



NetApp™

Go further, faster

強化IT環境虛擬化及雲端 儲存下的全面性資料保護 及效率提升

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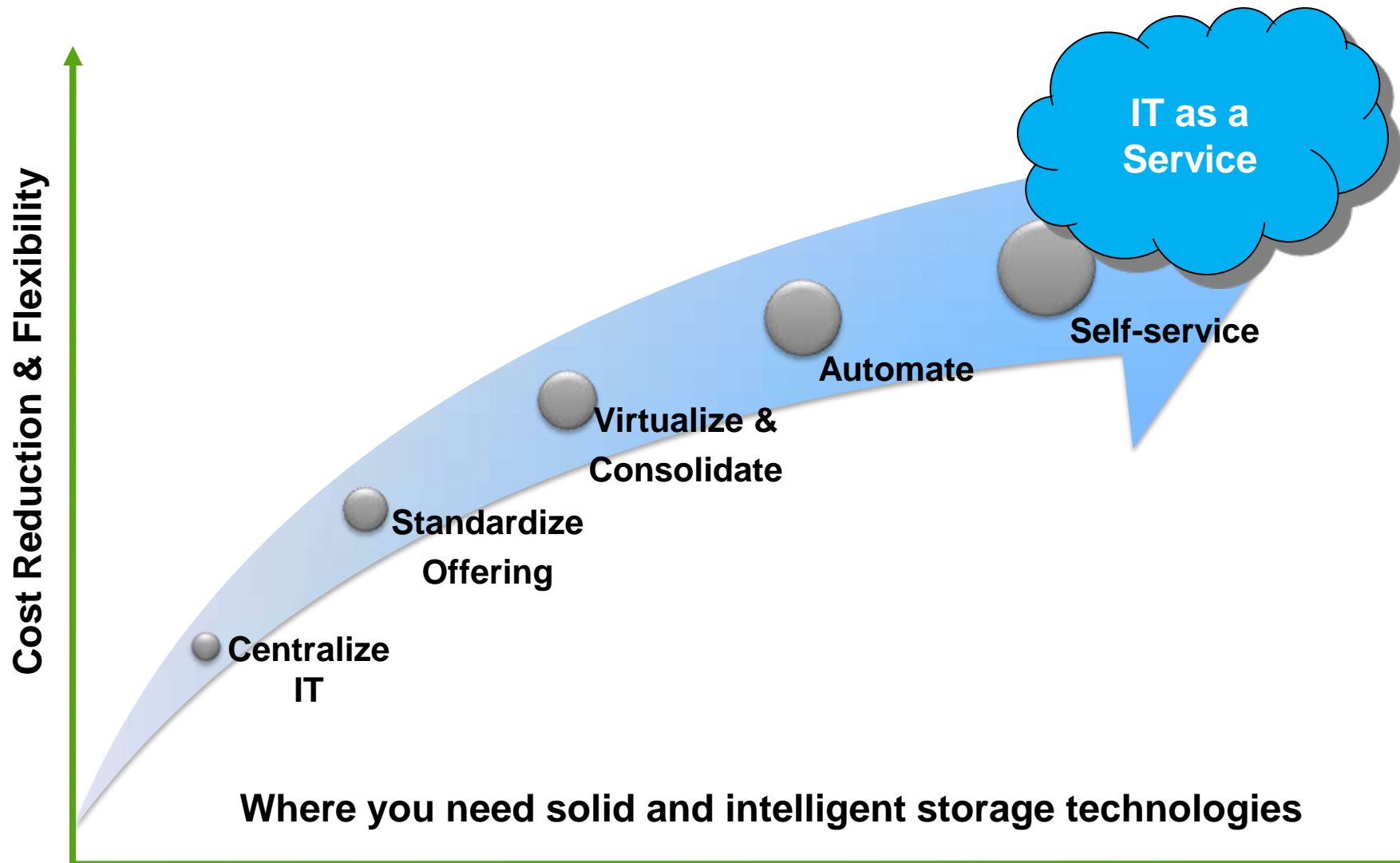




Agenda

- NetApp Data Protection Advantage
 - RAID_DP
 - MetroCluster
- NetApp Efficiency Program
 - SnapManager Family
 - Data deduplication
 - Rapid Clone Utility

Journey to a Service Oriented Infrastructure





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Cost-Effective Data Reliability

The Problem

- Double disk failure is a mathematical certainty
- RAID 5 (single parity disk) has **Insufficient protection**
- RAID 10 (mirrored copy) **doubles the cost.**

NetApp RAID-DP® Solution

- Protects against double disk failure
- Provides high performance and fast rebuild
- Provides the same protection and performance as RAID 10 at half the cost

	RAID 5	RAID 6	RAID 10	RAID-DP
Cost	Low	Low	High	Low
Performance	Low	Low	High	High
Resiliency	Low	High	Med	High

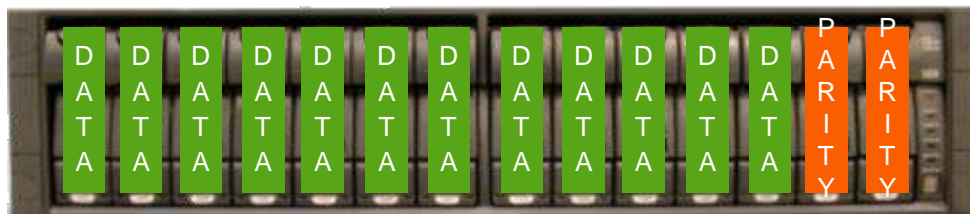
Highly Efficient RAID Protection

- Greatly reduced parity overhead versus typical RAID mirror
- Superior fault tolerance
- Ability to recover from simultaneous failure of two drives
- NetApp RAID technology with RAID 6 protection but without performance penalty

