



Lecture (03)

CS
IT

Vlans interconnection through multiple switches

By:

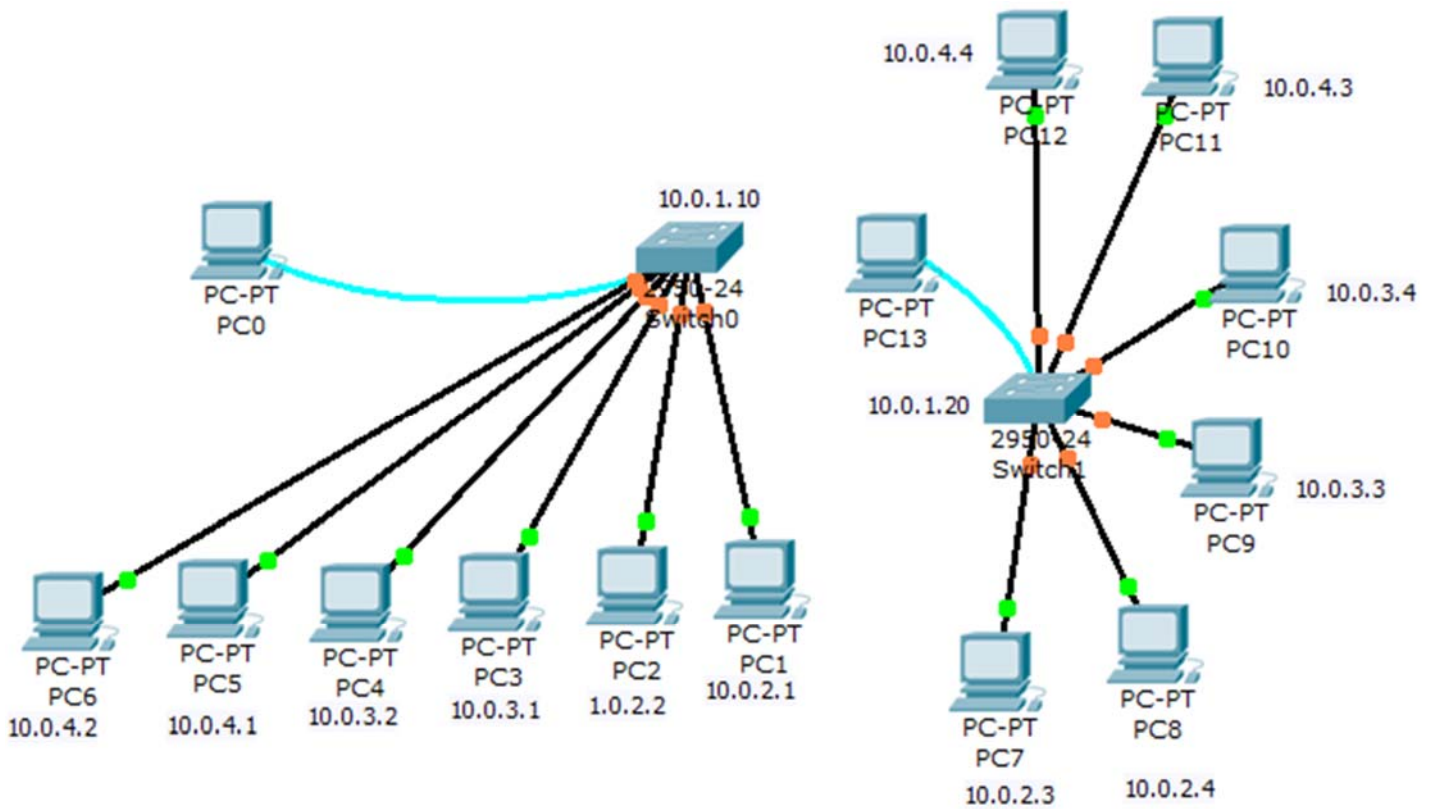
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Networks I

