Your Time Is Now

Cisco HyperFlex

Cisco Connect

5 - 7 April, 2017
Pula, Croatia
Cisco HyperConverged Infrastructure

Bjarne Madsen, CSE  HyperConverged  Solutions.
Agenda

1. What is HyperConverged, and why
2. Cisco’s HyperConverged platform
3. Cisco HyperFlex overview
4. Live demo of HyperFlex
Cisco HyperFlex Systems

Part of a Complete Data Center Strategy
Elastic and Secure at Enterprise Scale

Next Gen Data Platform
Designed for Distributed Storage

Complete Hyperconvergence
Unified Compute and Network Infrastructure

Cisco HX Data Platform
Data Services and Storage Optimization

Analyze. Simplify. Automate. Protect

Tetration
HyperFlex
UCS
UCS Director
ACI/CloudCenter
Security

Cisco HyperFlex
Cisco UCS: Platform for All Architectures

Single Operational Model

UCS Manager
- UCS Mini E-Series
- Fourth Generation UCS
- ROBO
- Mainstream Computing

UCS Director
- UCS Integrated Infrastructure Solutions
- Converged Infrastructure
- Hyperconverged Infrastructure
- Unified Management
- Single Control Plane
- Single API

Enterprise Cloud Suite
- HyperFlex Systems
- Hyperconverged Infrastructure
- C-Series Rack Servers
- Scale Out
- UCS C3000 Series

Edge

Unified Management
Single Control Plane
Single API

Cloud
What is Hyper-Convergence?

Traditional IT

Hyper-Convergence

Built on Cisco UCS

2 UCS models
HX240c M4, HX220c M4

Netværk, Storage, Compute in one platform

Built on redundant Cisco UCS Fabric interconnect

2 UCS FI 10Gbe or 40Gbe
HyperFlex components
Cisco HyperFlex
Cisco HX components and architecture
Cisco HyperFlex, network, server, storage and hypervisor “appliance”
Step 1. Connect pre-configured, save, redundant, and low-latency fabric to existing network
Step 2. Add 3 or more HyperFlex HX appliances to new Cisco network “Fabric”
Step 3. Auto-provisioning all HX appliances with Service Profiles via UCS Manager
Step 4. Auto configure HX Data Platform on all HX nodes and new cluster is READY
Step 5. Monitor, administrate, and setup Cisco HyperFlex together with VM’s in one GUI
Step 6. HA, Optimized, Scalable, Distributed resource pool, with HX Data Platform software
Step 7. VM’s Applications installs & auto-balanced with HX software
Step 8. Storage efficient Snapshots protects applications and Workloads

**HX Data Platform Services**

Thin Provisioning, Replication, Deduplication, Compression, Snapshots, Cloning
Step 9. Clone and make new VM environments for test and dev or VDI solutions in seconds

**HX Data Platform Services**
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Step 10. Scale capacity or Compute independent without downtime

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HX Data Platform Services
CRM, Thin Provisioning, Replication, Deduplication, Compression, Snapshots, Cloning
Step 11. Add resources for low-latency migration & consolidation with UCS, Storage and Converged Infrastructure

**Migration & Consolidation**
UCS, Converged, Storage…

**HX Data Platform Services**
CRM, Thin Provisioning, Replication, Deduplication, Compression, Snapshots, Cloning

**Existing Upstream Network**
Step 12. Expand solution with DR and Backup

**HX Data Platform Services**
CRM, Thin Provisioning, Replication, Deduplication, Compression, Snapshots, Cloning

**Backup & Replication**
Veeam, Zerto, Commvault, SRM…
Step 13. Expand solution with DR and Backup in dual DC setup
Step 14. Integrate automation with Cisco UCS Director and Cisco one!
## All Flash HX or Hybrid HX

<table>
<thead>
<tr>
<th>HX Personalities</th>
<th>All Flash</th>
<th>Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Flash Lightning] All Flash</td>
<td>![Hybrid] Hybrid</td>
</tr>
<tr>
<td></td>
<td>No read cache</td>
<td>Dedupe aware read cache</td>
</tr>
<tr>
<td></td>
<td>larger write log</td>
<td>Leverage cache across all nodes</td>
</tr>
<tr>
<td></td>
<td>TLC V-NAND for data</td>
<td></td>
</tr>
</tbody>
</table>

### Future Ready Foundation
- **Log Structured Filesystem**
  - Write optimized data path to help reduce write amplification
- **Dynamic Data Distribution**
  - Maximizes and balances the performance of all SSDs, spreads wear
- **Inline Space Efficiency**
  - Dedupe, compression, snapshots and clones minimize wear and reduce flash cost
- **Flash Friendly Data Access**
  - Large seq writes reduce flash wear, allowing for use of less expensive NAND

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Add in new HCI workloads easily to your existing UCS domain or include new FI’s in the bundle

Scale securely with ACI and Cloudcenter
Primary HyperFlex Use Cases

**Virtual Desktop Infrastructure**
- Low upfront costs
- Consistent performance
- Predictable scaling

**Server Virtualization**
- Reduce operational complexity
- Adaptive scaling
- Always-on resiliency

**Test and Development**
- Agile provisioning
- Frequent iterations
- Instant cloning and snapshots

**Large Remote Branch Office**
- Simple deployment
- Centralized management
- No “fly-and-fix” missions

**Databases**
- Consistent, low-latency
- High IOPS
- All-flash nodes
HyperFlex small customer announcement
Remote Office Branch Office Solution

Hybrid ROBO Cluster

Single Processor
- 3+ Drives
- 128GB RAM
- 1Gb/NIC

Dual Processor
- 6 Drives
- 128GB RAM
- 1Gb/NIC

HX220c
Smallest Footprint (VSI, ROBO)

Existing Network
Tuned for 1Gb/sec network
HCI Automation

Designed for customers with no plans to upgrade or refresh their network at the remote office.
### Cisco HyperFlex ROBO Configurations

#### Supported Configuration
- **HX220 Hybrid**
- **Cluster Size:** Max 3 (No Expansion)
- **Replication Factor:** 2
- **1G Networking w/out FI**
- **HX Clusters per vCenter:** 100 (Higher under RPQ)

#### Per Node

<table>
<thead>
<tr>
<th>Compute / Processor</th>
<th>10-20 Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory / Ram</td>
<td>128GB</td>
</tr>
<tr>
<td>Cache/WL SSD</td>
<td>480GB</td>
</tr>
<tr>
<td>Capacity HDD Count x Capacity</td>
<td>3x1.2TB</td>
</tr>
<tr>
<td>Usable Capacity Per Node</td>
<td>1.5TiB</td>
</tr>
</tbody>
</table>

#### Usable Capacity Per Cluster*(3-node)

<table>
<thead>
<tr>
<th>Usage</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usable Capacity*</td>
<td>4.5TiB</td>
</tr>
<tr>
<td>Per Cluster*(3-node)</td>
<td>9.03TiB</td>
</tr>
</tbody>
</table>

Note: The calculations are before dedupe & compression. Effective capacity will be higher. Consult with your Cisco CSE for the latest sizing & design guidance.
Network Topology
Demo
Thank you.