CISCO

7.2.5 Validating the IP Addressing Scheme Test Plan

	Start Date	End Date
Network Build (Setup)		
Testing Date		

Table of Contents

Attendees

Name	Company	Position

Introduction

An introduction to the testing explaining briefly what the purpose of the test is, and what should be observed. Include a brief description of testing goals. List all tests you intend to run.

The purpose of this test plan is to validate the IP addressing scheme and to examine the content of the core routing tables and test schemes to reduce the number of entries. This prototype network is used to test various aspects of the proposed design.

- Test 1: Validating the IP Addressing Scheme Test

    - Verify the IP address scheme and that all devices are fully reachable.

   - Examine ways to reduce the size of the core routing tables by using route summarization.

Equipment

List all of the equipment needed to perform the tests. Be sure to include cables, optional connectors or components, and software.

Qty. Req	Model	Any additional options or software required	Substitute	IOS Software Rev.
4	2960 Layer 2 switch	none	Any 2950 or 2960 model switch	12.2 or above
4	1841 ISR routers with 2 FastEthernet ports and 2 Serial ports	none	Any multilayer switch or router with minimum 2 FastEthernet ports and one serial port.	12.2 or above
2	Personal Computer end-devices	FastEthernet NIC	At least one PC and any other IP end-device (camera, printer, etc.)	Windows, MAC or Linux operating system.
1	Personal Computer Server	FastEthernet NIC	Any PC with web server software loaded	Windows, MAC, or Linux operating system
6	Cat 5 or above straight-through patch cables.	none	none	n/a
1	Cat 5 or above cross-over patch cables	none	none	n/a
3	V.35 DTE Serial Cables	None	None	n/a
3	V.35 DCE Serial Cables	None	None	n/a

Design and Topology Diagram

Place a copy of the prototype network topology in this section. This is the network as it should be built to be able to perform the required tests. If this topology duplicates a section of the actual network, include a reference topology showing the location within the existing or planned network. Initial configurations for each device must be included in the Appendix.
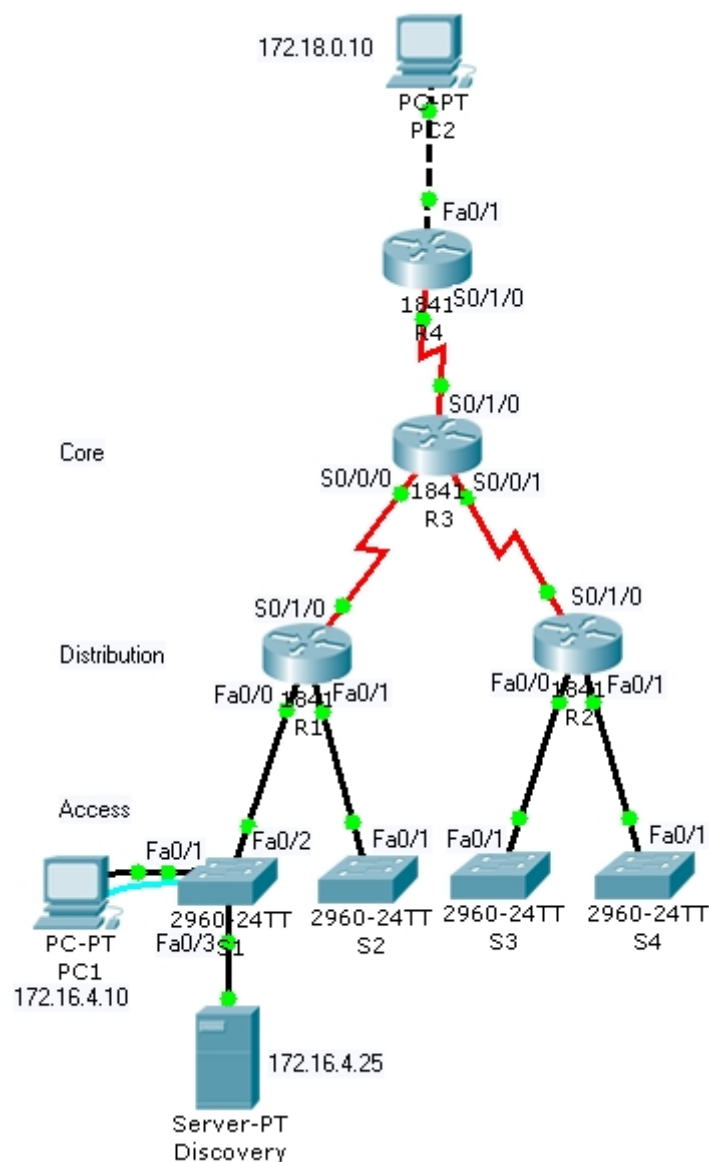
Device Designation	Interface	IP Address	Subnet mask
R1	Fa0/0	172.16.4.1	255.255.255.0
R1	Fa0/1	172.15.5.1	255.255.255.0
R1	S0/1/0	192.168.1.1	255.255.255.0
R2	Fa0/0	172.17.6.1	255.255.255.0
R2	Fa0/1	172.17.7.1	255.255.255.0

