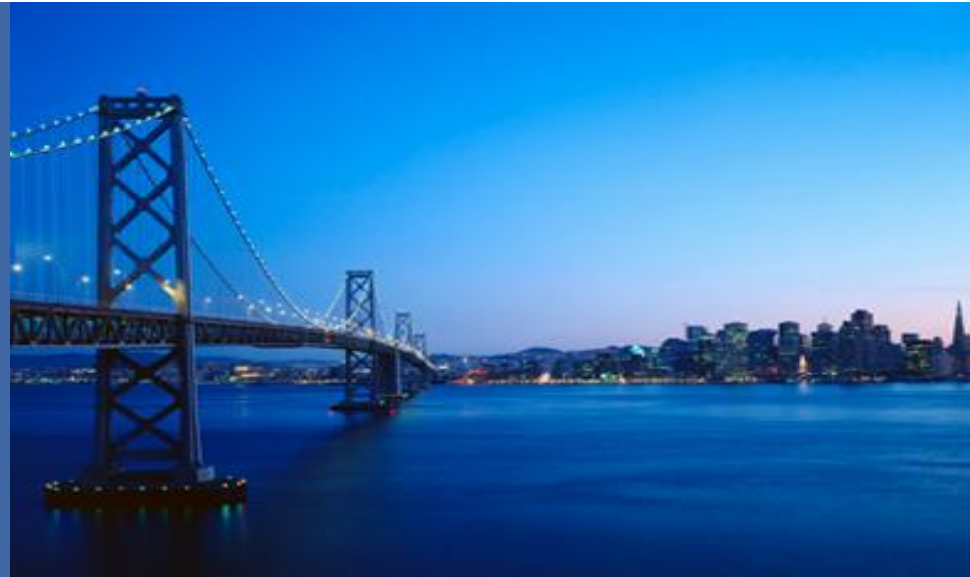




# Unified Computing System

## Unified Ports & GUI Enhancements

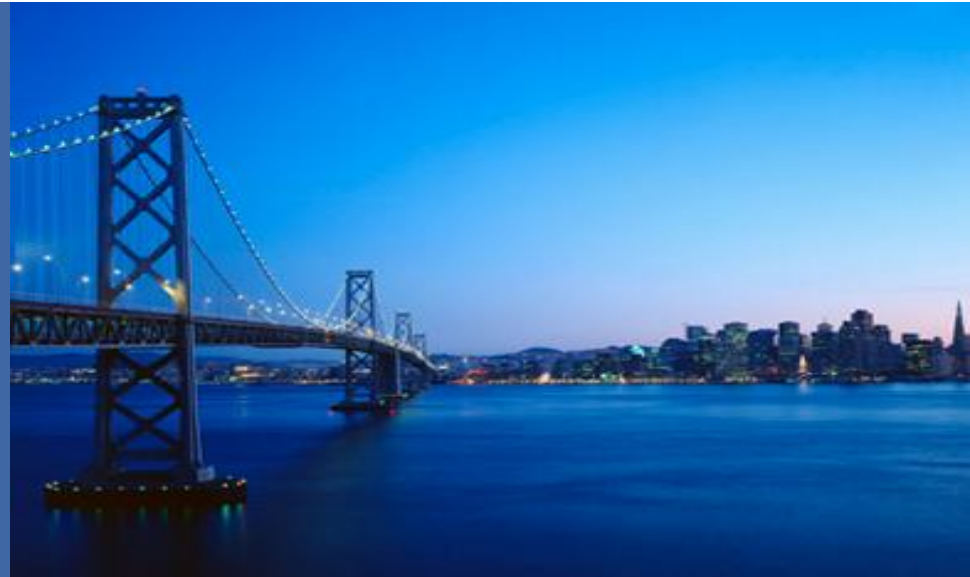


# Overview

- Introduce Unified Ports
  - Caveats & Considerations
  - How to configure / reconfigure
  - Beaconing Feature
  - Licensing Considerations
- Highlight GUI Enhancements & Changes to 2.0



# Unified Ports



# Unified Ports

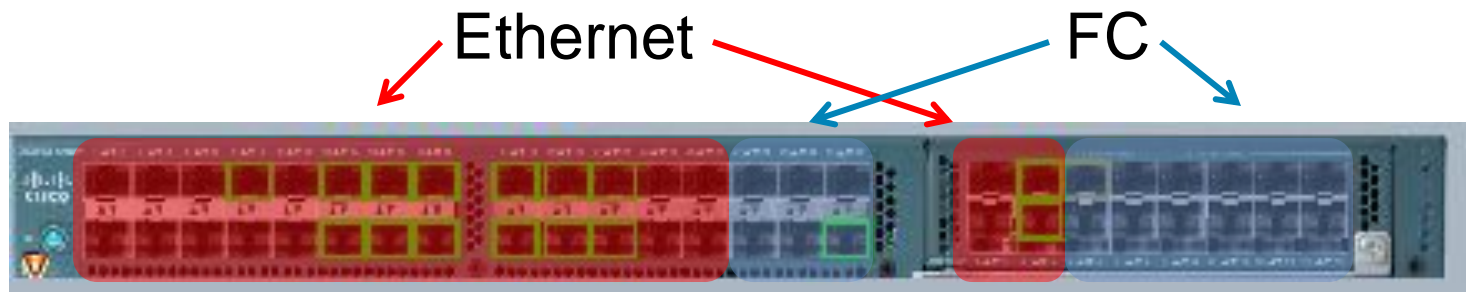
- Ports that can be configured as Ethernet or Fiber Channel
- Requires 2nd Gen hardware:

Module Type	Module Name
6200 Fabric Interconnect	UCS-FI-6248UP-SUP
Flexible GEM	UCS-FI-E16UP

- Requires UCSM version 2.0 or later

# Pre-requisites & Caveats

- Changing of the port mode of fixed module ports requires a FI reboot to activate
- Changing of the port mode on the GEM ports requires a reboot of the expansion module only
- Fixed module and GEM ports may be divided between Ethernet & FC ports with the following restrictions:
  - Ethernet & FC blocks must be contiguous
  - **Ethernet** & **FC** port blocks must occupy the **lower** & **upper** port numbers within a module respectfully



# Port Types

- Ethernet Ports can be logically configured as:
    - Server Ports
    - Uplink Ports
    - FCoE Ports
    - Appliance Ports
  - FC Ports can be logically configured as:
    - Uplink Ports
    - Storage Ports
  - Unified Ports will support all existing Port types
- \*\*Any Eth port can be set to 1Gb on a 62xx FI.

