Revealing the Secrets to Software-Defined Storage.

Exclusive webinar featuring thought leaders from Nexenta, Forrester, VMware and Cox Communications.

100% Software. Total Freedom. All Love.

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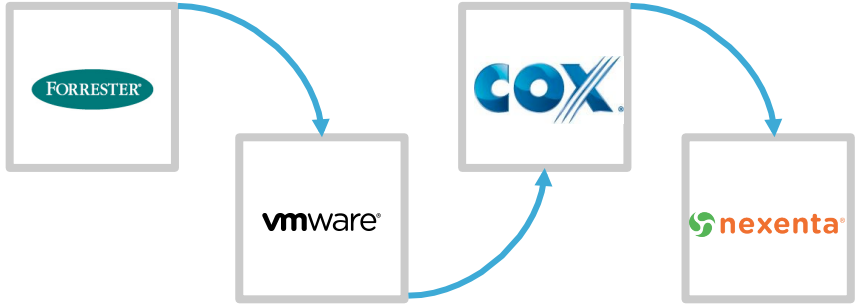
Wednesday, July 29th, 2015, 10AM PT



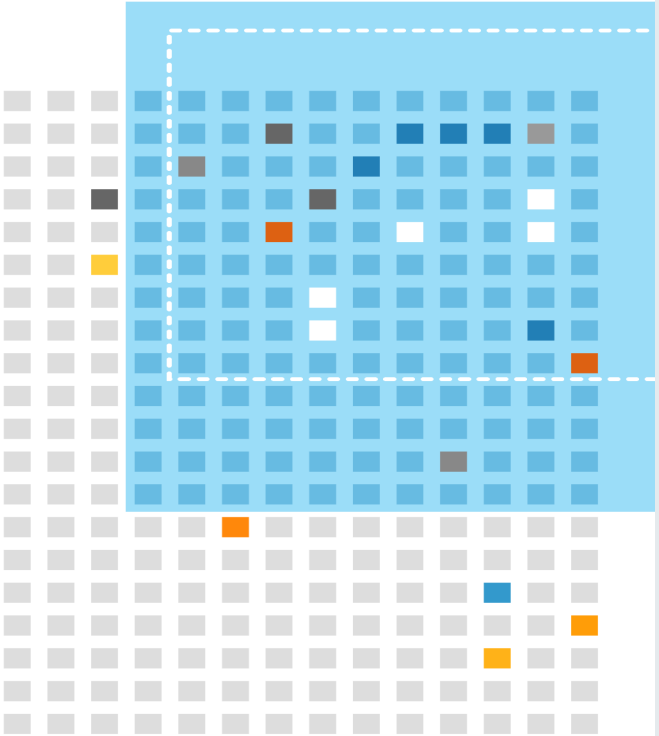
Henry Baltazar, Senior Analyst, Storage

Explosive Data Growth Is Changing Storage Requirements

VELOCITY, EFFICIENCY & SCALABILITY ARE KEY CHALLENGES

Our view: Data growth combined with the desire for infrastructure flexibility are forcing enterprise and midsized companies to rethink their data management architectures.

- **Storing more data for every business operation,** business growth is driving data growth, but budgets are not growing rapidly.
- **Business stakeholders require faster provisioning,** organizations need resources quickly to take advantage of opportunities.
- **More workloads are considered critical,** organizations have little tolerance for data loss and downtime.

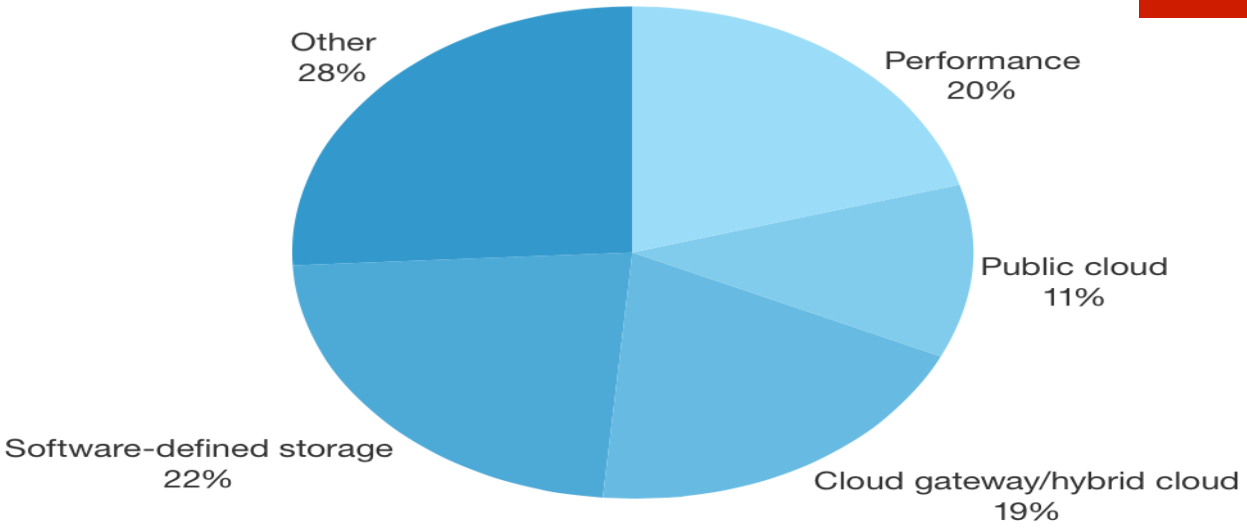


STORAGE MUST BE FASTER, SMARTER AND EASIER TO PROVISION!

Cloud, Performance & SDS Dominate Enterprise Inquiries

Performance related inquiries increased 4X in 2015!

1-1 | Top storage technology and strategy topics for CY 2014



Source: Forrester's inquiry database, calendar year 2014

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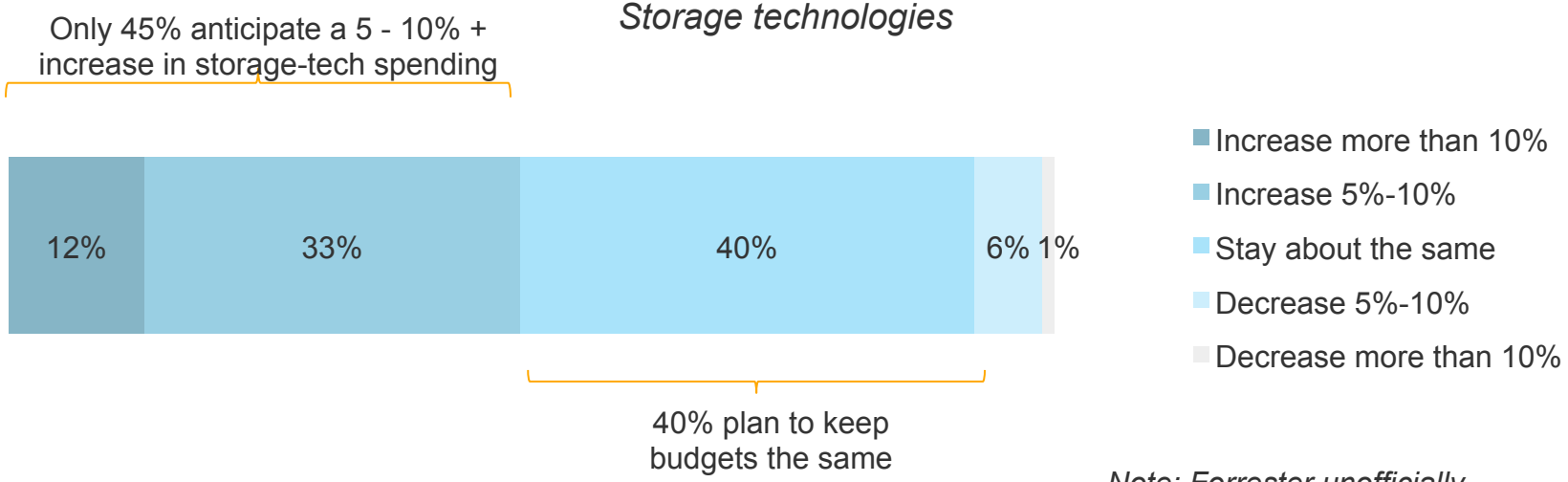
Storage Spending Increases Are Not Substantial Enough To Keep Pace With Data Growth

