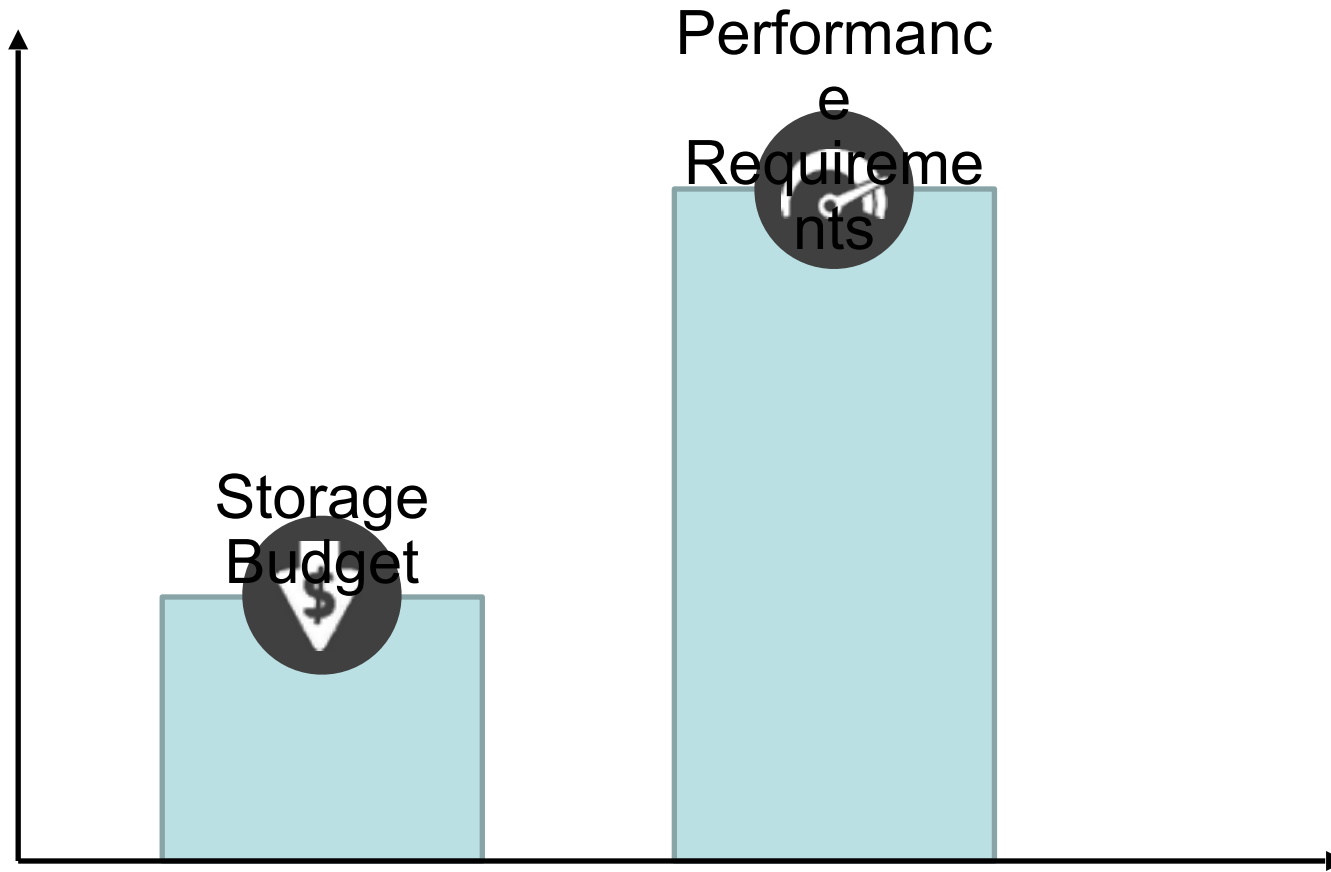




Hyperscale Use Cases for Scaling Out with Flash

- David Olszewski

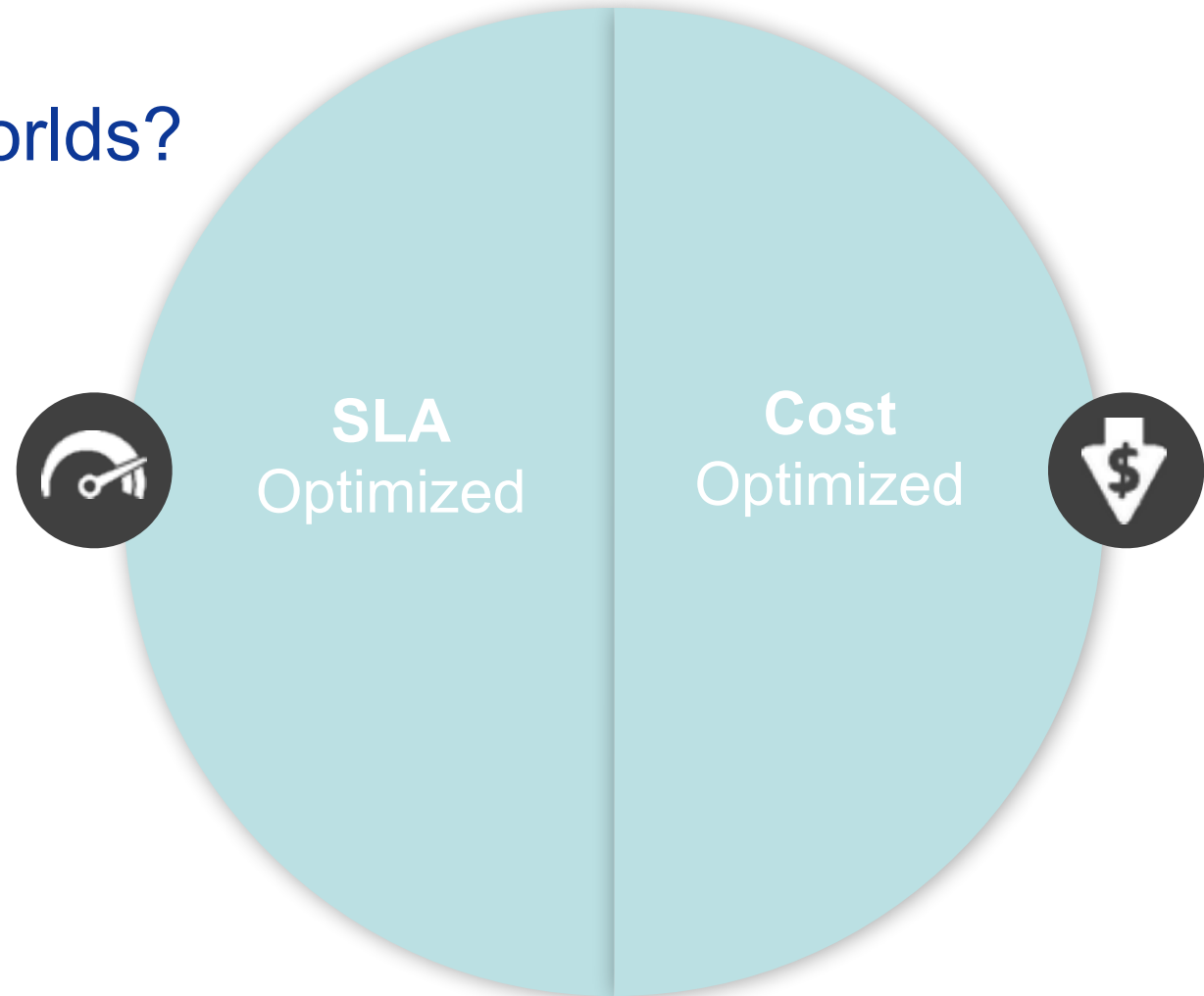
Business challenges



Balance the IT requirements

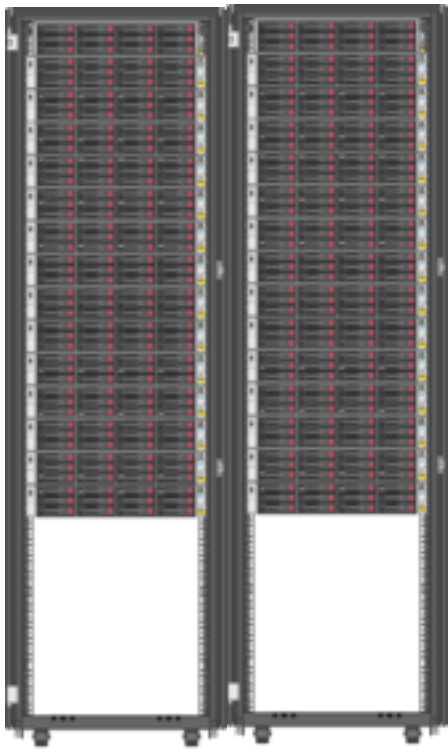
How can you get the best of both worlds?

Boost **Service Levels** with flash-optimized tier-1 storage and lower **Cost** by leveraging shared and commodity hardware.



A change to performance density

Higher performance, lower latency, with less hardware*



36 storage arrays

OR



3 hybrid servers

Stop throwing spindles at the problem:

- **Increase performance for demanding random workloads**
- **Reduce cost, rack space, and power consumption vs HDD**
 - 93% less power consumption
 - 90% less rack space

*Comparison based on 8K OLTP workload on 4335 SSD tier

So why is Software-Defined Storage taking off?



Abundance of CPU
power x86 Servers



80% of server
workloads now
Virtualized



Flash Disks





Server development boosts software-defined capabilities

Latest storage testing of newest Intel Xeon E5 v3 processors

4X

*•Increase of VDI users
