

Citrix XenServer Backups with SEP sesam

Contents

- Introduction and Overview2
- XenServer Backup Methods2
 - Offline Backup3
 - Online Live Memory Backup3
 - Online Quiesced Backup4
 - Online Normal Backup4
- Agent-less Backups with EAT5
- Security5
- Feature Rich6
- High Availability7
- Restore9
- Best Practice 10
- Conclusion 11



Introduction and Overview

To address customer requirements for enterprise backups through a single interface, SEP sesam now provides XenServer backup capabilities with SEP sesam backup server. The SEP strategy is to provide an enterprise solution that can be managed with a single simplified interface.

For the solution to be truly useful in business, it must be robust, easily manageable and secure. The SEP sesam XenServer backup solution provides:

- Built-in encryption capabilities
- Agent-less access using EAT (Easy Access Technology)
- Guest backup consistency
- Platform independent functionality
- A single enterprise management interface

XenServer Backup Methods

There are several ways to backup guest virtual machines on XenServer with SEP sesam:

- Offline Backup - backup that happens when the virtual guest is powered down
- Online Live Memory Backup - backup that includes the virtual guest's active RAM
- Online Quiesced Backup - backup that uses the XenServer VSS provider to allow a completed backup without interruption to the production system
- Online Normal Backup - backup that is completed without interruption to the production system

All backup methods are fully managed and integrated into a heterogeneous, cross-platform, centralized SEP sesam backup solution.

Offline Backup

The Offline Backup solution will perform a backup of the guest virtual machine by shutting the operating system down. This option allows the backup to occur when no changes are occurring on the virtual guest. While this guarantees the consistency of the guest virtual machine and everything on it at a specific point in time, it is not an optimal solution for applications that require high availability. For more detailed information about Offline Backups, please refer to the Citrix XenServer documentation.

Pros:

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

Cons:

- The guest virtual machine is off for the entire backup

Online Live Memory Backup

The Online Live Memory Backup solution will perform a backup of the guest virtual machine and the guest virtual machine's memory. This guarantees the full consistency of the guest virtual machine and the current state of the memory. For more detailed information about Online Live Memory Backups, please refer to the Citrix XenServer documentation.

Pros:

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

Cons:

- Locks the guest Virtual Machine 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 guest virtual machine on the fly. This provides better performance for active users or processes accessing the guest virtual machine, eliminating any requirement for 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 have the guest virtual machine configuration, storage information and VIFs. For more detailed information about Online Quiesced Backups, please refer to the Citrix XenServer documentation.

Pros:

- No downtime required on the guest virtual machine
- 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 guest virtual machine on the fly. This provides better performance for active users or processes accessing the guest virtual machine, eliminating any requirement for downtime during the backup. For all operating systems, this process will backup the guest virtual machine configuration, storage information and VIFs creating a backup for any guest virtual machine type. For more detailed information about Online Normal Backups, please refer to the Citrix XenServer documentation.

Pros:

- No downtime required on the guest virtual machine

Cons:

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

Agent-less Backups with EAT

The SEP sesam server is able to communicate natively with the XenServer environment with EAT, eliminating the requirement for a backup agent on the hypervisor. This optimizes performance for backups and reduces the need to communicate with agents on the guest Virtual Machines for full system backups (note: depending on the state of application data this should not be the only backup method utilized to provide consistent backups). Communication to the XenServer can be initiated from a SEP sesam backup server or a SEP sesam Remote Device Server, allowing the backup strategy to be optimized for network performance while still providing centralized management.

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

Security

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

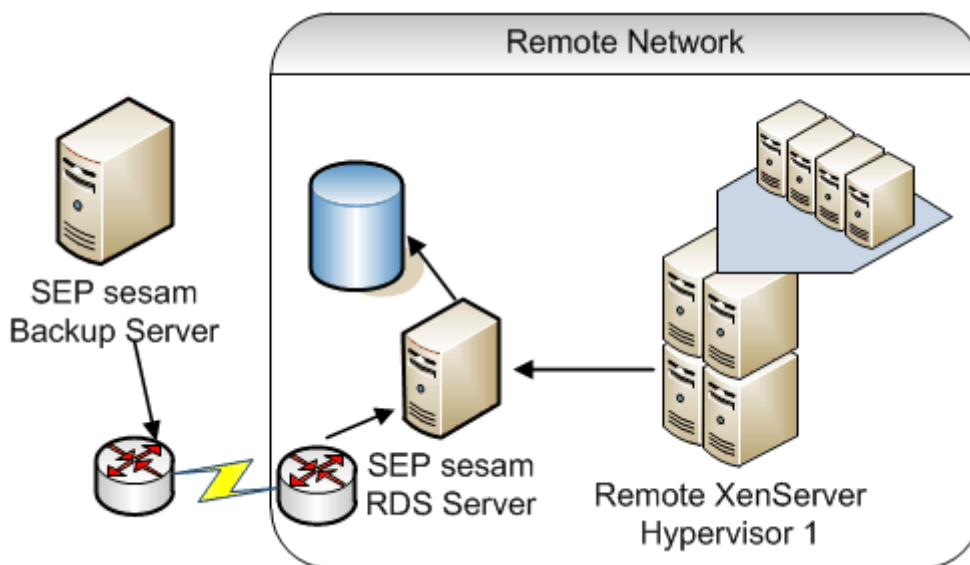
- The backup data streams can be encrypted to protect access to the guest virtual machine backup from unauthorized users.
- Logs can be sent to a syslog server to maintain a single centralized location for tracking information.
- Notifications can be sent to email addresses or cell phones to provide immediate alerts for failed or completed jobs.