Typical RAID Protection
50% Efficiency

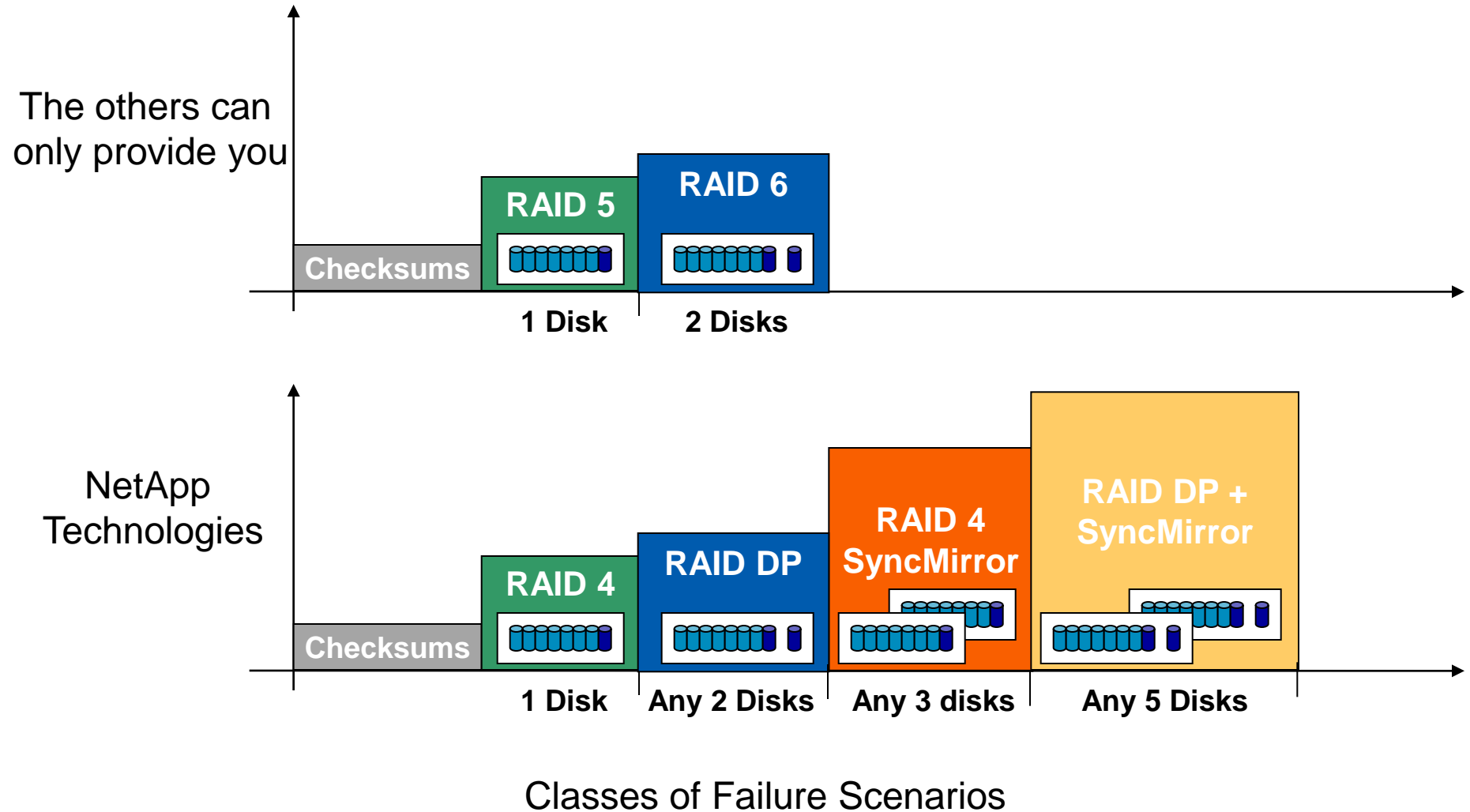


RAID-DP® Protection
86% Efficiency



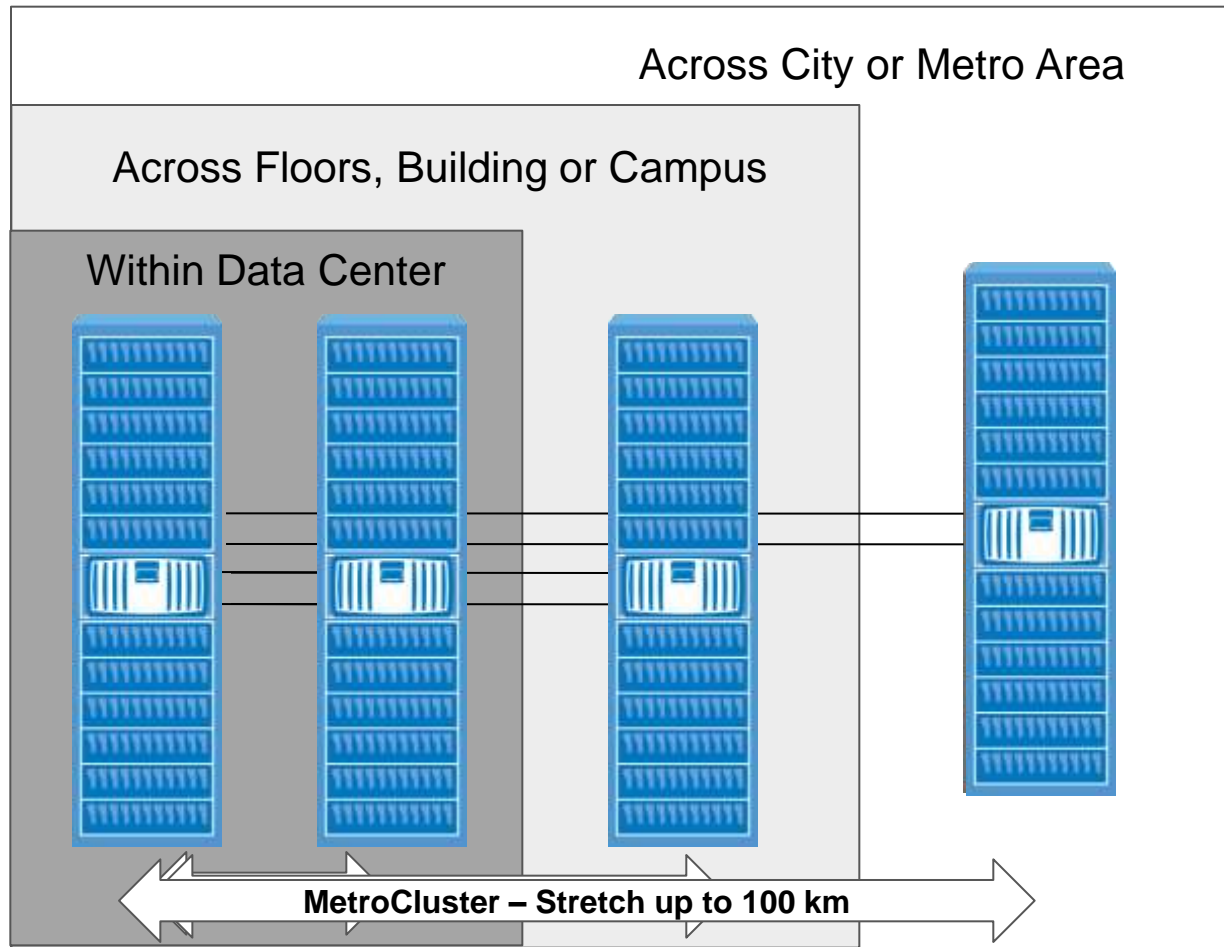


Prevent your Data Lose from Multiple Disk Failure





MetroCluster – The revolution of data protection



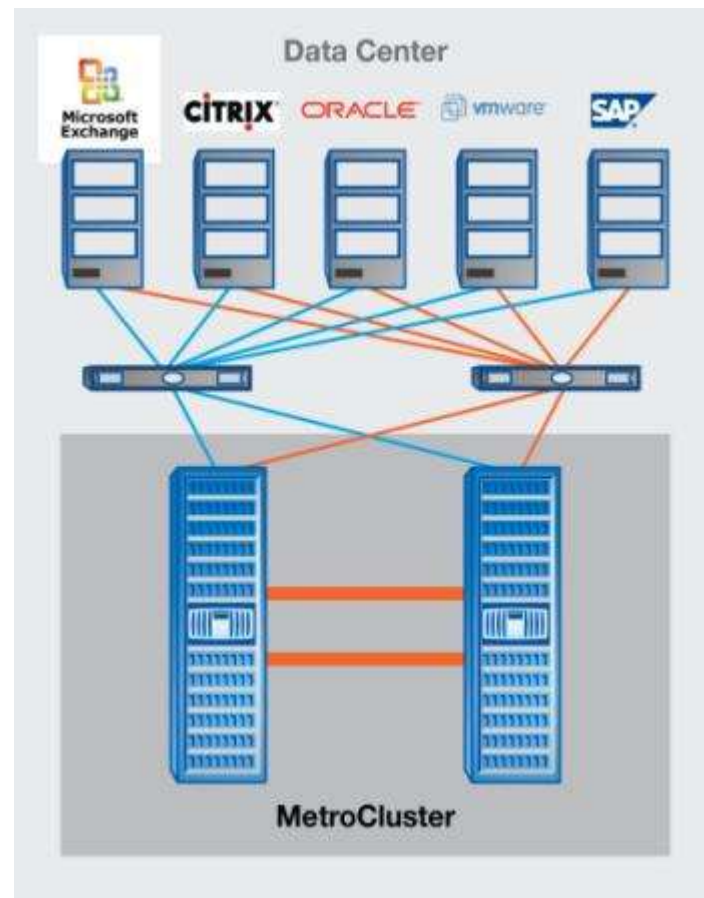