and storage performance!*

1.8X

*•Increase with OLTP
workloads
and 50% reduction in
latency!*

Moving the same workload from previous generation Intel® Xeon® E5 v2 processor based servers to the next generation Intel® Xeon® E5 v3 processor based server platforms, as seen when utilizing the Load DynamiX workload modeling utility.

Cluster setup: 3 servers, VMware, HP StoreVirtual VSA, 2 SSDs, 4 SAS HDDs, 3.0ms latency



What is the value of Software-Defined Storage?



Economics: SDS is Hardware & Hypervisor agnostic. Any x86 server or storage platform - old or new - from any vendor for **an open pool of shared capacity**.



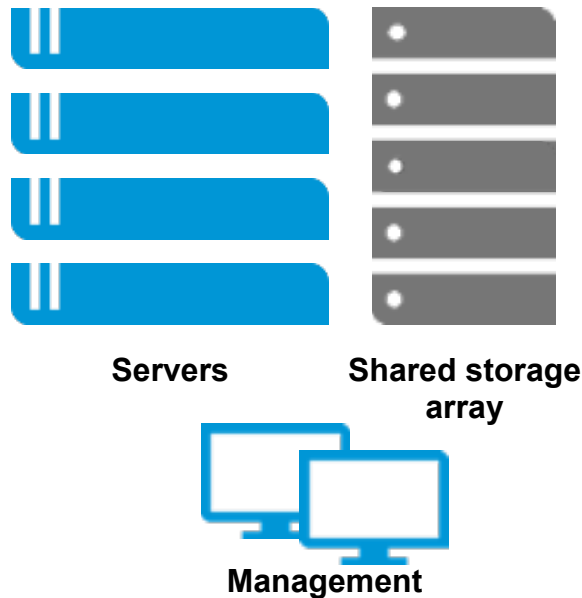
Innovation: Choose the latest components to **best fit for your workload** - from hypervisor to server to storage as they come to market. Scale-out seamlessly and move data easily as your needs change.



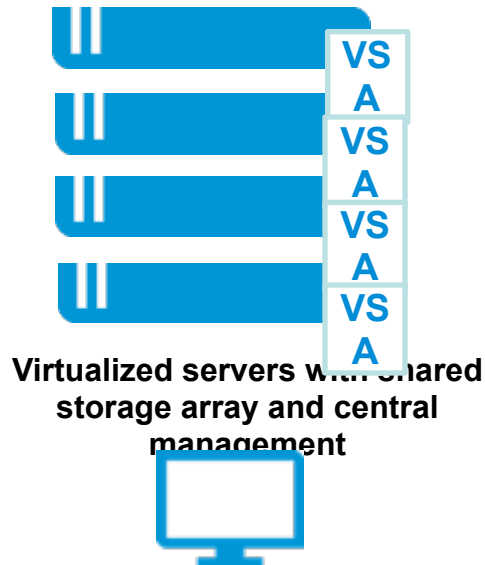
Empowerment: Co-locating applications and storage on the same machine empowers the system admin to **control the complete infrastructure stack** on which business applications run.

