Hyperconverged Infrastructure Use Cases and Buyer's Guide

Ibrahim Rahmani
Director, Product Marketing
DataCore Software

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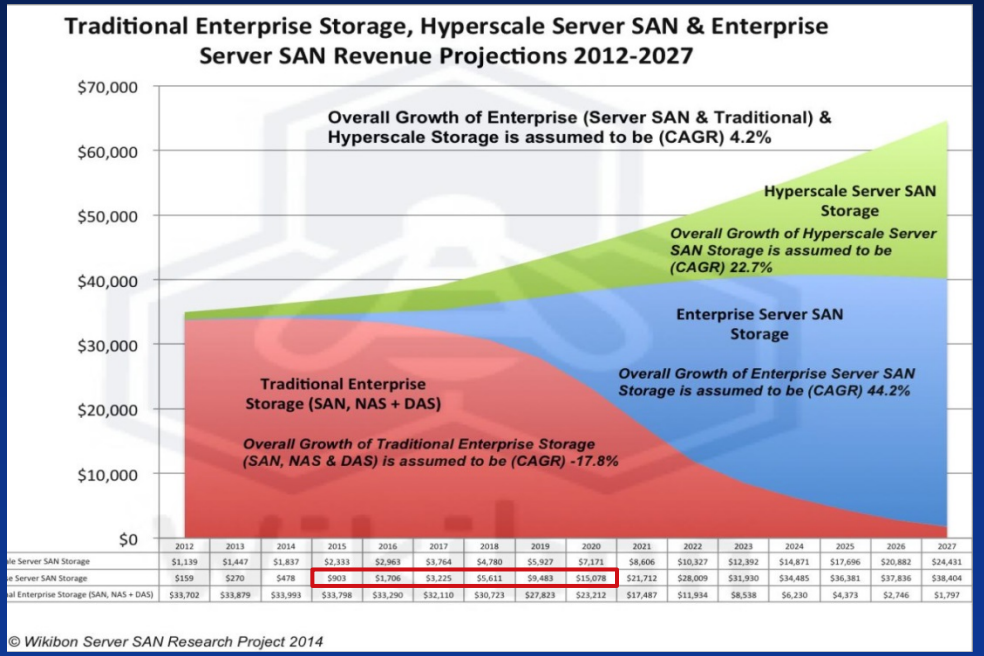
Agenda

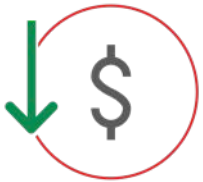
- Introduction
  - Market Trends
  - Use Cases
- Buyer's guide – Enterprise Requirements
- DataCore

Hyper-converged is growing quickly

- Strong market forecasts for Integrated Systems (converged & hyper-converged)
  - 50% yearly by Gartner
  - 33% yearly by IDC
- 45% of respondents are evaluating the deployment of hyper-converged systems
- Market is rapidly moving away from traditional storage arrays