- MetroCluster provides continuous availability within a single data center and across data centers in adjacent floors, buildings and metro areas
- Support for FAS3000, FAS3100, FAS6000 & V-Series



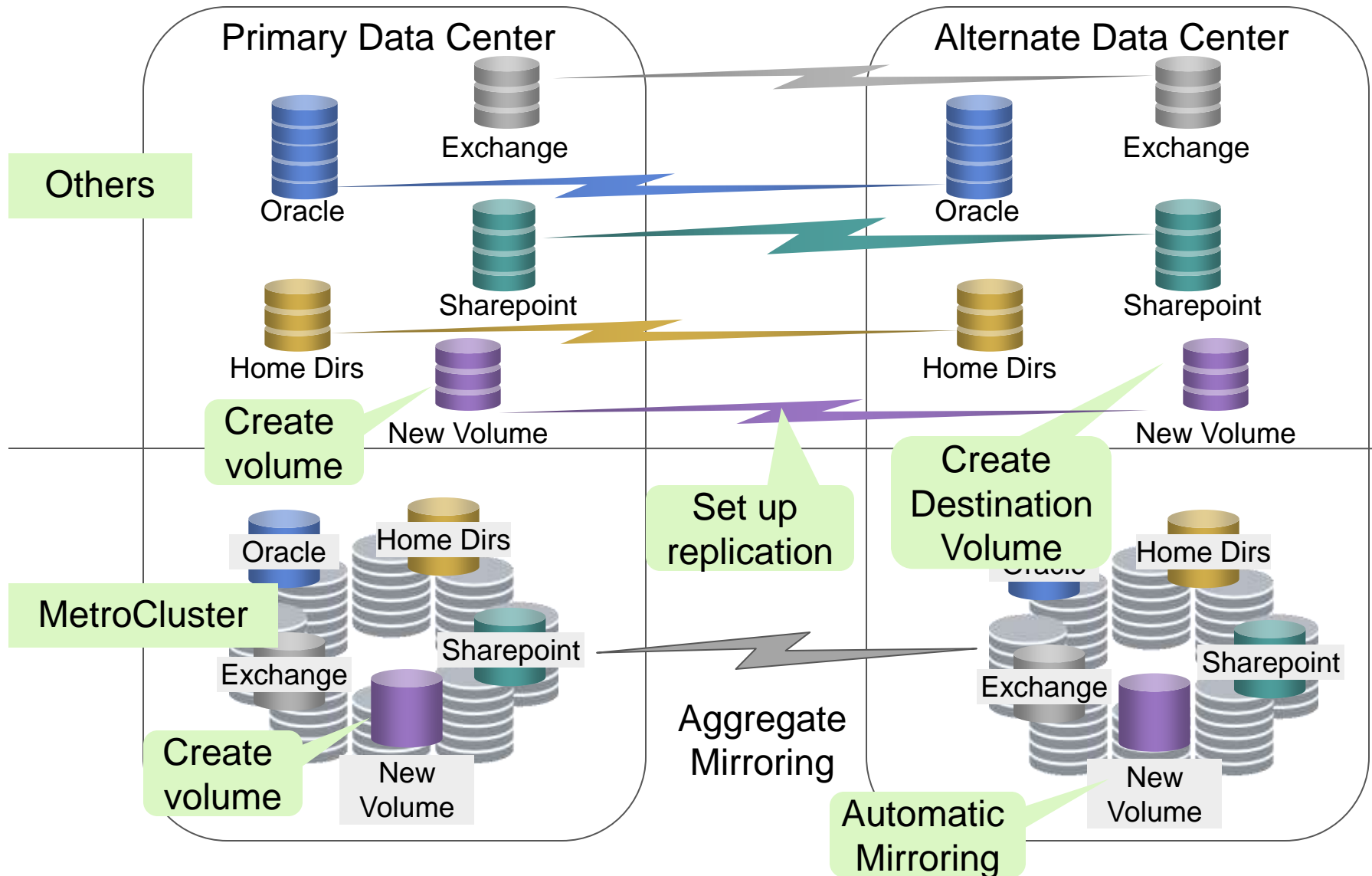
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Value of MetroCluster