# Port Types Changes

- The mode of a physical port is changed by creating a new logical port with the desired mode. If a logical port with a different mode previously existed on the same slot/port\_id, it is implicitly deleted & request a reboot to activate
- UCSM will validate a requested port mode change. It will reject and configuration that violates
  - Contiguous Ranges
  - Upper/Lower = Ethernet/FC
- UCSM will warn the user based on the impact of a change. (Module reboot, or deletion of previous logical configuration for affected ports)

# Port Types Changes

- If the logical port refers to a physical port that does not exist, the operation is accepted, however no configuration occurs.
  - Ex. Pre-provisioning a GEM card before it's inserted
- In the logical port refers to a non-unified port, a configuration fault is raised.
  - Ex. Config from a 62xx, restored on a 61xx FI
- When an FC port is inventoried, it will be automatically configured as an uplink port – same behavior as 1.4
- Port mode config is implicit. If an FC port is re-configured as a server port, it will be configured as an Ethernet port



# Port Re-configure Delays

## Fixed Ports

Description	Time (min:seconds)
Click "Finish" in Unified Port panel	0:00
Rebooting... Restarting...	0:30
Loading Kickstart Image done	2:35
Loading System Image done (CLI prompt available)	5:24
Port inventory updated	6:03

## GEM Card

Description	Time (min:seconds)
Click "Finish" in Unified Port panel	0:00
Port inventory updated	0:50

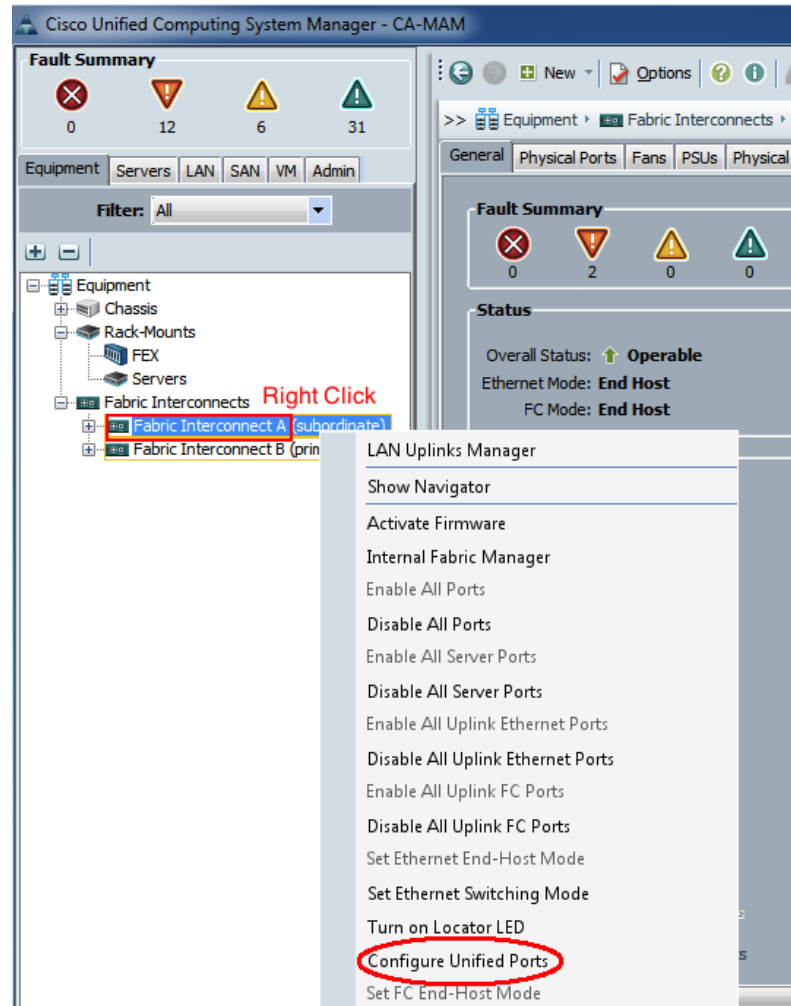
# Upgrade/Downgrade/Import/Restore

- During upgrade/downgrade/import/restore, the configuration is preserved
- This may violate some validation constraints
- Critical faults are raised
- User must fix the configuration

# Un-configuring Ports – Side effects

- If an Uplink port is un-configured, all VLANs configured on are **removed**. Any servers pinned to this uplink are dynamically re-pinned by UCSM.
- If a Server port is un-configured this may result in unsupported connectivity for servers.

