Internet of Everything:
Connect the unconnected
Cisco UCS Edge Scale Computing
Your Entrance in Hyper Converged Infrastructure

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21.11.2014
Agenda

• Introducing From Converged to Hyper Converged

• Solution for Hyper Converged Infrastructure
  Cisco UCS Edge Scale Computing

• Summary
From Converged to Hyper Converged
Converged Infrastructure

- Challenges for organizations
  - Environments are becoming complex and expensive
  - How to make use of Cloud
  - Where is my Data in the Cloud?
  - Standardize my infrastructure everywhere
  - Skill-sets to support infrastructures

- Opportunities
  - Ease deployment with infrastructure solutions
  - Accelerate move to Cloud environments
  - Access new, smaller customers, branch offices
  - Scale-Up seamlessly

This unified approach to IT infrastructure simplifies data center manageability and improves flexibility and utilization. It also allows IT to focus more on delivering services to end users, and less on how to piece together disparate IT components and make them work together.
From Converged to Hyper Converged

- Traditional Architecture Requires a Compromise
  - Distributed Architecture is often more performant
  - Centralized Architecture is usually cheaper

- Hyper Converged Architecture Offers A Middle Ground
  - Distributed Compute on a Hyper Converged Platform
  - High Performance Advantages of Distributed Architecture
  - Reduced Cost Due to Platform Convergence

- Assumes Architectural Changes
  - Not All Applications Are Appropriate
  - Assumes “Cloud Generation” Architecture
  - Requires Application Level Data Mobility (today)

One of Many Benefits of Hyper-Converged Architectures

Hyper-converged systems take this concept of convergence to the next level. While converged systems are separate components engineered to work well together, hyper-converged systems are modular systems designed to scale out by adding additional modules.

In addition to the simplified architecture, there's a simplified administration model. The hyper-converged systems are managed via "a single pane of glass."

One team (or in some environments one person) can manage the complete hyper-converged stack. Instead of having a set of applications and a team to manage your storage array, a team to manage virtualization, and a team to manage the server hardware.
On Premises Requirements

Converged Infrastructure

Small Footprint

Management

Flexibility

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Challenges Faced by SMBs, Branch Offices, and Remote Offices

- **Limited Staff**
  - On-site support is often part-time or nonexistent
  - Trained personnel are difficult to find and expensive to maintain
  - Staff is limited for many SMBs and remote and branch offices
  - Must accomplish more with limited resources

- **Access to Data and Applications**
  - An increasingly mobile workforce requires access to applications and data
  - Unplanned downtime hurts productivity and has a negative impact on business

- **Data Security and Storage**
  - Need to manage dramatic data growth
  - Must improve backup and recovery processes
  - Need to keep storage costs under control
  - Need to help ensure that data is secured
Solution for Hyper Converged Usecases
Cisco UCS Edge Scale Computing
Introducing the Cisco UCS Mini: Delivering the Power of Unified Computing at the Edge

- Based on current chassis design
- Embedded fabric interconnect capability in the IOM slot
- Matches the current Cisco UCS network model
- Common management with Cisco UCS
  - Cisco UCS Manager, service profiles, and Cisco UCS Central Software
Cisco UCS Mini: Enterprise Capabilities at the Edge

- Computing and storage integration
  - 6RU rack-mount chassis
  - Up to 8 blade servers
  - Up to 7 rack servers

- Integrated networking
  - SFP+ for 1- or 10-Gbps connectivity
  - Hassle-free connectivity with end-host mode

- High availability
  - Hot-pluggable redundant power (N+N, N+1, and N support)
  - 100 to 120V, 200 to 240V support, and -48V DC
  - Redundant network connectivity
  - Redundant fans

- Full systems management capabilities
  - Full-featured Cisco UCS Manager
  - Cisco UCS Central Software for remote management
UCS Mini

6248 Fabric Interconnects
UCS Mini

New architectural entry point for Unified Computing at 1~15 server scale.