How do you expect your firm's spending on the following IT infrastructure expenses to change over the next 12 months? -
Storage technologies

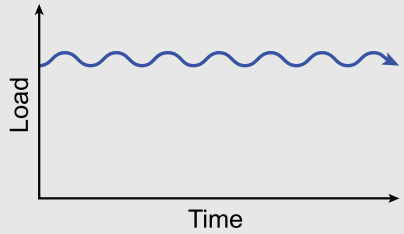


Note: Forrester unofficially estimates average data growth is ~30%, annually

Base: 546 US technology and business decision-makers (1,000+ employees)
Source: Forrester's Business Technographics Global Infrastructure Survey, 2014

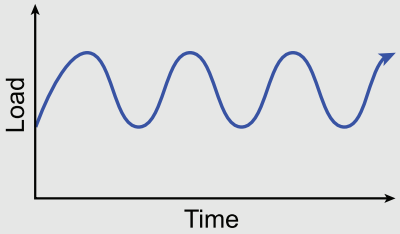
Performance requirements are rarely static. Your storage must adapt to changing needs.

High and steady



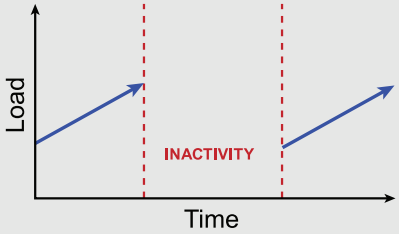
- ERP

Variable predictable



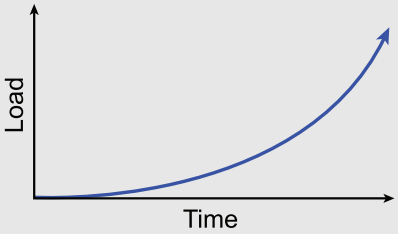
- Seasonal

On/off



- Develop/test/QA

Hypergrowth



- New campaign

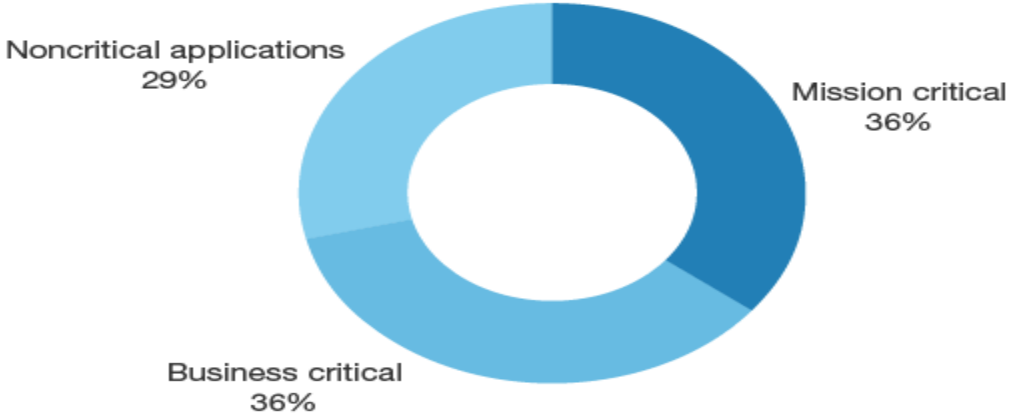
You must work with your stakeholders to understand what their workloads will require!

More And More Systems Are Considered Critical

May 2014 “The State Of Business Technology Resiliency, Q2 2014”

3-1 | Mission-critical and business-critical tiers are increasing

“What percentage of your applications and data fall into the following tiers?”



Base: 94 global disaster recovery decision-makers and influencers
(does not include “don’t know” responses; percentages do not total 100 because of rounding)

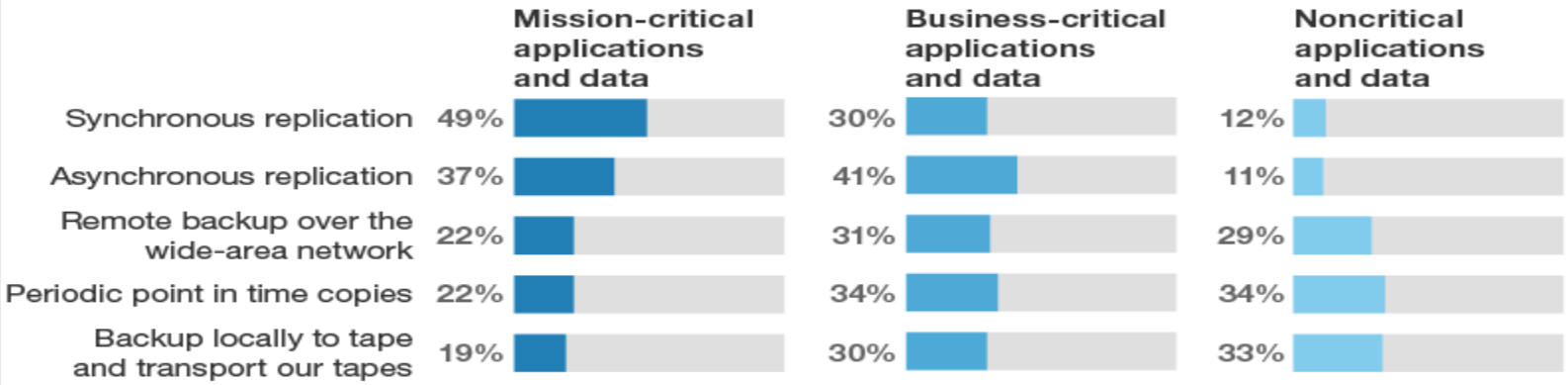
Source: Forrester/Disaster Recovery Journal November 2013 Global Disaster Recovery Preparedness Online Survey

More And More Systems Are Considered Critical (Cont.)

May 2014 “The State Of Business Technology Resiliency, Q2 2014”

3-2 Data between primary recovery sites

“How do you copy data between your primary recovery sites?”

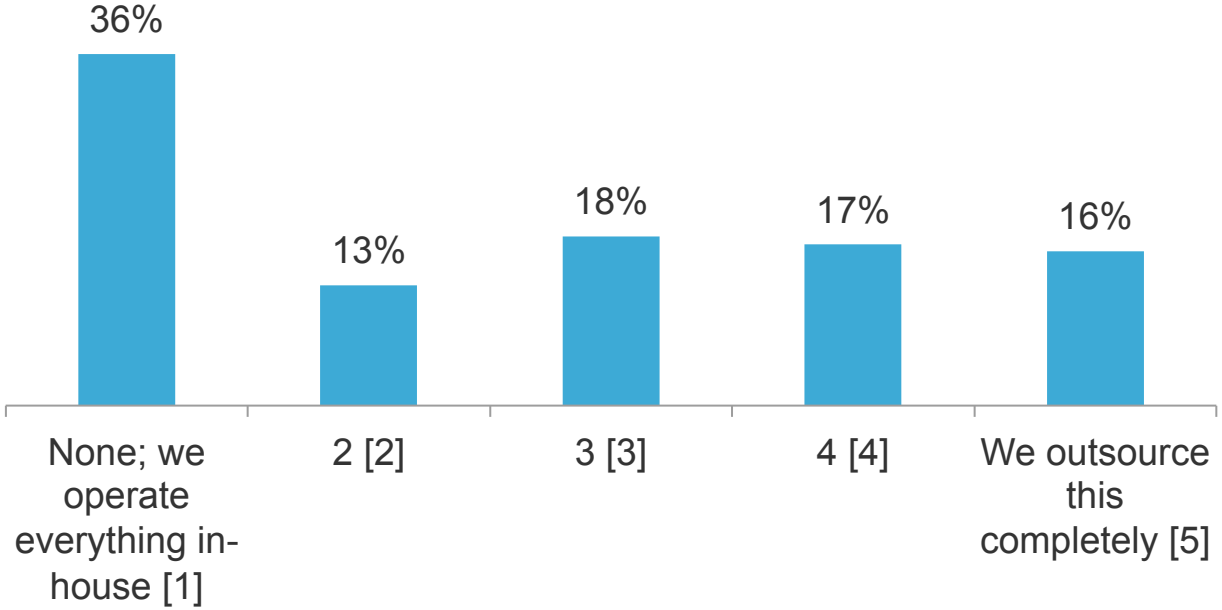


Base: 94 global disaster recovery decision-makers and influencers
(does not include “don’t know” responses; multiple responses accepted)