Hyper-converged Use Cases

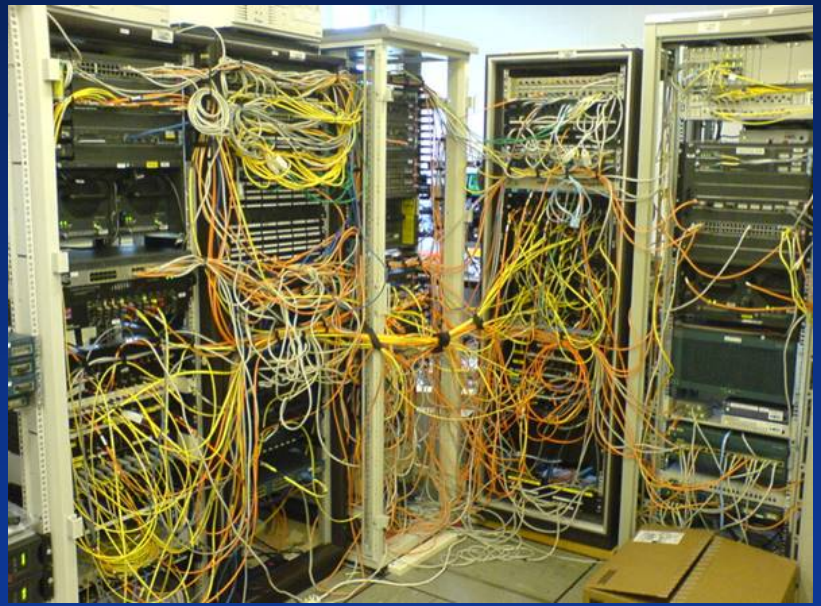


Infrastructure Efficiency & Consolidation

Latency-sensitive, Virtualized Databases / Applications

Remote Office / Branch Office (ROBO)

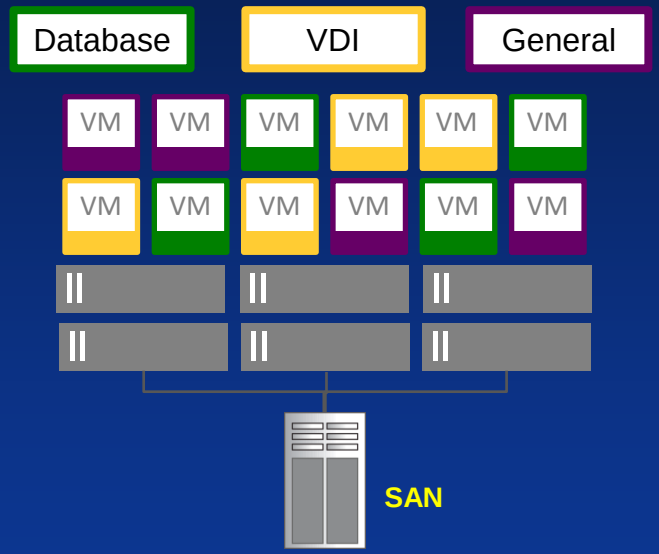
Infrastructure Efficiency & Consolidation



Challenges

- Inadequate performance
- Inefficient usage
- Difficult to manage heterogeneous infrastructure
  - Multiple fabrics (FC, FCoE, iSCSI, Ethernet)
  - Variety of vendors, models and management consoles
  - Multiples “silos” to manage

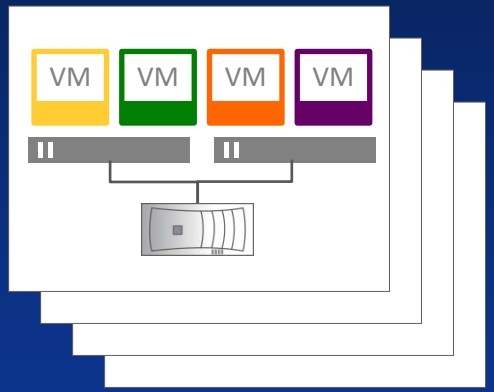
Virtualized Applications Clusters



Challenges

- Inconsistent performance due to mixed workloads
- Inability to scale I/O performance
- Storage is a single point of failure

ROBO Sites



Site 1

Site n

Challenges

- Costs need to remain low
- Availability is a challenge
- Storage is typically low-end; single point of failure

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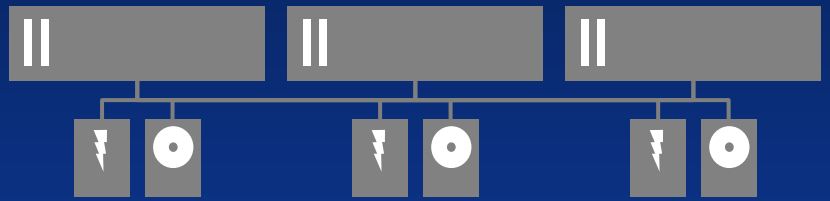
Not all Hyper-converged is Enterprise-class

