Migrating to UCS 6400 Series Fabric Interconnects

Cisco UCS 6454 Fabric Interconnect to Cisco UCS 64108 Fabric Interconnect Migration

Cisco UCS 6400 Series Fabric Interconnect Migration Considerations

Cisco UCS Manager provides support for migrating Cisco UCS 6454 Fabric Interconnect to Cisco UCS 64108 Fabric Interconnect with B-Series servers, C-Series, or S-Series servers.

To migrate from Cisco UCS 6454 Fabric Interconnect to Cisco UCS 64108 Fabric Interconnect, both the Fabric Interconnect must be loaded with the same Infrastructure Firmware version.

Prerequisites

Before performing the migration from Cisco UCS 6454 Fabric Interconnects to Cisco UCS 64108 Fabric Interconnect, ensure that the following prerequisites are met for a successful migration:

- Back up and export Cisco UCS Manager configuration before initiating the upgrade.

- Take an inventory of the Cisco UCS domain and remove any unsupported hardware.

- Ensure to enable the cluster failover.

- Do not attempt to implement new software features from the new Cisco UCS software version until all required hardware is installed.

- Make sure both Cisco UCS 6400 series Fabric Interconnects are on the same UCSM build before migration.

- Standalone installations should expect down time. In a cluster configuration, migrating the Fabric Interconnects can result in a small traffic disruption when the traffic fails over from one Fabric Interconnect to another. To avoid that there is no permanent traffic loss during migration, ensure that there is redundancy in the UCS domain on both Fabric Interconnects before migration and test the redundancy before starting the migration.

- Ensure the latest firmware bundle is downloaded and upgraded through GUI or CLI. Incase of attempting to upgrade the firmware bundle using other methods (loader prompt/erase configuration) can result in missing package version.

- Before migration, make sure that the FC Speed is 8Gbps on Cisco UCS 6454 Fabric Interconnects or the connected switch supports 8Gbps speed.

Note Post migration, you can configure the FC Port (Scalability Port) speed on Cisco UCS 64108 Fabric Interconnects.

- Migrating to different IOM models can result in peer communication issue between IOMs of the Primary and Secondary Fabric Interconnects.

- Make a detailed record of the cabling between FEX and fabric interconnects. You must preserve the physical port mapping to maintain the server pinning already configured and minimize down time.

- For a cluster configuration, both fabric interconnects must have symmetrical connection topologies between fabric interconnect and FEX.

- Use the same speed cables on all the adapter ports that are connected to same Fabric Interconnect. Cisco UCS VIC adapter ports connected to Cisco UCS 64108 fabric interconnect through a mix of 10G and 25G cables can result in UCS rack-mount server discovery failure and ports moving to suspended state.

- A WWN pool can include only WWNNs or WWPNs in the ranges from 20:00:00:00:00:00:00:00 to 20:FF:00:FF:FF:FF:FF:FF or from 50:00:00:00:00:00:00:00 to 5F:FF:00:FF:FF:FF:FF:FF. All other WWN ranges are reserved. When fibre channel traffic is sent through the UCS infrastructure the source WWPN is converted to a MAC address. You cannot use WWPN pool which can translate to source multicast MAC addresses. To ensure the uniqueness of the Cisco UCS WWNNs and WWPNs in the SAN fabric, Cisco recommends using the following WWN prefix for all blocks in a pool: 20:00:00:25:B5:XX:XX:XX

Recommendations

Following are the best practices for a successful migration:

- For minimal disruption during migration, ensure that there is redundancy for Ethernet and FC traffic from the servers in the UCS domain across both 6454 Fabric Interconnects before migration.

- Changes to the topology, such as the number of servers or uplink connections, should be performed after the fabric interconnect migration is complete.

- During the migration of Fabric Interconnects, ensure the Cluster ID is not changed.

- During the migration, image synchronization between fabric interconnects is not allowed. This is done to prevent incompatible images from getting synchronized. It is necessary to download B-Series, C-Series, and S-Series server software bundles again after migration is complete.

- Unconfigure the fibre channel ports on the migrating subordinate Cisco UCS 6454 Fabric Interconnect and reconfigure on the Cisco UCS 64108 Fabric Interconnect.

Note For more information on migrating Cisco UCS 6454 Fabric Interconnect to Cisco UCS 64108 Fabric Interconnect with UCS Central, see Considerations for migrating Cisco UCS 6454 Fabric Interconnects to Cisco UCS 64108 Fabric Interconnects with Cisco UCS Central, on page 3.