Source: Forrester/Disaster Recovery Journal November 2013 Global Disaster Recovery Preparedness Online Survey

Storage Is Not Being Outsourced

"How much outsourcing and managed services does your firm use for IT operations (excluding systems integrators for project implementation)?" [Showing "Storage"]



Source: Global Business Technographics Infrastructure Survey, 2014

Base: 592 business and technology decision makers at enterprises (1,000 + employees)

Agenda

- Enterprise Challenges
- ***Rise Of Software-Defined Storage***

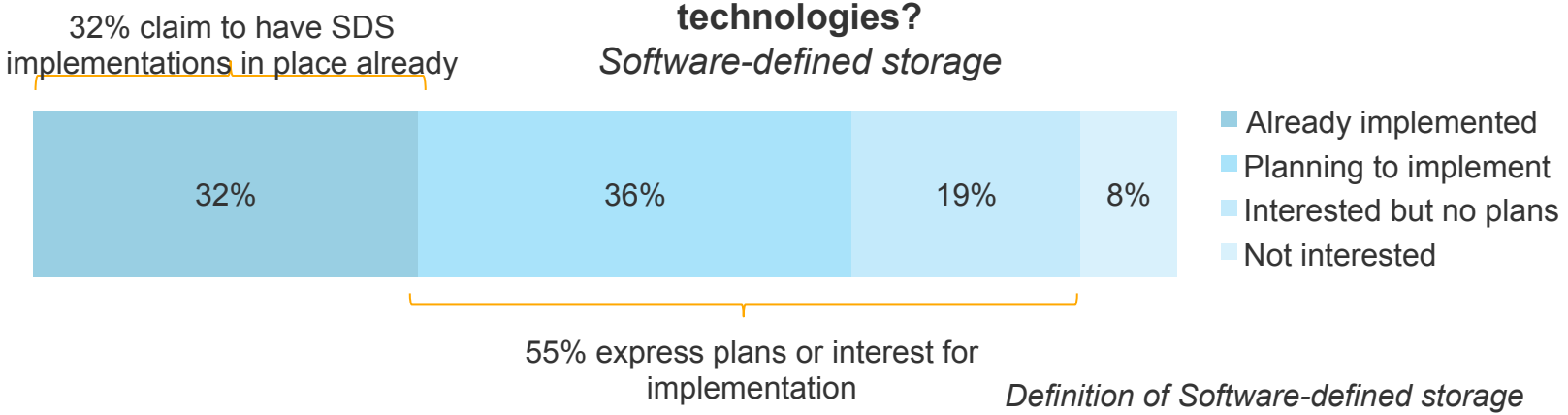
Defining Software-Defined Storage

Software-defined storage (SDS) is a new storage architecture that ***pools together existing and new storage resources*** *and allows developers and other business stakeholders to access these resources* ***without administrator intervention*** *through APIs or service catalogs.*

Software-defined storage is a growing component of storage optimization strategies

What are your firm's plans to adopt the following data center technologies?

Software-defined storage



Definition of Software-defined storage (SDS): a new storage architecture that pools together existing and new storage resources and allows developers and other business stakeholders to access these resources without administrator intervention through APIs or service catalogs.

Base: 215 US technology decision-makers (1,000+ employees)

Source: Forrester's Business Technographics Global Infrastructure Survey, 2014

Where Does Software-Defined Storage Fit?

- Unstructured Data Storage – NAS and Object Storage are a good starting point
- VSA (Virtual Storage Appliance) form factor is simplifying deployment for virtualization
- Systems of Record and high performance storage are future markets

SDS has key technology requirements

SOFTWARE-DEFINED STORAGE BOOSTS AGILITY AND EFFICIENCY

API based provisioning

Allows clients and applications to request and attain resources without human intervention
Is already being used in public cloud storage services such as Amazon S3

Storage Virtualization

Aggregates heterogeneous storage into a shared pool of storage
Simplifies data migration to help break up silos

Storage QoS (Quality of Service)

Provides guaranteed IOPS and throughput performance for applications
Helps minimize the negative impact of ‘noisy neighbors’

Storage Is Dominated By Hardware-Defined Platforms

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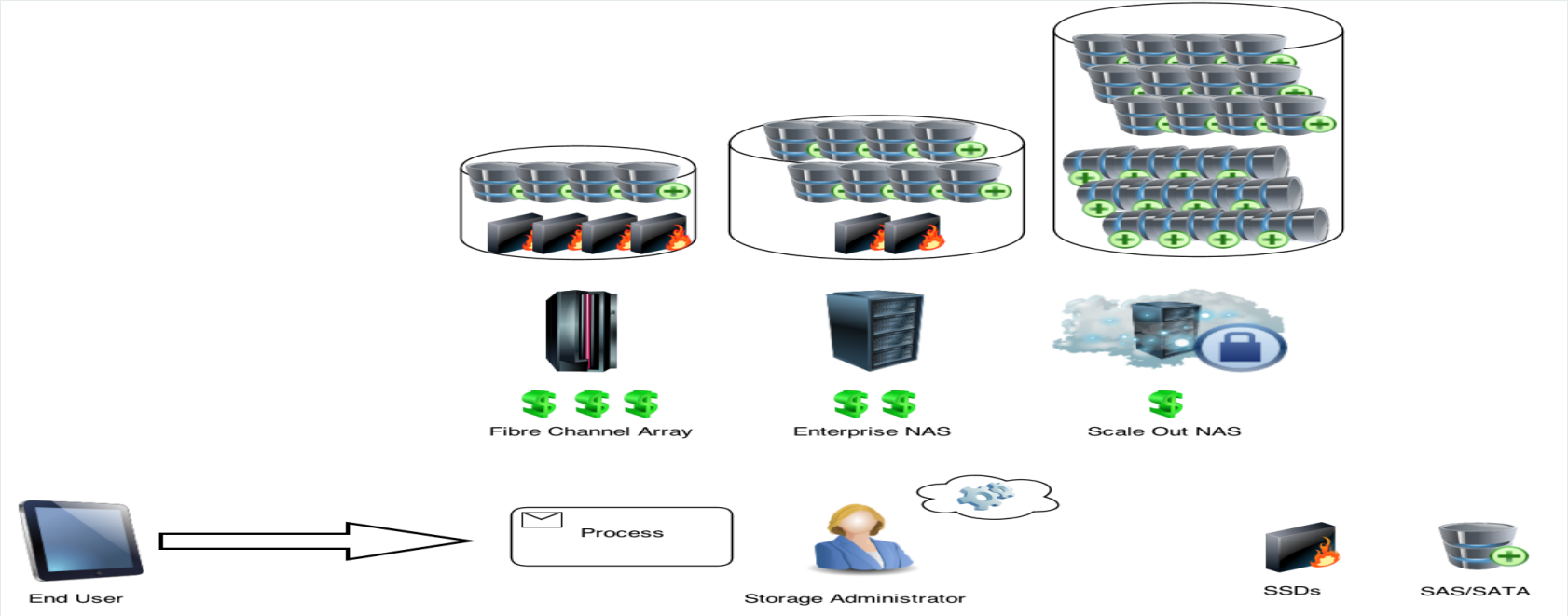
Complex storage environments make administrators a bottleneck