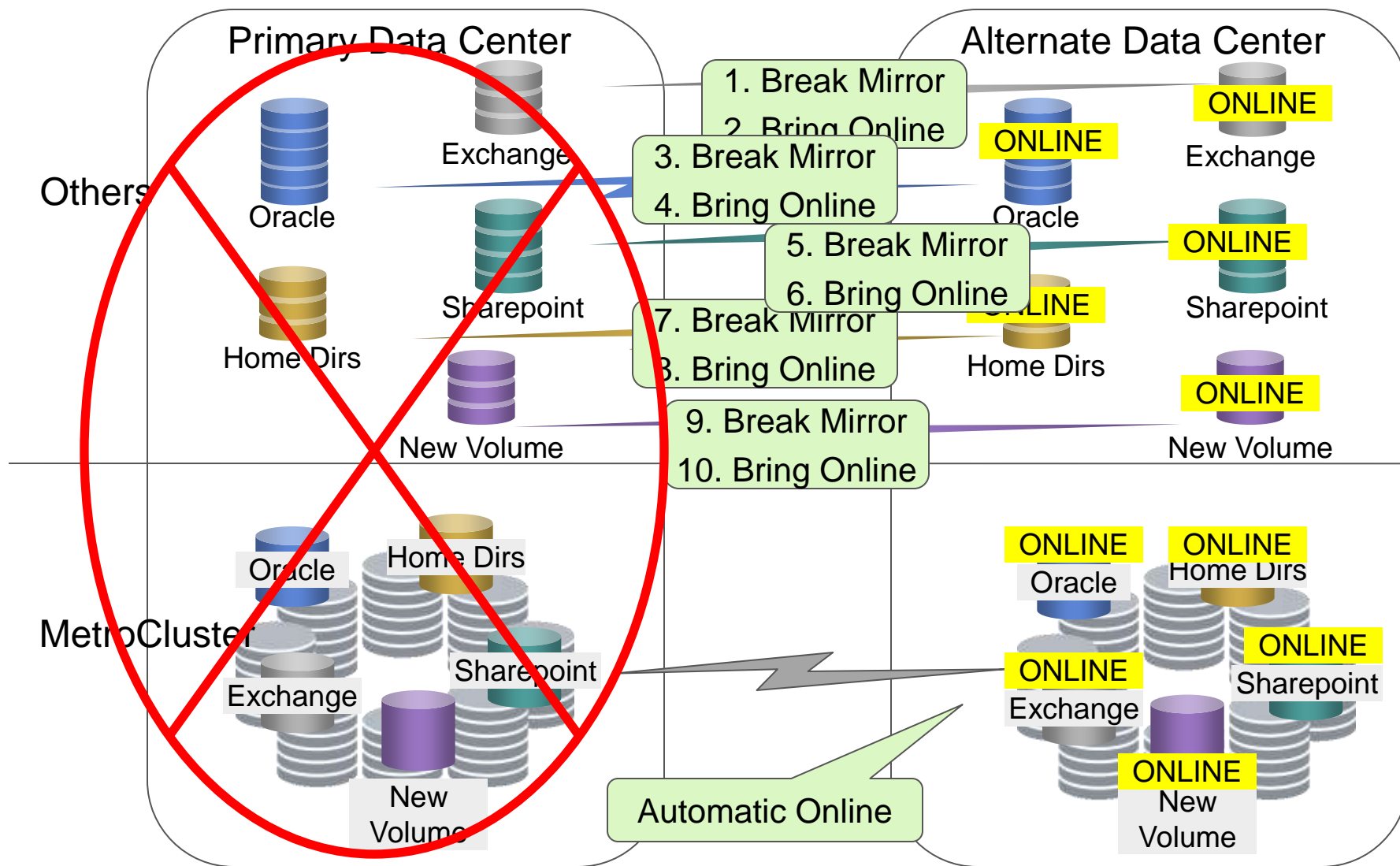
- **Set it Once:** Simple to deploy, with no scripts or dependencies on the application or operating system
- **Zero change management** through automatic mirroring of changes to user, configuration, and application data
- **Zero unplanned downtime** through transparent failover with protection for hardware plus network and environmental faults
- **Zero planned downtime** through non-disruptive upgrades for storage hardware and software
- **50% lower cost**, no host-based clustering required, added efficiency through data deduplication and server virtualization



