

What You Make Possible

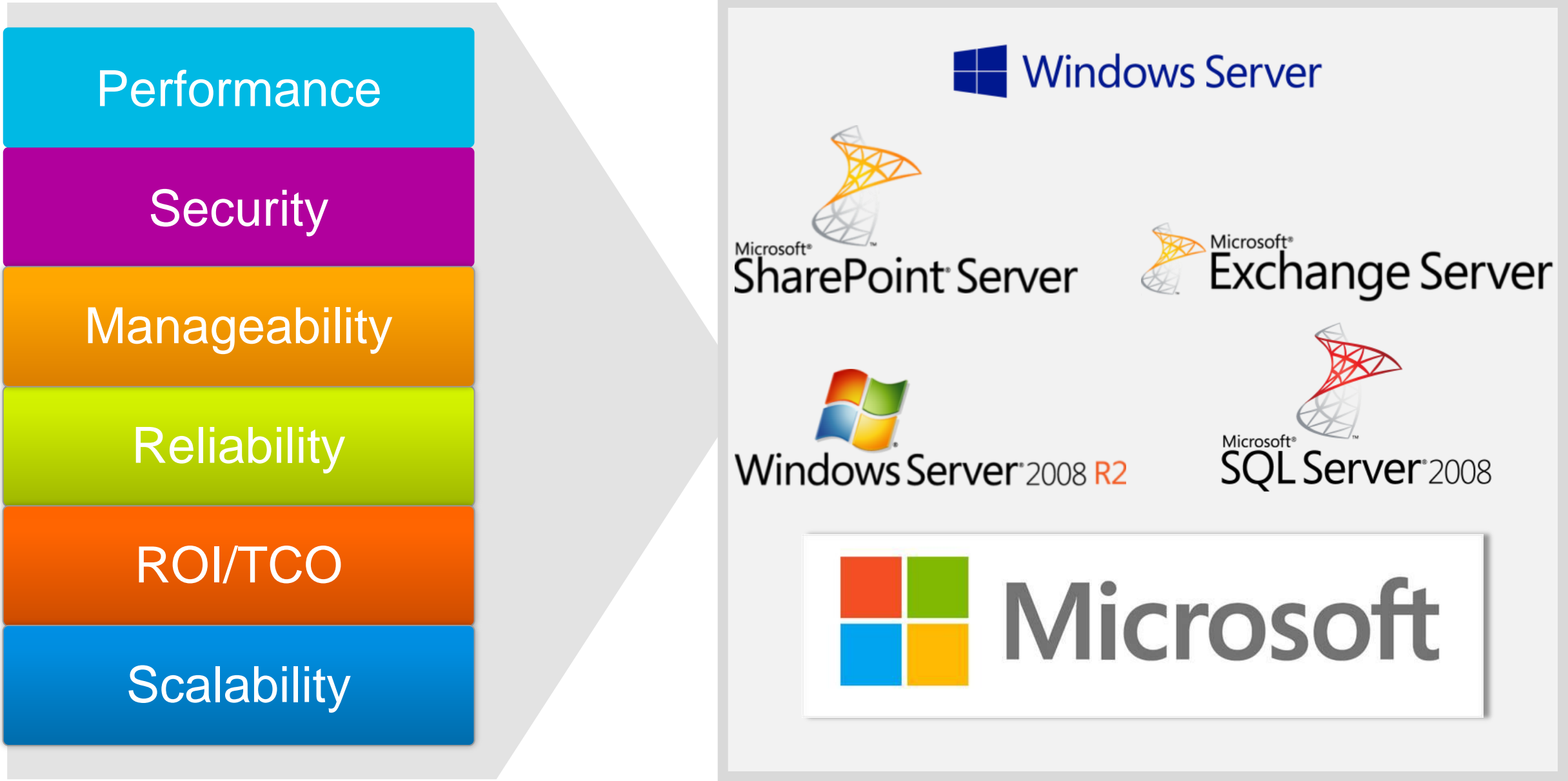


Deployment Best Practices for Microsoft Platforms on UCS

BRKVIR-2663











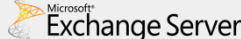





Microsoft Datacentre Applications

Increase Agility, Boost Performance, And Reduce Costs



Cisco and Microsoft Datacentre Portfolio

Better Together

<h3>Compute</h3>   <p>Cisco UCS</p>	<h3>Network</h3>  <p>Cisco Nexus 1000v for Hyper-V</p>	<h3>Storage</h3>    <p>Best of Breed Partnerships</p>
<h3>Management</h3>   <p>PowerShell</p>	<h3>Virtualisation</h3>    <p>Microsoft Hyper-V Cloud</p>	<h3>Architectures</h3>      



