



EMC VNX FAMILY VMware Integration

Cisco Expo
GateOne, May 2011

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Agenda

- Why EMC on Cisco Expo
- VCE Coalition
- EMC VNX – New generation of storage
- EMC VNX & Vmware

Why EMC on Cisco Expo?

Cisco Technology Alliance



Cisco Systems, Inc. (NASDAQ: CSCO), is the worldwide leader in networking that transforms how people connect, communicate and collaborate. **EMC and Cisco share very similar perspectives on how customers deploy IT infrastructures to solve real-world problems.**

Together, EMC and Cisco are uniquely positioned to help customers build infrastructure that can improve business responsiveness, create operational efficiency, and protect and secure information assets.

- **Efficient:** Streamline operations and reduce risk by simplifying the management of information
- **Secure:** Increase effectiveness by assuring secure access to information across the infrastructure.
- **Agile:** Enable your organization to respond quickly to changing business needs

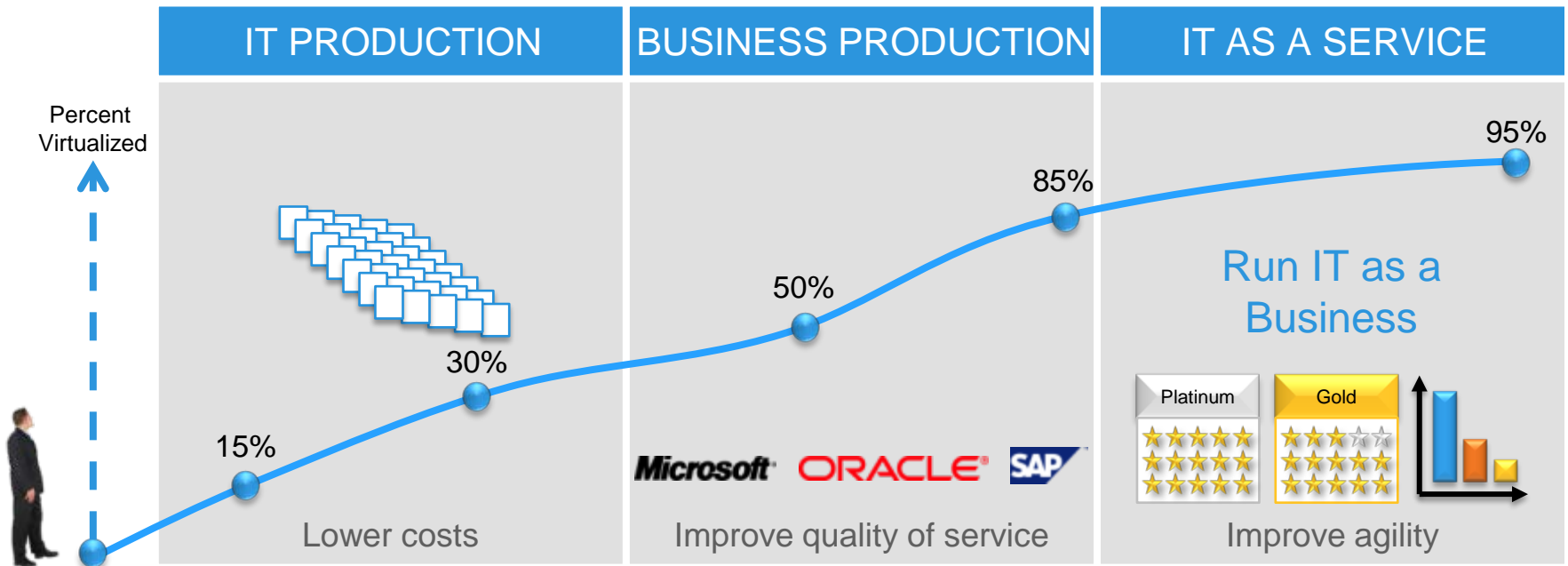
Moving forward, the two companies are focused on helping customers on their journey to the private cloud – including virtualization, convergence, and business transformation - through the Virtual Computing Environment (VCE) and VBLOCK product family.

Customer Pain Point	EMC Offers
Rapid growth <ul style="list-style-type: none">• Rising cost of storage infrastructure• Ability to meet service level requirements• Increased risk• Accelerating design and deployment of solutions• Power and cooling	EMC storage and SAN management <ul style="list-style-type: none">• EMC Services for assessment, design, and deployment• EMC tiered storage solutions• EMC Connectrix MDS (Cisco) solutions for storage networking• Nexus family of Ethernet switches• EMC software for local and/or remote replication• EMC Ionix Management Software
Information security <ul style="list-style-type: none">• Exposure of sensitive information• Compliance requirements requiring information security• Liability due to misuse of information• Preserve accessibility to authorized personnel	RSA solutions for information security <ul style="list-style-type: none">• Security assessment, design, and deployment services• EMC Connectrix SME—Storage Media Encryption• RSA key element of Cisco PCI Reference Architecture• Cisco IronPort: RSA Secured through RSA Envision integration
Information protection <ul style="list-style-type: none">• Reduce risk of information loss• Costly replication requirements for business continuity and disaster recovery• Local and remote heterogeneous replication	EMC business continuity solutions <ul style="list-style-type: none">• EMC business continuity services• EMC RecoverPoint• EMC Connectrix MDS (Cisco) solutions with Cisco SANTap



Mission: To help people and organizations bring the power of their information to life

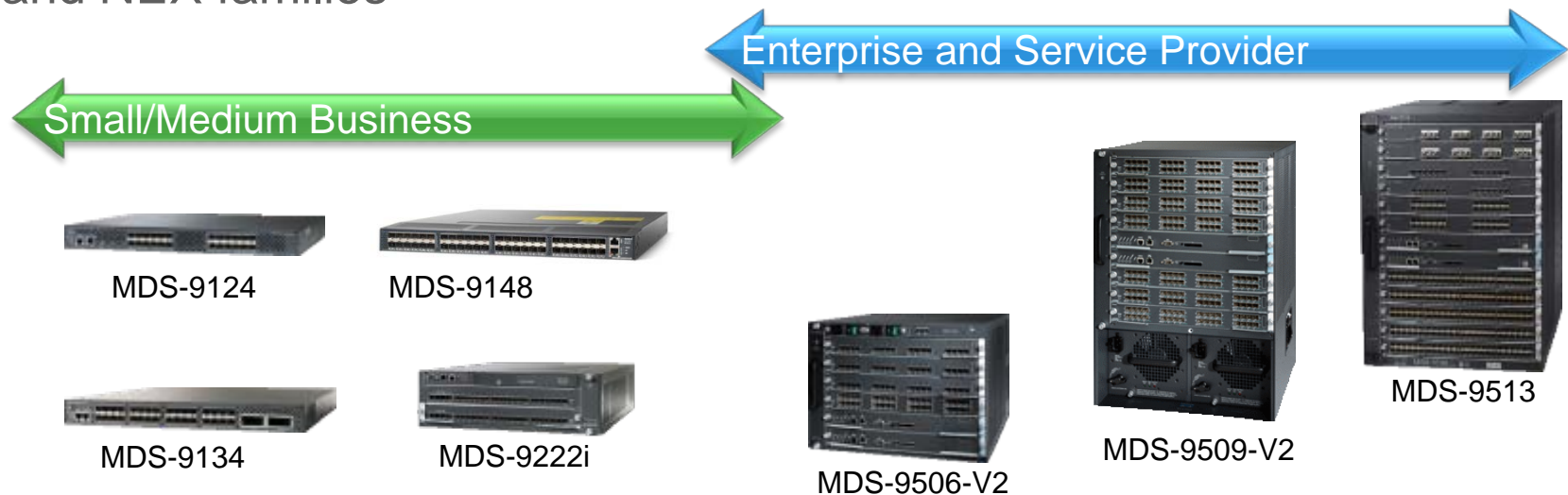
The Journey to the Cloud



Vision: To lead customers on the [journey to cloud computing](#)—a dramatically more efficient and effective model for delivering IT as a service

EMC Connectrix MDS-9000 Directors and Switches

- High performance and density
- Scalable from 8- to 528-ports
- Single code stream across MDS and NEX families
- Director investment protection
- Integrated multi-protocol and multi-services

