Objective

In this set of exercises you will learn how the lab network is connected to the university campus network by examining different components that are part of this connection.

1. VLANs and Campus Connectivity

Objective

Examine the Catalyst 5500 switch and its Route Switch Module (RSM) to learn about the lab connection configuration.

Preparation

The Catalyst 5500 switch has a module with 24 RJ45 Ethernet connectors. Each of these can be associated with a Virtual LAN by an appropriate configuration. In our case, there are two LANs –one is used for the 10.0.100.0/24 network (on which the routers are connected) and the other is used for the university campus connection.

In the first part of this exercise you will be asked to examine the Catalyst configuration and find out to which ports the campus network cable can be connected.

In the second part of this exercise you will be asked to examine the RSM configuration and find out what is the ip address of the campus connection interface and what is the default gateway for the respective subnet.

Procedure

- 1. Perform the following steps, answering the relevant questions at the end of each step. The questions are immediately after the Procedure section.
- 2. Connect to the Catalyst 5500 switch with telnet:

telnet 10.0.100.254

3. Find the module number of the 10/100BaseTX Ethernet module with the following command (it is the first number in the corresponding row):

Console> show module

4. Find what VLANs are associated with the Ethernet module's ports. Use the following command:

Console> show vlan

- 5. The associations are on the last column, and are displayed as "modulenumber/firstport-lastport" where the first number is the module number of the Ethernet module.
- 6. Disconnect from the Catalyst 5500 and connect to the RSM with the following command:

telnet 10.0.100.100

7. Examine the configuration (use "show config" *) of the RSM to find the ip addresses of interfaces Vlan1 and Vlan2 and the default gateway for Vlan2.

* More than one user cannot open configuration file on RSM simultaneously. After you open the file using "show config", please go to the end of the configuration, and allow others to access. You can always use scroll bar to browse the whole content even when you are not holding the file.

Questions

- 1. What are the module numbers of the 10/100BaseTX Ethernet module on the Catalyst 5500 switch?
- 2. What are the names of VLANs that associated with the 10/100BaseTX Module?
- 3. Which ports on the 10/100BaseTX Ethernet module are associated with the campus118 VLAN?
- 4. What are the ip addresses of the Vlan1 and Vlan2 interfaces on the RSM?
- 5. What is the next hop for packets going toVlan2 subnet?

2. Network and Port Address Translation

Objective

Learn about Network Address Translation (NAT) and Port Address Translation (PAT) and how they are used in the current lab configuration.

Preparation

The concepts of NAT and PAT are well explained in "Cisco IOS Network Address Translation", Product Bulletin-No:1195. The bulletin is available online from

http://www.cisco.com. Please, read the bulletin and make sure you understand the NAT and PAT concepts.

Procedure

- 1. Connect to the RSM with telnet and examine the running configuration.
- 2. Answer the following questions:

Questions

- 1. What are the names and ip addresses for "inside" and "outside" interfaces used on the RSM?
- 2. Which ip addresses on the inside have a static Network Address Translation and what are the corresponding outside ip addresses?
- 3. Which ip addresses from the inside are subject to Port Address Translation?
- 4. If a computer from inside sends a packet to a computer from outside, what will be the possible values of the source ip address as seen from the computer on the outside?