Building a TCO Story to Accelerate vSAN Adoption

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#VMworld #STO2886BE
Disclaimer

- This presentation may contain product features that are currently under development.
- This overview of new technology represents no commitment from VMware to deliver these features in any generally available product.
- Features are subject to change, and must not be included in contracts, purchase orders, or sales agreements of any kind.
- Technical feasibility and market demand will affect final delivery.
- Pricing and packaging for any new technologies or features discussed or presented have not been determined.
Session Agenda

1. Benefits of HCI
2. Understanding Your Current Environment
3. How to Size Your Environment
4. How to Build a Compelling TCO Story
5. What to Watch Out For
Customers are concerned with ... 

Balancing Cost & Resources
- Managing IT infrastructure becoming more and more complex
- Reducing infrastructure costs
- Storage becoming expensive to scale and manage

Keep the Business Running
- Require predictable performance
- Flexibility for applications to respond to change
- Security & compliance

Being Future Proof
- New Greenfield Deployment
- Upcoming Server Refresh
- Storage Expansion or Running out of storage
Primary Challenge Sought to Address with HCI

Q. What is the primary challenge your organization is seeking to address with the use of HCI?

![Bar chart showing primary challenges]

Improve operational efficiency
Reduce capital spending
Improve IT staff productivity
Improve application performance
Reduce time required to provision infrastructure
Improve storage/server utilization
Infrastructure migration/technology refresh
Improve backup/recovery
DC consolidation (reduce floor space, power, cooling, etc.)
Scale storage and server resources easily and affordably
Lower the cost of disaster recovery/secondary sites
Consolidate vendors
Move away from SAN-based solutions
Other

N=302

Source: IDC Hyperconverged Systems Survey, November 2016
Customers Choose vSAN for a Sustainable Cost Advantage

Q. What are the top 3 reasons you selected VMware vSAN?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native integration wth vSphere &amp; vCenter</td>
<td>79%</td>
</tr>
<tr>
<td>Simpler management and operational cost savings</td>
<td>55%</td>
</tr>
<tr>
<td>Initial investment cost savings</td>
<td>42%</td>
</tr>
<tr>
<td>Avoided a SAN upgrade</td>
<td>33%</td>
</tr>
<tr>
<td>Faster Storage performance</td>
<td>31%</td>
</tr>
<tr>
<td>Ecosystem choice of server platform</td>
<td>14%</td>
</tr>
<tr>
<td>Reseller recommendation</td>
<td>14%</td>
</tr>
<tr>
<td>Investment protection with the public cloud</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: TechValidate survey of 310 users of VMware vSAN
**State Department of Health: Bureau of Women, Infants and Children**

Provide nutrition, education, healthcare and social service assistance for women and children at nutritional risk

**CHALLENGES**

- Aging physical environment
- Frequent system crashes due to insufficient performance
- Upgrades very expensive

**BENEFITS**

- **50% CapEx Savings:** more capacity for less cost
- **40% OpEx Savings:** admins spend 40% less time on storage issues
- **8x Performance Improvement:** database update time reduced from 8 hrs to 1 hr
“The more applications we migrate to vSAN the more departments are requesting to be on it…”

- Chad Elliott, Network Systems Consultant

**CHALLENGES**

SAN reaching end of life; too expensive to upgrade

SAN overload causing database latency, application crashes, delays accessing patient records

**BENEFITS**

90% Less Time to Manage: tasks took 1/10th the time it took on old NetApp SAN

50% More Consolidation: previously 40 sessions/server, now 60

6x Faster Reporting: Database latency reduced from 200ms to <1m

50x More IOPS: 900 IOPS on old SAN, 53,000 on vSAN
“vSAN cost us 1/5th of a SAN… and we got 10 times faster storage..”
- Carl Shriver, IT Operations Manager

CHALLENGES

Running out of capacity

Manual storage provisioning slowed response to business projects

BENEFITS

80% Cost Savings: SAN cost $5-7/GB while vSAN cost <$1.5/GB

10x Faster Performance

Provision storage in 10-15 mins: allowed IT to respond in fast
Three Steps to Understand Your Cost Advantage

1. Understand Your Current Environment
   - vSAN Assessment Tool

2. Size environment for vSAN
   - vSAN ReadyNode Sizer

3. Calculate TCO
   - vSAN TCO Calculator
Understand Your Current Environment
vSAN Assessment Demonstrates Benefits of Moving to vSAN

- The vSAN Assessment delivers a comprehensive analysis of your vSphere Environment which includes Tier 1 (cache) and Tier 2 (capacity) I/O information, memory size, number of vmdks, etc). It then recommends:
  - Which VMs are a suitable candidate for vSAN
  - All Flash or Hybrid
  - High-level sizing and Hardware specs
  - Estimated storage CAPEX and OPEX savings

Customers Sign Up @ https://www.vmware.com/products/vsan/assessment.html
vSAN Assessment Has Three Components

1. **Collector Appliance** deployed in customer environment to collect trace data that is sent automatically to a web portal.

2. **Production Portal** – available at https://vip.vmware.com

3. **Public portal** that receives data & displays results.