These options are all part of the SEP sesam notification system that can be used to bring backup information into a centralized audit system.

Feature Rich

Additional features of using SEP sesam for Citrix XenServer backups:

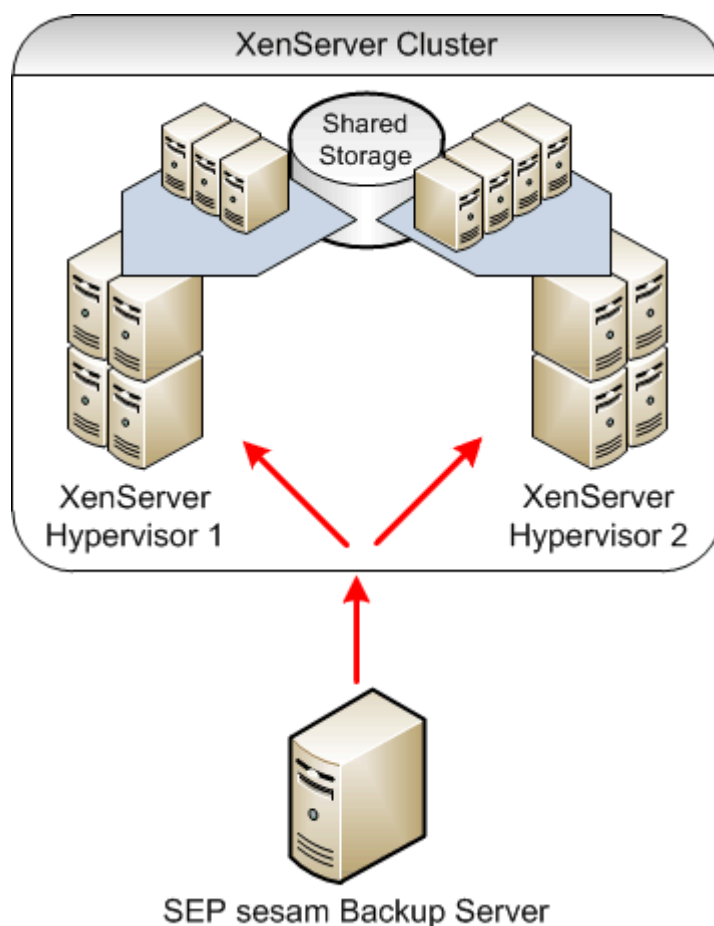
- SEP sesam leverages Citrix XenServer integrated software compression to stream small files to the backup media.
- The Multiple Stream feature of SEP sesam can also be leveraged to simultaneously back-up and restore multiple VMs to multiple nodes within the XenServer cluster.
- SEP sesam is optimized to allow enhanced backups for big guest virtual machines on 64-bit platforms.
- The same technology can be used for XenServer and XenDesktop.
- A Remote Device Server can be configured to allow backups to happen at a remote location and still be managed by the main enterprise management console.



