

# HP StoreOnce VSA and StoreVirtual VSA - Software Defined Storage



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# HP StoreVirtual 4000 VSA



# Best-in-class storage for virtualization

Introducing the **NEW** HP StoreVirtual 4000 Storage

Simple

Scalable

Highly Available



StoreVirtual VSA



StoreVirtual 4130



StoreVirtual 4330



StoreVirtual 4530



StoreVirtual 4730



StoreVirtual 4630



# Clustered Storage Architecture

Buy for today, and then scale with demand

## Start with today's needs

Use storage nodes to build clusters

Leverage all critical resources

Industry standard platforms

10 GbE available

## Grow as needed

Scale performance and capacity linearly

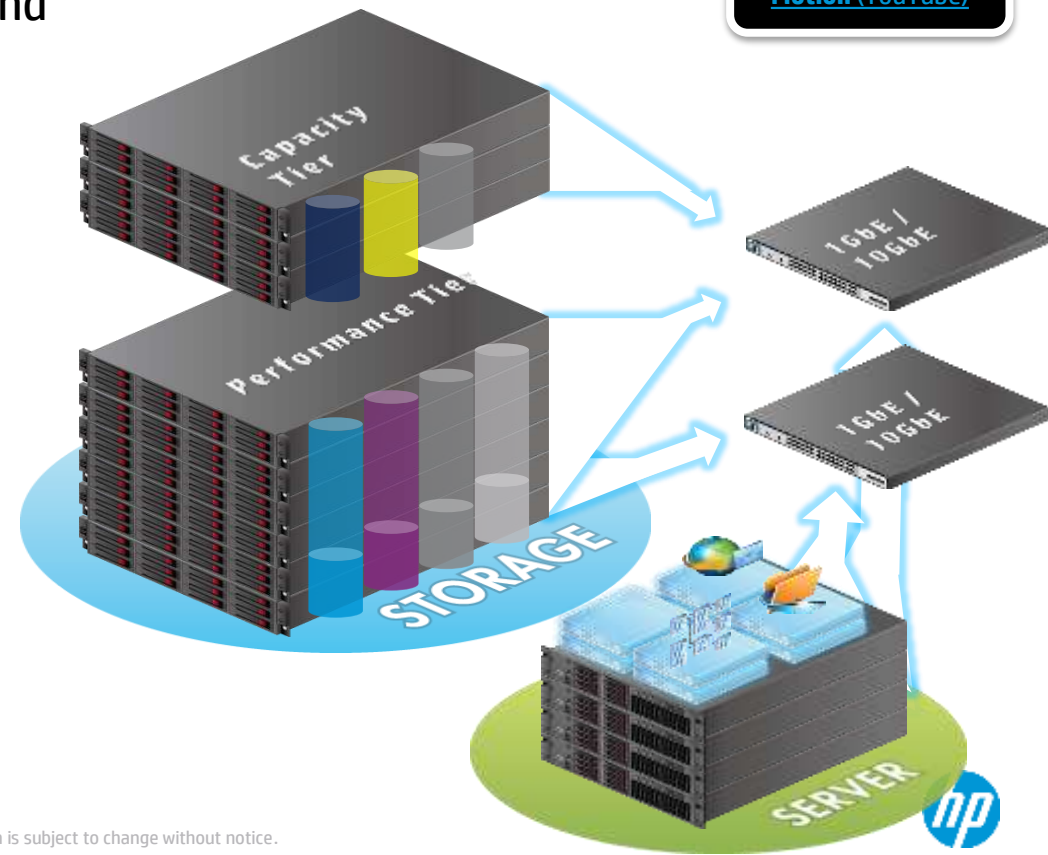
Storage grows online

## Multi-tiered environments

SAS and MDL SAS clusters

Peer Motion: Migrate data online between clusters

[Intro to Peer-Motion \(YouTube\)](#)



# Network RAID

Always on storage, data remains online during human, power, rack, network or component failures

## High availability for storage

Would you use disk RAID 0 for your data?

Stripping across arrays w/out protection is just as careless!

## Protect data from any SPOF including the array

RAID 10 (Mirroring)

- Mixed workloads (email, DB, virtualization)
- Can lose up to half of nodes and data remains available

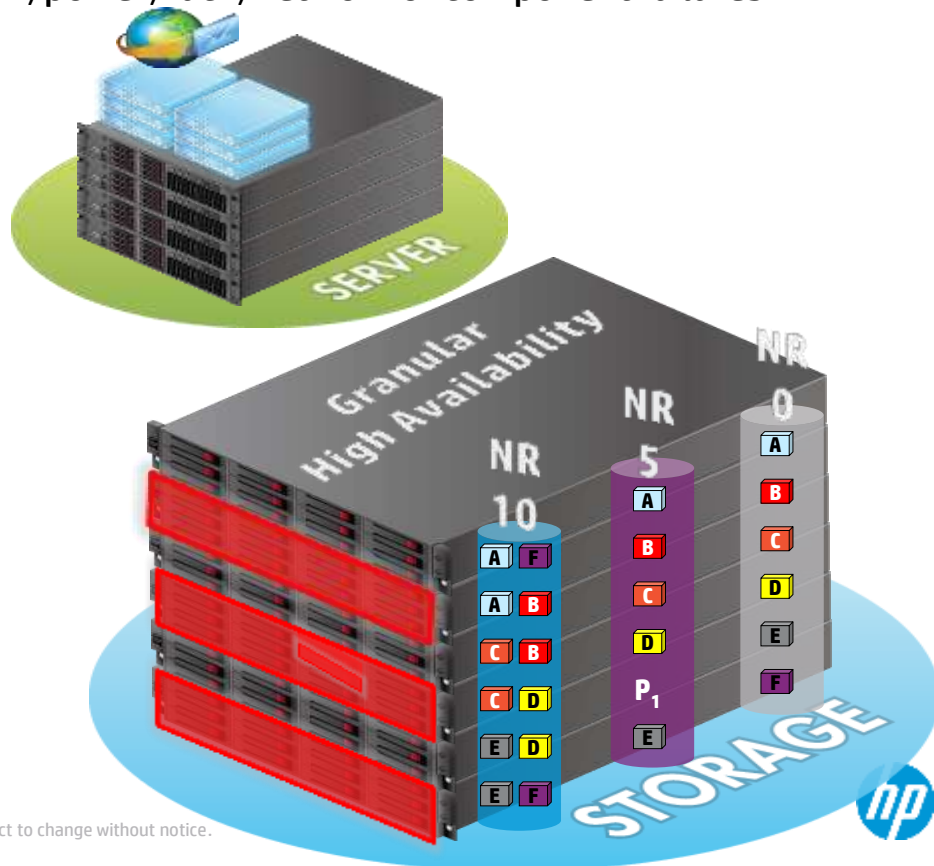
RAID 5 and 6 (Parity Based)

- Read intensive workloads (file shares)

