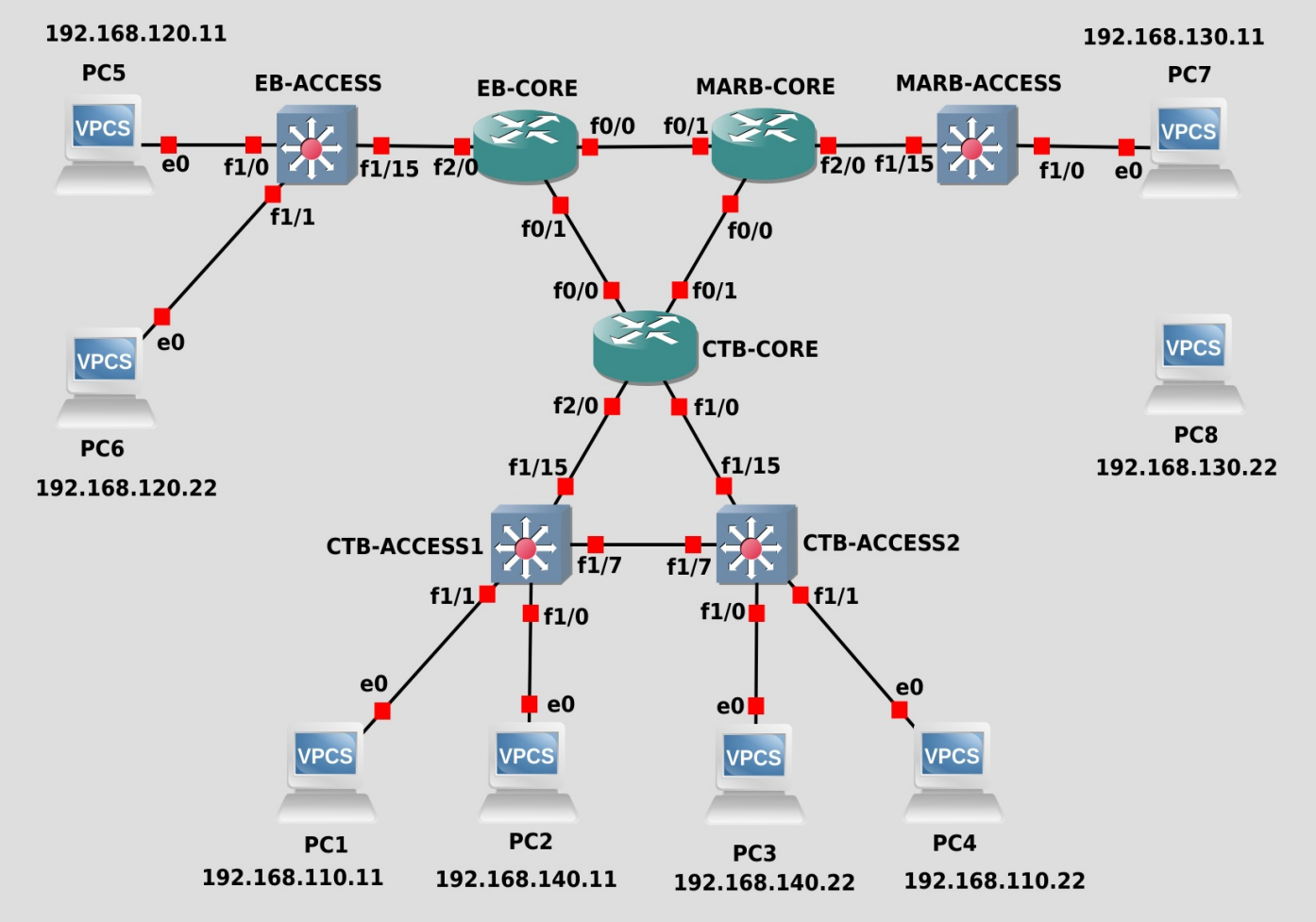
IT&C 247 Lab 9 (Troubleshooting)

Introduction

Welcome to the final lab! All of your hard work has been culminating to this point. In this lab, you will need to use all of the skills you've learned in previous labs to troubleshoot a given network. Please follow the instructions *very carefully* in order to avoid creating more problems than you are meant to solve!

Instructions



1) Build a topology as shown in the picture above. It is CRUCIAL that everything matches, including interfaces and hostnames.

Do not configure anything with the console yet! We will give you the exact configurations for you to paste into the devices.

2) Set the PC IP addresses and default gateways as shown on the diagram with the following commands. Running save as shown should save your work.

PC1

```
ip 192.168.110.11/24 192.168.110.1
save
```

PC2

```
ip 192.168.140.11/24 192.168.140.1
save
```

PC3

```
ip 192.168.140.22/24 192.168.140.1
save
```

PC4

```
ip 192.168.110.22/24 192.168.110.1
save
```

PC5

```
ip 192.168.120.11/24 192.168.120.1
save
```

PC6

```
ip 192.168.120.22/24 192.168.120.1
save
```

PC7

```
ip 192.168.130.11/24 192.168.130.1
save
```

PC8

```
ip 192.168.130.22/24 192.168.130.1
save
```

3) Copy each configuration and paste it into the corresponding device's console. You should be able to paste the whole thing at once, and it will run each line like you typed the command.