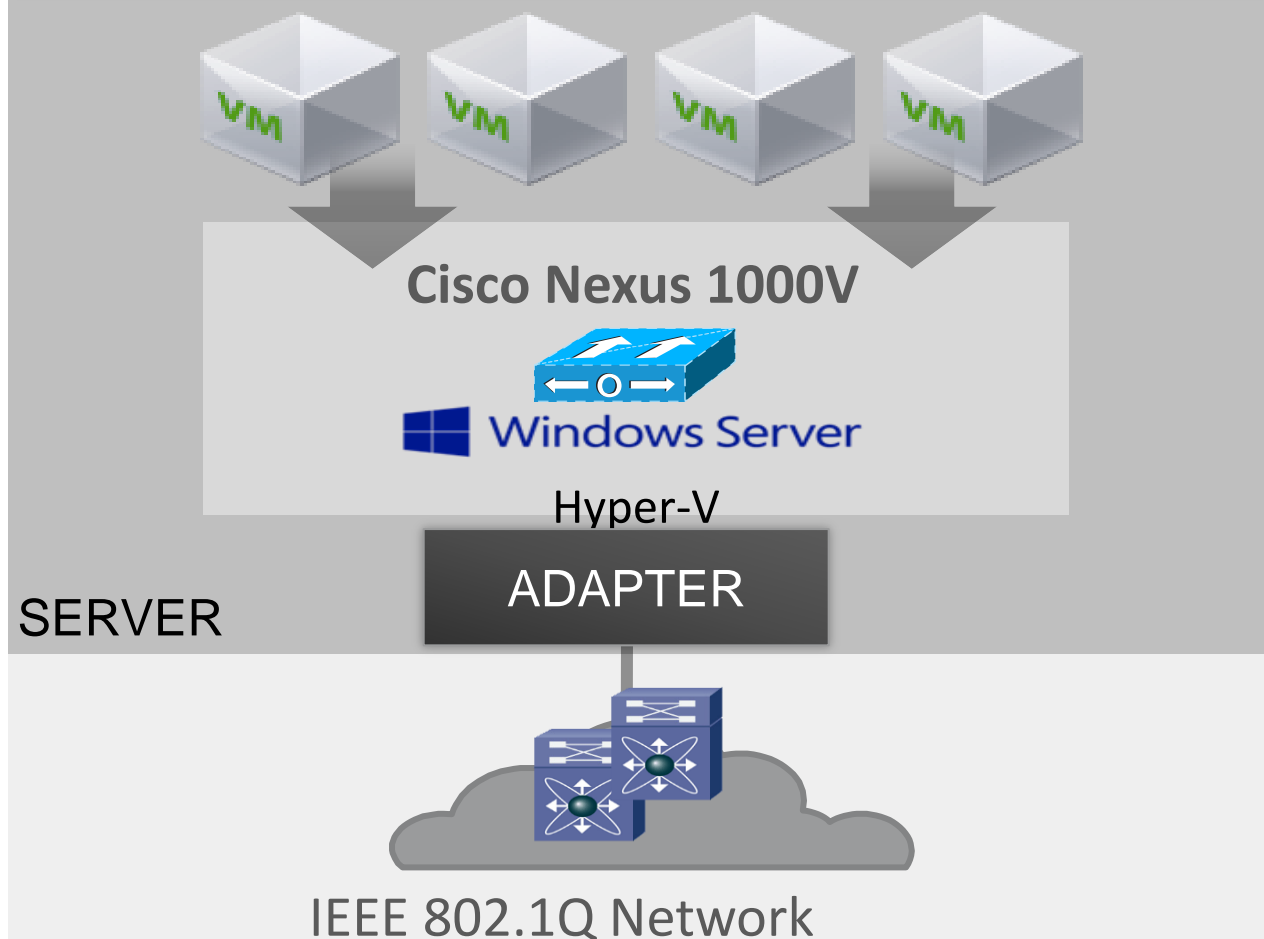
Cisco Virtual Networking for Windows

New For System Centre 2012 SP1



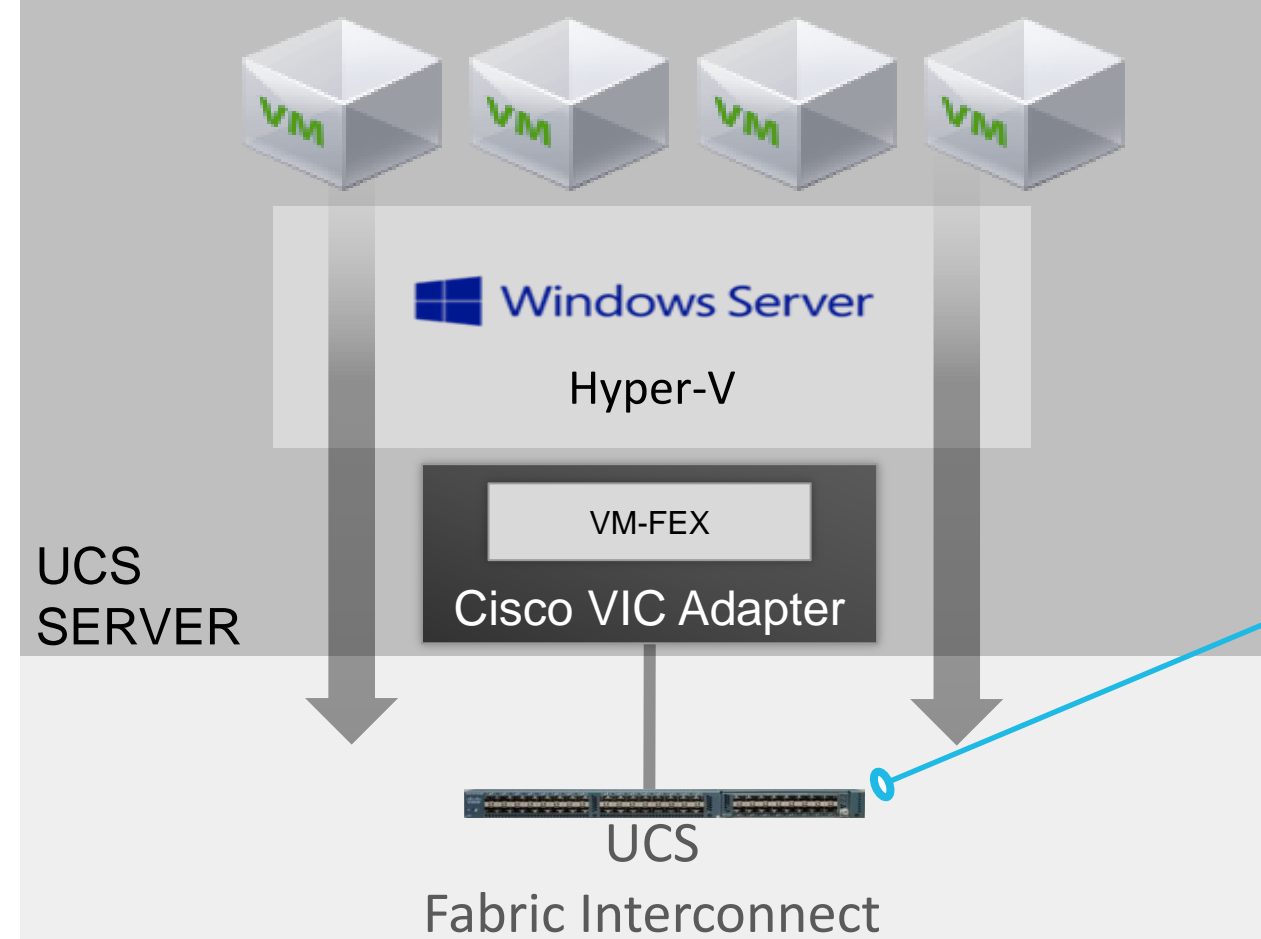
Cisco Nexus 1000V

Bring Network To The Hypervisor



UCS VM-FEX

Bring VM Awareness To Physical Network



Performance

Security

Manageability

Reliability

ROI/TCO

Scalability

Traffic Flow

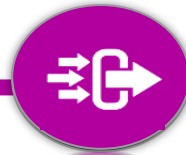
VM traffic switched in hardware – no soft switch needed

Cisco Nexus 1000V Benefits

Switching	<ul style="list-style-type: none">• L2 Switching, 802.1Q Tagging, Rate Limiting (TX)• IGMP Snooping, QoS Marking (COS & DSCP), Class-based WFQ
Security	<ul style="list-style-type: none">• Policy Mobility, Private VLANs w/ local PVLAN Enforcement• Access Control Lists (L2–4 w/ Redirect), Port Security• Dynamic ARP inspection, IP Source Guard, DHCP Snooping
Network Services	<ul style="list-style-type: none">• Virtual Services Datapath (vPath) support for traffic steering & fast-path off-load leveraged by Virtual Security Gateway (VSG) and other services
Provisioning	<ul style="list-style-type: none">• Full integration with System Centre – VM Manager (SCVMM)• Faster network policy provisioning through port profiles
Visibility	<ul style="list-style-type: none">• Live Migration Tracking, NetFlow v.9 w/ NDE, CDP v.2• VM-Level Interface Statistics• SPAN & ERSPAN (policy-based)
Management	<ul style="list-style-type: none">• VM Network Provisioning (port-profiles), CiscoWorks, Cisco DCNM• Cisco CLI, Radius, TACACs, Syslog, SNMP (v.1, 2, 3)• Hitless upgrade, SW Installer

SharePoint On UCS

Simple...Scalable...Reliable



- Multiple NICs for cluster communication, replication, and management
- Multiple HBAs for storage path redundancy with Microsoft MPIO
- Consistent management for all server attributes
- Ease of failover
- All server roles can run in a VM

Performance

Security

Manageability

Reliability

ROI/TCO

Scalability



Microsoft®
SharePoint®

Cisco *live!*

Exchange On UCS

Simple...Scalable...Reliable



- Consistent management for all server attributes
- Ease of failover
- All Exchange server roles can run in a virtual machine
- Fully utilise resources in a modern two socket server
- Proven and reliable hypervisor choices
- Prescriptive guidance via Cisco Validated Designs

Performance

Security

Manageability

Reliability

ROI/TCO

Scalability



Microsoft®

Exchange Server

Cisco *live!*

Efficient Virtualisation

TCO: Virtualisation



ExamWorks

\$333,000 savings annually

67% less costs

Avoided purchasing new PCs by deploying virtualised desktops on UCS servers

- Manage fully virtualised systems with UCS and integrate security and networking into a single policy that travels with virtual machines.
- Move, engage, disengage VMs without affecting network connectivity of other VMs running on the same server.
- Enable multiple virtual links to be configured on a single physical link
- Transport VMs from server to server while keeping network characteristics intact
- Reduce TCO through overlapping cost advantages of implementing UCS and third-party components

Performance

Security

Manageability

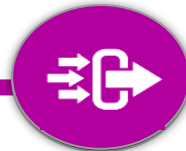
Reliability

ROI/TCO

Scalability

Simplified Networking

TCO: Network



Reduction in cabling alone...

