



Unified Computing System

Software Release 1.4 (*Balboa*)

An Overview



UCS Product Management
SAVBU

LBI + HD 110607

UCS Software Release 1.4 *(Codename: Balboa)*

Feature Summary

Compute

- Support for new UCS B230 Blade Server
- UCS C-Series server integration into UCS Manager
- Multi-chassis power capping for UCS B-Series
- Support for upto 20 UCS B-Series Chassis

Ethernet and Fibre Channel

- Full vNIC failover w/o NIC teaming/bonding with FabricFailover/FabricSync
- SPAN support on UCS 6100
- Higher VLAN scalability 1024
- Higher logical port scalability 8000
- Higher virtual interface Scalability 2000
- PVLAN support
- FC trunking and port channel (in NPV mode)
- Direct connect Ethernet Appliance
- Limited Direct Connect FC Storage

Authentication & Security

- Simpler integration with MSFT Active Directory
- Multiple simultaneous authentication systems
- Multi-user KVM enhancements

Stateless Computing

- Scheduling of service profile changes
- CIMC IP address abstraction

Management & Monitoring

- SNMP GET support for ALL UCS components
- Syslog enhancements
- UCS 6100 licensing enforcement/warnings
- Usability enhancements



UCS Software Release 1.4



Compute

Ethernet

Fibre Channel

Authentication & Security

Stateless Computing

Management & Monitoring

UCS Manager 1.4 supports UCS B230 M1

Industry leading compute density in half-blade form factor

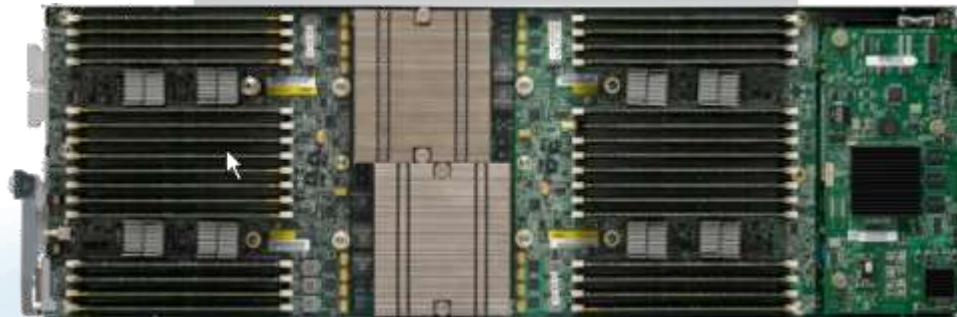
OPTIMIZED FOR

Single instance and transaction—intensive database
Desktop virtualization (VDI)
Financial Services and SPs

- 2 Intel Xeon 7500 or 6500 (Nehalem EX)
- 32 DIMM Slots; up to 512 GB Memory
- Dual Port Converged I/O Adapter; 20 MB/s
- Two Optional SSD

BENEFITS

Lower operating and licensing expenses
Higher density
Reduced foot-print



High Density Compute: 16 cores per blade

What's changing with Intel® Xeon® processor E7 Family?

Blade

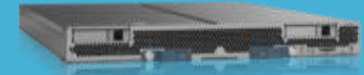
B200 M2

2-Socket Intel 5600, 2 SFF Disk, 12 DIMM



B250 M2

2-Socket Intel 5600, 2 SFF Disk, 48 DIMM



B230 M2

2-Socket Intel E7-2800, 2 SSD, 32 DIMM

Updated



B440 M2

4-Socket Intel E7-4800, 4 SFF Disk, 32 DIMM

Updated



Rack Mount

C200 M2

2-Socket Intel 5600, 4 Disks, 12 DIMM, 2 PCIe 1U

Updated



C210 M2

2-Socket Intel 5600, 16 Disks, 12 DIMM, 5 PCIe 2U



C250 M2

2-Socket Intel 5600, 8 Disks, 48 DIMM, 5 PCIe 2U



C260 M2

2-Socket Intel E7-2800, 16 Disks, 64 DIMM, 6 PCIe 2U

New



C460 M2

4-Socket Intel E7-4800, 12 Disks, 64 DIMM, 10 PCIe 4U

Updated



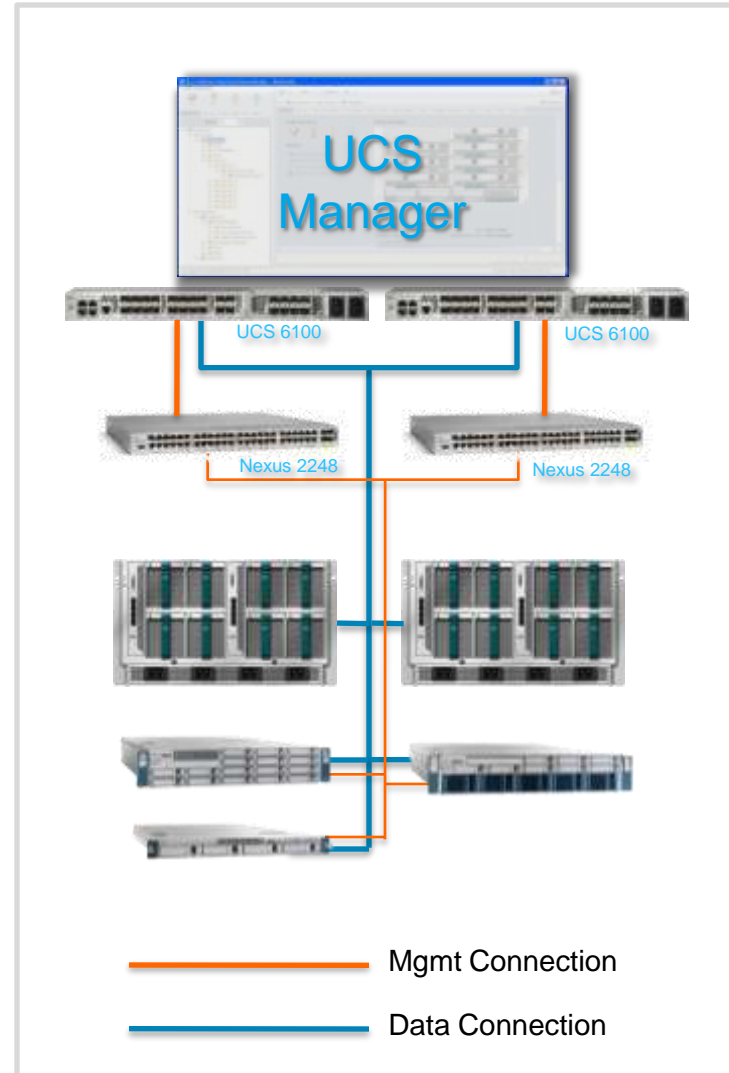
UCS Manager C-Series Integration

Customer benefits

- Unified Management across entire UCS portfolio
- Advanced capabilities extended to rack servers

Feature details

- **C-Series servers connectivity**
 - Management connectivity through FEX to FI
 - Data connectivity directly to Fabric Interconnect
- **Stateless computing**
 - Service profiles extended to C-series
 - Migration among compatible B & C series servers
- **All UCSM management services**
 - Automated discovery
 - Fault and monitoring
 - Firmware updates



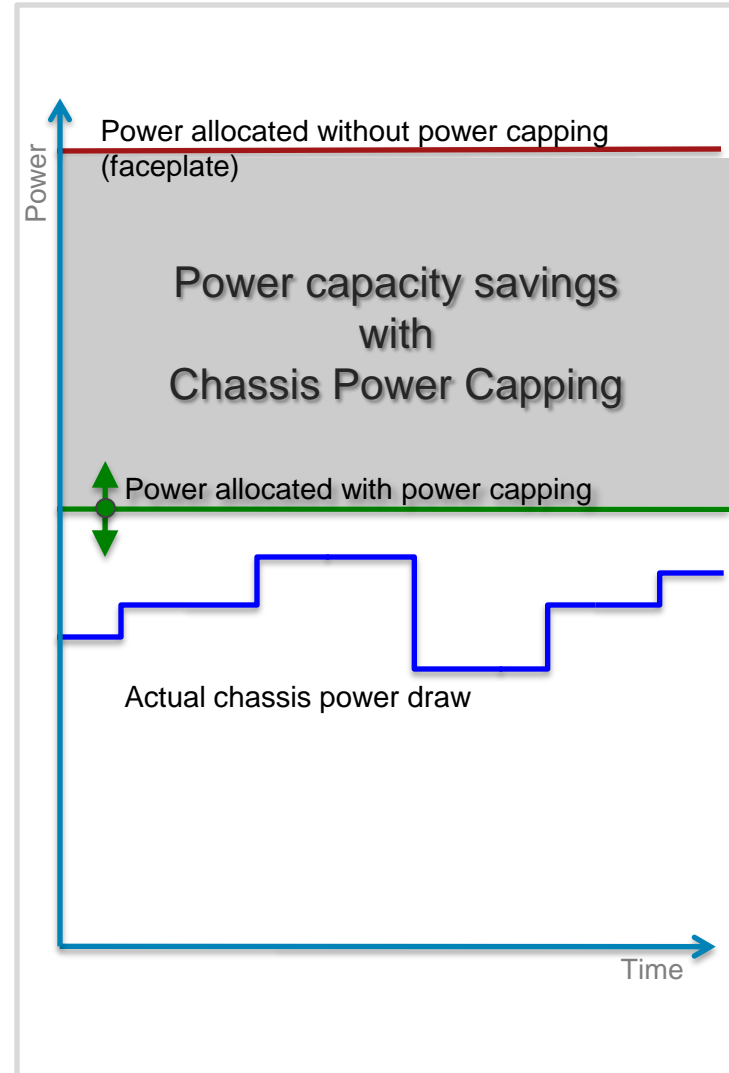
UCS Chassis and Multi-Chassis Power Cap

Customer benefits

- Eliminate power capacity wastage in Data Center
- Cap multiple chassis from a single interface

Feature details

- Group Level Power cap
 - Set a single cap for multiple chassis that share a power feed
 - Automatic static distribution of power to chassis in group
- Dynamic Intra-chassis power redistribution
 - Blade power allocation based on priority and blade configuration
 - High power blades can borrow power from low power blades
 - No performance impact under normal operation
- Service Profile Priorities
 - Customer control of application performance
 - Ensures high priority workloads get more power when group/chassis cap is reached



UCS Software Bundling Infrastructure & Server Bundles

Customer benefits

- HW support decoupled from major SW releases
- Quicker adoption of new server & adapter types

Feature details

- Unbundling of UCS software bundles
- Server and adapter packs aimed at new server and adapter hardware
- Off-cycle introduction of server and adapter packs in-sync with hardware releases
- Next major software releases will incorporate previous modular server and adapter packs
- Enables faster introduction of new server and adapters without waiting for next major SW release

Infrastructure Bundle:

- UCSM
- Fabric Interconnect (NX-OS)
- Fabric Extender (IOM) Firmware
- Chassis Mgmt. Controller

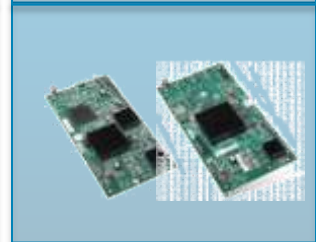


Server Bundle:

- CIMC
- BIOS
- RAID Controller FW
- Catalog File
- UCSM Mgmt Extn.



- Adapter FW
- Catalog File
- UCSM Mgmt Extn.



UCS Software Bundling

What bundles do you need?

- If your environment has
 - Fabric Interconnect and B-Series Chassis only:
 - Infrastructure Bundle**
 - B-Series Blade Server Bundle**
 - C-Series servers as well:
 - + **C-Series Rack-Mount Server Bundle**
 - Off-cycle addition of memory DIMMs or hard drives
 - + **Capability Catalog**
 - The Capability Catalog will be cumulatively bundled into every Infrastructure Bundle.*



UCS Software Release 1.4



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UCS Manager

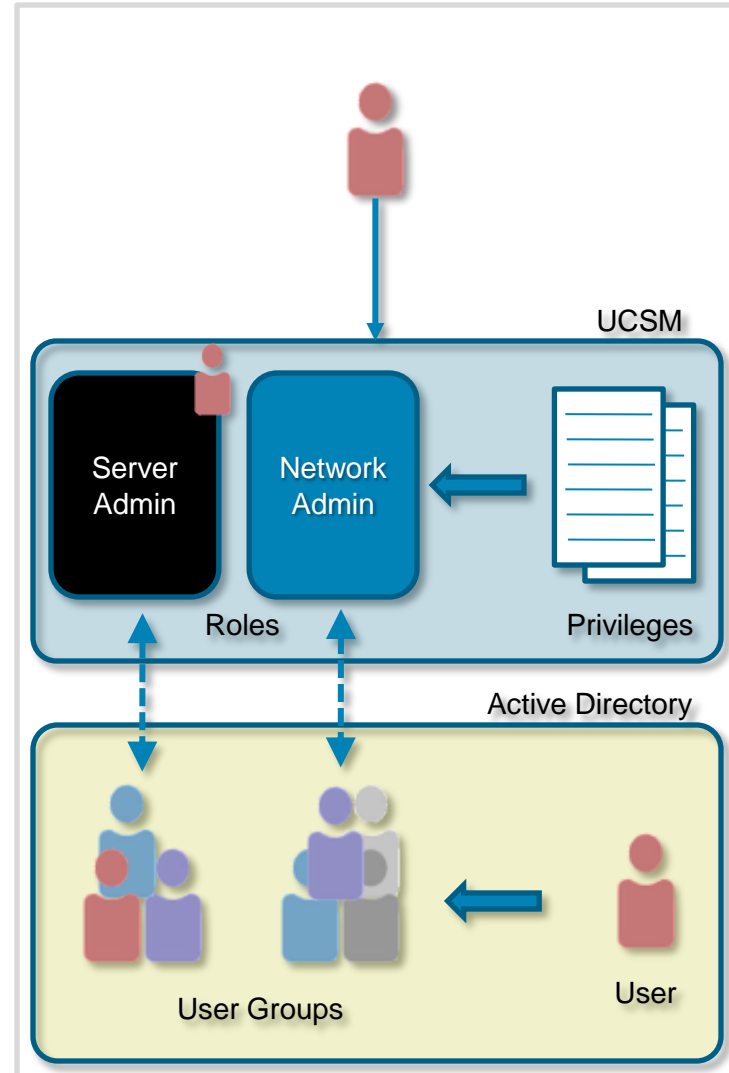
Active Directory (LDAP) Groups Integration