## Storage is as HA as the VMs

Volume level granularity

Change Network RAID levels on-the-fly



# Real-time protection from site failure

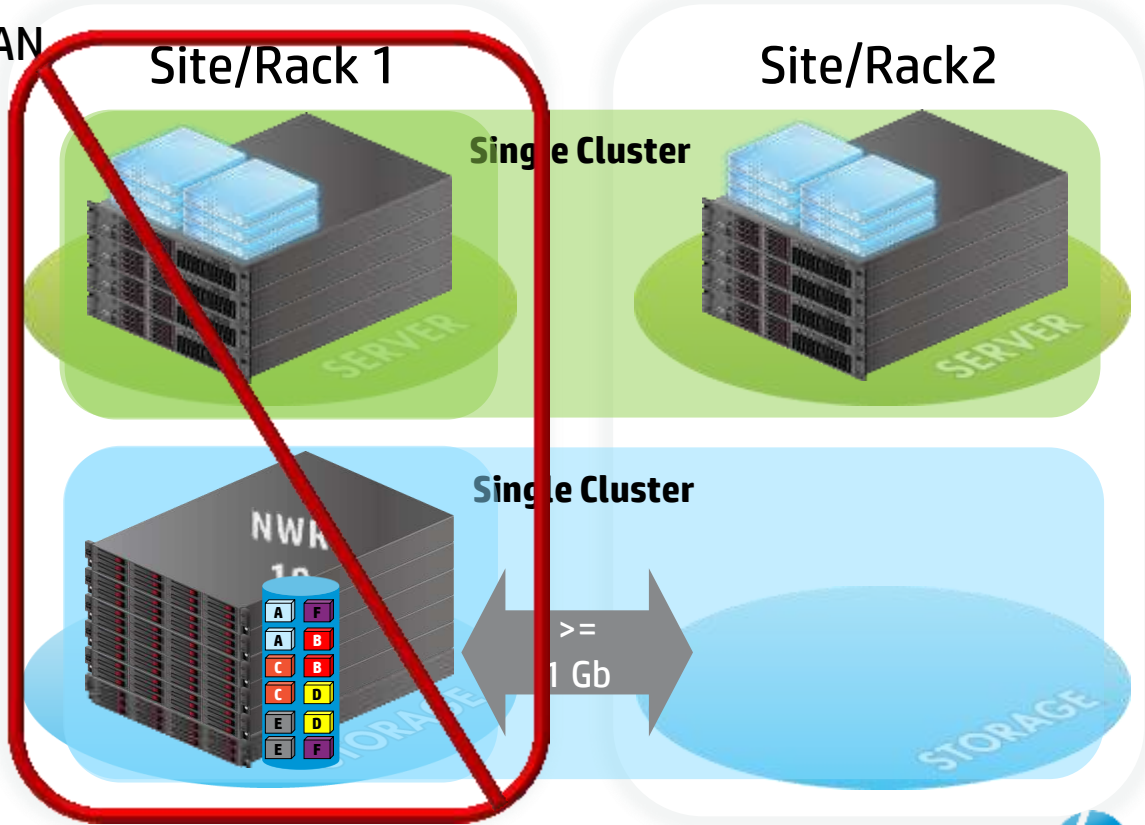
## HP StoreVirtual 4000 Multi-site SAN

### Physical separation for protection from

- Component failure
- Node Failure
- Rack failure
- Building failure

### The next level of high availability for virtualized environments

- All NR10 volumes are online and accessible simultaneously at both sites
- Separate both storage and VMs for maximum protection
- Volumes and VMs remain online in the event of a site failure
- Volumes automatically re-synch after failed site comes back online



Single SAN stretched between two sites or racks



# HP StoreVirtual VSA

Highly available storage for smaller projects

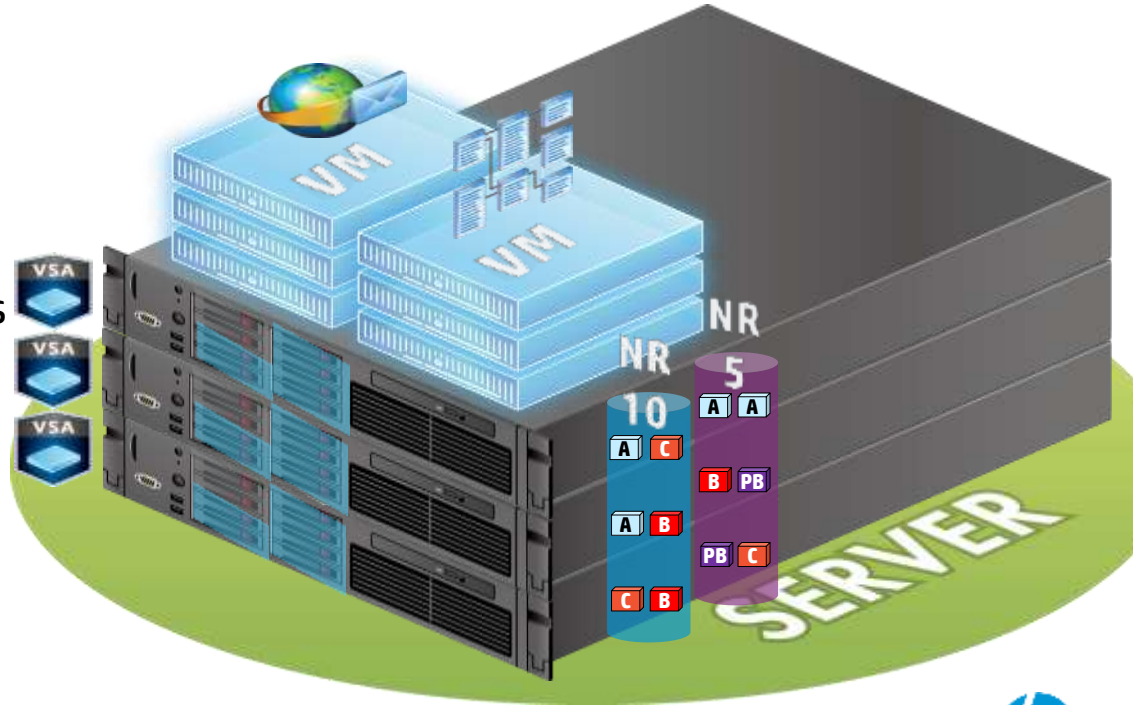
**StoreVirtual VSA for ESX/ESXi and Hyper-V**

**Fully featured**

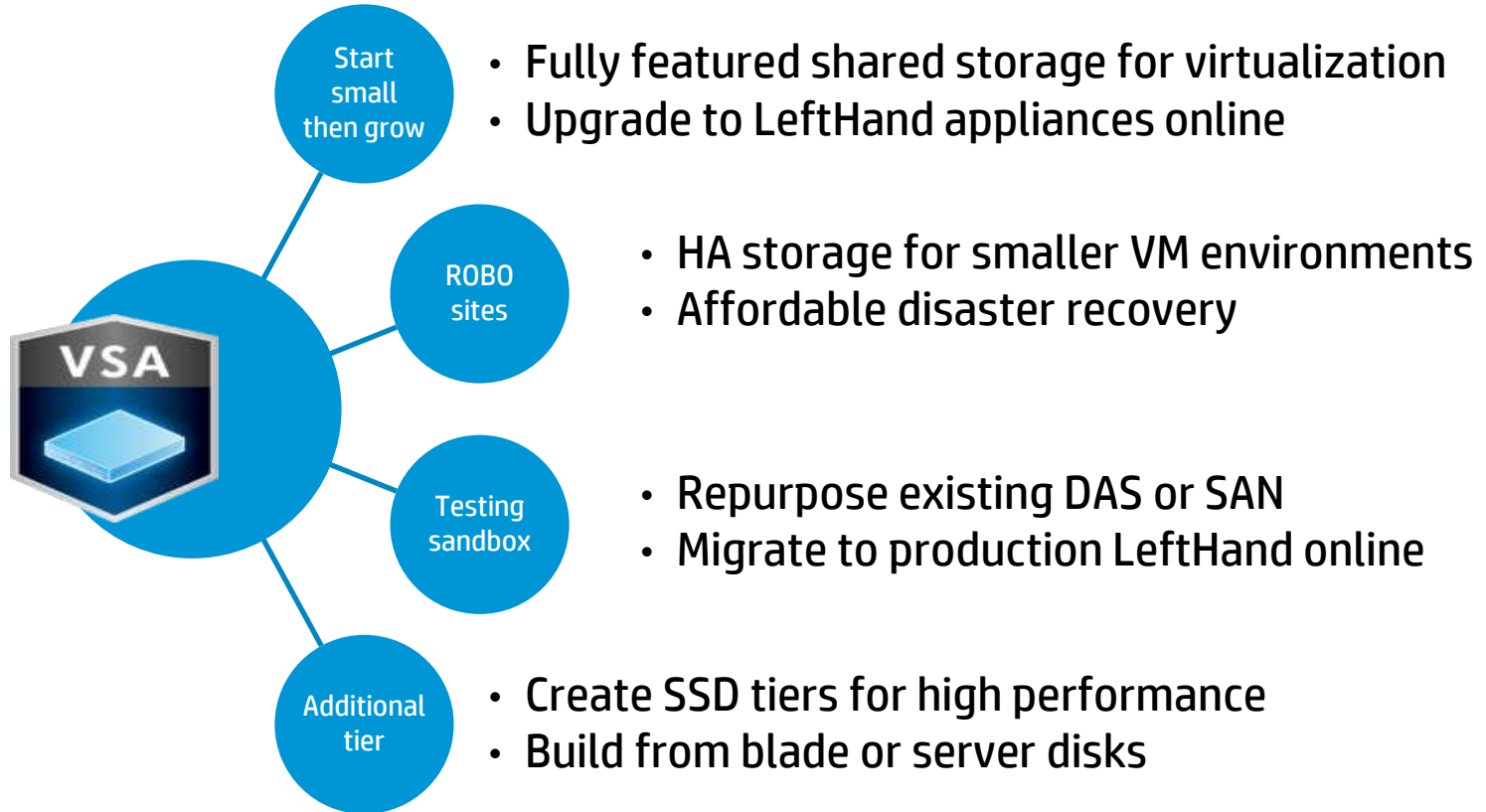
**Create highly available SANs on servers**