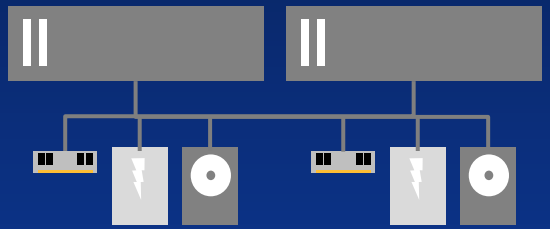
- Performance
  - Performance and response times not suitable for critical applications
  - Fibre Channel flexibility not supported by hyper-converged
- Availability
  - More and more “boxes” needed
- Total Cost of Ownership
  - Limited options for scaling
  - Restricted Choice
  - Silo’ed Infrastructure

Performance: I/O Acceleration

Cluster Architecture*



Grid Architecture



Better Performance: RAM 10x faster vs Flash
Lower Hardware Costs: Flash is optional

* Consider impact on performance when a node fails

Performance Benchmark: SPC is a Database I/O Workload

Criteria	SPC Benchmark
Industry Standard	✓
Independently Verified & Audited	✓
Peer Reviewed	✓
Covers different types & generations of technology	✓
Maps to “real world” performance (OLTP databases)	✓
Shows cost for achieving performance level	✓

Enterprise Vendors run SPC Benchmarks

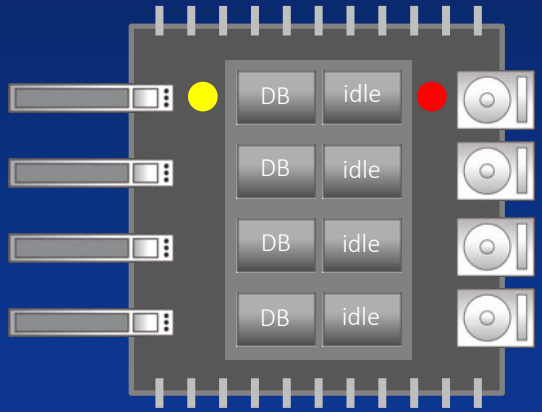
DELL EMC² IBM hp HITACHI Inspire the Next NetApp

DataCore SOFTWARE

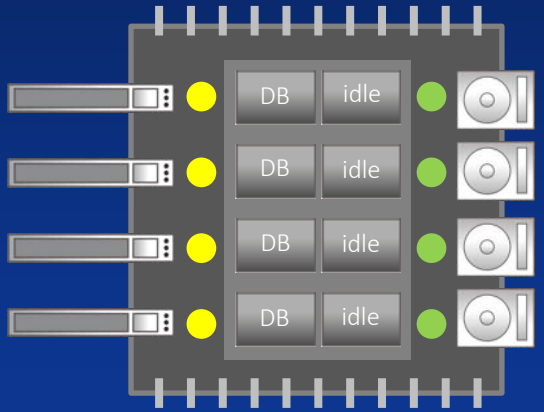
1st Hyper-converged product to run SPC 3X or better on price performance!