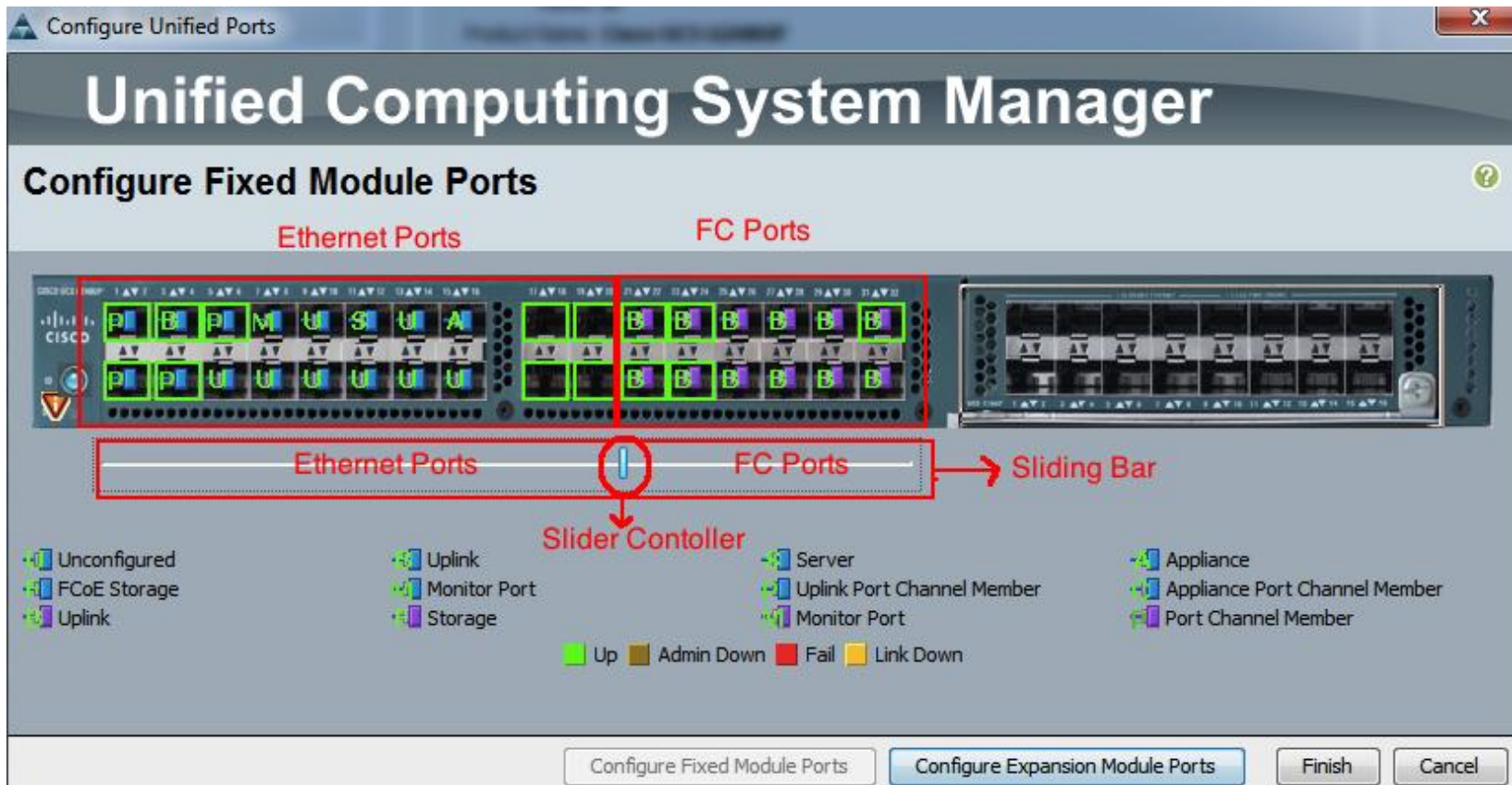
# How to Configure Unified Ports



# How to Configure Unified Ports

The screenshot shows a network management interface with a tree view on the left containing 'Rack-Mounts', 'FEX', 'Servers', 'Fabric Interconnects', and 'Fabric Interconnect A (subordinate)'. The main panel displays 'Overall Status: Operable', 'Ethernet Mode: End Host', and 'FC Mode: End Host'. A 'Properties' section shows 'Name: A' and 'Product Name: Cisco UCS 6248UP'. A 'Configure Unified Ports' dialog box is overlaid, containing a warning icon and the following text: 'The Configure Unified Ports wizard allows you to change the port mode from Ethernet to Fibre Channel or FC to Ethernet. Changing the port mode on either module causes an interruption in data traffic because changes to the fixed module require a reboot of the fabric interconnect and changes on an expansion module require a reboot of that module. Are you sure you want to launch this wizard and reboot the modules associated with any reconfigured ports?'. At the bottom of the dialog, there are three buttons: 'Select Yes' (text), 'Yes' (button, highlighted with a red box), and 'No' (button). The background interface also shows 'SAN Storage Manager', 'Enable All Ports', 'High Availability Details', and 'VLAN Port Count'.