Transitioning IT for New Style of Business

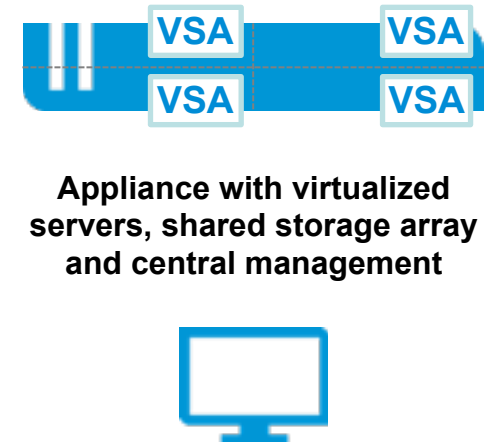
Traditional IT



Converged infrastructure



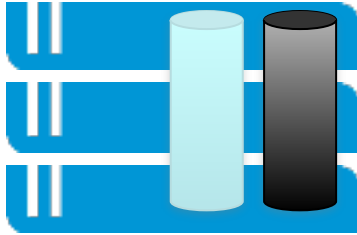
Hyper-converged



Converging the Infrastructure reduces cost, complexity and management



Turn servers into fully featured, highly available arrays



Create shared storage on any x86 server with VMware vSphere, Microsoft Hyper-V or KVM

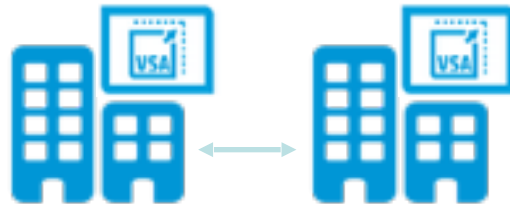
Homogenous pool with iSCSI connectivity

Move data across the infrastructure – tiers, locations, virtual or physical storage



Protect data with availability zones – across racks, floors, sites

Change replication levels on-the-fly

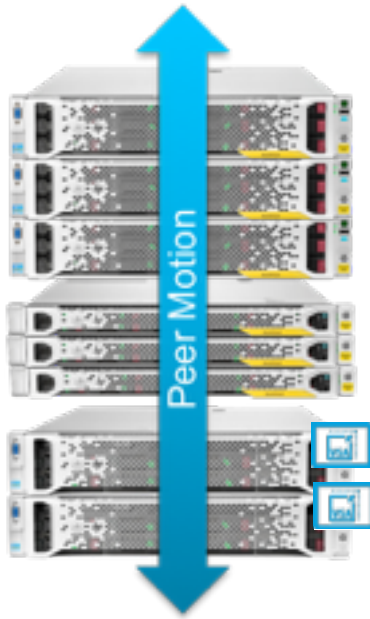




Building the solution

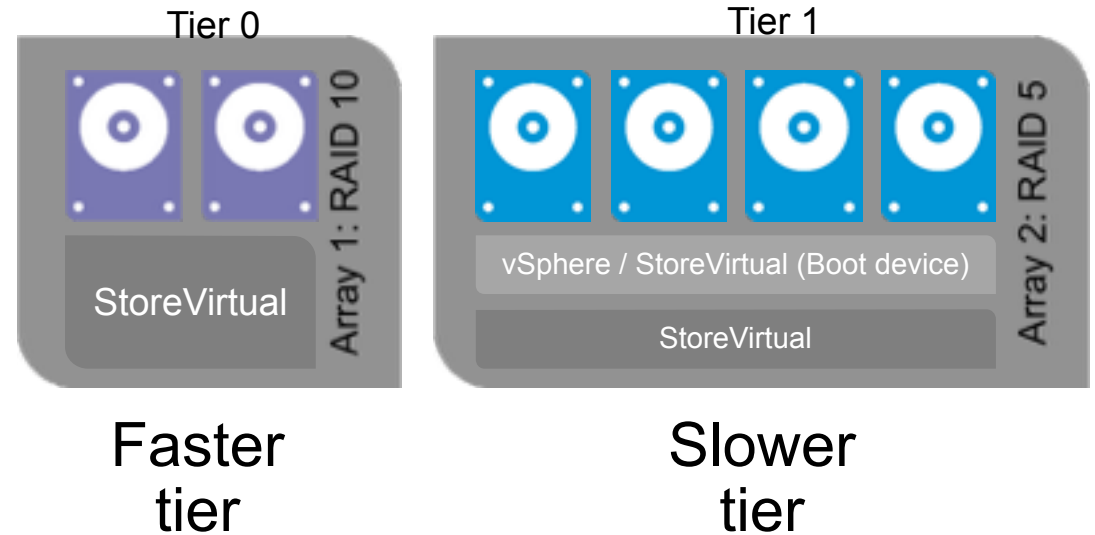
Tiers vs Hybrid solutions

Multiple tiers – design the server with media to match the workload



Hybrid solution – 2 or more types of media with automation

Choose PCIe, SSD, SAS, MDL SAS as tiers
Automated movement from Tier 1 to Tier 0





Seamless and non-disruptive data mobility

Investment protection without disruption

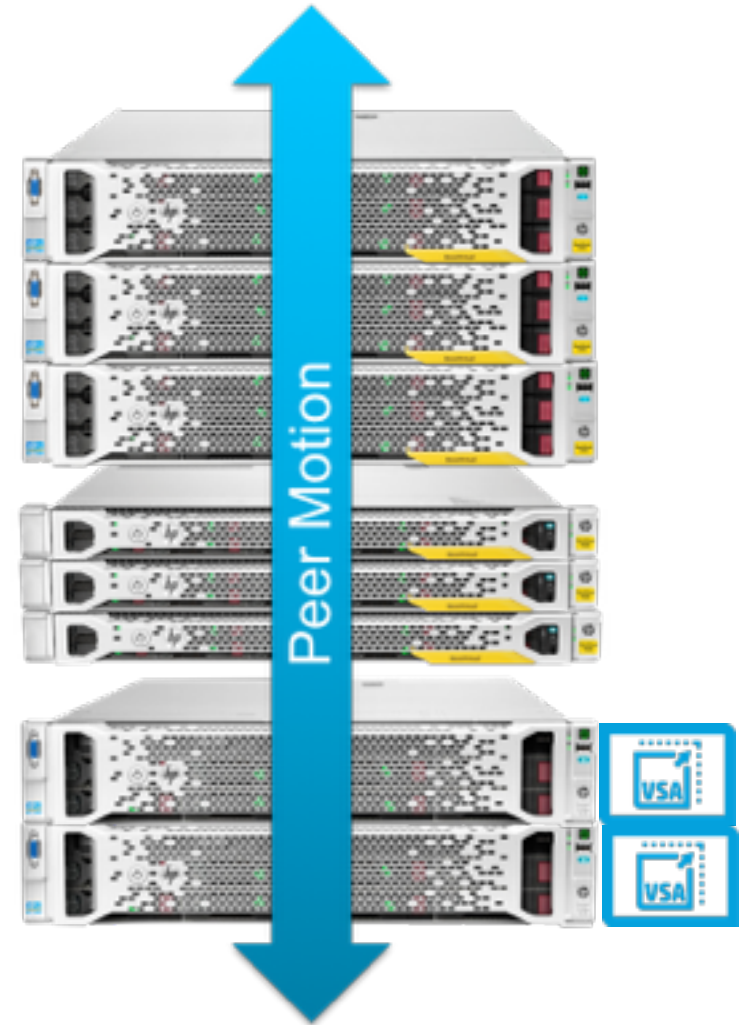
Peer Motion – federated data mobility

Move volumes seamlessly between

- Storage systems
- Clusters
- Locations
- Disk types
- Form factors
- Different generations
- Physical and virtual platforms

