

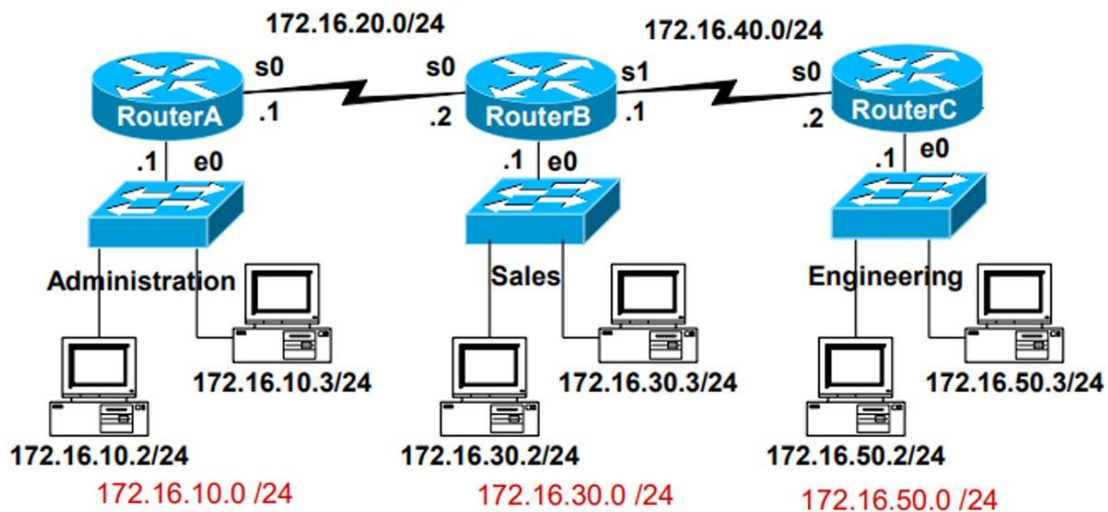
NETWORK2

Access List Assignment

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Part 1:

A:

For traffic coming from Administration network and going to Engineering Network.

- 1- Allow hosts in the range 172.16.10.128 ---- 172.16.10.191 with the following exceptions
Deny hosts in the range 172.16.10.144 – 172.16.10.159 except host 172.16.10.150 which should be allowed.

```
RouterC>enable
RouterC#config t
Enter configuration commands, one per line. End with CNTL/Z.
RouterC(config)#access-list 10 permit host 172.16.10.150
RouterC(config)#access-list 10 deny 172.16.10.144 0.0.0.15
RouterC(config)#access-list 10 permit 172.16.10.128 0.0.0.63
RouterC(config)#
```

Figure 1 Cisco Packet Racer screenshot

- 2- Allow hosts in the range 172.16.10.32 – 172.16.10.63, except hosts 172.16.10.40 and 172.16.10.41 which should be denied

```
RouterC(config)#access-list 10 deny host 172.16.10.40
RouterC(config)#access-list 10 deny host 172.16.10.41
RouterC(config)#access-list 10 permit 172.16.10.32 0.0.0.31
RouterC(config)#
```

Figure 2 Cisco Packet Racer screenshot

- 3- Remaining hosts in Administration should be allowed except hosts 172.16.10.4, 172.16.10.5 which should be denied.

```
RouterC(config)#access-list 10 deny host 172.16.10.4
RouterC(config)#access-list 10 deny host 172.16.10.5
RouterC(config)#access-list 10 permit 172.16.10.0 0.0.0.255
RouterC(config)#
```

Figure 3 Cisco Packet Racer screenshot

B:

- 1- Traffic going from Sales to Engineering should be allowed Except from the range in Sales described by 172.16.30.192/28.

```
RouterC(config)#access-list 10 deny 172.16.30.192 0.0.0.15
RouterC(config)#access-list 10 permit 172.16.30.0 0.0.0.255
RouterC(config)#
```

Figure 4 Cisco Packet Racer screenshot

- 2- Assign the Standard List written in 1 to the best interface at Router C. And explain why do we have to put it at this interface.

```
RouterC(config)#interface e0
RouterC(config-if)# ip access-group 10 in
```

Applying the ACL on the e0 interface filters only traffic entering the Engineering network. This prevents unintentionally dropping other types of traffic that pass-through Router C for different destinations.

Part 2:

1:

UDP:

1. Allow UDP traffic from 172.16.50.0 –172.16.50.31 in Engineering network except host 172.16.50.20 if the destination is in the range 172.16.30.8 – 172.16.30.16 (inclusive).

```
RouterB(config)#ip access-list extended EXT_ACL_B
RouterB(config-ext-nacl)# deny udp host 172.16.50.20 172.16.30.8 0.0.0.7
RouterB(config-ext-nacl)# deny udp host 172.16.50.20 host 172.16.30.16
RouterB(config-ext-nacl)# permit udp 172.16.50.0 0.0.0.31 any
RouterB(config-ext-nacl)#
```

Figure 5 Cisco Packet Racer screenshot

2. Allow UDP from the net 172.16.10.0/27 to any destination if the port number is less than or equal 3600.

```
RouterB(config-ext-nacl)#ip access-list extended EXT_ACL_B
RouterB(config-ext-nacl)# permit udp 172.16.10.0 0.0.0.31 any lt 3601
RouterB(config-ext-nacl)#
```