DATACORE PARALLEL I/O TECHNOLOGY

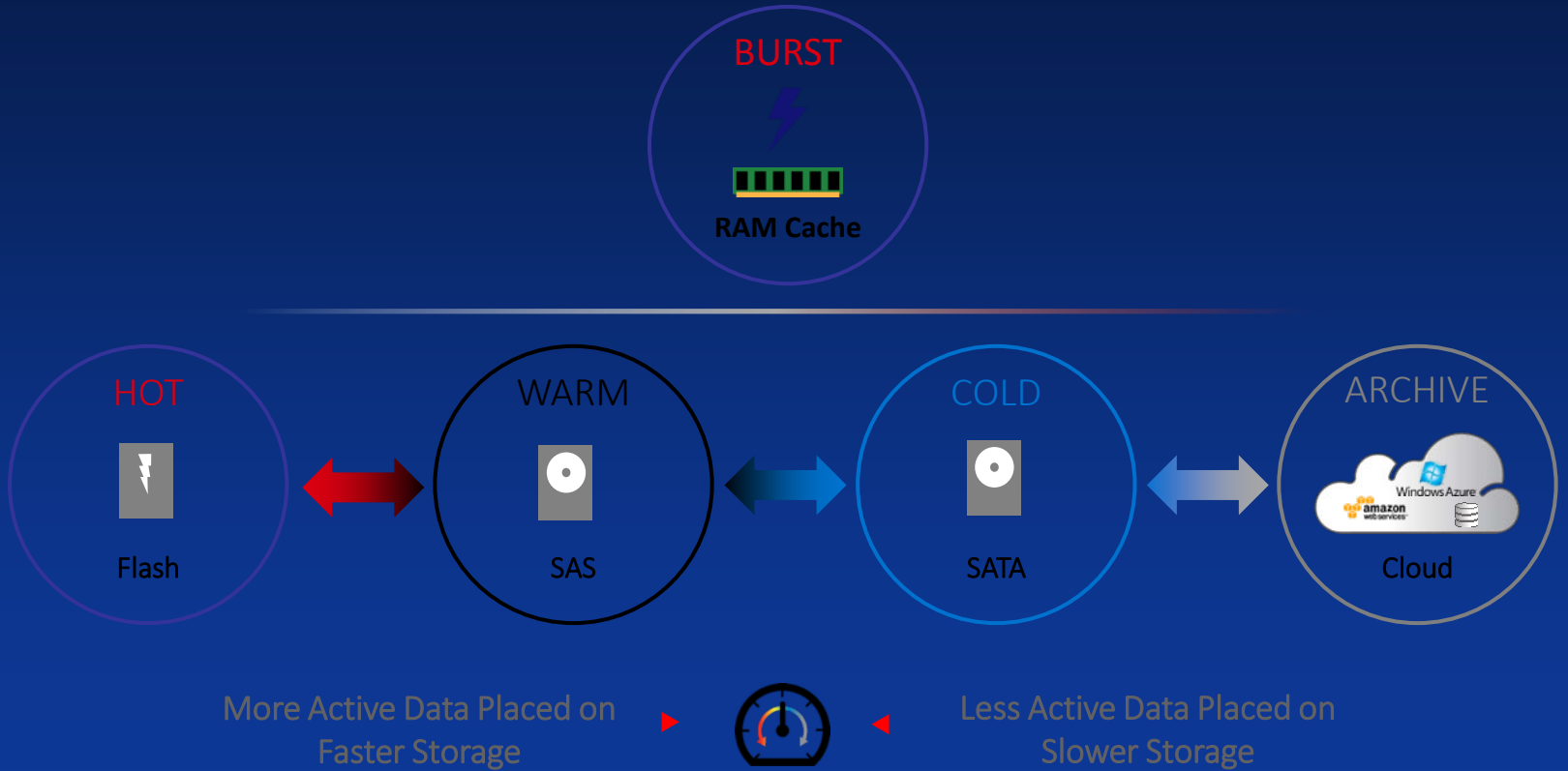
WITHOUT PARALLEL I/O
I/O processed sequentially…