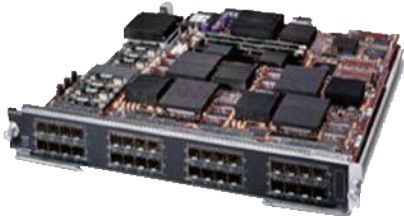


MDS Fabric Manager

MDS-9000 Family NX-OS

EMC RecoverPoint – SAN Splitter

SSM SWITCHING MODULE



Storage Services Module (SSM) switching module

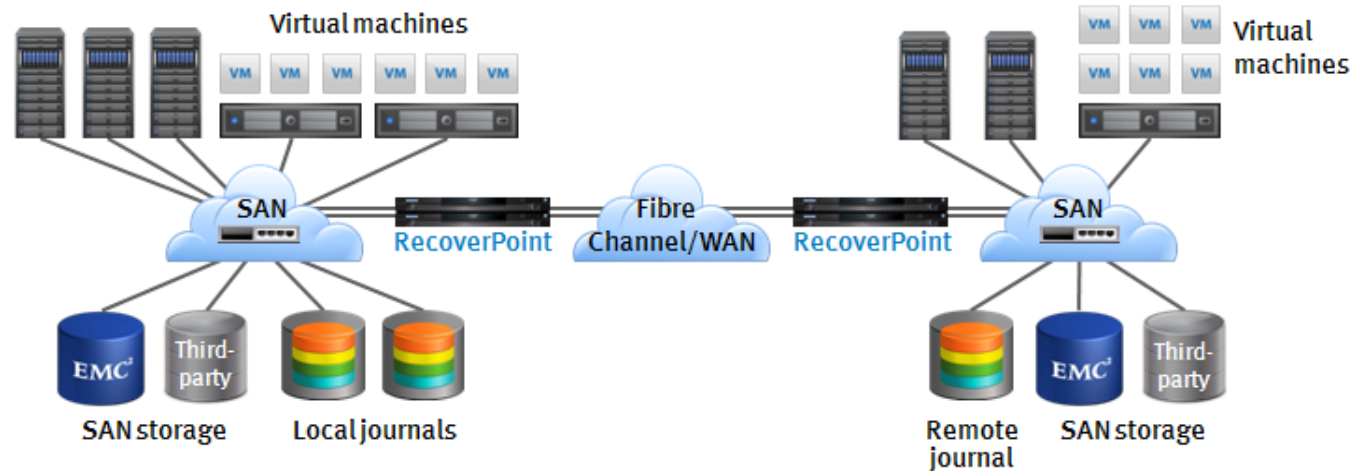
- Supports EMC RecoverPoint software via SANTap feature
 - Requires Storage Services Enabler license

18/4 MULTI-SERVICES SWITCHING MODULE



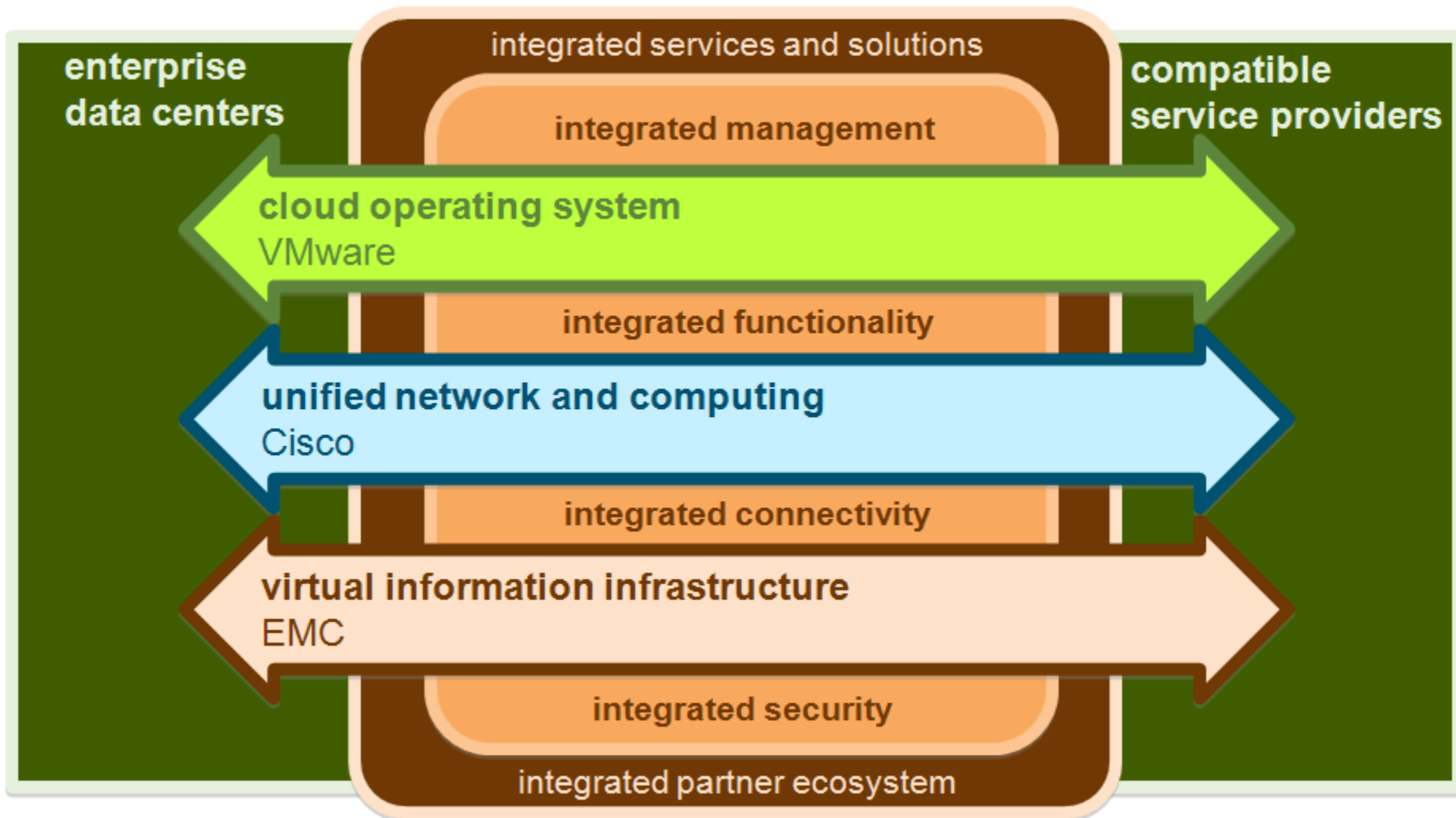
18/4 Multi-Services switching module

- Supports EMC RecoverPoint via SANTap feature



VCE Coalition

VCE Landscape



Vblock Core Platform

Vblock 2 (3000 – 6000+ VMs)

- A high-end configuration that is completely extensible to meet the most demanding IT needs of large enterprises or service providers

Vblock 1 (800 – 3000 VMs)

- A mid-sized configuration to deliver a broad range of IT capabilities to organizations of all sizes

Vblock 0 (300 – 800 VMs)

- An entry-level configuration to meet the IT needs of small datacenters
- Test/development platform for Partners and customers

Vblock Infrastructure Packages (VIP)

Type 0 – UCS, Nexus, EMC Celerra, VMware vSphere

Type 1 – UCS, Nexus, MDS, EMC CLARiiON, VMware vSphere

Type 2 – UCS, Nexus, MDS, EMC VMax, VMware vSphere



Imagine the power of three ...

Scaling virtualized datacenter infrastructure backed by single support model

VNX – New generation of EMC Storage

Unprecedented Momentum!

Delivering on our promises...



UNISPHERE™



InFAST Suite



New Midrange VNX Platform



New Entry Level VNX^e Platform



EMC²

Simple. Efficient. Affordable.



VNX^e



EMC²

Storage. Click. Done.