Figure 6 Cisco Packet Racer screenshot

3. All other UDP traffic from Administration or Engineering should be denied.

```
RouterB(config-ext-nacl)#deny udp 172.16.10.0 0.0.0.255 any
RouterB(config-ext-nacl)#deny udp 172.16.50.0 0.0.0.255 any
RouterB(config-ext-nacl)#
```

Figure 7 Cisco Packet Racer screenshot

TCP:

1. Allow WEB from any source if the destination is the Web server 172.16.30.7.

```
RouterB(config-ext-nacl)#permit tcp any host 172.16.30.7 eq www
RouterB(config-ext-nacl)#
```

Figure 8 Cisco Packet Racer screenshot

2. Deny TCP from the hosts from either 172.16.50.0/24 or 172.16.10.0/24 if the destination is in the range 172.16.30.128/26.

```
RouterB(config-ext-nacl)#deny tcp 172.16.50.0 0.0.0.255 172.16.30.128 0.0.0.63
RouterB(config-ext-nacl)#deny tcp 172.16.10.0 0.0.0.255 172.16.30.128 0.0.0.63
RouterB(config-ext-nacl)#
```

Figure 9 Cisco Packet Racer screenshot

3. Allow Telnet from the Administration Network if the destination is the Telnet server 172.16.30.4 But deny it from Engineering network.

```
RouterB(config-ext-nacl)#permit tcp 172.16.10.0 0.0.0.255 host 172.16.30.4 eq telnet
RouterB(config-ext-nacl)#deny tcp 172.16.50.0 0.0.0.255 host 172.16.30.4 eq telnet
RouterB(config-ext-nacl)#
```

Figure 10 Cisco Packet Racer screenshot

4. Allow other TCP traffic from Administration or Engineering.

```
RouterB(config-ext-nacl)#permit tcp 172.16.10.0 0.0.0.255 any
RouterB(config-ext-nacl)#permit tcp 172.16.50.0 0.0.0.255 any
RouterB(config-ext-nacl)#
```

Figure 11 Cisco Packet Racer screenshot

ICMP:

Allow ICMP traffic from Administration only to Any Destination. Deny any other traffic from Administration or Engineering to Sales

```
RouterB(config-ext-nacl)#permit icmp 172.16.10.0 0.0.0.255 any
RouterB(config-ext-nacl)#deny icmp 172.16.50.0 0.0.0.255 any
RouterB(config-ext-nacl)#
```

Figure 12 Cisco Packet Racer screenshot

2. Improving the performance of the whole Network

```
RouterA(config)#ip access-list extended ADMIN_TO_SALES
RouterA(config-ext-nacl)# permit ip 172.16.10.0 0.0.0.255 172.16.50.0 0.0.0.255
RouterA(config-ext-nacl)# permit udp 172.16.10.0 0.0.0.31 any lt 3601
RouterA(config-ext-nacl)# deny udp 172.16.10.0 0.0.0.255 any
RouterA(config-ext-nacl)# permit tcp 172.16.10.0 0.0.0.255 host 172.16.30.7 eq www
RouterA(config-ext-nacl)# permit tcp 172.16.10.0 0.0.0.255 host 172.16.30.4 eq telnet
RouterA(config-ext-nacl)# deny tcp 172.16.10.0 0.0.0.255 172.16.30.128 0.0.0.63
RouterA(config-ext-nacl)# permit tcp 172.16.10.0 0.0.0.255 any
RouterA(config-ext-nacl)# permit icmp 172.16.10.0 0.0.0.255 any
RouterA(config-ext-nacl)#
```

Figure 13 Router A (Administration)

```
interface S0
```

```
ip access-group ADMIN_TO_SALES out
```

```
RouterC(config)#ip access-list extended ENG_TO_SALES
RouterC(config-ext-nacl)# permit ip 172.16.50.0 0.0.0.255 172.16.10.0 0.0.0.255
RouterC(config-ext-nacl)# deny udp host 172.16.50.20 172.16.30.8 0.0.0.7
RouterC(config-ext-nacl)# deny udp host 172.16.50.20 host 172.16.30.16
RouterC(config-ext-nacl)# permit udp 172.16.50.0 0.0.0.31 any
RouterC(config-ext-nacl)# deny udp 172.16.50.0 0.0.0.255 any
RouterC(config-ext-nacl)# permit tcp 172.16.50.0 0.0.0.255 host 172.16.30.7 eq www
RouterC(config-ext-nacl)# deny tcp 172.16.50.0 0.0.0.255 172.16.30.128 0.0.0.63
RouterC(config-ext-nacl)# deny tcp 172.16.50.0 0.0.0.255 host 172.16.30.4 eq telnet
RouterC(config-ext-nacl)# permit tcp 172.16.50.0 0.0.0.255 any
RouterC(config-ext-nacl)# deny icmp 172.16.50.0 0.0.0.255 any
RouterC(config-ext-nacl)#
```

Figure 14 Router C (Engineering)

```
interface S0
```

```
ip access-group ENG_TO_SALES out
```