Phase 1: SDS technology will simplify provisioning

Do not expect to move forward with a clean slate

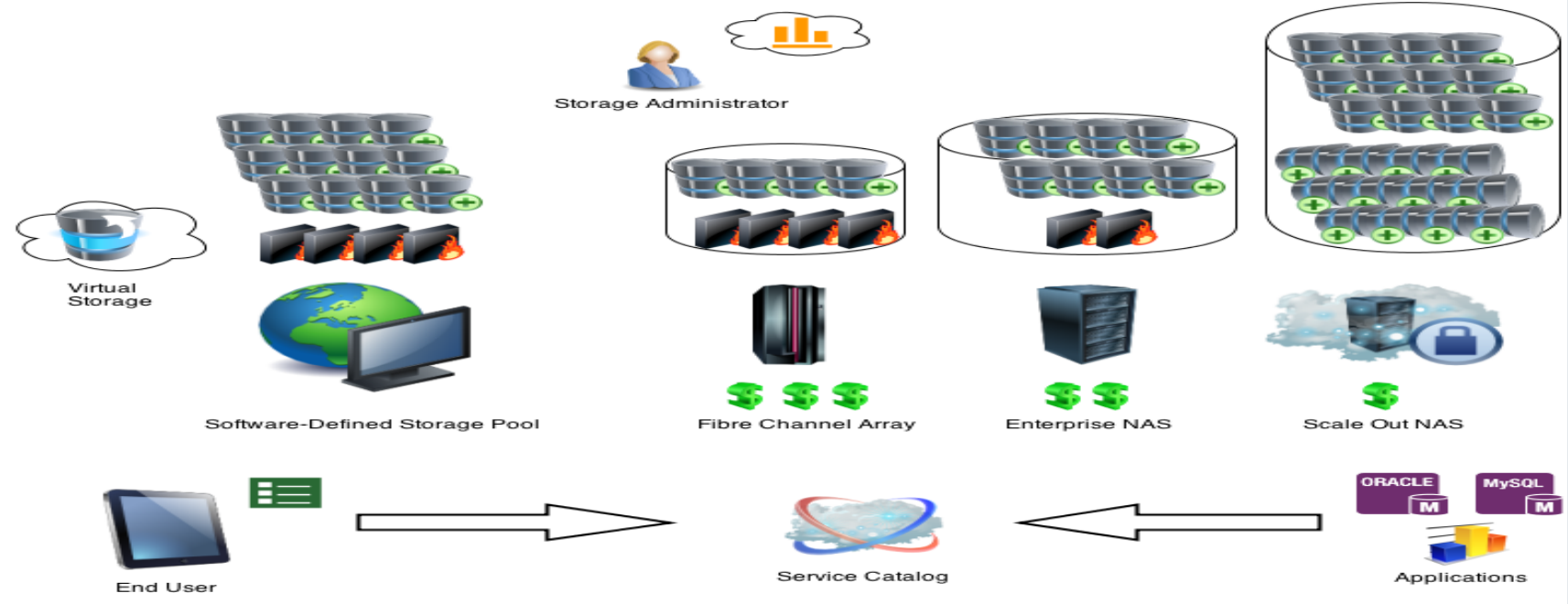
- Rip & replace is highly disruptive and costly
- Most storage systems have a usable life of 5+ years

Established players are adding SDS functionality

- Determine which systems will have a long future
- Establish service levels based on product capabilities

Integrate storage systems with service catalogs to free up administrators from provisioning burden

SDS will blend existing and new storage



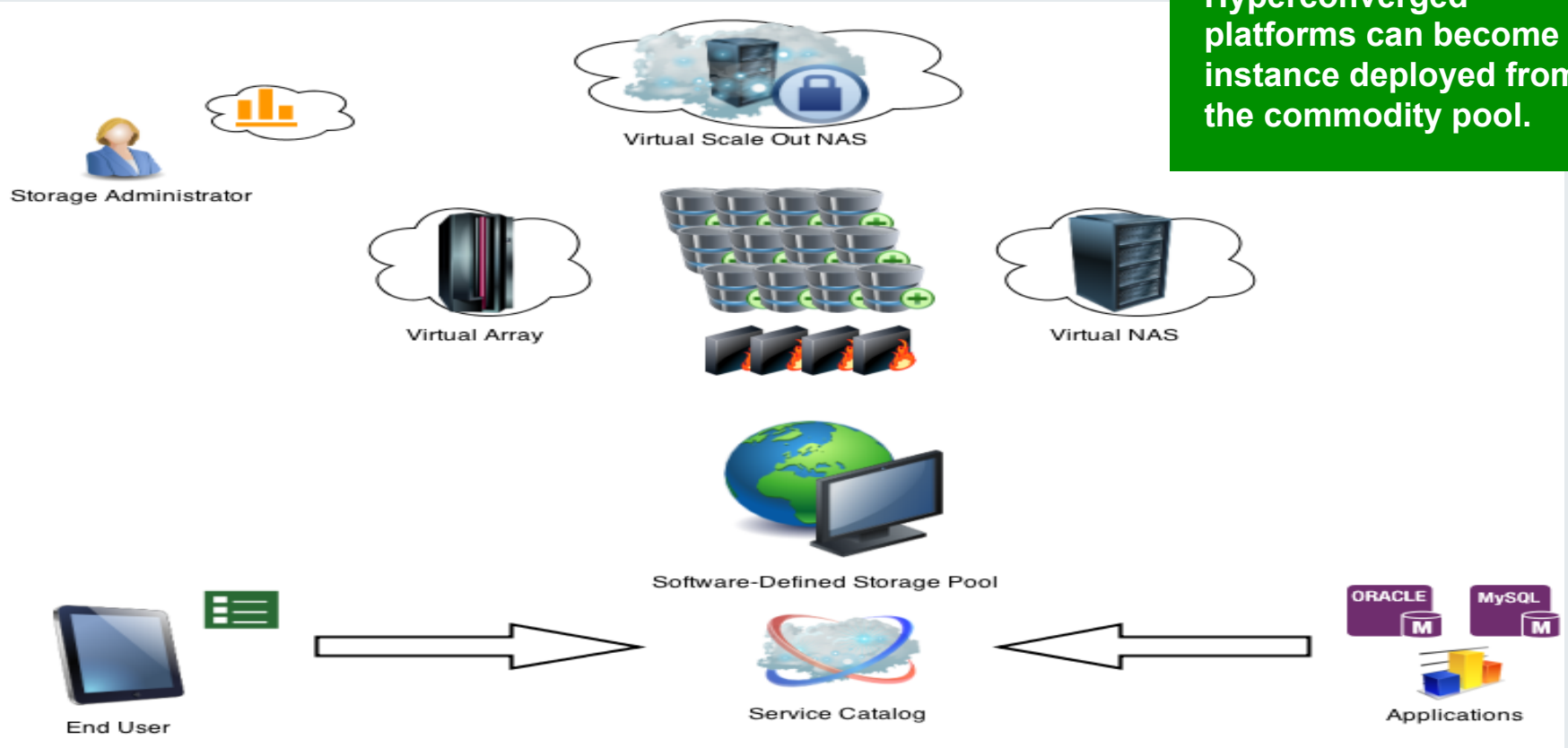
Phase 2: The Ultimate Implementation Of SDS Will Usher In Software-Only Storage

- Software-only storage products are entering the market
- Spending will shift away from proprietary silos and towards inexpensive commodity hardware
- The complete transition may take years to accomplish and in some cases may not be possible

Service providers are leading the charge, but we also see enterprises asking about software-only storage.

