INFO-6047: Lab-12 – CDP & NAT
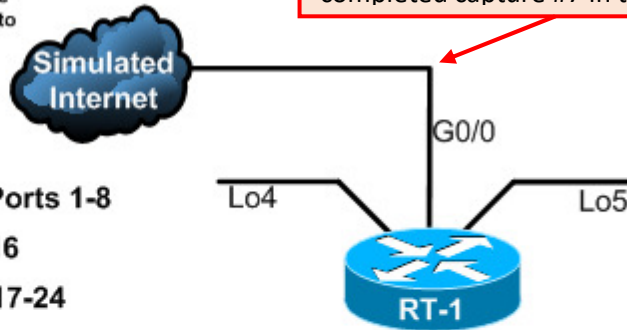
Topology

Do Not plug in this cable until you have completed capture #7 in this lab!

For the on-line user, in Packet Tracer use the Wireless Router WRT300N (connect to 1 of the Ethernet Ports)

For the in-house users we will plug into the Fanshawe network.

Simulated Internet

G0/0

Lo4

Lo5

RT-1

Except for any special ports

Vlan 10 - Workstations – Ports 1-8

Vlan 20 - Voice – Ports 9-16

Vlan 30 - Servers – Ports 17-24

Vlan 99 - Mgmt

SWM-1
3560 L3

```
SW-2#sh cdp nei
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme   Capability   Platform   Port ID
SWM-1        Fas 0/24        142                     3560       Fas 0/24
------------------------------------------------------------------------
SWM-1#sh cdp nei
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme   Capability   Platform   Port ID
RT-1         Fas 0/23        120       R             C2900      Gig 0/1
SW-2         Fas 0/24        147       S             2960       Fas 0/24
------------------------------------------------------------------------
RT-1#sh cdp nei
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme   Capability   Platform   Port ID
SWM-1        Gig 0/1         168                     3560       Fas 0/23
```

SW-2
2960 L2

PC-A → To vlan 10 to start
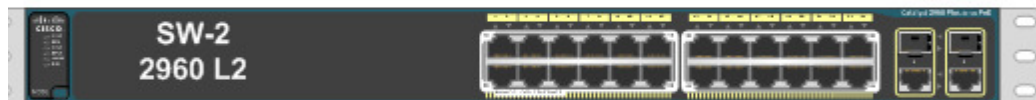
Note:

1) Router RT-1 in the topology above is a 2901 router (standard out of the box) with 2, x 1Gig ethernet ports.
2) Switch SWM-1 is a 3560 L3 switch
3) Switch SW-2 is a 2960 L2 switch.
4) For the In-House students, you will be working on your own this week. (You can talk, help and work with each other, BUT you must build your own topology).
5) For the On-Line students, you will have to build the lab in Packet Tracer.

FANSHAWE

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IPV4 Addressing Table

Device	Interface	IP Adress	Subnet Mask	Vlan Names
RT-1	G0/0	**DHCP**		
		172.17.1.26	**/30**	
	Lo4	**172.16.40.1**	**/24**	
	Lo5	**172.16.50.1**	**/24**	
SW-1	Vlan 10	**172.16.10.254**	**/24**	Workstations
	Vlan 20	**172.16.20.254**	**/24**	Voice
	Vlan 30	**172.16.30.254**	**/24**	Server
	Vlan 99	**172.16.99.254**	**/24**	Mgmt
		172.17.1.25	**/30**	
		Trunk		
SW-2		**Trunk**		
	Vlan 10			Workstations
	Vlan 20			Voice
	Vlan 30			Server
	Vlan 99	**172.16.99.253**	**/24**	Mgmt
PC-A		DHCP		

Part 1: Finish the topology

You will find above the half-finished topology and mostly finished addressing table.

   a) Read through the CDP information between the two switches on the first page and draw in the rest of the topology details.
   b) Fill in the green squares on the addressing table
   c) Put the correct addresses on the topology for your use.