In a matter of minutes swap out/in entire clusters for non-disruptive technology upgrade

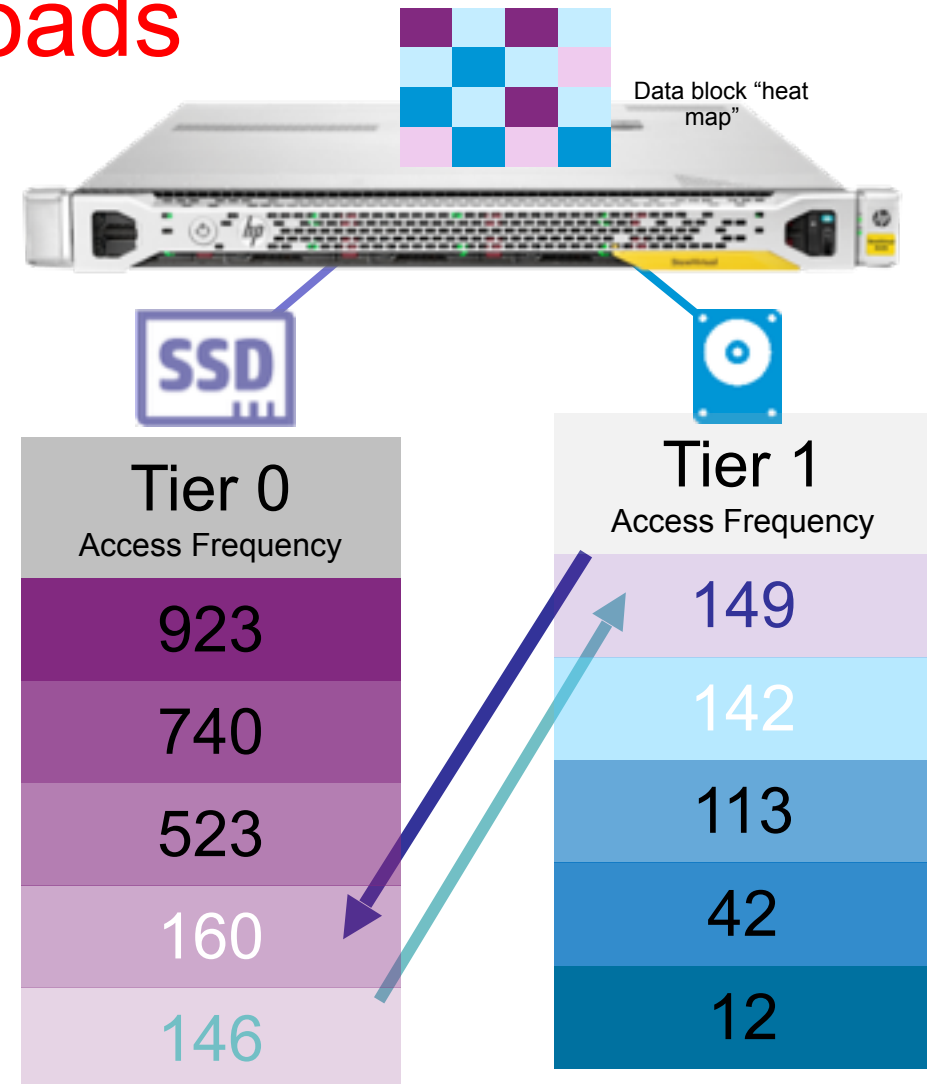
All data remains online and available





Automated tiering for changing and unpredictable workloads

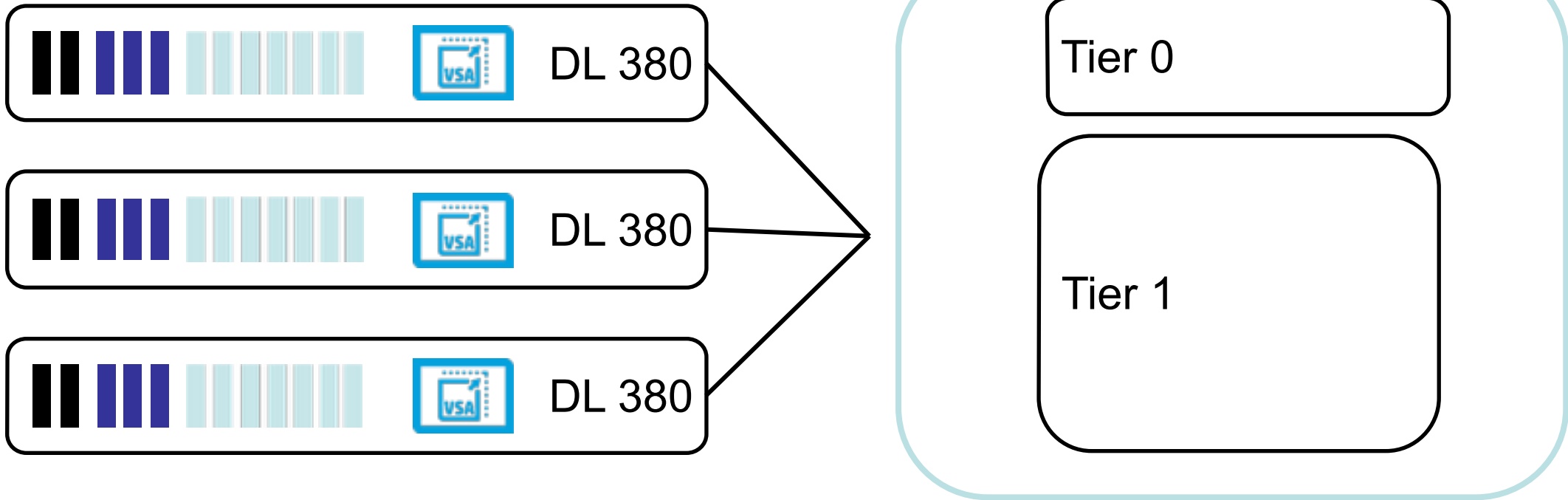
- Dynamic movement between two storage tiers for
- Granular and efficient movement of data at sub-age level
- Maintain “heat map” for blocks on all tiered vols
 - Frequently accessed blocks are promoted to Tier 0
 - Less frequently accessed blocks moved to Tier 1
 - Intelligently avoids contention between application IO and internal data movement