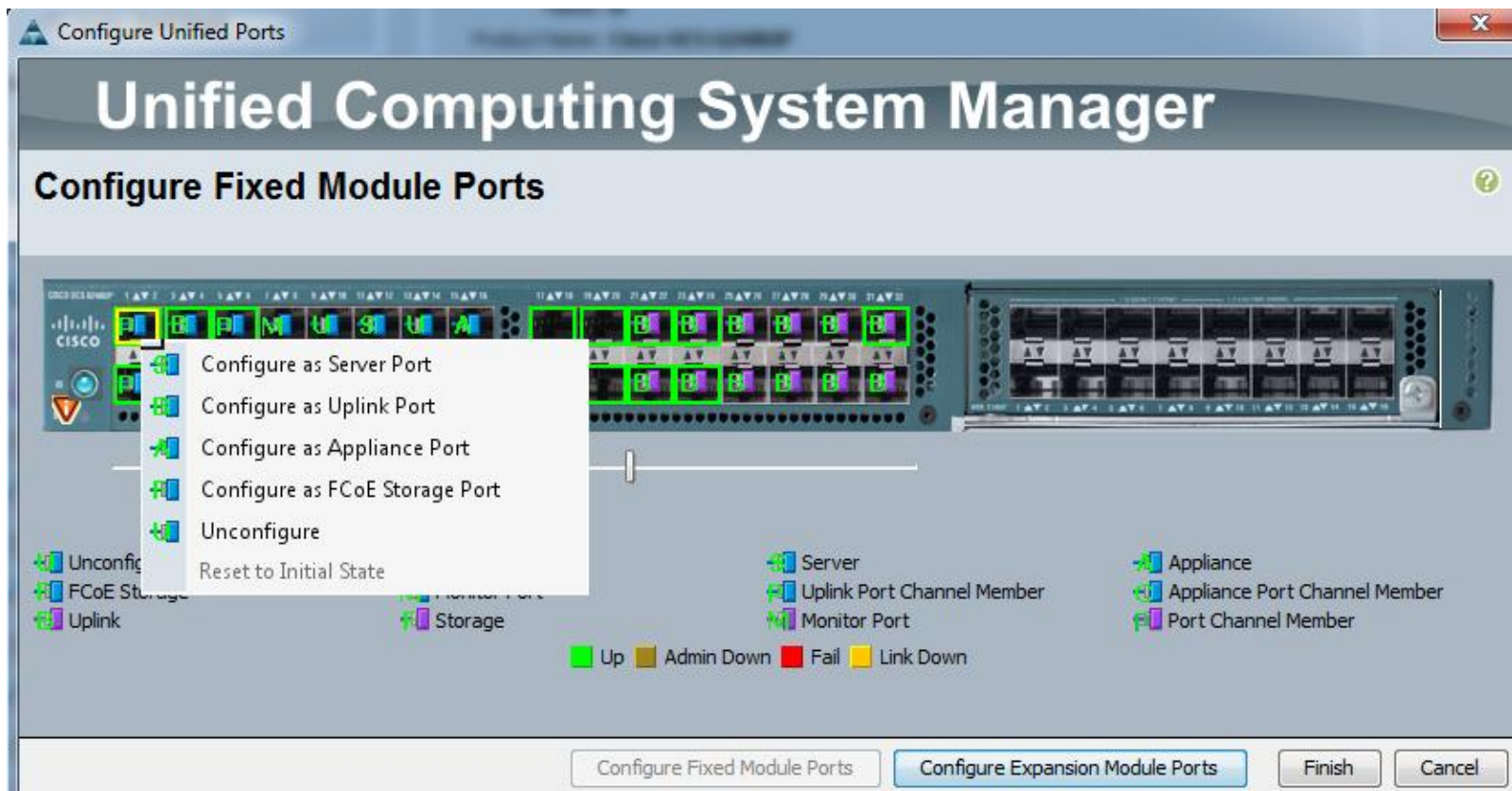
# How to Configure Unified Ports



- Each module has its own Slider Bar to adjust the Eth/FC Ports

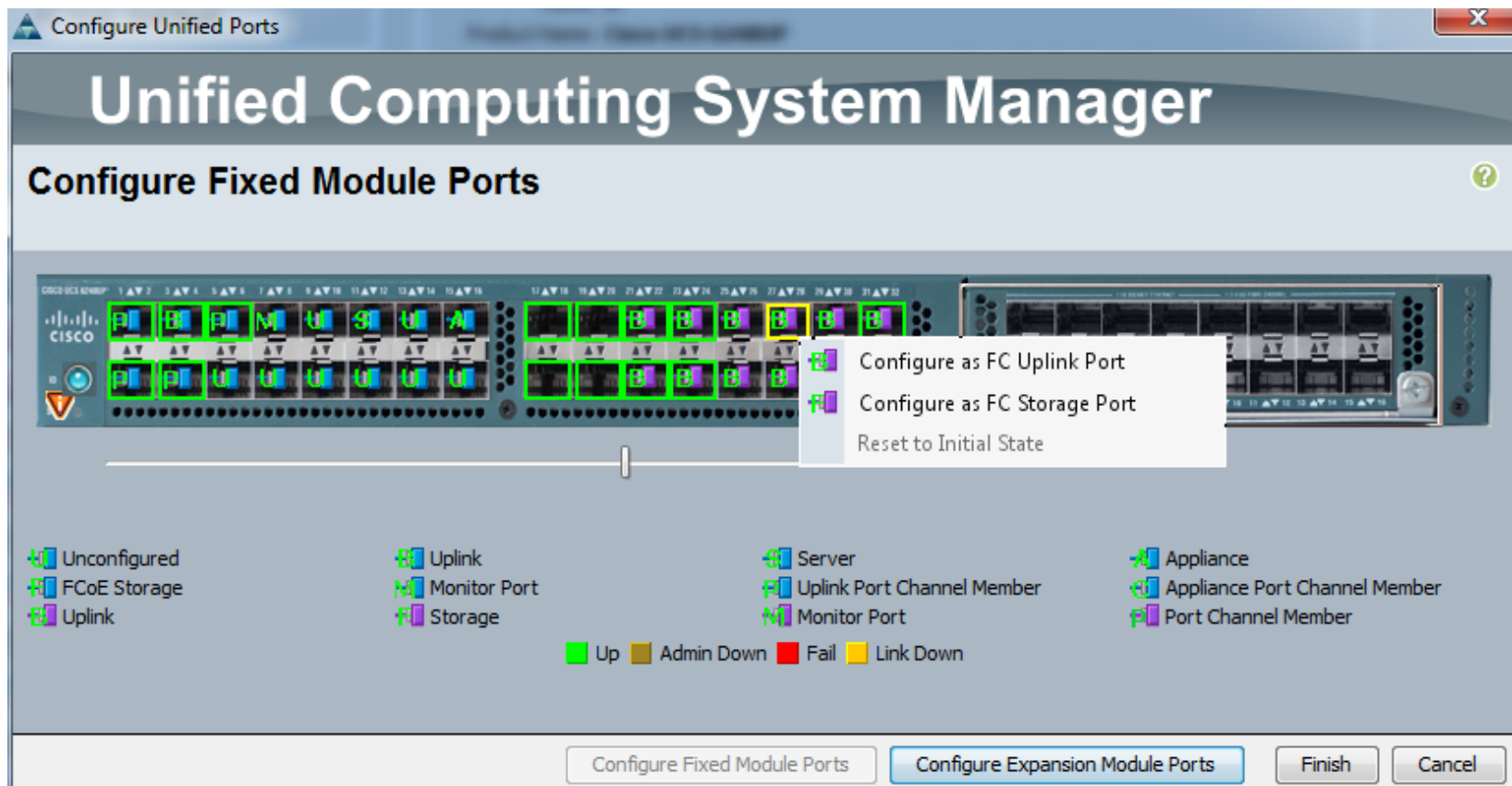
# How to Configure Unified Ports

- Once the port type is set, you can configure the port role



# How to Configure Unified Ports

- Once the port type is set, you can configure the port role





# Beaconing Changes

- You can now enable Beacon LED by Port Type

The screenshot displays the Cisco Unified Computing System Manager (CA-MAM) interface. The left sidebar shows a tree view of the system hierarchy, with 'Expansion Module 2' under 'Fabric Interconnect B (primary)' highlighted in a red box. The main content area shows the configuration for 'Expansion Module 2'. The 'Physical Display' section includes a diagram of the module with a green box highlighting the port area. The 'Properties' section shows the 'Beacon LED' setting, which is currently set to 'Off' (indicated by a selected radio button). The 'Part Details' section provides information about the module, including the product name '16-port Flex Port Expansion Module For UCS Fabric Interconnect', vendor 'Cisco Systems, Inc.', and description 'O2 16 port flexible GEM'.