VNX^e



EMC²

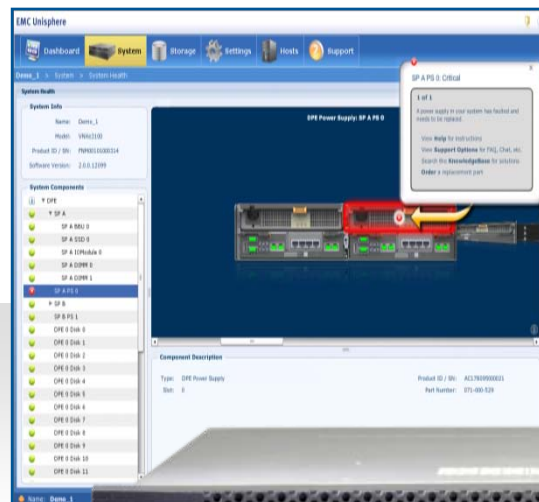
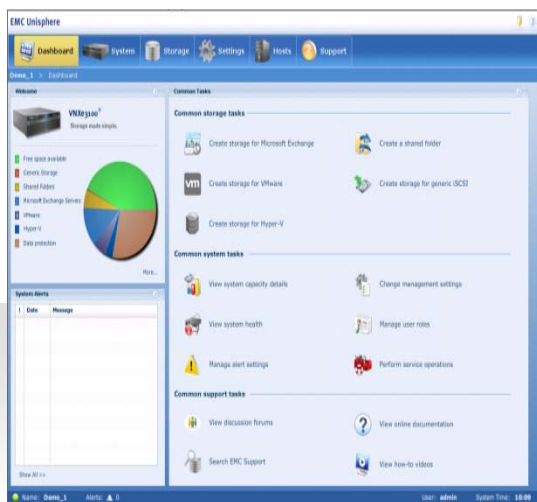
Storage Made Simple

So easy, a 5th grader can do it...

PROVISION

DIAGNOSE

FIX



EMC²

Taking Storage to The Frontlines



Bill Kehret, CEO of Themis

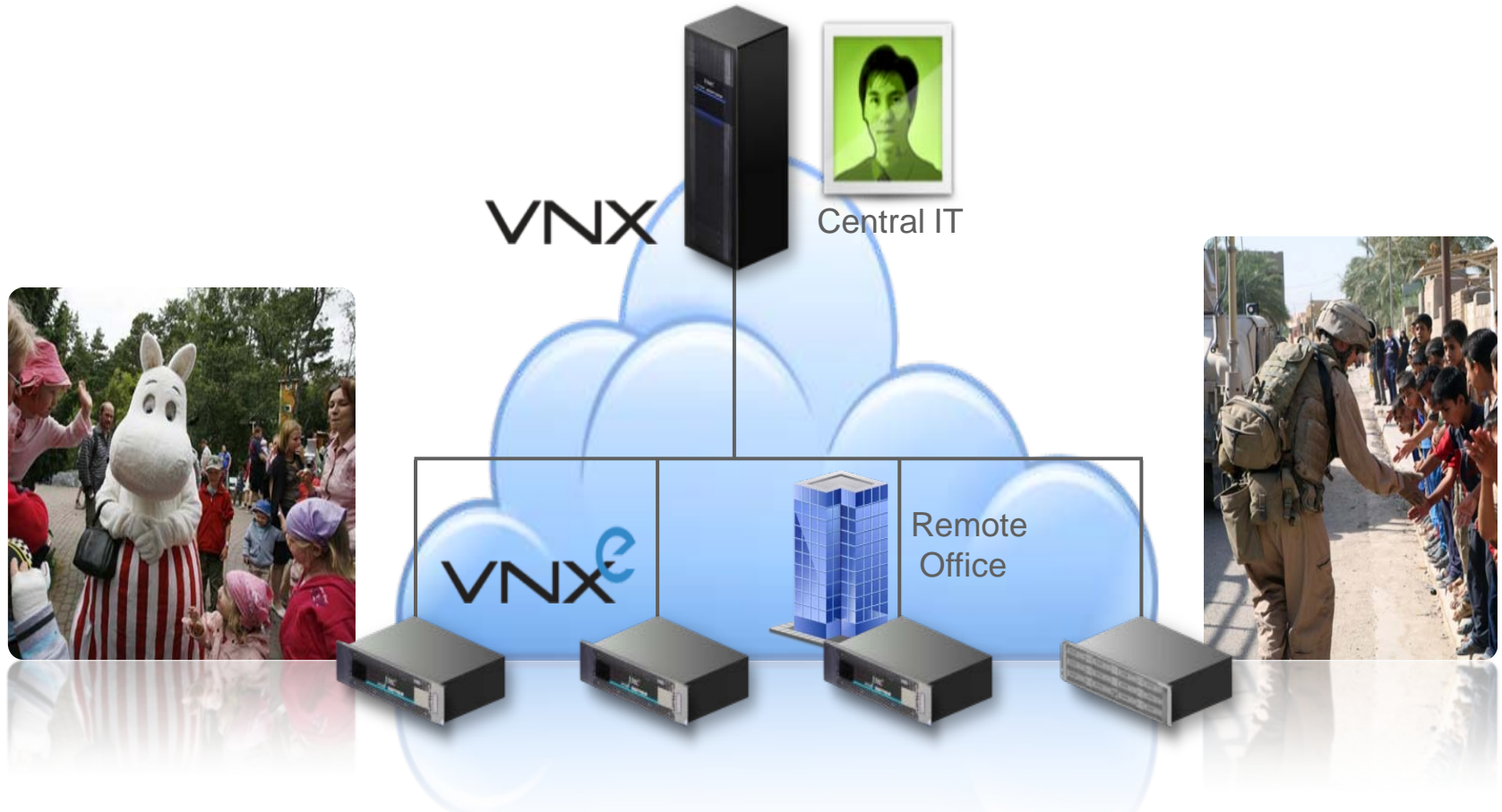
RUGGEDSTORE
3100 
VNX



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Distributed Private Cloud

Global reach combined with ease of management



Simple. Efficient. **Powerful.**

VNX



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Private Cloud Drives New Architectures



Multi-Protocol

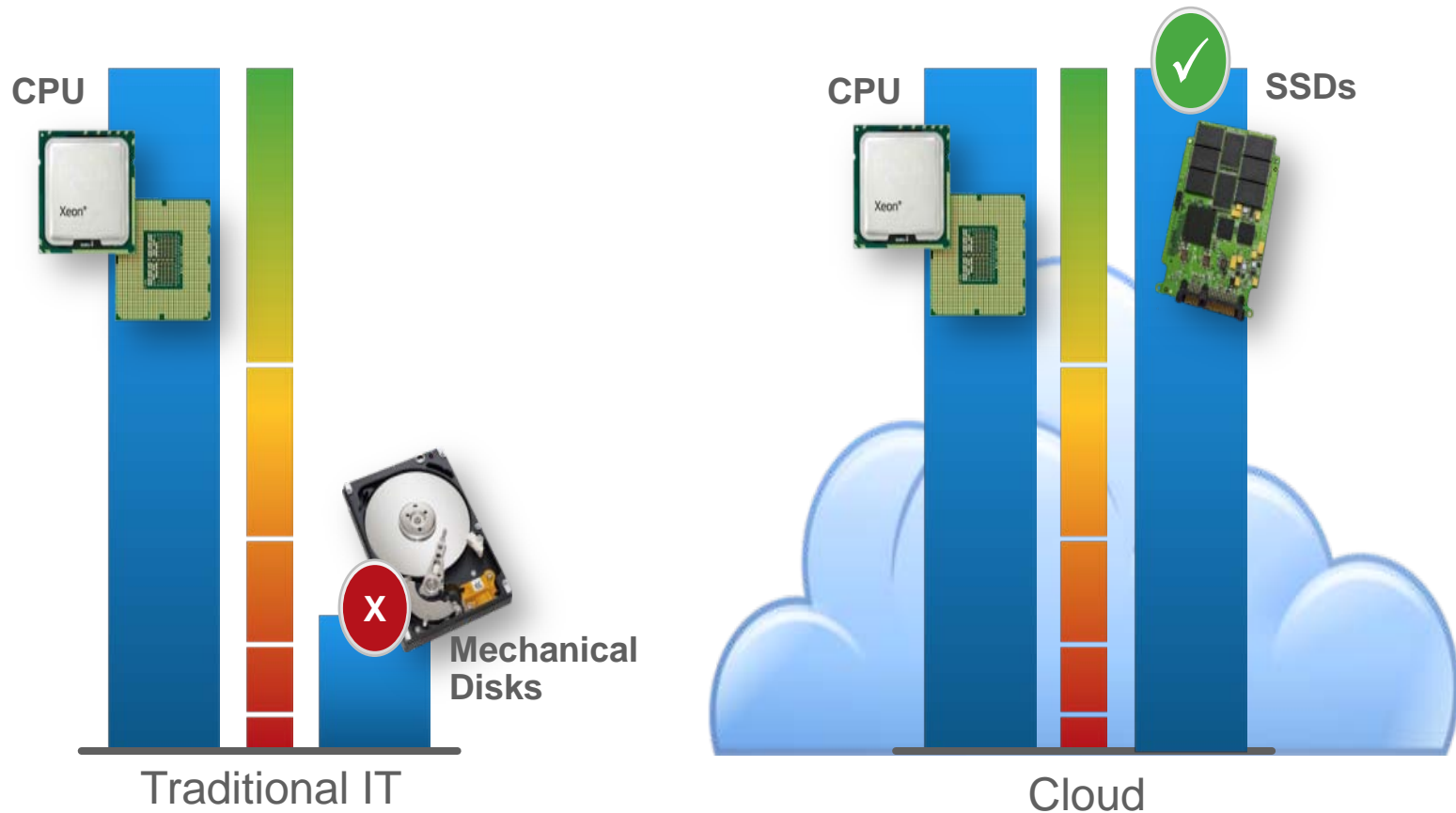
Heterogeneous App SLAs

Fault Resiliency

Transaction Scale

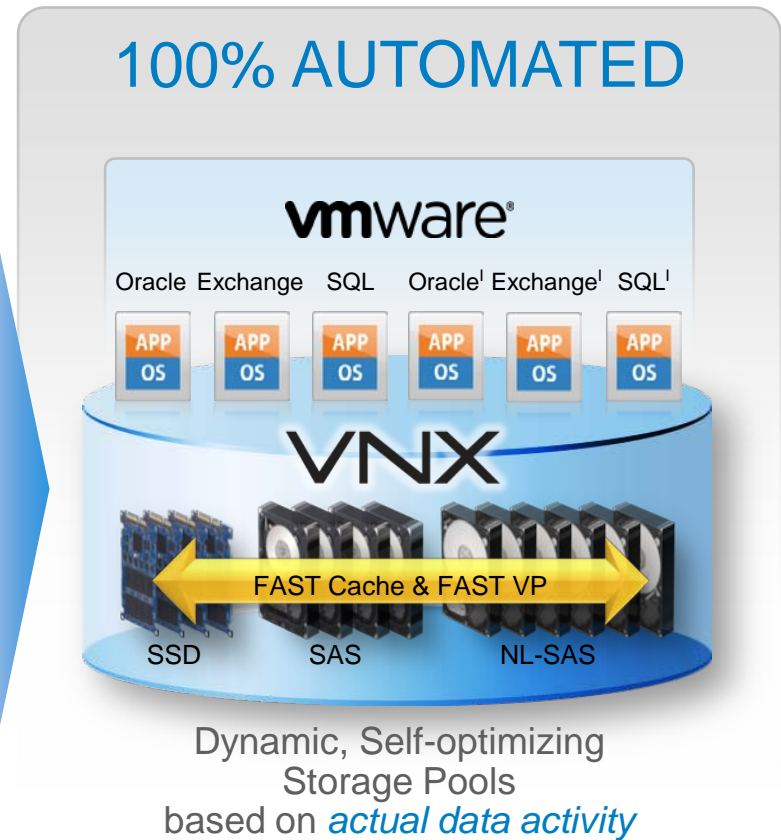
Optimizing Your Private Cloud

Compute power and storage IO must be balanced



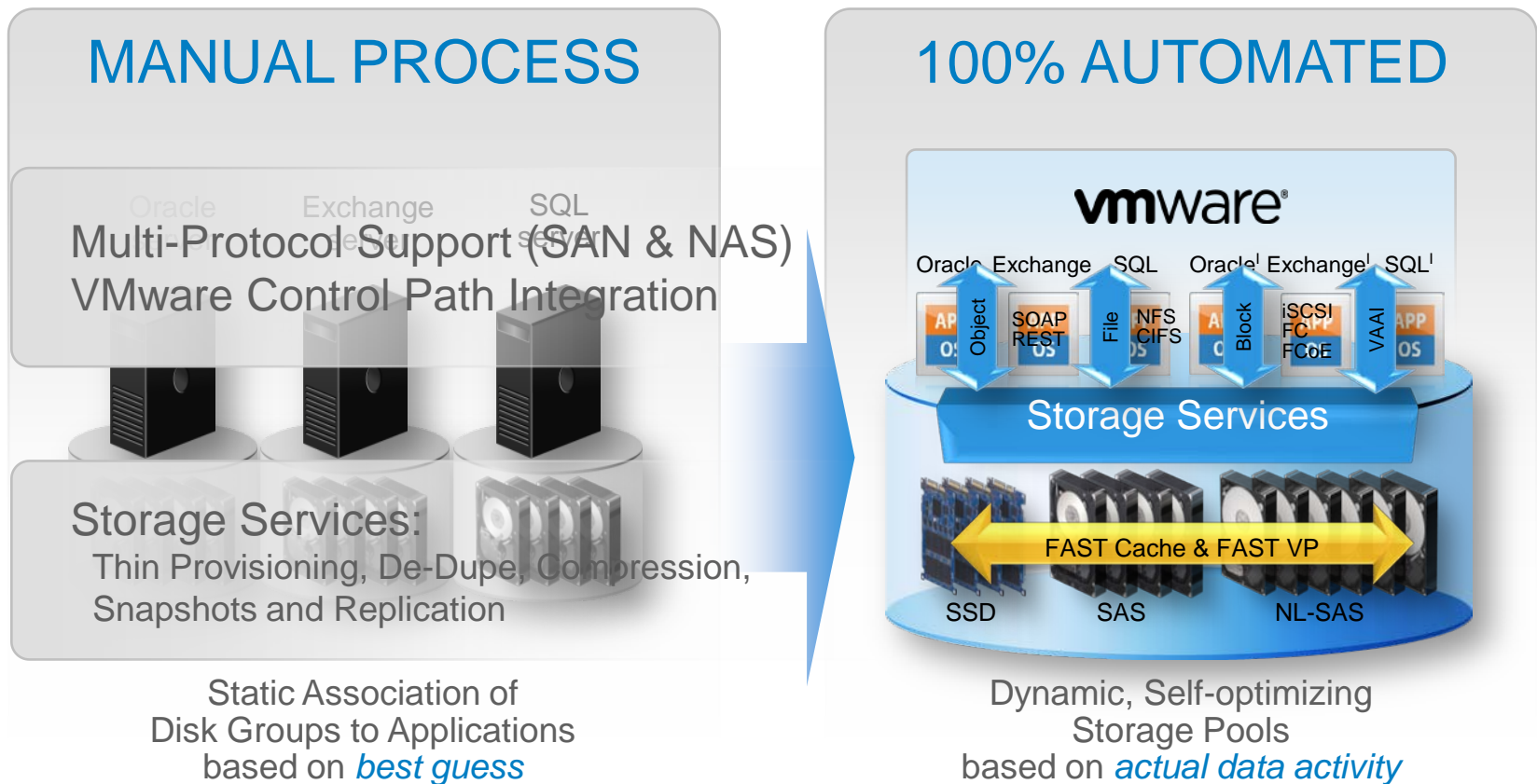
Virtualization Changes Everything...

SLA optimization has shifted from Point-in-Time to Real-Time



Virtualization Changes Everything...

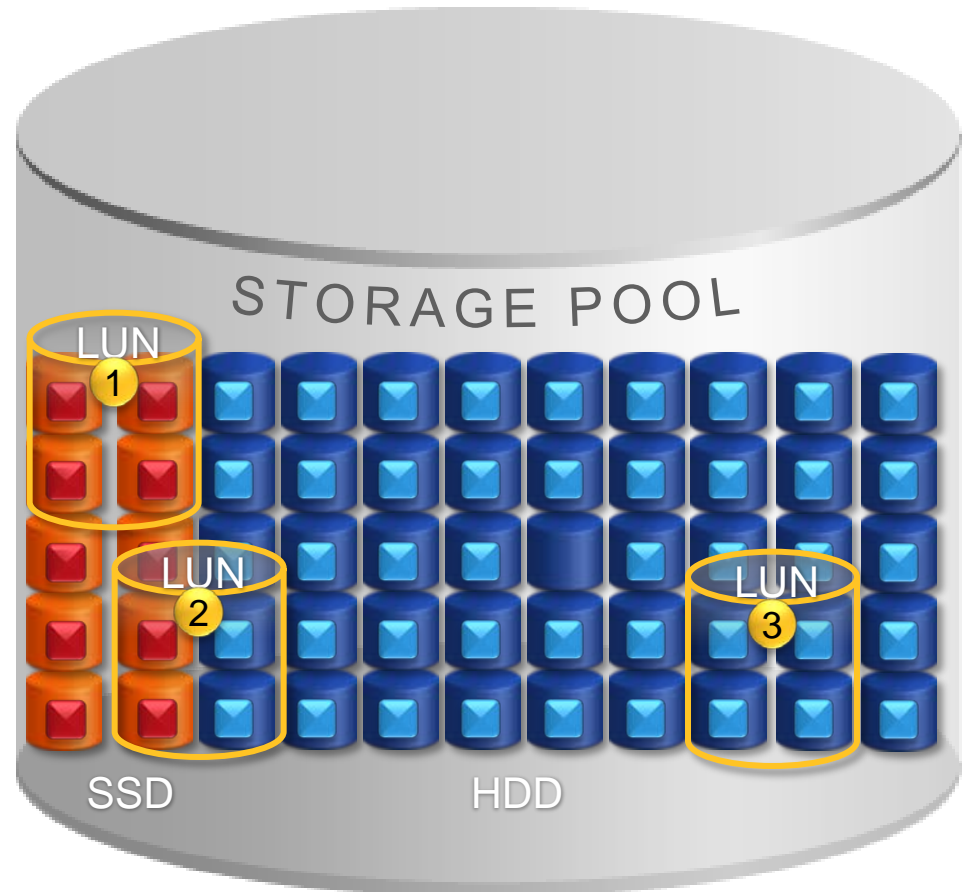
Storage system provides data services across all protocols



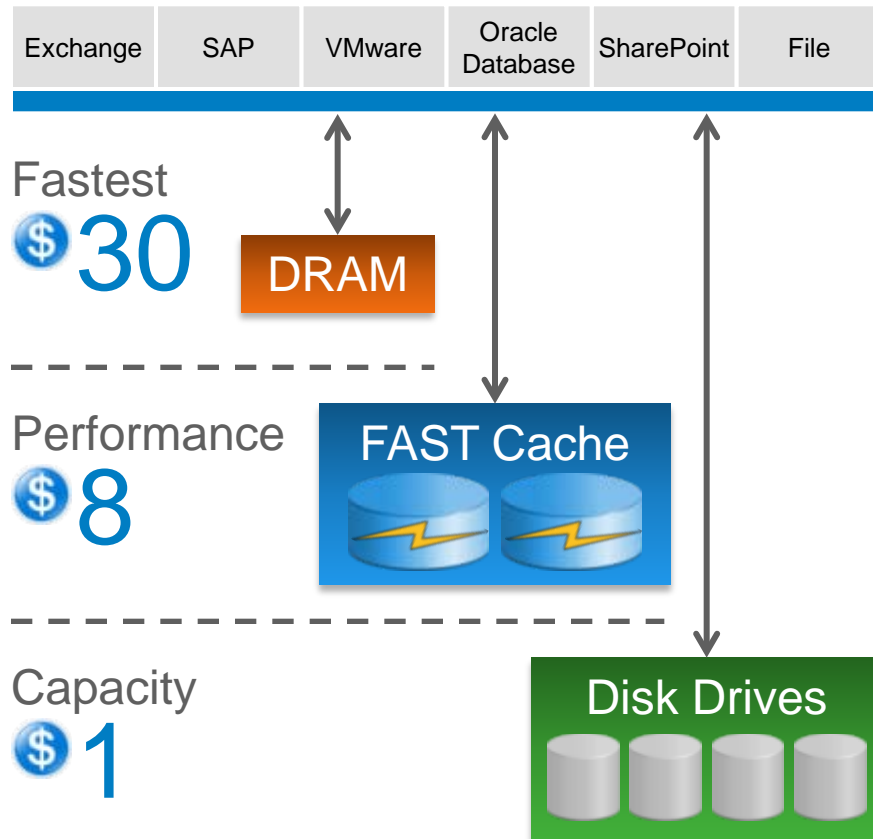
FAST VP Policies

Policy ensures storage service levels are met

- 1 Highest Tier Preferred**
Maximize performance
e.g. high-performance OLTP system
- 2 Auto-Tier**
Optimize TCO and performance
e.g. databases with varied levels of activity among tables, or file systems with varied levels of activity across files
- 3 Lowest Tier Preferred**
Reduce TCO
e.g., archived or infrequently accessed data



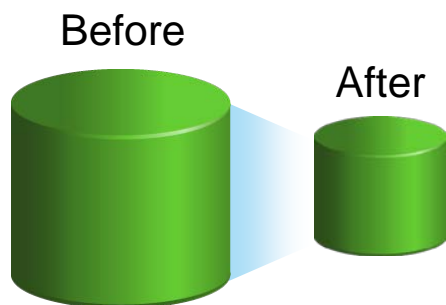
FAST Cache Overview



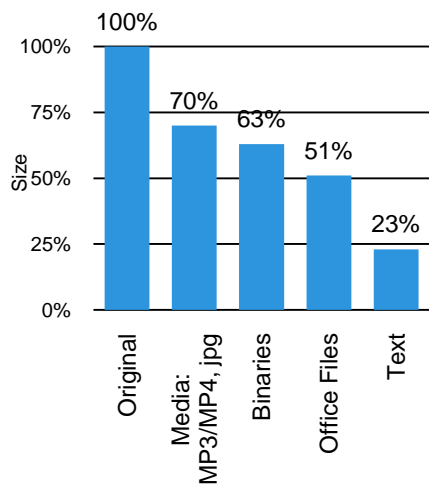
- Support for file and block
- Extends mid-tier cache using Flash drives
 - Adds up to 2 TB of cache
- Less than a third of the cost of DRAM
- Hot data automatically ends up in FAST Cache
- RAID 1 for Read/Write protection
- Transparent to SP failure, no need to warm up the cache
- Applicable to most workloads

Block Data Compression

Reduces data footprint by up to 50%



- Works with LUNs, databases, e-mail
 - Best with infrequently accessed data
- Minimal performance impact
- Compression done in background