Software storage will eventually replace appliances

Hyperconverged platforms can become an instance deployed from the commodity pool.



Software-Only Storage Can Bridge The Gap Between Appliances And Cloud Storage Services

Market Overview: Software-Only Storage

	Traditional storage appliance	Software-only storage	Cloud storage
Acquisition terms	3 to 5 years purchase or lease agreement	Enterprise licensing or pay per use	Pay per use
Storage capacity elasticity	Fixed capacity or scale up only	Fixed capacity or elastic (scale up or scale down)	Scale up, scale down, or retire on demand

Software-only storage provides elasticity for on-premise environments.

117221

Hyperconvergence Will Impact Multiple Tiers

Archive

- Move apps to storage, not the other way around
- Physics driven

Midrange

- Customers want integration between virtualization and storage management

High Performance

- Flash near CPUs delivers the lowest possible latency
- Physics driven

Forrester's Definition of Hyperconvergence:

*An approach to technology infrastructure that **packages server, storage and network functions into a modular unit** and adds a software layer to discover, pool, and reconfigure assets across multiple units quickly and easily **without the need for deep technology skills**. These systems can be either implemented as software plus **modular physical units or as a software overlay** on top of existing infrastructure.*

Hyperconvergence Simplifies Technology Access

- Storage technologies can be a gating factor to scalable infrastructure
  - Midsized companies lack or can’t afford SAN expertise
- Hyperconverged platforms provide enterprise storage functionality
  - Shared storage for VMs is the key feature for resiliency and workload migration

Appliances vs. Software

Appliances

- PROS
  - Easy to deploy
  - Consistent hardware
- CONS
  - No granularity for scaling up compute and storage
  - Vendor lock-in

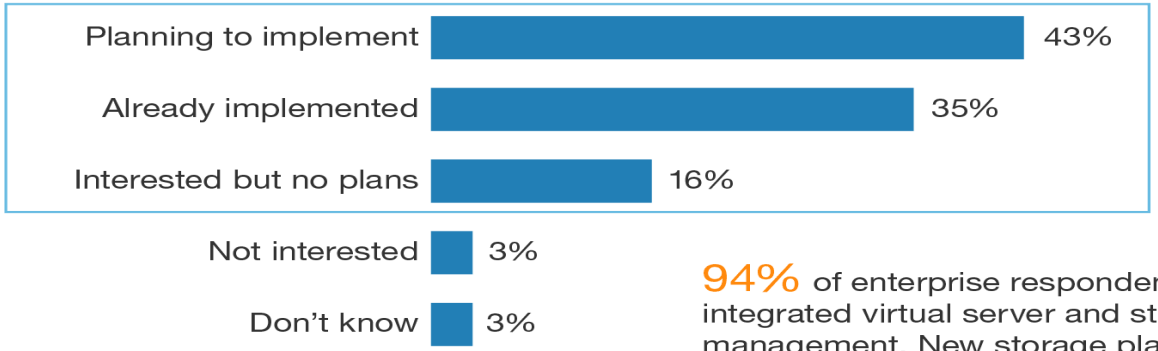
Software

- PROS
  - Commodity hardware
  - Potential for elastic pricing
- CONS
  - Hardware certification and interoperability challenges
  - Service and support

Demanding Enterprises Want Management Integration

Simplify And Accelerate Your Infrastructure With Hyperconvergence

"What are your firm's plans to implement virtual storage and storage management processes implemented on your server virtualization and/or private cloud environment?"
(showing "high priority and critical priority")



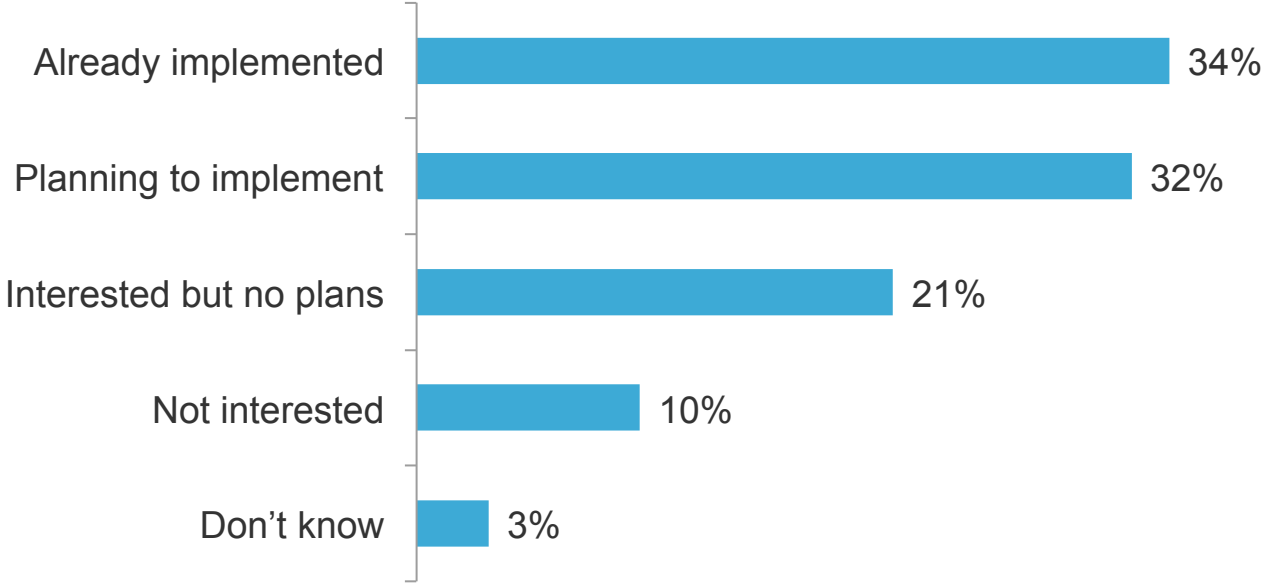
94% of enterprise respondents want integrated virtual server and storage management. New storage platforms must complement virtualization.

Base: 158 US business and technology decision-makers with 1,000+ employees

Source: Forrester's Business Technographics® Global Infrastructure Survey, 2014

Interest Levels Are High For Converged Infrastructure

"What are your firm's plans to adopt converged infrastructure systems (such as Cisco UCS, HP Bladesystem Matrix, or IBM PureSystems)?



Source: Global Business Technographics Infrastructure Survey, 2014

Base: 592 business and technology decision makers at enterprises (1,000 + employees)

Recommendations

FORTIFY AND MODERNIZE YOUR INFRASTRUCTURE WITH HYPERCONVERGENCE

- Enhance utilization and flexibility with software in place of appliances
- Leverage automation to accelerate provisioning
- Simplify infrastructures with converged infrastructure and hyperconvergence