Data is collected from Customer’s Environment and sent to the Portal.

Data from Customer Environment analyzed, Report available at Portal.
Four Stage Process to Running a vSAN Assessment

**WHO**

**SE/Partner**

- SE/Partner creates vSAN Assessment on https://vip.vmware.com

**Customer**

- Customer accepts invite for running vSAN Assessment

**SE/Partner**

- Assessment runs for 2 days (configurable) on vSphere cluster

**SE/Partner/ Customer**

- VMs identified that are a good fit for All Flash or Hybrid

**ACTION**

- SE/Partner creates vSAN Assessment on https://vip.vmware.com
- Customer accepts invite for running vSAN Assessment
- SE/Partner deploys and runs collector on vSphere environment
- Analysis of workloads performed (Hybrid/ All Flash, TCO)
- Results available to view online & can be downloaded to view offline

**LOCATION**

- SE/Partner creates vSAN Assessment on https://vip.vmware.com
- Customer accepts invite for running vSAN Assessment
- SE/Partner deploys and runs collector on vSphere environment
- Analysis of workloads performed (Hybrid/ All Flash, TCO)
- Results available to view online & can be downloaded to view offline
Size Your Environment
vSAN ReadyNode Sizer

- **Use Case/Workload Approach**
  - Databases (Oracle / SQL)
  - General Purpose
  - VDI
  - Stretched Cluster

- **Customizability**
  - Single and Multi-VM Profiles
  - Advanced Sizer for customizing workload profiles: IOPS Profile (size of I/O, R/W ratio), host failure/availability options
  - Configurable Defaults

- **Sizing for All Flash based on vSAN 6.6**
  (Hybrid coming soon)
Versions of vSAN ReadyNode™ Sizer

**Evaluation**
- 2 step process to obtain high-level recommendation
- No customizations
- No login required

**Simple**
- Size for individual workloads:
  - VDI, Database, General
- 5 step process to obtain detailed recommendation
- Login required

**Advanced**
- Size for mixed workloads:
  - Upto 6 profiles
- Login required
vSAN Sizer Demo
From Sizing to TCO
Common Mistakes When Building TCO

1. Only calculate CAPEX but miss OPEX
2. Forget to consider:
   - Expansions and service renewals
   - Cost of servers & vSphere when calculating traditional storage
3. “Free hypervisor” = Lower Consolidation Ratios = Paying More for Hardware
4. Comparing low end flash arrays to enterprise grade vSAN
Calculating TCO Of Traditional Storage Environment

**CAPEX**
- **Hardware**
  - Storage Array
  - Storage Media
  - Fiber Channel Networking Equipment
  - Server Hardware
- **Licenses**
  - vSphere License
  - Licenses Edition
  - Number of Nodes

**OPEX**
- **Operational Expenses**
  - Power & Cooling
  - Datacenter Space
  - Labor
  - Number of Years
- **Support**
  - Network Support
  - Hardware Support
  - Servers
  - Storage Array
  - Number of Years
  - Software Support (vSphere)
  - Number of Years

**TOTAL COST OF OWNERSHIP (TCO)**
How vSAN Reduces Your TCO
Lower CAPEX with Server Side Economics

Traditional Storage
- Enterprise Disks (HDDs)
  - $1.25/GB*
- Networking
  - $513/Port

Server Storage
- Solid State Disk’s (SSDs)
  - $6.30/GB*
- Flash
  - $1.60/GB
- Pay less for server-side components
- Choose hardware options from all major server OEMs
- Eliminate fiber-channel networking

Source: $/GB refers to disk prices raw GB only and is based on publicly available list prices as of Nov 2016.
Scales On-Demand: Predictably and Cost-Effectively

Traditional SAN
- Large upfront purchase
- Storage only costs
- Complex planning
- Predictable outcome
- Scale with full system

HCI
- Small upfront costs
- Includes storage & compute
- Scale with single node

CapEx
- Initial $
vSAN Reduces OPEX
Reduce Management Silos with One Tool, One Team

Environment with Traditional Enterprise SAN

Hyper-Converged Infrastructure

- Simplified Configuration
- High Performance
- Scalable Capacity
Q. When thinking of the tasks that will be conducted more efficiently, please quantify the improvement against previous environments as a percent of IT staff time.

- Data protection or disaster recovery
- Provisioning storage
- Provisioning virtual machines
- Adjusting application resource
- Scaling storage and/or compute resources
- Monitoring/Troubleshooting/Remediation
- Performance tuning/optimizing

Lower OpEx by 50% or More: IDC Study of vSAN Users

Source: VMware 2016 Virtual SAN User Survey
vSAN Takes 2.4X Less Time to Manage than All Flash Arrays

### Infrequent Management Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>All Flash Array</th>
<th>vSAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale (Add Node)</td>
<td>39%</td>
<td>2%</td>
</tr>
<tr>
<td>Scale (Add Drives)</td>
<td>83%</td>
<td>67%</td>
</tr>
<tr>
<td>Maintenance</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Setup</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