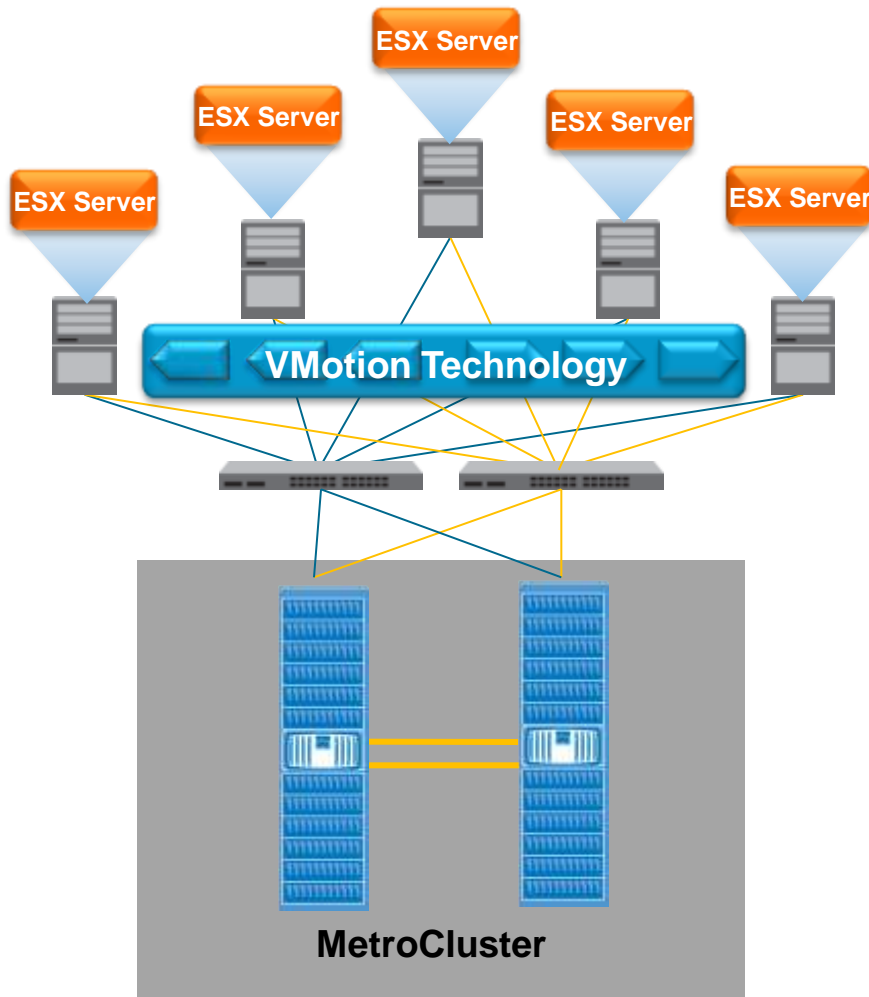
Automatic Protection



Quick Recovery time



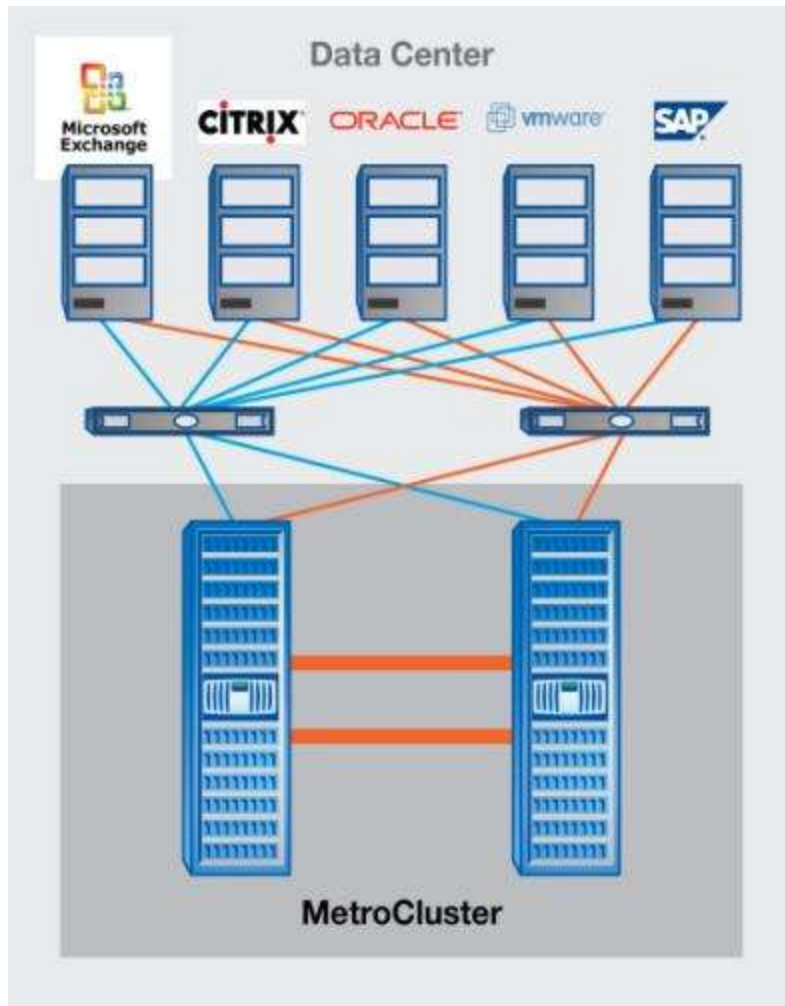
MetroCluster for VMware Environments



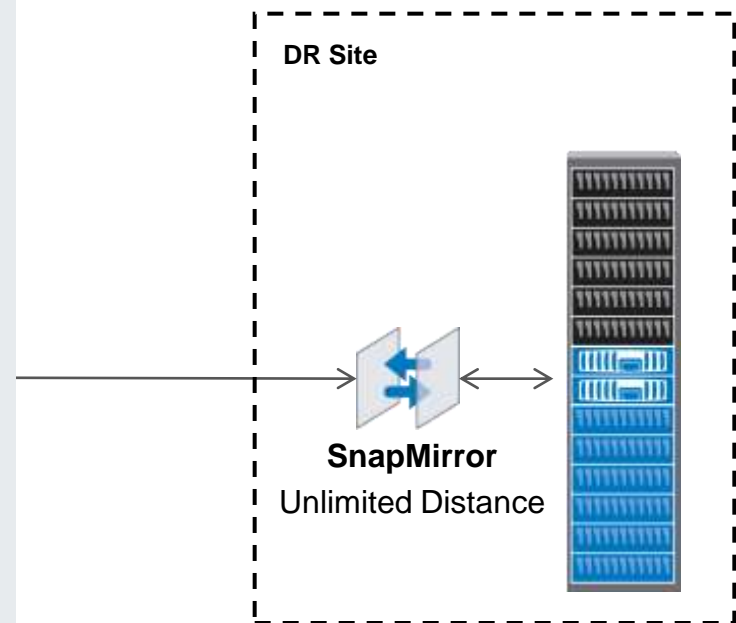
- Delivers continuous data availability
 - Complements VMware host environment with complete server to storage availability
- Maximize protection & minimize disruptions
- Proven interoperability



Comprehensive Protection with MetroCluster and SnapMirror



The combination of MetroCluster and SnapMirror provides continuous availability within the data center and disaster recovery protection at unlimited distances





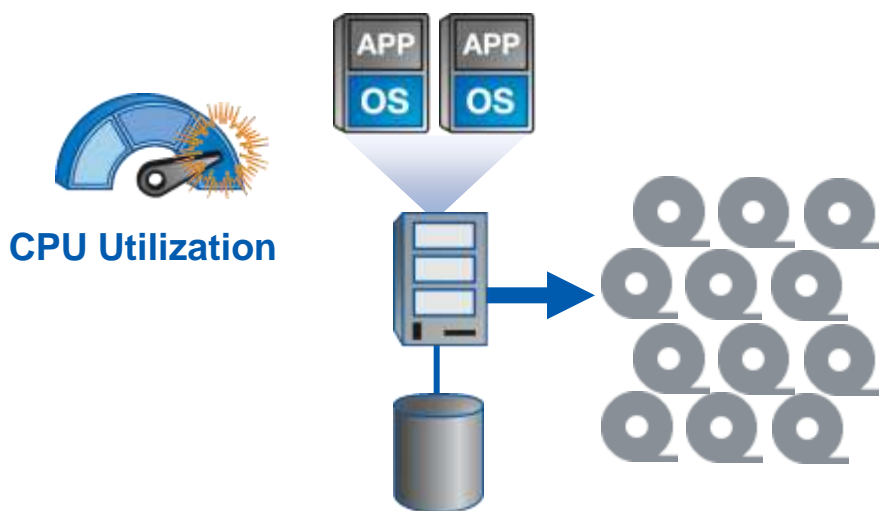
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Instantaneous, Storage-Efficient Backup

The Problem

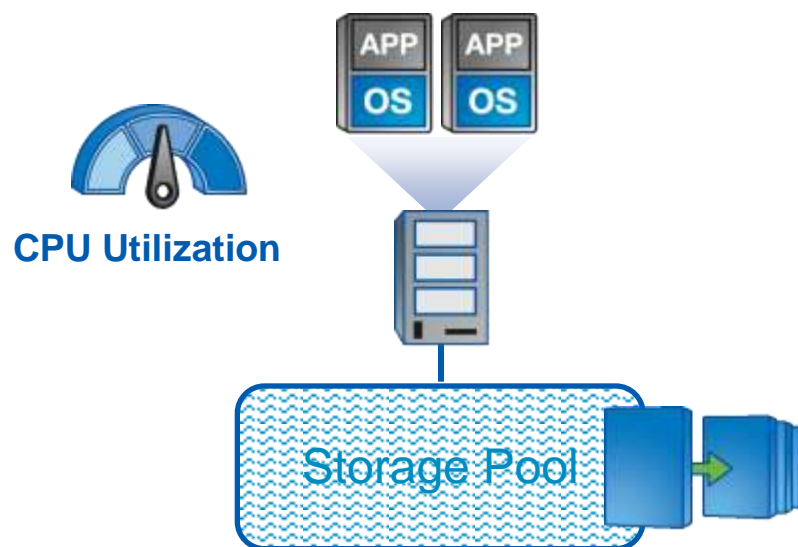
- Tape is slow, complex
- Streaming backups take too long
- Recoveries are slow
- Recovery points are limited



Traditional Backup Is NOT Practical

NetApp Snapshot™ Solution

- Backups built-in to the storage
- Instantaneous backup and recovery
- Low storage overhead
- Frequent, application consistent