3.1

Build two switches having same VLANS

Topology



PC1	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.2.1
	Mask	255.255.0.0

PC2	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.2.2
	Mask	255.255.0.0

PC3	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.3.1
	Mask	255.255.0.0

PC4	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.3.2
	Mask	255.255.0.0

PC5	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.4.1
	Mask	255.255.0.0

PC6	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.4.2
	Mask	255.255.0.0

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PC7	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.2.3
	Mask	255.255.0.0

PC8	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.2.4
	Mask	255.255.0.0

PC9	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.3.3
	Mask	255.255.0.0

PC10	item	Configuration
	Gateway	auto
	DNS	auto
	Port status	On
	Band width	auto
	Duplex	auto
	IP	10.0.3.4
	Mask	255.255.0.0

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PC1 1	item	Configuration	PC1 2	item	Configuration
	Gateway	auto		Gateway	auto
	DNS	auto		DNS	auto
	Port status	On		Port status	On
	Band width	auto		Band width	auto
	Duplex	auto		Duplex	auto
	IP	10.0.4.3		IP	10.0.4.4
	Mask	255.255.0.0		Mask	255.255.0.0

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```
[B0-FL00-R01-SW01]
```

```
*****
```

```
enabl
config t
hostname B01-FL00-R01-SW01
banner motd #Hello & Welcome to
Practical Applications on Networks I -
Lecture 03#
```

```
line vty 0 4
password cisco
login
```

```
line console 0
password cisco
login
```

```
enable password cisco
```

```
enable secret cisco1
```

```
interface vlan 1
ip address 10.0.1.10 255.255.0.0
no shutdown
```

```
interface range fa0/1-6
speed auto
duplex auto
```

```
vlan 2
name Finance
```

```
vlan 3
name HR
```

```
vlan 4
name Administration
```

```
interface fa0/1
switchport mode access
switchport access vlan 2
```

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```
interface fa0/2
switchport mode access
switchport access vlan 2
```

```
interface fa0/3
switchport mode access
switchport access vlan 3
```

```
interface fa0/4
switchport mode access
switchport access vlan 3
```

```
interface fa0/5
switchport mode access
switchport access vlan 4
```

```
interface fa0/6
switchport mode access
switchport access vlan 4
```

```
end
```

```
copy running-config startup-config
```

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```
[B0-FL00-R01-SW01]
```

```
*****
```

```
enabl
config t
hostname B01-FL00-R02-SW01
banner motd #Hello & Welcome to
Practical Applications on Networks I -
Lecture 03#
```