From 1,440 cables to 250

- Single, low-latency, lossless Ethernet
- Reduce costs through:
 - Lower cabling complexity, costs and overhead
 - Lower network configuration cost
 - Lower switching costs and switch port consumption
- Do not require individual switches in the chassis
- Save 33% on hardware, support, installation and power over conventional “unconsolidated” LAN and SAN connections

Performance

Security

Manageability

Reliability

ROI/TCO

Scalability

SQL Server On UCS

SQL Server 2008/2012 OLTP Reference Configuration and Data Warehouse



Performance

Security

Manageability

Reliability

ROI/TCO

Scalability

- High performing, highly scalable and integrated
- Reduction in datacentre cost of ownership
- Delivers unified management
- Quick configuration, provisioning, and deployment



UCS Rack Server Family



Cisco UCS Management Solutions for Microsoft System Centre 2012



UCS Manager and System Centre 2012

Unsurpassed Power, Control, and Efficiency



- Provides end-to-end management of the UCS platform
- Embedded - eliminates the need for an external management server
- Enables rapid provisioning and scaling of IT infrastructure
- Comprehensive API offers programmatic control of growing infrastructure



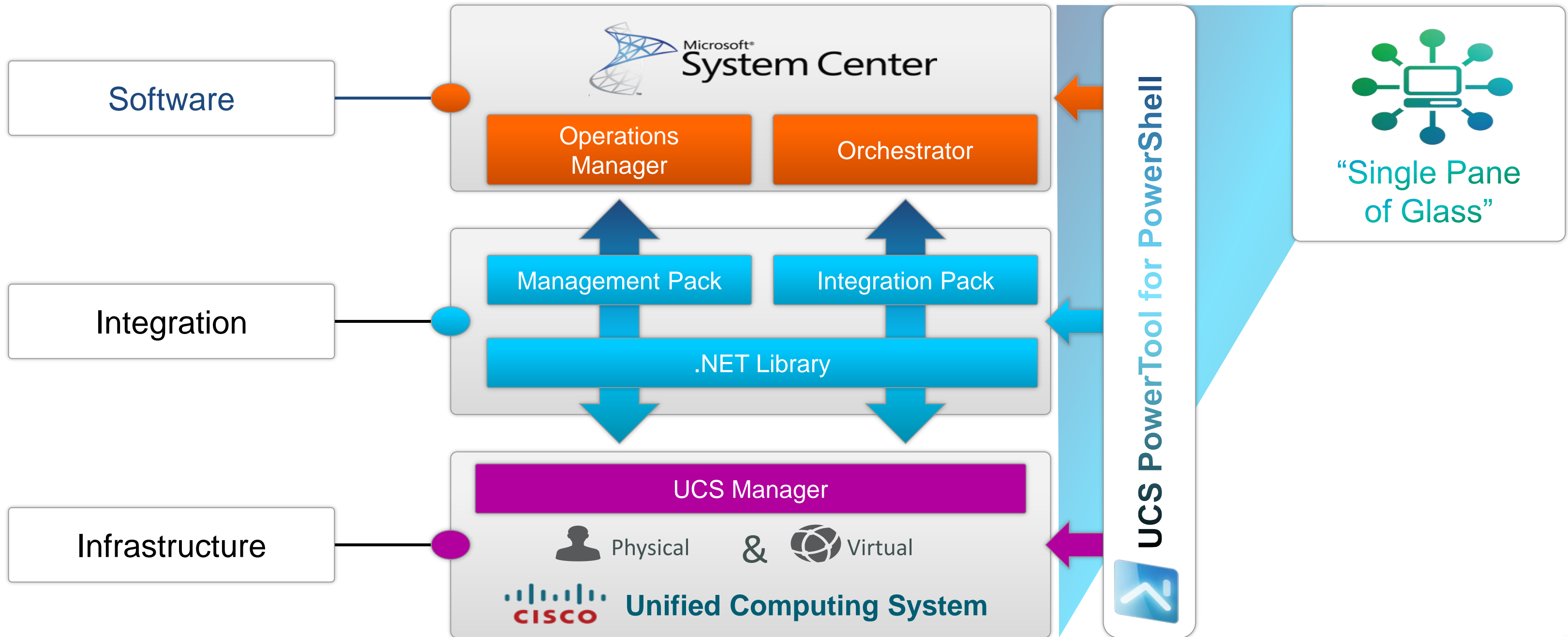
- Comprehensive Windows Server Management platform
- Most cost-effective and flexible platform for Datacentre management
- Only Unified platform offering management of multiple hypervisors



- Seamless integration with Operation Manager and Orchestrator
- Leverages existing MSSC management tools and skill sets
- Utilisation of a single Microsoft interface to manage, monitor, measure and automate at every layer
- Management of physical and virtual machines identically

UCS Management and Integration Packs

Ease IT management through a single interface



UCS PowerTool

Bringing More Power to Microsoft PowerShell

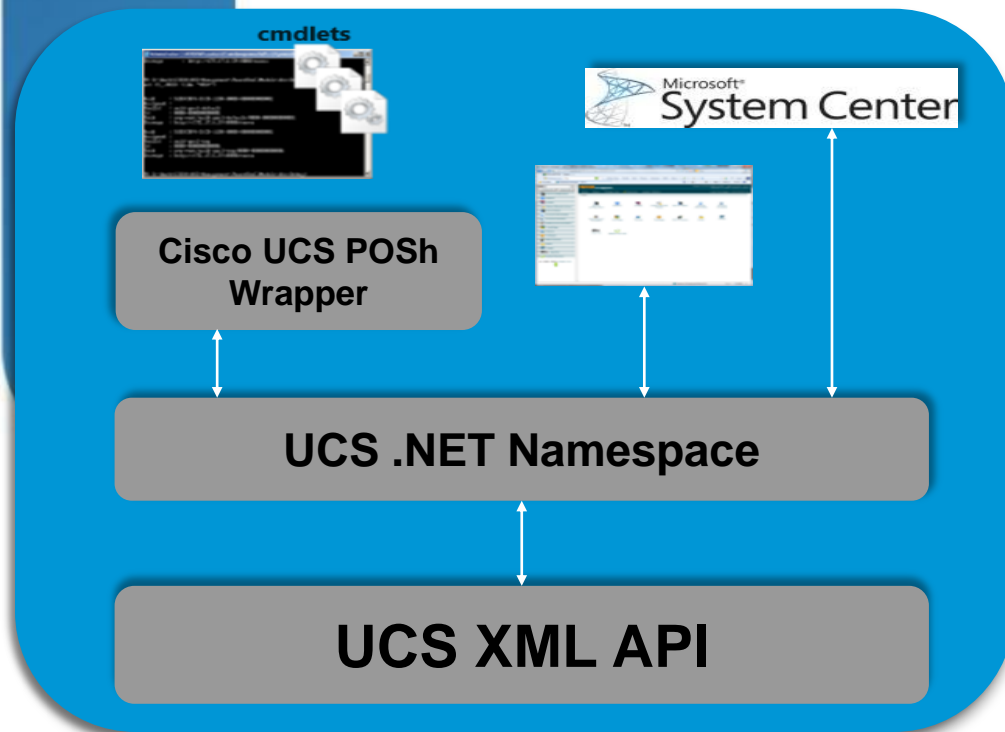


The Essential Tool Kit

- **PowerShell** is the common management platform used across all Microsoft operating systems and applications
- **UCS PowerTool** is a Cisco-built, user-friendly, PowerShell-based library that Microsoft tools understand
- ~1800 PowerShell cmdlets today (and more coming)

Don't reinvent the wheel...