Fast, Affordable, and Simple
Backup and Restores

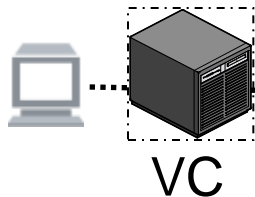


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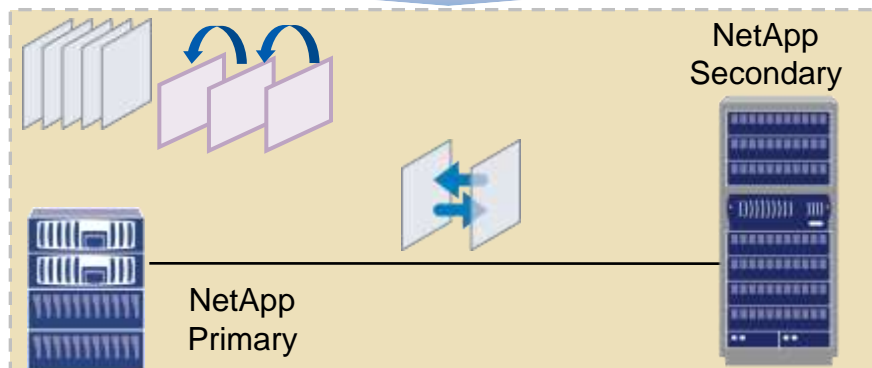
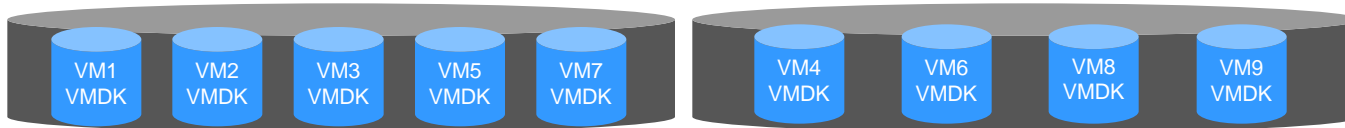
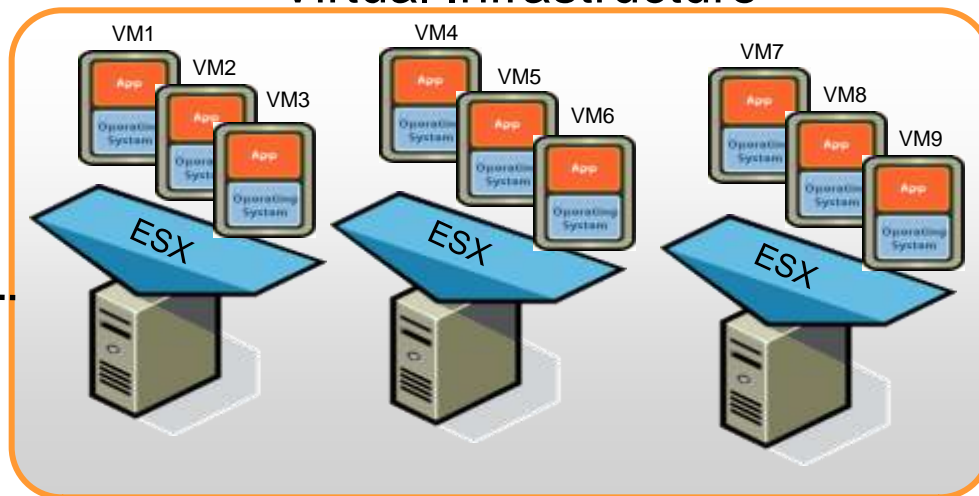
NetApp SnapManager for Virtual Infrastructure

SnapManager for VI

Backup
Restores
Replication
Policy-Based
Management



Virtual Infrastructure





SnapManager for Virtual Infrastructure Backup Functionality

- **Backups**
 - **One or more VMs**
 - **One or more datastores**
 - **Snapshot is always at the datastore level**
 - **VMFS or NFS**
 - **Integration with pre-existing SnapMirror**
- **Backup Verification**
 - **Backups can be mounted on ESX**
 - **Verify backup before required**
 - **VMDK can be mounted on another VM**



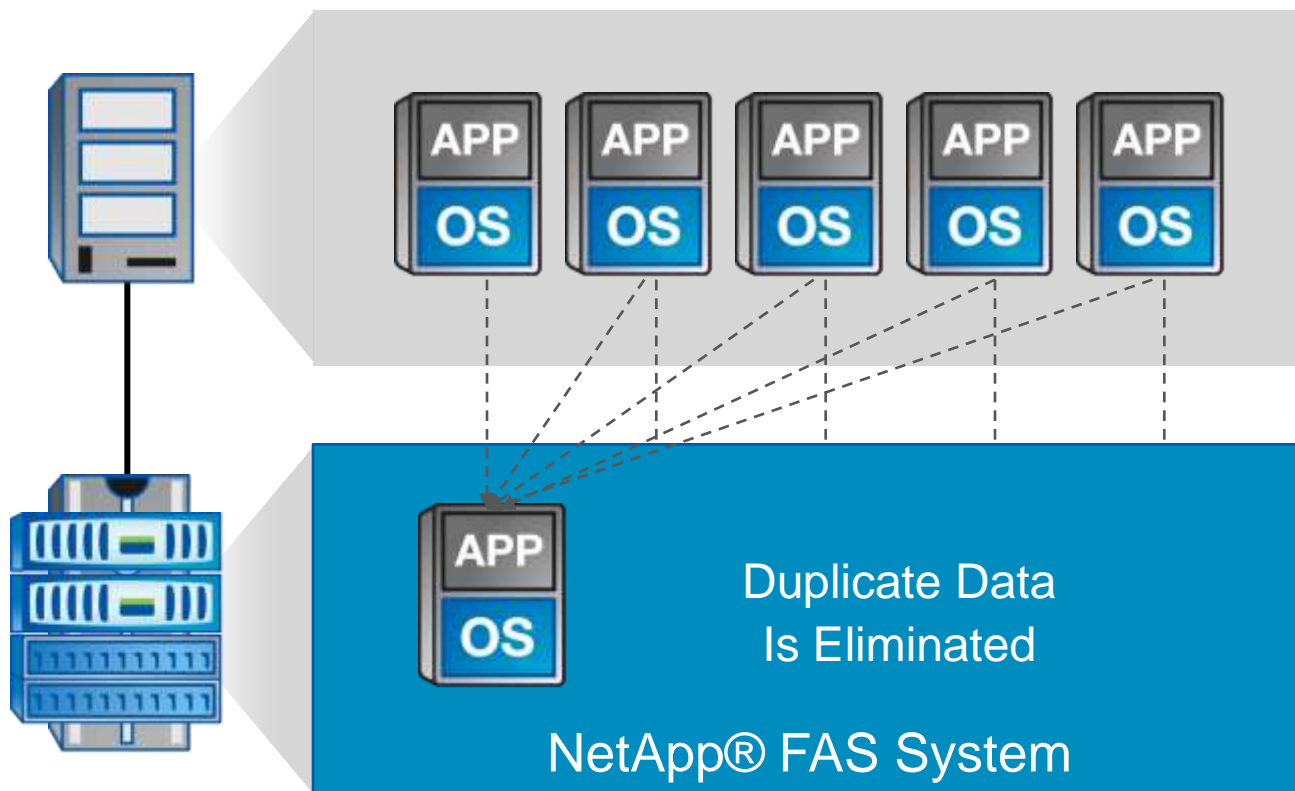
SnapManager for Virtual Infrastructure

Restore Functionality

- **Restore**
 - **Restore datastore or individual VM**
 - **Restore a VM that has been deleted from VC**
 - **VM must be powered down during restore**
 - **Restore a datastore from the CLI that is no longer present within VC**
 - **Restore Single file within VM guest OS**

