THERE’S NEVER BEEN A BETTER TIME to Digitize Madeira

Francisco Guerra
fraguerr@cisco.com
HyperFlex

Hyper-Converged Solutions – EMEAR South
Agenda

- The road to Hyperconvergence
- Introducing HyperFlex
- HyperFlex Advantages
- Business Benefits
Cloud Drives New IT Consumption Models

Business Speed

Operational Simplicity

Cloud Behaviour (On-Premise)
Hyperconvergence

- Simplicity
- Fast Time to Market
Hyperconvergence

Gaps
- New Management Silos
- Networking is an Afterthought
- Inefficient Scaling and Data Optimization

Hyperconverged Startups
- Simplicity
- Fast Time to Market
Cisco’s Path to Hyperconvergence
Hyperconvergence

Cisco’s Hyperconvergence

Agile
- Simplified Operations + Integration with Existing Data Center

Efficient
- All components are pre-integrated + Deployment Automation

Adaptive
- Independent Scaling + Resource Utilization

Gaps
- New Management Silos
- Networking is an Afterthought
- Inefficient Scaling and Data Optimization

Hyperconverged Startups

Simplicity

Fast Time to Market
Different Tools, New Solution Platform

Mainstream Computing
- Fabric Interconnect

Converged Infrastructure
- Service Profiles
- UCS Manager
- Virtual Interface Card

Scale Out
- Fabric Interconnect
- Service Profiles
- UCS Manager
- Virtual Interface Card
- Common API

UCS Solutions
(Hadoop, HANA,...)

UCS Series
(Series)

UCS Blade & Rackmount

UCS Mini

UCS S-Series

Different Tools, Common Platform
Inside a Hyperconverged Node
Hyperconverged Infrastructure Growth
Cisco HyperFlex
Hyperconvergence Meets UCS

All Flash Cluster

- **HX220c**: All SSD drives
- **HX240c**: All SSD drives

Hybrid Cluster

- **HX220c**: SSD cache + 6x HDD
- **HX240c**: SSD cache + 23x HDD

+ 40 Gbps / 10 Gbps UCS Fabric Networking

Turnkey Appliance
Network Integrated
Software Subscription
End-to-end Automation
HyperFlex Distributed File System

HX Log Structured File System Designed Specifically for Hyperconvergence

Intelligently Distributed

Advanced Data Services

Future Ready
HyperFlex Advantages
Data Distribution

- Writing locally is very limiting
- Striping data across nodes is widely superior
Independent Scaling

- Add Nodes
- Scale Storage Within Nodes

HX Data Platform

Connect UCS to add Compute

- Compute-Only UCS Racks
- Compute-Only UCS Blades
Continuous Data Optimization

Before:

Inline Deduplication

Inline Compression

No Special Hardware
No Performance Impact
Simplifying Management

- UCS Manager
- Server & network settings inside Service Profiles
- Manage within vCenter
  - No learning curve
Automation with HyperFlex

HyperFlex + UCS Director

- Infrastructure Automation of UCS, Storage, Virtualization, Networking and Application Centric
- Management and Operational Visibility
- Private Cloud IaaS Automation
  - Policy Based Data Center
  - IaaS Service Catalog
  - Workload provisioning
  - Metering and Chargeback

UCSM Security Model
HX File System
Built for Flash

Engineered for Flash
Blazing Fast
Low Latency
HyperFlex All Flash vs. Hybrid

- 6X IOPS
- 1/5\textsuperscript{th} Latency
- 6X Better Perf Consistency
- 3.2X Capacity / Density

Comparison between HX Hybrid and HX All Flash for 70/30 8K Random Read Write Workload with 4.8TB Working Set Size, vmdks were initialized with writes.
Hybrid vs. All Flash Performance Latency
8K, 100% Random Write Workload

Latency (ms)

IOPS

HX Hybrid
HX All Flash
Cisco HyperFlex Validation by ESG Lab

Consistent, High-performance Hyperconverged Infrastructure
Up to 3X more VMs

Figure 3. Hybrid Cluster Scalability

Number of VMs Supported at 5ms Write Latency

- Cisco HyperFlex: 140 VMs
- Vendor A: 70 VMs with 36 ms latency
- Vendor B: 36 VMs with 48 ms latency
- Vendor C: 48 VMs with 0 ms latency

Source: Enterprise Strategy Group, 2017
An interesting observation was made during all-flash testing. Vendor B showed considerable variability in IOPS from VM to VM. This test was run using HCIbench against 140 VMs in each cluster. While Cisco HyperFlex variation across all 140 VMs—IOPS stayed very close to 600—Vendor B IOPS varied wildly, from 1024 IOPS.

Figure 8. All-flash Cluster Performance—4 KB I/O, 70% Read, 100% Random

It’s important to note that this variability was observed in every iteration of testing, and that no form of storage QoS was used during these test runs on either of the clusters. Network QoS was used for both systems. Inconsistency like this could be quite problematic for administrators, who would likely need to use some form of QoS (if available from the HCI vendor) to attempt to control the VMs that are consuming more than their share, so others are not starved.
Key Findings

1. **3x higher** VM density
2. **3x reduced** read/write latency
3. **7:1 reduction** IOPS variability

Read the Full Report at [www.esg-global.com/cisco-hyperflex](http://www.esg-global.com/cisco-hyperflex)
What It Means For Your Business

1. **3x higher VM density**
   - You get much more return for the money you invested

2. **3x reduced read/write latency**
   - You can bring your most demanding apps into hyperconvergence

3. **7:1 reduction IOPS variability**
   - You know what you’ll get even without the need to micro-manage
## HyperFlex Use Cases

<table>
<thead>
<tr>
<th>Virtual Desktop Infrastructure</th>
<th>Server Virtualization</th>
<th>Test and Development</th>
<th>Large Remote Branch Office</th>
<th>Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low upfront costs</td>
<td>Reduce operational complexity</td>
<td>Agile provisioning</td>
<td>Simple deployment</td>
<td>Consistent, low-latency</td>
</tr>
<tr>
<td>Consistent performance</td>
<td>Adaptive scaling</td>
<td>Frequent iterations</td>
<td>Centralized management</td>
<td>High IOPS</td>
</tr>
<tr>
<td>Predictable scaling</td>
<td>Always-on resiliency</td>
<td>Instant cloning and snapshots</td>
<td>No “fly-and-fix” missions</td>
<td>All-flash nodes</td>
</tr>
</tbody>
</table>
HYPERFLEX Trending where it matters.

1,100+
Customers in less than 1 Year

Dan Harmon #213
Summary: Differentiators

- Part of Complete DC Strategy
- Integrated Networking
- Independent Scaling
- Data Reduction without Caveats
- Single Vendor
Next Steps?

- Reach for us
- Read the ESG Report
- Ask for a Demo
Thank you

+34 673 482 136
francisco.guerra@cisco.com
www.linkedin.com/in/franciscomillerguerra