...build on it



“This year’s winner of our Breakthrough Technology Award is **Cisco UCS**...[The] servers can also be fully managed using PowerShell or System Centre Orchestrator.”

Jason Bovberg
Windows IT Pro

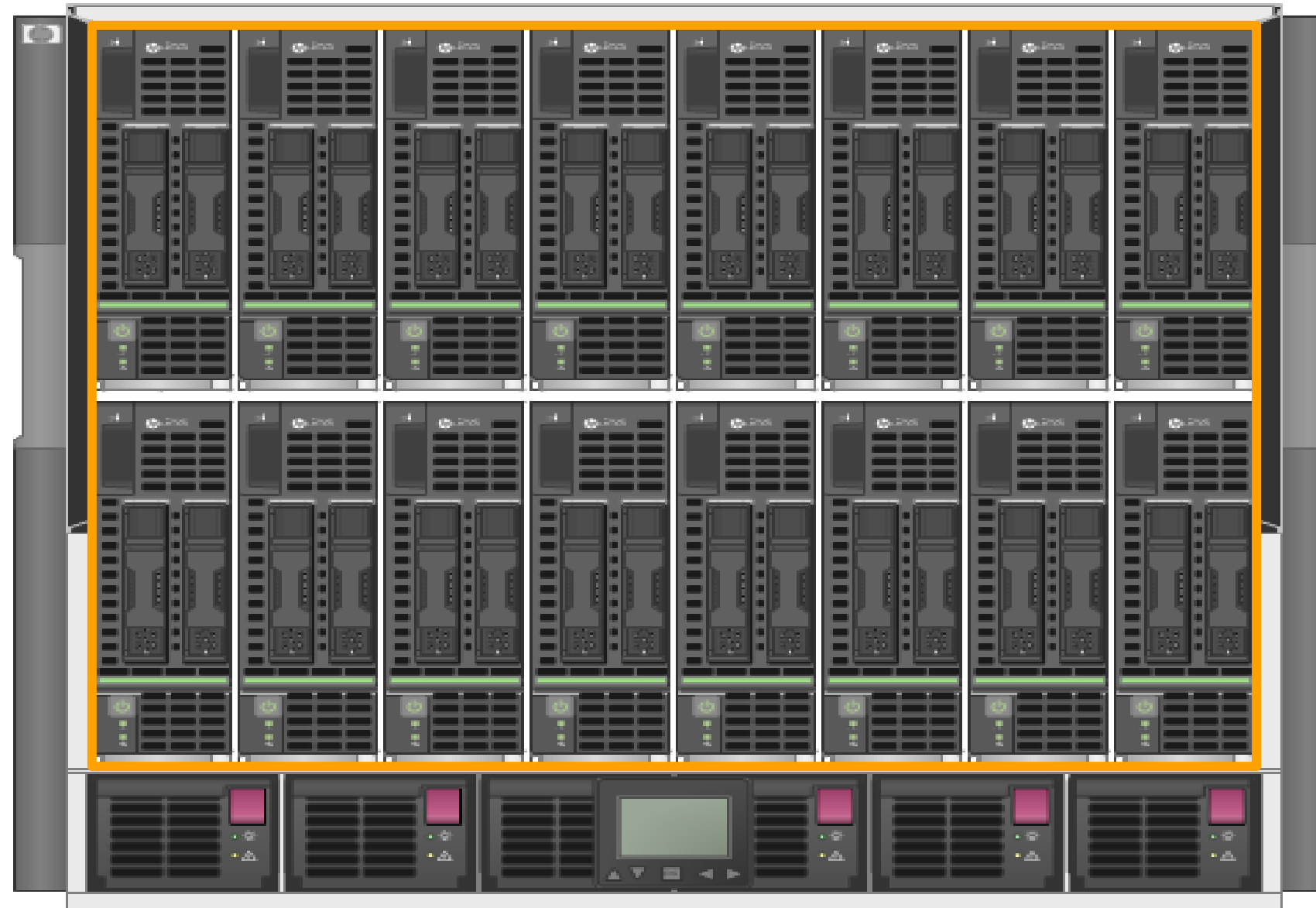


Why Cisco UCS?