Customer benefits

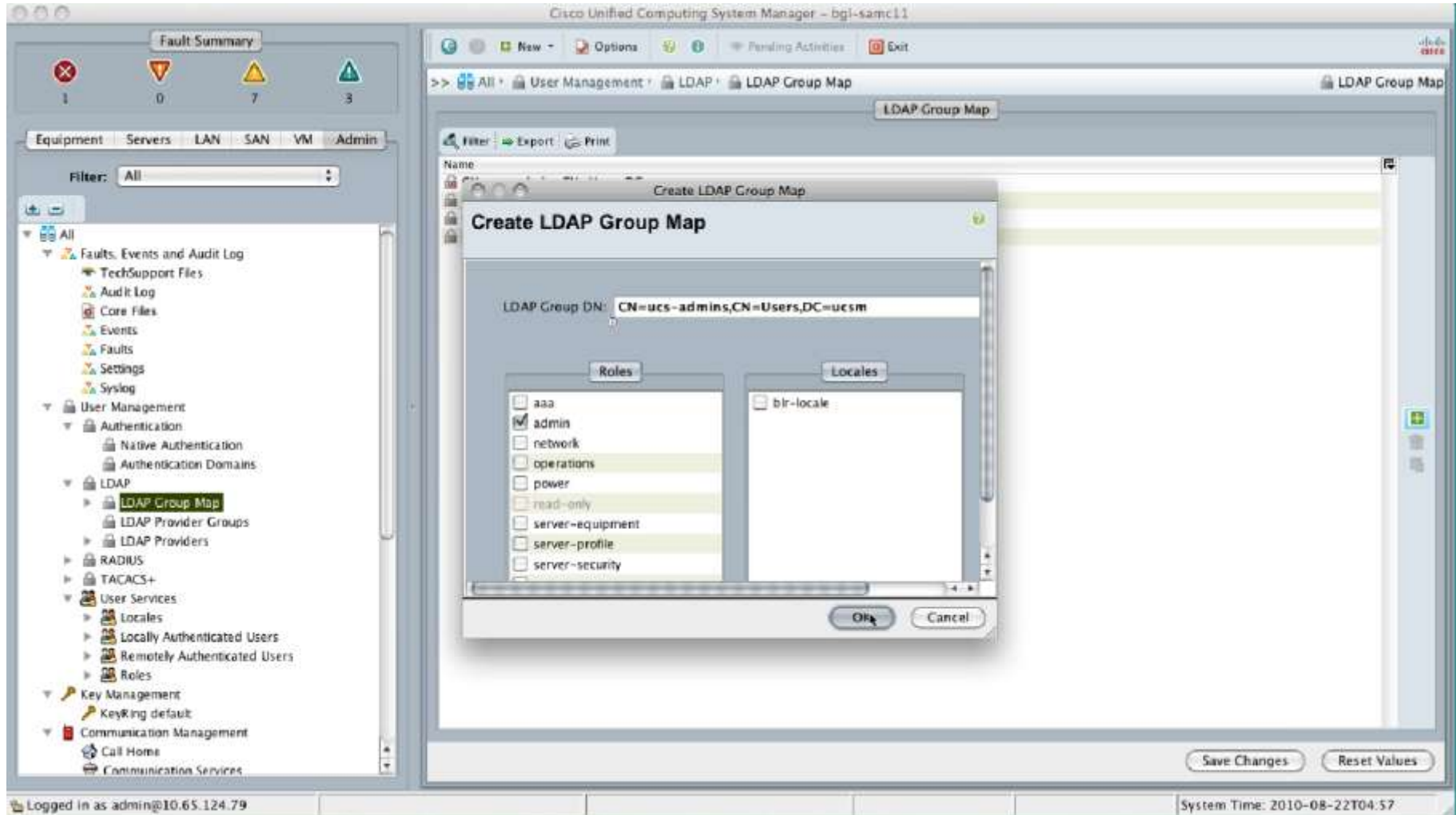
- Unified user privilege control within AD
- Easier alignment for security and server admin

Feature details

- AD user groups looked up by UCSM
- UCSM role assignment to AD groups
- Users' role membership based on AD group membership
- Single place control of user privileges by changing user AD group membership



UCS Manager Active Directory (LDAP) Groups Integration



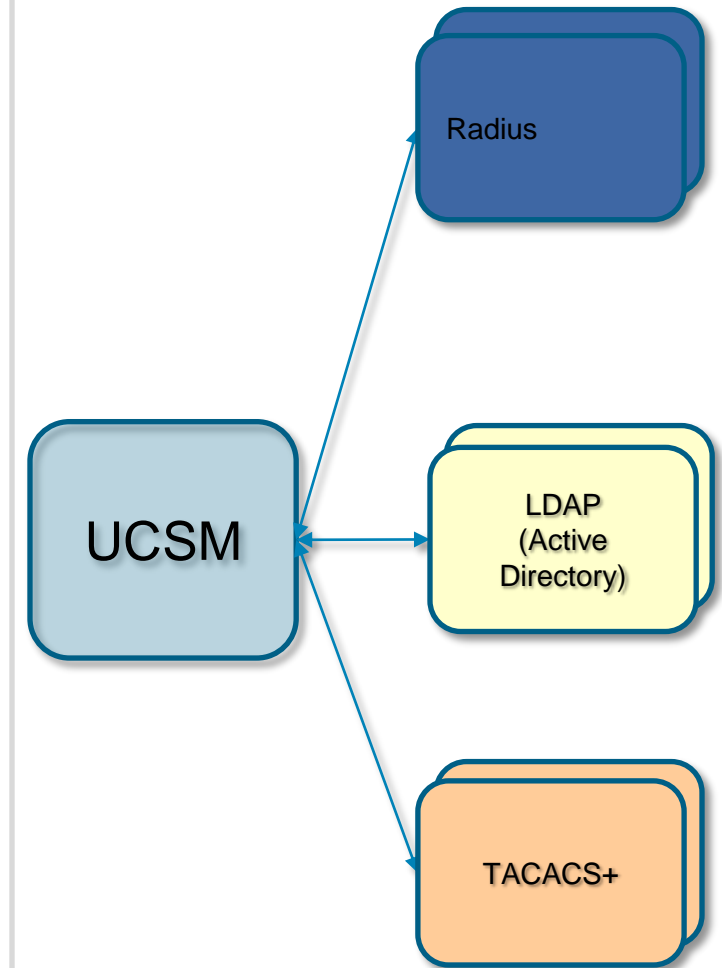
UCS Manager Multi Scheme Authentication

Customer benefits

- Integration into mixed authentication environs.
- Support for segmented authentication

Feature details

- Concurrent multi-scheme authentication
 - LDAP (Active Directory)
 - TACACS+
 - RADIUS
- Authentication with multiple AD domains
 - Multiple AD domains segmentation by region, organization etc. can be input into UCSM
 - UCSM communicates with multiple AD domain controllers to authenticate a user



UCS Manager Multi Auth Domain Setup

The screenshot displays the Cisco Unified Computing System Manager (UCS Manager) interface. The left pane shows a navigation tree with 'Authentication Domains' expanded to 'server-admins'. The right pane shows the configuration for 'server-admins' with the 'Provider Group' dropdown menu open, listing 'server-admins-grp1' and 'server-admins-grp2'. The 'Realm' is set to 'ldap'. The status bar at the bottom indicates the user is logged in as 'admin@10.65.124.79' and the system time is '2010-08-22T05:22'.

UCS Manager - bgl-samc11

Navigation: All > User Management > Authentication > Authentication Domains > server-admins

Configuration: General > Events

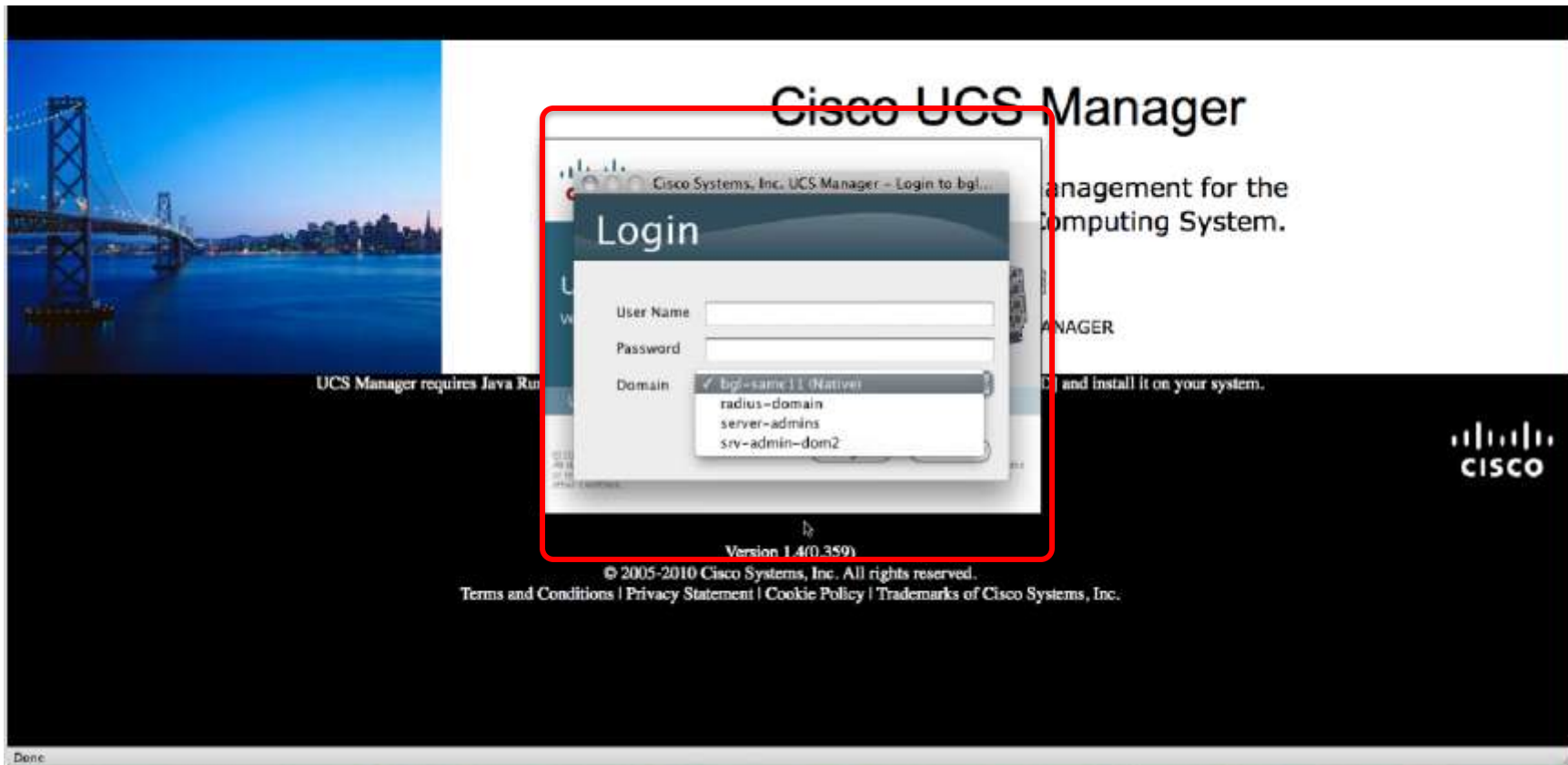
Realms: local, radius, tacacs, **ldap**

Provider Group: <not set>, server-admins-grp1, server-admins-grp2

Buttons: Save Changes, Reset Values

Status: Logged in as admin@10.65.124.79 | System Time: 2010-08-22T05:22

UCS Manager Multi Auth Login Screen & API



```
Problems Javadoc Declaration Console  
<terminated> Login [Java Application] /System/Library/Frameworks/JavaVM.framework/Versions/1.6.0/Home/bin/java (Aug 20, 2010 11:07:17 AM)  
<aaaLogin inName = "ucs-local-domain/admin" inPassword = "Nbv12345"/>  
<aaaLogin cookie="" response="yes" errorCode="551" invocationResult="unidentified-fail" errorDescr="Authentication failed"> </aaaLogin>
```

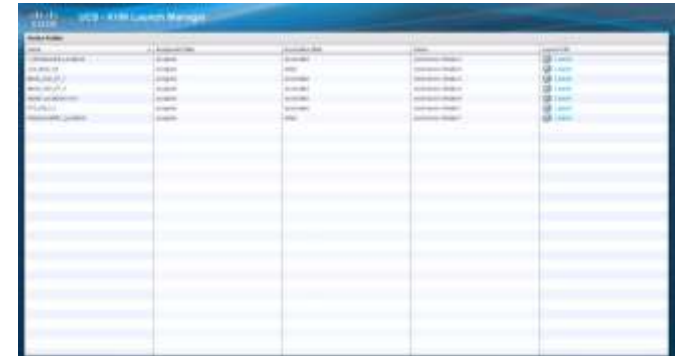
UCS Manager Multi-User KVM Security Enhancements

Customer benefits

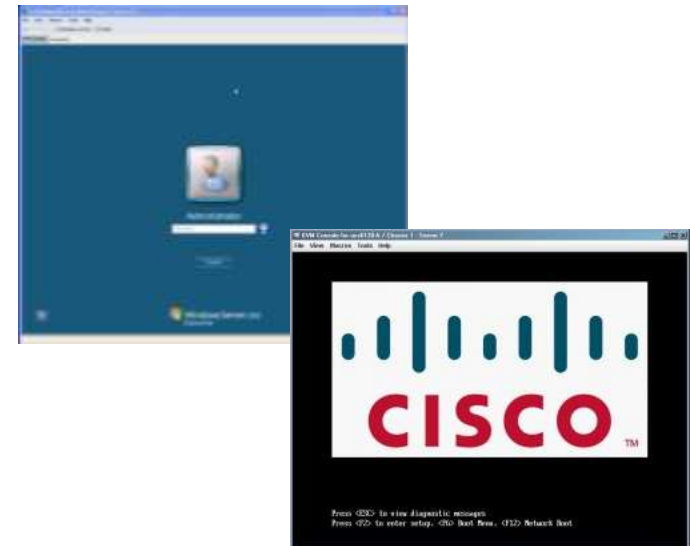
- Secure KVM use in multi-user environments
- Granular control of KVM access

Feature details

- First user KVM ownership
 - First KVM user gets RW privileges to session
 - First user grants permission for other sessions
 - Second KVM session is read-only by default
- KVM admin control
 - KVM forced termination by UCS admin user



Session ID	User	Privilege	Session Type	Session State
1	admin	rw	console	active
2	user1	ro	console	active
3	user2	ro	console	active
4	admin	rw	console	active
5	user3	ro	console	active
6	admin	rw	console	active
7	user4	ro	console	active
8	admin	rw	console	active
9	user5	ro	console	active
10	admin	rw	console	active





