CN Week 11 and 12 (Practical)

Details

Module name:	Computer Networks
Module number:	CO33006
Session:	Semester 1, 2003/2004

Learning Outcomes

On completion of the module, the student will be able to:

L4 Identify the key elements of router configuration and routing protocols.
L5 Identify the main elements, and parameters involved, in networks which have mobile devices.

For these practicals you will be put in groups of **three**, and should attempt to work together to meet the objectives. You have around 30 minutes to complete the challenges.

Wireless Networking (Learning Outcome 5)

The objectives of this tutorial are:

- To connect a PC with a wireless card to the Internet using the Access Point.
- To connect a PC to the Internet using an ad-hoc network.
- To exchange text files between the two wireless PCs.
- To initiate a chat program between the two PCs.

The setup is as follow:

- Three PCs with wireless cards.
- Proxy software.
- Wireless Access Point.

Figure 1 outlines the setup:

- The first PC shall be a part of the Napier's C27 network,
- The second PC shall be a part of a private Network.

The breakdown of the tasks:

1. Read, complete and understand the Wireless Access Point tutorial [Link].
2. Define the set of commands you will need to perform to set up the different networks.
3. Understand the setup of the proxy software (cf. to the "*Read Me*" file).
4. Setup the different software as appropriate.
5. Ping the different components of the networks.
6. Measure the networks' throughputs [Link].
7. The *chat program* is the Iava programs studied on Week 7 [Link].

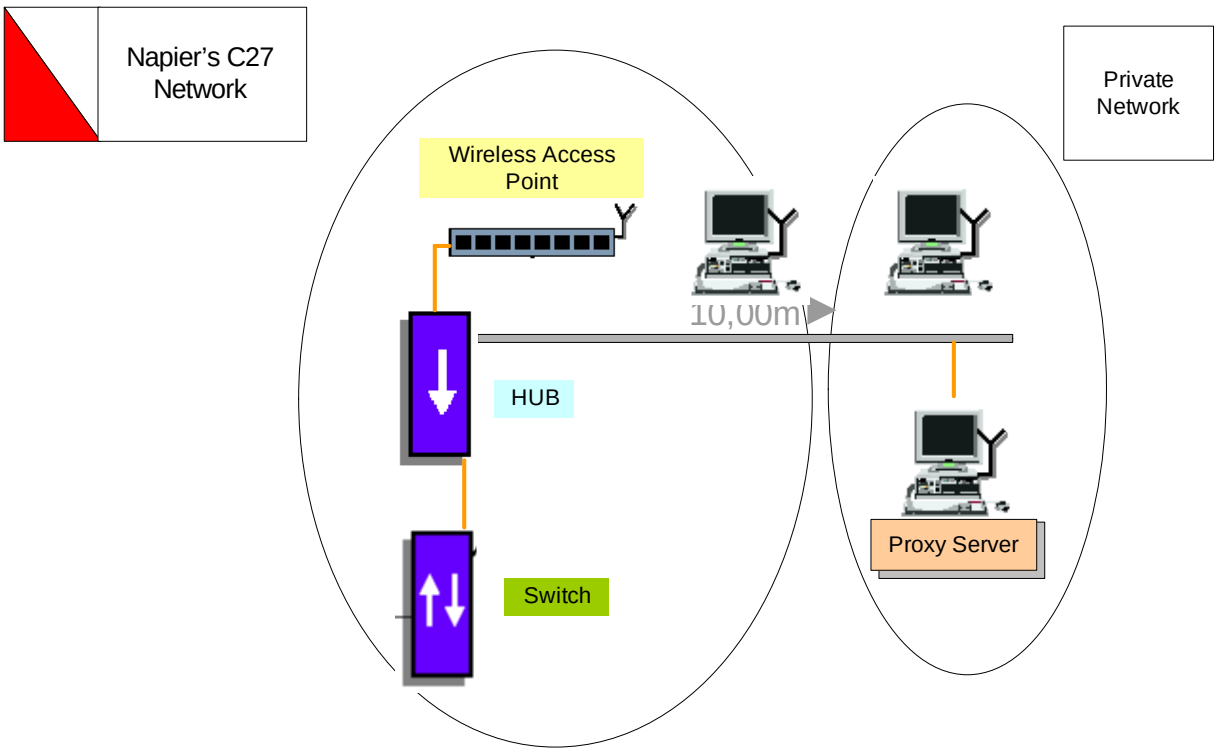

Figure 1: Wireless setup

Network Configuration (Learning Outcome 4)

Most of the networking devices at Napier are available through the Internet. **DO NOT ACCESS THESE FROM OUTSIDE NAPIER, and can be booked as required**. The current setup is given in Figure 2, hence the pods include three routers and one switch. The position of the switch is implicit. The Ethernet 0 of each router is connected to one Ethernet port of the switch respectively fa0/1, fa0/2 and fa0/3 for R1, R2 and R3.

The pods, routers, and switches are accessed through the Telnet (via MS Windows Hyper terminal) interface using

Pod	R1	R2	R3	Switch
1	2001	2002	2003	2004
2	2005	2006	2007	2008
3	2009	2010	2011	2012
4	2013	2014	2015	2016

Where the Telnet address is 146.176.165.228. For example to access R1 on Pod 1 using TELNET 146.176.165.228:2001.