# Licensing – Unified ports

- Unified ports are ports that can be configured as either Ethernet or Fiber Channel ports.
- Currently UCS restricts the type of logical configuration that can be performed on ports.
- Ethernet ports can be logically configured as:
  - server ports
  - Ethernet uplink ports
  - FCOE ports
  - Appliance ports
- FC ports can be logically configured as:
  - Uplink ports
  - FC storage ports
- We are licensing port capability, not it's usage. Once the physical port is licensed, it can be used for 1 or 10 Gig Ethernet, or FC.

# Licensing – Unified ports

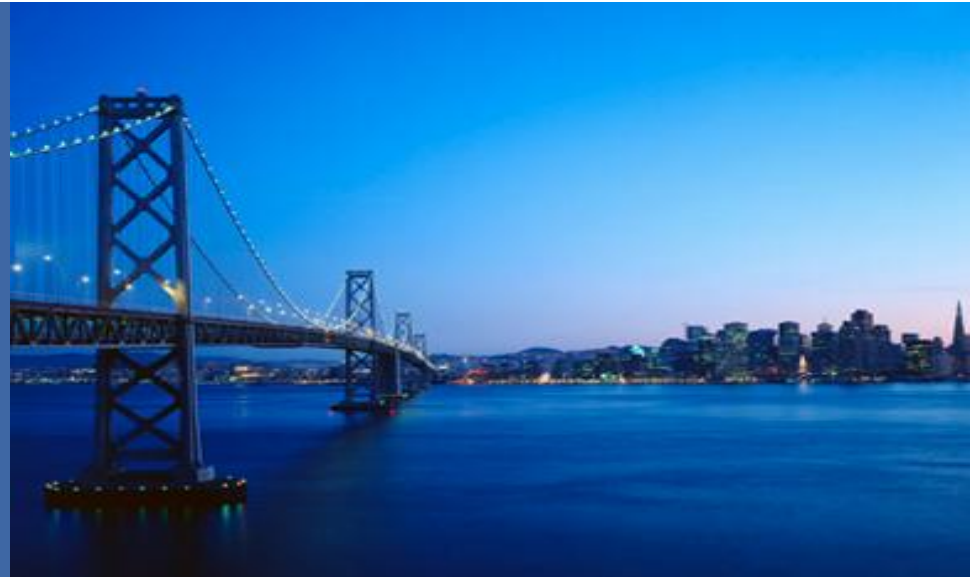
- *Counted* licenses are applied to **all** Unified ports, irrespective of the type, they are casted as.
- Default license count for fixed module, is 12 (for 32-port switch) and 18 (for 48-port switch).
- Licenses purchased, are applied after configuring 12/18 ports.
- Default licenses are available without installing any license files.
- Licenses are not applied until a port is configured and enabled. So, if a port is configured under an inactive port-channel as a member-port, no license would be consumed. When port-channel becomes active, licenses are consumed for all member-ports.
- All the ports in mammoth Fabric-interconnects (including expansion modules and base modules) are covered under one license feature **ETH\_PORT\_ACTIVATION\_PKG**.

# Licensing and 62xx FI expansion modules

- *Counted* licenses are applied to all ports configured on expansion modules.
- Earlier (till 1.4) only base module ports use to consume a license but now on, expansion modules with unified-port capabilities, **would have ports as licensable entities**.
- When an expansion module is plugged into the Mammoth (62xx) Fabric-interconnect, **it will contribute 6 licenses to default port count**. On a 6248 FI with one expansion module, user would have 18 (12 base + 6 expansion) default licenses
- Licenses contributed by expansion modules are not restricted to that expansion module only. Instead they can be used across **any port** on that Fabric Interconnect.



# GUI Enhancements & Changes



# GUI Enhancements – VM-FEX VIBs

**Cisco UCS Manager - 2.0(1m)**  
Single point of device management for the Cisco Unified Computing System

UCS Manager requires Java Runtime Environment 1.6. If it is not already installed, please [download](#) and install it on your system.

[Launch UCS Manager](#)   [Launch KVM Manager](#)

## Cisco UCS Virtual Machine Fabric Extender (VM-FEX)

### Cisco vDS - VEM Software

Description	Files
ESX/ESXi 4.0.0 Build 244038 Offline Bundle	<a href="#">VEM400-201109404.zip</a>
ESX/ESXi 4.1.0 or later	<a href="#">VEM410-201108406.zip</a>
ESX/ESXi 4.0.0 Update 2 or later	<a href="#">VEM400-201108405.zip</a>
ESX/ESXi 4.0.0 Build 256968 Offline Bundle	<a href="#">VEM400-201108404.zip</a>
ESX/ESXi 4.0.0 Build 236512 Offline Bundle	<a href="#">VEM400-201108403.zip</a>
ESX/ESXi 4.0.0 Build 219382 Offline Bundle	<a href="#">VEM400-201108402.zip</a>
ESX/ESXi 4.0.0 Build 208167 Offline Bundle	<a href="#">VEM400-201108401.zip</a>
ESXi 5.0 or later	<a href="#">VEM500-20110825132140-BG-release.zip</a>
ESXi 5.0 or later	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-3.0.4.vib</a>
ESX/ESXi 4.1.0 or later	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-2.0.4.vib</a>
ESX/ESXi 4.0.0 Update 2 or later	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.20.4.vib</a>
ESX/ESXi 4.0.0 Build 256968	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.13.4.vib</a>
ESX/ESXi 4.0.0 Build 244038	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.12.4.vib</a>
ESX/ESXi 4.0.0 Build 236512	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.11.4.vib</a>
ESX/ESXi 4.0.0 Build 219382	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.10.4.vib</a>
ESX/ESXi 4.0.0 Build 208167	<a href="#">cross_cisco-vem-v132-4.2.1.1.4.1.0-1.9.4.vib</a>