Deduplication: Essential for Virtualization

- Many virtual machine images are 100% identical



- Savings extend to all copies of the data
 - Including backup, DR, test clones, and archival copies



Use 50% Less Storage - Guaranteed



Use NetApp for your virtual infrastructure, and we guarantee* you will use 50% less storage

- If you don't use 50% less storage, get the required capacity at no additional charge

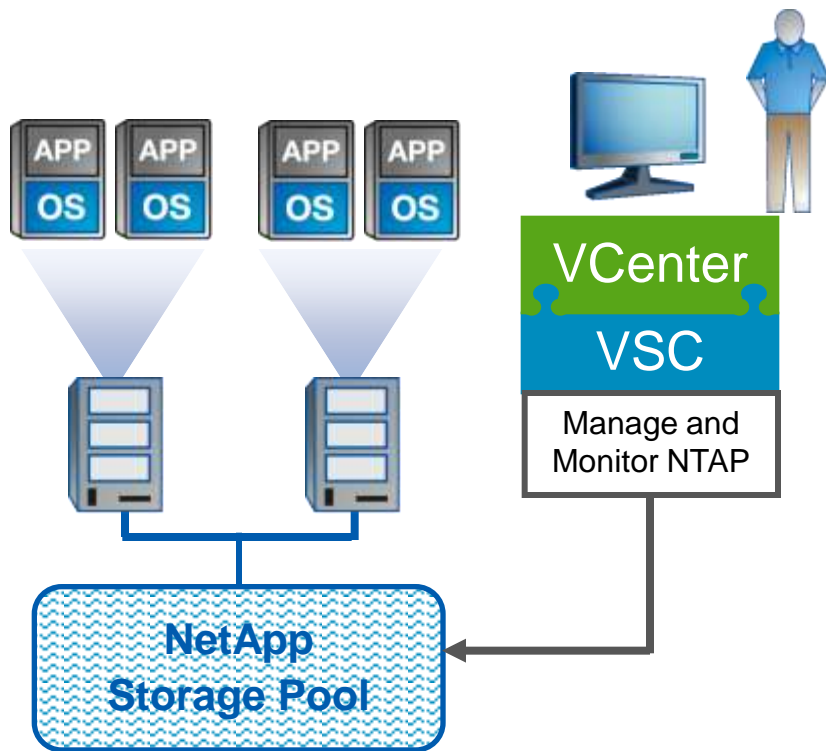
“During the research phase of your next storage purchasing cycle, ask each vendor if it offers a capacity savings or utilization guarantee.”

Gartner Inc. Nov 2009 April Adams Capacity Savings and Storage Utilization Guarantees: What's Included, and Are They Worth Considering?

*For terms and conditions, go to netapp.com/guarantee



NetApp provisioning Plug-in - Virtual Storage Console (VSC)



Overview

- Provides integrated VMware host and storage management
- Enables NetApp configuration and storage resource visibility to VMware admin

Features

- Optimize configuration for NetApp storage
 - Configure ESX iSCSI & NFS tuneables
 - Establish the proper multi-path config
- Present important storage data
 - Controller health and storage capacity
 - Deduplication rates
 - Validate connectivity to storage devices
- vCenter plug-in
- Available free as download



NetApp RCU with Instant Storage Provisioning and Cloning

■ Traditional Storage Provisioning for VMs



■ NetApp Provisioning for VMs



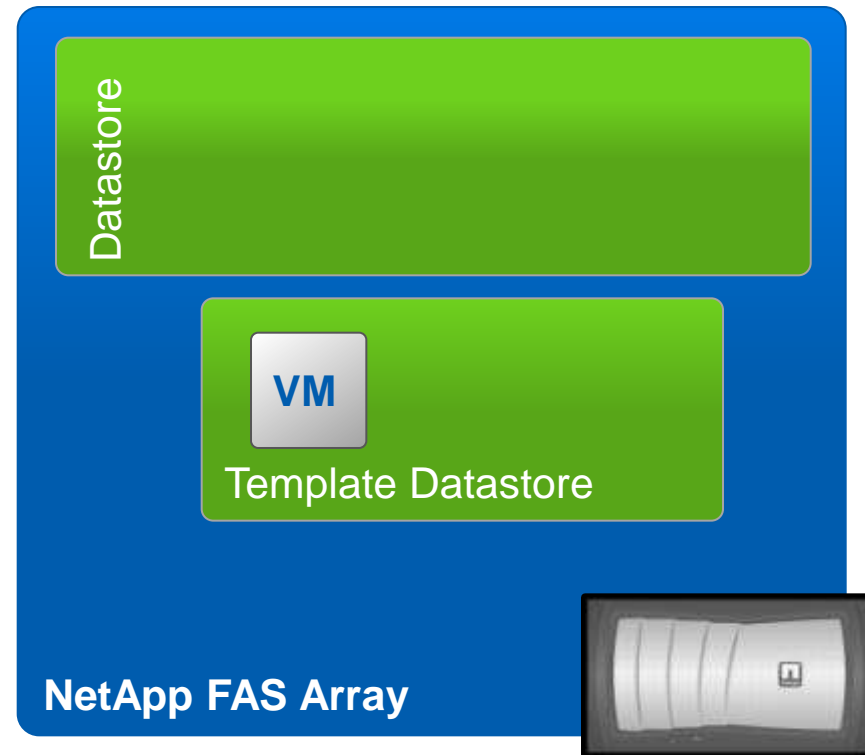
AutoTrader.com
The ultimate automotive marketplace.

“The FlexClone® feature allows our DBAs to establish new development and test environments in minutes instead of days.” - Mark Tuttle, Sr. Engineering Mgr., AutoTrader.com