Be sure to paste this in the "normal" console mode, not the "config" mode. It will enter the configuration terminal automatically.

These configurations are intentionally broken, but there shouldn't be any immediate error messages. Try again or ask a TA for help if it looks like the configuration didn't work.

Remember to press enter at the end until the save prompt is finished.

CTB-ACCESS1

```
vlan database
vlan 110 name Labs
vlan 140 name Students
vlan 999 name PARKING
exit
configure terminal
interface f1/0
switchport mode access
switchport access vlan 110
no shutdown
exit
interface f1/1
switchport mode access
switchport access vlan 140
no shutdown
exit
interface f1/15
switchport mode access
switchport access vlan 110
no shutdown
exit
interface f1/7
switchport mode trunk
switchport trunk allowed vlan 1-2,1002-1005
no shutdown
exit
interface range f1/2 - 6 , f1/8 - 14
switchport mode access
switchport access vlan 999
shutdown
end
copy running-config startup-config
```

CTB-ACCESS2

```
vlan database
vlan 110 name Labs
vlan 140 name Students
vlan 999 name PARKING
exit
configure terminal
interface f1/0
switchport mode access
switchport access vlan 140
no shutdown
exit
interface f1/1
switchport mode access
switchport access vlan 110
shutdown
exit
interface f1/15
switchport mode access
switchport access vlan 140
no shutdown
exit
interface f1/7
switchport mode trunk
switchport trunk allowed vlan 1-2,1002-1005
switchport trunk allowed vlan add 110,140
switchport trunk native vlan 999
no shutdown
exit
interface range f1/2 - 6 , f1/8 - 14
switchport mode access
switchport access vlan 999
shutdown
end
copy running-config startup-config
```

EB-ACCESS

```
vlan database
vlan 120 name Students
vlan 999 name PARKING
exit
configure terminal
interface range f1/0
switchport mode access
switchport access vlan 120
no shutdown
exit
interface f1/15
switchport mode trunk
switchport trunk allowed vlan 1-2,1002-1005
switchport trunk allowed vlan add 120
switchport trunk native vlan 999
no shutdown
exit
interface range f1/2 - 14
switchport mode access
switchport access vlan 999
shutdown
end
copy running-config startup-config
```

MARB-ACCESS

```
vlan database
vlan 130 name Students
vlan 999 name PARKING
exit
configure terminal
interface range f1/0 , f1/1 , f1/15
switchport mode access
switchport access vlan 130
no shutdown
exit
no vlan 130
interface range f1/2 - 14
switchport mode access
switchport access vlan 999
shutdown
end
copy running-config startup-config
```

CTB-CORE

```
configure terminal
interface f2/0
ip address 192.168.110.1 255.255.255.0
no shutdown
exit
interface f1/0
ip address 192.168.140.1 255.255.255.0
no shutdown
exit
interface f0/0
no shutdown
exit
interface f0/1
ip address 192.168.100.2 255.255.255.252
no shutdown
exit
interface loopback 1
ip address 1.1.1.1 255.255.255.255
no shutdown
exit
interface range f0/0 - 1
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 NoTypos!
exit
router ospf 1
network 192.168.100.4 255.255.255.252 area 0
network 192.168.100.0 255.255.255.252 area 0
network 192.168.110.0 255.255.255.0 area 1
network 192.168.140.0 255.255.255.0 area 1
end
copy running-config startup-config
```

EB-CORE

```
configure terminal
interface f2/0
ip address 192.168.120.1 255.255.255.0
exit
interface f0/0
ip address 192.168.100.9 255.255.255.252
no shutdown
exit
interface f0/1
ip address 192.168.100.5 255.255.255.252
no shutdown
exit
interface loopback 1
ip address 2.2.2.2 255.255.255.255
no shutdown
exit
interface range f0/0 - 1
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 NoTypos!
exit
router ospf 1
network 192.168.100.8 255.255.255.252 area 7
network 192.168.100.4 255.255.255.252 area 7
network 192.168.120.0 255.255.255.0 area 1
end
copy running-config startup-config
```

MARB-CORE

```
configure terminal
interface f2/0
ip address 192.168.130.1 255.255.255.224
no shutdown
exit
interface f0/0
ip address 192.168.100.1 255.255.255.252
no shutdown
exit
interface f0/1
ip address 192.168.100.10 255.255.255.252
no shutdown
exit
interface loopback 1
ip address 3.3.3.3 255.255.255.255
no shutdown
exit
interface range f0/0 - 1
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 NoTypos
exit
router ospf 1
network 192.168.100.0 255.255.255.252 area 0
network 192.168.100.8 255.255.255.252 area 0
network 192.168.130.0 255.255.255.0 area 1
end
copy running-config startup-config
```

4) This network is very broken! Almost no PCs will be able to ping each other. Your goal is to fix the network until the PCs can ping each other again.

Good luck!

HINTS

- We tried creating four problems in Layers 1, 2, and 3 for this network, so there are about 12 problems total.
- This network uses OSPF, where the network links in the core comprise area 0, and the outer networks are in area 1.

PASSOFF

- Screenshots of PC1 succesfully pinging every other PC
- Screenshots of OSPF neighbors of each router