Wired base-config for wireless labs

August 20, 2018

Introduction

This lab will create a wired environment with the services needed for the wireless labs later in this course. The final stages in this lab describes how the configuration can be saved on your computer, so that it can be loaded later.

The lab is building a simple wired network, and is thus a good exercise to get "up to speed" again with the technical skills from IMT2006.

Required infrastructure for the lab are:

- A router (ex. Cisco 2901)

- A switch (ex. Cisco Catalyst 2960)

Passwords

Use only username/password cisco/cisco on all equipment, and remember to clear the configuration when done!

1 Physical connections

Add the following cables to your lab:

- Router g0/0 - The NTNU Network

- Router g0/1 - Switch g0/1

2 Switch configuration

Boot the switch, set VTP to transparent mode, and create 5 VLAN's:

- VLAN 11: Management

- VLAN 12: Staff

- VLAN 13: Guests

- VLAN 21: AP1

- VLAN 22: AP2

Assign the following switchport configuration to the ports:

- fa0/1 - 6: Access vlan 11

- fa0/7 - 8: Trunk VLAN 11,12,13

- fa0/9 - 12: Access vlan 12

- fa0/13 - 16: Access vlan 13

- fa0/17 - 20: Access vlan 21

- fa0/21 - 24: Access vlan 22

- g0/1 - 2: Trunk VLAN 11,12,13,21,22

Give the switch an IP address in vlan 11. (Pick addresses from the plan you create later in this task.)

3 Router configuration

The router should be configured to route traffic between the VLANS, and to route traffic to NTNU networks and the internet.

- Create an addressing scheme. Each VLAN needs their own subnet. You are free to select addresses as you like, but it is probably smart to use something within 192.168.0.0/16 or 172.16.0.0/12 to avoid overlap with other NTNU resources.

- Create a sub interface on g0/1 for each VLAN, and give each sub interface an address in the subnet for that VLAN.

- Configure g0/0 to get an IP over DHCP, and verify that it can receive an address.

- Configure NAT. Allow all traffic from the VLAN's at g0/1 to pass trough NAT on its way to the internet.

- Configure a DHCP server on all the 5 VLANs. But leave some addresses in each VLAN for static assignments.

  - Use 129.241.0.200 and 129.241.0.201 for DNS

- Test that a client can receive an IP address from each of the VLAN's, and that outside access works.

  - Connect a computer to a accessport in the VLAN you want to test, and see if it receives an IP address. Can it now ping the world?

4 Save the configuration

Connect a client to one of the VLAN's, and verify that it can ping both the router and the switch.

Start a TFTP server (in windows, use tftpd32/tftpd64) on the client. Log in to the router and type:

```
copy run tftp://<ip-of-your-client>/router.txt
```

This should create a copy of the running configuration of the router on your computer. Do the same for the switch; and verify that the configuration is there.

Erase config on all the equipment, reload it, give it basic IP configuration and copy the configuration back.