Software Defined Storage – StoreVirtual VSA

StoreVirtual VSA Cluster



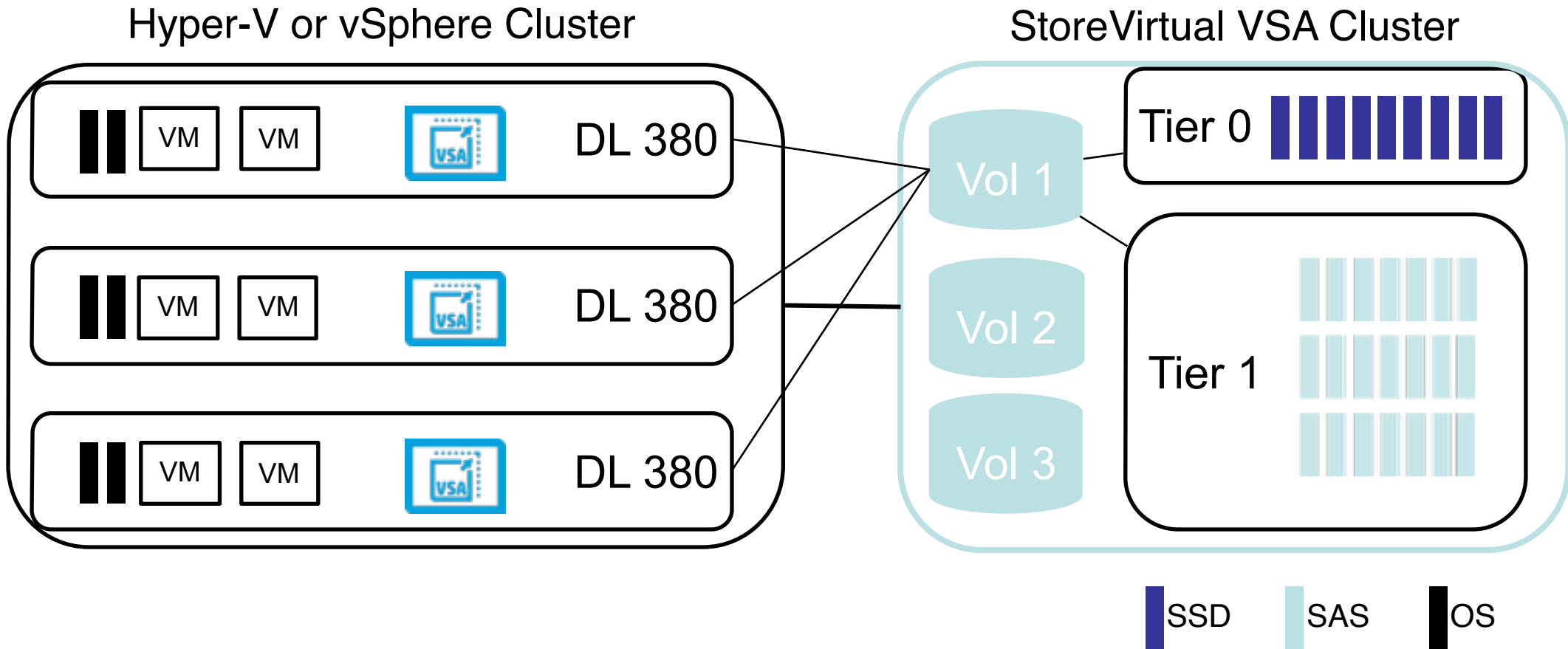
Creating a shared storage pool

SSD SAS OS