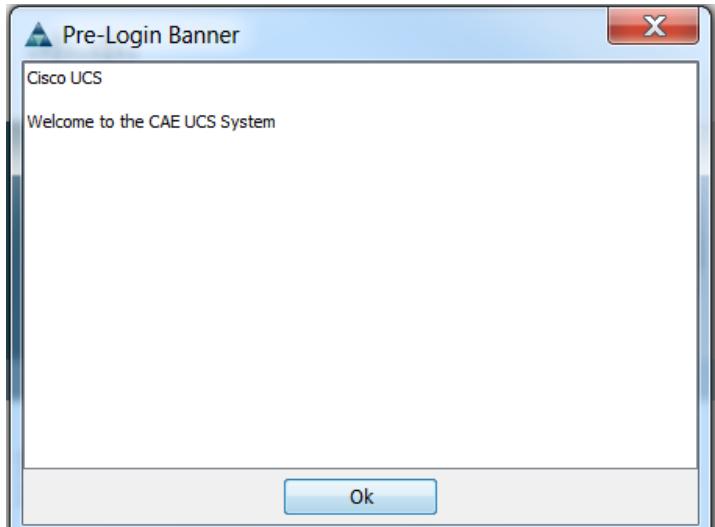
Version 2.0(1m)  
[Click here](#) to obtain Cisco UCS Virtual Machine Fabric Extender (VM-FEX) Software

[Click here](#) to obtain Cisco UCS Virtual Machine Fabric Extender (VM-FEX) Software

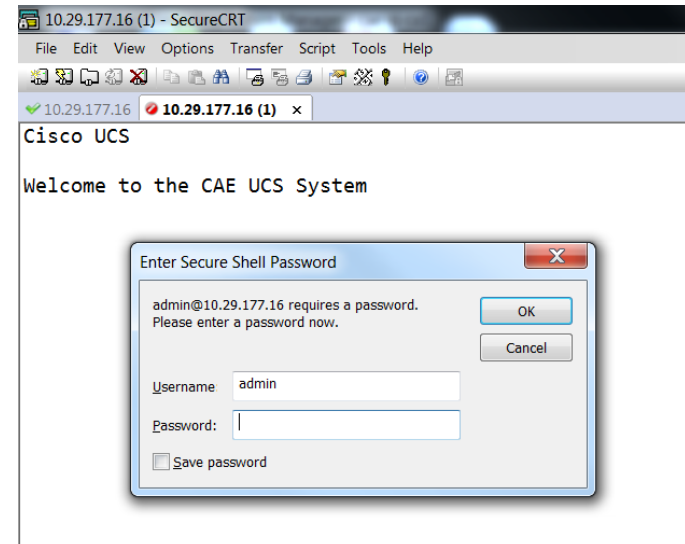
# GUI Enhancements – Login Banner

- In UCS 2.0 you can now configure a pre-login banner to display at UCSM launch (prior to login).
- Simple text only
- One banner for all login methods

## GUI

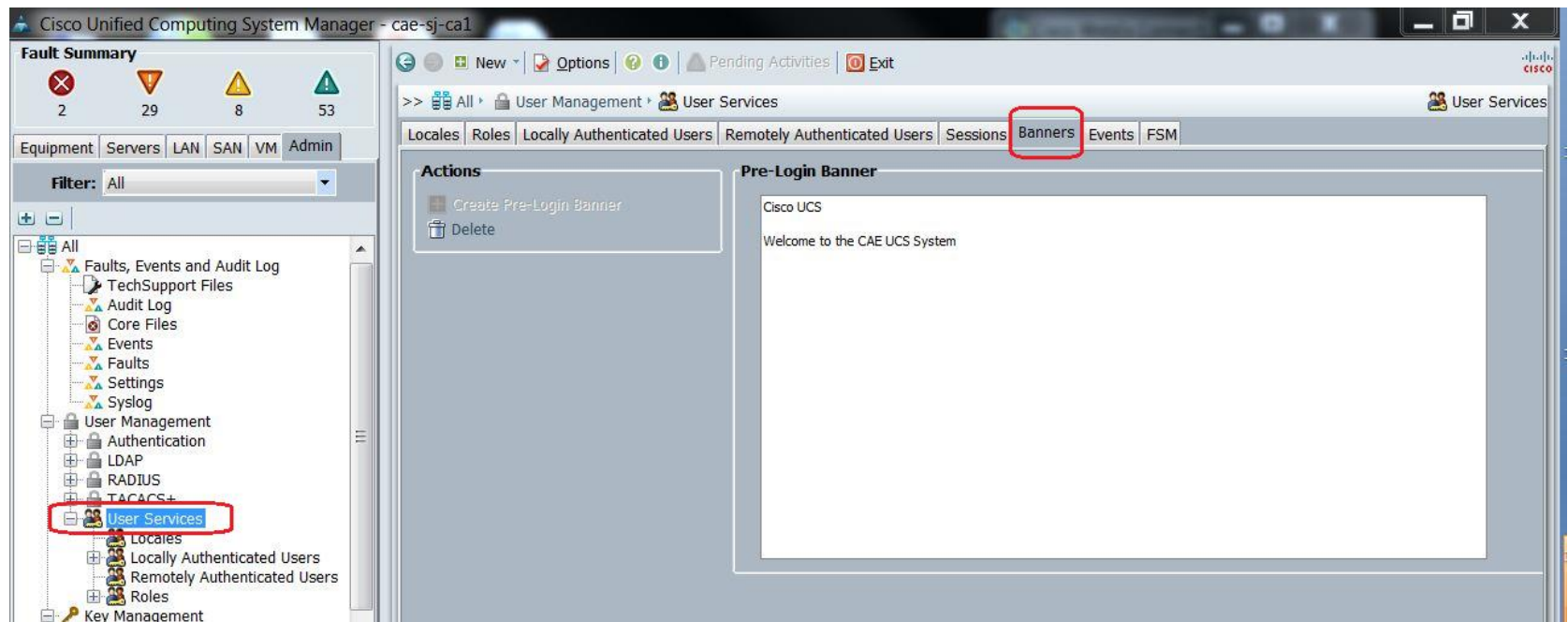


## CLI



# GUI Enhancements – Login Banner

- Admin Tab → User Management → User Services → Banners





# CLI Enhancements – Login Banner

```
cae-sj-ca1-A# scope security
```

```
cae-sj-ca1-A /security # scope banner
```

```
cae-sj-ca1-A /security/banner # create pre-login-banner
```

```
cae-sj-ca1-A /security/banner/pre-login-banner* # set message
```

Enter lines one at a time. Enter ENDOFBUF to finish. Press ^C to abort.

