World University of Bangladesh

Course Title : Computer Networks Lab
Code : CSE 1006

Case study

Submitted By

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Submitted To

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Question 1.

Description

Task 1: How To Set up Small Campus / Small Enterprise Network. (Minimum Three Routers Setup in your Configuration)
Task 2: How To Configure Standard ACLs on Cisco Routers
Task 3: How To Improve The Performance Of Access Control Lists.

Answer.

Introduction :

In out work we would have to implement an enterprise level or a swall campus network within minimum three routers. In my previous lecture i have seen and learnt about the link state protocol , shortest path first, ospf operation operation and so on. Combining all those terminology we have minimum elements for creating a basic
level network design.

Methodology and limitation :

Here we need to create a design by hand first. The components we need for it are
given below :-

I. Server
II. Internet
III. Switch
IV. Router
V. Desktop

Discussion and Results :

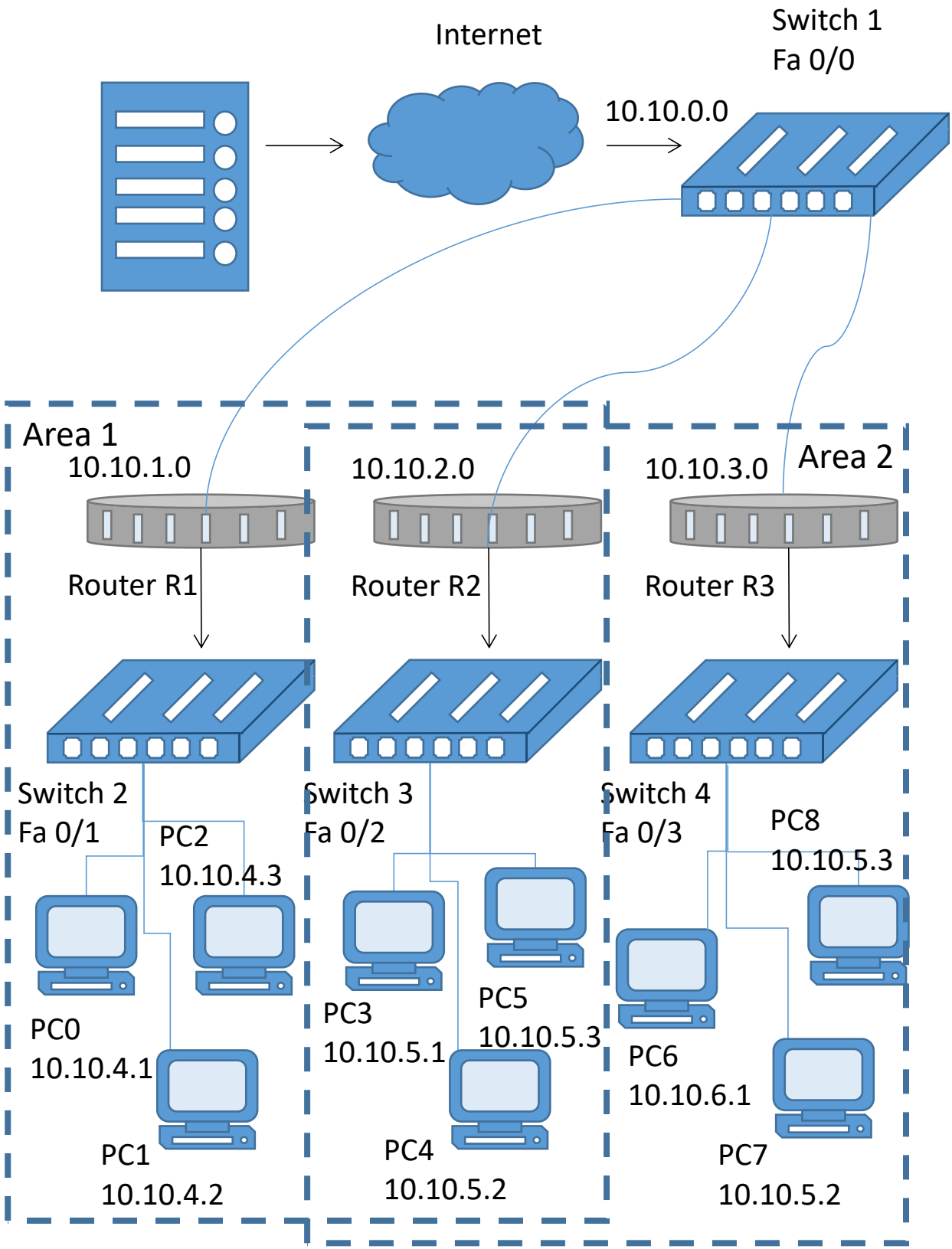

Fig : An enterprize network design

	IP	Subnet mask	Interface
Switch 1	10.10.0.0	255.255.0.0	Fa 0/0

	IP	Host mask
R1	10.10.1.0	0.0.0.255
R2	10.10.2.0	0.0.0.255
R3	10.10.3.0	0.0.0.255