Legacy Solutions

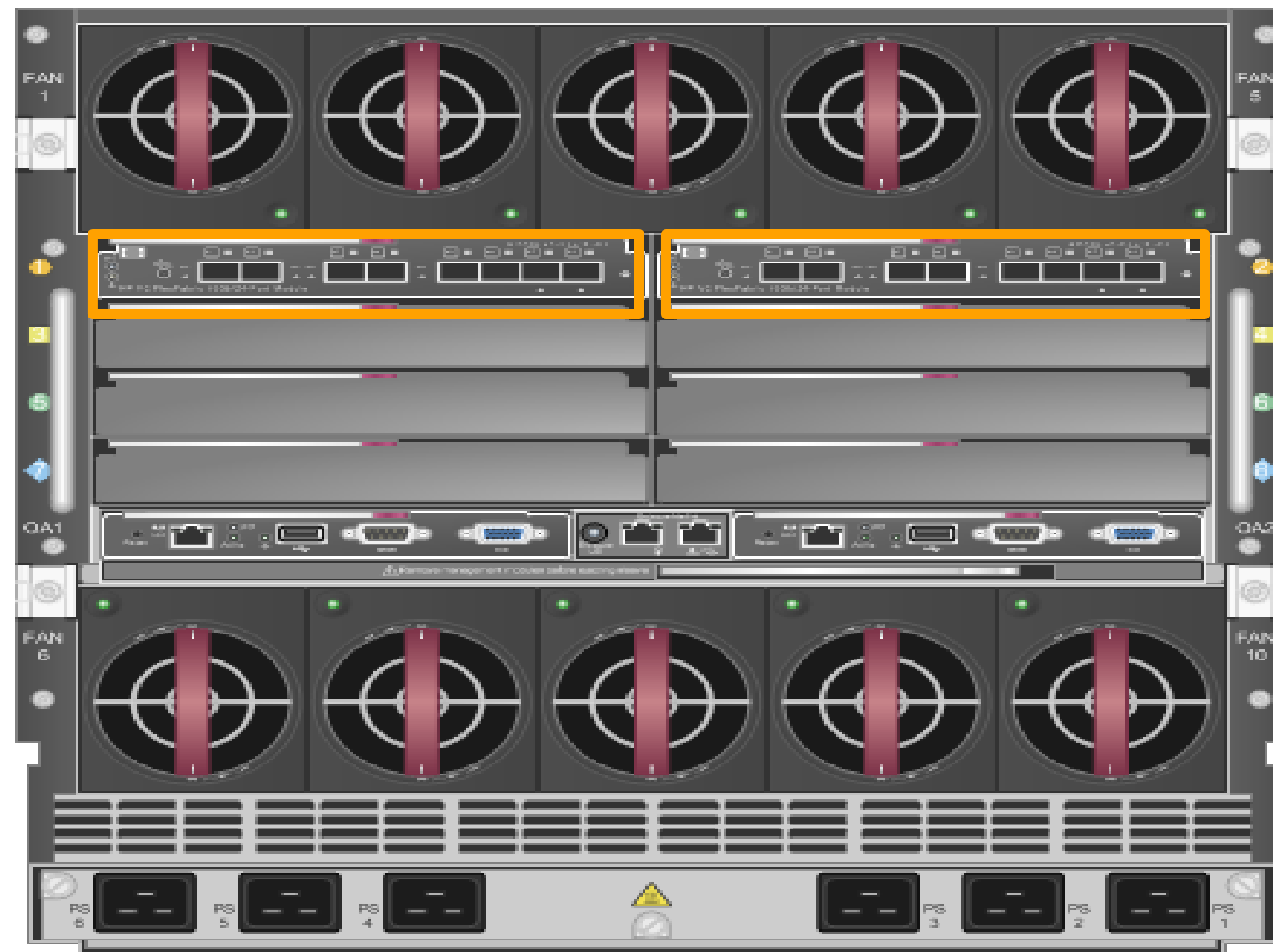
Stunted Growth



Typical Blade Chassis:
16 Blades

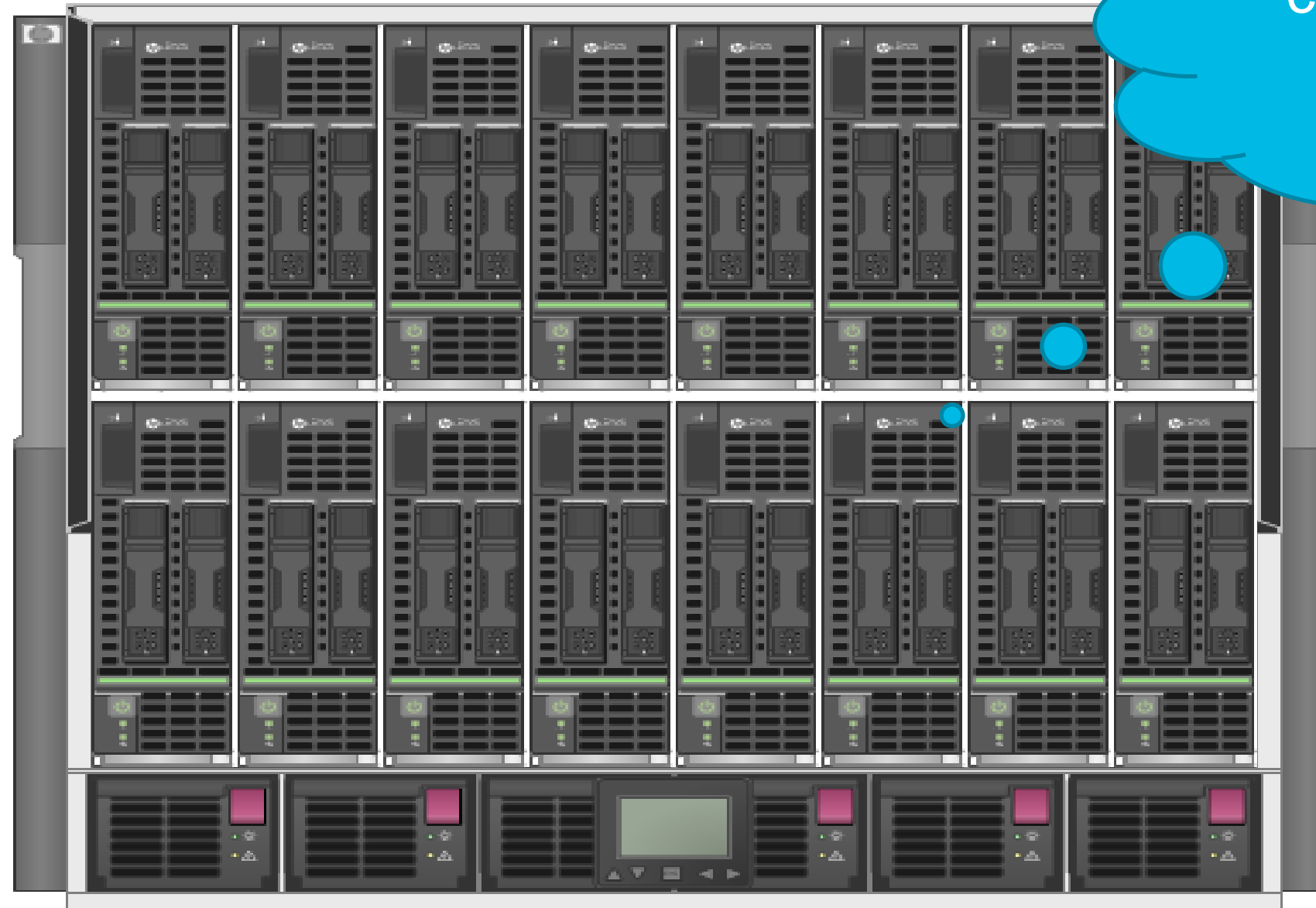
Legacy Solutions

Complex I/O Technology



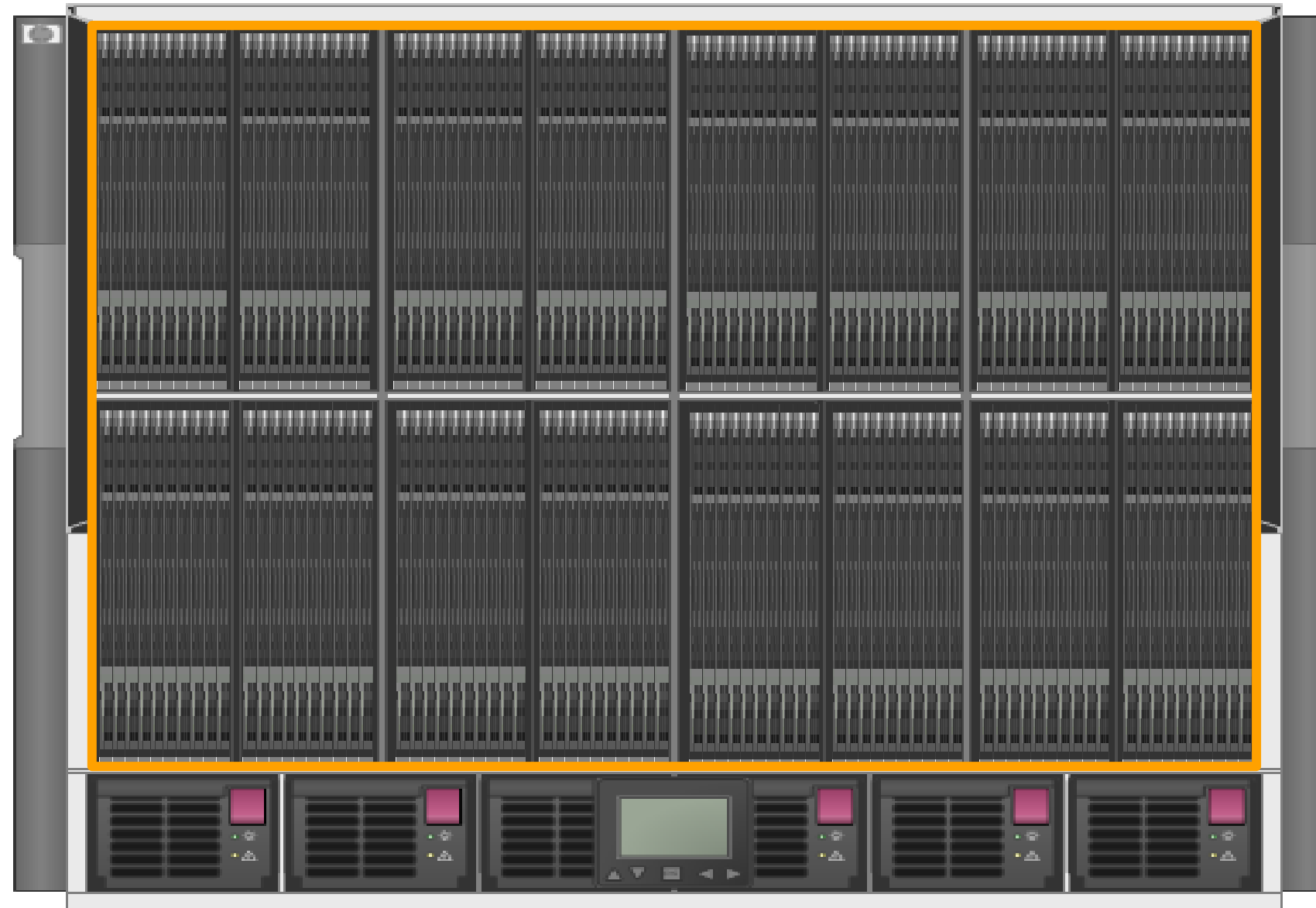
Typical Blade Chassis:
16 Blades
2 Interconnects (minimum)