Enter prelogin banner:

```
>Welcome to the CAE UCS System !!
```

```
>
```

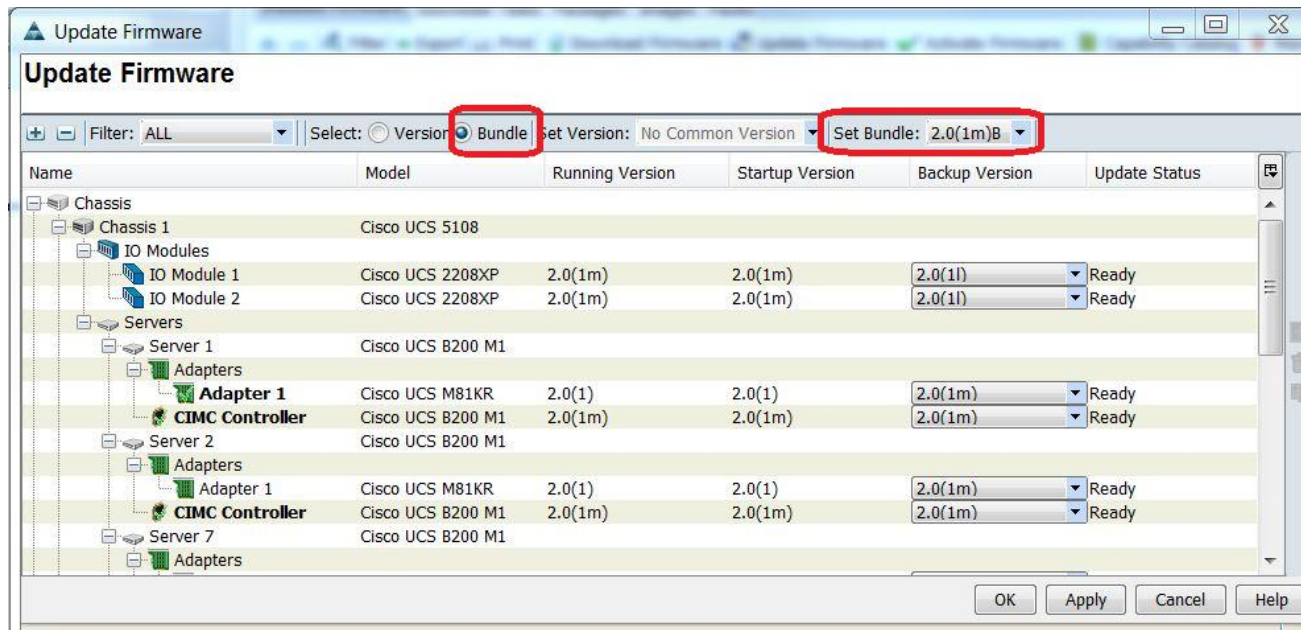
```
>Unauthorized access is prohibited!!
```

```
>ENDOFBUF
```

```
cae-sj-ca1-A /security/banner/pre-login-banner* # commit-buffer
```

# CLI Enhancements – FW Bundles

- Users can select either A, B, or C bundles when applying/updating FW (for a specific SW version)
- A – Infrastructure, B – B Series, C – C Series



# GUI Enhancements - vNIC View

- Service Profiles have removed each individual VLAN from the tree view, but still visible in the Network Adapter view. Large amount of VLANs burdened UCSM with polling.

## UCSM 1.4

The screenshot shows the Cisco Unified Computing System Manager (UCSM) 1.4 interface. The left pane displays a tree view of Service Profiles. The right pane shows the configuration for a vNIC, with a table listing the associated VLANs:

Name	MAC Address	Desired Order
vNIC vnic0	00:25:B5:00:35:2E	3
Network VLAN183		
Network VLAN25		
Network vlan19		
vNIC vnic1	00:25:B5:00:35:1F	4
Network VLAN183		
Network VLAN25		
Network vlan19		

