Hyperconverged Infrastructure Use Cases and Buyer’s Guide

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DataCore Software
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

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

Buyer’s guide – Enterprise Requirements

DataCore
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*

Better Performance: RAM 10x faster vs Flash

Grid Architecture

Lower Hardware Costs: Flash is optional

* Consider impact on performance when a node fails
Performance Benchmark: SPC is a Database I/O Workload

<table>
<thead>
<tr>
<th>Criteria</th>
<th>SPC Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Standard</td>
<td>✓</td>
</tr>
<tr>
<td>Independently Verified &amp; Audited</td>
<td>✓</td>
</tr>
<tr>
<td>Peer Reviewed</td>
<td>✓</td>
</tr>
<tr>
<td>Covers different types &amp; generations of technology</td>
<td>✓</td>
</tr>
<tr>
<td>Maps to “real world” performance (OLTP databases)</td>
<td>✓</td>
</tr>
<tr>
<td>Shows cost for achieving performance level</td>
<td>✓</td>
</tr>
</tbody>
</table>
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

Less Active Data Placed on Slower Storage

More Active Data Placed on Faster Storage

BURST

RAM Cache

HOT
Flash

WARM
SAS

COLD
SATA

ARCHIVE
Cloud

Less Active Data Placed on Slower Storage
High Availability: 3 vs 2 nodes

Cluster Architecture*

Grid Architecture

Lower Hardware Investment

* Is a quorum / witness node (even as a VM) needed?
High Availability: Stretch Clusters

**Stretch Cluster Deployment**

Room A
Building A
City A

Virtualized Shared Storage

~100 KM / 60 Miles

Room B
Building B
City B

**Lower Hardware Investment**

**Better Availability & Resiliency**
TCO: Growth of Storage Capacity:

VMware VSAN Cluster

Option 1: Add DAS to each Node

Option 2: Add Nodes (compute & storage)
TCO: Growth of Storage Capacity

Option 3: External SAN

Virtual SAN

- Burst
- Hot
- Warm
- Cold

Lower Hardware Costs; Capacity added as needed
## TCO: Deployment Options

<table>
<thead>
<tr>
<th></th>
<th>DataCore Virtual SAN</th>
<th>Nutanix</th>
<th>Simplicity</th>
<th>VMware VSAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible hardware model</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-hypervisor Support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Non-virtualized Support</td>
<td>✓</td>
<td></td>
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</tbody>
</table>
TCO: Integrated Enterprise-wide Solution

Data Center

Hyper-converged Cluster

Mainstream IT Services

Remote Office / Branch Office (ROBO)

Centralized Management

External SAN

Disaster Recovery Site

Cloud
<table>
<thead>
<tr>
<th>Key Criteria</th>
<th>DataCore Virtual SAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM for I/O Acceleration</td>
<td>✓</td>
</tr>
<tr>
<td>2 nodes for High Availability</td>
<td>✓</td>
</tr>
<tr>
<td>2 nodes for Stretch Cluster</td>
<td>✓</td>
</tr>
<tr>
<td>Scale out storage capacity independent of compute</td>
<td>✓</td>
</tr>
<tr>
<td>One management platform across storage infrastructure</td>
<td>✓</td>
</tr>
<tr>
<td>One set of services across all storage devices</td>
<td>✓</td>
</tr>
<tr>
<td>Support for Multi-hypervisor &amp; Non-virtual environments</td>
<td>✓</td>
</tr>
<tr>
<td>Hardware independent</td>
<td>✓</td>
</tr>
</tbody>
</table>
Agenda

- Introduction
- Buyer’s guide – Enterprise Requirements
  - 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

<table>
<thead>
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<th>VMware VSAN</th>
<th>DataCore Virtual SAN</th>
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<tr>
<td>Requires 4 hosts</td>
<td>Only requires 2 hosts</td>
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<tr>
<td>Only works at single site</td>
<td>Stretch cluster with only 2 nodes</td>
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<tr>
<td>Requires Flash on servers</td>
<td>Flash is optional RAM is faster</td>
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- Requires Flash on servers
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

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