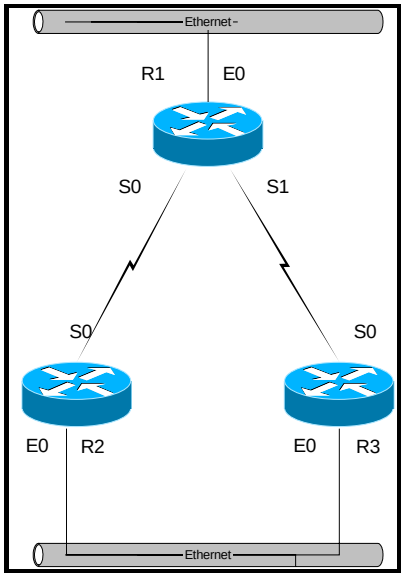

Figure 2: Pod's setup

Router models and IOS version vary from pod to pod. In order to allow everybody to make best use of their booked slot, please:

- Only use the devices in the pod allocated to you,
- Disconnect from all devices at the end of your time slot,
- **Do not** configure **any** passwords and enable passwords,
- Call tutors if encounter or left any devices in an unusable state.

The task are:

- Find out the pod's name using the "**`show ip interfaces brief`**" command,
- Configure the pod as shown on the Figure 3.
- Use the RIP on all routers.
- Use the PPP encapsulation on Router 3 "*Kunio*".
- Setup the CHAP on Router 2 "*Yoshito*".
- Set appropriate descriptions on the ports of all devices.
- Set the message of day on Router 1 "*Eikichi*" as: ## CNDS rocks ##.
- Each router shall be a part of a VLAN.
- Find out your PCs MAC addresses.
- Register those MAC addresses as members of VLAN 4 named after your team name,
- Ping all devices composing the pod.
- All Ethernet interfaces shall be a speed of 100Mbps and full duplex.
- The clock rate of the serial ports is 56000.
- Set the HTTP port as 80 on all relevant devices.
- Use the Cisco Discovery Protocol.
- Define the neighbourhood.
- On every relevant occasion check your changes by using appropriate "**`show`**" commands.

Note:
When an IP address is given in the format "w.x.y.z/some_number" it means that the given IP address uses a subnet mask with the subnet part as specified by *some number*. For instance the IP address 192.168.1.1/24 means that the 192.168.1.1 uses a subnet mask with 24 bits set as 1 hence 255.255.255.0.

Before you leave, give yourself five minutes to thoroughly complete the following:

- Clear the switch configuration.
- Clear the routers configuration.
- Clear ARP table.
- Clear IP settings.
- Clear interfaces.

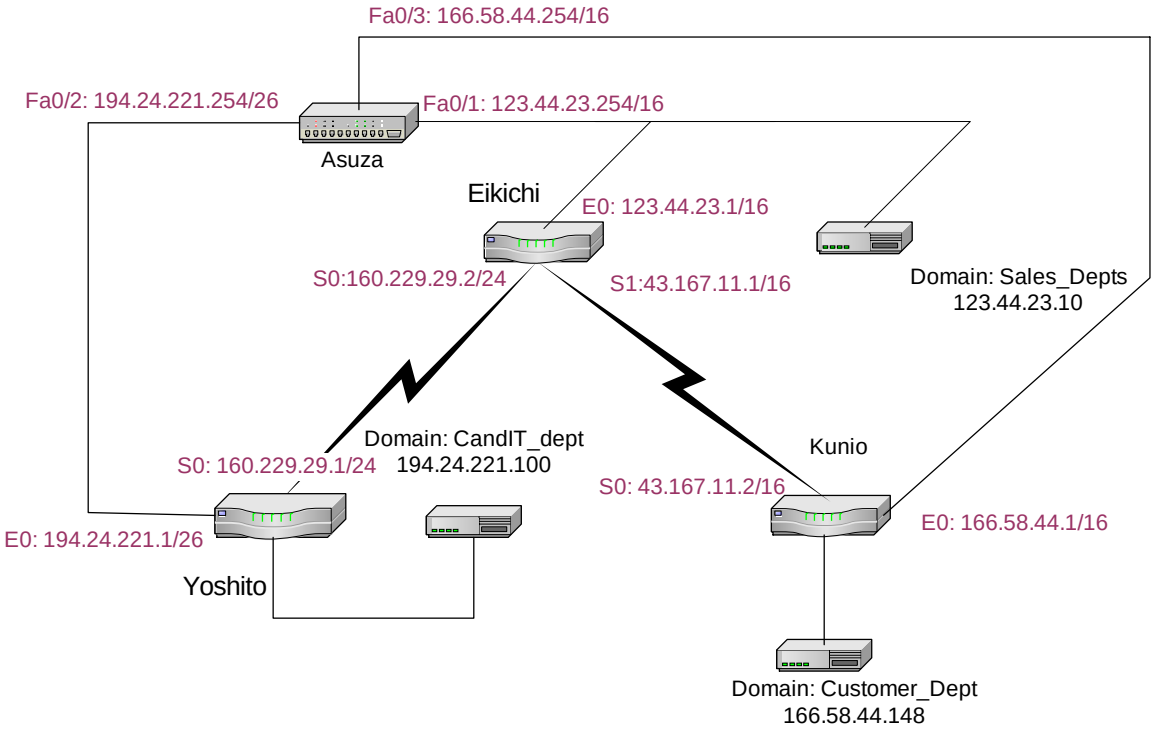

Figure 3: Pod Required Configuration

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