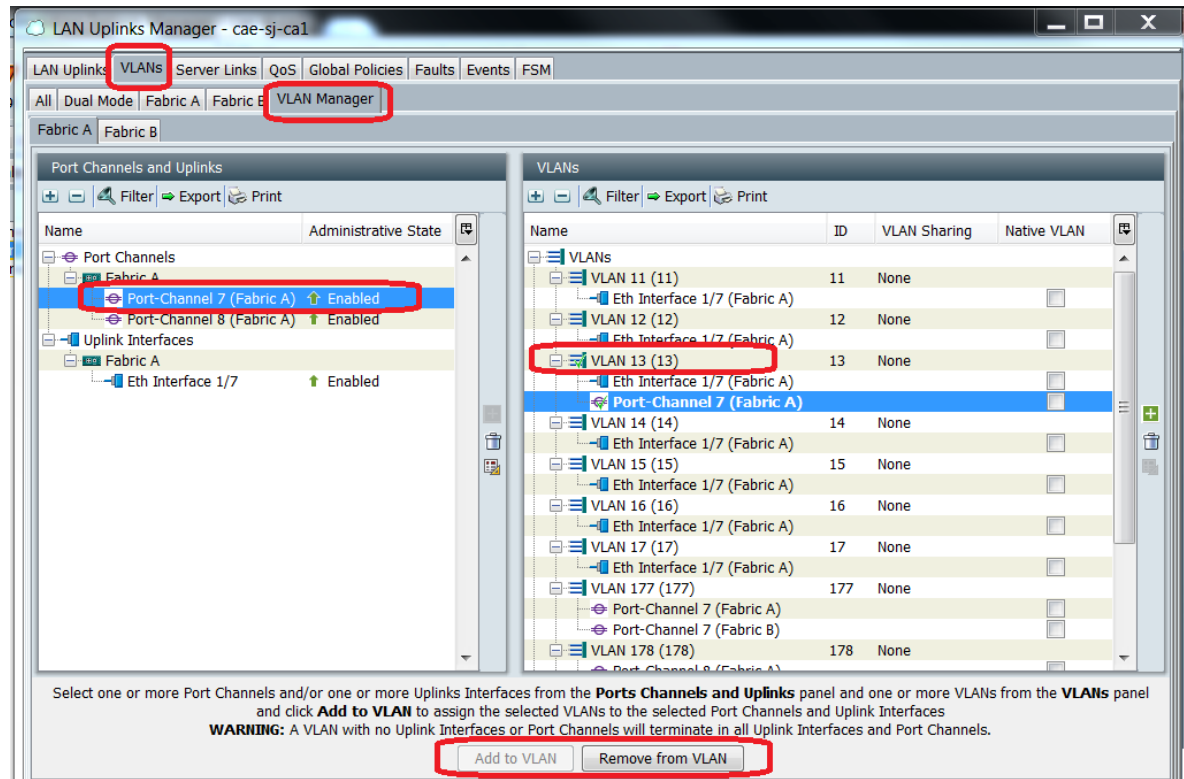
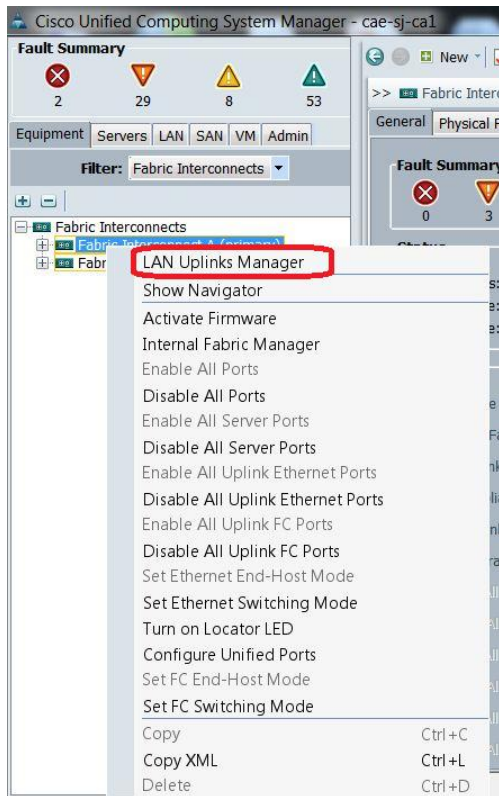
## UCSM 2.0

The screenshot shows the Cisco Unified Computing System Manager (UCSM) 2.0 interface. The left pane displays a tree view of Service Profiles. The right pane shows the configuration for a vNIC, with a table listing the associated vNICs:

Name	MAC Address	Desired Order
vNIC vNIC1	00:25:B5:10:10:1A	1
vNIC vNIC2	00:25:B5:10:10:0A	2

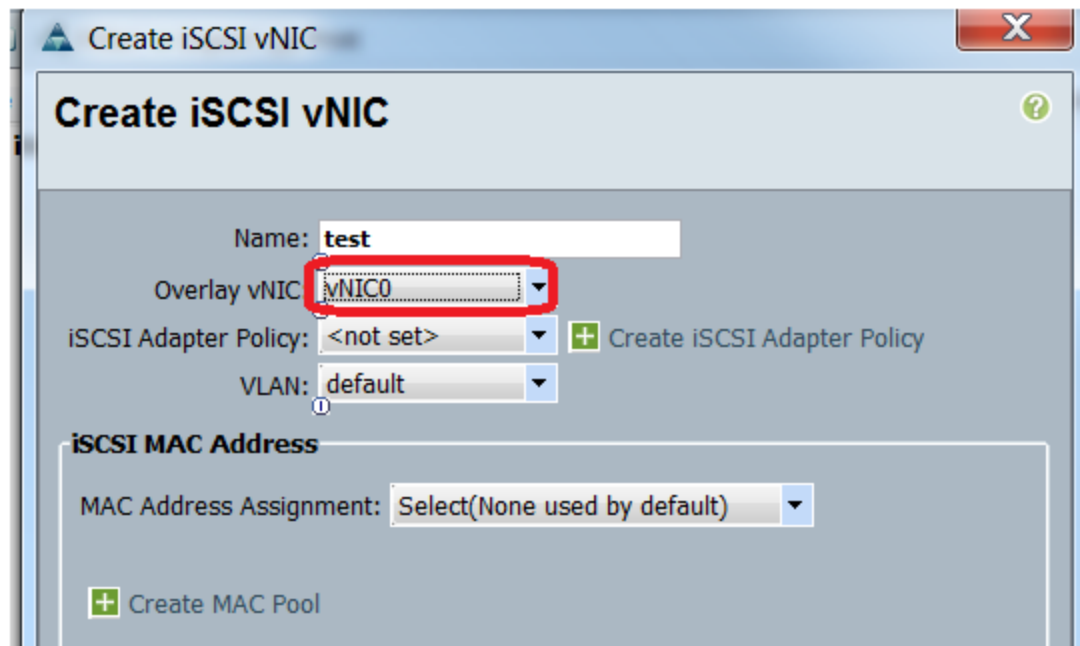
# GUI Enhancement – Uplink Manager

- Used to pair VLANs to uplinks to augment disjoint L2 configuration.



# GUI Enhancements – iSCSI vNIC Binding

- iSCSI nics added and bound to parent nic. Authentication and IP policy added to complement this.



The screenshot shows a window titled "Create iSCSI vNIC" with the following fields and options:

- Name: test
- Overlay vNIC: vNIC0 (highlighted with a red box)
- iSCSI Adapter Policy: <not set> (with a "+ Create iSCSI Adapter Policy" button)
- VLAN: default
- iSCSI MAC Address section:
  - MAC Address Assignment: Select(None used by default)
  - + Create MAC Pool button