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UCS Manager

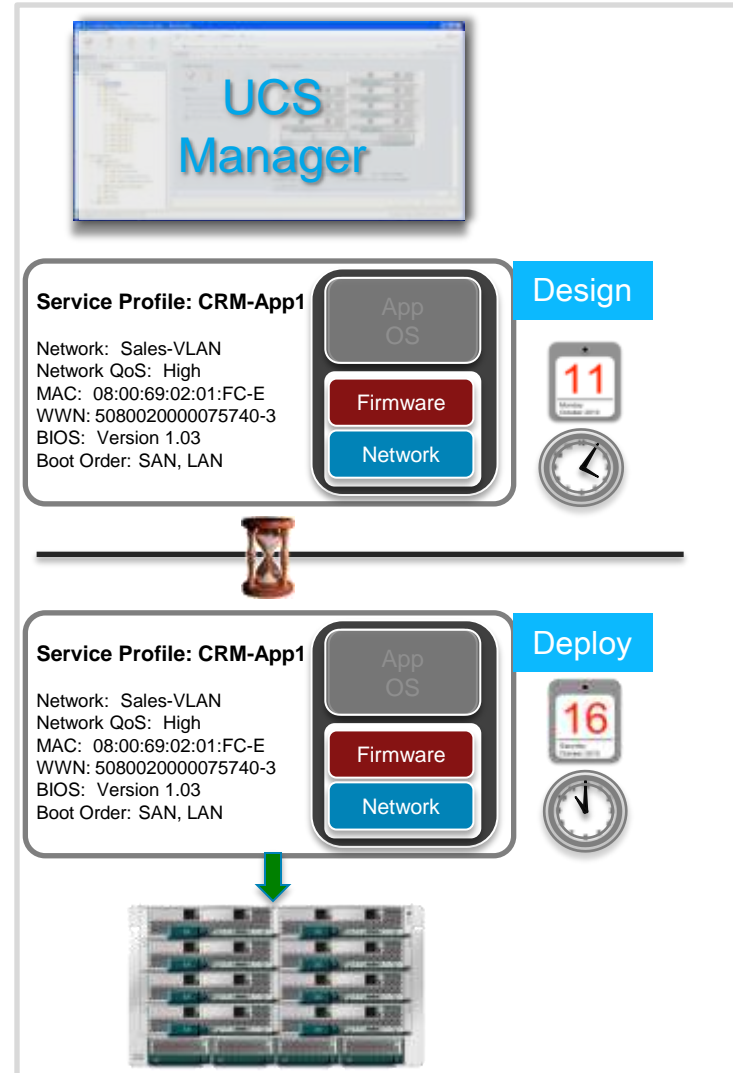
Service Profile Deployment Scheduling

Customer benefits

- Service Profile disruptions in maint. windows
- Plan ahead design changes for service profiles

Feature details

- Maintenance policies
 - New policy contains schedule when SP can be changed
 - Policy can be mapped to one or more SPs
- Schedule disruptions
- Resource reservation
 - SP acquires required resources prior to deployment
 - Resources are held until deployment
 - Eliminates future resource contention



UCS Manager Service Profile Deployment Scheduling

Maintenance Policies are part of Service Profiles

The screenshot displays the Cisco Unified Computing System Manager interface. The main window shows a tree view on the left with 'Maintenance Policies' selected under 'Policies'. The main pane shows a table of existing maintenance policies:

Name	Reboot Policy	Schedule
MyMaintenance	immediate	
DonsMaintPolicy	timer-automatic	default
default	immediate	

A 'Create Maintenance Policy' dialog box is open in the foreground, showing the following fields:

- Name: MyMaintenance
- Description: (empty)
- Reboot Policy: immediate user-ack timer-automatic

Buttons for 'OK' and 'Cancel' are visible at the bottom of the dialog. The background interface also shows a 'Fault Summary' panel with counts for various fault types and a 'Servers' tab with a filter set to 'All'.

UCS Manager

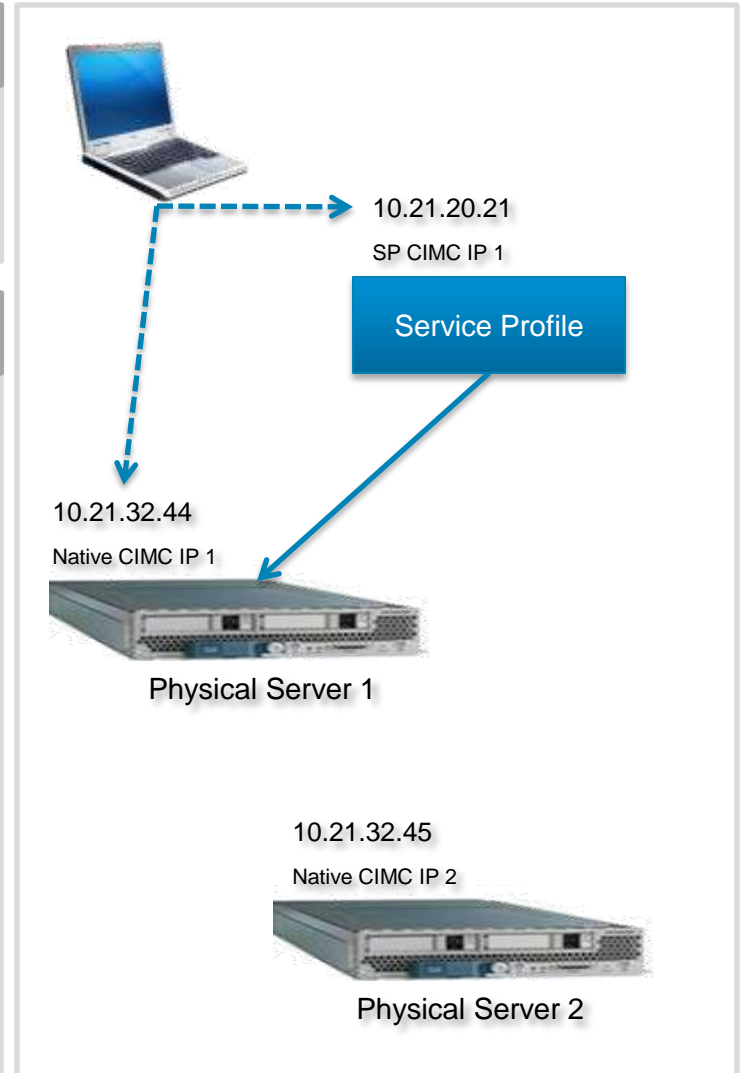
CIMC IP address in Service Profile

Customer benefits

- “Follow the server” KVM access
- Fully self contained server identification

Feature details

- Current IP address assignment continues
- New , second IP address for CIMC
- Second IP address associated with Service Profile
- Upon SP deployment CIMC can be accessed through both IP addresses
- When SP moves, second IP address moves to new server





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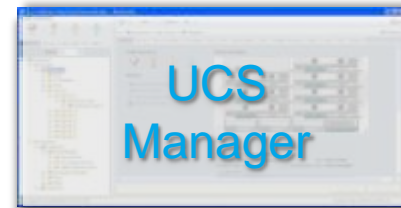
UCS Manager SNMP GET support

Customer benefits

- Easy integration to 3rd party mgmt tools
- SNMP based correlation for trap information

Feature details

- Release 1.3 provided SNMP trap support earlier
- Access to full information model of UCS:
 - **Access same information as XML API**
 - Fabric interconnects & Fabric extenders
 - Chassis
 - Blades (B-Series)
 - Rack servers (C-Series)
- 63 new MIBs available on Cisco.com
- Any additions/changes to model, automatically results in regeneration of MIBs
- **SNMP access is read-only, no SNMP SET support planned**



SNMP Traps and GETs

Fabric Interconnects



Fabric Extender



Chassis



Blade Servers



Rack Servers



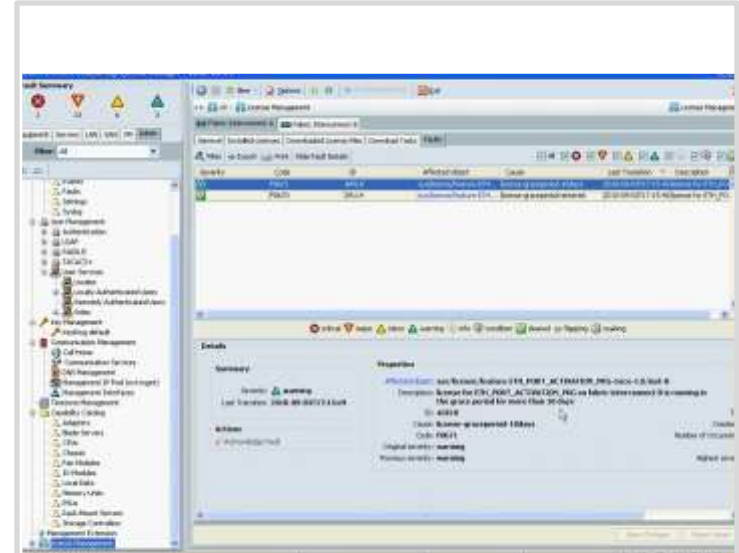
UCS Manager Licensing Enhancements

Customer benefits

- Licensing now integrated and accessible directly from UCS Manager
- Easy “check-in/check-out” of licenses (for example, for device replacement)

Feature details

- UCS Manager integration
 - Licenses can now be assigned / revoked from UCS Manager
- Ports are licensed by count
 - User does not need to re-assign a port license to use different physical ports on the UCS 6100 Series fabric interconnects
 - Only fixed ports need to be licensed (in other words, expansion module ports **do not** require a license)
 - Same 8/16 freely-licensed ports included with UCS 6120XP / 6140XP
 - Ports must be licensed whether configured as 1GE or 10GE
- Grace period
 - Each port that is activated but for which there is no available license count will start on a 120-day grace period
 - Status of ports on grace period / days remaining visible in UCS Manager
 - If ports are used in grace period, WARNING level alerts are generated
 - **Note:** Upon expiration, UCS Manager will generate CRITICAL level alerts but will **not** shutdown active ports



```
> show license usage
Switch A:
Feature                               Status    Expires
Count Used Switch      File      Id
ETH_PORT_ACTIVATION_PKG  ok        never
8      8 FLC12110018  20080612113521765  1
```

UCS Manager Custom Naming

Users will be able to enter custom labels for Service Profiles, Chassis, Servers. Labels can be free form text and can be displayed, sorted and filtered

The screenshot displays the Cisco Unified Computing System Manager interface. On the left, a tree view shows a hierarchy of objects, with 'Service Profiles' selected and filtered. A red box highlights the filtered list, and a blue arrow labeled 'Display' points to it. The main window shows a table of Service Profiles with columns for Name, User Label, Overall Status, Assoc State, and Server. A red box highlights the 'User Label' column, and a blue arrow labeled 'Sort' points to it. A 'Filter' dialog box is open in the foreground, with a red box around it and a blue arrow labeled 'Filter' pointing to it. The dialog has fields for Name, User Label, Overall Status, Assoc State, and Server, each with a dropdown menu and a text input field. The 'User Label' field contains 'My User*'. At the bottom of the dialog are buttons for OK, Apply, Cancel, Reset, and Help.

Name	User Label	Overall Status	Assoc State	Server
Service Profile ESX3	My User Label 2	associated	associated	sys/chassis-1/blade-5
Service Profile ESX2	My User Label 1	unassociated	unassociated	
Service Profile ESX1	Custom User Label 2	associated	associated	sys/chassis-1/blade-3
Service Profile Backup	Custom User Label 1	associated	associated	sys/chassis-2/blade-1
Service Profile vCenter		unassociated	unassociated	
Service Profile oracle		unassociated	unassociated	
Service Profile ems-system		config-failure	unassociated	sys/chassis-1/blade-3
Service Profile Prod		ok	associated	sys/chassis-1/blade-1
Service Profile ESX4		ok	associated	sys/chassis-2/blade-2

UCS Manager Firmware Descriptions

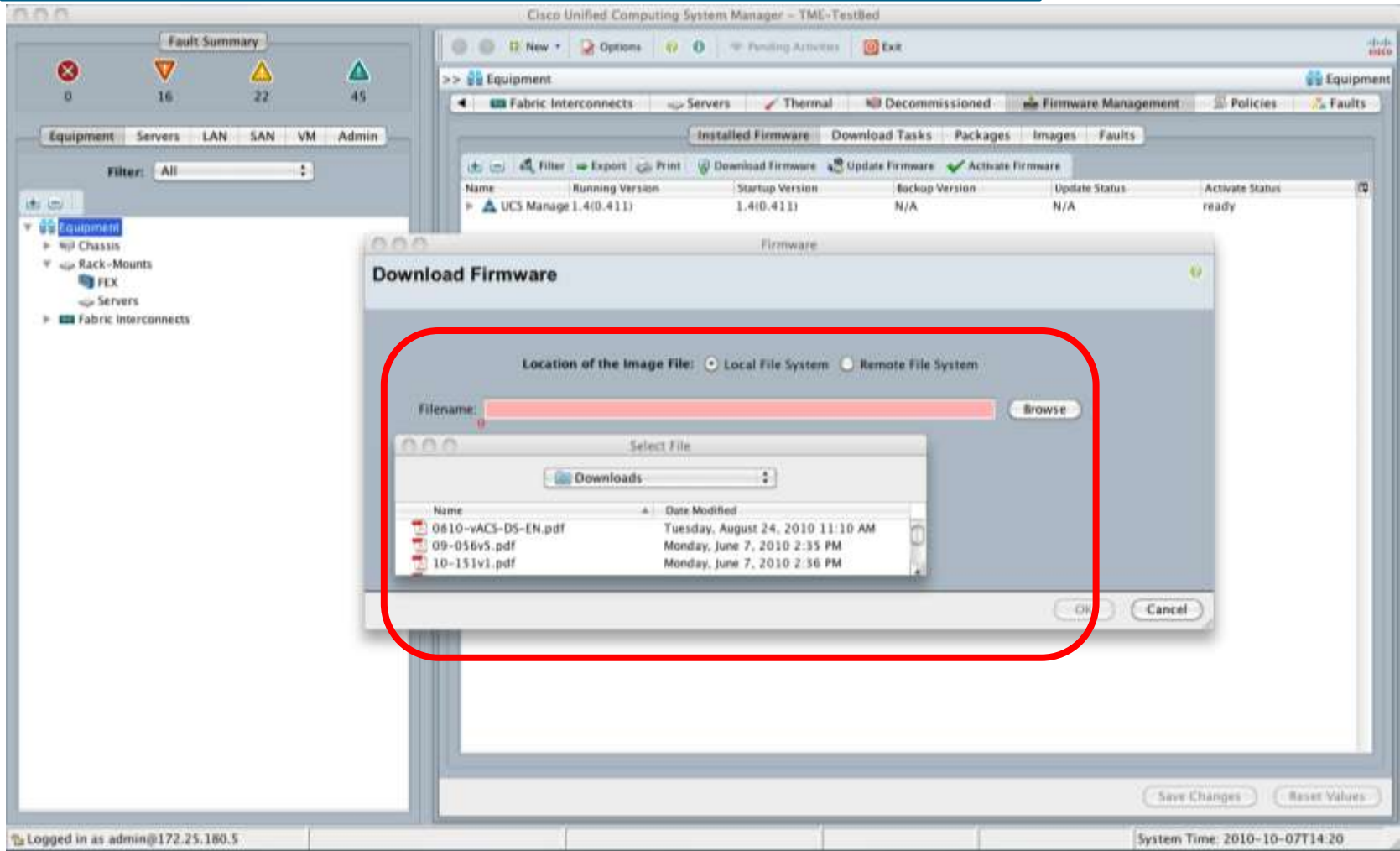
Additional information including model name for easier selection of firmware

The screenshot displays the Cisco Unified Computing System Manager interface. The left sidebar shows a tree view of the configuration hierarchy, with 'Host Firmware Packages' selected. The main pane shows the configuration for 'B200M1_1.4'. Below the 'Properties' section, there is a table of firmware packages with columns for Vendor, Model, PID, Presence, and Version. The 'Model' column is highlighted with a red circle.