- Support servers listed on hypervisor's HCL
- Convert existing SAN or DAS into LeftHand storage

**Affordable HA and DR for small and/or remote site**



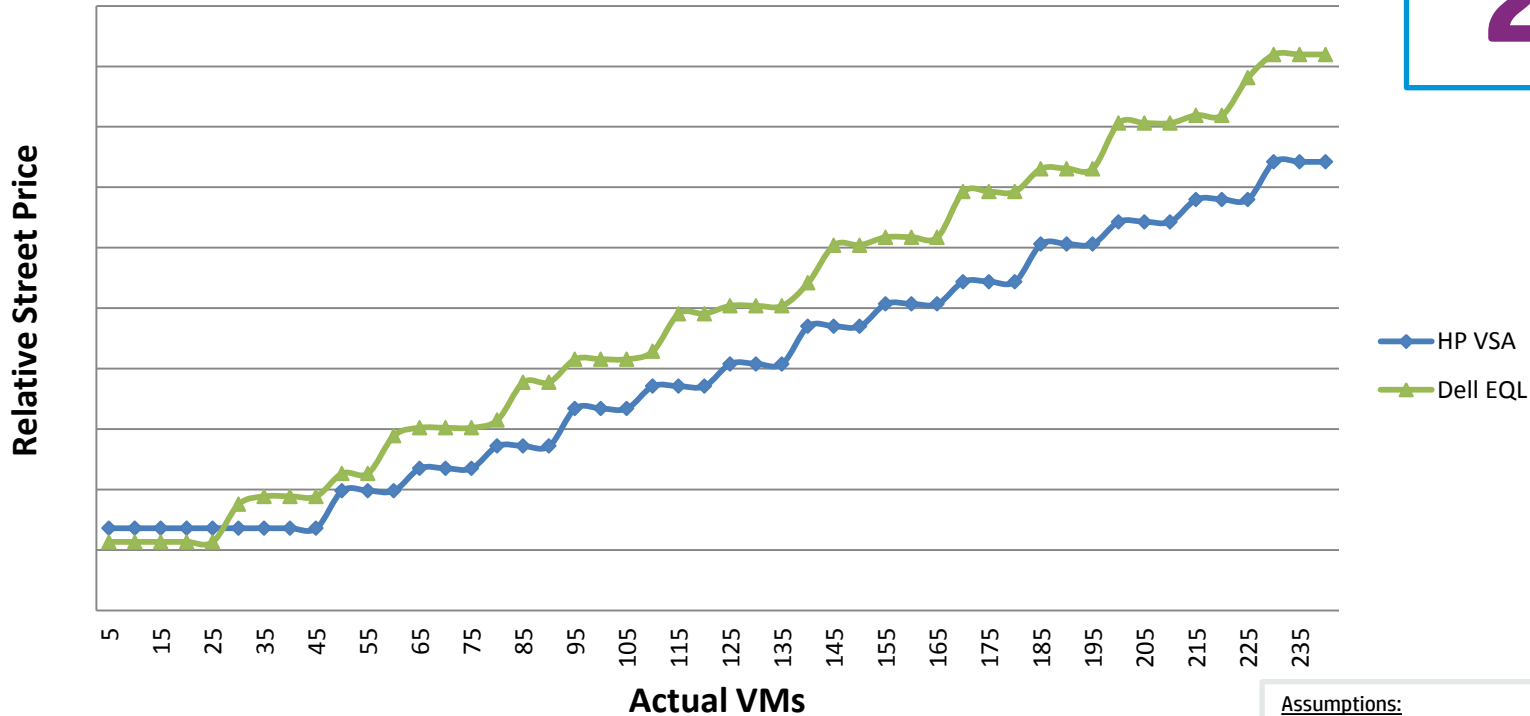
# Key use cases for StoreVirtual VSA





# Economics of VSA

## VSA Purchase Price of Growth



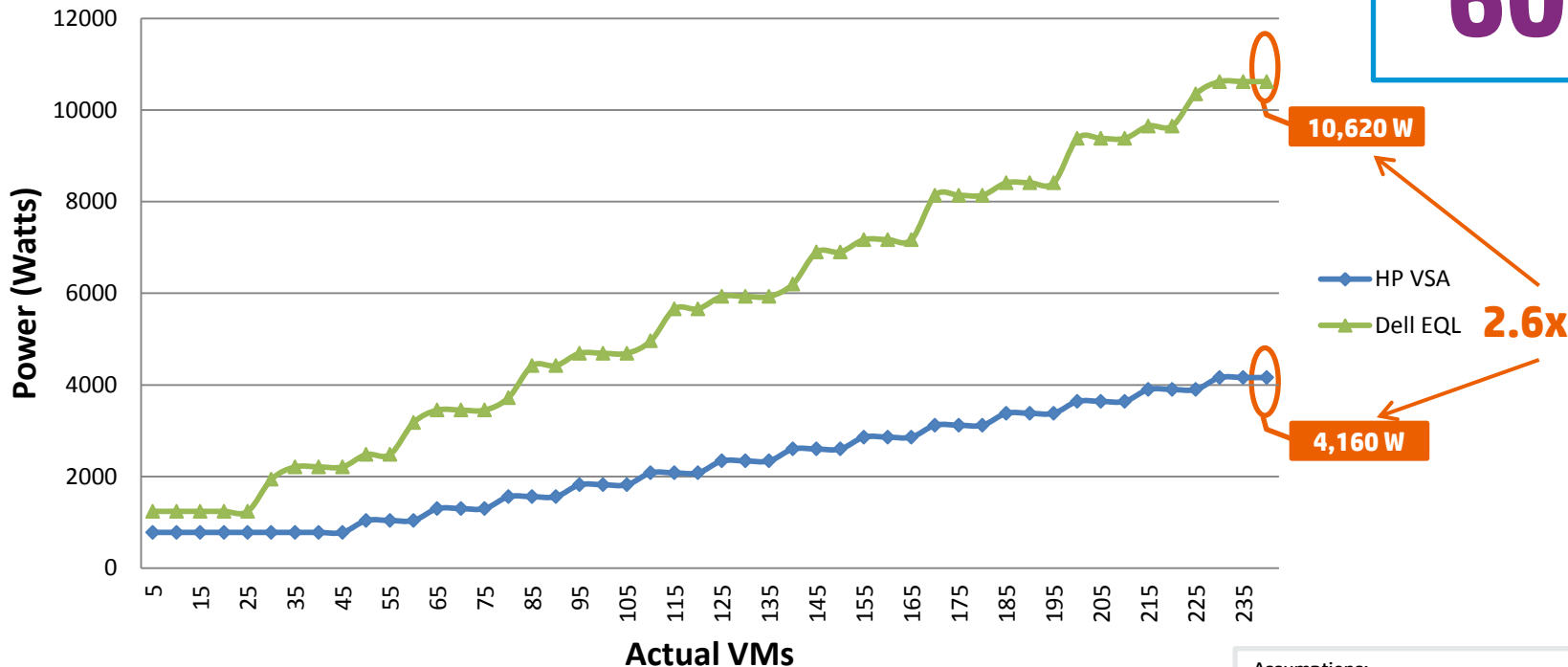
Reduce storage costs  
**20%**

- Assumptions:**
- Similar Server Configs
  - HP begins with 3 servers
  - Dell begins with 2 servers + storage array
  - 15VMs / server & 200GB per VM