Thank you

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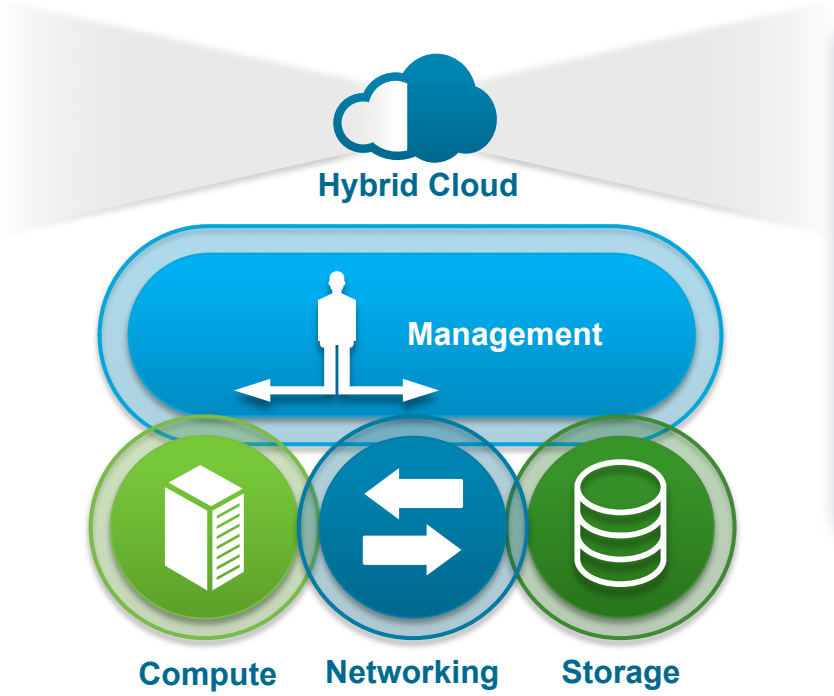
Gaetan Castelein - Sr. Director for Storage & Availability

Software Defined Data Center (SDDC) Enables Unified Hybrid Cloud IT

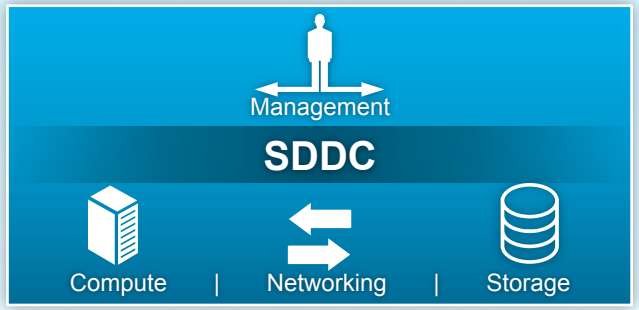


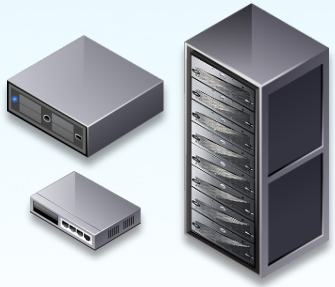
Ideal Architecture for the Hybrid Cloud

- All infrastructure services virtualized: compute, networking, storage
- Control of data center automated by software (management, security)
- Unified platform for existing and new apps, delivered to many devices

VMware Enables SDDC on Any Infrastructure Architecture

Transforming Traditional Infrastructure with SDDC





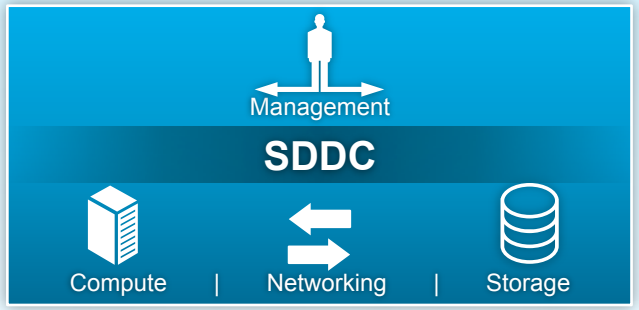
Open Systems

- Hardware components (compute, storage, networking) purchased, deployed and managed separately

Converged Infrastructure

- Hardware components (compute, networking, storage) integrated in a server chassis

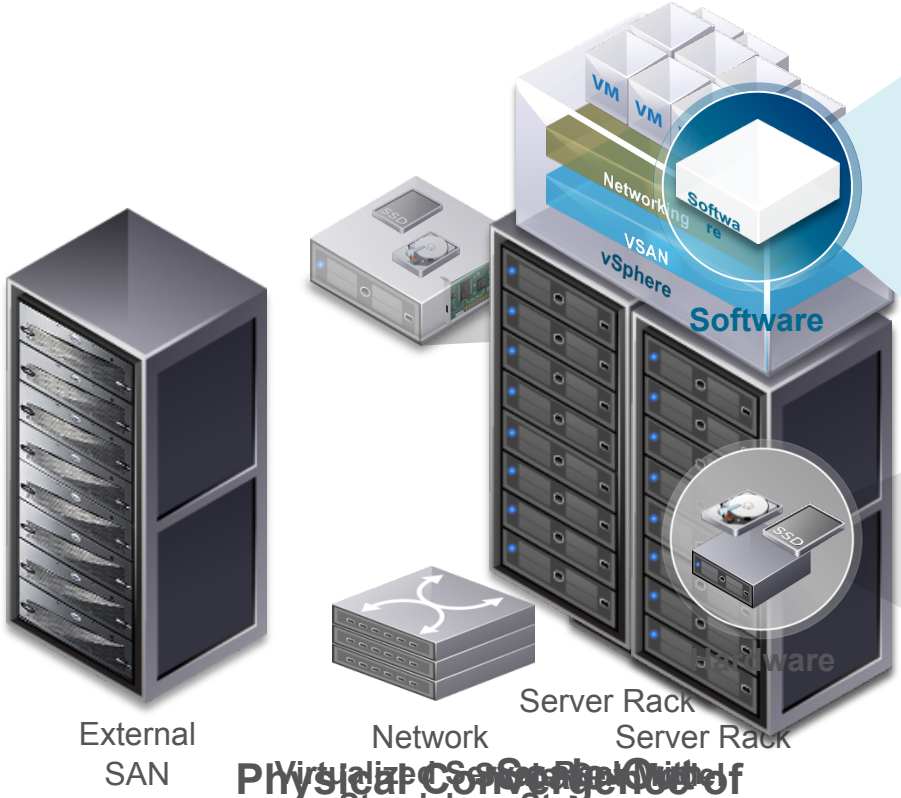
Emerging Architecture for SDDC



Hyper-Converged Infrastructure

- Convergence of compute, networking and physical storage onto x86 servers enabled by software

Compute, Storage and Networking Convergence Enabled by a Software-Driven Architecture



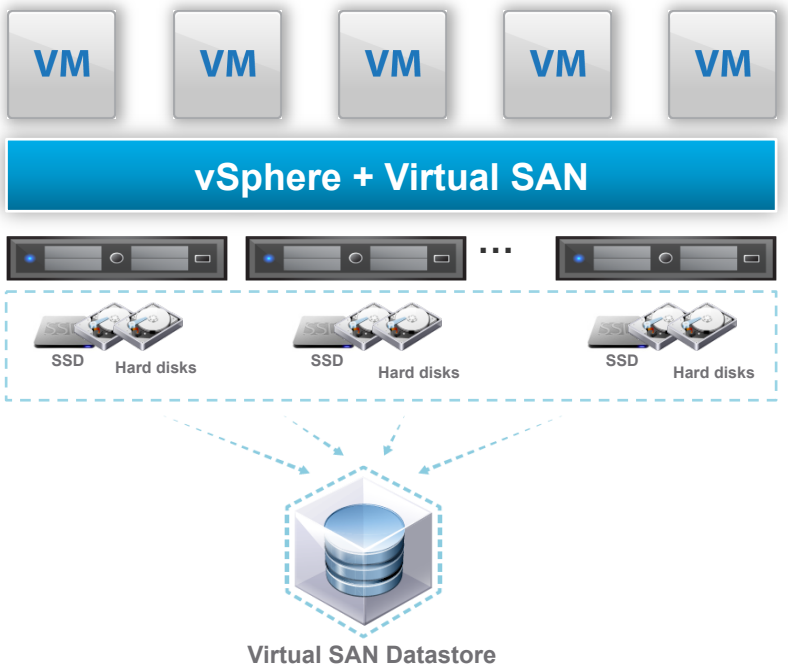
- Intelligence in software
- Single layer of compute, networking and storage software
- Elastic Scaling
- Maximum Performance
- Hardware-agnostic

- Convergence of physical storage on commodity x86 hardware
- Building-block approach

