

Packet Tracer Lab 17

Remote Site Connectivity Investigation

Incident ID: INC-1017

Difficulty

Advanced

Estimated Time

30–45 Minutes

Skills Covered

- GRE Tunnel Troubleshooting
- Static Route Verification
- End-to-End Connectivity Testing
- WAN Troubleshooting
- Tunnel Configuration Validation
- Structured Troubleshooting Methodology
- Operational Validation

Scenario

Following scheduled overnight network maintenance, employees at a remote branch office have reported they are unable to access internal corporate resources.

Users can successfully communicate with devices on their local network, but all attempts to access headquarters resources—including internal servers and business applications—are unsuccessful.

Headquarters personnel have also reported they are unable to communicate with systems located at the remote office.

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You have been assigned to investigate the issue, restore connectivity between both sites, and validate that normal business operations have been restored.

Customer Report

Reported By: Remote Operations Manager

Users Affected: All Remote Office Users

Business Impact: Users at the remote office cannot access internal corporate resources including the BridgeOpsOne Portal and internal DNS services. Headquarters users are also unable to communicate with remote office systems.

Issue Started: Shortly after scheduled network maintenance.

Priority: High

Goal

- Identify the cause of the connectivity failure.
- Restore communication between headquarters and the remote office.
- Validate connectivity to internal corporate resources.
- Verify bidirectional communication between both sites.
- Document your findings.

Environment

The lab environment includes:

- Headquarters Core Switch
- Headquarters Router
- Edge Router
- ISP Router
- Remote Office Router
- Remote Office Switch
- HR Workstation
- Operations Workstation
- Remote Office Workstation

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- Internal DNS/Application Server
- Public Web Server
- GRE Tunnel Between Headquarters and Remote Office

Known Variables

- Local network connectivity remains operational at both locations.
- Internet connectivity is functioning normally and public internet connectivity remains available.
- Internal corporate resources are unreachable from the remote office.
- Headquarters users cannot communicate with remote office devices.
- Follow a structured troubleshooting methodology before making configuration changes.

Troubleshooting Mindset

During troubleshooting, think through the following questions:

- Is local connectivity functioning correctly?
- Can users reach their default gateways?
- Is the issue isolated to communication between sites?
- Are static routes configured correctly?
- Is the tunnel configuration accurate?
- Have recent configuration changes impacted WAN connectivity?

Focus on identifying where communication stops instead of immediately assuming the root cause.

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Expected Outcome

By the end of this lab, users should successfully restore communication between headquarters and the remote office.

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

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Optional BridgeOpsOne Workflow

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

1. Create an Initial Update

Create a customer-safe update describing:

- Remote office connectivity loss
 - Internal resources unavailable
 - Investigation underway
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2. Save Timeline Updates

Provide 2–3 operational updates describing:

- Investigation progress
- Validation performed
- Findings

Add updates to your Command Center timeline.

3. Create a Final Resolution Statement

Summarize:

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

Real-World Relevance

This issue simulates realistic troubleshooting commonly encountered in:

- Network Operations Centers (NOC)
- Enterprise WAN Operations

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- MSP Network Support
- Enterprise IT
- Network Engineering

The purpose of this lab is to develop:

- WAN troubleshooting skills
- GRE tunnel validation
- Structured operational thinking
- Infrastructure validation
- Operational communication

Deliverables

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

- Explain the issue.
- Describe the troubleshooting methodology.
- Restore communication between both sites.
- Validate connectivity to internal corporate resources.
- Demonstrate successful end-to-end communication.
- Communicate findings clearly.

Hints

If you become stuck during troubleshooting, consider the following:

- Verify local connectivity before assuming a complete WAN outage.
- Determine whether the issue affects local or remote communication.
- Compare successful local communication with failed remote communication.
- Verify routing between both locations.
- Review tunnel configuration carefully.
- Validate recent infrastructure changes.
- Follow a structured troubleshooting methodology instead of guessing.