



Lab 7.1.2 Correcting Problems at the Transport and Application Layers

Objective

Complete the laboratory exercise by correcting the problems you isolated in the previous case study.

In this exercise, you will use various Cisco commands to correct network problems.

The steps include:

- Implement the plan you developed during the case study
- Verify the data flow in the network matches your network baseline

Scenario

After management realized the error of their ways and ordered we move the core routing protocol back to OSPF, you did as you were asked and finished cleaning up the migration mess this morning. The network now is running smoothly with OSPF in the core.

Andrew, the co-op student, asks your boss, Mike, if he can make a baseline of the Acme network for his networking class. Mike tells him this is okay, as long as the passwords are removed from the configurations before he brings them to class.

You went out to Broadway Pizza for lunch with the rest of the Level 2 team. You ordered a sausage roll. Then you receive a page:

"911. Ntwrk dn. Pls rtn. Adrw"

Network done? Network down? Anyway, you ask for your order to go, and drive back to the office.

"What did you do?" you ask Andrew.

"Well, I was just running some `show` commands to get a baseline for my class," he starts. "And I was starting to disguise the corporate passwords. And then Mike stopped by and asked me to implement OSPF authentication strictly in the core."

"Ok, then what?" you ask as you eat the last bite of your sausage roll.

"Well, I jumped right into the OSPF authentication implementation. While I was configuring OSPF, I tested a way to optimize the traffic throughout the network with our routing policy," Andrew stammered. "But then I found I couldn't reach the Internet from the core switch, so I backed out the optimizations."

Andrew continued, "Then MIS called, and said the users couldn't use TFTP to connect to the CCNP4 server. They asked me to check the DHCP configuration. It looked okay to me. Do we have a TFTP application running on the CCNP4 server?"

"No," you respond, "we do not."

"So I then tried to connect to the access router, but I couldn't get in. I asked the network administrators to reboot the network devices," Andrew said. "They did, but I think they first saved my changes. Then MIS and network operations really started calling because the users can't access anything on the Internet or on our corporate server."

Andrew adds, "I did try to back out my changes, but it is hard to concentrate with all those people yelling at me. I couldn't even log into most of the network devices."

He concludes, "So I sent you a page saying the network was down, and I hoped you would return soon."

You need to isolate the causes of each of the problems, develop a plan for resolving them, and implement the plan.

Required Resources

These are the resources and equipment required to complete this exercise:

- A network baseline documenting the laboratory installation
- A troubleshooting log listing isolated physical or data link problems
- An implementation plan for correcting documented physical and data link layer problems

Command List

As you work through the case study, you may find the following list of commands helpful. The list includes router, switch, and PC commands. The commands used in this exercise should be familiar to you from previous experience or from the Cisco BSCI, BCMSN, and BCRAN courses.

Table 7: Helpful Commands

| Command | Description |
|--|---|
| arp -a | Displays ARP information |
| debug ip dhcp server | Displays DHCP Server debugging |
| debug ip eigrp | Enables debugging of EIGRP events |
| debug ip ospf adj | Enables debugging of OSPF adjacencies |
| debug ip policy | Enables debugging of the IP policy |
| debug ip routing | Enables debugging of IP routing events |
| ipconfig /all | Display IP information for the PC |
| ping {host address} | Pings an IP address |
| route print | Display active routes for the PC |
| show access-lists | Displays access list information |
| show ip bgp | Displays entries in the BGP routing table |
| show ip bgp summary | Shows summary BGP status |
| show ip dhcp binding | Displays address bindings on the DHCP server |
| show ip dhcp server statistics | Displays DHCP server statistics |
| show ip interface brief | Display brief form of interface information |
| show ip policy | Displays which route map is associated with which interface |
| show ip protocol interface | Displays interface information for a protocol. |
| show ip protocol neighbor | Displays information about neighbors for a specific routing protocol. |
| show ip protocols | Displays routing protocol status |
| show ip route | Displays IP routing table information |
| show route-map | Displays route map information |
| show spanning-tree vlan vlan-id | Displays Spanning Tree Protocol information including port status for a specific VLAN |
| show vlan vlan-id | Displays default and defined VLAN information |
| telnet {host ip-address} | Connects to an IP address via the Telnet application |
| tracert {destination} | Runs trace to an IP address |
| tracert {ip-address} | Runs trace from a PC to an IP address |

Step 1

Connect to the workgroup devices as needed.

Step 2

Carry out your troubleshooting implementation plan to correct all network problems.

Step 3

Verify the network data flows match the network baseline and you have not introduced any new problems into the network.

Step 4

1. Do your network data flows match the network baseline? _____
2. Can you use Telnet to connect to the host named Cisco (simulated on ISP)? _____
3. Can you ping the host named ISP? _____
4. Can you browse the web files on CCNP_Server? _____
5. Can you use Telnet to connect to CCNP_Server from your PC? _____
6. Can you FTP a file from CCNP_Server to your PC? _____