Full Power UCS in an all-in-one package:
- Compute
- Networking
- UCS Manager
- Standard UCS Blades / Fans / Power Supplies

Enterprise Capability at Edge Scale
Connect up to 7 C-Series Rack Servers for Expanded Capacity

UP TO 29% CapEx Savings
UP TO 36% TCO
UP TO 34% Lower Power
UP TO 80% Fewer Cables
Simplified Networking

- Easily connect to upstream networks with end host mode
- SFP+ supports 10Gbit & 1GbE for future proofing
- Redundant networking capability built in
- Simple expansion for additional compute
Expansion

- Up to 8 Blades
- Cisco UCS B200 M3
- Up to 7 rack mount servers
  - C220M3
  - C240M3
- Managed through UCSM
6324 Fabric Interconnect Storage Connectivity

- **Network attached storage**
  - Ethernet mode
    - End-host mode
  - Storage support
    - FC/FCoE direct connect
    - NPV (post-FCS)
    - Appliance port

- **Direct Attach storage**
Cisco UCS Manager

- Manage blade and rack servers, networking and storage connectivity from a single console

Cisco UCS Manager
- Monitor and manage UCS servers
- Built in management at no cost
- Full API for 3rd part integration

Cisco Integrated Management Controller
- Agent-free management
- No license required
Cisco UCS Mini Management Use Cases

- **Autonomous (Local Admin)**
  - SMB/Branch Office
  - Cisco ISR Branch Office Router
  - Cisco UCS Mini
  - Local Admin

- **Centralized Management**
  - SMB/Branch Office
  - Cisco ISR Branch Office Router
  - Cisco UCS Central Software (VM)
  - Remote Admin

- **Autonomous (Remote Administration)**
  - SMB/Branch Office
  - Main Office Router
  - Cisco UCS Mini

**WAN Link Characteristics:**
- T1-Link: 1.544 Mbps
- Latency: 200-500ms
- Jitter: 20 ms
- Packet Error rate: 0.1%
Cisco UCS Management Portfolio - Today

Third-Party Infrastructure
- Virtual Machines
- Network Devices
- Storage
- Servers

Cisco UCS Director API
- Cisco UCS Director
- Infrastructure Automation and Orchestration

API
- Cisco UCS Central Software
- Policy Driven Multi DC, Multi-Domain Management

API
- Cisco UCS Manager Domain 1
- Cisco UCS Manager Domain x

Cisco Unified Computing System™

Stand-Alone Cisco UCS C-Series

Integrated and Converged Infrastructure
- FlexPod
- vBlock™ Systems

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UCS Performance Manager (IE w/ UCS Director)

Integrated Infrastructure Monitoring (Integrated Infrastructure Edition)

UCS Director
Integrated Infrastructure Provisioning/Configuration

UCS Manager
UCS Central
Compute

Network

Storage

Physical Infrastructure

FlexPod
VSPEX

Integrated Infrastructure

Virtual Infrastructure

NetApp
EMC²
VMware
Microsoft
Red Hat
Citrix
UCS Performance Manager Features and Capabilities

- Single console for device health and performance monitoring (Compute, Network, Storage and Hosts)
- Out of the box configurations, thresholds to prevent under provisioning and resource constraints
- Quickly identify degraded/disabled components, Identify bottlenecks, detect performance anomalies
- Integrated Infrastructure Capacity planning
- Trends/graphs, Reporting, filtering, search
- Scalable and modular system for easy expansion
- Simple to install, configure, use
Cisco UCS Mini Solutions

- Cisco UCS Mini incl. Invicta Storage Blade
- FlexPod Mini (Netapp Storage)
- Cisco UCS Mini Branch Office Solution for EMC VSPEX
- Nimble Storage SmartStack for ROBO
- Cisco’s rack server C240 as Software Defined Storage (vmware VSAN)
- Cisco’s rack server C240 as Software Defined Storage (Microsoft Storage Spaces)

Hardware Defined Storage

Software Defined Storage
Summary
Conclusion

Rapidly proliferating silos of servers, storage, and networking resources combined with countless management tools and operational processes have led to inefficiencies and soaring costs in the data center. Customers require a flexible IT solution that will fit into their current infrastructure, yet will scale for future growth.

Because these building blocks have been pre-designed and validated—you dramatically reduce the guesswork and risk involved with new data center deployments. Instead, you’ll be able to grow your infrastructure predictably and quickly. Your data center will have improved resiliency and availability because simplified and cohesive management help you proactively and productively manage your infrastructure.

Start your Journey with Cisco Hyper Converged Solutions on the Edge – UCS Mini

- **Simple**
  - Consolidate multiple servers in a single managed solution
  - All HW managed from a single interface
  - UCS Central to manage datacenters and remote sites as one

- **Efficient**
  - Unified systems management
  - Highly-availability system for maximum uptime
  - Reduce capital and operational expenses with consolidation and virtualization

- **Expandable**
  - Extensive scalability within a stable platform
  - Support for future Cisco UCS Blades
Thank you.