WITH PARALLEL I/O
I/O processed in parallel…

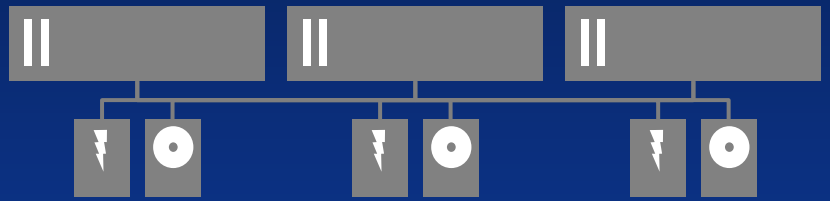


DATA IS CACHED AND TIERED



High Availability: 3 vs 2 nodes

Cluster Architecture*



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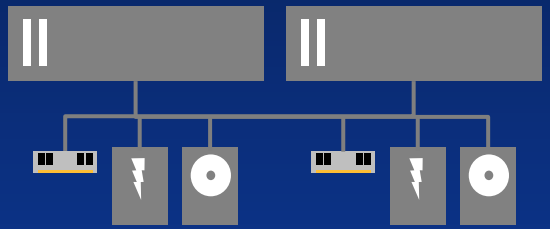
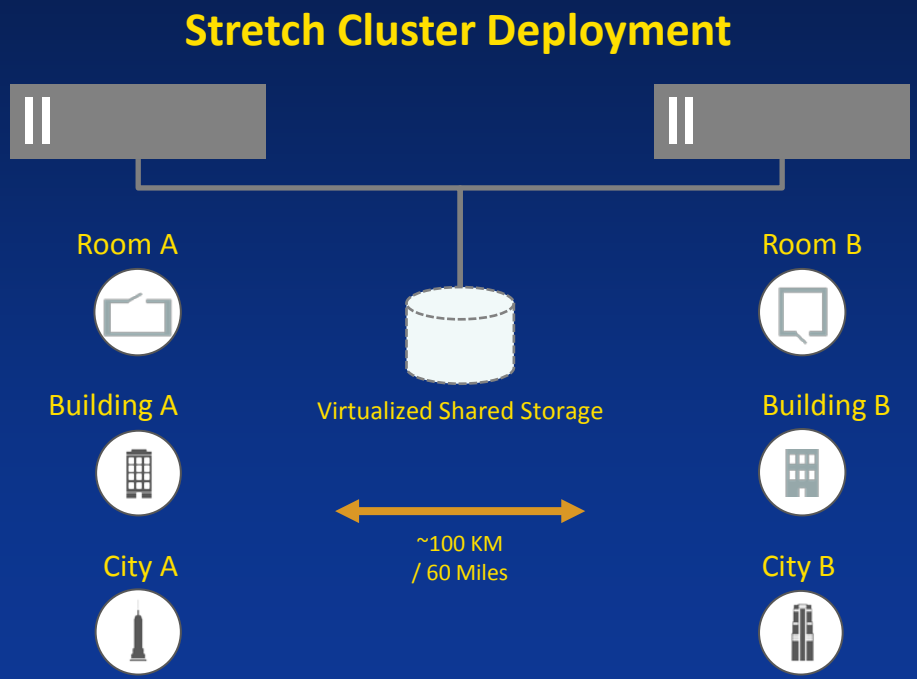


Lower Hardware Investment

* Is a quorum / witness node (even as a VM) needed?