Legacy Solutions



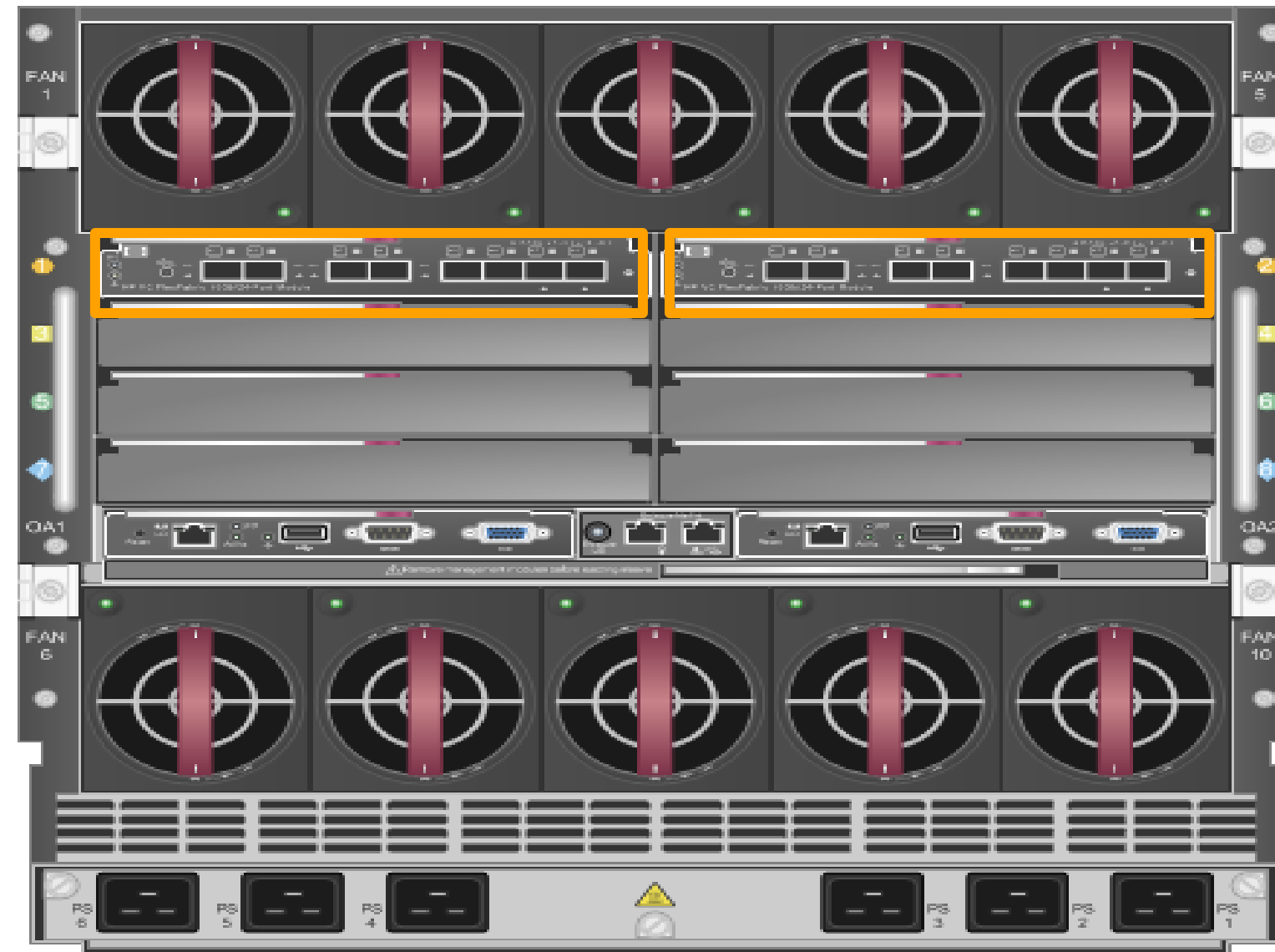
What if the typical chassis could hold 10X it's current capacity?

Legacy Solutions



And you could accommodate 160 Blade Servers in that same chassis?

Legacy Solutions



But still just have 2
Interconnects
to manage all the I/O?

Cisco UCS

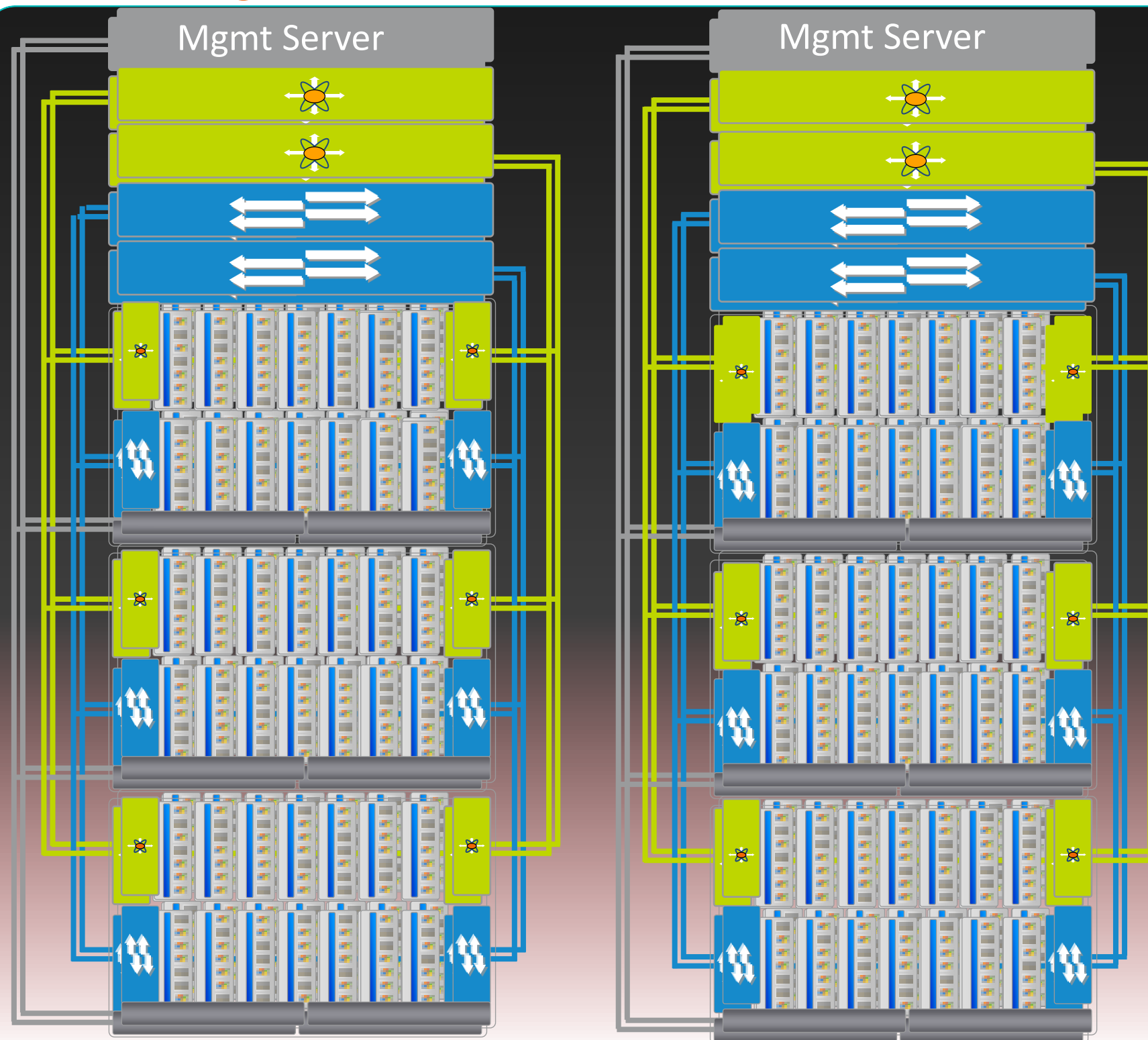
Reducing the Complexity



- ✓ #1 x86 Blade Vendor in AU
- ✓ Simple to Manage
- ✓ Innovation that matters
- ✓ Policy-Based Management
- ✓ #3 Worldwide in x86 Blades
- ✓ 16,000+ Customers
- ✓ ½ the fortune 500 on UCS

