

CSE421 Project

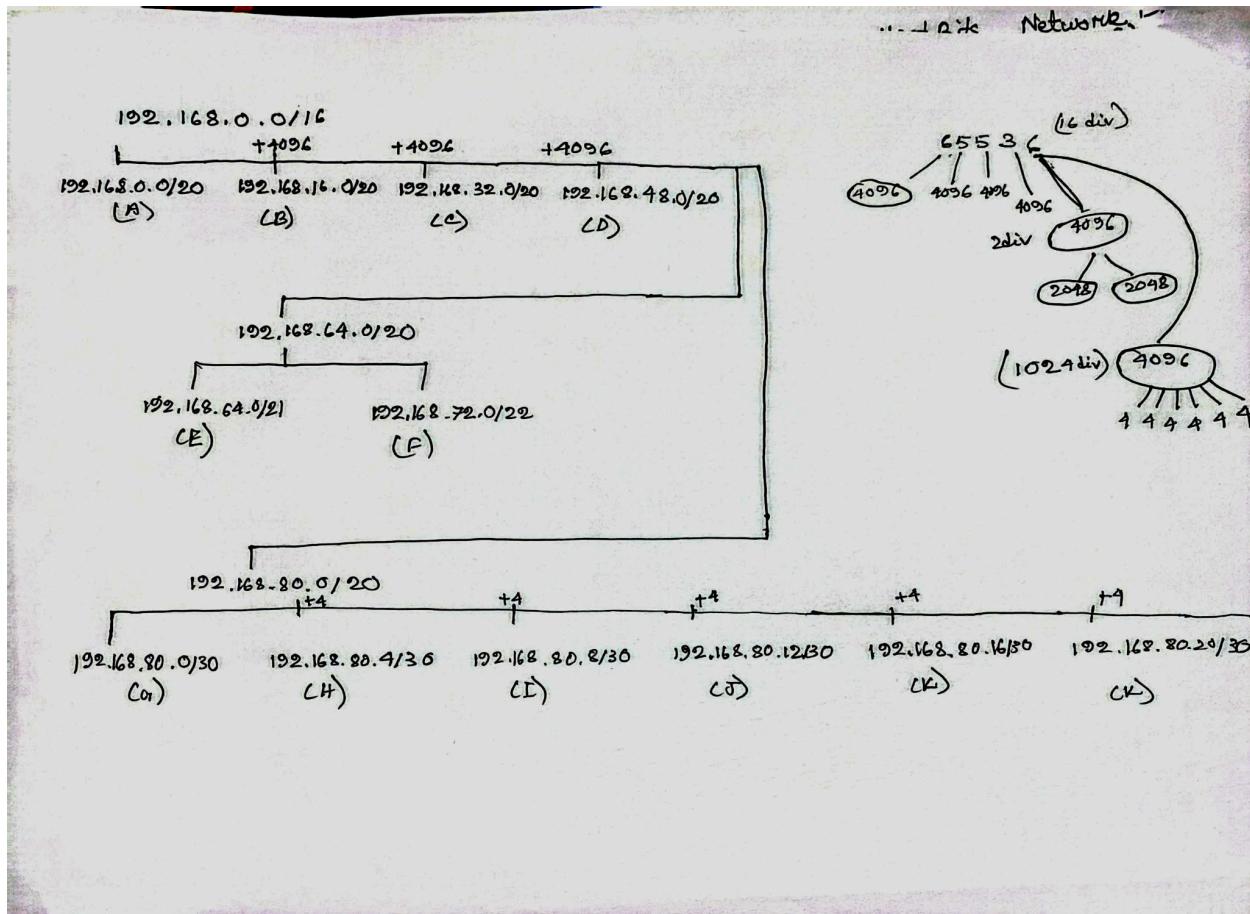
Group-201

Members:

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VLSM Tree:

