Lowering the TCO of Virtualized Enterprise Applications using *EnSpeed LiveSync VM Server* and *EnSpeed VM Orchestrator*

A Thinsy White Paper

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The widespread success of commodity x86 servers in the Enterprise, along with the increased complexity in installing, maintaining and running enterprise software applications, has resulted in soaring Total Cost of Ownership.

Virtualization promises to reduce the TCO of enterprise applications. Products such as VMware Virtual Infrastructure have completely changed the way enterprises acquire, deploy and manage software. While Virtualization using VMware products does reduce the complexity of enterprise applications, the overall TCO of Enterprise Applications has not seen any significant reduction. The reasons for this are:

- The capital cost of SAN/NAS Storage required for VMware deployments is very high. It is estimated that Storage accounts for over 40% of the cost of most Virtualization projects.
- Management of SAN/NAS storage for Virtualization is an added operational expense.

Costly SAN / NAS Storage is required for VMware deployment

VMware deployments required use SAN or NAS storage as a central aspect of their architecture. Enterprise features such as High Availability and VMotion are tied to this requirement.

Thinsy LiveSync Peer To Peer Low Cost Alternative to SAN / NAS Storage

LiveSync is a Thinsy Corporation proprietary technology that uses Peer To Peer virtual disk synchronization to maintain a mirror of a VM's virtual disks on a backup VM server. If the primary VM server were to fail, the secondary VM Server can start up the VM using the mirrored Virtual disks.

Migration of a running VM from primary to backup VM Server is also enabled by LiveSync.

Reasons why LiveSync is a more efficient Storage technology for Virtualization

1. Writes are synchronized to peer; reads are from local disk. Hence storage network requirements are roughly one third of SAN/NAS Storage.
2. SAN/NAS Storage results in all storage traffic going to the Storage Array through one or more Storage Processors. This results in a storage traffic hot spot at the Storage Array interfaces. Peer to Peer Synchronization is not a client-server mode; it results in full utilization of the network backplane, hence eliminating the storage hotspot.
3. LiveSync Peer to Peer Storage make optimal use of the hardware in a Virtualization deployment by utilizing SATA/SAS Direct Attached disk drives connected to SATA/SAS controllers on the VM Servers.

Management of SAN / NAS Storage for Virtualization is complex and expensive

In addition to the capital expense of Storage, ongoing management and maintenance is an expensive undertaking. Storage is usually managed separately from Virtualization, which results in inefficiencies.

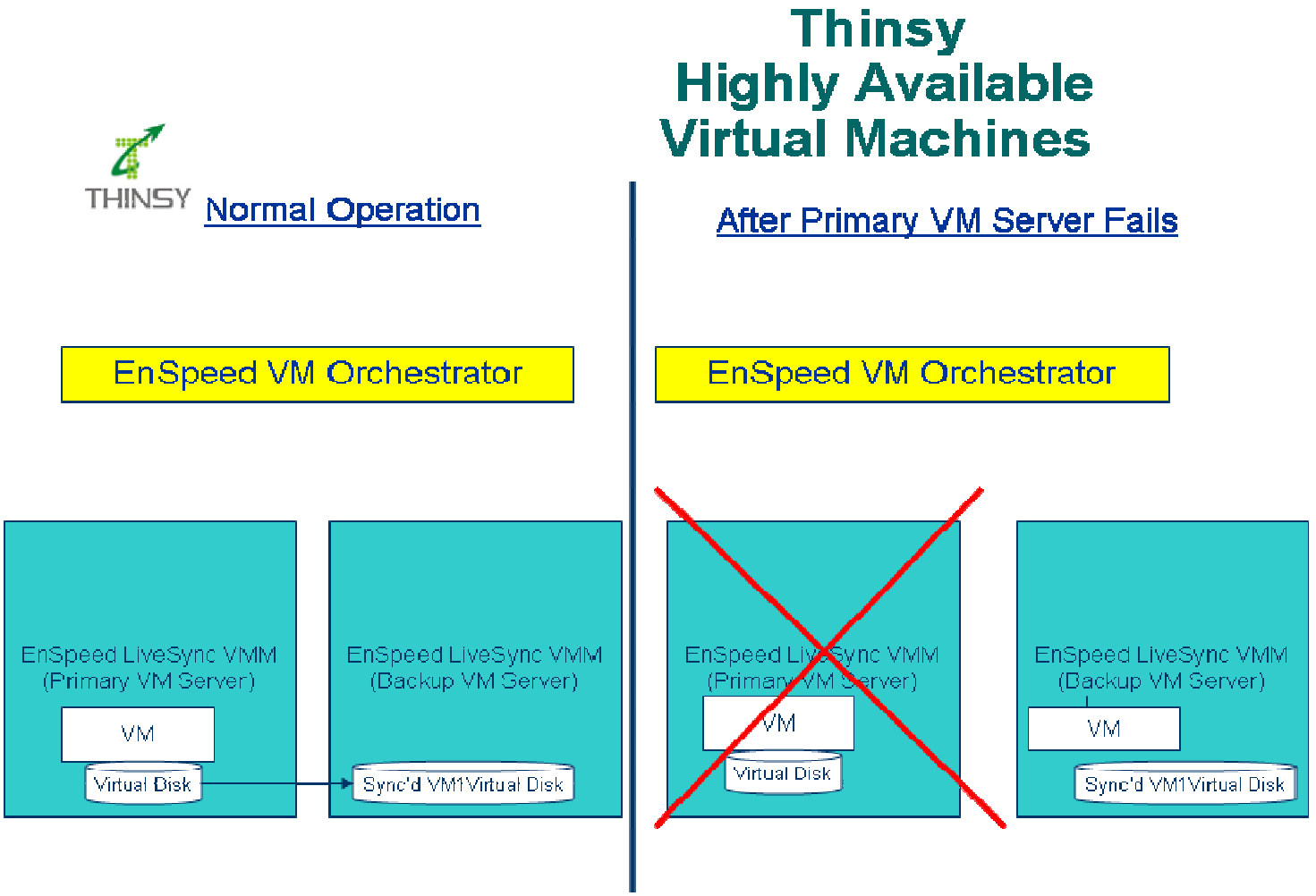
Integrated Management of Virtualization and Storage

Management of Virtual Machines and the Storage required for Virtual Machines is best done using an integrated management console, such as the EnSpeed VM Orchestrator. This programmable web based application provides full life cycle management of Virtual Machines, including creation, deployment, High Availability configuration, Migration and Backup operations.

Thinsy Highly Available Virtual Machines

In the pictorial representation below, the 'Normal Operation' section depicts the Virtual Disk of a VM running on the Primary VM Server being synchronized with a copy of the Virtual Disk on the Backup VM Server. The proprietary synchronization technology employed by Thinsy includes elements of Continuous Data Protection.

Upon failure of the Primary VM Server, as indicated in the 'After Primary VM Server Fails' section of the drawing, the Backup VM Server will start up the VM using its own Synchronized mirror of the VM's Virtual Disk. The effect is similar to a SAN based High Availability Solution, where a second VM Server starts up the VM. The difference is that in the case of a SAN based solution, the Virtual Disk used is the one on the SAN. Note that for the SAN based High Availability solution to work correctly, the SAN itself must necessarily be a Highly Available device. This results in expensive redundancy for all aspects of the SAN – the HBAs, the SAN Switch, the SAN Disk Controller, etc.



Virtual Machines as a service provided by corporate IT to end users

Thinsy software opens up the possibility of IT Organizations making Virtual Machines available to their users as a service. The following features, present in the EnSpeed VM Orchestrator are necessary for deploying Virtual Infrastructure as a service:

1. Management software must be cognizant of multiple users, of different privilege levels
2. End users should be able to manage their own VMs using nothing but a standard web browser. Client software installation should not be required.
3. Automatic management of resources in the VM Server cluster and the management console should be effected.
4. Storage for Virtual Machines should be managed seamlessly. The end user should not be required to use another management application to manage the storage.

About Thinsy

Thinsy Corporation was founded with the mission of revolutionizing software application delivery using enhanced Storage technology for Virtualization.
Thinsy is a privately held California Corporation. For more information contact sales@thinsy.com