Software Defined Storage – StoreVirtual VSA

Building a server cluster



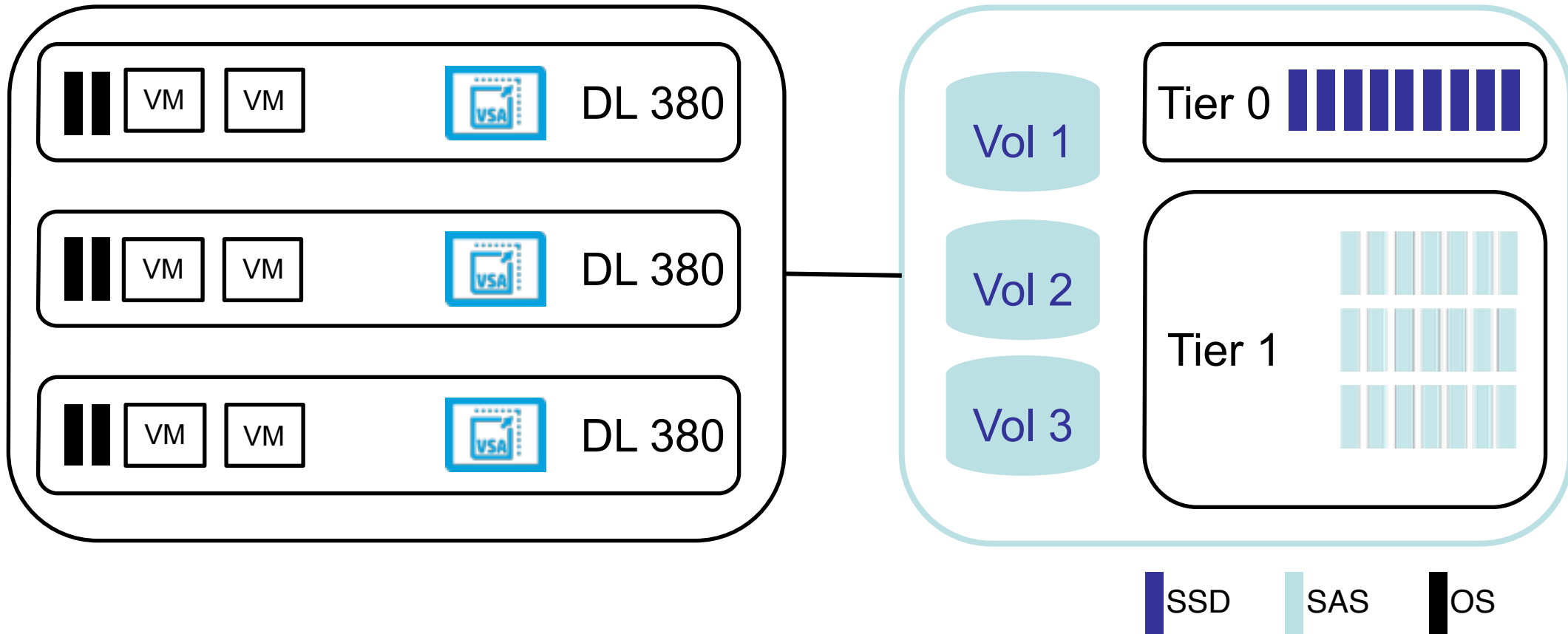


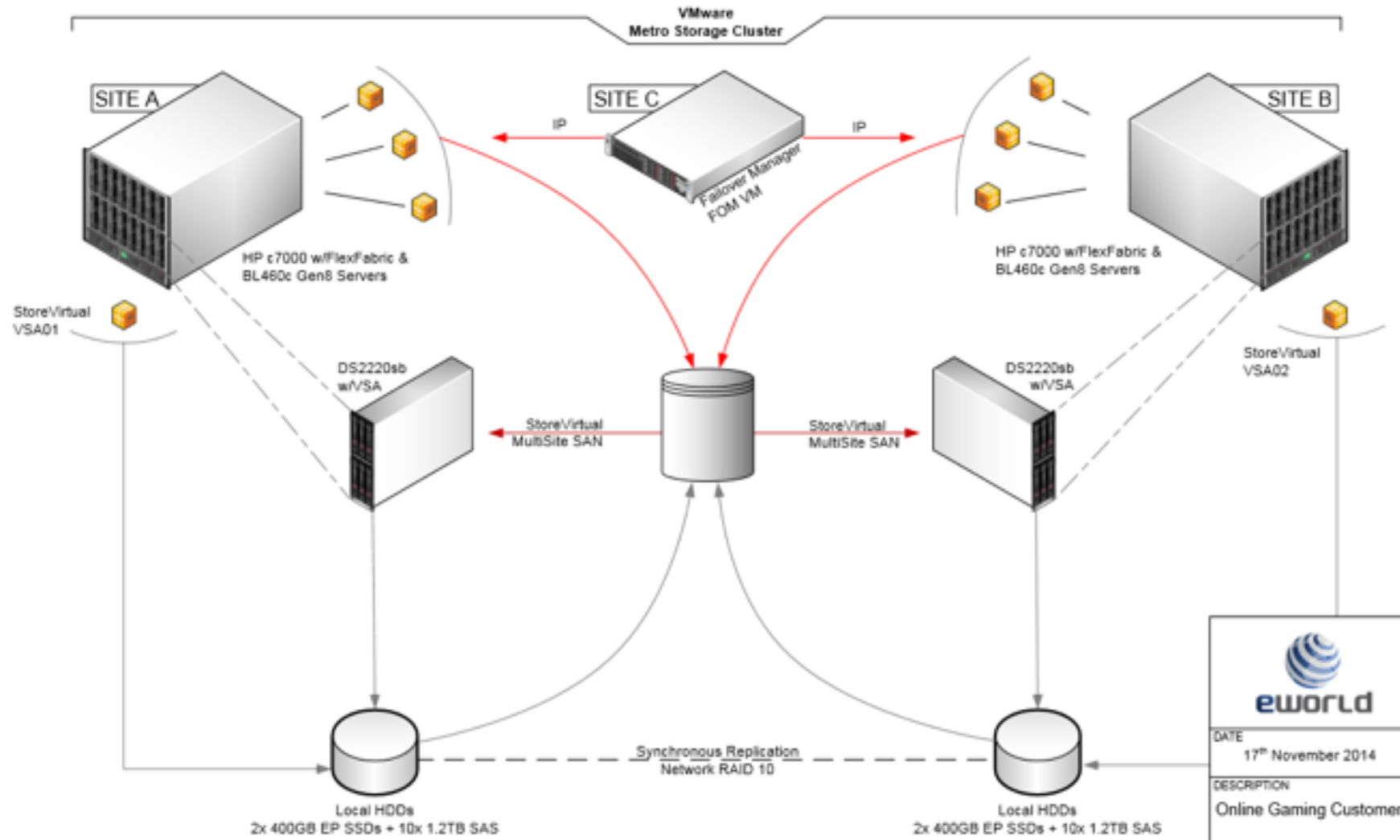
Software Defined Storage – StoreVirtual VSA

