

Packet Tracer Lab 8

Data Center Link Degradation

Incident ID: INC-1008

Difficulty

Intermediate

Estimated Time

20–40 Minutes

Skills Covered

- EtherChannel Verification
- LACP Troubleshooting
- Link Redundancy Validation
- Switch Configuration Review
- Layer 2 Troubleshooting Methodology
- Operational Verification

Scenario

Following scheduled network maintenance performed earlier in the day, the network engineering team identified that redundancy between the Core and Distribution layer switches has been lost.

No widespread outages have been reported, and users are currently able to access company resources. However, the environment is no longer operating with its intended level of resilience.

You have been assigned to investigate the issue, restore full link redundancy, and verify that the EtherChannel is functioning correctly.

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Customer Report

Reported By: Network Engineering

Users Affected: None currently reporting connectivity issues

Business Impact: Network services remain available, but redundancy between critical switching infrastructure has been lost.

Issue Started: Shortly after scheduled network maintenance.

Priority: Medium

Goal

- Identify the cause of the EtherChannel issue
- Restore full link redundancy
- Validate EtherChannel health
- Verify normal network functionality
- Document your findings

Environment

The lab environment includes:

- Core Switch
- Distribution Switch
- Multiple Access Switches
- Application Server
- Multiple Department Workstations
- Layer 2 Trunk Links
- EtherChannel (LACP)

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Known Variables

- Users are currently able to reach internal company resources.
- DNS resolution should function normally.
- Routing is functioning correctly.
- The issue is isolated to switching infrastructure.
- Follow a structured troubleshooting methodology rather than assuming the root cause.

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Is connectivity currently affected?
- Is the EtherChannel healthy?
- Are all expected member interfaces participating?
- Are interface configurations consistent?
- Has redundancy been fully restored?

Focus on understanding *why* the EtherChannel is unhealthy before making configuration changes.

Expected Outcome

By the end of this lab, users should successfully restore full EtherChannel redundancy between the Core and Distribution switches.

Users should also be able to explain the troubleshooting process used to identify and resolve the issue.

Optional BridgeOpsOne Workflow

This section is optional but recommended for users who want a more realistic operations-center experience.

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1. Create an Initial Update

Create an internal operational update describing the reported loss of network redundancy.

Example topics:

- Scheduled maintenance completed
 - Redundancy issue identified
 - Investigation underway
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2. Save Timeline Updates

Provide 2–3 operational updates describing:

- Investigation progress
- Findings
- Validation performed

Add these updates to your incident timeline within the Command Center.

Keep updates:

- Professional
 - Concise
 - Operationally focused
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3. Create a Final Resolution Statement

Once redundancy has been restored, create a final operational update summarizing:

- Root cause
- Corrective actions
- Current EtherChannel status
- Validation completed

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Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Network Operations Centers (NOC)
- Enterprise Network Engineering
- Data Center Operations
- Infrastructure Support Teams

The purpose of this lab is to help develop:

- Layer 2 troubleshooting skills
- Structured thinking
- Operational communication
- Configuration validation
- Infrastructure awareness

Deliverables

At the conclusion of this lab, users should be able to:

- Explain the issue
- Describe the troubleshooting methodology
- Restore EtherChannel redundancy
- Validate the repair
- Communicate findings clearly

Hints

If you become stuck during troubleshooting, consider the following:

- Verify network connectivity before assuming an outage.
- Review EtherChannel status.

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- Compare member interface configurations.
- Verify interface operational status.
- Validate the repair after configuration changes.
- Avoid guessing. Follow a structured troubleshooting process.