# Power Savings of VSA

## VSA Power Usage



Reduce power costs  
**60%**

10,620 W

HP VSA

Dell EQL

2.6x

4,160 W

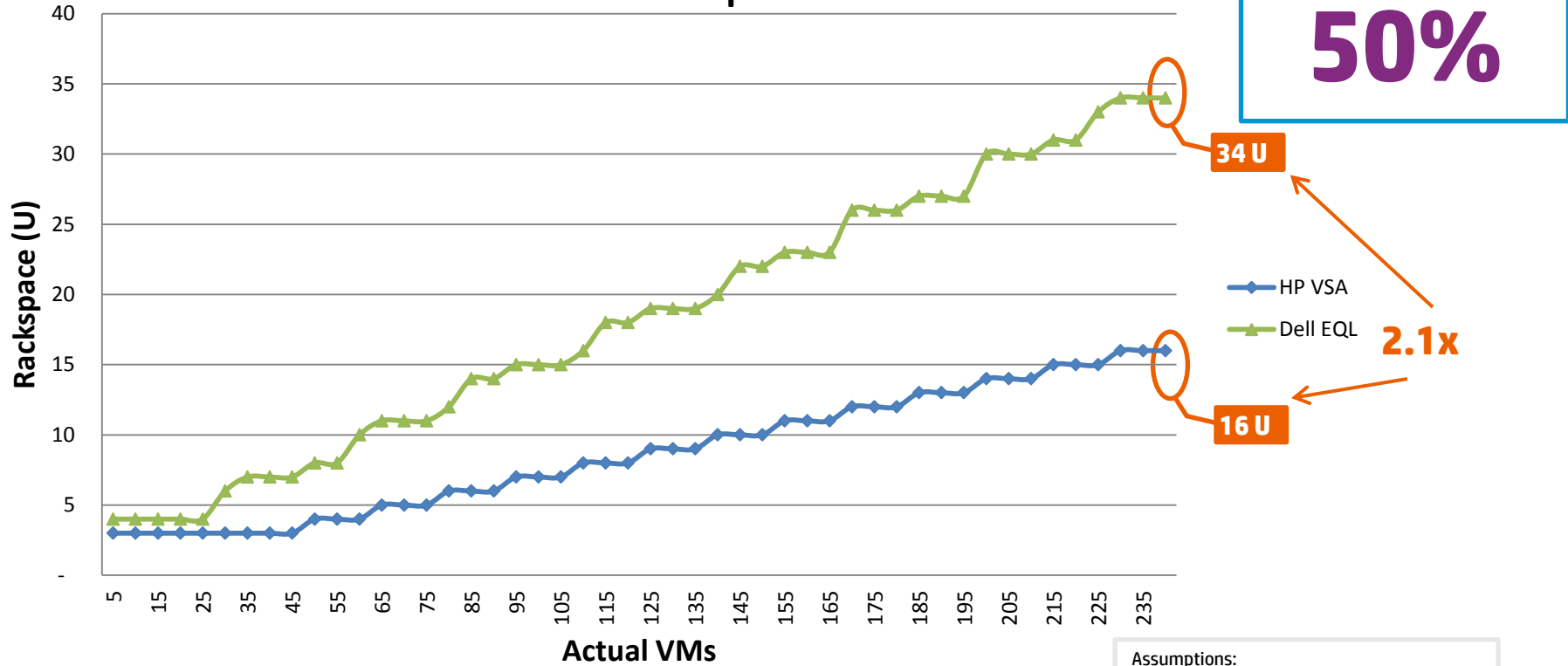
### Assumptions:

- Similar Server Configs
- HP begins with 3 servers
- Dell begins with 2 servers + storage array
- 15VMs / server & 200GB per VM



# Consolidation of VSA

## VSA Footprint



Reduce footprint  
**50%**

**34 U**

HP VSA  
Dell EQL

**2.1x**

**16 U**

Assumptions:

- Similar Server Configs
- HP begins with 3 servers
- Dell begins with 2 servers + storage array
- 15VMs / server & 200GB per VM



# HP StoreVirtual VSA 2014

What's new?

**The next generation of software-defined storage is here**

HP StoreVirtual VSA 2014 is the ideal addition to server-driven virtualization projects on HP ProLiant

- **First platform to support Adaptive Optimization**
  - Works with virtually any storage option supported on HP ProLiant servers, including SSDs with NAND-Flash
  - Up to two user configurable storage tiers
  - Balances data on volumes between tiers based on data access patterns automatically
  - Available on **10 TB license** and **50 TB license**
- **Increased I/O performance on VMware vSphere**
  - Optimized access to storage used by HP StoreVirtual VSA
  - Para-virtualized drivers boost performance



# New licensing

License types and structure

## HP StoreVirtual VSA is licensed by instance and capacity

Three capacity licenses to address various use cases

License type	Capacity licensed	Adaptive Optimization	Cluster size limit	License packs	Primary use cases
4 TB license	Up to 4 TB usable per StoreVirtual VSA	Not available	3	3 Pack	Enterprise ROBO
10 TB license	Up to 10 TB usable per StoreVirtual VSA	Yes	None	Single, 500 Pack	Server and desktop virtualization
50 TB license	Up to 50 TB usable per StoreVirtual VSA	Yes	None	Single, 300 Pack	Large tier-2 storage

All licenses come with a three year term license

Upgrades from a lower to higher capacity point are available

StoreVirtual VSA 2014 image can be installed using

- Newly issued licenses (upgrade license requires valid base license)
- Legacy licenses (same as new 10 TB license)





# HP StoreOnce VSA

StoreOnce is now virtual!