No.	Network	Hosts Needed	Total IPs	Host Bits	Network Bits
A	Central	3202	1026	12	120
B	Town	2802	4096	12	120
C	Parramatta	2602	4096	12	120
D	Wynyard	2402	4096	12	121
E	Redfern	1502	2048	11	121
F	Brownwood	1302	2048	11	130
G	WAN1	1	4	2	130
H	WAN2	1	4	2	130
I	WAN3	1	4	2	130
J	WAN4	1	4	2	130
K	WAN5	1	4	2	130
L	WAN6	1	4	2	130



Address Table:

Device	Port	Ipv4	Subnet mask	Default gateway
Central	Fa0/1	192.168.0.1	255.255.240.0	N/A
	Se0/0/1	192.168.80.1	255.255.255.252	N/A
	se0/0/0	192.168.80.9	255.255.255.252	N/A
	se0/1/0	192.168.80.14	255.255.255.252	N/A
DHCP server	Fa0	192.168.0.2	255.255.240.0	192.168.0.1
DNS server	Fa0	192.168.0.3	255.255.240.0	192.168.0.1
Web server (Sydneyrail.net)	Fa0	192.168.0.4	255.255.240.0	192.168.0.1
Email server	Fa0	192.168.32.2	255.255.240.0	192.168.32.1
PC5	Fa0	192.168.0.7	255.255.240.0	192.168.0.1

Device	Port	ipv4	Subnet mask	Default gateway
Central	Fa0/1	192.168.0.1	255.255.240.0	N/A
PC4	Fa0	192.168.0.8	255.255.240.0	192.168.0.1
PC2	Fa0	192.168.48.4	255.255.240.0	192.168.48.1
PC3	Fa0	192.168.48.2	255.255.240.0	192.168.48.1
Wynyard	Se0/1/0	192.168.80.2	255.255.255.252	N/A
	Fa0/1	192.168.48.1	255.255.240.0	N/A
	se0/1/1	192.168.80.5	255.255.255.252	N/A
Town Hall	fa0/1	192.168.16.1	255.255.240.0	N/A
	se0/0/0	192.168.80.13	255.255.255.252	N/A
	se0/1/0	192.168.80.6	255.255.255.252	N/A
Redfern	se0/0/0	192.168.80.10	255.255.255.252	N/A
	se0/1/0	192.168.80.21	255.255.255.252	N/A
	se0/0/1	192.168.80.17	255.255.255.252	N/A
	fa0/0	192.168.64.1	255.255.248.0	N/A
Burwood	fa0/0	192.168.72.1	255.255.248.0	N/A
	se0/0/0	192.168.80.18	255.255.255.252	N/A
Parramatta	se0/0/0	192.168.80.22	255.255.255.252	N/A
	fa0/0	192.168.32.1	255.255.240.0	N/A
PC0	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC1	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC6	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC7	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC8	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC9	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC10	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED
PC11	Fa0	DHCP ASSIGNED	DHCP ASSIGNED	DHCP ASSIGNED

Commands:

IP address for the fa0/1 interface of the central router

Router>en

Router#conf t

Router(config)#interface fa0/1

```
Router(config-if)#ip address 192.168.0.1 255.255.240.0  
Router(config-if)#no shut
```

IP address for the Se0/0/1 interface of the central router

```
Router>en  
Router#conf t  
Router#conf terminal  
Router(config)#interface se0/0/1  
Router(config-if)#ip address 192.168.80.1 255.255.255.252  
Router(config-if)#no shut
```

IP address for Se0/1/0 and Fa0/1 interface of wnyard router

```
Router>en  
Router#conf t  
Router(config)#interface se0/1/0  
Router(config-if)#ip address 192.168.80.2 255.255.255.252  
Router(config-if)#no shut  
  
Router(config-if)#exit  
Router(config)#interface fa0/1  
Router(config-if)#ip address 192.168.48.1 255.255.240.0  
Router(config-if)#no shut
```

Setting the relay router for DHCP

```
Router(config-if)#ip helper-address 192.168.0.2
```

Static routing from Wnyard towards the DHCP server

```
Router#config terminal  
Router(config)#ip route 192.168.0.0 255.255.240.0 se0/1/0
```

Static route from central to DHCP

```
Router>en  
Router#conf t.  
Router(config)#ip route 192.168.0.0 255.255.240.0 fa0/1
```