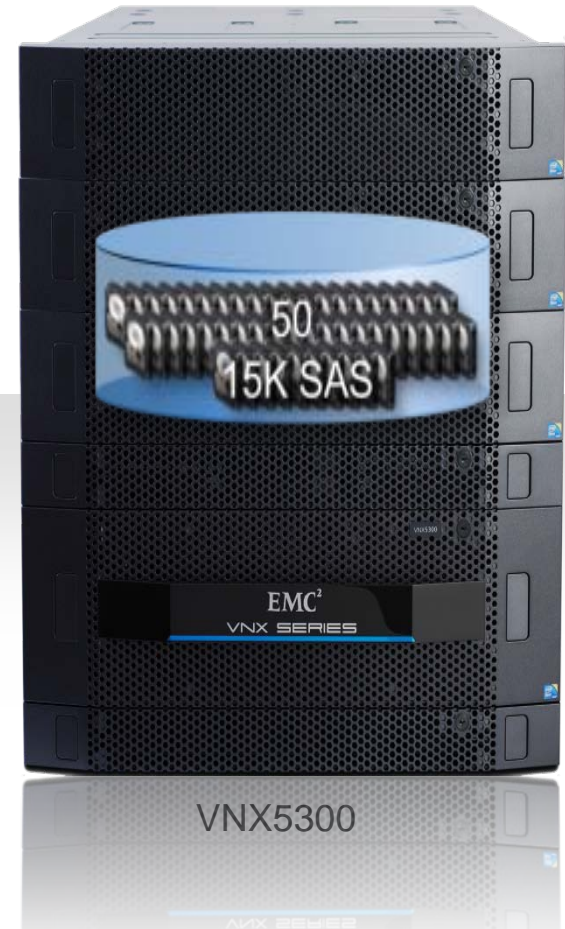
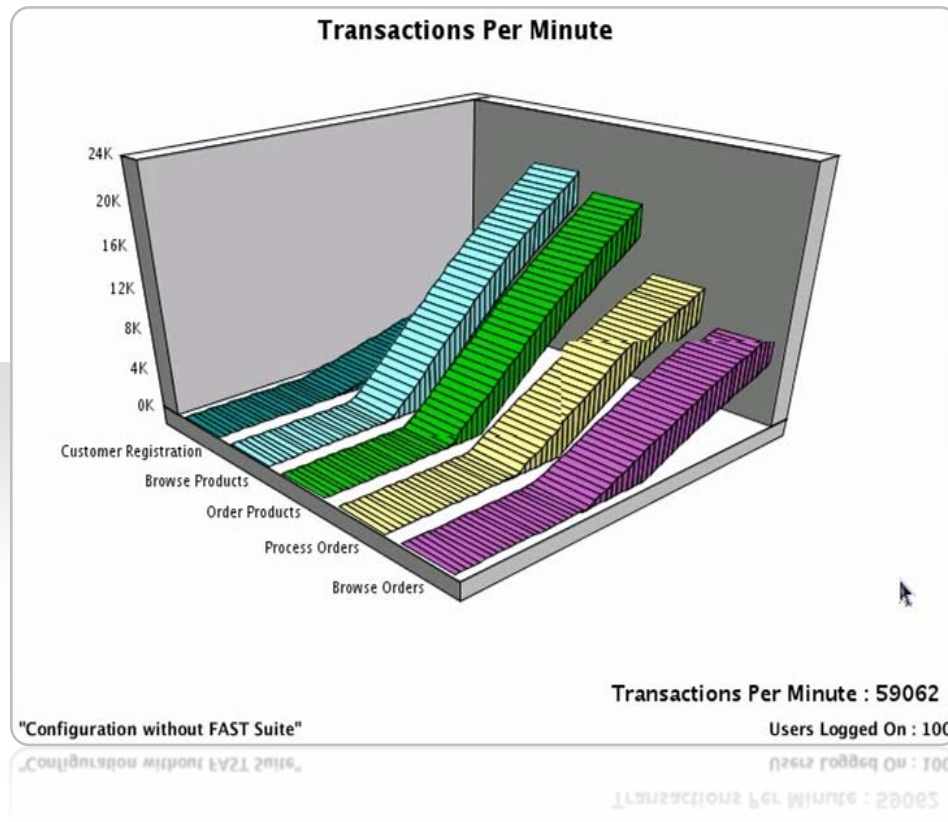
Benefits

Point-and-click savings reduce data footprint

Recapture storage capacity

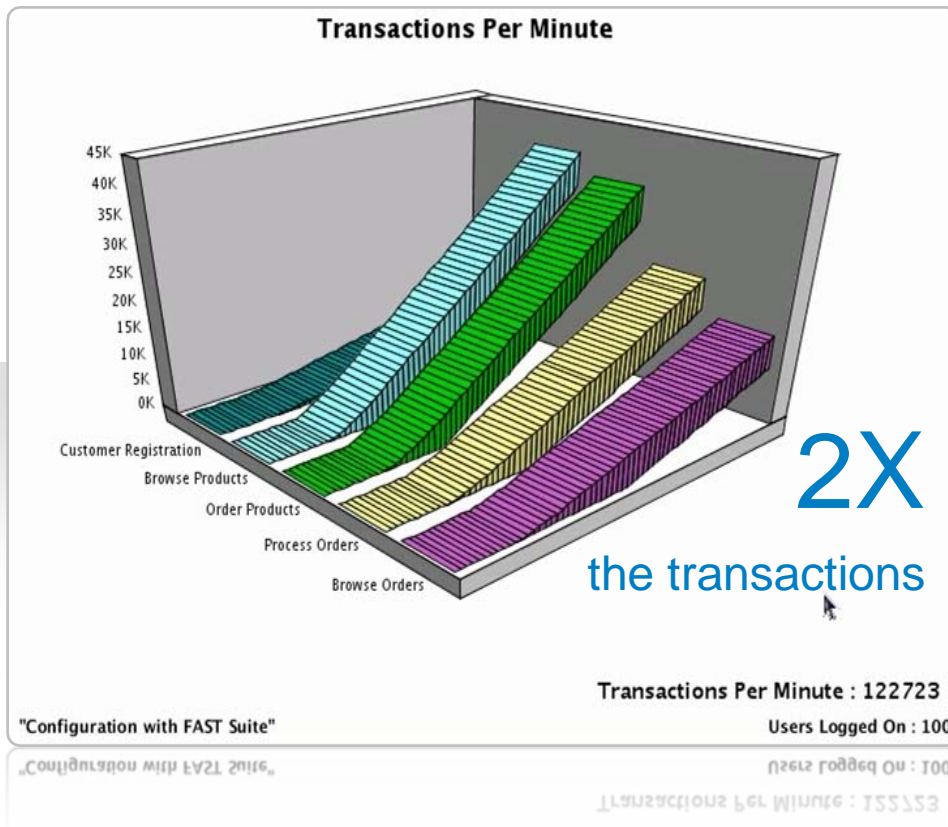
Waiting for Mechanical Disks...

Delivered transactions are limited by mechanical latency



Supercharging Apps with FLASH 1st

Driving higher levels of efficiency



New VNX Vblock Series 300

Engineered. Integrated. Supercharged.

VBLOCK Series 300

- Vblock Series 300 model EX (VNX5300)
- Vblock Series 300 model FX (VNX5500)
- Vblock Series 300 model GX (VNX5700)
- Vblock Series 300 model HX (VNX7500)



VNX



EMC²

New VNX Hardware Innovations

Shipping in 2011

2X

THE BANDWIDTH



4-port, SAS 2.0 SLIC

2X

THE SPINDLES



2U, 25 slot 2.5" drive tray

3X

THE CAPACITY



4U, 60 slot 3.5" drive tray

The EMC logo, consisting of the letters 'EMC' followed by a superscripted '2'.

New Efficiency: 1.8 PB per Floor Tile



600

DISKS
PER RACK

120 million YouTube Videos
180 million PowerPoint Files
360 million MP3 Files



Search Just Got More Efficient...