# HP StoreOnce Backup

Wherever you need data protection there's a StoreOnce platform that fits



## HP StoreOnce VSA

Service Provider, ROBO's  
SMB



## HP Data Protector

Software dedupe stores  
ROBO's



## HP StoreOnce 2600

Data Protection for small  
branch offices



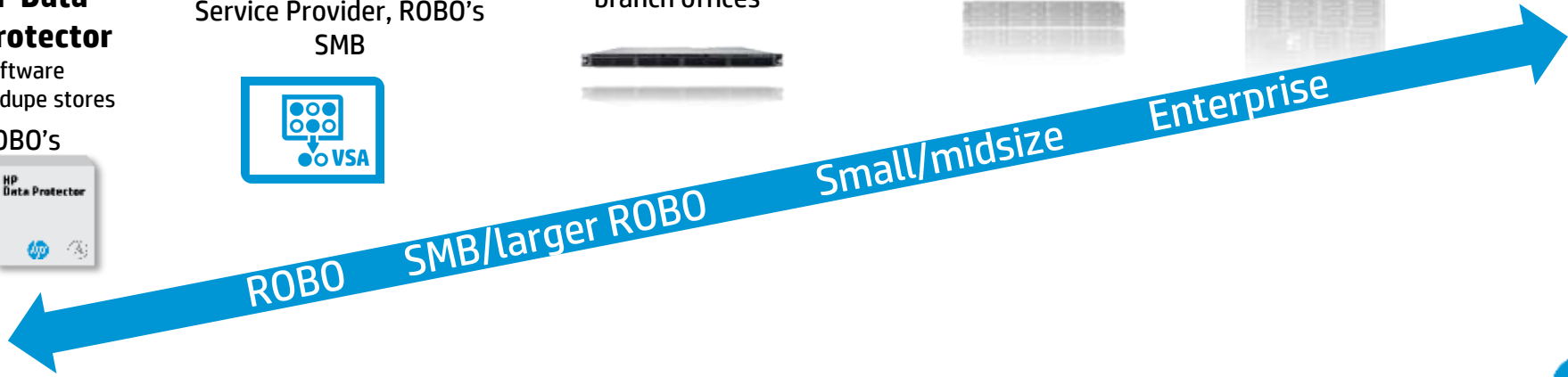
## HP StoreOnce 4200 & 4400

Data Protection for large branch  
offices and mid sized data centers



## HP StoreOnce B6200

Data Protection for  
Enterprise data centers  
and DR sites

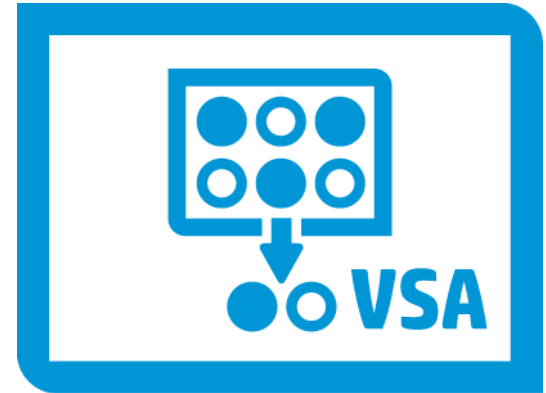


# HP StoreOnce VSA

Extension to the single federated deduplication architecture and a key component of HP's emerging Software Defined Storage portfolio

## StoreOnce VSA

- HP StoreOnce delivered as a VMware virtual appliance
- Single license enables from 1 to 10TB of usable capacity (200TB logical equivalent with >20:1 data deduplication)
- Key part of StoreOnce portfolio to deliver cost effective and comprehensive data solution for
  - ITaaS & BaaS, Enterprise ROBOs
- Centralized management using StoreOnce Enterprise manager



Try VSA free for 60 days at  
[www.hp.com/go/StoreOnceVSA](http://www.hp.com/go/StoreOnceVSA)



# What is the StoreOnce VSA

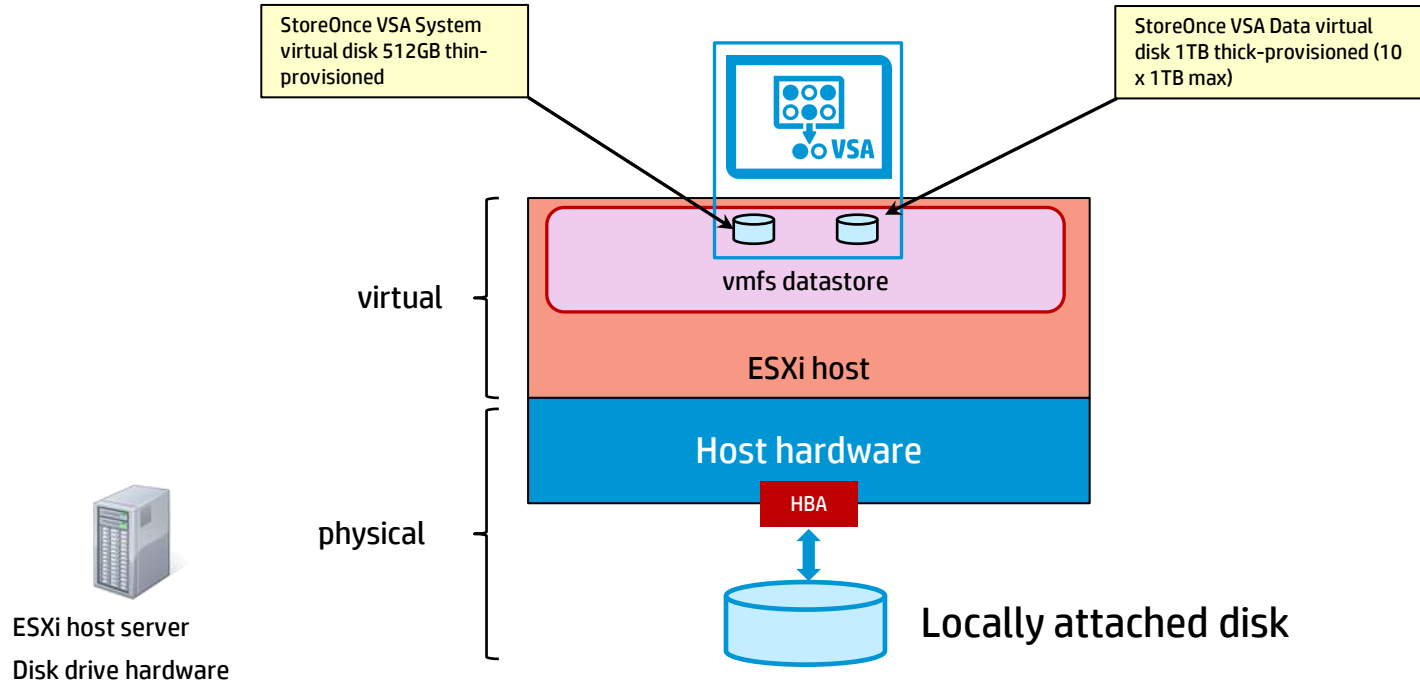
- **A software only version of the HP StoreOnce Backup System. Designed to run as a virtual machine on a VMware ESXi host.**
- **Currently supported on VMware 5.x only, with Intel Platforms.**
- **Has similar functionality and performance to a StoreOnce 2620 system.**

