Replace OLT-C with E-OLT-C Card on Cisco NCS 1010

Use this section to plan, execute, and verify the replacement while preserving circuit state and alarms.

Scope

The procedure covers prechecks, actions during the maintenance window, and postcheck validation using the Cisco IOS XR command-line interface (XR CLI), Cisco Optical Site Manager (COSM) UI, and Cisco Optical Network Controller (CONC) UI.

OLT-C with E-OLT-C replacement

The OLT-C to E-OLT-C replacement activity is a planned maintenance procedure that replaces an optical line terminal controller (OLT-C) line card with an enhanced optical line terminal controller (E-OLT-C) line card in a Cisco NCS1010 chassis.

A OLT-C to E-OLT-C replacement is a planned maintenance procedure that

- requires a maintenance window and coordinated traffic impact planning,
- uses Cisco Optical Site Manager (COSM) and Cisco Optical Network Controller (CONC) to manage configuration and circuit state, and
- restores circuits, alarms, and synchronization to the precheck state after the swap.

Audience and outcomes

This procedure is for operations teams performing line card replacements on production nodes.

Typical steps in the process include:

- Collecting precheck logs and configuration baselines,

- Replacing the line card and reapplying configuration, and
- Verifying postchecks and resolving any deviations.

Requirements and limitations of OLT-C with E-OLT-C replacement

Use this reference to confirm readiness and understand constraints for the maintenance activity.

Prerequisites

- SSH access to the target node is required.
- Session logging must be enabled for all XR CLI activity.
- An approved maintenance window for any traffic-affecting work is mandatory.
- Be aware that moving patch cords and fibers can cause service interruptions on circuits connected to the target line card.

Target nodes and duration

- Target nodes: Any node where an OLT-C to E-OLT-C swap is planned.
- Proposed duration: Up to four hours.

Current limitations

- The replacement can trigger an unexpected degree mismatch alarm unless expected remote configuration is removed during prechecks.
- You must follow all mandatory deletion and pre-provisioning steps to avoid unexpected alarms.

How to replace OLT-C with E-OLT-C card

Use this workflow to coordinate prechecks, perform maintenance window actions, and conduct postcheck validation.

Summary

Replacing OLT-C with E-OLT-C cards requires coordinated action between operations engineering and management systems to ensure minimal disruption and accurate restoration of service.

The key components involved in the process are:

- **Operations engineer**: Executes CLI, UI, and physical replacement steps throughout the maintenance workflow.
- **Cisco Optical Site Manager (COSM) and Cisco Optical Network Controller (CONC)**: Manage inventory, configuration, and circuit state required during the replacement and validation.

- **Cisco IOS XR CLI**: Validates chassis status and monitors alarms before and after the replacement.

Workflow

The process involves these stages:

1. **Prechecks and baseline capture**: The operations engineer collects logs, exports configurations, and captures labeling information to preserve the system state before any changes.
2. **Replacement execution**: The operations engineer removes the expected remote configuration, deletes circuits and degrees, removes the OLT-C card, installs the E-OLT-C card, and completes insertion and cabling with support from COSM/CONC.
3. **Postcheck validation**: The operations engineer restores required configuration, uses COSM/CONC to verify correct circuit and system status, and validates alarms, circuit restoration, and synchronization via the CLI and management tools.

Result

The OLT-C card is successfully replaced with an E-OLT-C card. All critical inventory, configuration, and circuit states are restored, and the system is validated to ensure proper operation and alarm clearance following the replacement.

Collect baseline logs and exports before maintenance

Collect key logs and exports before performing any planned maintenance or network changes.

Performing these steps before a scheduled maintenance window provides a known good reference for troubleshooting, ensures compliance, and enables successful change validation.

Before you begin

- Schedule the upcoming maintenance window.
- Ensure a storage location is available for log files and exports.
- Confirm SSH access to the target node.
- Confirm access to the Cisco Optical Site Manager (COSM) and Cisco Optical Network Controller (CONC) user interfaces.

Procedure

Step 1 Open an SSH session to the target NCS1010 chassis and start logging the session output.

Store the log file on an external system to ensure its preservation.

Step 2 Collect a full technical snapshot from the chassis.

Example:

```
show tech ncs1010 detail
```

Copy the output off the node.

Step 3 Clear the trustpool entries to avoid extended recovery during any future reloads.

Example:

```
crypto ca trustpool import url clean
crypto ca trustpool import url
```

Step 4 In COSM UI, remove the expected remote configuration for the target degrees and adjacent nodes.

Step 5 Download COSM data and exports for baseline comparison.

- Download the COSM database and diagnostics.
- Download node configuration XML from Optical setup.
- Export inventory, alarms, and the OXC list.

Step 6 Label all patch cords and fibers connected to the target OLT-C card.

Step 7 In the CONC UI, export the circuits traversing the target OLT-C card and record their lifecycle and service states.

Export the current alarms for comparison during post checks.

You have a complete set of pre-maintenance logs and exports. These serve as a baseline for verifying the success of your maintenance activities and facilitate troubleshooting if issues arise afterward.

What to do next

Review all the collected files and exported data to confirm completeness and accessibility before beginning the maintenance window.

Replace the OLT-C line card with an E-OLT-C line card

Swap a legacy OLT-C line card for a newer E-OLT-C line card in your device to support enhanced features and ensure hardware compatibility.

This procedure is performed during scheduled maintenance to minimize network disruption and ensure a smooth transition to the upgraded line card.

Procedure

Step 1 Delete all circuits using the target OLT-C card in the Cisco Optical Network Controller (CONC) UI, and wait for the changes to complete.

Step 2 In Cisco Optical Site Manager (COSM), delete the target IPC and degree configurations associated with the target OLT-C card in the Optical setup window.

Step 3 In the COSM topology window, delete the OLT-C module while it is still physically installed. This step is mandatory.

Step 4 Remove all patch cords and fibers connected to the OLT-C module. Then, physically remove the OLT-C line card from the chassis.

Step 5 Pre-provision the replacement E-OLT-C module in the COSM Web UI before physically inserting the card. This step is mandatory.

Step 6 Insert the E-OLT-C line card into the chassis. Wait for the card to finish booting.

Step 7 On the IOS XR system, verify that no unexpected alarms exist and then reconnect the patch cords and fibers to the correct ports on the new module.

Step 8 Restore the IPC and degree configuration. In the CONC UI, confirm that COSM is connected. Perform a resync action from CONC on the node where the replacement was completed.

Step 9 Recreate all the previously deleted circuits in the CONC UI.

The E-OLT-C line card is successfully installed and configured. All relevant circuits and configurations are restored, and normal operation resumes.

Verify node status after replacement

Ensure system integrity and successful hardware replacement by confirming the node returns to its expected state.

After replacing node hardware, confirm that all system states, alarms, and device synchronization align with the pre-replacement baseline.

Procedure

Step 1 Check system traffic and alarms for unexpected conditions.

Step 2 Verify field-programmable device (FPD) status and upgrade FPDs if required.

Example:

```
fpd upgrade
```

Step 3 In Cisco Optical Site Manager (COSM) UI, confirm that devices show sync as completed and that alarms and OXCs match the precheck state.

Step 4 In Cisco Optical Network Controller (CONC) UI, export circuits and alarms, and confirm that their lifecycle and service states match the precheck baseline.

Step 5 If issues persist, collect diagnostics for escalation.

- Run the **show tech ncs1010 detail** command.
- Gather COSM diagnostics from the Web UI.
- Archive logs by running the **sudo sedo diagnostics archive-logs /tmp** command.

  If using CONC R26.1.1 and later, collect logs through the UI: Navigate to **CONC** > **Logs** > **Tech Dump** > **Collect** > **Download**.

If the node status matches the precheck baseline, the replacement was successful and system integrity is ensured. If issues are identified, diagnostics are available for escalation.