High Availability

Hyper-V or vSphere Cluster

StoreVirtual VSA Cluster



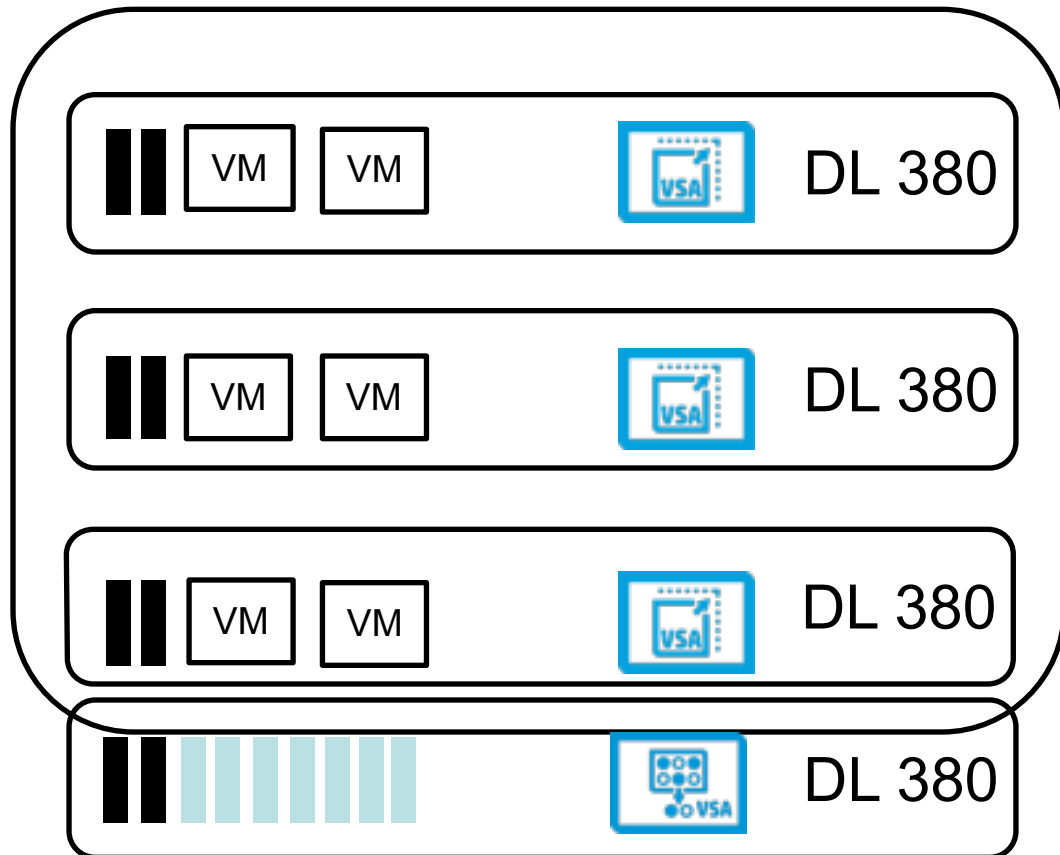


	
DATE	17 th November 2014
DESCRIPTION	Online Gaming Customer
SOLUTION ARCHITECT	Nuno Fernandes
DESIGN	Keith Muscat

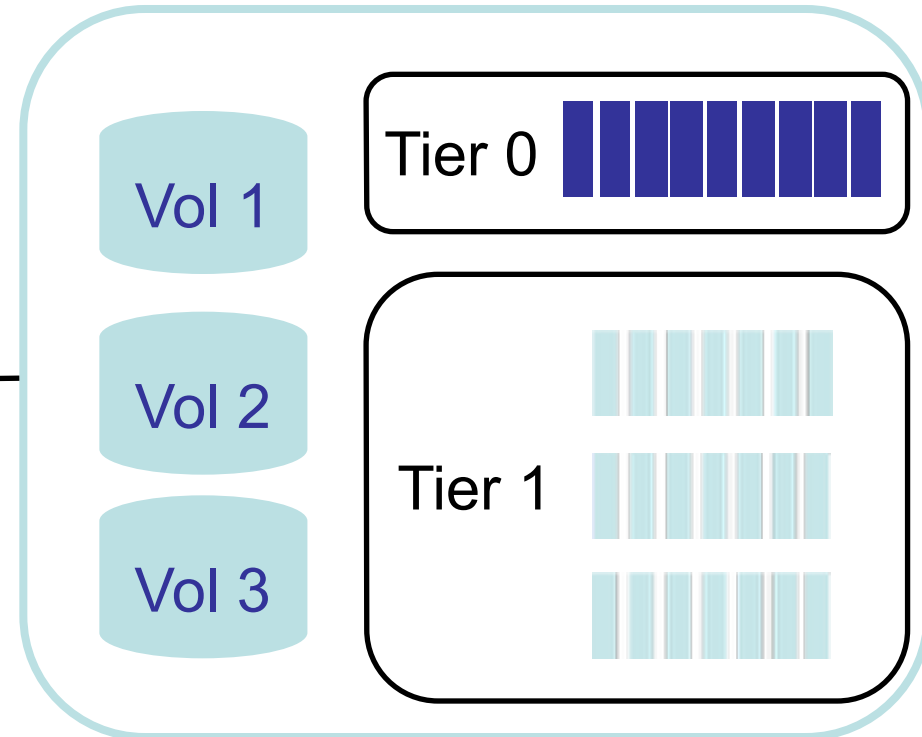
Software-Defined Storage

Adding Backup to the environment

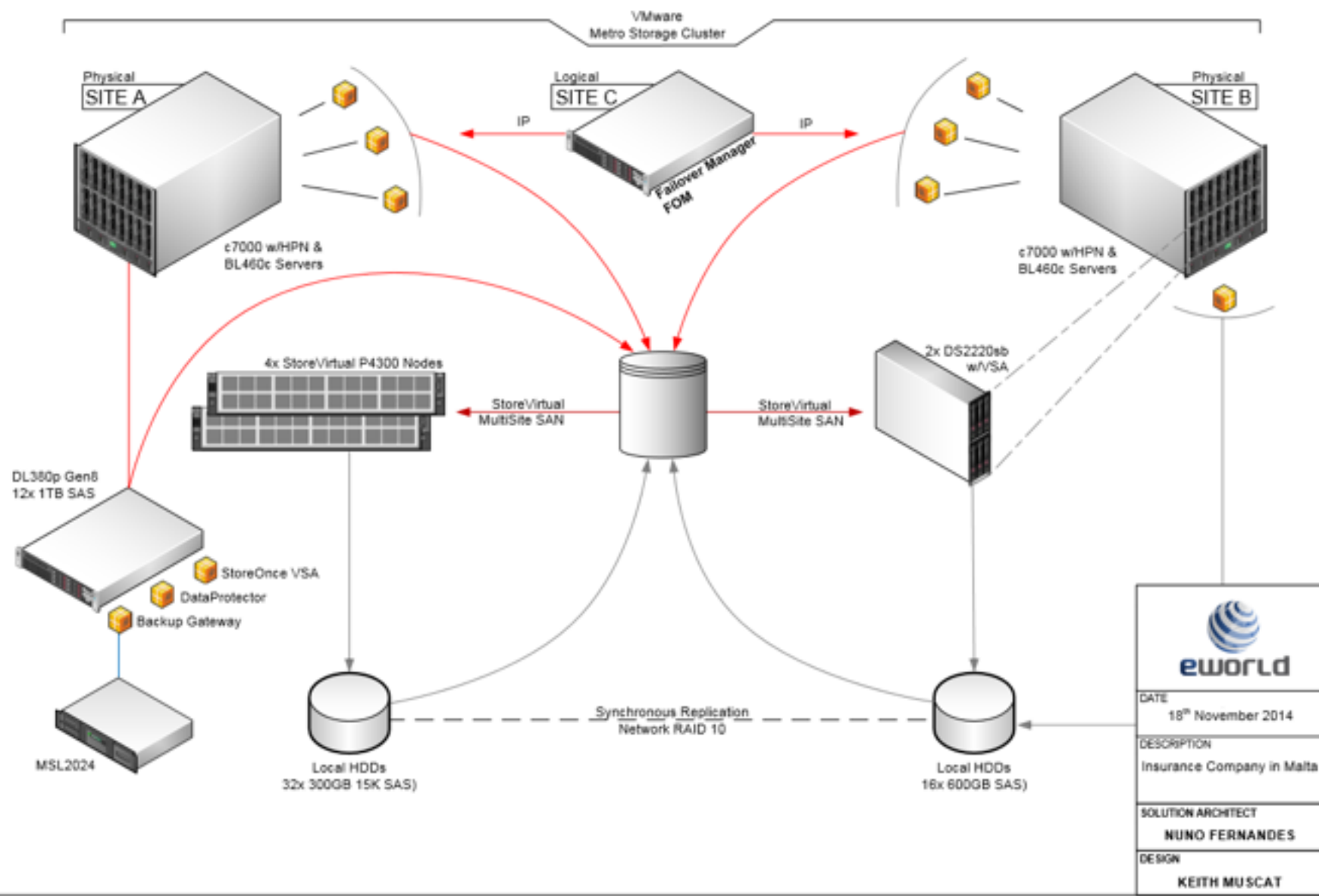
Hyper-V or vSphere Cluster



StoreVirtual VSA Cluster



SSD SAS OS



	
DATE	18 th November 2014
DESCRIPTION	Insurance Company in Malta
SOLUTION ARCHITECT	NUNO FERNANDES
DESIGN	KEITH MUSCAT