Select	Vendor	Model	PID	Presence	Version
<input checked="" type="checkbox"/>	Cisco Systems, Inc.	Cisco B200-M1	N20-B6620-1	present	S5500.1.4.0.3...
<input type="checkbox"/>	Intel Corp.	Cisco B200-M1	N20-B6620-1	present	S5500.1.4.0.3...
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco B250-M1	N20-B6620-2	N/A	<not set>
<input type="checkbox"/>	Intel Corp.	Cisco B250-M1	N20-B6620-2	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco B200-M2	N20-B6625-1	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco B250-M2	N20-B6625-2	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco B230-M1	N20-B6730-1	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco B440-M1	N20-B6740-2	N/A	B440M1.1.4.0.3...
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C200-M1	R200-1120402	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C200-M2	R200-1120402W	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C210-M1	R210-2121605	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C210-M2	R210-2121605W	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C250-M1	R250-2480805	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.	Cisco UCS C250-M2	R250-2480805W	N/A	<not set>
<input type="checkbox"/>	Cisco Systems, Inc.		SA-GOODING	N/A	<not set>
<input type="checkbox"/>	Intel Corp.		SA-GOODING	N/A	<not set>

UCS Manager Usability – Firmware upload

Support for direct upload from client running UCSM GUI



UCS Manager Syslog Categorization

New categorization to differentiate components & additional filtering capabilities

The screenshot displays the Cisco Unified Computing System Manager (UCS Manager) interface, specifically the Syslog configuration page. The interface is divided into several sections:

- Fault Summary:** Located at the top left, it shows four status indicators: a red 'X' for 0 faults, an orange triangle for 16 faults, a yellow triangle for 22 faults, and a green triangle for 45 faults.
- Navigation:** Below the Fault Summary, there are tabs for Equipment, Servers, LAN, SAN, VM, and Admin. A filter dropdown is set to 'All'.
- Left Navigation Tree:** A tree view on the left side lists various system components, including Faults, Events and Audit Log, User Management, and Key Management.
- Remote Destinations:** This section is highlighted with a red rounded rectangle. It contains three server configuration blocks: Server 1, Server 2, and Server 3. Each block includes an 'Admin State' (radio buttons for 'enabled' and 'disabled'), a 'Level' dropdown (set to 'critical (UCSM Critical)'), and a 'Facility' dropdown (set to 'local7').
- Local Sources:** This section is located to the right of the Remote Destinations. It contains three source configuration blocks: Faults, Audits, and Events. Each block includes an 'Admin State' (radio buttons for 'enabled' and 'disabled').
- Bottom:** At the bottom right, there are 'Save Changes' and 'Reset Values' buttons. The system time is displayed as '2010-10-07T14:21'.

UCS Manager Resources

- UCS Manager Product Page on Cisco.com

<http://www.cisco.com/en/US/products/ps10281/index.html>

- UCS Manager Whitepapers

http://www.cisco.com/en/US/products/ps10281/prod_white_papers_list.html

- Cisco Developer Network for UCS Manager

<http://developer.cisco.com/web/cdc/tech/unifiedcomputing>

- UCS Platform Emulator (UCSPE) download

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



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- Direct connect Ethernet Appliance
- SPAN support on UCS 6100
- PVLAN Isolated access support
- Full vNIC failover w/o NIC teaming/bonding with FabricFailover/FabricSync
- Higher VLAN scalability 1024
- Higher logical port scalability 6000
- Higher virtual interface Scalability 2000
- Fabric Extender Transceiver Support
- Management Interface monitoring and failover
- FC trunking and port channel (in NPV mode)
- Limited Direct Connect FC Storage

Authentication & Security

- Simpler integration with MSFT Active Directory
- Multiple simultaneous authentication systems
- Multi-user KVM enhancements

Stateless Computing

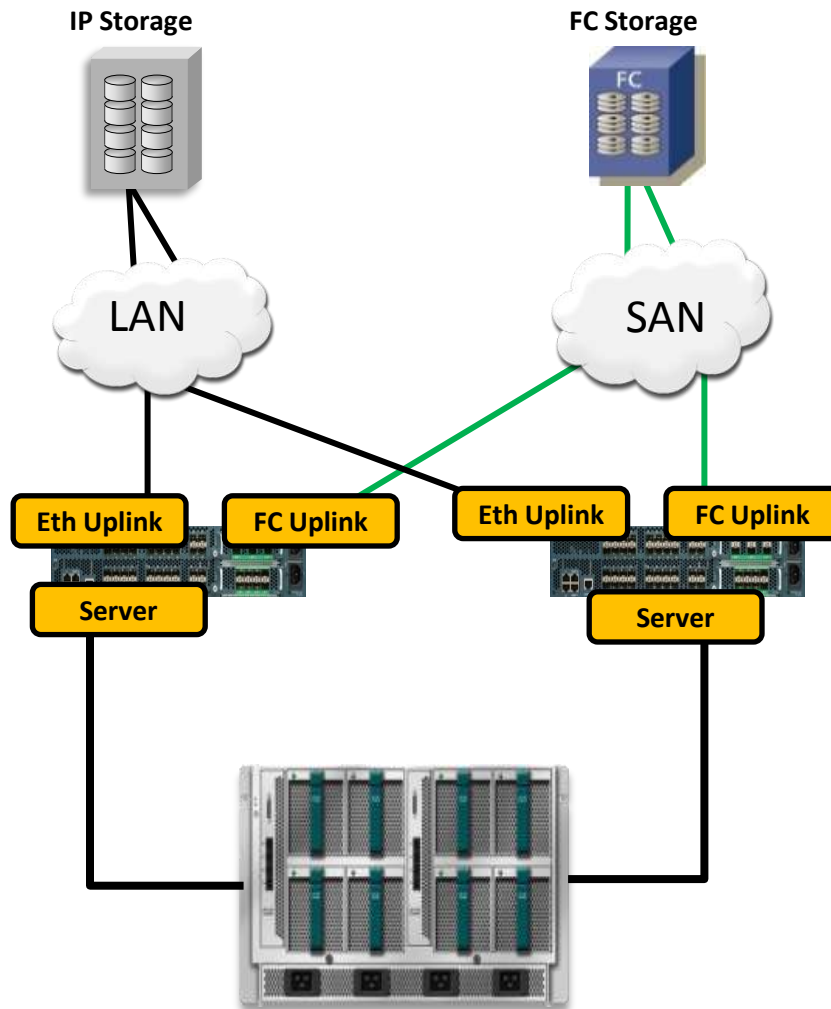
- Scheduling of service profile changes
- CIMC IP address abstraction

Management & Monitoring

- SNMP GET support for ALL UCS components
- Syslog enhancements
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UCS Manager 1.3(1) Release

Existing Connectivity Types



Uplinks FC/Eth

Upstream Links connecting to LAN and SAN

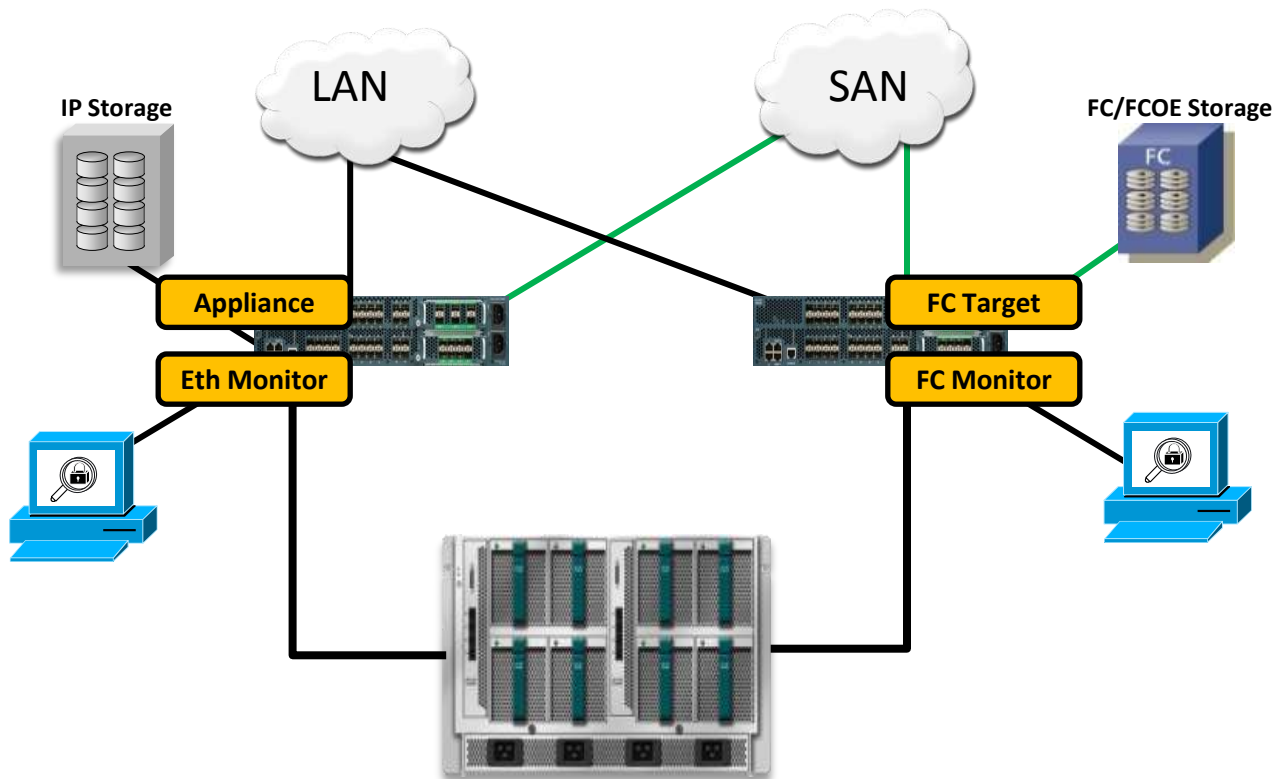
Server Ports

Downstream links connecting to servers through IOM

UCS Manager 1.4(1) Release

New Connectivity Options

New connectivity choices are **Appliance**, **Monitoring (FC and Eth)** and **Storage target (FC and FCOE)**

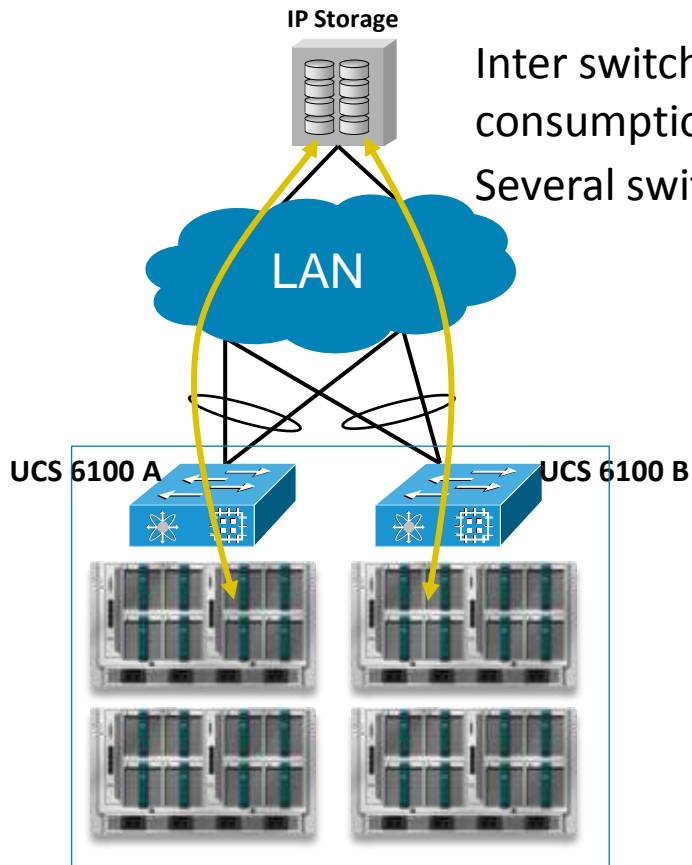


UCS Manager 1.4(1) Release

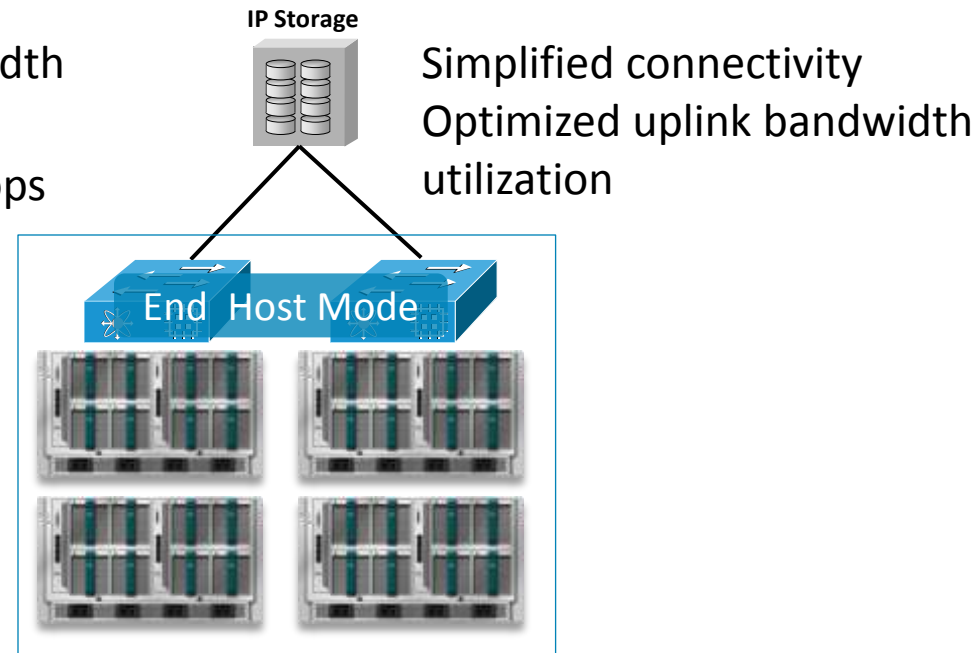
Appliance Direct Connection “End Host”

UCS simplifies appliance connectivity

In-direct Connection



Direct Connection



UCS 6100 Switching Modes

End Host Mode

- The external LAN sees the UCS 6100 as an end-host with multiple adapters. No Spanning Tree protocol on uplink ports.
- Active/Active use of uplinks by pinning
- All uplink ports should be connected to the same Layer 2 network
- More scalable than switch mode since the control plane is not stressed as an Layer 2 switch.