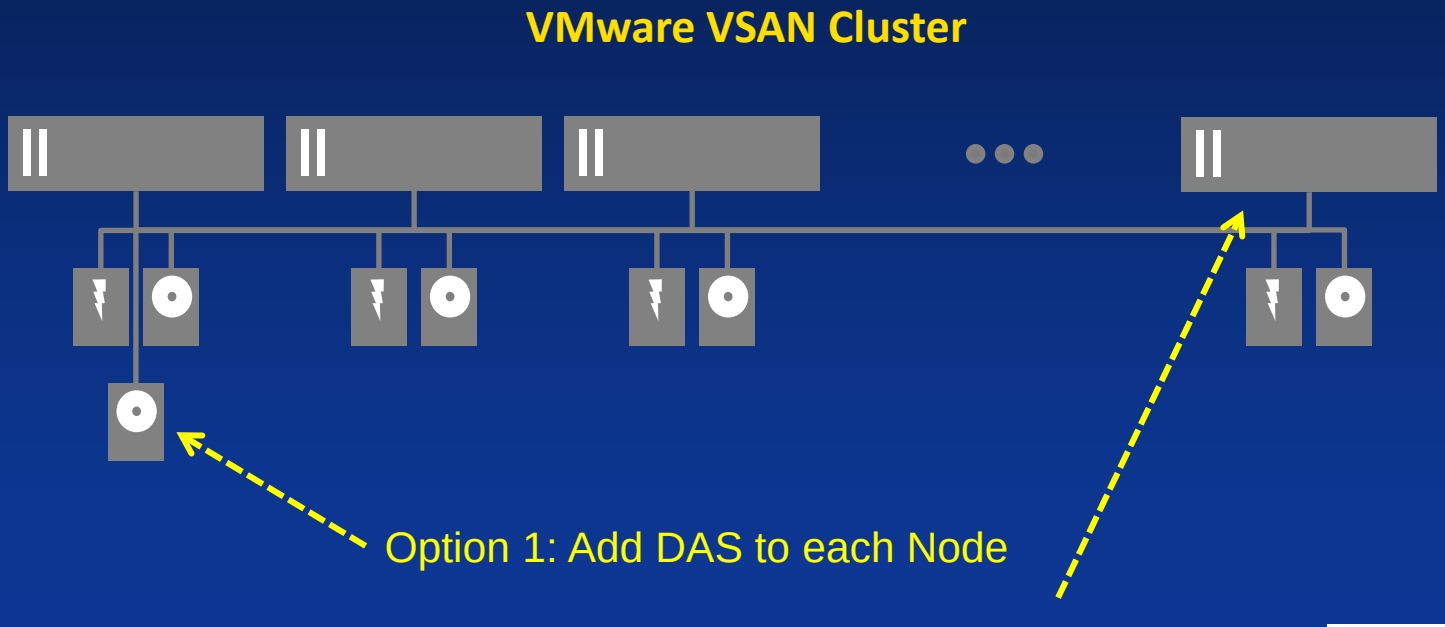
High Availability: Stretch Clusters



Lower Hardware Investment

Better Availability & Resiliency

TCO: Growth of Storage Capacity:



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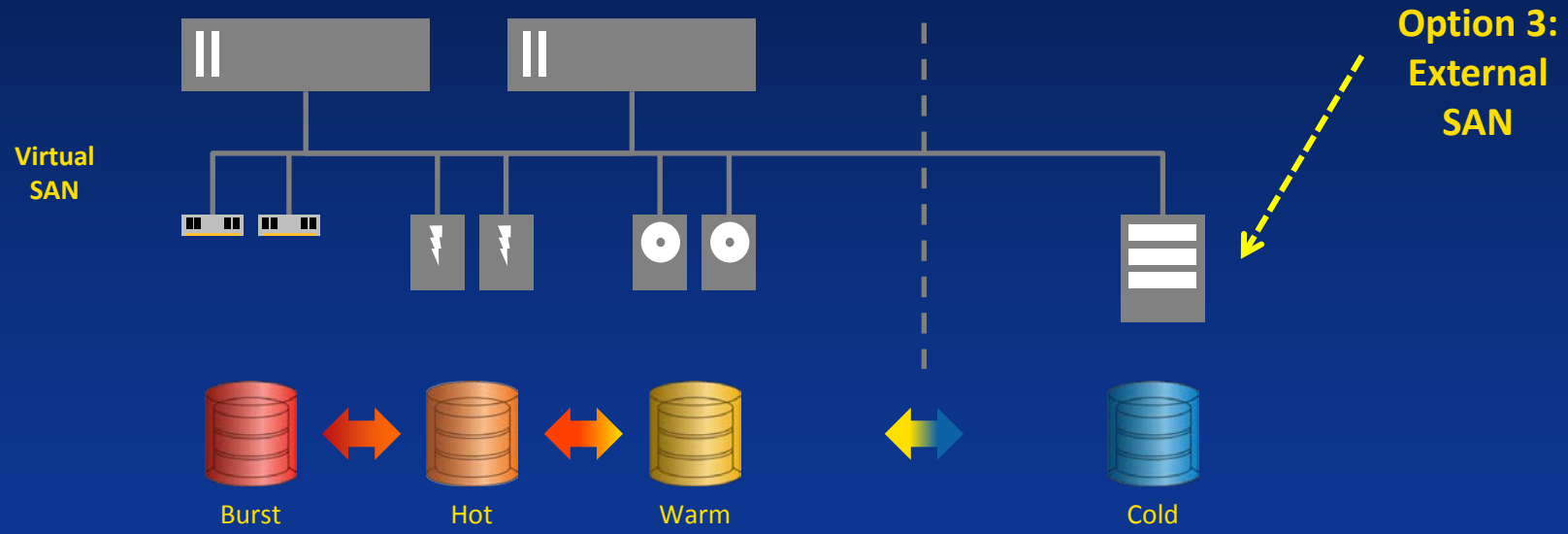
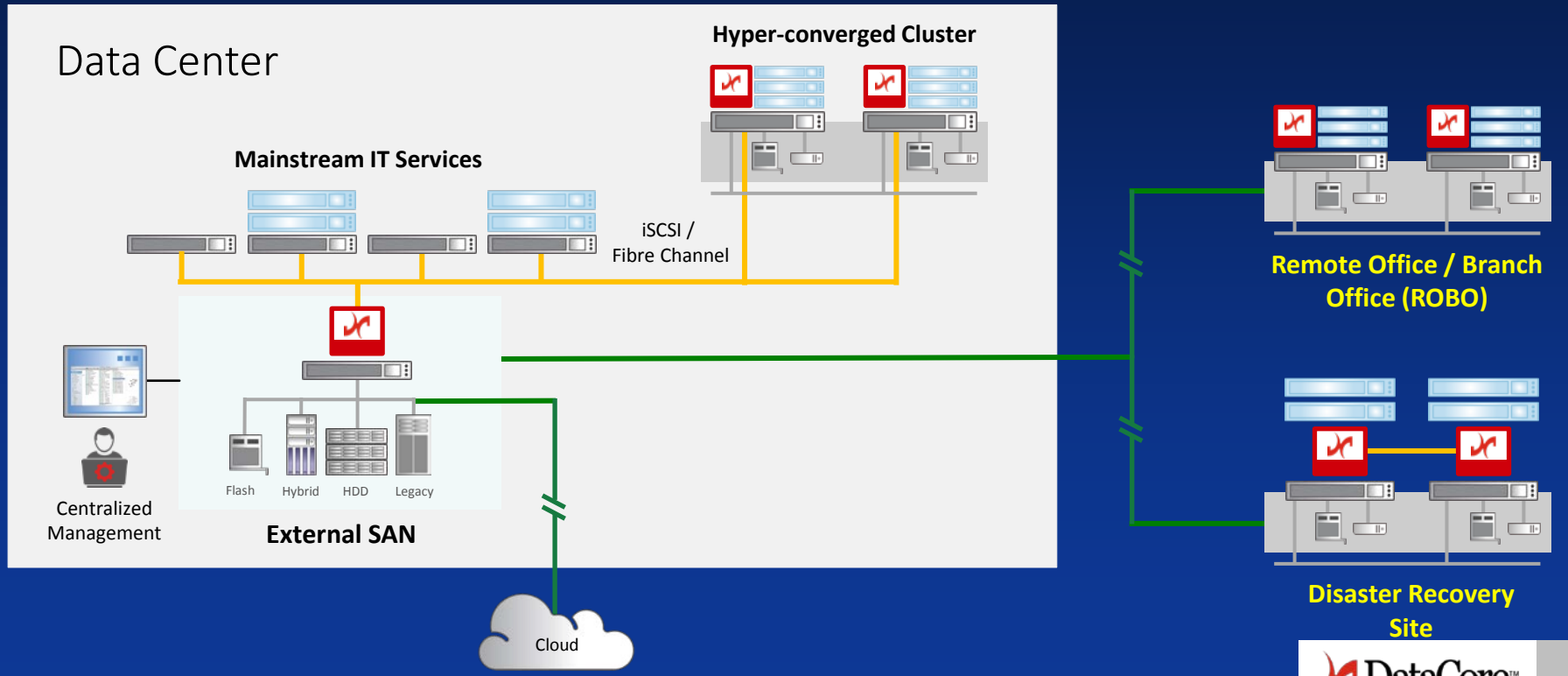