Static route from central to Wnyard LAN

```
Router(config)#ip route 192.168.48.0 255.255.240.0 se0/0/1
```

Static Ip addressing of the se0/1/1 port of Wnyard

```
Router>en  
Router#conf t  
Router#conf terminal  
Router(config)#interface se0/1/1
```

```
Router(config-if)#ip address 192.168.80.5 255.255.255.252  
Router(config-if)#no shut
```

Setting up a backup route to the central from Wynyard (AD= 5)

```
Router(config-if)#exit  
Router(config)#ip route 192.168.0.0 255.255.240.0 se0/1/0 5
```

Static Ip addressing of the se0/0/0 port of the central, and setting up the relay

```
Router>en  
Router#conf  
Router#conf terminal  
Router(config)#interface se0/0/0  
Router(config-if)#ip address 192.168.80.9 255.255.255.252  
Router(config-if)#no shut  
Router(config-if)#ip helper-address 192.168.0.2
```

Configuring ip of se0/1/0 and fa0/1 interface server of Town-hall, setting up DHCP relay, and setting static routing to DHCP and Wynyard

```
Router>en  
Router#conf terminal  
Router(config)#interface se0/1/0  
Router(config-if)#ip address 192.168.80.6 255.255.255.252  
Router(config-if)#no shut  
Router(config-if)#exit  
Router(config)#interface fa0/1  
Router(config-if)#ip address 192.168.16.1 255.255.240.0  
Router(config-if)#ip helper-address 192.168.0.2  
Router(config-if)#no shut  
Router(config-if)# exit  
Router(config)#ip route 192.168.0.0 255.255.240.0 se0/0/0  
Router(config)#ip route 192.168.48.0 255.255.240.0 se0/1/0
```

Configuring ip of se0/0/0 of the town hall

```
Router>en  
Router#conf t  
Router(config)#interface se0/0/0  
Router(config-if)#ip address 192.168.80.13 255.255.255.252  
Router(config-if)#no shut
```

Configuring ip of se0/1/0 of Central

```
Router>en  
Router#conf t
```

```
Router(config)#interface se0/1/0
Router(config-if)#ip address 192.168.80.14 255.255.255.252
Router(config-if)#no shut
```

Static routing from the central to the town hall LAN

```
Router(config-if)#exit
Router(config)#ip route 192.168.16.0 255.255.240.0 se0/1/0
```

Setting Ip address of se0/0/0,se0/1/0,se0/0/1,fa0/0 interface of redfern and setting up DHCP relay

```
Router>en
Router#conf t
Router(config)#interface se0/0/0
Router(config-if)#ip address 192.168.80.10 255.255.255.252
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface se0/1/0
Router(config-if)#ip address 192.168.80.21 255.255.255.252
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface se0/0/1
Router(config-if)#ip address 192.168.80.17 255.255.255.252
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface fa0/0
Router(config-if)#ip address 192.168.64.1 255.255.248.0
Router(config-if)#no shut
Router(config-if)#ip helper-address 192.168.0.2
```

Configuring ip address of se0/0/0 and the fa0/0 interface of Burwood, and setting up the DHCP relay

```
Router>en
Router#conf t
Router(config)#interface fa0/0
Router(config-if)# ip address 192.168.72.1 255.255.248.0
Router(config-if)#no shut
Router(config-if)# exit
Router(config)#interface se0/0/0
Router(config-if)#ip address 192.168.80.18 255.255.255.252
Router(config-if)#no shut
Router(config-if)# exit
Router(config)#interface fa0/0
```

```
Router(config-if)#ip helper-address 192.168.0.2
```

Configuring ip address of the fa0/0 and se0/0/0 interfaces of Parramatta and setting up the DHCP relay

```
Router>en
Router#conf t
Router(config)#interface fa0/0
Router(config-if)#ip address 192.168.32.1 255.255.240.0
Router(config-if)#no shut
Router(config-if)#ip helper-address 192.168.0.2
Router(config-if)#exit
Router(config)#interface se0/0/0
Router(config-if)#ip address 192.168.80.22 255.255.255.252
Router(config-if)#no shut
```

