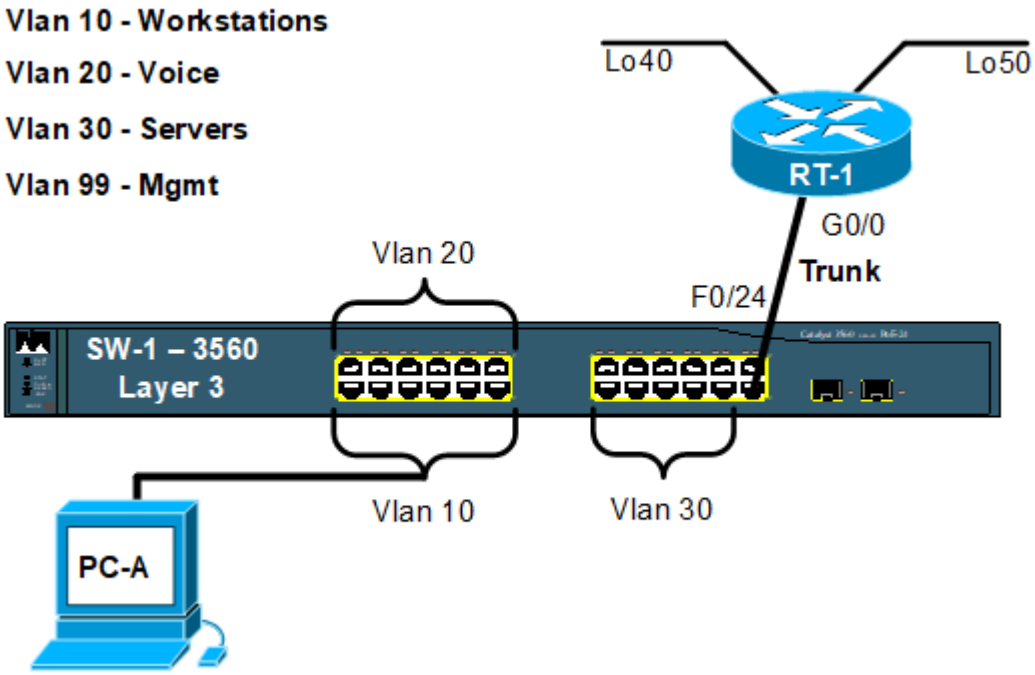
INFO-6047: Lab 11 – DHCP IPv4

Topology



Note:

1) Router RT-1 in the topology above is a 2901 router
2) Switch SW-1 is a 3560 L3 switch.
3) Be careful with the port and the Vlans, for example Vlan 10 are ports 2, 4, 6, 8, 10, & 12, you can still use the "interface range" command you just have to declare each port separated by commas.
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.
6) You will find in the Lab section of FOL for this week a PowerPoint file. Please download this file, I have placed markers in the lab where you should do each capture. Make the screen captures and save them in the PowerPoint file according to the questions asked.
7) During the use of Packet Tracer, you will be asked to move the cable that connects PC-A from one Vlan to another…. This is not hard to do, BUT we are using DHCP for PC-A to get an IP address from the DHCP server. In PT sometimes the client will not request a new address properly when you move the cable… you may have to use the **ipconfig /renew** in the command window to force the PC-A to acquire a new IP address.

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IPv4 Addressing Table

Device	Interface	IP Adress	Subnet Mask	Vlan Names	Ports
RT-1	G0/0	**No IPaddress**			
	G0/0.10	**172.16.10.254**	**/24**		
	G0/0.20	**172.16.20.254**	**/24**		
	G0/0.30	**172.16.30.254**	**/24**		
	G0/0.99	**172.16.99.254**	**/24**		
	Lo40	**172.16.40.1**	**/24**		
	Lo50	**172.16.50.1**	**/24**		
SW-1	Vlan 10			Workstations	2,4,6,8,10,12
	Vlan 20			Voice	1,3,5,7,9,11
	Vlan 30			Server	14,16,18,20,22
	Vlan 99	**172.16.99.200**	**/24**	Mgmt	13,15,17,19,21,23
	F0/24	**Trunk**			
PC-A		DHCP			

Initial Setup

I would like to see each device 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

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Setup the Network

j) Setup the IP addressing on the ports of the devices according to the "Addressing Table".
k) Setup the vlans on the switch (be careful of the port numbering).
l) Set the command "**spanning-tree portfast**" and "**spanning-tree bpduguard enable**" on all ports on the switch except port 24 (the trunk)
m) Set all **unused** ports on switches to vlan 99 and shut the **ports** down.
n) Setup the trunk ports f0/24 on the switch (this is a 3650, L3switch, remember setting a port to be a trunk although usually automatic, in this case you have to define it manually)
   switchport trunk encapsulation dot1q
   switchport mode trunk
o) Setup a "Gateway of last resort" on the switch.
p) Port G0/0 on the router has "**NO IPaddress**" instead you will be building 4 sub interfaces.
q) Plug in all your cables!

As with the past few weeks you will find scripts for the cisco devices on FOL that will get you this far in the setup process (a through q above)

(PowerPoint – Capture 1)
(PowerPoint – Capture 2)
(PowerPoint – Capture 3)

r) Setup DHCP for VLANs 10, 20, and 30 on **RT-1**
   (**some of the following commands (a. through g.) may need to be repeated a few times… I'm only giving an example of how the command is used**)
   a. Exclude addresses 1-25 and 200-254 for each address range in the three Vlans
      i. **RT-1(config)# ip dhcp excluded-address 172.16.10.1 172.16.10.25**
   b. DHCP scope name will be the same as the Vlan name
      i. **RT-1(config)# ip dhcp pool Workstation**
   c. With the appropriate IP addresses for that Vlan
      i. **RT-1(dhcp-config)# network 172.16.10.0 255.255.255.0**
   d. Default Gateway is the address for the sub-interface on RT-1
      i. **RT-1(dhcp-config)# default-router 172.16.10.254**
   e. DNS entries for Googles IPV4 DNS ← (Packet Tracer only supports **one** entry)
      i. **RT-1(dhcp-config)# dns-server 8.8.8.8 8.8.4.4**
   f. Domain name of Fanshawe.local ← (Packer Tracer may not support this command)
      i. **RT-1(dhcp-config)# domain-name Fanshawe.local**
   g. For the voice scope only add a tftp option with and address of 192.168.20.250
      i. **RT-1(dhcp-config)# option 150 ip 172.16.20.250**

(PowerPoint – Capture 4.0)
(PowerPoint – Capture 4.1)

At this point in the configuration, you should be able to from PC-A ping the default gateway of PC-A (on RT-1) and the local loopback interfaces on RT-1 (Lo40, Lo50).

(PowerPoint – Capture 5)

If you can not do the pings in ***Capture 5***, **DO NOT GO ON WITH THE LAB!**
You must complete steps "a" through "r" and be able to do the pings in capture #5 before moving on with the lab.

(PowerPoint – Capture 6)

(PowerPoint – Capture 7)

(PowerPoint – Capture 8)

(PowerPoint – Capture 9)

(PowerPoint – Capture 10)

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