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Part 2: Initial Setup

Please make sure the routers and switches are clean before you begin doing any configuration!

Configure each router and switch with the following:

Basic system config:

a)   The time set on your devices (both the clock and the time zone).
b)   Set the hostname
c)   Set the enable password to "class".
d)   Encrypt all passwords.
e)   Disable domain name lookup.
f)   Setup a banner.
g)   Set the console and vty password to "cisco".
h)   Setup synchronous logging on the console port.
i)   Enable telnet and ssh on the vty ports

(PowerPoint – Capture 1)

Specific config for the devices:

j)   Setup the IP addressing on the ports of the devices according to the "Addressing Table".
k)   Setup the vlans on both switches.
l)   Set all unused ports on both switches to vlan 99 and shut the **ports** down.
m)   Setup the trunk ports on each switch

As in the past few weeks there are configuration files on FOL that will do the basic parts up to this point

n)   Setup the port that connects to the router(RT-1) on SW-1 as a routable port (Don't forget the special conditions needed to do this on a layer 3 switch).
o)   Setup DHCP on for VLANs 10, 20, and 30. on **RT-1**   → there maybe other things you have to do to get DHCP to work correctly!
   a.   DHCP scope name will be the same as the vlan name
   b.   With the appropriate IP addresses for that vlan
   c.   Exclude addresses 50-254
   d.   Default Gateway is the address for the vlan on SW-1
   e.   DNS entries for Fanshawe's internal IPV4 DNS   (on-line users, use Googles DNS server address)
   f.   Domain name of Fanshawe.local   (on-line users, this command may not be supported)
p)   Setup the OSPF routing to work on the devices according to the "Addressing Table" on SW-1 and RT-1.
   a.   Process ID of 10
   b.   Area of 52
   c.   Router ID
      i.   SWM-1 will be 1.1.1.1
      ii.   RT-1 will be 2.2.2.2

Note:
   d.   You **MUST** setup the link to the Simulated Internet as a passive connection(G0/0).
   e.   Because we are needing to be anonymous from the Fanshawe network (not part of the Fanshawe routing schema and behind a NAT interface.) we must setup a default route on RT-1 that sends unknown destination packets out the G0/0 interface. (Gateway of last resort)
   f.   The route created in "e" above needs to be propagated with our OSPF network to the other devices that do routing on our internal network.

(PowerPoint – Capture 2)

At this point in the configuration, you should be able to from PC-A ping the default gateway of PC-A (SW-1) and the local loopback interfaces on RT-1 (Lo4, Lo5).

If you can not do the pings requested, **DO NOT GO ON WITH THE LAB!**

You must complete steps "a)" through "p)" and all the sub steps in each, and be able to do the pings above before moving on with the lab.

(PowerPoint – Capture 3, 4, &5)

(PowerPoint – Capture 6)

(PowerPoint – Capture 7)

Call on the professor to show them that you have completed this **BEFORE CONNECTING TO FANSHAWE'S NETWORK!!!** (on line users can ignore this request and other about connecting to Fanshawe's network)

q) If the professor has cleared your system to be plugged in to Fanshawe's network.
   a. Configure G0/0 to be a DHCP client
      i. **ip address dhcp**
   b. Plugin G0/0 to the Fanshawe's network ◄——(Do not do this until this point in the lab!!!)

(PowerPoint – Capture 8)

(PowerPoint – Capture 9)

(PowerPoint – Capture 10)

r) Setup NAT
   a. Put on the inside NAT command on interface   G0/1
      i. **ip nat inside**
   b. Put on the outside NAT command on interface G0/0
      i. **ip nat outside**
   c. Setup the access list
      i. **access-list 100 per ip any any**
      ii. **ip nat inside source list 100 interface g0/0 overload**
   d. And finally, the last command to use the access list and run the overload for (Dynamic NAT)

(PowerPoint – Capture 11)

That's it for today.

Clean out the configurations on the switches and routers you used this week.

Don't forget to collect your cables.

Then cleanup your workstations