```
line vty 0 4
password cisco
login
```

```
line console 0
password cisco
login
```

```
enable password cisco
```

```
enable secret cisco1
```

```
interface vlan 1
ip address 10.0.1.20 255.255.0.0
no shutdown
```

```
interface range fa0/1-6
speed auto
duplex auto
```

```
vlan 2
name Finance
```

```
vlan 3
name HR
```

```
vlan 4
name Administration
```

```
interface fa0/1
switchport mode access
switchport access vlan 2
```

```
interface fa0/2
switchport mode access
switchport access vlan 2
```

```
interface fa0/3
switchport mode access
switchport access vlan 3

interface fa0/4
switchport mode access
switchport access vlan 3

interface fa0/5
switchport mode access
switchport access vlan 4

interface fa0/6
switchport mode access
switchport access vlan 4

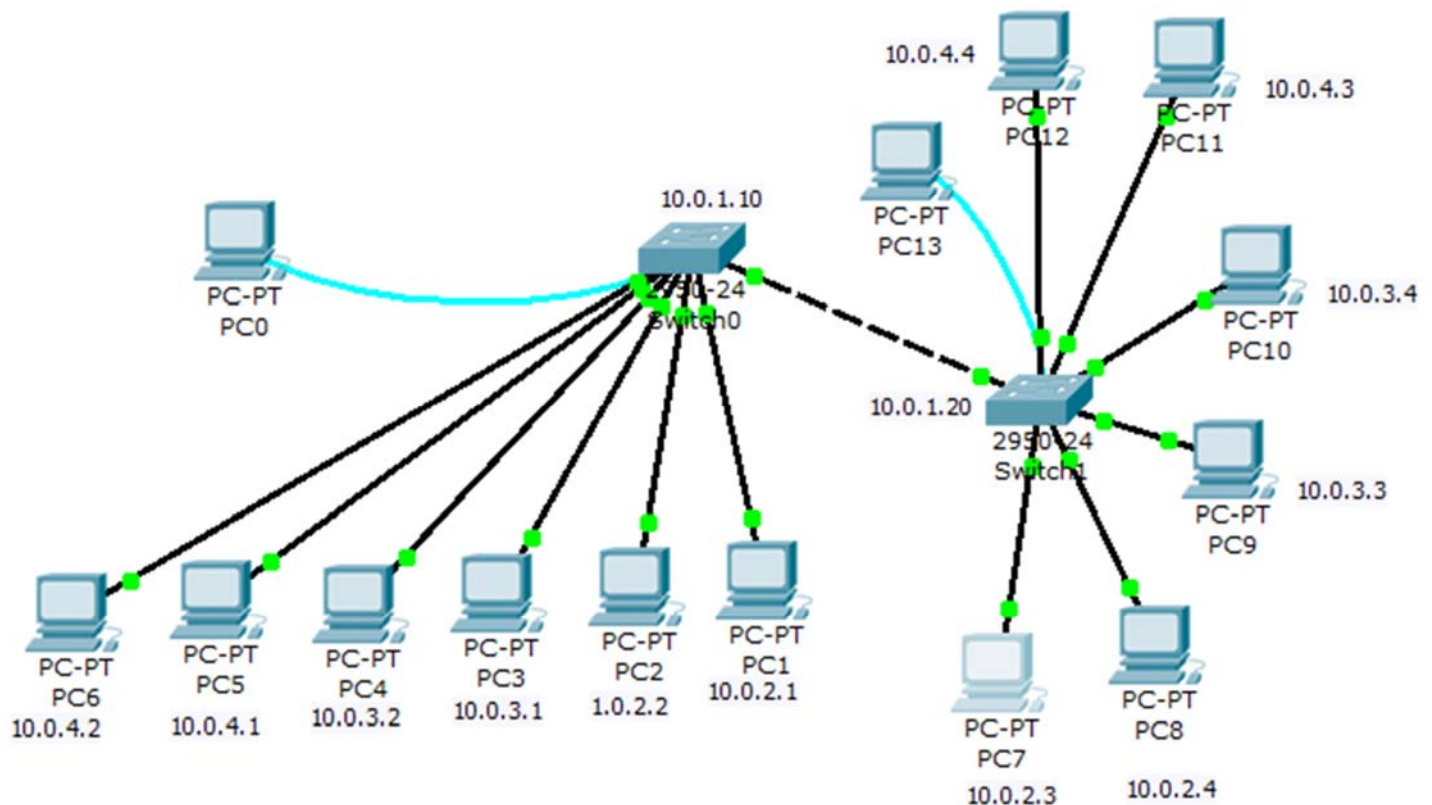
end

copy running-config startup-config
```

3.1.1

Connecting switches

Topography



```
FL00-R01-SW01#ping 10.0.1.20
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.1.20, timeout is 2 seconds:
```

```
..!!!
```

```
Success rate is 60 percent (3/5), round-trip min/avg/max = 4/4/4 ms
```

```
FL00-R01-SW01#ping 10.0.0.20
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.0.20, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
FL00-R01-SW01#ping 10.0.1.20
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.1.20, timeout is 2 seconds:
```

```
..!!!
```

```
Success rate is 60 percent (3/5), round-trip min/avg/max = 4/4/4 ms
```

```
FL00-R01-SW01#ping 10.0.20.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.20.1, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
FL00-R01-SW01#ping 10.0.30.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.30.1, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
FL00-R01-SW01#ping 10.0.30.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.30.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)

FL00-R01-SW01#ping 10.0.40.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.40.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
```

```
PC>ping 10.0.2.2

Pinging 10.0.2.2 with 32 bytes of data:

Reply from 10.0.2.2: bytes=32 time=18ms TTL=128
Reply from 10.0.2.2: bytes=32 time=8ms TTL=128
Reply from 10.0.2.2: bytes=32 time=8ms TTL=128
Reply from 10.0.2.2: bytes=32 time=9ms TTL=128

