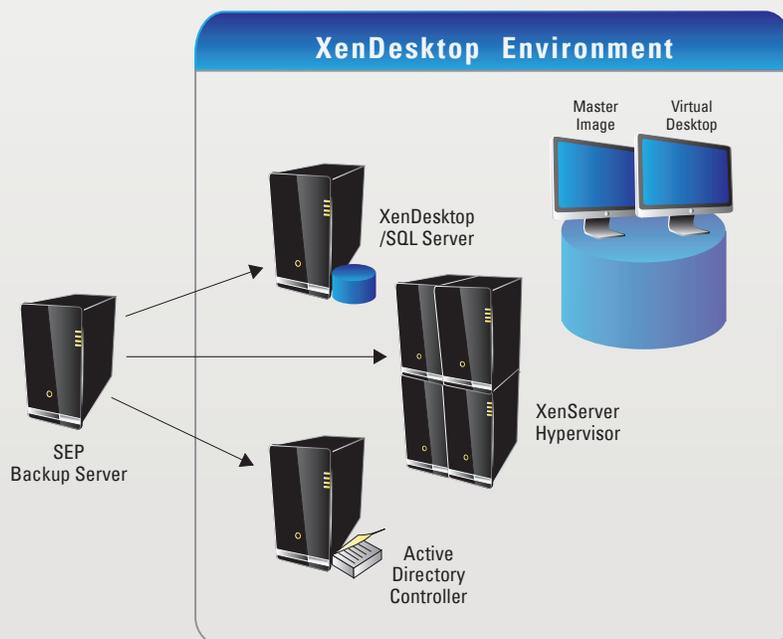
Citrix Desktop Delivery Controller Backup

The Desktop Delivery Controller datastore holds all the information about the virtual desktop infrastructure, including the virtual desktops, applications, the license server location and all other configuration settings. Protecting the Desktop Delivery Controller requires the backup of the following items with a single SEP Windows agent on the server:

- SQL Backup
- Entire File System
- System Recovery Information

XenServer agentless backups (detailed in the Citrix XenServer Backup Methods on page 6) protect all virtual desktops, and in particular, the Master Image. In addition, if dedicated virtual desktops have been configured, they can also be backed up.

Citrix License Server Backup

The Citrix License Server provides license validation for the different features of the Citrix XenDesktop environment. To fully protect the integrity of the Citrix License Server, backups should be completed for the following components on the corresponding server:

- Entire File System
- System Recovery Information

This backup method requires a single SEP Windows agent.

Active Directory Domain Controller Backup

The Active Directory Domain Controller provides user and computer authentication as well as GPO control. Protection of the Active Directory Domain Controller requires backups of the following components on the corresponding server(s) with a Windows agent on each server:

- Entire File System
- System Recovery Information

Conclusion

SEP is one of the most robust and scalable backup solutions on the market today. The single interface to manage all backup agents and device servers, whether local or remote, makes it the perfect solution for the Enterprise. Busy network administrators especially appreciate the ease of implementation of SEP for their XenServer environments. Installation is quick and seamless due to the direct communication with the XenServer hypervisor. When using XenDesktop with XenServer, creating a backup task that includes virtual desktops and XenDesktop components is quick and easy with SEP.

Experience the benefits SEP has to offer by downloading a 30-day trial license at www.sepusa.com.