Legacy Blade Infrastructure

Growing Pains



1 Blade Servers

Limited expansion,
memory, and I/O options

2 Systems
Management

Individual server elements
Chassis Management
Standalone mgmt servers

3 Blade Chassis
Switches

Ethernet
Fibre Channel
Management LAN

4 Top of Rack
Switches

Ethernet
Fibre Channel

5 Lots of Cabling

Ethernet
Fibre Channel
Management

6 Complexity
Multiplied

Repeat points of management
every 10U

Cisco Unified Computing System

Scales Easily



Infrastructure Deployment on Cisco UCS with Microsoft Tools



Cisco Developer Network

The screenshot shows the Cisco Developer Network website. The main navigation bar includes Home, Membership, Technologies, Community, Technology Partners, News & Events, and My C. The main content area is titled "UCS Manager" and has sub-navigation for UCS Manager, Forums, Blogs, and Documentation. The main text describes the Cisco Unified Computing System (UCS) and its XML API. Below this are three columns: "What Is It?" (Overview), "How Do I Get Started?" (Getting Started), and "What Resources Are Available?" (Resources). At the bottom, there are three more columns: "Developer Forums", "Recent Bloggers" (with a table of users, posts, and dates), and "Recent Downloads".

UCS Manager

UCS Manager | Forums | Blogs | Documentation

UCS Manager

The Cisco Unified Computing System (UCS) includes an innovative XML API which offers you a programmatic way to integrate or interact with any of the over 9,000 managed objects in UCS. Managed objects are abstractions of UCS physical and logical components such as adaptors, chassis, blade servers, and fabric interconnects.

Developers can use any programming language to generate XML documents containing UCS API methods. The complete and standard structure of the UCS XML API makes it a powerful tool that is simple to learn and implement.

What Is It?

Overview

Explore UCS Manager and the business benefits it provides

How Do I Get Started?

Getting Started

Learn what is required to download or further develop with the UCS Manager

What Resources Are Available?

Resources

Access resources that will help you utilize and learn UCS Manager

Developer Forums

Business Solutions
Technical Discussions
UCS Sandbox

> View All Forums

Recent Bloggers

User	Posts	Date
Sheryl Sage	3	8/27/10
John McDonough	3	7/14/10
Pramod Borkar	1	6/23/10

Recent Downloads

- Cisco UCS Platform Emulator...
- Cisco UCS Manager API...
- UCS Emulator v1.3.zip

Web based developer community

<http://developer.cisco.com/web/unifiedcomputing/home>

Downloads:

- UCS Platform Emulator (UCSPE)
- XML API, Perl, PowerShell code samples
- Microsoft – PowerShell library, SCOM MP
- goUCS Automation Tool
- HP Software – HPOM, HPOO integration modules
- Altiris Integration Pack

Documentation:

- Programming and developer guides
- White papers
- Reference guides
- Sample code

Collaboration:

- Developer Blogs
- Community forums
- How-To Videos
- Access to Cisco experts

Infrastructure Deployment Demo

UCS Powertool



Server Deployment



Windows Deployment Server Setup

Preparing WDS

The image displays two screenshots of the Windows Deployment Services (WDS) console. The top screenshot shows the 'Install Images' folder selected, with a context menu open. The bottom screenshot shows the 'Boot Images' folder selected, with a context menu open. A callout box on the right contains a caution message.

Caution: Do NOT use 2012 boot images to install 2008 or vice-versa

Windows OS Server Deployment

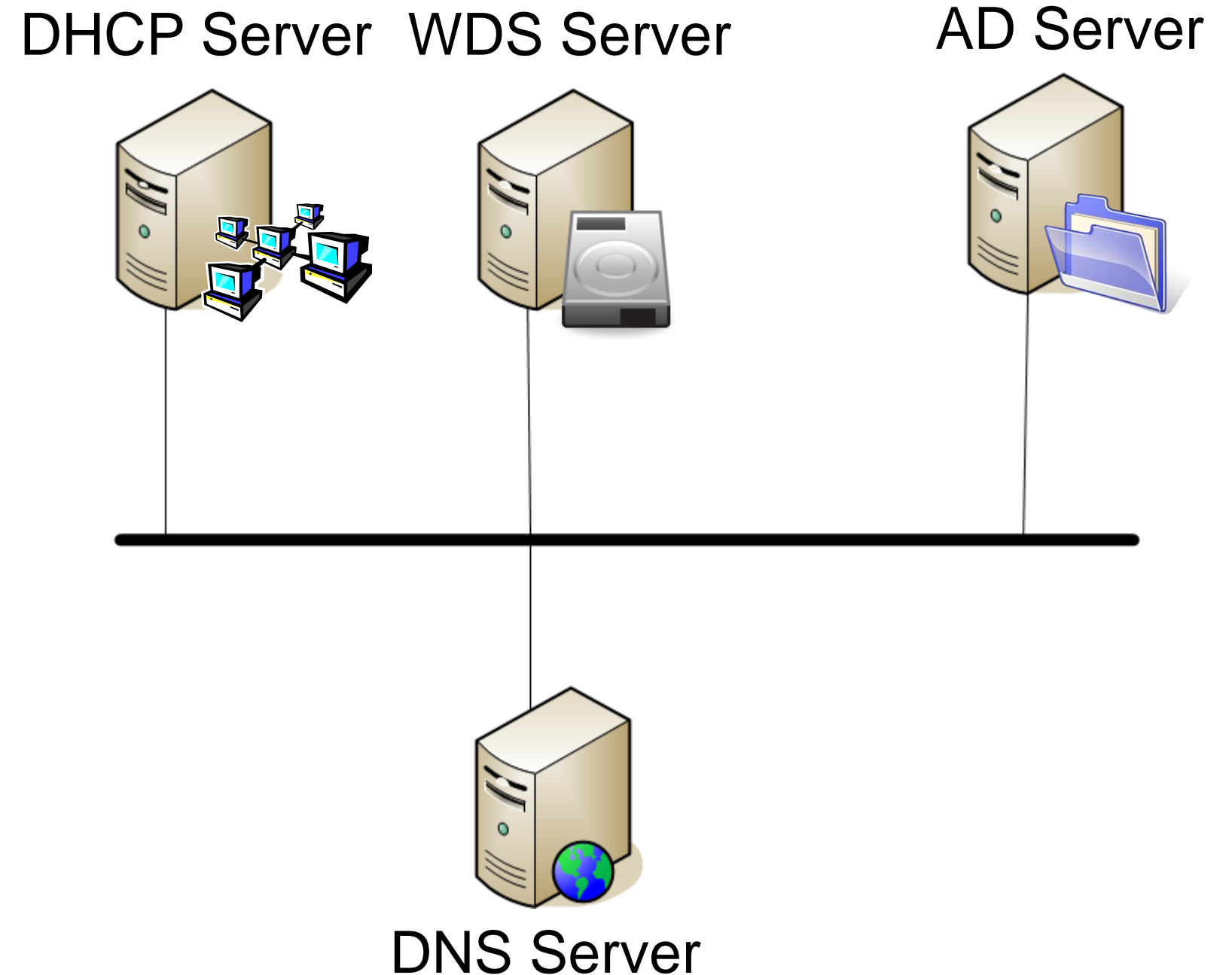
Preparing WDS

1. Mount the UCS driver ISO on the WDS server
 - WS2012 Auto-mounts ISO files as Removable Media (finally!)
 - Simply double click the ISO
2. Use “Add Driver Package Wizard” in WDS to add UCS Drivers
 - Mandatory for Boot from SAN using Cisco VIC
 - Adding LAN Drivers eases installation
3. WDS updates Boot and Windows images with new drivers
 - Similar to “slipstream” but MUCH easier
4. Boot the target UCS server(s)