More up-to-date search results only with VNX & Google



VNX

Google
Matt Eichner,
GM Enterprise Search



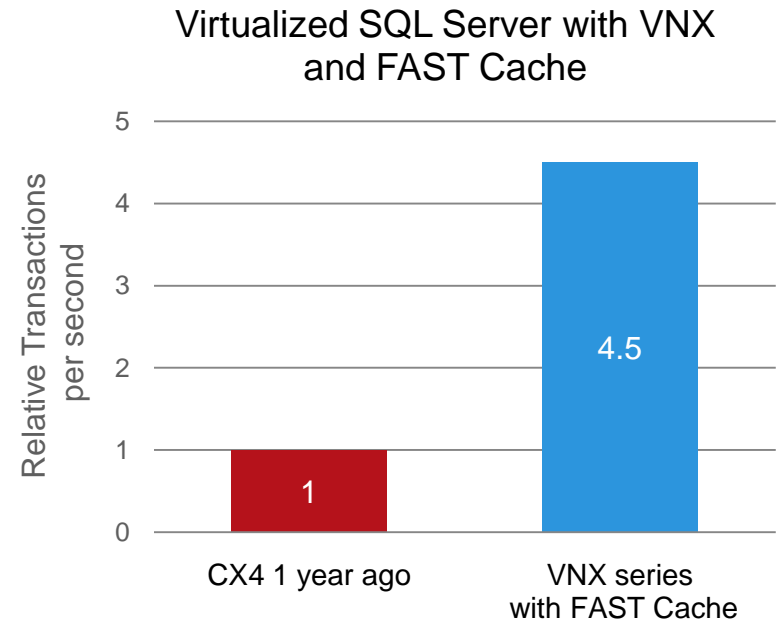
Google Search Appliance

Automated, on-the-fly search indexing

EMC²

Accelerate SQL Server virtualization

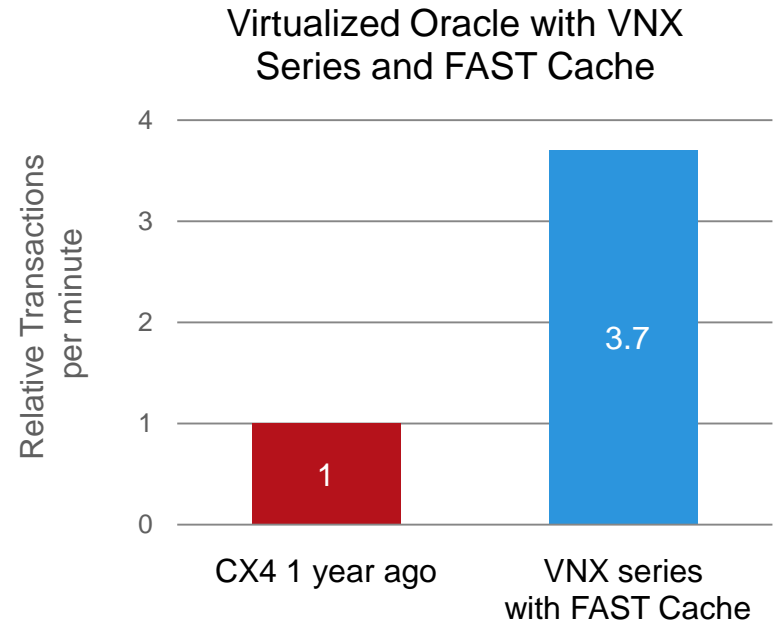
- 4.5x performance improvement vs. previous generation
- Achieves optimized performance without expensive data base and application tuning
- Configuration:
 - VNX5700 utilized 20 SAS and 4 Flash drives with FAST Cache
 - vs. CX4-480 with 20 FC drives



Leverage Flash technology to cost effectively boost performance

Accelerate Oracle OLTP with VNX Series

- Improved Oracle transaction time by **3.7x**
 - Using FAST Cache and virtualized Oracle (with vSphere 4.1)
- Increased performance comes at only a **18%** increase in storage solution cost
- Configuration:
 - VNX5300 with **20** 15K SAS and **7** Flash drives (two used as FAST Cache, five in a tiered pool with FAST VP)
 - Vs. CX4-120 with **45** FC drives

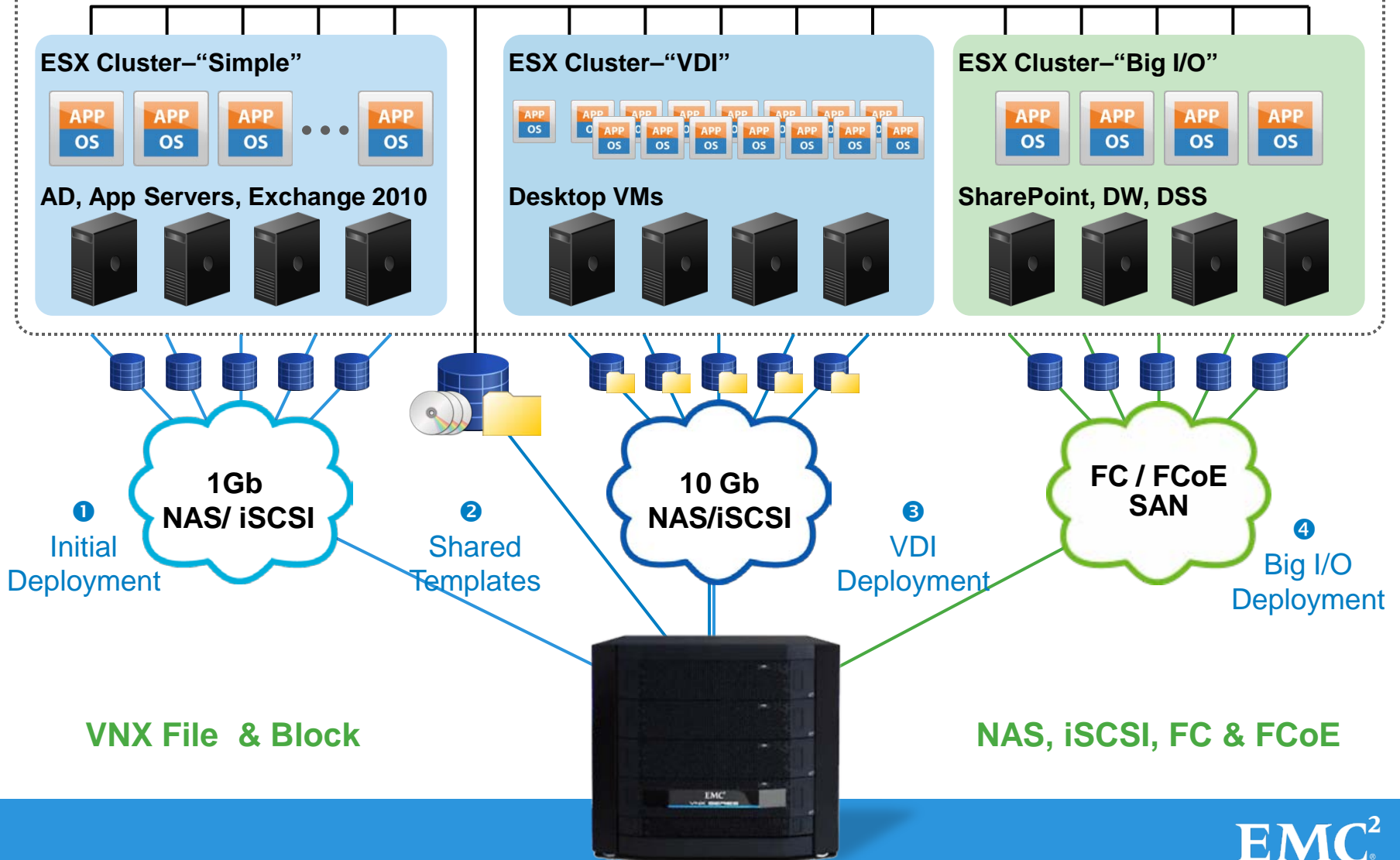


Leverage disk tiering to lower the cost of response time & scale of transactions

EMC VNX & VMWare

Multi-Protocol Storage—Critical for VMware

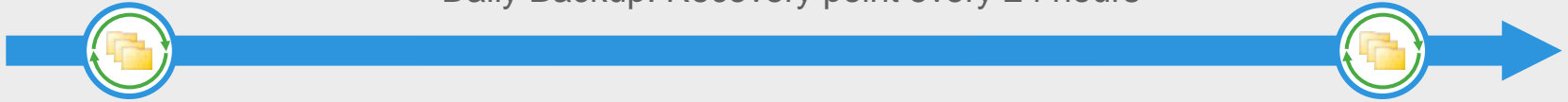
VMware Infrastructure Data Center



Current options for Data Protection

Traditional Backup

Daily Backup: Recovery point every 24 hours



Local Snapshots

Snapshots/Clones: Recovery point every 3 hours



Remote Synchronous / Asynchronous Replication

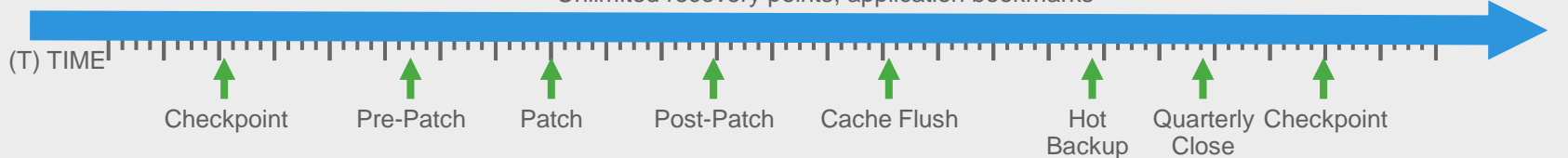
Disk Mirroring: Recovery point latest image replicated