	IP	Subnet mask	Interface
Switch 2	10.10.4.0	255.255.255.0	Fa 0/1
Switch 2	10.10.5.0	255.255.255.0	Fa 0/2
Switch 2	10.10.6.0	255.255.255.0	Fa 0/3

	IP	Subnet mask	Interface
PC0	10.10.4.1	255.255.255.255	Fa 0/1
PC1	10.10.4.2	255.255.255.255	Fa 0/1
PC2	10.10.4.3	255.255.255.255	Fa 0/1

	IP	Subnet mask	Interface
PC3	10.10.5.1	255.255.255.255	Fa 0/2
PC4	10.10.5.2	255.255.255.255	Fa 0/2
PC5	10.10.5.3	255.255.255.255	Fa 0/2

	IP	Subnet mask	Interface
PC6	10.10.6.1	255.255.255.255	Fa 0/3
PC7	10.10.6.2	255.255.255.255	Fa 0/3
PC8	10.10.6.3	255.255.255.255	Fa 0/3

Configuration for “switch 1”

```
switch1 (config)# int vlan 1
switch1 (config)# ip address 10.10.0.0          255.255.0.0
switch1 (config)# no shut
switch1 (config)# ip default-gateway 10.10.0.0
switch1 (config)# Interface Fa0/0
```

Configuration for router “R1”

```
R1 (config)# router OSPF 1
R1 (config - router)# network 10.10.1.0         0.0.0.255   Area 1
R1 (config - router)# router id 1.1.1.1
```

Configuration for router “R2”

```
R2 (config)# router OSPF 1
R2 (config - router)# network 10.10.2.0         0.0.0.255   Area 1
R2 (config - router)# router id 2.2.2.2
```

Configuration for router “R3”

```
R3 (config) # router OSPF 1
R3 (config - router)# network 10.10.3.0         0.0.0.255   Area 2
R3 (config - router)# router id 3.3.3.3
```

Configuration for “switch 2”

```
switch2 (config)# int vlan 2
switch2 (config)# ip address 10.10.4.0          255.255.255.0
switch2 (config)# no shut
switch2 (config)# ip default-gateway 10.10.4.0
switch2 (config)# Fa 0/1
```

Configuration for “switch 3”

```
switch3 (config)# int vlan 3
switch3 (config)# ip address 10.10.5.0          255.255.255.0
switch3 (config)# no shut
switch3 (config)# ip default - gateway 10.10.5.0
switch3 (config)# Fa 0/2
```

Configuration for “switch 4”

```
switch3 (config)# int vlan 4
switch3 (config)# ip address 10.10.6.0          255.255.255.0
switch3 (config)# no shut
switch3 (config)# ip default - gateway 10.10.6.0
switch3 (config)# Fa 0/3
```

Configuration for “PC0”

```
#ip access-list standared FILTER_PC0
#access-list 1 permit                  10.10.4.1   255.255.255.255
#Interface Fa 0/1
#ip access-group 1 out
```

Configuration for “PC1”

```
#ip access-list standared FILTER_PC1
#access-list 2 permit                  10.10.4.2   255.255.255.255
#Interface Fa 0/1
#ip access-group 2 out
```

Configuration for “PC2”

```
#ip access-list standared FILTER_PC2
#access-list 3 permit          10.10.4.3          255.255.255.255
#Interface Fa 0/1
#ip access-group 3 out
```

Configuration for “PC3”

```
#ip access-list standared FILTER_PC3
#access-list 4 permit          10.10.5.1          255.255.255.255
#Interface Fa 0/2
#ip access-group 4 out
```

Configuration for “PC4”

```
#ip access-list standared FILTER_PC4
#access-list 5 permit          10.10.5.2          255.255.255.255
#Interface Fa 0/2
#ip access-group 5 out
```

Configuration for “PC5”

```
#ip access-list standared FILTER_PC5
#access-list 6 permit          10.10.5.3          255.255.255.255
#Interface Fa 0/2
#ip access-group 6 out
```

Configuration for “PC6”

```
#ip access-list standared FILTER_PC6
#access-list 7 permit          10.10.6.1          255.255.255.255
#Interface Fa 0/3
#ip access-group 7 out
```

Configuration for “PC7”

```
# ip access-list standared FILTER_PC7
# access-list 8 permit          10.10.6.2          255.255.255.255
# Interface Fa 0/3
# ip access-group 8 out
```

Configuration for “PC8”

```
# ip access-list standared FILTER_PC8
# access-list 9 permit          10.10.6.3          255.255.255.255
# Interface Fa 0/4
# ip access - group 9 out
```

Conclusion :

This is how we can create a small network for an enterprise or campus.