Ping statistics for 10.0.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 18ms, Average = 10ms
```

```
Pinging 10.0.2.3 with 32 bytes of data:

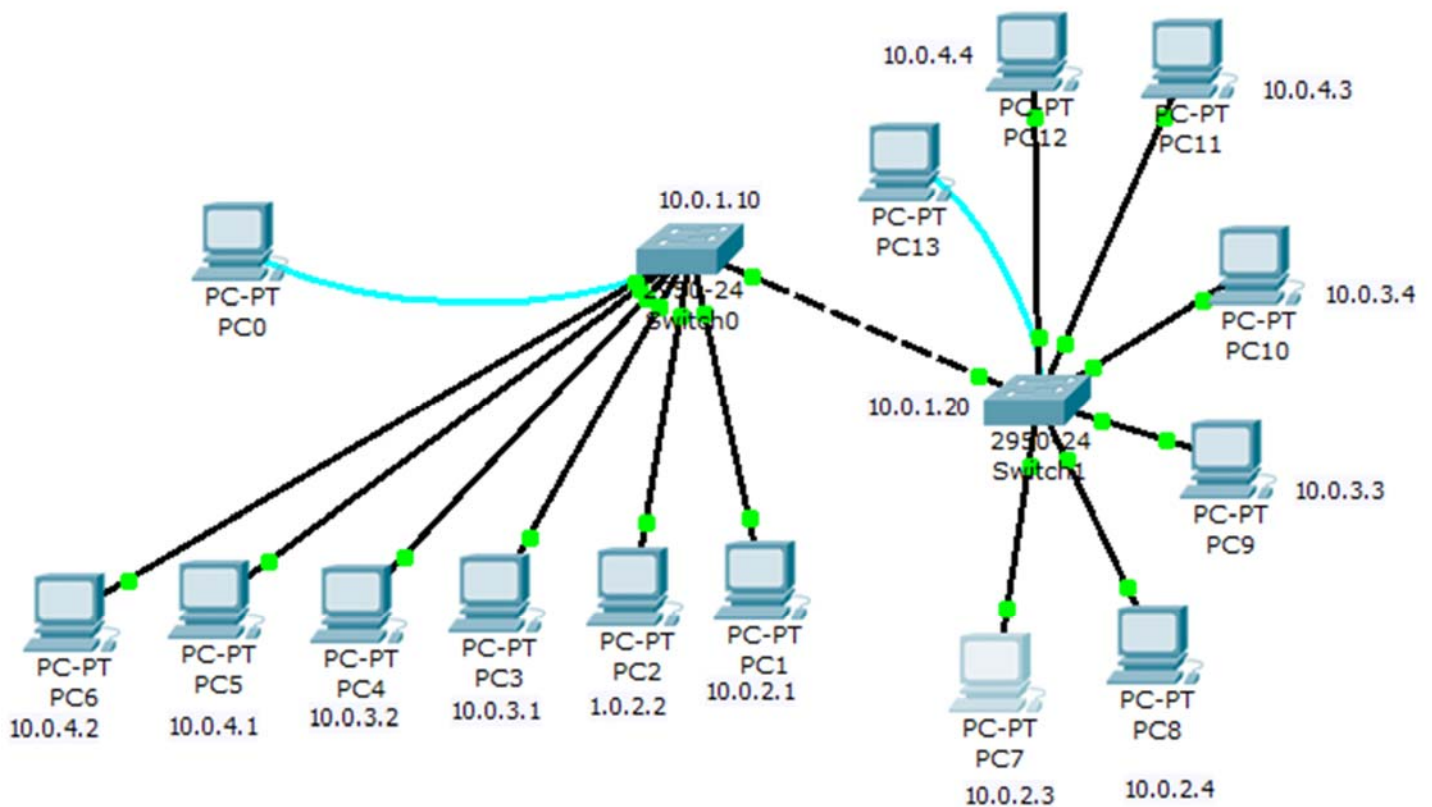
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.2.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