Hyper-converged scale-out

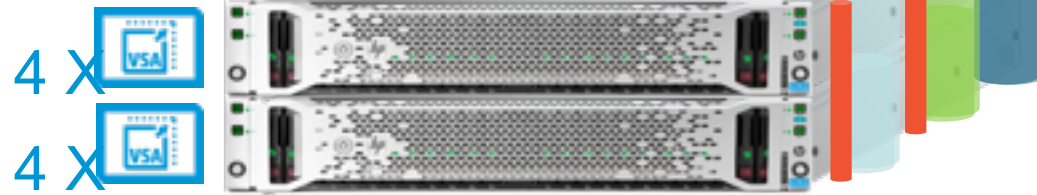
Hyper-converged platform with 4 server nodes

Networking

10 GbE ToR Switches

Virtual machines and applications reside on all hyper-converged systems.

- Compact form-factor
- Powerful compute and storage
- Redundant 10GbE networking



Adaptive Optimization Tier 0



Central Management

Scale-out Compute/Storage



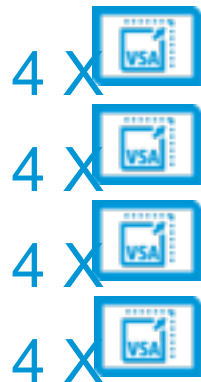
Hyper-converged scale-out

Hyper-converged platform with 4 server nodes

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Adaptive Optimization Tier 0

Networking

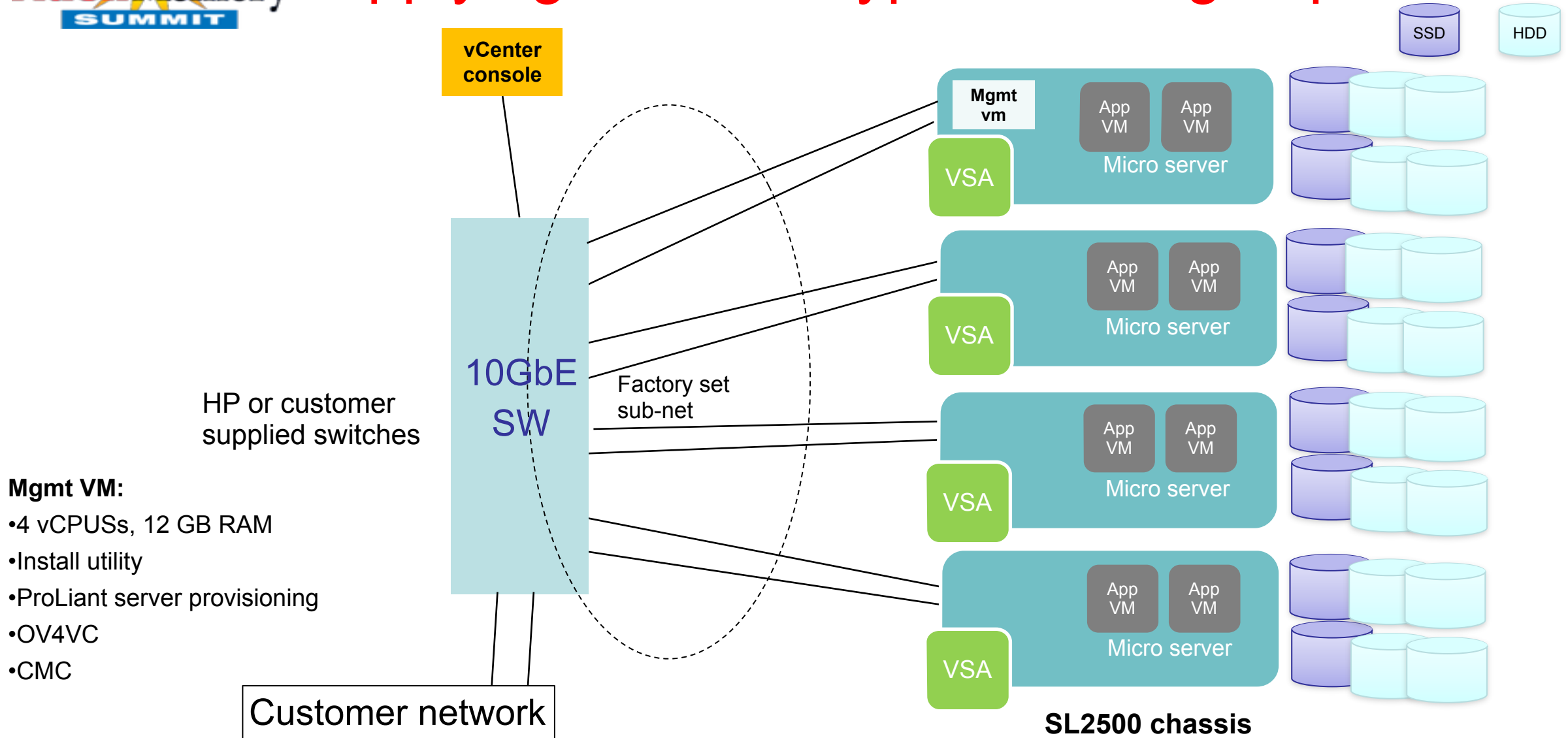
10 GbE ToR Switches



Central Management

Scale-out Compute/Storage

Applying this to a hyper-converged platform





HP StoreVirtual VSA: Unlock your server's capacity

Gain resilient shared storage with Intel-based servers and StoreVirtual VSA



ProLiant Servers + Virtualized Servers

= Intel VSA

Shared storage **inside** your server

Up to
↓ 80%



Lower capital investment

Up to
↓ 50%



Less physical footprint

Up to
↓ 60%



Reduce energy costs



Thank you!

google search: StoreVirtual free 1TB

to get your free 1 TB license for StoreVirtual