R2	S0/1/0	192.168.2.1	255.255.255.0
R3	S0/0/0	192.168.1.2	255.255.255.0
R3	S0/0/1	192.168.2.2	255.255.255.0
R3	S0/1/0	192.168.0.1	255.255.255.0
R4	Fa0/0	172.18.0.1	255.255.0.0
R4	S0/1/0	192.168.0.2	255.255.255.0
S1	VLAN1	172.16.4.3	255.255.255. 0
S2	VLAN1	172.16.5.2	255.255.255. 0
S3	VLAN1	172.17.6.2	255.255.255. 0
S4	VLAN1	172.17.7.2	255.255.255.0
PC1		172.18.4.10	255.255.255.0
PC2		172.18.0.10	255.255.0.0
Discovery Server		172.18.4.25	255.255.255.0

Figure 1: Topology - Prototype test topology.

Add a description about this design here that is essential to provide a better understanding of the testing or to emphasize any aspect of the test network to the reader.

For each test to be performed state the goals of the test, the data to record during the test, and the estimated time to perform the test.

Test 1. Description: Validating the IP Addressing Scheme Test

Goals of Test:
The goal of the test is to verify the IP addressing scheme and summarize routes to reduce the size of the core routing tables.

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Data to Record:
Configurations
Routing Tables CPU & Memory Ping Test Output Trace Route Output

Estimated Time:
120 minutes

Test 1. Procedures:

Itemize the procedures to follow to perform the test.

Step 1: Verify the configuration and operation of EIGRP.

1. Console into one of the devices in the topology and ping all of the other devices in the topology. Record any anomalies.
2. Telnet to router R1 and examine the `show running-config`, and `show ip route` output. Copy and paste the results into a document for later use.
3. Telnet to all of the other routers and get the same information.
4. Use the `tracert` between PC1 and PC2 to verify the path that the traffic is taking through the network.
5. Verify EIGRP configuration using `show ip protocols, show ip eigrp topology`, and `show ip eigrp interfaces`.
6. Record the results of this step in the Test1: Results and Conclusions section of this test plan.

Step 2: Configure the routers to allow automatic summarization.

1. Telnet to every router.

2. On each router, enter router configuration mode by issuing the command `router eigrp 1`.

3. Enter the command `auto-summary` to allow automatic summarization.

4. Exit configuration mode and save the running configuration.

5. Click the **Power Cycle Devices** button on the lower task bar to force the network to reconverge.

Step 3: Verify the configuration and operation of EIGRP for the summarized network.

1. Start a log file and record the `show running-config`, and `show ip route` output.
2. Telnet to router R1 and examine the `show running-config`, and `show ip route` output. Copy and paste the results into a document for later use.
3. Use the `tracert` between PC1 and PC2 to verify the path that the traffic is taking through the network.
4. On the routers, verify EIGRP configuration using `show ip protocols, show ip eigrp topology`, and `show ip eigrp interfaces`.
5. Record the results of this step in the Test1: Results and Conclusions section of this test plan.

Test 1. Expected Results and Success Criteria:

List all of the expected results. Specific criteria that must be met for the test to be considered a success should be listed. An example of specific criteria is: "A requirement that ping response times cannot exceed 100 ms."

1. All devices in the network should be reachable in both configurations.

2. With automatic summarization enabled, the size of the routing tables on the core router should be reduced.

Test 1. Results and Conclusions

Record the results of the tests and the conclusions that can be drawn from the results.

Appendix

Record the starting configurations, any modifications, log file or command output, and any other relevant documentation.