Physical Convergence of Storage on Commodity x86 Hardware

VMware Virtual SAN 6.0

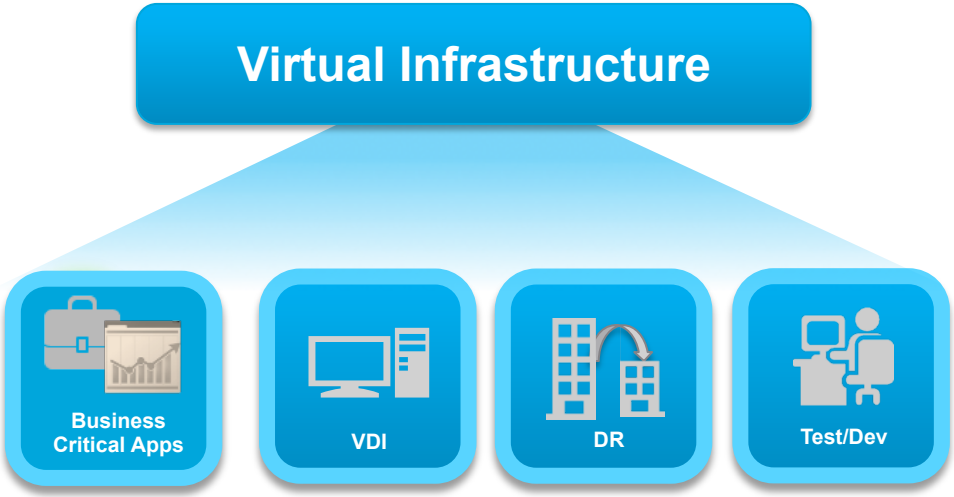
Radically Simple Hyperconverged Storage for VMs



Overview

- Software-defined storage optimized for VMs
- Hypervisor-converged architecture
- Runs on any standard x86 server
- Pools HDD/SSD into a shared datastore
- Delivers enterprise-level scalability and performance
- Managed through per-VM storage policies
- Deeply integrated with the VMware stack

Virtual SAN 6.0 – Key Use Cases



Best storage for VMs

Optimized for Virtual Infrastructure

Enterprise-class

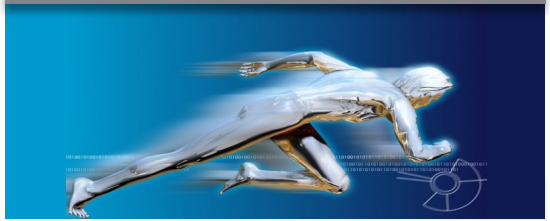
Ready for business critical apps

Why Customers Love Virtual SAN?

Radically Simple

- Two click install
- Single pane of glass
- Policy-driven
- Self-tuning
- Integrated with VMware stack

High, Predictable Performance with Elastic Scalability



- Flash-acceleration and SSD persistence
- Consistent IOPS with sub-millisecond response times
- Linear, non-disruptive scaling
- Embedded in vSphere kernel

Lower TCO

- Server-side economics
- No large upfront investments
- Grow-as-you-go
- Easy to operate with powerful automation
- No specialized skillset needed

What Virtual SAN Customers Were Able to Achieve…

TIME TO MANAGE STORAGE

-90%

REDUCED STORAGE LATENCY

<1 ms

REDUCED STORAGE COST

-60%

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The world is our market.

Oregon State UNIVERSITY OSU

Two Ways to Implement VMware Hyper-Converged Infrastructure

Certified Hardware

Virtual SAN Ready Node / BYO

- 50+ validated server configurations
- Jointly recommended by VMware and Server OEM
- Ready for Virtual SAN deployment
- Build your own SDDC by adding VMware software components

Integrated Systems

EVO Family

- Pre-integrated and pre-configured software with certified partner H/W
- Software to simplify deployment, configuration and lifecycle management
- vSphere, Virtual SAN and m twa

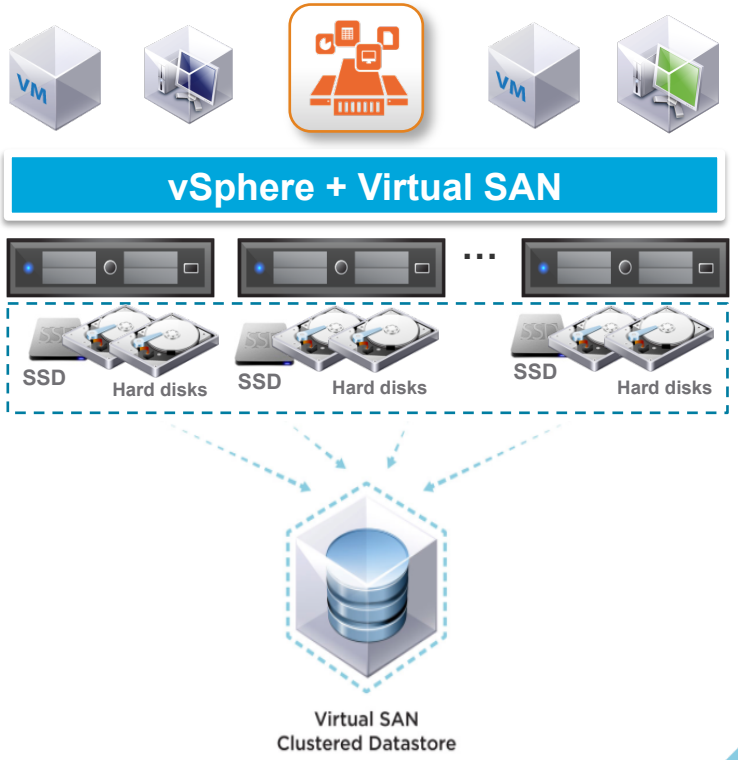
vmware EVO RAIL™

vmware EVO RACK™

Flexibility ⟷ **Ease of Use**

NexentaConnect

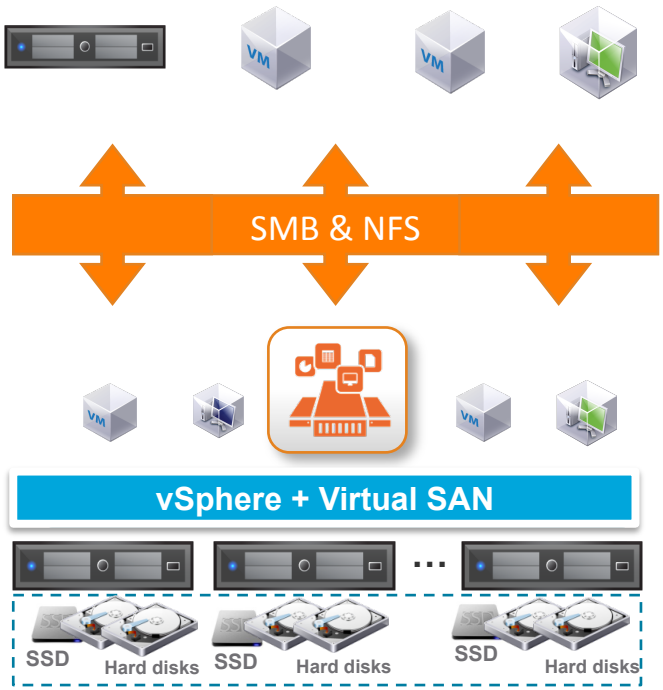
- The latest Software-Defined Storage Solution from Nexenta
- Complements VMware Virtual SAN simplified operating and storage consumption models:
  - Ease of management
  - Storage Policy Based Management (SPBM)
  - Leverages Virtual SAN underlying storage technologies
- Offers vSphere Administrators flexibility and benefits such as
  - Abstracted pool of files services
  - High performance NFS and SMB network shares
  - Live monitoring capabilities
  - Disaster Recovery planning capabilities