Switch Mode

- The UCS 6100 acts like a traditional Ethernet switch with support for Spanning Tree protocol on the uplink ports
- Some uplinks connected to the external switches may be blocked by STP.
- Only PVST+ is supported
- Mac-add learning is enabled on uplink/server interfaces

UCS Manager 1.4(1) Release

Appliance Direct Connection “End Host”

Ethernet appliance support enhanced to include “End Host” mode

Today, UCS 1.3 (Aptos+)

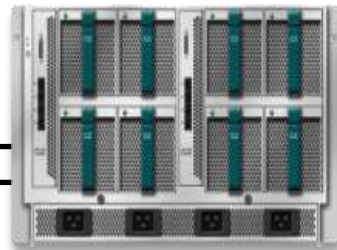
Ethernet Appliance



uplink Port

Switch Mode

UCS 6100



UCS B-Series

UCS 1.4 (Balboa)

Ethernet Appliance

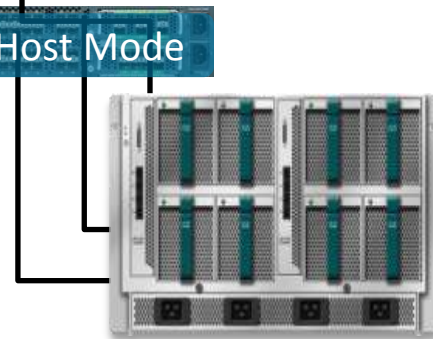


Appliance port

End Host Mode

UCS 6100

Trunk 10,100 or Access 100



UCS B-Series

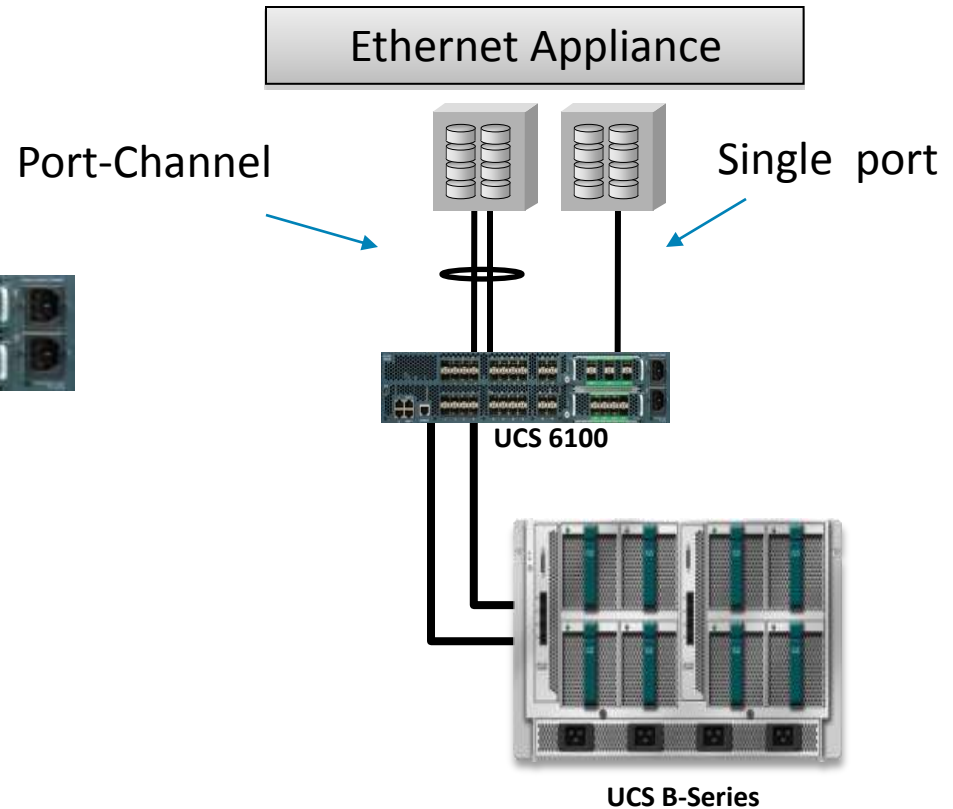
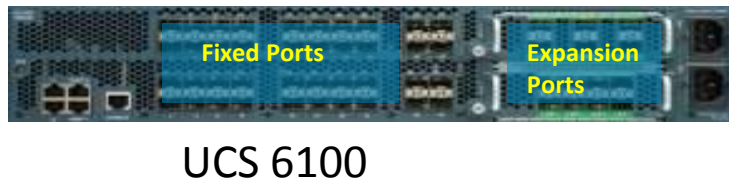
- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ Fabric Interconnect mode - Switch mode ▪ Port type – Uplink only ▪ Can't define VLANs on uplink to appliance (VLAN filtering) ▪ Advanced feature such as QOS not available | <ul style="list-style-type: none"> ▪ Fabric Interconnect mode - End-host mode ▪ Port type - Appliance ▪ VLAN filtering available ▪ Advanced features such as QOS available |
|---|--|

UCS 1.4 (Balboa) onwards “End host” mode is recommended

UCS Manager 1.4(1) Release

Supported Ports and Configuration

- Any fixed 10G or 1G
- Any expansion port



- Non-vPC port-channel and single port configurations are supported
- NIC teaming or port-channeling is required on the appliance to have resilient connectivity

UCS Manager 1.4(1) Release

UCSM Appliance port - Visual

The screenshot displays the Cisco Unified Computing System Manager (UCS Manager) interface. On the left, a navigation tree shows the hierarchy: Equipment > Fabric Interconnects > Fabric Interconnect A (primary) > Fixed Module > Appliance Ports. A context menu is open over the 'Appliance Ports' folder, with 'Configure as Appliance Port' selected. The main pane shows the configuration for a selected port, including a 'Fault Summary' (0 errors, 45 warnings, 5 errors, 30 info) and a 'Status' of 'admin-down' (Administratively down, Admin State: disabled). The 'Configure as Appliance Port' dialog box is open, showing the following settings:

- Priority: best-effort
- Pin Group: LAN Pin Group test
- Admin Speed(gbps): 10Gbps
- Port Mode: trunk
- VLANs table:

Select	Name
<input checked="" type="checkbox"/>	default
- Ethernet Target Endpoint: (with fields for Name and MAC Address)

Yellow callouts point to specific configuration elements: 'QOS settings' points to the Priority and Pin Group fields; 'Specify VLANs' points to the VLANs table; and 'Configure static MAC' points to the Ethernet Target Endpoint section.

UCS Software Release 1.4 *(Codename: Balboa)*

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Authentication & Security

- Simpler integration with MSFT Active Directory
- Multiple simultaneous authentication systems
- Multi-user KVM enhancements

Stateless Computing

- Scheduling of service profile changes
- CIMC IP address abstraction

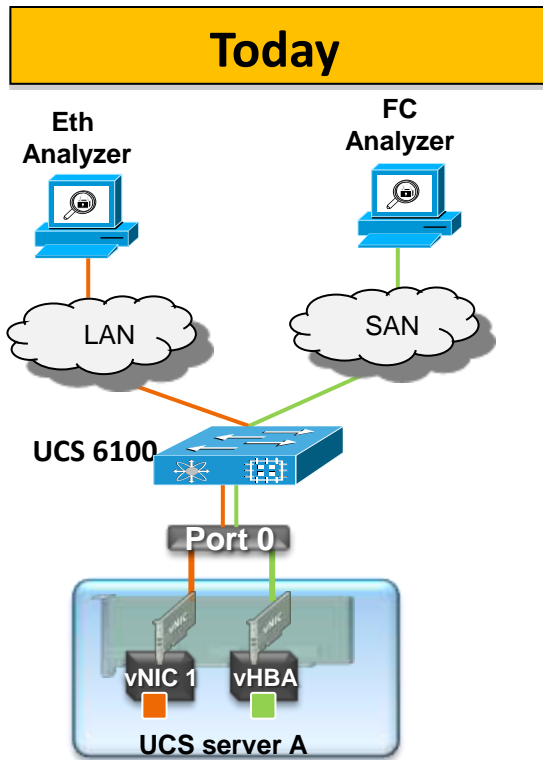
Management & Monitoring

- SNMP GET support for ALL UCS components
- Syslog enhancements
- UCS 6100 licensing enforcement/warnings
- Usability enhancements

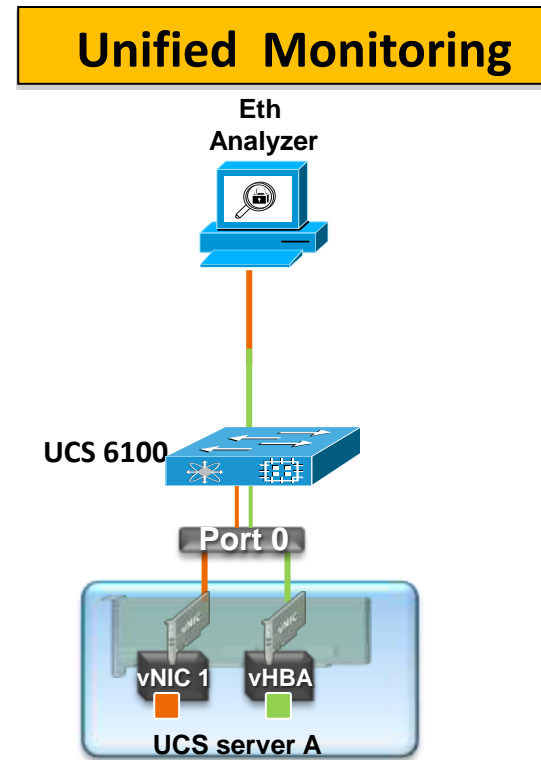
UCS Manager 1.4(1) Release

Unified Monitoring

Monitor FC and Ethernet traffic with a single analyzer



- Requires a dedicated FC analyzer
- Need separate analyzers for FC and Eth
- Requires specialized in-line TAP, expensive



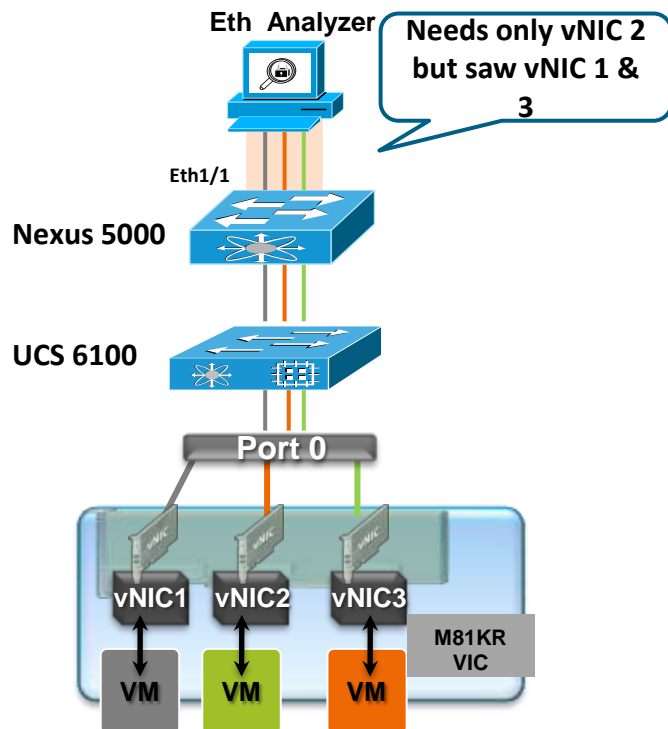
- Ability to monitor FC and Eth traffic using a Eth analyzer
- Single analyzer to monitor FC and Eth
- Eliminates expensive FC analyzer

UCS Manager 1.4(1) Release

vNIC and vHBA Level Monitoring

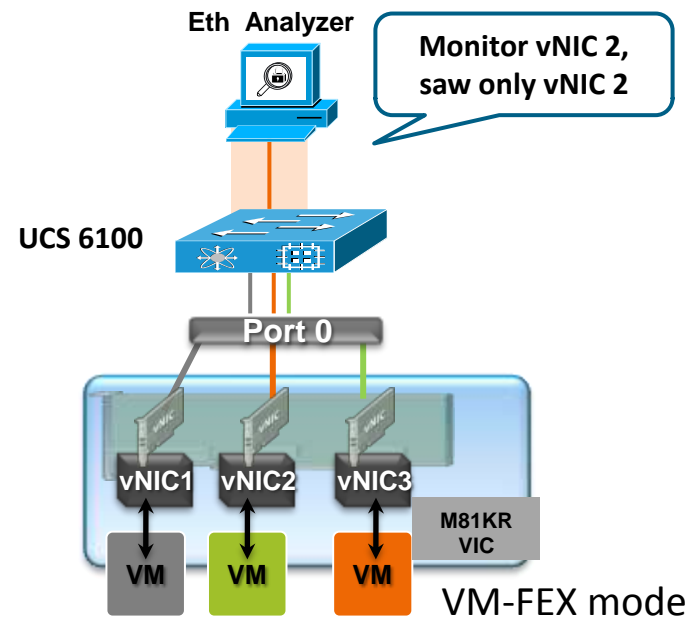
vNIC level monitoring and troubleshooting capability

Traditional SPAN



- Complex connectivity
- Inability to monitor specific VM traffic
- Lack of visibility (bulk capture)

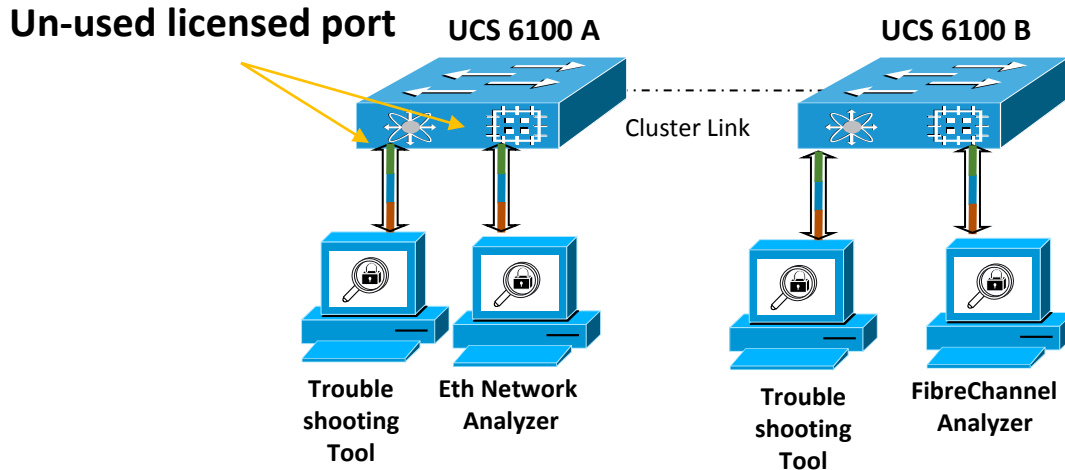
vNIC Level Monitoring



- Simple connectivity
- Ability to monitor specific VM traffic
- Granular visibility