## **Key Benefits:**

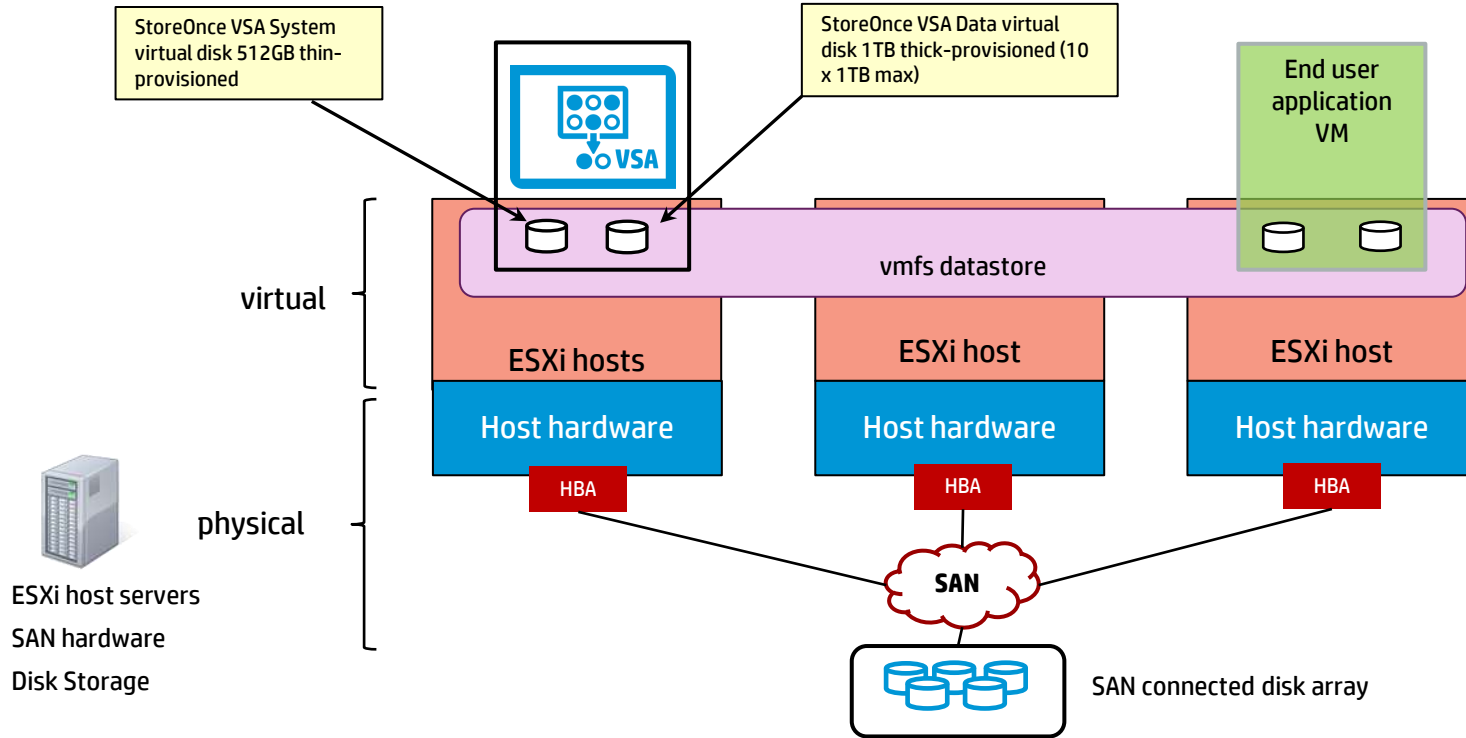
- **Removes the requirement for dedicated hardware.**
- **Scalable to meet data growth.**
- **Ideal for remote offices are 'Backup as a service'.**
- **Deduplicated Backup in virtualised environment.**



# HP StoreOnce VSA storage – local storage



# HP StoreOnce VSA storage – shared storage



# Licensing



# StoreOnce VSA Licensing

- **A single license key enables the StoreOnce VSA. The License includes both StoreOnce Catalyst and VTL/NAS replication.**
- **The license key can be installed via CLI command or System Enterprise Manager 1.0 (SEM).**
- **Use CLI command 'license add << license string>>**
- **Licenses keys are obtained in the usual way via [webware.hp.com](http://webware.hp.com)**
- **There is an 'instant on' license provided free of charge which is valid for the first 60 days. On expiry any stores created become read-only.**
- **The licensed capacity is 10TB maximum (1TB increments).**
- **The license runs for 3 years and includes any updates. It is intended that extension licenses will be available.**



# Performance



# StoreOnce VSA Write performance MB/s (adjusted for mature store as used in Sizer tool)

	HK	Performance MB/S															
# streams		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Write VTL	600	39	48	61	70	79	83	85	88	88	88	88	88	88	88	88	88
Write NAS (CIFS)	420	34	41	53	60	68	71	73	75	75	75	75	75	75	75	75	75
Catalyst LB	420	79	96	123	140	158	166	170	175	175	175	175	175	175	175	175	175
Catalyst HB	420	39	48	61	70	79	83	85	88	88	88	88	88	88	88	88	88

- Read performance very nearly equal to write.
- Tests conducted on running ESX5.1 on E5620 4-core CPU running at 2.4GHz (32GB RAM)



