Nick Smith
TLEN 5460 Lab 2 Writeup

1.

WRouter-conf

```
vlan database
  VLAN 2 name Wired1
  VLAN 3 name Wired2
  vtp mode server
  vtp domain LAB
interface FastEthernet 2
  switchport mode trunk
interface FastEthernet 4
  switchport access vlan 2
interface FastEthernet 5
  switchprot access vlan 3
```

Switch1-conf

```
interface FastEthernet 0/1
  switchport trunk encapsulation dot1q
  switchport mode trunk
interface FastEthernet 0/2
  switchport trunk encapsulation dot1q
  switchport mode trunk
interface FastEthernet 0/3
  switchport trunk encapsulation dot1q
  switchport mode trunk
vtp mode client
vtp domain LAB
```

Router1-conf

```
interface FastEthernet 1/0
  no sh
interface FastEthernet 1/0.10
  encapsulation dot1q 2
  ip address 192.168.0.1 255.255.255.0
interface FastEthernet 1/0.20
  encapsulation dot1q 3
  ip address 192.168.1.1 255.255.255.0
```

Switch2-conf

```
interface FastEthernet 0/2
  switchport trunk encapsulation dot1q
  switchport mode trunk
vtp mode client
```

vtp domain LAB

DHCP Setup

Switch2-conf

```
ip dhcp pool Vlan2
  network 192.168.0.0 255.255.255.0
  default-router 192.168.0.1
  dns-server 192.168.0.1
ip dhcp excluded-address 192.168.0.1 192.168.0.2
interface vlan2
  ip address 192.168.0.2 255.255.255.0
  no shutdown
service dhcp
```

Router-conf

```
ip dhcp pool Vlan3
  network 192.168.1.0 255.255.255.0
  default-router 192.168.1.1
  dns-server 192.168.0.1
ip dhcp excluded-address 192.168.1.1 192.168.1.2
interface vlan3
  ip address 192.168.1.2 255.255.255.0
  no shutdown
service dhcp
ip dns server
ip host 192.168.0.3 VM1
ip host 192.168.1.3 VM2
ip domain lookup
```

2.

Wrouter-Conf

```
vlan database
  vlan 4 name Wireless1
  vlan 5 name Wireless2
  apply
ip dhcp pool Vlan4
  network 192.168.2.0 255.255.255.0
  default-router 192.168.2.1
  dns-server 192.168.0.1
ip dhcp excluded-address 192.168.2.1 192.168.2.2
ip dhcp pool Vlan5
  network 192.168.3.0 255.255.255.0
  default-router 192.168.3.1
  dns-server 192.168.0.1
```

```
ip dhcp excluded-address 192.168.3.1 192.168.3.2
service dhcp
```

Wrouter-Conf

```
interface Dot11Radio 0
 ssid wireless 01
  vlan 4
  authentication open
 station-role root
 channel 1
 ssid wireless 02
  vlan 5
  authentication open
 channel 11
```

WRouter-Conf

```
bridge irb
bridge 1 protocol ieee
bridge 1 route ip
interface vlan 4
 bridge-group 1
bridge 1 protocol ieee
bridge 1 route ip
interface vlan 5
 bridge-group 2
interface bVI 1
 ip address 192.168.2.1 255.255.255.0
interface bVI 2
 ip address 192.168.3.1 255.255.255.0
interface dot11Radio 0.10
 encapsulation dot1Q 4
 no cdp enable
 bridge-group 1
interface dot11Radio 0.20
 encapsulation dot1Q 5
 no cdp enable
 bridge-group 2
```

WRouter-Conf

```
interface FastEthernet 1/0
 ip address 192.168.4.1 255.255.255.0
ip route 0.0.0.0 0.0.0.0 192.168.4.2
```

Router1-Conf

```
interface FastEthernet 1/1
 ip address 192.168.4.2 255.255.255.0
ip route 0.0.0.0 0.0.0.0 192.168.4.1
```

3.
a.
Wrouter-Conf

```
interface Dot11Radio 0
 ssid wireless1
 max-associations 1
```

b.

```
interface Dot11Radio 0
 encryption vlan 5 key 1 size 128bit 0 00000000000000000000000001 transmit-key
```

c.

```
interface Dot11Radio 0
 encryption vlan 5 mode ciphers tkip
ssid wireless02
 authentication open
 authentication key-management wpa
 wpa-psk ascii 0 <password>
```

4.
Wrouter-Conf

```
interface vlan 3
 bridge-group 2
```

5.
Setup commserver with loopback1 and add all 6 hosts

Commserver Conf

```
Int fa2/0
 Ip address 192.168.2.1 255.255.255.0
 No shut
```

Router Conf

```
Router ospf 2
 Network 192.168.0.0 255.255.0.0 area 0
```

Router1 Conf

```
Int fa2/0
 Standby ip 192.168.1.5
 Standby priority 101
```

Router2 Conf

Int fa0/2
Standby ip

Pulled the cable and watched everything happen.

STUDY QUESTIONS:

1. It would be good for situations in which there is no centralized network. This could be very useful if a natural disaster happened and destroyed the existing infrastructure of the network. The configuration for something like this could be done with having the access points forwarding data to the other nodes.

2. You would use an infrastructure network when you need to talk to servers out there and also when you need to communicate with the internet. This is what you need for todays internet.

3. A layer 2 switch uses the mac addresses to pass on the packets and it has no knowledge of the ip address while a layer 3 uses the ip address to pass on packets to other nodes. Yes they could be used to substitute it.

4. DHCP is a protocol in which devices that connect to a network are automatically assigned an Ip address. You would use this in a wireless network because there are a lot of devices that connect to the wireless access point and you need to assign each of them an ip address.

5. WEP is a way to secure a wireless network and it provides authentication and encryption. The key values are too short and they need to be shared statically which is why it is insecure. You could break it by using wire shark and getting the packets and decrypting them. The other security option is WPA or WPA2

6. IRB makes it so that you can bridge and route a protocol on the same interface. It is required because it maintains the VLAN header.

7. WPA2 now includes aes encryption.

8. You can enable 'guest-mode' on the WRouter to have the SSID broadcasted.

Very Useful commands:

Show the ip routes --- show ip route
Show ARP connections --- show arp
Show DHCP info --- show ip dhcp binding
Show the neighbors for the device --- show cdp neighbors