UCS Manager 1.4(1) Release Summary

A total of 4 local SPAN sessions per UCS system, 2 on each UCS 6100



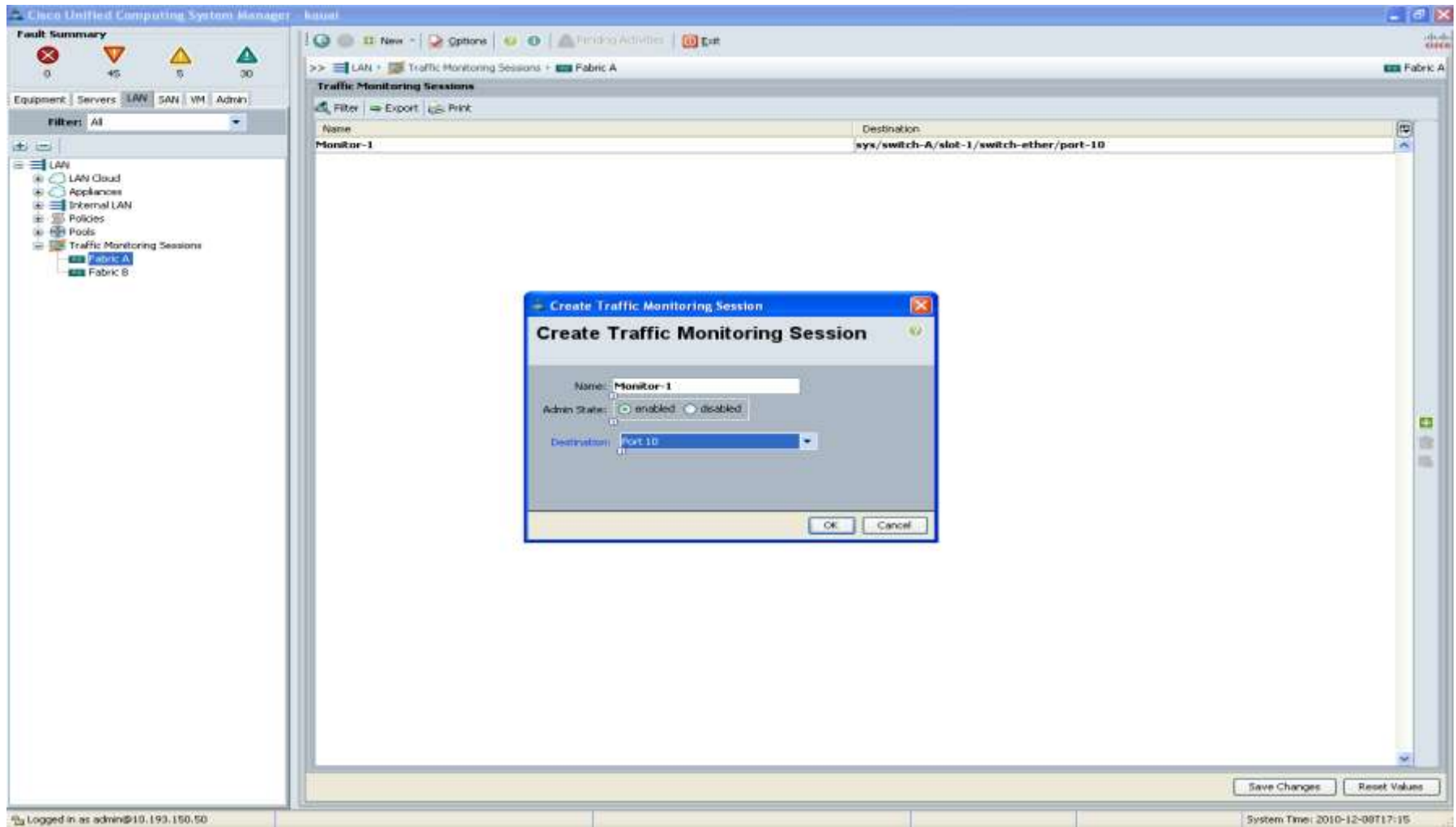
Things to remember :

- Configure identical monitoring sessions in both fabrics for failover and load-balanced traffic flows.
- vHBA is available to be monitored in both FC and Eth monitoring configurations
- Monitoring session of a VM using PTS not persistent after a vMotion (VIF is changed) Future enhancement.

UCS Manager 1.4(1) Release

UCSM Monitoring- Visual

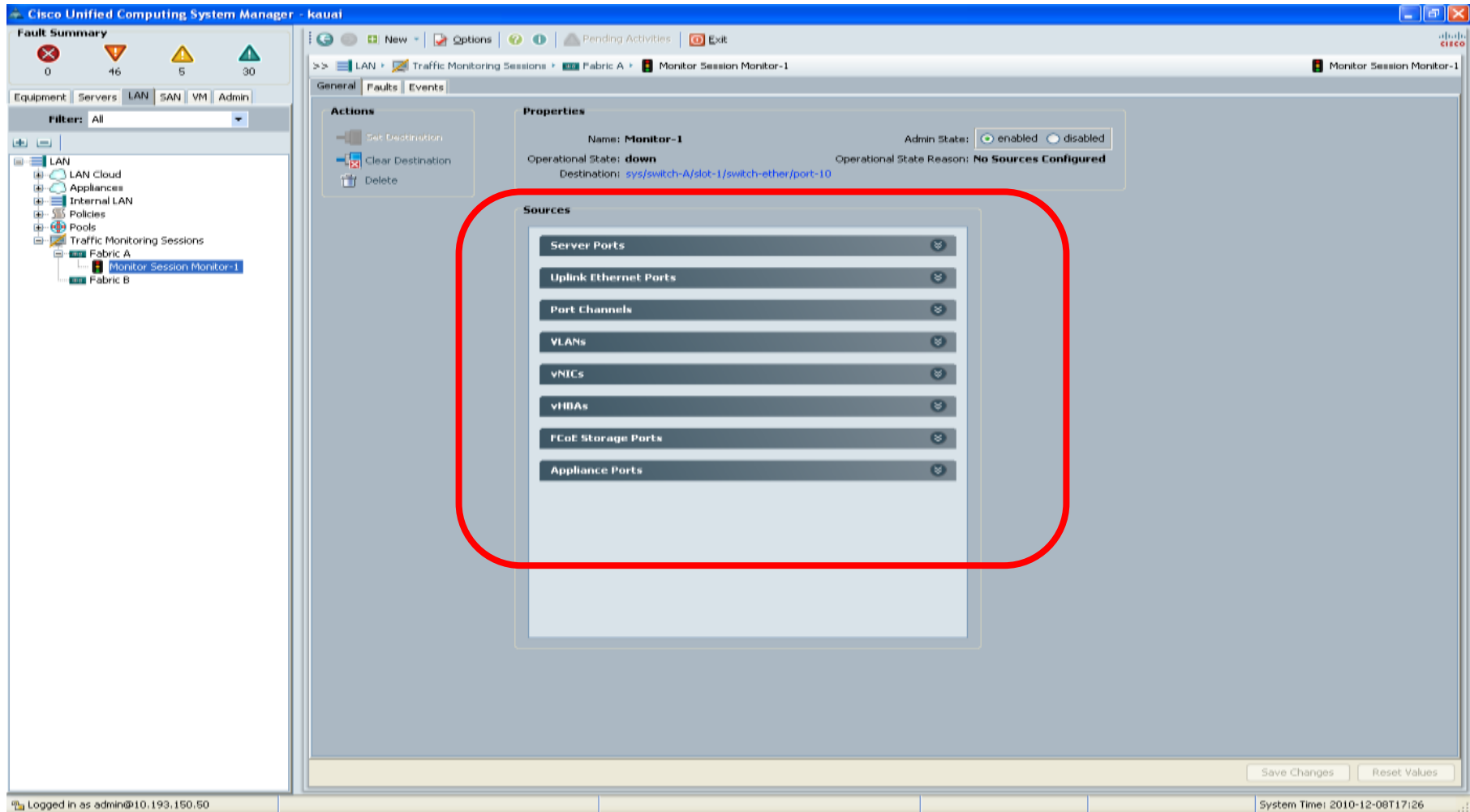
SPAN destination can be any unused licensed port



UCS Manager 1.4(1) Release

UCSM Monitoring- Visual

Support for various Eth and FC monitoring sources



UCS Software Release 1.4 *(Codename: Balboa)*

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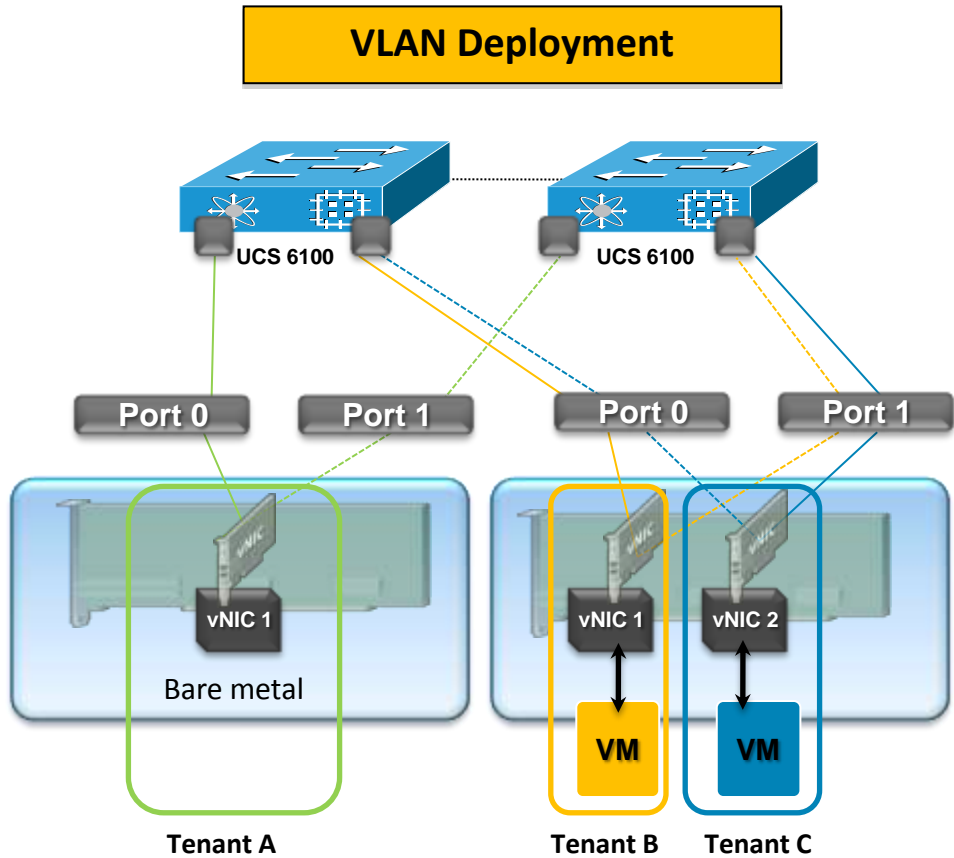
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- Usability enhancements

UCS Manager 1.3(1) Release

VLAN based Layer-2 separation

VLAN Deployment



- L2 separation with VLANs
- A vlan or more per tenant/application/function
- VLAN scalability on various platforms is a deciding factor of NW scale

No of VLANs used = 3

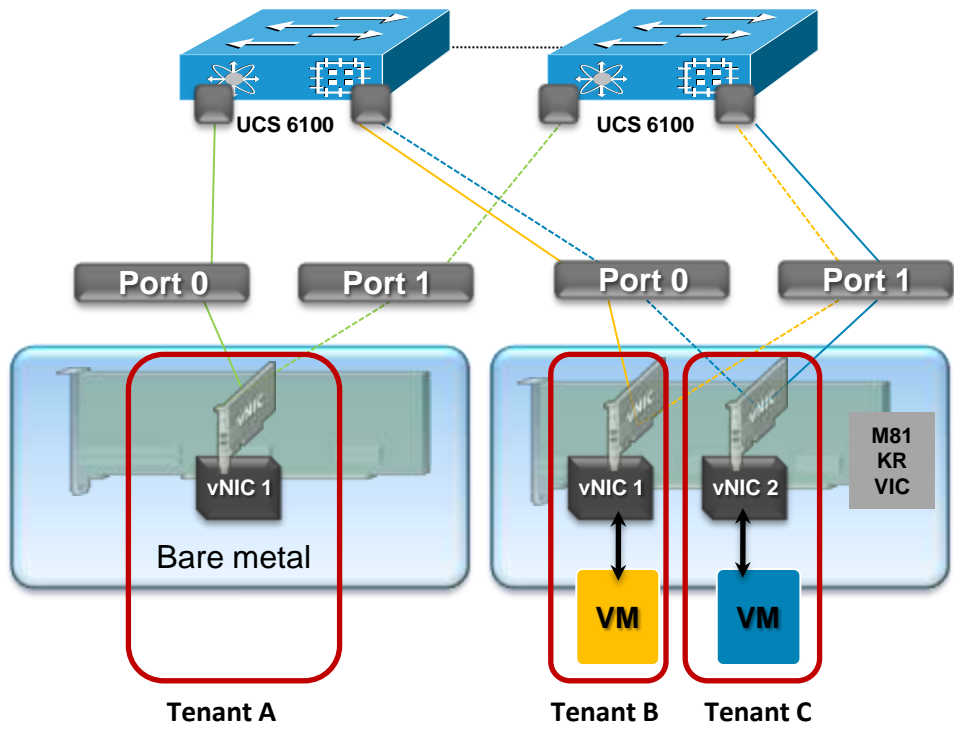
— VLAN A
— VLAN B
— VLAN C

UCS Manager 1.4(1) Release

PVLAN based Layer-2 separation

Single Isolated PVLAN to provide v NIC level layer 2 separation

PVLAN Deployment



- L2 Separation with Isolated PVLAN
- Single isolated VLAN for all tenants/apps
- Provides same level of isolation as with VLAN
- VLAN limits is no longer scalability limiting factor
- Useful for Bronze tier separation

No of VLANs used = 1

— Isolated VLAN A

UCS Software Release 1.4 *(Codename: Balboa)*

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UCS Manager 1.3(1) Release or earlier

Fabric based NIC teaming

FabricFailover

- Chassis backplane (or Fabric) provides redundant path for each vNIC
- HW based active/standby failover mechanism for Eth traffic
- Host OS un-aware of failure and recovery
- Unlike OS NIC Teaming, redundancy provided with single interface
- After failover:
 - Transmit GARP
 - Multicast Group reRegistration

The screenshot shows the 'Create vNIC' configuration window. The 'Name' field is set to 'Eth0'. The 'MAC Address' section has a dropdown menu set to 'Select (pool default used by default)'. Below this, there is a '+ Create MAC Pool' button and a note: 'Select MAC address assignment option. If nothing is selected, the MAC address will be assigned from the default pool.' The 'Fabric ID' section has radio buttons for 'Fabric A' and 'Fabric B', and a checked checkbox for 'Enable Failover'. A red box highlights the 'Enable Failover' checkbox, and an arrow points from the text below to it.