Windows OS Server Deployment

WDS Requirements

- All roles could be on the same physical server
- DHCP option 0x60 required if WDS/DHCP are combined
- L3 networks require DHCP-helpers
- Unattend files should be created in System Image Manager
- AD Server not required but strongly recommended



Windows Server Deployment

Preparing UCS

The image shows two overlapping windows from the Cisco UCS Manager interface. The background window is titled 'Create Boot Policy' and the foreground window is titled 'Modify Boot Policy'.

Create Boot Policy Window:

- Name: PXE-Boot
- Description: Boot server from NIC
- Reboot on Boot Order Change:
- Enforce vNIC/vHBA/iSCSI Name:
- WARNINGS:**
The type (primary/secondary) does not indicate a boot order presence.
The effective order of boot devices within the same device class (LAN/Storage/iSCSI) is determined by PCIe bus scan order.
If **Enforce vNIC/vHBA/iSCSI Name** is selected and the vNIC/vHBA/iSCSI does not exist, a config error will be reported.
If it is not selected, the vNICs/vHBAs/iSCSI are selected if they exist, otherwise the vNIC/vHBA/iSCSI with the lowest PCIe bus

Modify Boot Policy Window:

- Boot Policy: PXE-Boot
- Reboot on Boot Order Change:
- Enforce vNIC/vHBA/iSCSI Name:
- WARNING:**
The type (primary/secondary) does not indicate a boot order presence.
The effective order of boot devices within the same device class (LAN/Storage/iSCSI) is determined by PCIe bus scan order.

Local Devices Panel (in Create Boot Policy window):

- Local Devices
- vNICs
- vHBAs
- iSCSI vNICs

Boot Order Table (in Create Boot Policy window):

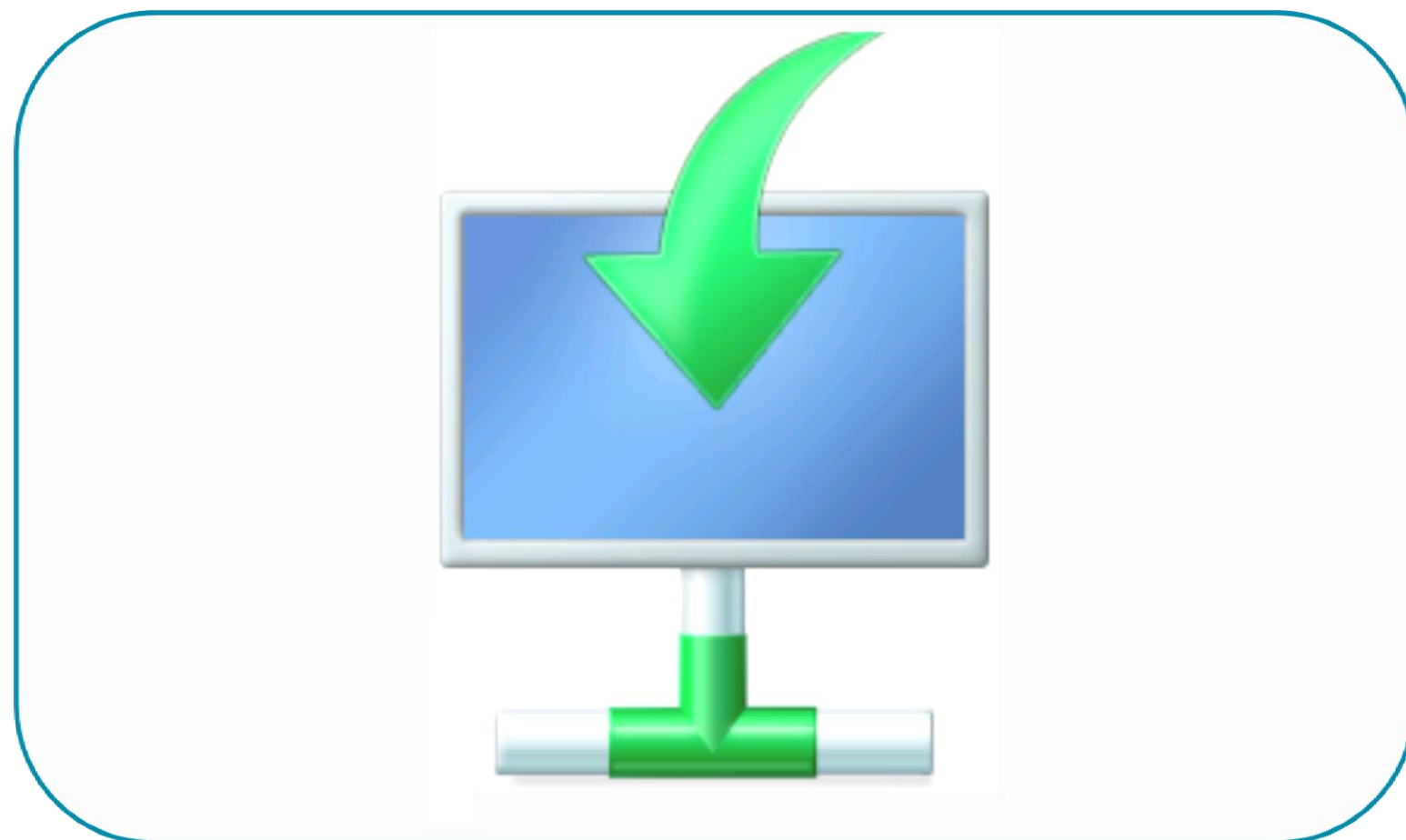
Name	Order	vNIC/vHBA/iSCSI vNIC
LAN	1	
LAN eth0		eth0
CD-ROM	2	

Boot Policies List (in Modify Boot Policy window):

- Force_WWPN_Login
- NB-BootPolicy-1
- PXE-Boot
- PXE-SAN
- RCCL-Boot-Policy
- SAN-Boot
- SP8-Temp-Policy

Windows Deployment Server Demo

Bare-Metal Windows Deployment



Managing Cisco UCS with SCOM



SCOM Management Pack Framework

Managing Cisco UCS

Q. What is a management pack (MP)?

A. The MP is a definition file that:

- Enables MOM to detect and discover new objects
- Allows monitoring to begin on newly discovered objects
- Integrates a knowledgebase for troubleshooting and fault analysis

Cisco UCS Management Pack for SCOM

Managing Cisco UCS

Q. What is the Cisco UCS management pack?

A. Cisco's UCS MP provides:

- Deep visibility into health, performance, and availability of the system
- Rules for monitoring chassis, blade and rack servers, and service profiles
- Allows monitoring of multiple UCS systems in a single instance

Q. Where can I download the Cisco UCS management pack?

A. CDN

<http://developer.cisco.com/web/unifiedcomputing/systemcenter>

Cisco UCS Management Pack for SCOM

Managing Cisco UCS

- Includes an installer to self-integrate into SCOM
- Also allows the **.MP** file to be imported from SCOM admin tools
 - Might be needed if customer SCOM installation is incompatible in some way

Q & A



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