Static routing:

Town hall

```
Router(config)#ip route 192.168.80.0 255.255.255.252 192.168.80.14
Router(config)#ip route 192.168.80.8 255.255.255.252 192.168.80.14
Router(config)#ip route 192.168.64.0 255.255.248.0 192.168.80.14
Router(config)#ip route 192.168.80.16 255.255.255.252 192.168.80.14
Router(config)#ip route 192.168.80.20 255.255.255.252 192.168.80.14
Router(config)#ip route 192.168.72.0 255.255.248.0 192.168.80.14
Router(config)#ip route 192.168.32.0 255.255.248.0 192.168.80.14
```

Central Station

```
Router(config)#ip route 192.168.80.4 255.255.255.252 192.168.80.13
Router(config)#ip route 192.168.64.0 255.255.248.0 192.168.80.10
Router(config)#ip route 192.168.72.0 255.255.248.0 192.168.80.10
Router(config)#ip route 192.168.32.0 255.255.240.0 192.168.80.10
Router(config)#ip route 192.168.80.16 255.255.255.252 192.168.80.10
Router(config)#ip route 192.168.80.20 255.255.255.252 192.168.80.10
Router(config)#exit
```

Wynyard

```
Router(config-if)#ip route 192.168.16.0 255.255.240.0 192.168.80.6
Router(config)#int s0/1/0
Router(config-if)#no ip route 192.168.16.0 255.255.240.0 192.168.80.6
Router(config)#ip route 192.168.16.0 255.255.240.0 192.168.80.6
Router(config)#exit
```

```
Router(config)#ip route 192.168.80.12 255.255.255.252 192.168.80.6
Router(config)#ip route 192.168.80.8 255.255.255.252 192.168.80.1
Router(config)#ip route 192.168.80.16 255.255.255.252 192.168.80.1
Router(config)#ip route 192.168.80.20 255.255.255.252 192.168.80.1
Router(config)#ip route 192.168.32.0 255.255.240.0 192.168.80.6
Router(config)#ip route 192.168.64.0 255.255.248.0 192.168.80.6
Router(config)#ip route 192.168.72.0 255.255.248.0 192.168.80.6
```

RIPV2

Burwood

```
Router>en
Router#conf t
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto-summary
Router(config-router)#network 192.168.72.0
Router(config-router)#network 192.168.80.16
Router(config-router)#passive-interface fa0/0
Router(config-router)#end
Router#
```

Redfren

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto-summary
Router(config-router)#network 192.168.80.16
Router(config-router)#network 192.168.80.20
Router(config-router)#network 192.168.80.8
Router(config-router)#network 192.168.64.0
Router(config-router)#passive-interface fa0/0
Router(config-router)#end
Router#
```

Parramatta

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto-summary
Router(config-router)#network 192.168.80.20
Router(config-router)#network 192.168.32.0
Router(config-router)#passive-interface fa0/0
Router(config-router)#end
```

Issues:

- 1. There was a routing mismatch between Redfern and Central. Central was using static routing, so we enabled RIP and redistributed the static routes to ensure consistent routing.**

Commands:

```
router rip  
version 2  
no auto-summary  
network 192.168.80.9  
End
```

```
router rip  
redistribute static  
end
```

- 2. We had issues with the Backup line, so we had to redo it.**

For Wynyard:

Primary: ip route 192.168.0.0 255.255.240.0 192.168.80.1 1
(administrative distance =1)
Backup (floating) : ip route 192.168.0.0 255.255.240.0 192.168.80.6 5
(administrative distance: 5)

For Central:

Primary: ip route 192.168.48.0 255.255.240.0 192.168.80.2 1
(administrative distance =1)
Backup (floating): ip route 192.168.48.0 255.255.240.0 192.168.80.13 10
(administrative distance: 10)

Assumptions:

The router's interface connected to the LAN gets its IP address automatically using DHCP, while all the devices in the LAN are manually assigned fixed (static) IP addresses.