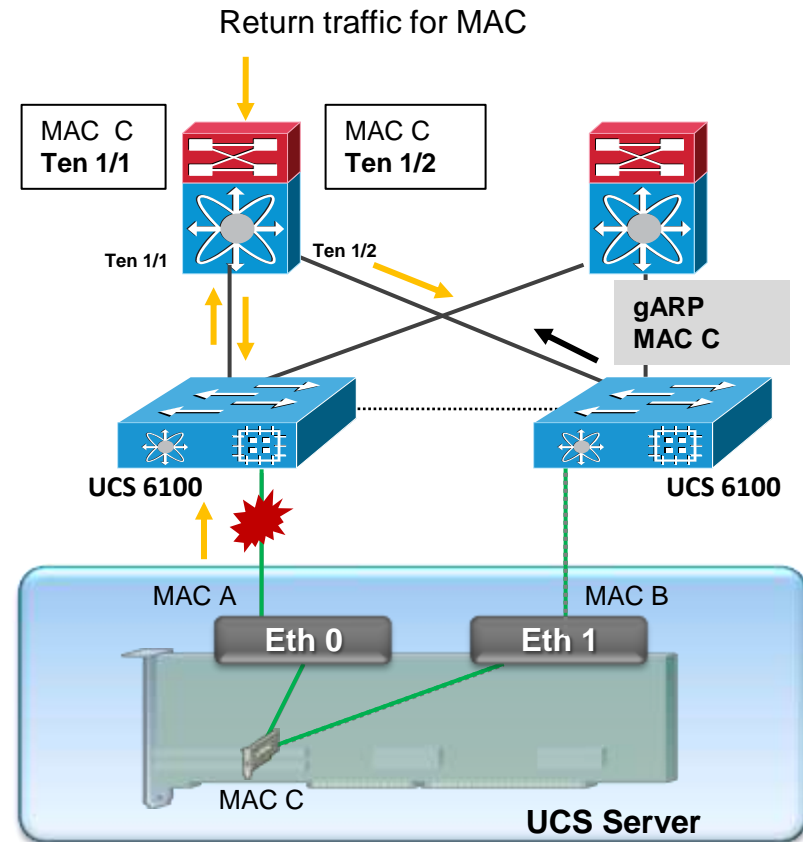
Enable fabric failover in vNIC creation

UCS Manager 1.3(1) Release or earlier Animated Slide

FabricFailover on UCS

FabricFailover

- Fabric failover load-balances traffic on per vNIC basis
- Palo provides up to 58 vNICs
- Each vNIC maps to one of the fabric for active data path
- When active path fails, failover to standby fabric.
- 6100 updates path changes to upstream switches via **gARP of vNIC MAC** upon active link failure



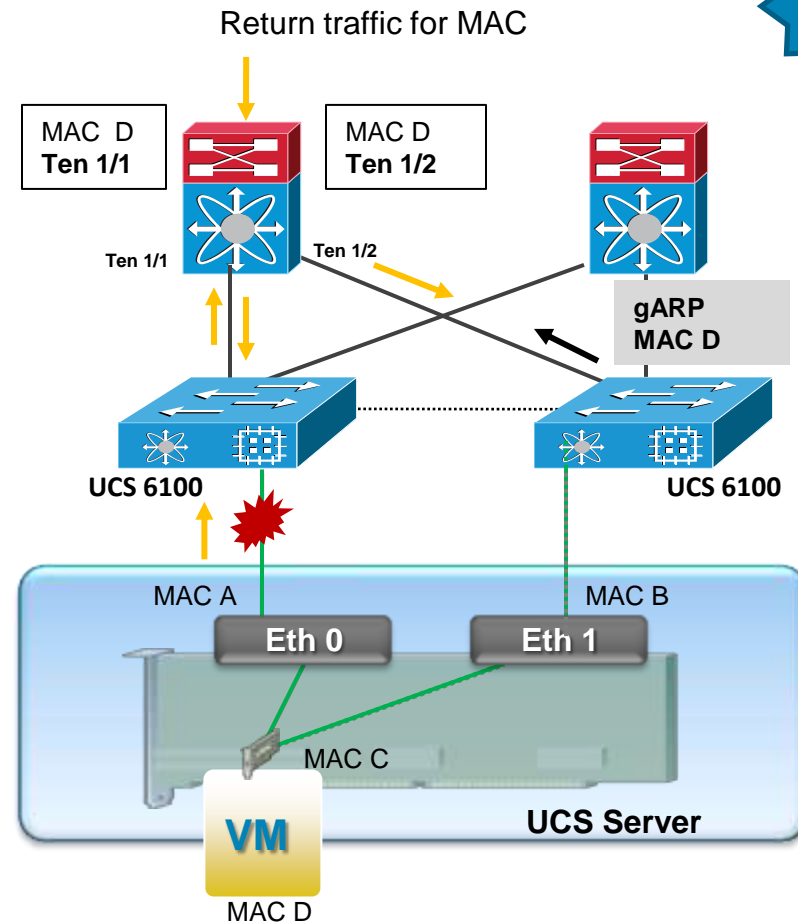
UCS Manager 1.4(1) Release

FabricFailover and Sync on UCS

Animated Slide

FabricSync

- Keeps mac address table synchronized between FI's
- 6100 updates path changes to upstream switches via **gARP not only vNIC MACs but also VM MACs behind a vSwitch** upon active link failure
- Always enabled



UCS Software Release 1.4 *(Codename: Balboa)*

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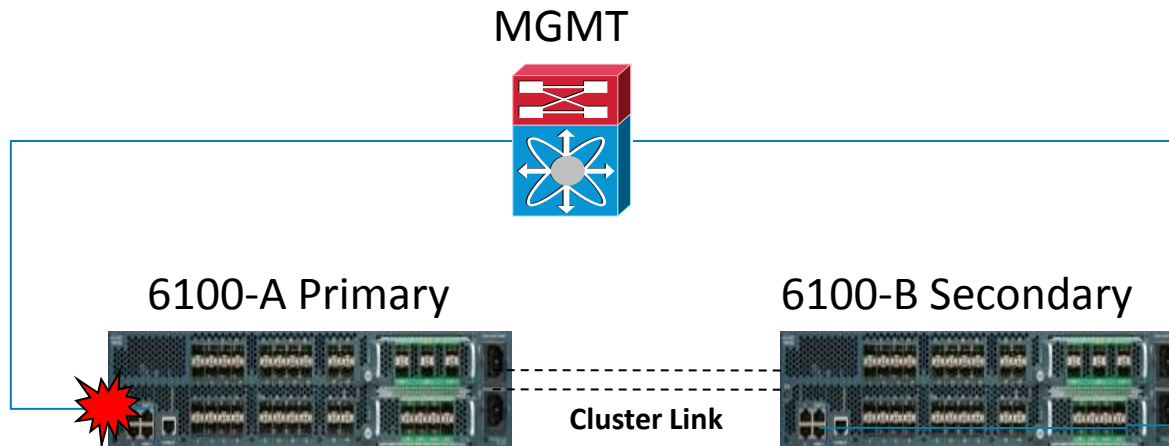
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UCS Manager 1.4(1) Release

Management Interface Failover

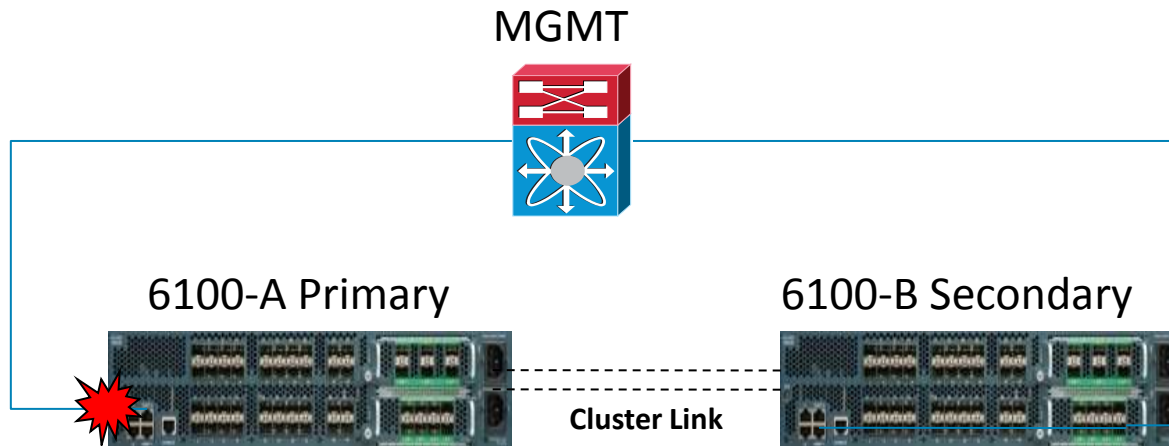


1.3(1) or earlier :

- VIP does not failover to UCS 6100 secondary
- Recover access by manual failover using CLI of the UCS 6100 secondary
- KVM/IPMI/SSH IP does not failover

UCS Manager 1.4(1) Release

Management Interface Failover



1.4(1) :

- VIP failover to UCS 6100 secondary upon active MGMT port failure
- KVM/IPMI/SSH IP fails over to the available fabric
- Failover delay is 90 sec to limit CPU churn due to continues interface flaps
- Managing instance is not state full. Re-login is required for VIP and KVM/IPMI/SSH IP.

UCS Manager 1.4(1) Release

Management Interface Failover

The screenshot displays the Cisco Unified Computing System Manager (UCS Manager) interface. The top navigation bar includes 'Cisco Unified Computing System Manager' and the user 'kauai'. A 'Fault Summary' section shows 0 critical faults, 46 warnings, 5 errors, and 30 informational messages. The left sidebar contains a tree view of system components, with 'Management Interfaces' selected. The main content area shows the 'Management Interfaces Monitoring Policy' configuration page. A red box highlights the 'Media Independent Interface Monitoring' section, which includes the following settings:

- Admin Status: enabled disabled
- Poll Interval (seconds): 90
- Max Fail Report Count: 3
- Monitoring Mechanism: MII Status Ping Arp Targets Ping Gateway
- Media Independent Interface Monitoring:
 - Retry Interval(seconds): 5
 - Max Retry Count: 3

UCS Software Release 1.4 *(Codename: Balboa)*

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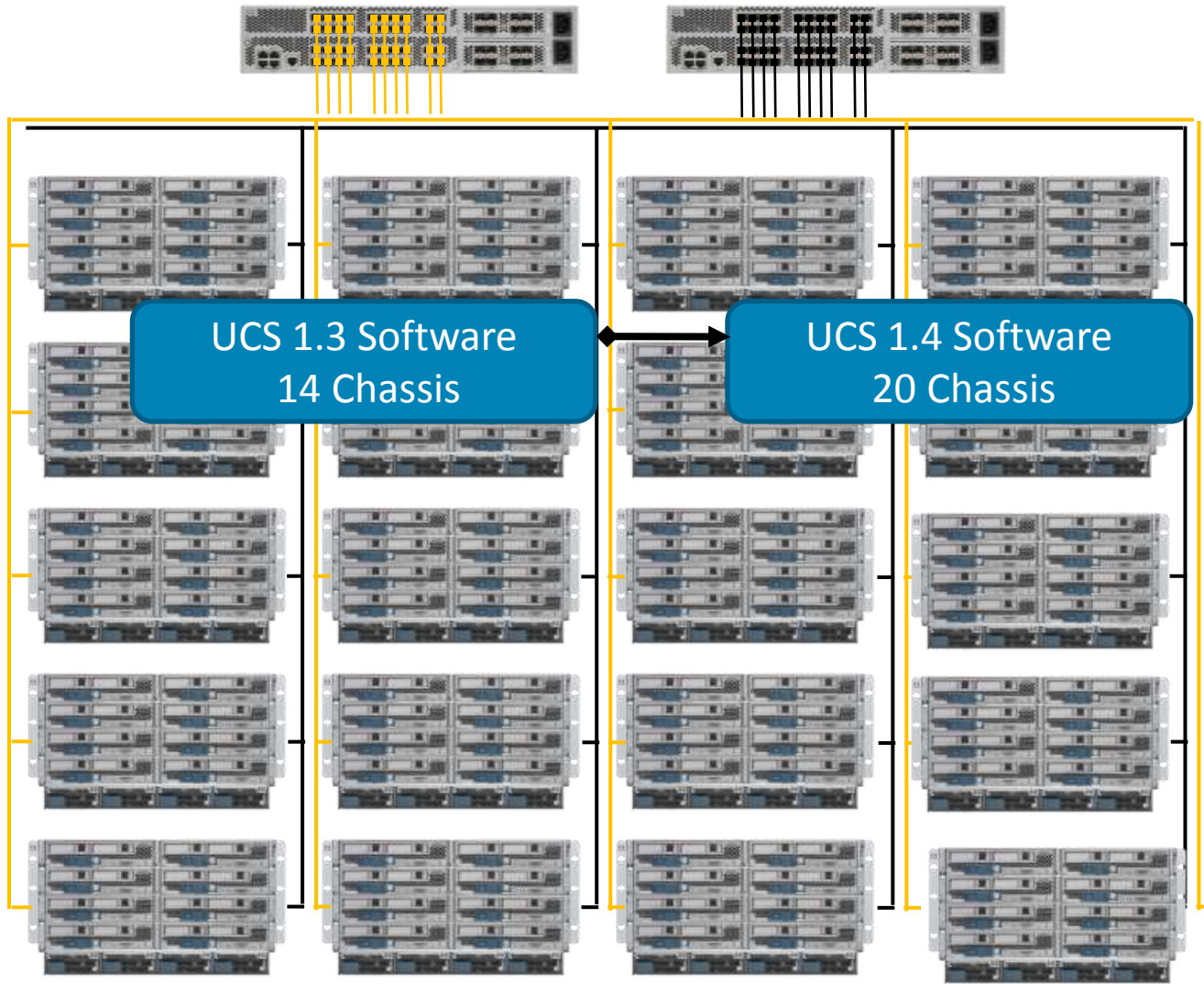
UCS Manager 1.4(1) Release

Increased Scalability

UCS 1.4 Software (Balboa) Increases overall scalability of the UCS system, following table provides comparison between UCS 1.3 and UCS 1.4 Software

Feature Name	UCS 1.3 (Aptos+) June 2010	UCS 1.4 (Balboa)
VLANs per FI	512	1024
STP logical ports	3800	6000
VIFs	1000	2000
Number of Chassis	14	20