3.2

Trunk mode

Topography



```
[B01-FL00-R01-SW01]
```

```
enable  
config t  
interface fa0/24  
switchport mode trunk  
speed auto  
duplex auto  
end  
copy running-config startup-config  
reload
```

```
B01-FL00-R02-SW01]
```

```
enable  
config t  
interface fa0/24  
switchport mode trunk  
speed auto  
duplex auto  
end  
copy running-config startup-config  
Reload
```

```
-----  
FL00-R01-SW01#ping 10.0.1.20
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.1.20, timeout is 2 seconds:
```

```
..!!!
```

```
■ Success rate is 60 percent (3/5), round-trip min/avg/max = 4/4/4 ms
```

```
FL00-R01-SW01#|
```

```
FL00-R01-SW01#ping 10.0.2.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.2.1, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
FL00-R01-SW01#ping 10.0.2.3
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.0.2.3, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

The screenshot shows a Packet Tracer PC Command Prompt window with the following text:

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.2.3

Pinging 10.0.2.3 with 32 bytes of data:

Reply from 10.0.2.3: bytes=32 time=25ms TTL=128
Reply from 10.0.2.3: bytes=32 time=14ms TTL=128
Reply from 10.0.2.3: bytes=32 time=10ms TTL=128
Reply from 10.0.2.3: bytes=32 time=11ms TTL=128

Ping statistics for 10.0.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 25ms, Average = 15ms

PC>ping 10.0.2.2

Pinging 10.0.2.2 with 32 bytes of data:

Reply from 10.0.2.2: bytes=32 time=20ms TTL=128
Reply from 10.0.2.2: bytes=32 time=6ms TTL=128
Reply from 10.0.2.2: bytes=32 time=4ms TTL=128
Reply from 10.0.2.2: bytes=32 time=10ms TTL=128

Ping statistics for 10.0.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 20ms, Average = 10ms

PC>
```