High Availability

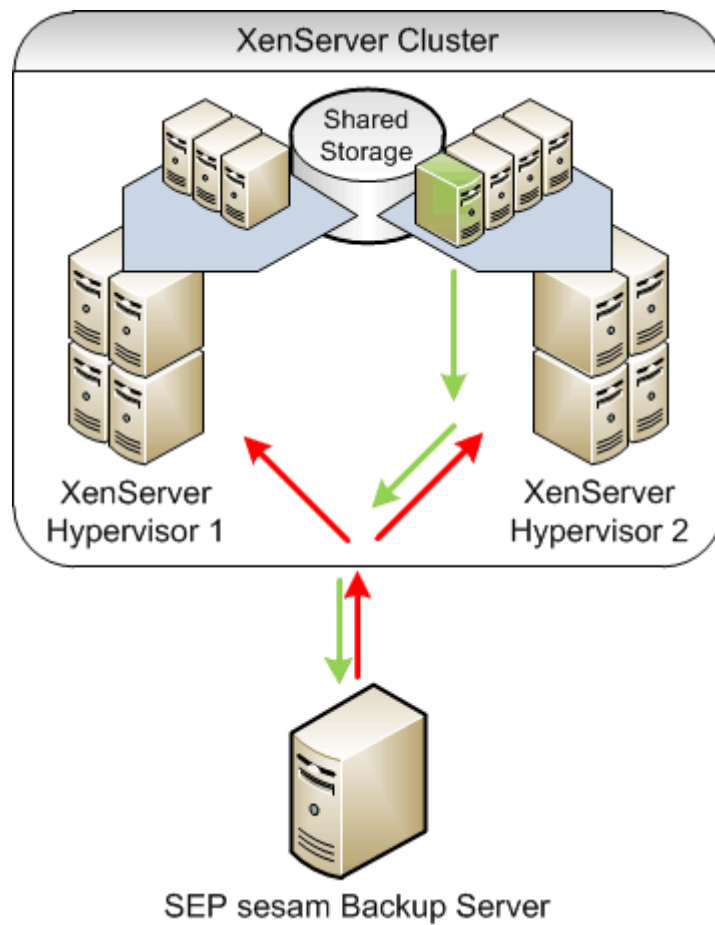
SEP sesam fully supports backup of all guest virtual machines in a high-availability Citrix XenServer Cluster environment. As the SEP sesam XenServer components communicate directly with the XenServer resource pool, backup tasks are able to properly follow VMs if they have failed over to a different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

This diagram shows how the backup server can find any guest on the cluster.



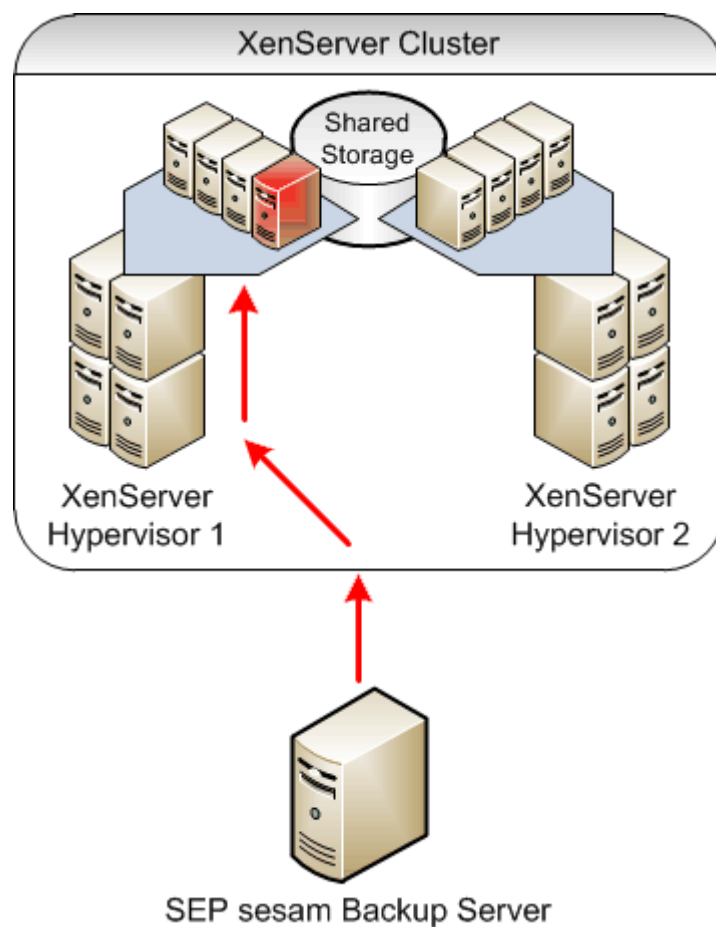
Whitepaper

SEP sesam is able to find the specific host anywhere on the cluster and initiate a backup. Based on the backup selection, the guest will be set to the required level for backup and the entire guest virtual machine will be backed up.