Increasing Chassis support





UCS Software Release 1.4



Compute

Ethernet

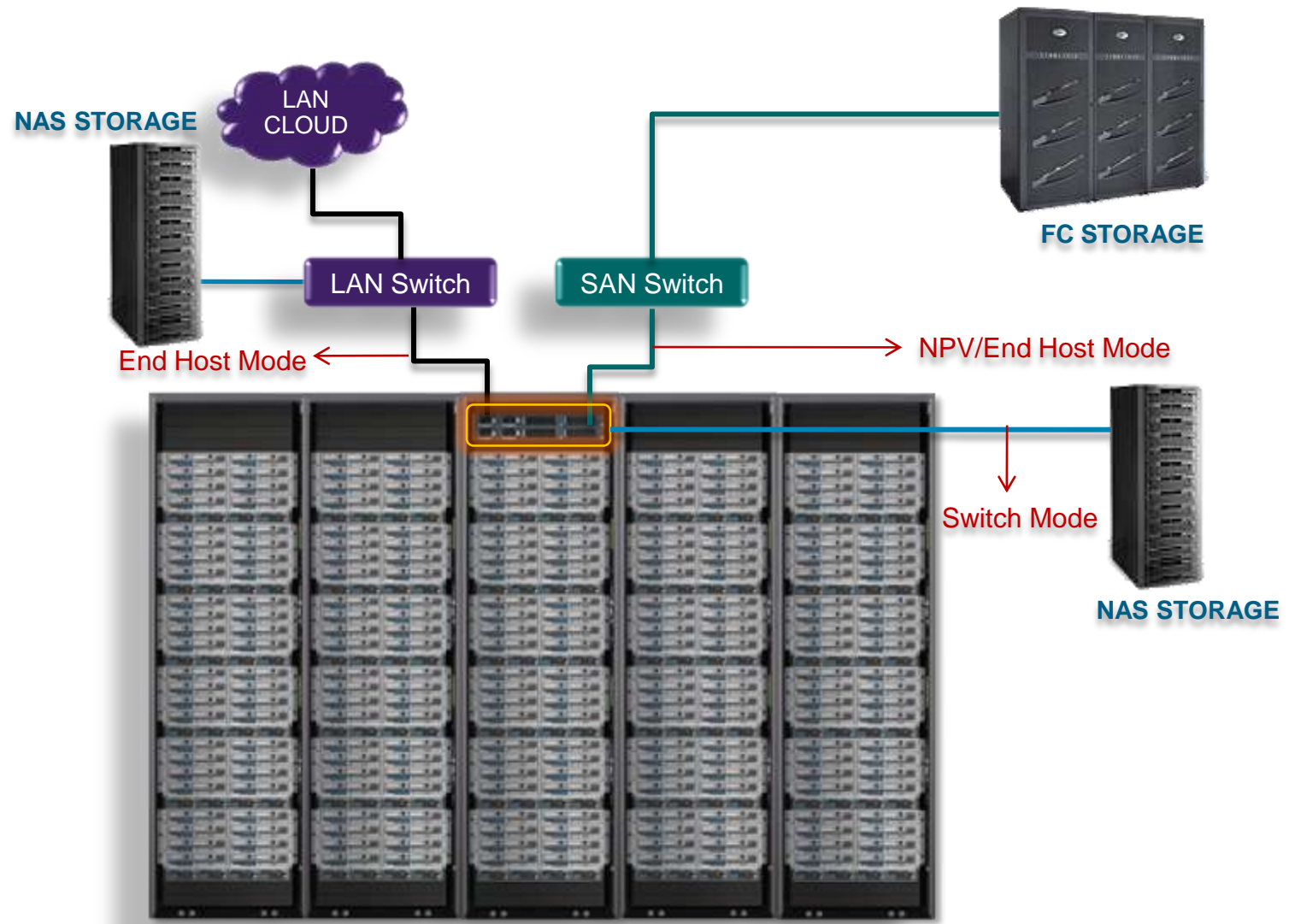
Fibre Channel

Authentication & Security

Stateless Computing

Management & Monitoring

Storage Connectivity with UCS 1.3(1)



Exec Summary: UCS 1.4 Storage Features

- New Direct Connect Topologies introduced
 - Both FC and NAS
 - Allows lower cost point for small UCS Pod like deployments
- FC Port Channeling and VSAN Trunking
 - More flexibility in engineering FC traffic

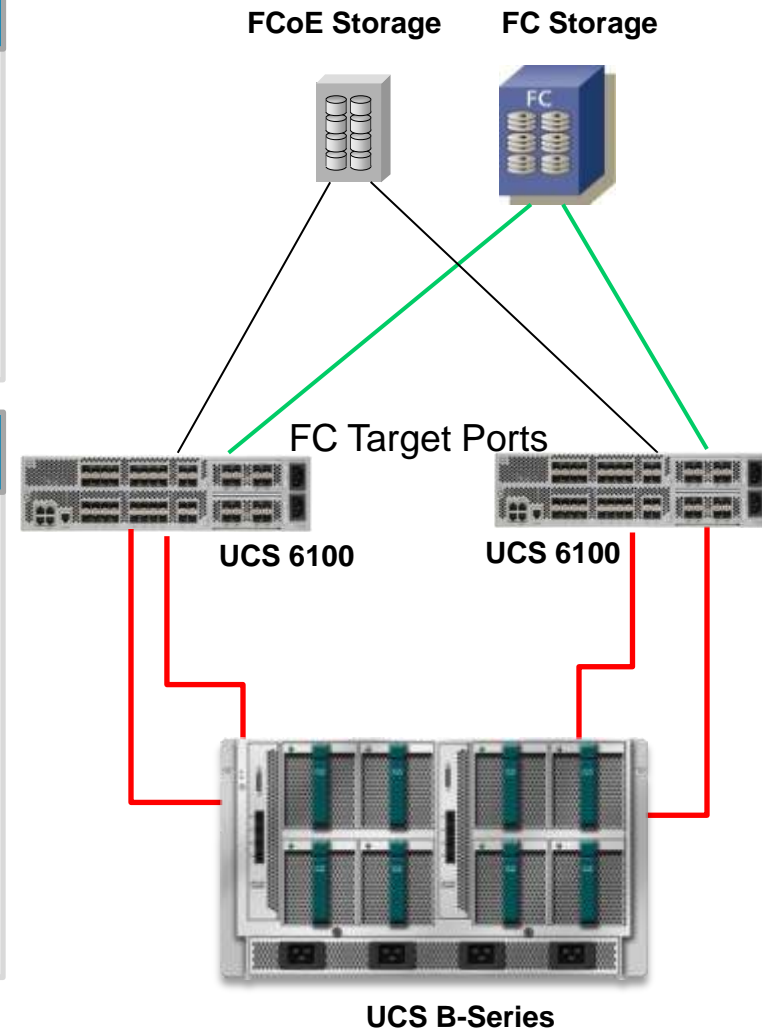
Enable Direct Connection of FC Storage

Customer benefits

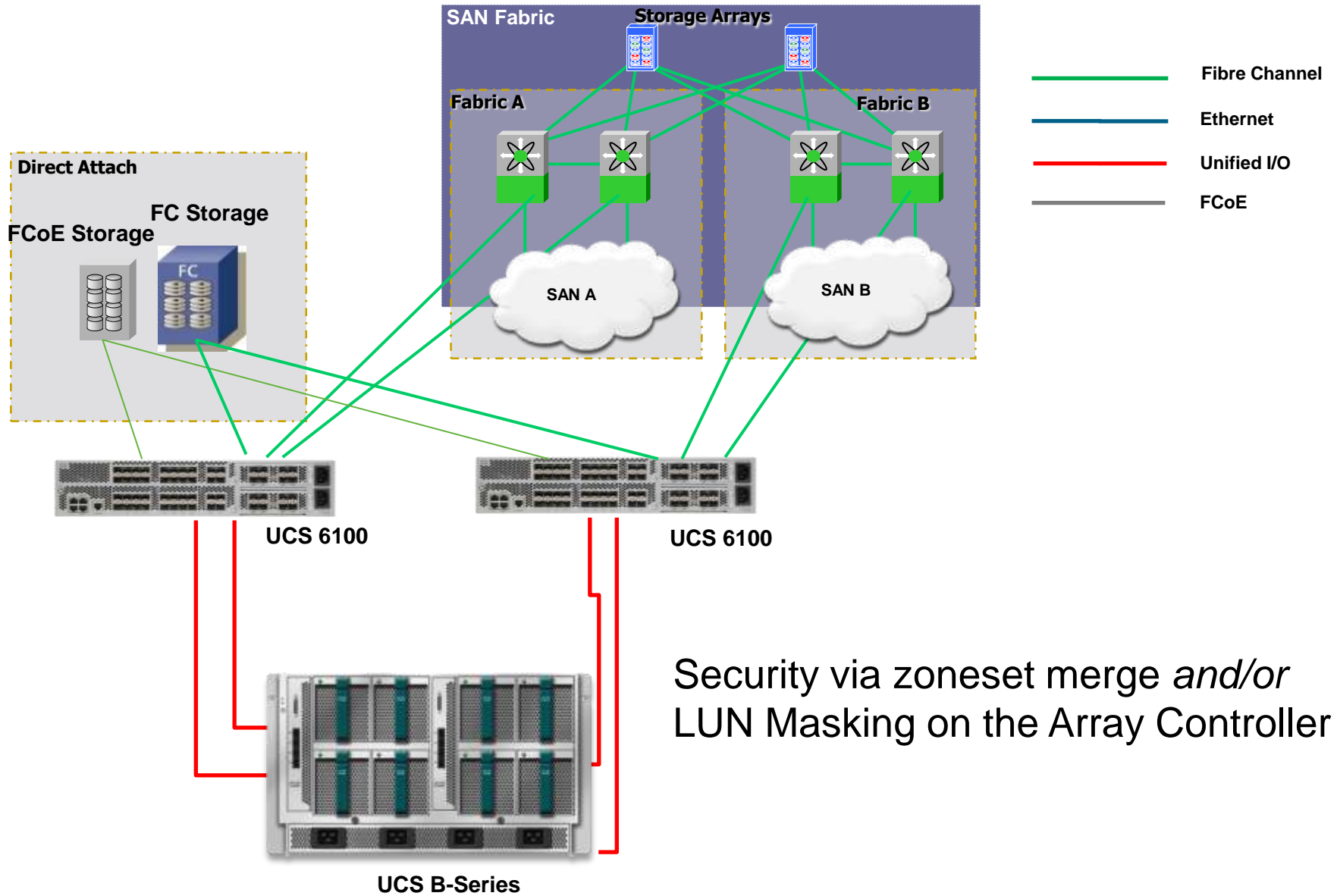
- Support to connect FC and FCoE storage to 6100
- Fewer hops and reduced latency to access the storage
- End to end FCoE topologies possible

Feature details

- Support for NetApp and EMC direct connect storage
- Zoning configuration not supported, but zoning may be inherited from upstream switch
- LUN security through LUN masking in the array
- Ethernet and FC switching modes are independent



Hybrid Topology with direct-attach and SAN



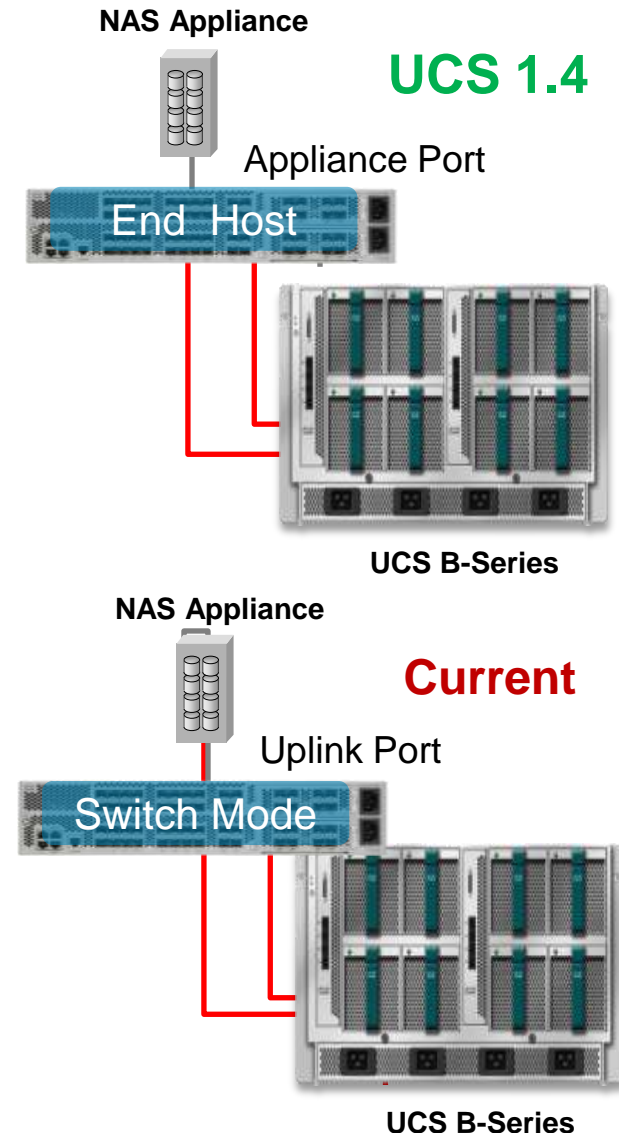
Enable Direct Connection of NAS Appliances

Customer benefits

- NAS appliance connected to Fabric Interconnects in “END HOST” Mode
- Eliminates additional access-layer switches

Feature details

- Support for NAS (Ethernet appliance) in End Host (general best practice) without putting 6100 in switch mode
- New NAS port type to support this functionality
- Support for advanced features like VLAN Filtering and QoS



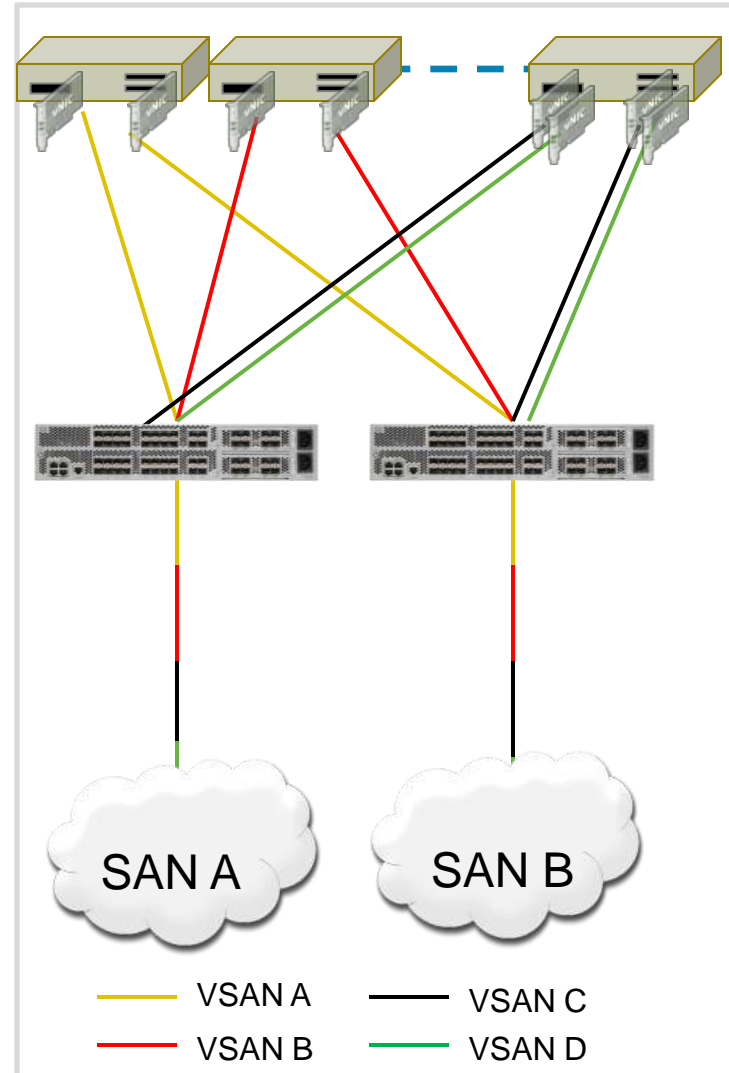
FC Port Trunking

Customer benefits

- Provide isolation to SAN traffic over the same physical FC link
- Help consolidate FC infrastructure

Feature details

- fNICs (of vHBAs) can be on different VSANs
- All VSANs will be trunked on every uplink FC port
- Scalability: Max of 32 VSANs per UCS system
- FC trunking supported in FC end host and switch mode



FC Port Channels

Customer benefits

- Aggregate and maximize available bandwidth while maintaining isolation
- Increases resiliency and guard against port failures

Feature details

- Up to 16 FC ports can be aggregated together for a single port channel
- Different combination of FC ports from different expansion modules on the FI can be placed on the same port channel
- VSANs can be trunked over the port channel
- VSAN trunking and port channel supported for both NPV and switch mode FI operation