3.3

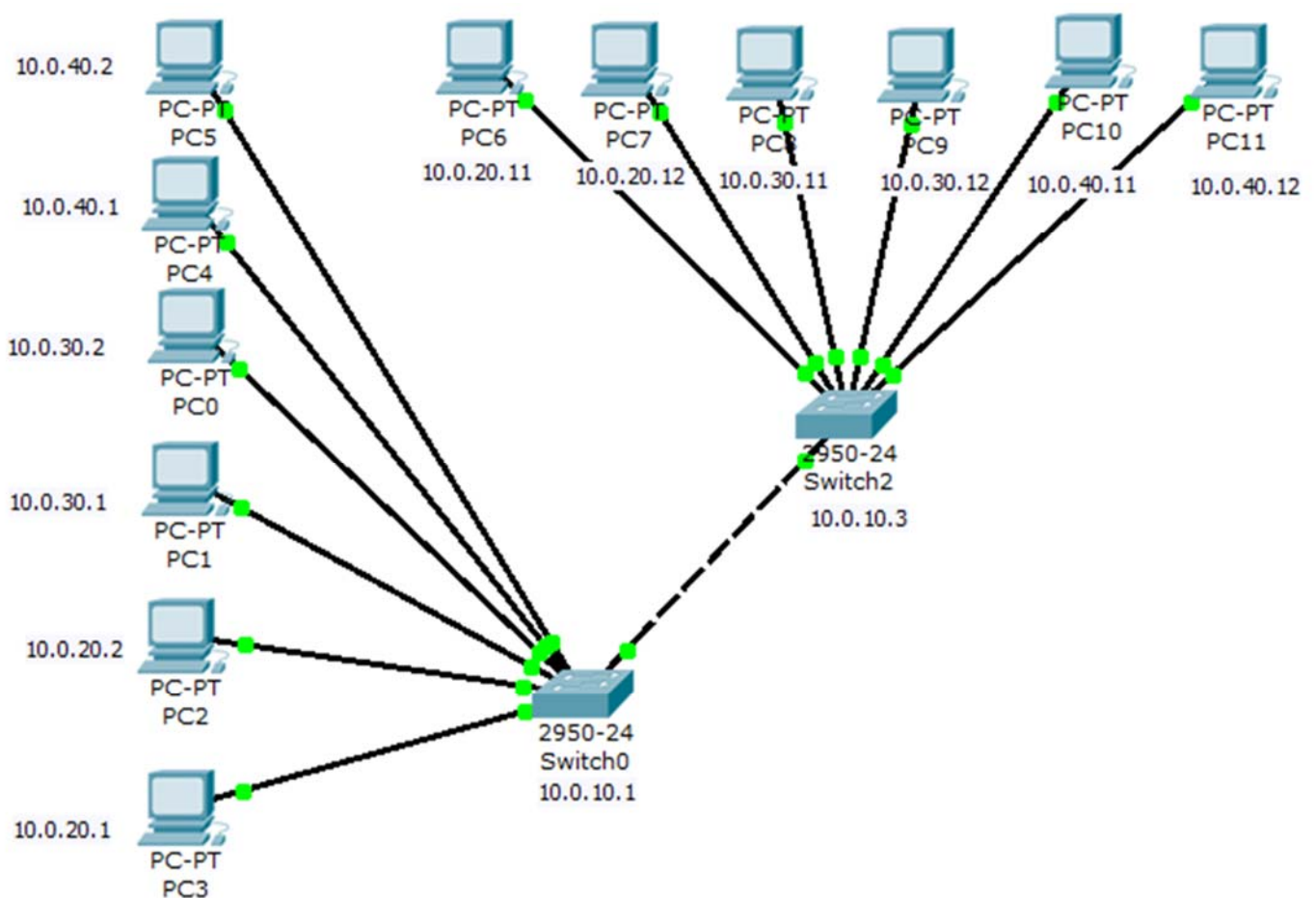
VTP Server/Client

VTP

- VLAN Trunking Protocol (VTP) is a Cisco proprietary protocol that propagates the definition of Virtual Local Area Networks (VLAN) on the whole local area network
- To do this, VTP carries VLAN information to all the switches in a VTP domain.
- VTP advertisements can be sent LAN trunks.
- VTP is available on most of the Cisco Catalyst Family products.
- There are three versions of vtp, namely version 1, version 2, version 3.
- The comparable IEEE standard in use by other manufacturers.

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```
[B01-FL00-R01-SW01]
```

```
****
```

```
enabl  
config t  
hostname B01-FL00-R01-SW01  
banner motd #B01-FL00-R01-SW01 -  
10.0.10.1#
```

```
line vty 0 4  
password cisco  
login
```

```
line console 0  
password cisco  
login
```

```
enable password cisco
```

```
enable secret cisco1
```

```
vtp domain ACU  
vtp mode server
```

```
interface vlan 1  
ip address 10.0.10.1 255.255.255.0  
no shutdown
```

```
vlan 2  
name Finance
```

```
vlan 3  
name HR
```

```
vlan 4  
name Administration
```

```
interface range fa0/1-24  
speed auto  
duplex auto
```

```
interface range fa0/1-5  
switchport mode access  
switchport access vlan 2
```

```
interface range fa0/6-10  
switchport mode access  
switchport access vlan 3
```

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```
interface range fa0/11-15  
switchport mode access  
switchport access vlan 4
```

```
interface range fa0/23-24  
switchport mode trunk
```

```
end
```

```
copy running-config startup-config
```

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```
[B01-FL00-R02-SW01]
```

```
enabl  
config t  
hostname B01-FL00-R02-SW01  
banner motd #B01-FL00-R02-SW01 -  
10.0.10.2#
```

```
line vty 0 4  
password cisco  
login
```

```
line console 0  
password cisco  
login
```

```
enable password cisco
```

```
enable secret cisco1
```

```
vtp domain ACU  
vtp mode client
```

```
interface vlan 1  
ip address 10.0.10.2 255.255.255.0  
no shutdown
```

```
interface range fa0/1-24  
speed auto  
duplex auto
```

```
interface range fa0/1-5  
switchport mode access  
switchport access vlan 2
```

```
interface range fa0/6-10  
switchport mode access  
switchport access vlan 3
```

```
interface range fa0/11-15  
switchport mode access  
switchport access vlan 4
```

```
interface fa0/24  
switchport mode trunk
```

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```
interface fa0/23  
switchport mode trunk  
  
end  
  
copy running-config startup-config
```



Thanks,..
See you next week (ISA),...

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