NetApp RCU with Instant Storage Provisioning and Cloning

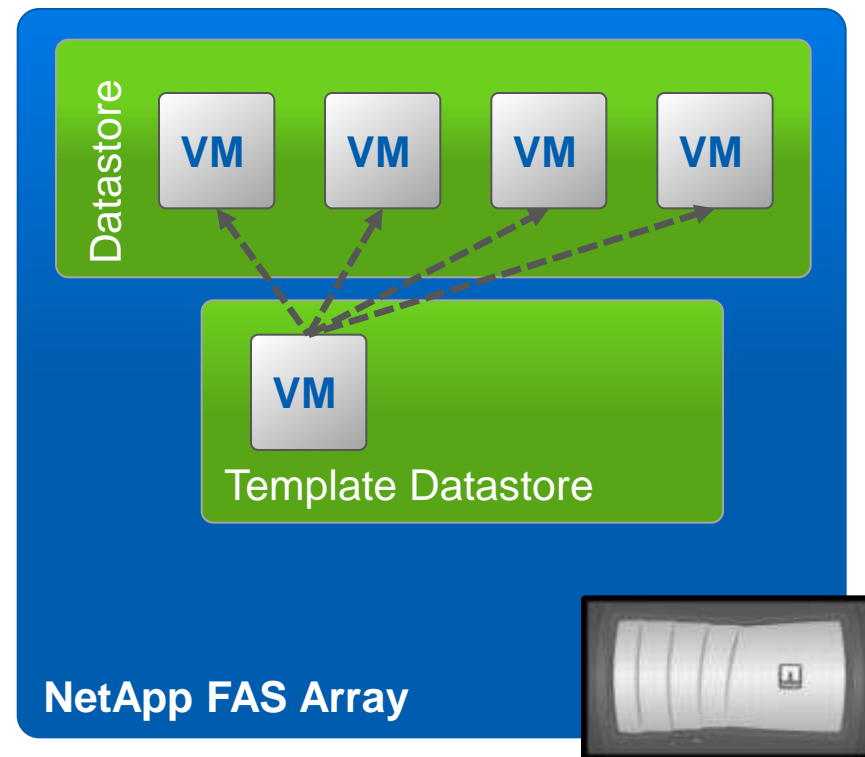
Create Datastore





NetApp RCU with Instant Storage Provisioning and Cloning

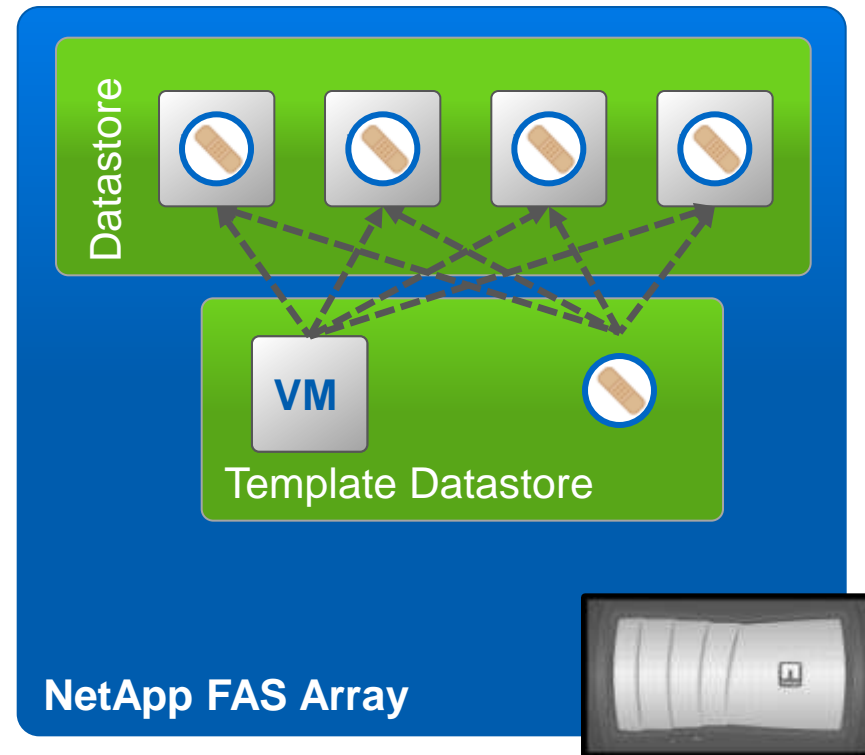
Create Clones



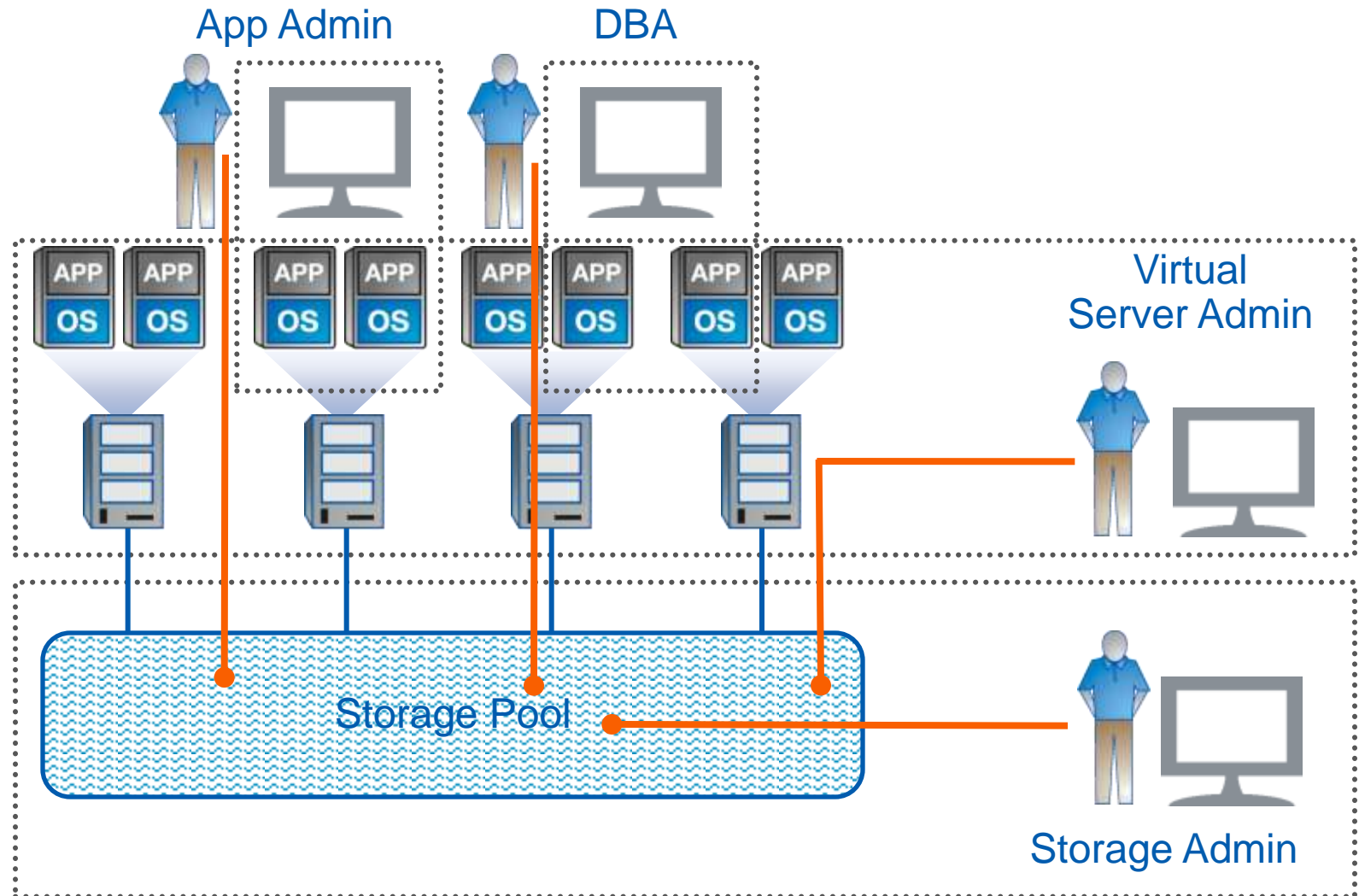


NetApp RCU with Instant Storage Provisioning and Cloning

Re-deploy Clones



SnapManager for Virtual Infrastructure - Administrative Efficiency





Thank You