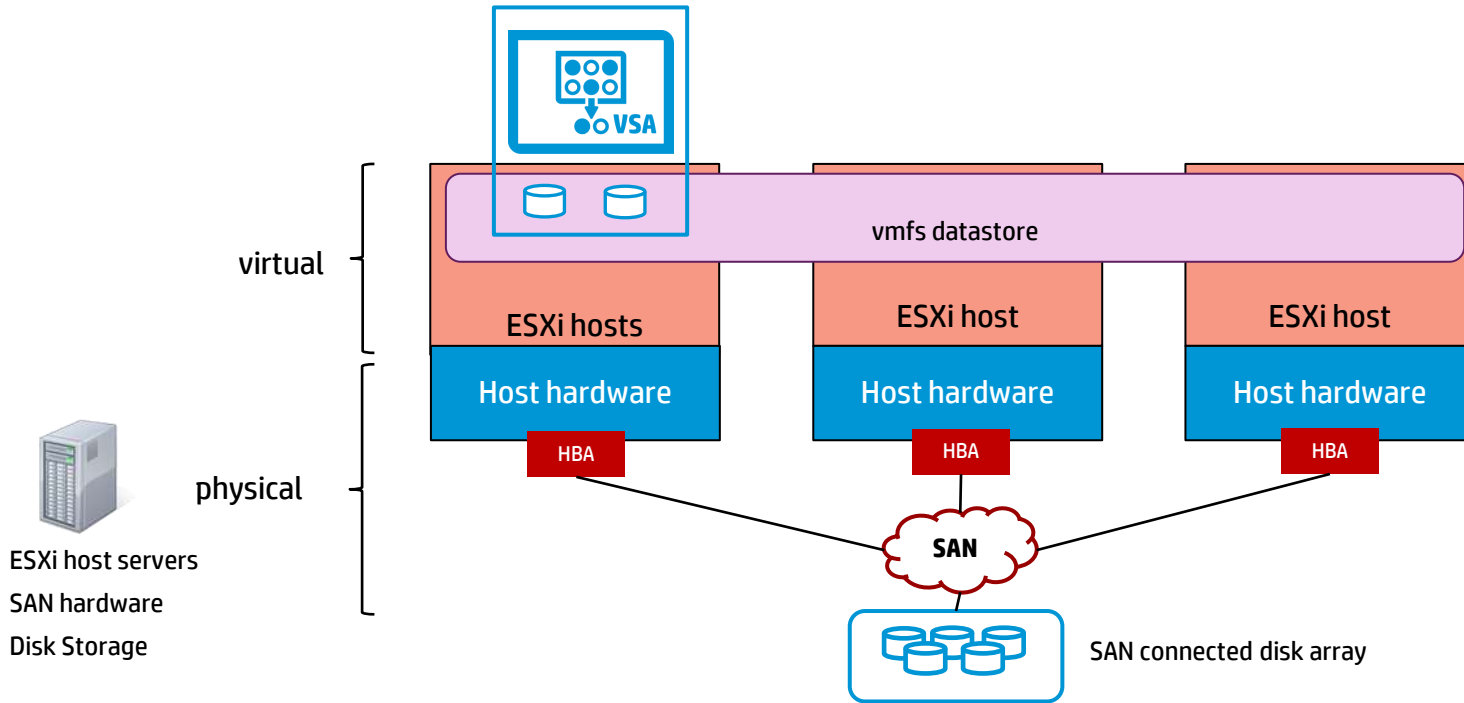
# vMotion





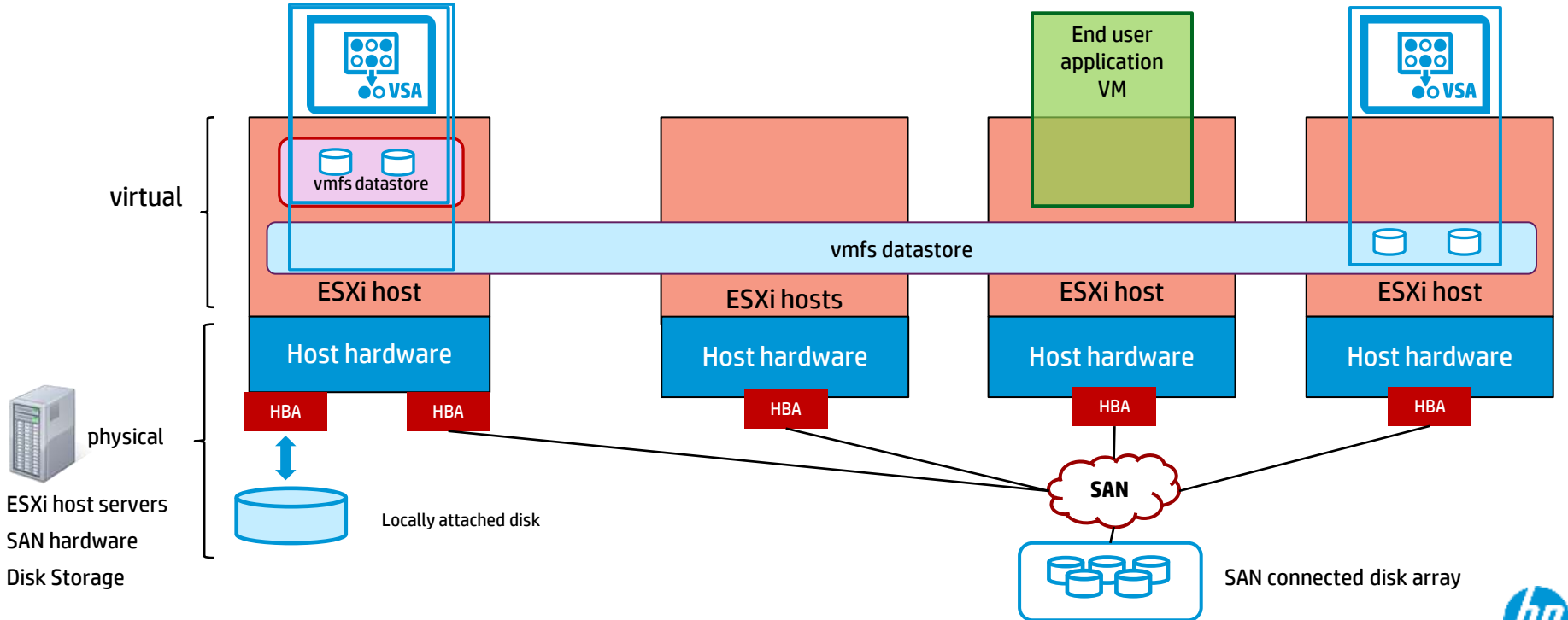
# HP StoreOnce VSA vMotion. Host migration

Host must have access to the same data store. VSA will remain active!



# HP StoreOnce VSA vMotion. Storage migration

- Host must have access to both data stores. VSA will remain active!



# Software Defined Storage for Remote Office Storage Unification



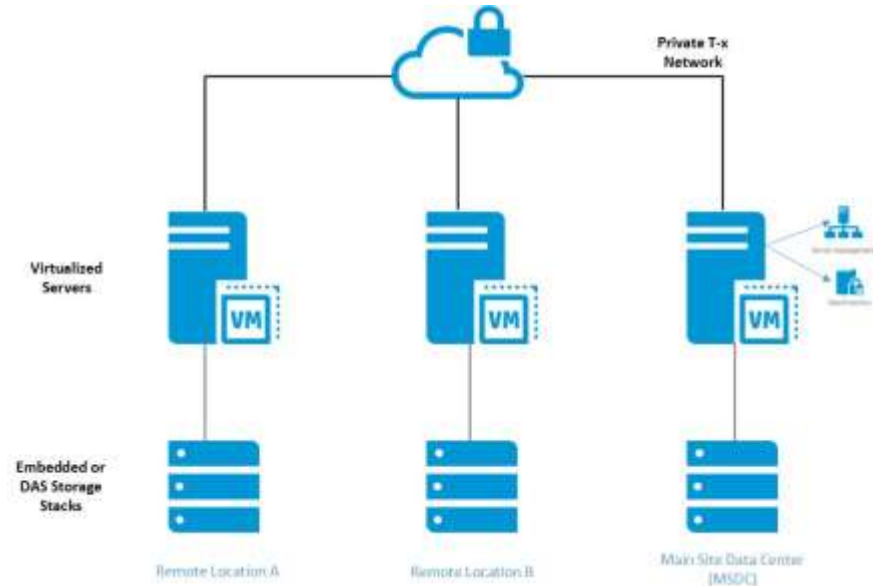
*A recommended storage architecture using HP Storage VSA software*

# Remote offices

Hardware Confined Storage is no longer the way forward

## Modular Approach

- Modular Independent Storage Stack
- Dated Network
- Using latest generation of hardware/OS
- Managed centrally
- Limited RTO and RPO recovery
- Expensive (implementation, maintenance and hardware)



# StoreVirtual and StoreOnce VSA

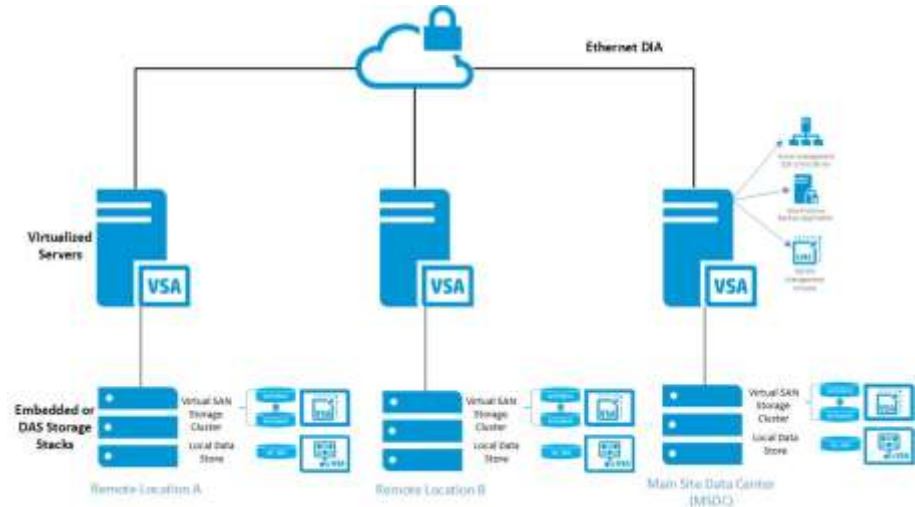
## Possible deployment model

- StoreVirtual VSA

- Create a localized storage cluster at each location
- Protect with Network RAID 10 with Hardware RAID 5
- Deploy with Central Management Console or using HP Insight Control Storage module of vCenter (VC Plug-in)
- Follow best practices and multi-Site config guides for StoreVirtual VSA

- StoreOnce VSA

- Deploy single StoreOnce VSA at each site using vSphere Client or StoreOnce Enterprise Manager (SEM)
- Configure with backup application (NAS, iSCSI VTL or Catalyst)
- Local data store protection and remote site protection using replication
- Reduced storage footprint with deduplication ~10:1