NexentaConnect for VMware Virtual SAN

Features

- Add file services on top of Virtual SAN
  - Based on ZFS file-system
  - Use portions of capacity for file services
- Easily provision file services
  - NFSv3
  - NFSv4
  - SMB
- Management integrated to vSphere Web Client
- Data services for capacity savings
  - Inline compression
  - De-duplication (tech-preview)
  - Snapshots
  - Clones
- Secure authentication and directory services
  - Active Directory
  - LDAP

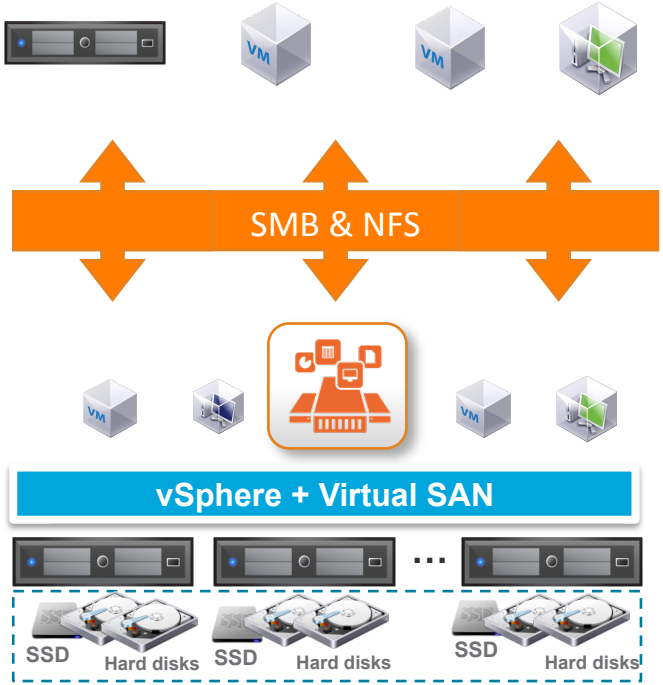


vmware

NexentaConnect for VMware Virtual SAN

Benefits

- Maintains data integrity during stressful tasks
  - Network
  - Disk
  - Host recovery
- Performance
  - Eliminates performance challenges with high random synchronous write workloads
- High Availability
  - Leverages Virtual SAN hardware availability technologies
  - Leverages vSphere HA
- Flexibility
  - Serviceable via Rest APIs
- End-to-End Data integrity on top of Virtual SAN
  - Leveraging the ZFS file-system guarantees protection against corruption

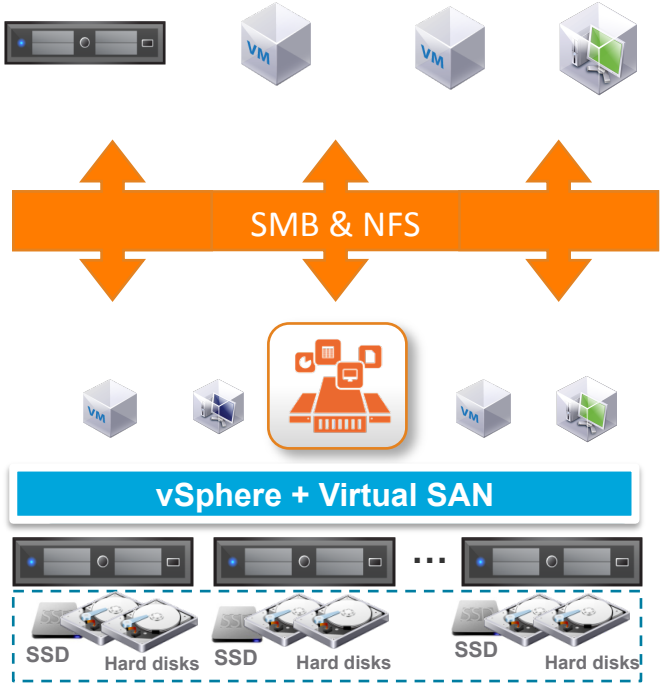


vmware

NexentaConnect for VMware Virtual SAN

Use Cases

- Flexible options for use cases
  - Virtual Desktop Infrastructure (VDI)
  - Remote Office Branch Office
  - Lab and Development
  - Disaster Recovery Target



Phil Bedard, Principal Design Engineer

Nexenta. Global leader in Software-Defined Storage.

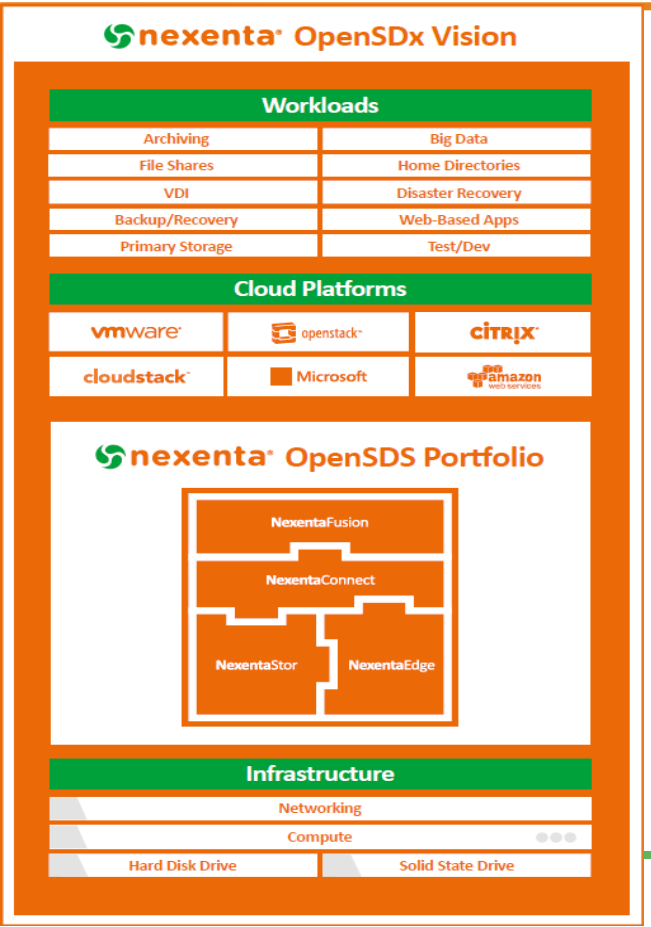
Any user. Any app. Any stack. Any protocol. Any hardware. Any cloud: Your cloud!
Software-Defined innovation via Open Source collaboration: Your way!
Open. Agile. Prudent. Proven. Ready. Your choice!

100% Software. Total Freedom. All Love.

Nexenta: #1 in Open Software Defined Storage (OpenSDS)

Tarkan Maner
@tarkanmaner
tarkan@nexenta.com
Chairman and CEO

Nexenta is #1 in Open Software Defined Storage (OpenSDS)



- #1 SDS player; founded in 2008; 200+ employees; HQs in Santa Clara.
- #1 w 6,000+ total customers, 400+ partners, and 1.2EB+ in production.
- #1 in open “only-software”; 10 years of file system R&D; w 150+ FTEs; 33 patents.
- #1 in partner eco-system for **any** HDD, SSD, Server, Platform, App/workload, Protocol.
- #1 Open Source Community w 100,000+ transactions; 46,000+ developers/researchers
- #1 in unified block, file and object access support vision.
- #1 in WW service/support at enterprise level in OpenSDx-based OpenSDS
- #1 in HW, SW, cloud platform certification/delivery process
- #1 in flexible SW pricing model – w no HW, SW, and GM dependency
- #1 in File System control/innovation (ZFS and CCOW)
- #1 in integration for VMware, Citrix, MSFT, OpenStack, CloudStack, etc.
- #1 in app-centric vision – orchestration and predictive rules engine
- #1 in repeat business with F500-class enterprise customers in the segment


100%
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Total
freedom
All
Love
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