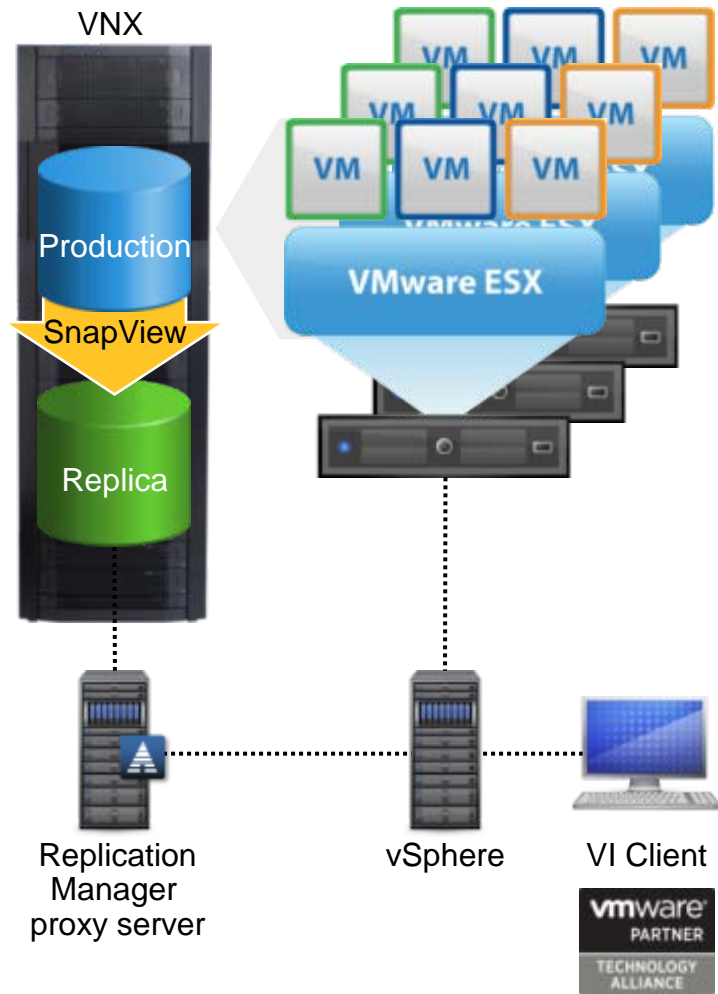
RecoverPoint/SE CDP and CRR

Continuous Data Protection: DVR like recovery

Unlimited recovery points, application bookmarks



Replication Manager for VMware Environments



- Common management console for EMC snaps, clones and CDP replicas
- Application and VM consistency
 - Exchange, SQL Server, SharePoint, Oracle
- Eliminates costly, error prone scripting of replicas with point-and-click wizard-driven GUI
 - Backup acceleration eliminates backup windows
 - Business continuity for instant restore or surgical repairs to production
 - Repurposing to dev/test environments
- Minimal impact on production performance
- Faster, low impact on VMware ESX Server

Storage Management

EMC Virtual Storage Integrator

The screenshot displays the VSI - vSphere Client interface. The main window is titled "Datstores" and shows a list of storage devices. The "NFS Test1" storage is selected, and its details are shown in the "Storage Details" pane. The details include server information, filesystem information, storage pool information, and disk usage.

Identification	Status	Device	Capacity
vm_share	Normal	DGC Fibre Channel Disk (naa.6006016...	534.50 GB 370
Storage1	Normal	Local DELL Disk (naa.60026b904853b...	134.75 GB 119
adsasdasdf	Normal	DGC Fibre Channel Disk (naa.6006016...	5.75 GB 5
NFS Test1	Normal	172.23.193.48;/NFS1	198.47 GB 196
Storage Viewer N...	Normal	172.23.193.48;/StorageViewer	98.47 GB 98
LuayTest	Normal	172.23.193.48;nfs_laqa1130_1	9.85 GB 9

Storage Details

NFS Test1

Server: 172.23.193.48 198.47 GB Capacity

Folder: /NFS1

1.84 GB Used

196.63 GB Free

Celerra

Control Station: api1045 Array ID: APM00053005888

Model: NS500G Data Mover: server_2

NAS Version: 5.6.45-5

Filesystem

Name: NFS1 98.47 GB Capacity

Volume: v99 1.84 GB Used

Auto Extend: Enabled 96.63 GB Free

Max Extend Size: 200.00 GB

Virtual Provisioning: Enabled

Storage Pool

Name: NFS_Pool 250.00 GB Capacity

Description: Pool for NFS exports for Storage Viewer testing

200.00 GB Used

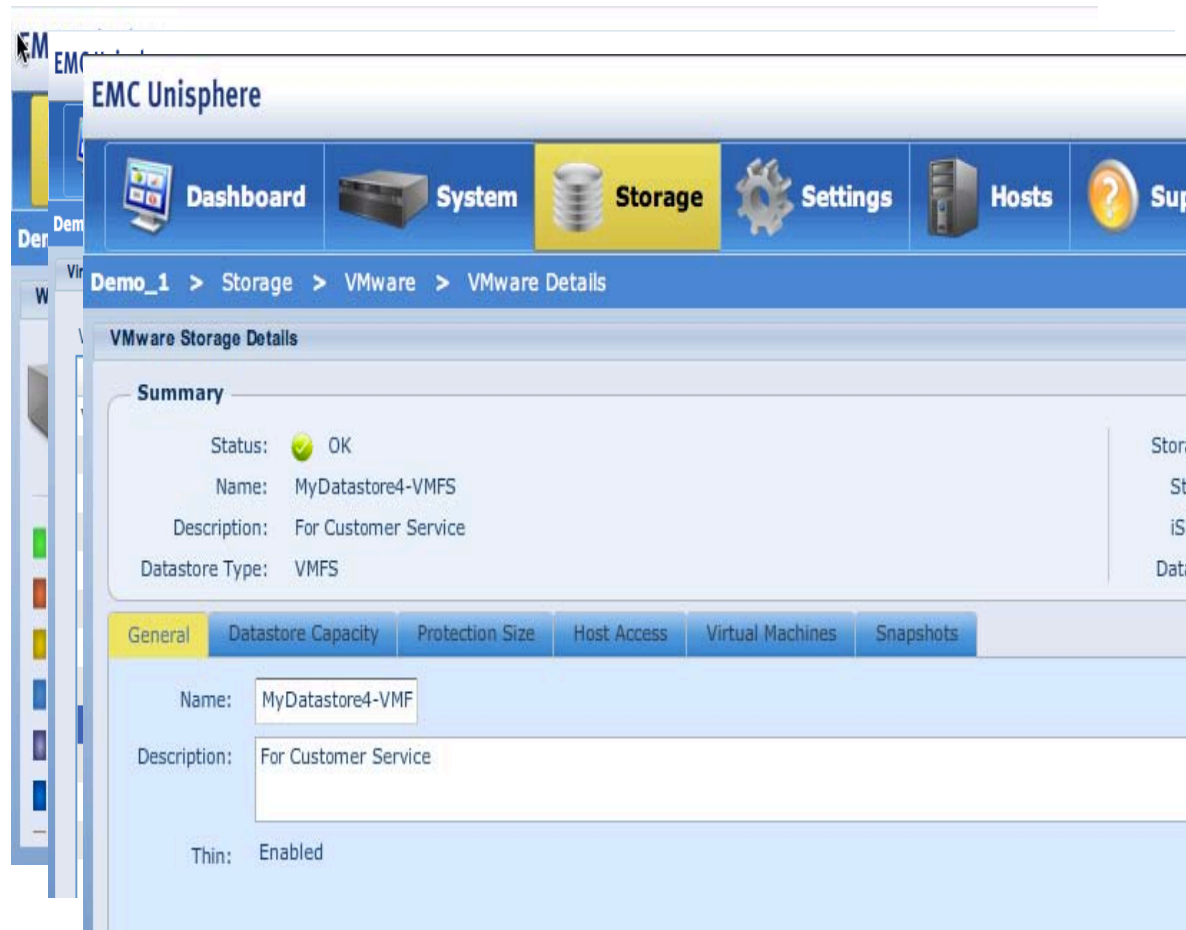
50.00 GB Free

Disk Usage

Volume	Array	Device
d8	APM0005240055	0011

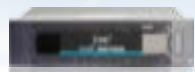
VMware Aware Storage - *EMC Unisphere*

- Automatic discovery
 - Virtual Machines
 - ESX servers
- End-to-end virtual-to-physical mapping
- Automated virtual infrastructure reporting





VNX



VNXe3100



VNXe3300



VNX5100



VNX5300



VNX5500



VNX5700



VNX7500

Affordable. Simple. Efficient. **Powerful.**

EMC²

THANK YOU

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