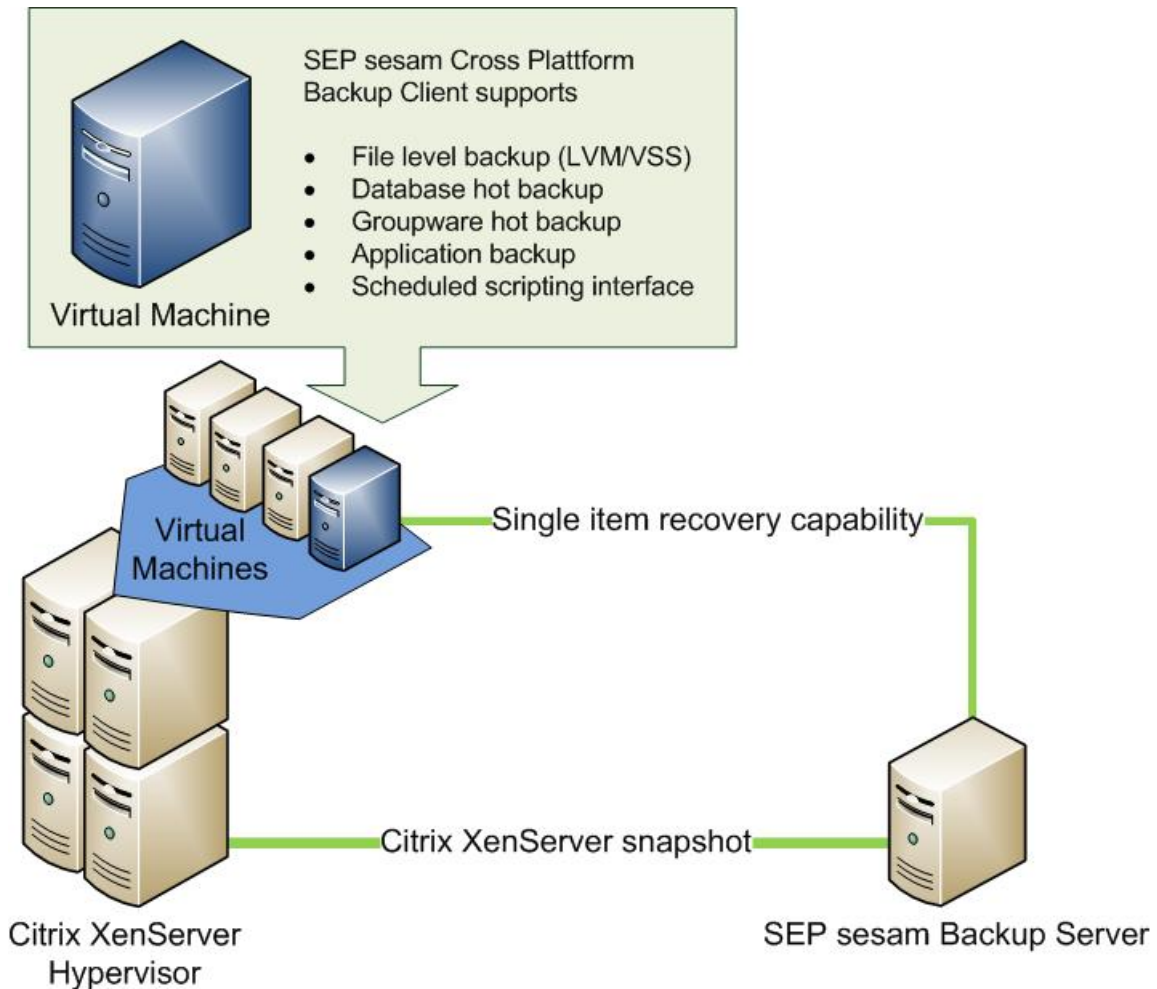
Restore

The simplicity of the SEP sesam Management Interface allows for quick and easy restores. SEP sesam includes the capability to use a point-in-time backup to restore any snapshot, from any time, for which a backup is available. A guest virtual machine can be restored to the same location or to a different location. This allows a guest virtual machine to be restored without downtime on any Citrix XenServer connected to the network. These features can be used to schedule guest virtual machine replication or even to export guest virtual machines to on-site 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 virtual guest or even assignment of a new UID during replication.



Best Practice

The best practice backing up a Citrix XenServer is to setup a scheduled backup for all VMs and to install a SEP sesam Client on each VM with hot backup modules to guarantee consistent backups for all applications without downtime. This setup also enables single file/item recovery and restoration while a database or groupware application is online.



Conclusion

The SEP sesam backup solution is one of the most robust and scalable solutions on the market. 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 sesam for their XenServer environments. Installation is quick and seamless due to the direct communication with the XenServer hypervisor. SEP sesam is available for download under a 30 day trial license, experience first-hand the benefits this product has to offer.