Validating Feature Configurations for Cisco UCS 64108 Fabric Interconnect before Upgrade

Table 1: Features that needs special attention prior to upgrading

Feature	Remediation
Chassis and fabric extender I/O port channel	Select a port channel to the I/O module (IOM).
Multicast optimization	Verify that multicast optimization is not enabled under the LAN quality-of-service (QoS) system classes
Fabric forwarding mode for Ethernet	Verify that the Ethernet forwarding mode is set to **End Host Mode Only**.
Fabric forwarding mode for Fibre Channel	Verify that Fibre Channel forwarding mode is set to **End Host Mode or FC Switching Mode**.
Cisco NetFlow	Unconfigure NetFlow.
MAC Security	Select **Allow** for MAC security.
VM-FEX	Remove port profiles and Cisco UCS Manager ESXi or SCVMM related configurations.
Dynamic vNIC connection policies	Set the dynamic vNIC connection policy in the vNIC profile to **Not set**.
Cisco Switched Port Analyzer (SPAN)	Use receive (RX) direction only. The installer will change SPAN to the RX direction and send an alert indicating that this setting is being changed.

Failure to comply with these remediation steps will result in a migration warning alert during the migration process and prevent the fabric interconnects from synchronizing.

Considerations for migrating Cisco UCS 6454 Fabric Interconnects to Cisco UCS 64108 Fabric Interconnects with Cisco UCS Central

In addition to Cisco UCS 6400 Series Fabric Interconnect Migration Considerations, on page 1, consider the following prerequisites when migrating with Cisco UCS Central:

- Before initiating the migration, ensure to have a complete backup of Cisco UCS Manager and UCS Central configurations.

- To avoid any configuration issues during migration, make sure the following policies on Policy Resolution Control is set to Local in UCS Central:

- Infrastructure and Catalog Firmware Policy

- Equipment Policy

- Port Configuration Policy

Migrating from UCS 6454 Fabric Interconnects to UCS 64108 Fabric Interconnects

Beginning with Cisco UCS Manager Release 4.1, you can migrate from Cisco UCS 6454 Fabric Interconnect to Cisco UCS 64108 Fabric Interconnect.

To acknowledge the chassis in Cisco UCS Manager, do the following:

1. In the Navigation pane of Cisco UCS Manager, click **Equipment**.

2. Click the **Equipment** node.

3. In the Work pane, click the **Policies** tab.

4. Click the **Global Policies** subtab.

5. In the **Chassis/FEX Discovery Policy** area, set the **Link Grouping Preference** field to **Port Channel**.

6. Expand **Equipment** > **Chassis**, and choose the chassis that you want to acknowledge.

7. In the Work pane, click the **General** tab.

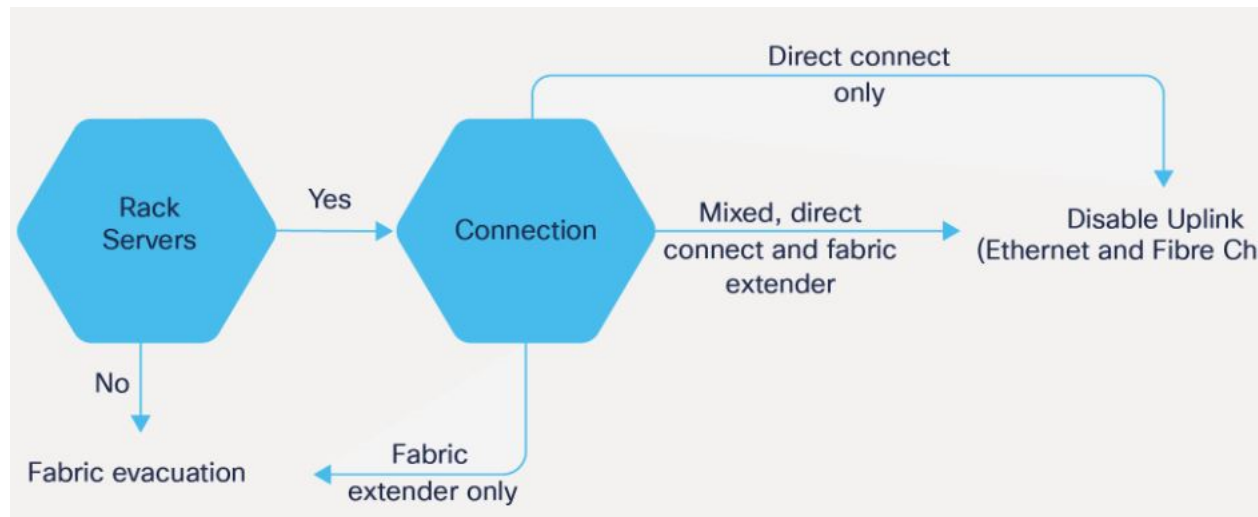8. In the **Actions** area, click **Acknowledge Chassis**.

Note For more information about how to perform configuration procedures in Cisco UCS Manager, see the appropriate Cisco UCS Manager Configuration Guide.