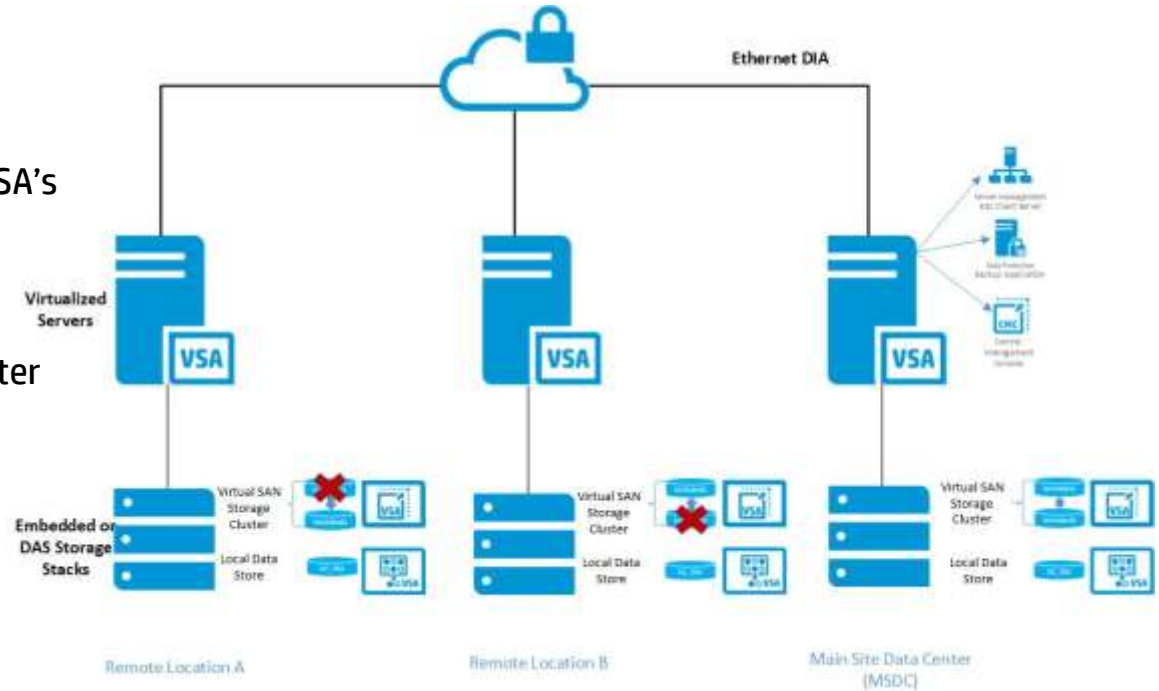


# Protecting Remote Locations

## Three tiers of data protection

### Primary – StoreVirtual VSA

- Local failover protection between VSA's within a storage cluster
- Failover of one VSA will result in another VSA within the storage cluster becoming primary owner
- Excellent RTO and RPO

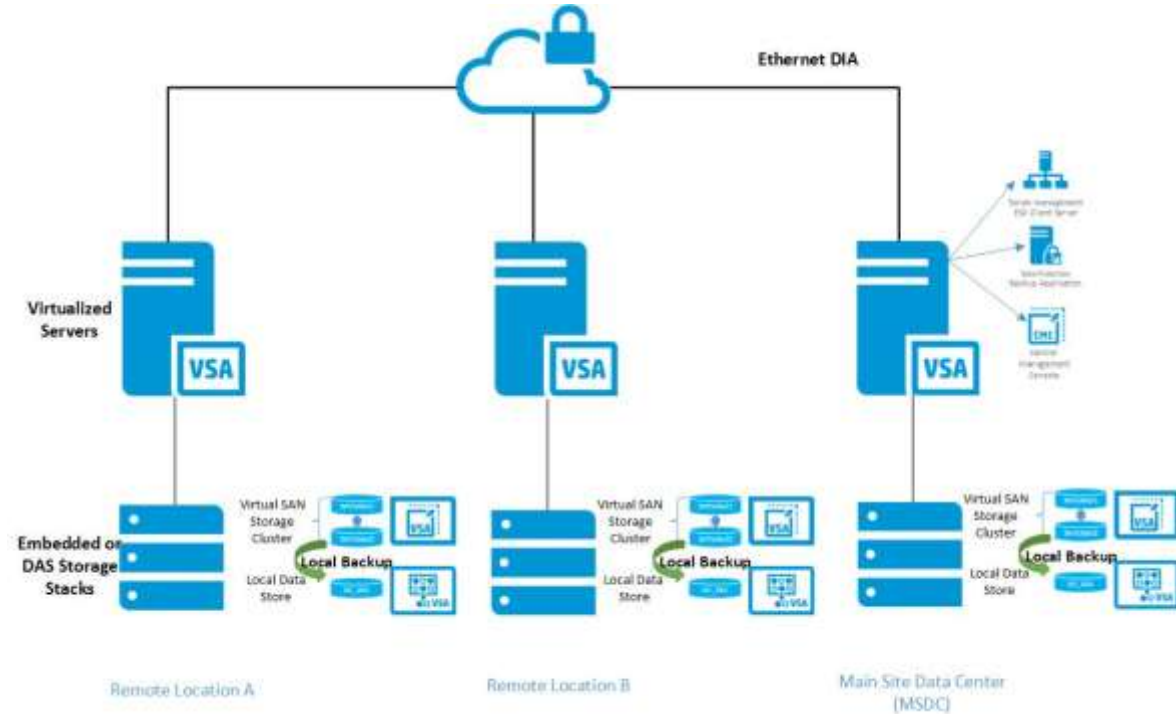


# Protecting Remote Locations

## Three tiers of data protection

### Secondary – StoreOnce VSA

- Local protection in the event of a storage cluster failure
- Failed cluster can be rebuilt and restored using local backup stored on StoreOnce VSA data store. Deduplication reduces storage footprint.
- Good RTO and RPO

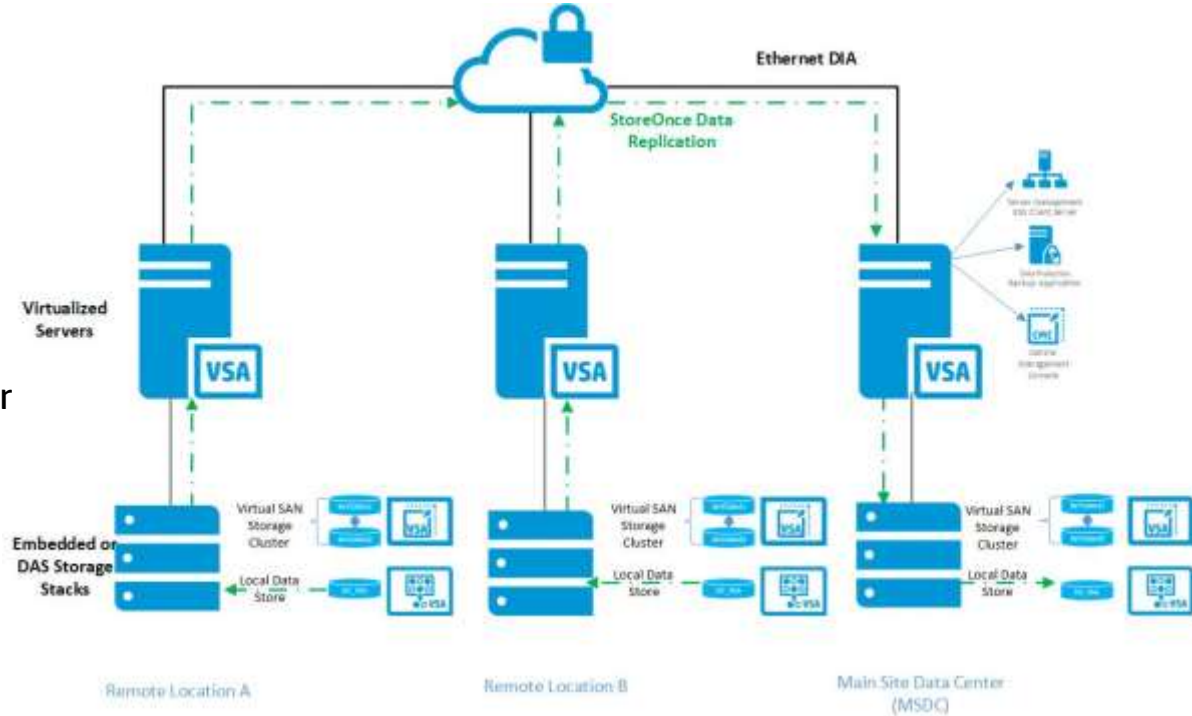


# Protecting Remote Locations

## Three tiers of data protection

### Tertiary Remote – StoreOnce VSA

- Utilizes StoreOnce VSA replication feature
- Backup stored at main data center for Remote location failover protection against catastrophic failure.
- Reduced RTO and RPO





# Спасибо!

# Вопросы? > [NiKy@hp.com](mailto:NiKy@hp.com)