Lower Hardware Costs; Capacity added as needed

TCO: Deployment Options

	DataCore Virtual SAN	Nutanix	Simplivity	VMware VSAN
Flexible hardware model	✓			✓
Multi-hypervisor Support	✓	✓		
Non-virtualized Support	✓			

TCO: Integrated Enterprise-wide Solution



DataCore TCO Summary

Key Criteria	DataCore Virtual SAN
RAM for I/O Acceleration	✓
2 nodes for High Availability	✓
2 nodes for Stretch Cluster	✓
Scale out storage capacity independent of compute	✓
One management platform across storage infrastructure	✓
One set of services across all storage devices	✓
Support for Multi-hypervisor & Non-virtual environments	✓
Hardware independent	✓

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- DataCore
  - Virtual SAN
  - Case Study
  - Company

Case Study 1 – ROBO

Background

- Large restaurant chain with over 1,000 locations
- All key applications run locally
  - Point of sale, order scheduling, etc
- Application downtime meant temporary site closure
  - Loss of revenue and poor customer satisfaction

Requirement

- Lowest cost infrastructure for high availability

Reasons for Selecting DataCore Virtual SAN

Lowest TCO

- Only 2 servers for HA per location
- RAM provides I/O acceleration so Flash is optional
- Runs natively in Windows Hyper-V, requiring one less Windows license

Easy Management

- Automated deployment with software deployment wizards
- Integrates with Microsoft System Center
- Extensive instrumentation for centralized monitoring

Case Study 2 – Application Cluster

Background

- Mid-sized Hospital
- Virtualizing PBX (voice communications)
  - 12 physical servers -> 12 VMs

Requirements

- Reliable performance, as voice communication is a Tier 1 application
- Physical storage and compute footprint across 2 separate buildings (geographically separated) for high availability

Comparing VMware VSAN and DataCore Virtual SAN

VMware VSAN

- Requires 4 hosts
- Only works at single site
- Requires Flash on servers

DataCore Virtual SAN

- Only requires 2 hosts
- Stretch cluster with only 2 nodes
- Flash is optional RAM is faster

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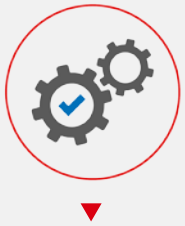
TCO of DataCore Virtual SAN was just 50% of VMware VSAN

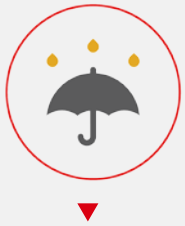
DataCore Benefits

DEPLOY FLASH STORAGE



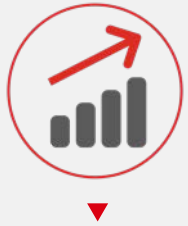
79% improved performance by **3X or more**

BC / DR



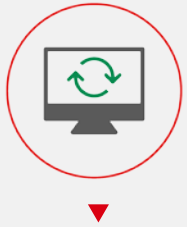
60% reduced storage-related downtime by **90% of more**

STORAGE EXPANSION



82% reduced storage-related spending by **25% or more**

STORAGE REFRESH



100% saw a **positive ROI** in the first year

Proven. Globally.

30,000+ Deployments Worldwide

10,000+ Customers

10th Gen Product

Companies in all Industries & Sizes

Market: Software-defined Storage

Technology: Storage Virtualization & Parallel I/O

Main Offices

- Australia
- Germany
- France
- Japan
- UK
- USA

Thank You

Santa Clara, CA USA
December 2015