Procedure

Step 1 Move the traffic to the primary fabric interconnect (Cisco UCS 6454). This can be performed in two ways: fabric evacuation and uplink disablement. Use the below flowchart to choose between the two based on your Cisco UCS domain server and connectivity.

> **Note** For direct-attached rack servers, only uplink disablement is supported.

Step 2 Verify that all traffic has failed over to the primary fabric interconnect. Unconfigure all the server ports or fibre channel ports on the subordinate fabric interconnect.

> **Note** For more information, see the *Fabric Interconnect Traffic Evacuation* section in the *Guidelines and Prerequisites* chapter of the Cisco UCS Manager Firmware Management Guide.

Step 3 Power down the UCS 6454 subordinate fabric interconnect and disconnect the power and the L1/L2 cables.

Step 4 Mount the replacement UCS 64108 Fabric Interconnect into either the same rack or an adjacent rack.

> **Note** As a best practice, you should label the cables.

Step 5 Connect the L1/L2 cables and the server ports according to your port mapping plan.

Step 6 Power up the new fabric interconnect. If it is connected correctly, the new subordinate fabric interconnect will detect that it is being added to an existing cluster.

Step 7 Enter the IP address information for the new subordinate fabric interconnect.

Step 8 Unified ports on the UCS 6454 fabric interconnect are similar to the unified port ordering on the 64108 fabric interconnect.

> **Note**
> - When you convert from ethernet ports to fibre channel ports, a reboot is required.
>
> - For more information on *Configuring FC Uplink port* or *Converting FC Storage Port to FC Uplink port*, refer the *LAN Ports and Port Channels* chapter in Cisco UCS Manager Network Management Guide.

Step 9 Configure the network uplink ports on the new Cisco UCS 64108 fabric interconnect.

Step 10 Match the old configuration from 6454 for the port-channel. Add uplink ports to the necessary port-channel or any other previous configuration required for the port-channel. Wait for configuration to complete before proceeding to the next step.

Note   Waiting to enable the server ports prevents the svc_sam_bladeAG service from communicating with chassis and servers. In previous migrations, when enabling server ports at the same time as the uplink ports, it would cause topping out (pinning) the CPU to near 100% on the primary fabric interconnect. When there is high CPU usage, the user interface becomes unresponsive and the svc_sam_bladeAG service must be restarted to recover.

Step 11   Reconfigure the server ports or fibre channel ports.

a) If you have changed port mappings, you may need to reacknowledge the IOM, FEX, or direct-connect rack server connected to the subordinate fabric interconnect.

b) Verify and if necessary, you can reconfigure ethernet ports as server ports.

Step 12   The 64108 subordinate fabric interconnect will automatically synchronize the configuration and database/state information from the primary UCS 6454 fabric interconnect.

Synchronization between primary and subordinate fabric interconnects can take several minutes. You may see an error message that will persist until the server ports are enabled.

The port configuration is copied from the subordinate fabric interconnect to the new fabric interconnect.

Step 13   Reconfigure the Ethernet ports, Fibre Channel ports, or unified ports.

a) If you have changed port mappings for direct-attach rack server, reacknowledge the server.

b) It is recommended to reacknowledge the IOM or FEX.

Note   You should login directly to the new Cisco UCS 6454 Fabric Interconnect GUI to configure the unified ports during the migration.

Step 14   Verify that the data path is ready.

For more information, see the *Verifying that Dynamic vNICs Are Up and Running* section in the *Guidelines and Prerequisites* chapter of the Cisco UCS Manager Firmware Management Guide.

Ensure that all faults are resolved before proceeding with next step.

a) Verify, and if necessary, reconfigure the SAN pin group for Fibre Channel ports in the associated service profile.

b) Verify, and if necessary, reconfigure the LAN pin group for Ethernet ports in the associated service profile.

c) Verify, and if necessary, reconfigure the port channel for uplink Ethernet ports.

Step 15   Move the traffic back to the new subordinate fabric interconnect. If you used the fabric evacuation method, then deselect fabric evacuation. If you disabled the uplinks (Ethernet and Fibre Channel), then reenable the uplinks. Verify that traffic is flowing correctly on the new subordinate fabric interconnect.

Step 16   After verifying that traffic is flowing on the subordinate fabric interconnect, promote the subordinate fabric interconnect to primary using the below commands:

• UCS-A #connect local-mgmt: This command connects to the local management interface of the cluster.

• UCS-A (local-mgmt) #cluster{lead {a|b}} or UCS-A (local-mgmt) #cluster{force primary{a|b}}: The cluster lead command and cluster force primary command are two separate commands that can be used for promoting the fabric interconnect.

Note   Ensure that the primary fabric interconnect is Cisco UCS 64108 fabric interconnect.

Step 17 Cable the second new fabric interconnect identically to the first and repeat the steps for the other fabric interconnect replacement to complete the migration.