### Recurring Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>All Flash Array</th>
<th>vSAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remediation</td>
<td>35%</td>
<td>2%</td>
</tr>
<tr>
<td>Provisioning</td>
<td>98%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Evaluator Group Study, 2017

VMworld 2017 Content: Not for publication or distribution
vSAN Takes 2.4X Less Time to Manage than All Flash Arrays

Source: Evaluator Group Study, 2017
Realize Even Greater Benefits with Intel Xeon Scalable Processors and Optane

- Total Capacity: 32TB Raw
- 4 Node vSAN Cluster
- High VM Density for vSAN: 200 VMs/Node
Calculating TCO with vSAN

**CAPEX**
- Hardware
  - Storage Media
  - Fiber Channel Networking Equipment
  - Server Hardware
- Licenses
  - vSAN & vSphere Licenses
    - Licenses Edition
    - Number of Nodes

**OPEX**
- Operational Expenses
  - Power & Cooling
  - Datacenter Space
  - Labor
    - Number of Years
- Support
  - Network Support
  - Hardware Support
    - Servers
    - Storage Media
  - Number of Years
  - Software Support (vSphere and vSAN)
    - Number of Years

**TOTAL COST OF OWNERSHIP (TCO)**
TCO Demo
## Modern Infrastructure For Modern Workloads

### 80% of vSAN Market

<table>
<thead>
<tr>
<th>General Purpose</th>
<th>Storage Dense</th>
<th>Compute Intensive</th>
<th>Composable Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rack Servers</td>
<td>Archiving, Video Streaming, Analytics</td>
<td>Web apps, HPC, Real-time Analytics</td>
<td>Composable Infrastructure: Scaling storage &amp; compute independently</td>
</tr>
</tbody>
</table>

### 10-20% vSAN Market; Emerging workloads expected to increase 3X in 2 years

- **Storage Dense**
  - BCA, Database, VDI, ROBO, DR, Test/Dev
  - Dell – R730XD
  - HPE – DL 380, 360
  - Cisco – UCS C-Series

- **Compute Intensive**
  - Web apps, HPC, Real-time Analytics
  - Dell – FX2
  - HPE – Moonshot
  - Cisco – B-Series

- **Composable Infrastructure**
  - Data Warehouses, Log Aggregation
  - Dell – TBD
  - HPE – Synergy

### Use Case

- **Rack Servers**
  - Dell – TBD
  - HPE – Apollo
  - Cisco – Colusa

- **Blade Servers**
  - Dell – FX2
  - HPE – Moonshot
  - Cisco – B-Series
Top 3 Takeaways...

You will save money with vSAN

TCO analysis should include both Capex and 3-5 years OPEX

VMware provides you the tools to build your TCO story
Visit the HCI Zone Powered by vSAN in the Solutions Exchange

Discover…
- vSAN ReadyNodes™
- VxRail HCI Appliance
- vSAN Embedded Solutions

Enjoy…
- Daily Prizes
- vSpeaking Podcast
- Photo Booth & FB Lives

#vSANfan #vSAN #HitRefresh #HCIZone
Please fill out your survey.

Take a survey and enter a draw for a VMware company store gift card.
Thank You
[Customer] Receive Email, Confirm Account

You've been added to a VMware VSAN Assessment

You've been invited by [Name] at VMware to participate in a VMware VSAN Assessment! Participating in this assessment will enable you to determine the suitability of your workloads for VMware's Virtual SAN (VSAN) solution and estimate the potential cost savings of deploying VSAN.

Click below to view this assessment.

View Assessment

Sincerely,
VMware Infrastructure Planner Team
Assess your virtualized environment for free with Infrastructure Planner
Discover savings that the software-defined data center brings to your environment
[Customer] Download the Collector Appliance

Appliance Requirements: 4 x vCPU, 8GB RAM, 200GB capacity

Customer Downloads the Appliance (ova)
[Customer] Download the Collector Appliance

Assessment Key will appear when customer refreshes the "Download" icon.

Deploy & Configure the Collector

Follow the instructions provided in the installation guide to deploy and configure the appliance in order to kick off the collection process. You’ll need to enter vCenter Server credentials. For vCloud Suite Assessments, you’ll also need vRealize Operations Manager administrator credentials.

You will need this assessment key:

f0522944-71a5-4bec-9ec2-f2253fa35fa1
[Customer] Deploy OVF file
[Customer] Configure the Collector Appliance

- Browse to the Collector VM
- Enter Assessment Key (available off the Portal)
Configure the Collector Appliance

Choose to Analyze
- An Entire Cluster or
- Select VMs Across Clusters
[Customer] Configure Collection Duration
[Customer] Configure the Collector Appliance

Enter vCenter Details

Customer Enters vCenter Details
Collector Appliance Configuration Completed and Data Collection Begins
vSAN Assessment Output

![vSAN Assessment Output](image_url)

*Change Failure to Tolerate and De-dup ratio under Report Assumption to compute vSAN Required Capacity.

**Change S&As for S&O and HDD under Report Assumption to compute vSAN Hardware Cap-Ex cost.