

# NA Assignment 1

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1. TCP/IP stack is implemented in a software layer of the kernel. Linux creates a virtual filesystem where each socket is implemented as a “file” mounted on that system. These are source files like tcp.c  
The exact location is : /usr/src/linux-headers-4.4.0-31/net/ipv4
2. The topology used to connect the different buildings in the campus is ring topology with multiple rings to provide reliability and greater bandwidth. Within the buildings, bus topology is used where a main line passes through each floor. Every floor is a sub-branch of the main line where each room is further branching out.  
Moreover, the wifi access points act as central node and create a star topology where every wifi recipient is a client.
3. CAT6 cables are used within the buildings and fibre optics are used in the backbone network(ring topology).
4. Model Number of switches used: 4500(Core Switch) , 3750, 2960S, 3560

## 3750

Ports : 24 x 10/100/1000 + 4 x SFP  
Performance : Switching capacity: 32 Gbps  
Forwarding performance: 38.7 Mpps  
Authentication method : Kerberos, RADIUS, Secure Shell (SSH), TACACS+  
RAM : 128 MB  
Flash Memory : 32 MB flash  
Routing protocol : RIP-1, RIP-2, HSRP, static IP routing, RIPng  
Nominal voltage : AC 120/230 V  
Frequency used : 50/60 Hz  
Power consumption : 100 watt  
Cabling type : Ethernet 1000Base-T, Ethernet 100Base-TX, Ethernet 10Base-T  
Interface : Ethernet 10Base-T/100Base-TX/1000Base-T, console  
Connector : RJ-45, SFP (mini-GBIC)

## 2960s

Ports : 48 x 10/100/1000 (PoE) + 4 x SFP  
Authentication method : RADIUS, Secure Shell (SSH), TACACS+

Mac Address entries : 8K  
RAM : 128 MB  
Nominal voltage : AC 120/230 V  
Frequency used : 50/60 Hz  
Power consumption : 71 watt  
Cabling type : Ethernet 1000Base-T, Ethernet 100Base-TX, Ethernet 10Base-T  
Interface : Ethernet 10Base-T/100Base-TX, console  
Connector : RJ-45, SFP (mini-GBIC), mini-USB Type B

### 3560

Ports : 48 x 10/100 (PoE) + 4 x SFP  
Authentication method : Kerberos, RADIUS, Secure Shell v.2 (SSH2), TACACS+  
RAM : 128 MB  
Routing protocol : RIP-1, RIP-2, static IP routing, RIPng  
Nominal voltage : AC 120/230 V  
Frequency used : 50/60 Hz  
Power consumption : 530 watt  
Cabling type : Ethernet 100Base-TX, Ethernet 10Base-T  
Interface : Ethernet 10Base-T/100Base-TX/1000Base-T, console  
Connector : RJ-45, SFP (mini-GBIC)

### 4500

Ports : 24 x 10 Gigabit SFP+  
RAM : 4 GB  
Nominal voltage : AC 120/230 V  
Frequency used : 50/60 Hz  
Power consumption : 330 watt  
Cabling type : Ethernet 100Base-TX, Ethernet 10Base-T  
Interface : 10Gb Ethernet, Ethernet 10Base-T/100Base-TX/1000Base-T,  
console  
Connector : RJ-45, SFP/SFP+

5. Model Number of Wifi access points used in campus: 1142N ,1572E, 3702e,1602i(all cisco)

### 1142N

Date rates : 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps  
802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

Frequency channels :	2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.745 to 5.825 GHz; 5 channels
Data link protocol :	IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
Authentication method :	EAP-FAST, MS-CHAP v.2
Interface:	10/100/1000BASE-T auto sensing (RJ-45)
Input power :	AP1140: 44 to 57 VDC Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz
Memory :	32 MB DRAM

## 1572E

Data Rates Supported :	2.4 GHz - 802.11b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps 5 GHz - 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps
Frequency Band :	2.412 to 2.462 GHz, 11 channels 5.500 to 5.580 GHz, 5 channels 5.660 to 5.700 GHz, 3 channels
Input Power Requirement :	AC: 100-277 VAC, 50/60 Hz DC: 10 to 16 VDC

## 3702

Data rates supported :	b802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Frequency band :	2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz)
Memory :	512 MB DRAM
Power :	AP3700: 44 to 57 VDC Power supply and power injector: 100 to 240 VAC; 50 to 60 Hz

1602

Data rates supported :	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Frequency band :	2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels
Memory :	256 MB
Power :	AP1600: 44 to 57 VDC Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz