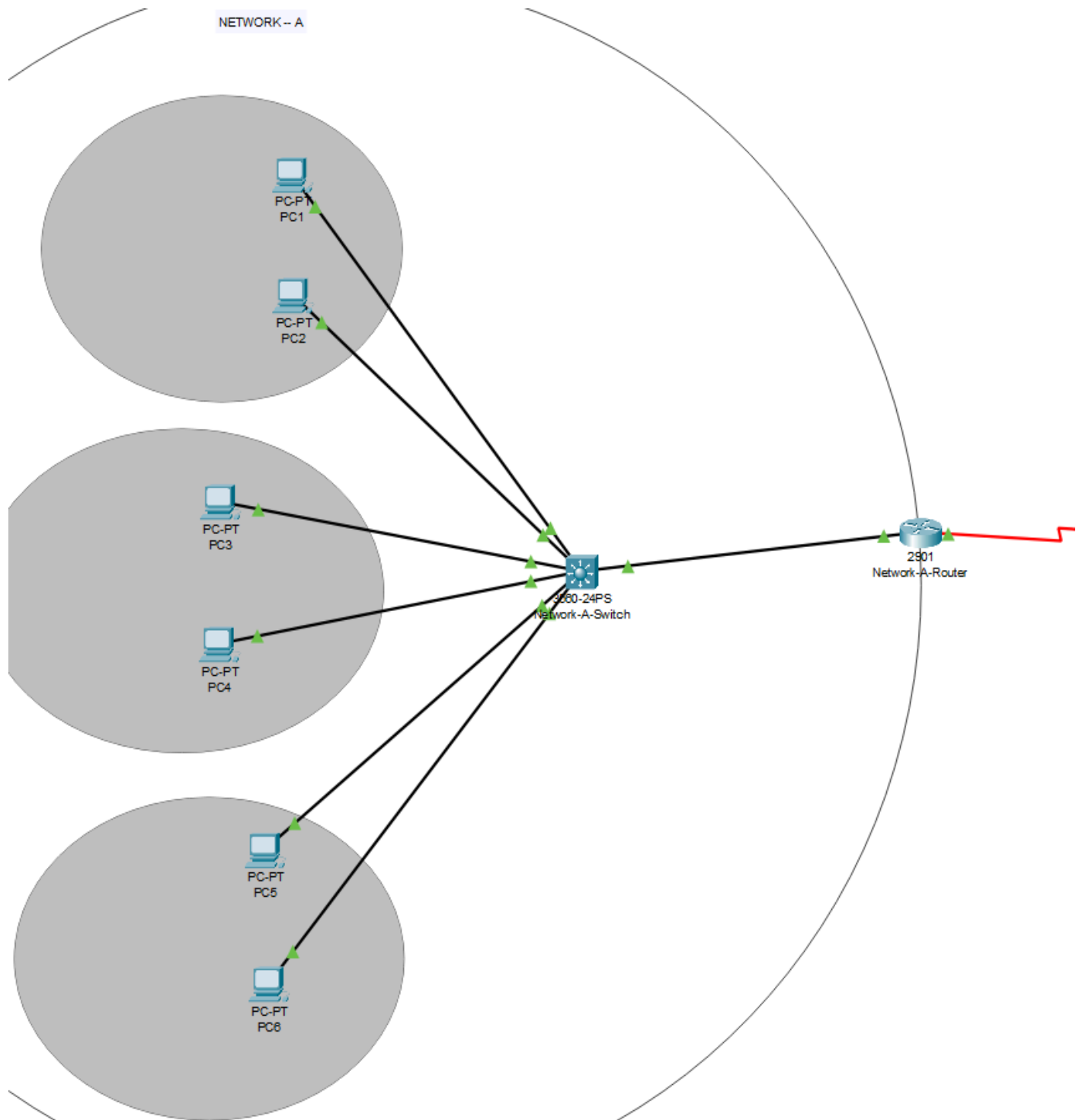


- Logical Network Topology (Split into 2 pictures)



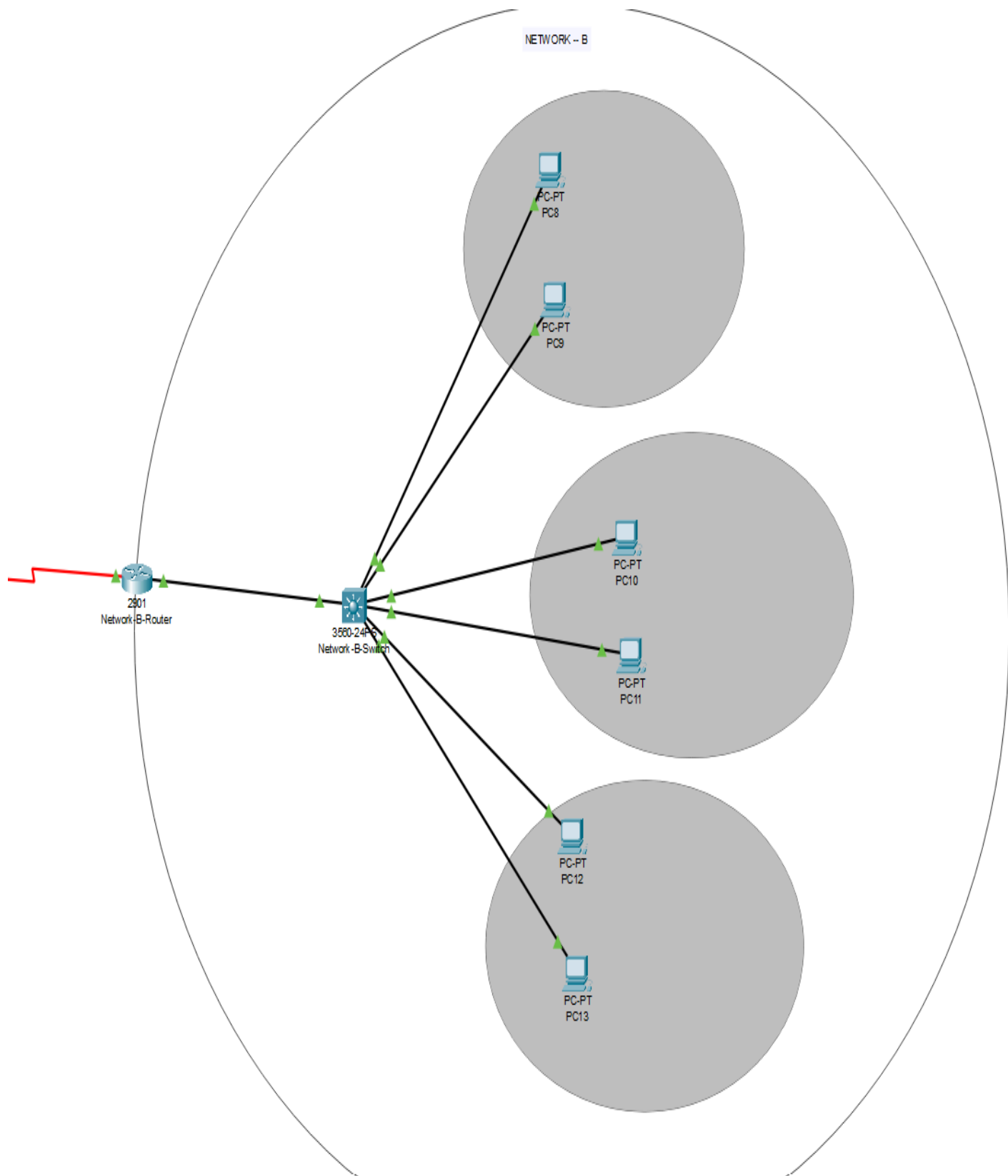


FIGURE 1.2 – Equipment and Interface Reference Chart

Router / LAB-R1 / Interface	IPv4 – Address / Subnet	VLAN	VLAN - Name	Encapsulation Mode
Serial 0/0/0	10.10.10.1/30	n/a	n/a	n/a
Gi 0/1	172.168.1.1/24	n/a	n/a	
Gi0/1.1	192.168.100.1/24	vlan 1	default	IEEE 802.1Q
Gi0/1.10	192.168.10.1/28	vlan10	zone10	IEEE 802.1Q
Gi0/1.20	192.168.20.1/28	vlan20	zone20	IEEE 802.1Q
Gi0/1.30	192.168.30.1/28	vlan30	zone30	IEEE 802.1Q

Router / LAB-R2 / Interface	IPv4 – Address / Subnet	VLAN	VLAN - Name	Encapsulation Mode
Serial 0/0/0	10.10.10.2/30	n/a	n/a	n/a
Gi 0/1	172.168.2.1/24	n/a	n/a	
Gi0/1.1	192.168.200.1/24	vlan 1	default	IEEE 802.1Q
Gi0/1.110	192.168.110.1/28	vlan110	zone110	IEEE 802.1Q
Gi0/1.120	192.168.120.1/28	vlan120	zone120	IEEE 802.1Q
Gi0/1.130	192.168.130.1/28	vlan130	zone130	IEEE 802.1Q

- IPv4 Configurations for Workstations

The screenshot shows a window titled "PC1" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying the "IP Configuration" window. The "Interface" dropdown is set to "FastEthernet0". Under "IP Configuration", the "Static" radio button is selected. The fields are filled with the following values:

IPv4 Address	192.168.10.2
Subnet Mask	255.255.255.240
Default Gateway	10.10.10.1
DNS Server	0.0.0.0

PC2

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.10.3

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.1

DNS Server 0.0.0.0

PC3

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.3

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.1

DNS Server 0.0.0.0

PC4

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.4

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.1

DNS Server 0.0.0.0

PC5

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.5

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.1

DNS Server 0.0.0.0

PC6

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.6

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.1

DNS Server 0.0.0.0

PC8

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.110.8

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

PC9

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0 v

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.110.9

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

PC10

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0 v

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.120.10

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

PC11

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0 v

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.120.11

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

PC12

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.130.12

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

PC13

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.130.13

Subnet Mask 255.255.255.240

Default Gateway 10.10.10.2

DNS Server 0.0.0.0

- Switch A #show vlan

Network-A-Switch#show vlan

VLAN	Name	Status	Ports
1	default	active	Gig0/2
10	zone10	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8
20	zone20	active	Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16
30	zone30	active	Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
30	enet	100030	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
------	------	------	-----	--------	--------	----------	-----	----------	--------	--------

Remote SPAN VLANs

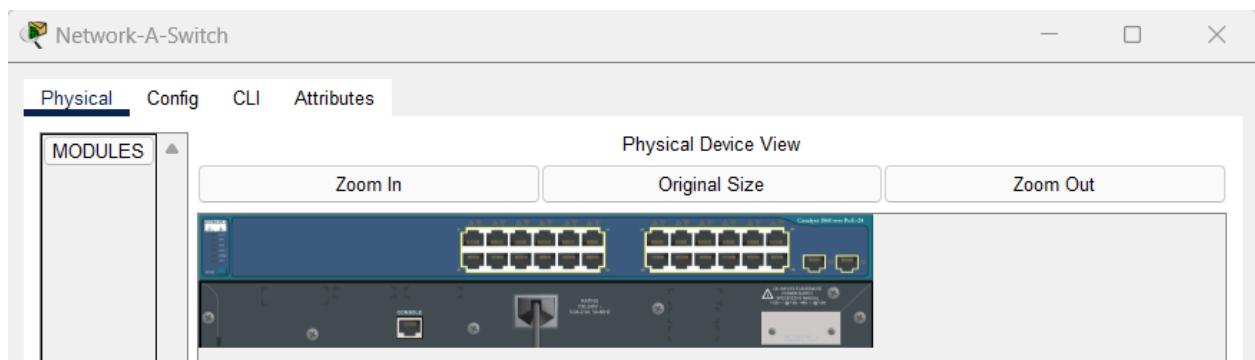
Primary	Secondary	Type	Ports
---------	-----------	------	-------

- Switch A #show ip interface

```
Network-A-Switch#show ip interface
FastEthernet0/1 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/2 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/3 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/4 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/5 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/6 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/7 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/8 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/9 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/10 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/11 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/12 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/13 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/14 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/15 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/16 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/17 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/18 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/19 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/20 is down, line protocol is down
  Internet protocol processing disabled
```

```
FastEthernet0/21 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/22 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/23 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/24 is down, line protocol is down
  Internet protocol processing disabled
GigabitEthernet0/1 is up, line protocol is up
  Internet protocol processing disabled
GigabitEthernet0/2 is down, line protocol is down
  Internet protocol processing disabled
Vlan1 is administratively down, line protocol is down
  Internet protocol processing disabled
```

- Switch A Front cables connected



- Switch B #show vlan

Network-B-Switch#show vlan

VLAN	Name	Status	Ports
1	default	active	Gig0/2
110	zonell10	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8
120	zonel20	active	Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16
130	zonel30	active	Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
110	enet	100110	1500	-	-	-	-	-	0	0
120	enet	100120	1500	-	-	-	-	-	0	0
130	enet	100130	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Remote SPAN VLANs

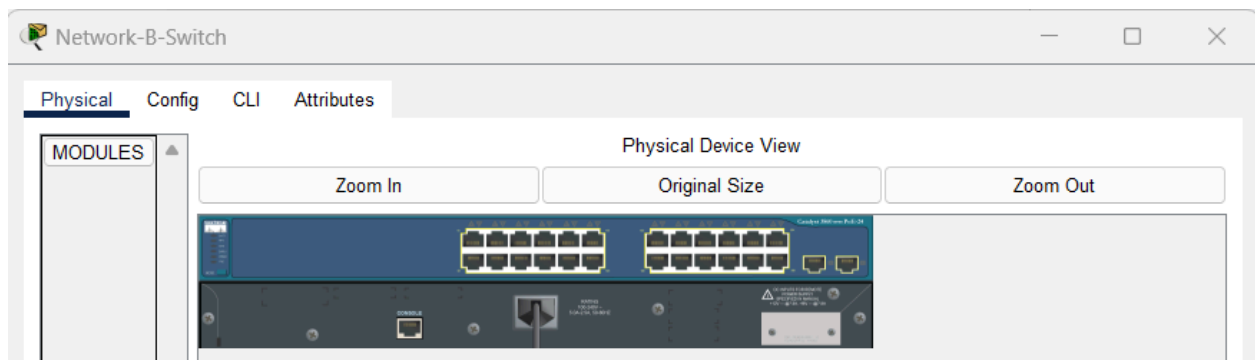
Primary	Secondary	Type	Ports
-----	-----	-----	-----

- Switch B #show ip interface

```
Network-B-Switch#show ip interface
FastEthernet0/1 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/2 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/3 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/4 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/5 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/6 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/7 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/8 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/9 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/10 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/11 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/12 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/13 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/14 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/15 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/16 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/17 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/18 is up, line protocol is up
  Internet protocol processing disabled
FastEthernet0/19 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/20 is down, line protocol is down
  Internet protocol processing disabled
```

```
FastEthernet0/21 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/22 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/23 is down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/24 is down, line protocol is down
  Internet protocol processing disabled
GigabitEthernet0/1 is up, line protocol is up
  Internet protocol processing disabled
GigabitEthernet0/2 is down, line protocol is down
  Internet protocol processing disabled
Vlan1 is administratively down, line protocol is down
  Internet protocol processing disabled
```

- Switch B Front cables connected



- Router A #show run

```
Network-A-Router#show run
Building configuration...

Current configuration : 1193 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Network-A-Router
!
!
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO2901/K9 sn FTX15244C6W-
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
```

```
!  
!  
interface GigabitEthernet0/0  
  no ip address  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1  
  ip address 172.168.1.1 255.255.255.0  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1.1  
  encapsulation dot1Q 1 native  
  ip address 192.168.100.1 255.255.255.0  
!  
interface GigabitEthernet0/1.10  
  encapsulation dot1Q 10  
  ip address 192.168.10.1 255.255.255.240  
!  
interface GigabitEthernet0/1.20  
  encapsulation dot1Q 20  
  ip address 192.168.20.1 255.255.255.240  
!  
interface GigabitEthernet0/1.30  
  encapsulation dot1Q 30  
  ip address 192.168.30.1 255.255.255.240  
!  
interface Serial0/0/0  
  ip address 10.10.10.1 255.255.255.252  
  clock rate 2000000  
!  
interface Serial0/0/1  
  no ip address  
  clock rate 2000000  
!  
interface Vlan1  
  no ip address  
!  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.10.10.2  
!
```

```

ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
  login
!
!
!
end

```

- Router A #show ip int brief

```

Network-A-Router#show ip int brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	up	down
GigabitEthernet0/1	172.168.1.1	YES	manual	up	up
GigabitEthernet0/1.1	192.168.100.1	YES	manual	up	up
GigabitEthernet0/1.10	192.168.10.1	YES	manual	up	up
GigabitEthernet0/1.20	192.168.20.1	YES	manual	up	up
GigabitEthernet0/1.30	192.168.30.1	YES	manual	up	up
Serial0/0/0	10.10.10.1	YES	manual	up	up
Serial0/0/1	unassigned	YES	unset	down	down
Vlan1	unassigned	YES	unset	up	down

- Router A #show ip route

```
Network-A-Router#show ip route
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
Gateway of last resort is 10.10.10.2 to network 0.0.0.0
```

```

    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.10.0/30 is directly connected, Serial0/0/0
L       10.10.10.1/32 is directly connected, Serial0/0/0
    172.168.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.168.1.0/24 is directly connected, GigabitEthernet0/1
L       172.168.1.1/32 is directly connected, GigabitEthernet0/1
    192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/28 is directly connected, GigabitEthernet0/1.10
L       192.168.10.1/32 is directly connected, GigabitEthernet0/1.10
    192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/28 is directly connected, GigabitEthernet0/1.20
L       192.168.20.1/32 is directly connected, GigabitEthernet0/1.20
    192.168.30.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.30.0/28 is directly connected, GigabitEthernet0/1.30
L       192.168.30.1/32 is directly connected, GigabitEthernet0/1.30
    192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.100.0/24 is directly connected, GigabitEthernet0/1.1
L       192.168.100.1/32 is directly connected, GigabitEthernet0/1.1
S*    0.0.0.0/0 [1/0] via 10.10.10.2
```

- Router B #show run

```
Network-B-Router#show run
Building configuration...

Current configuration : 1182 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Network-B-Router
!
!
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO2901/K9 sn FTX152429SS-
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
```

```
!  
!  
interface GigabitEthernet0/0  
  no ip address  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1  
  ip address 172.168.2.1 255.255.255.0  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1.1  
  encapsulation dot1Q 1 native  
  ip address 192.168.200.1 255.255.255.0  
!  
interface GigabitEthernet0/1.110  
  encapsulation dot1Q 110  
  ip address 192.168.110.1 255.255.255.240  
!  
interface GigabitEthernet0/1.120  
  encapsulation dot1Q 120  
  ip address 192.168.120.1 255.255.255.240  
!  
interface GigabitEthernet0/1.130  
  encapsulation dot1Q 130  
  ip address 192.168.130.1 255.255.255.240  
!  
interface Serial0/0/0  
  ip address 10.10.10.2 255.255.255.252  
!  
interface Serial0/0/1  
  no ip address  
  clock rate 2000000  
!  
interface Vlan1  
  no ip address  
!  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.10.10.1  
!  
ip flow-export version 9
```

```

!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
  login
!
!
!
end

```

- Router B #show ip int brief

```

Network-B-Router#show ip int brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	up	down
GigabitEthernet0/1	172.168.2.1	YES	manual	up	up
GigabitEthernet0/1.1	192.168.200.1	YES	manual	up	up
GigabitEthernet0/1.110	192.168.110.1	YES	manual	up	up
GigabitEthernet0/1.120	192.168.120.1	YES	manual	up	up
GigabitEthernet0/1.130	192.168.130.1	YES	manual	up	up
Serial0/0/0	10.10.10.2	YES	manual	up	up
Serial0/0/1	unassigned	YES	unset	down	down
Vlan1	unassigned	YES	unset	up	down

- Router B #show ip route

Network-B-Router#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
 D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
 N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
 E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
 i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
 * - candidate default, U - per-user static route, o - ODR
 P - periodic downloaded static route

Gateway of last resort is 10.10.10.1 to network 0.0.0.0

```

    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.10.0/30 is directly connected, Serial0/0/0
L       10.10.10.2/32 is directly connected, Serial0/0/0
    172.168.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.168.2.0/24 is directly connected, GigabitEthernet0/1
L       172.168.2.1/32 is directly connected, GigabitEthernet0/1
    192.168.110.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.110.0/28 is directly connected, GigabitEthernet0/1.110
L       192.168.110.1/32 is directly connected, GigabitEthernet0/1.110
    192.168.120.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.120.0/28 is directly connected, GigabitEthernet0/1.120
L       192.168.120.1/32 is directly connected, GigabitEthernet0/1.120
    192.168.130.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.130.0/28 is directly connected, GigabitEthernet0/1.130
L       192.168.130.1/32 is directly connected, GigabitEthernet0/1.130
    192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.200.0/24 is directly connected, GigabitEthernet0/1.1
L       192.168.200.1/32 is directly connected, GigabitEthernet0/1.1
S*    0.0.0.0/0 [1/0] via 10.10.10.1

```

- Ping from Router A to Router B

```
Network-A-Router#ping 10.10.10.2
```

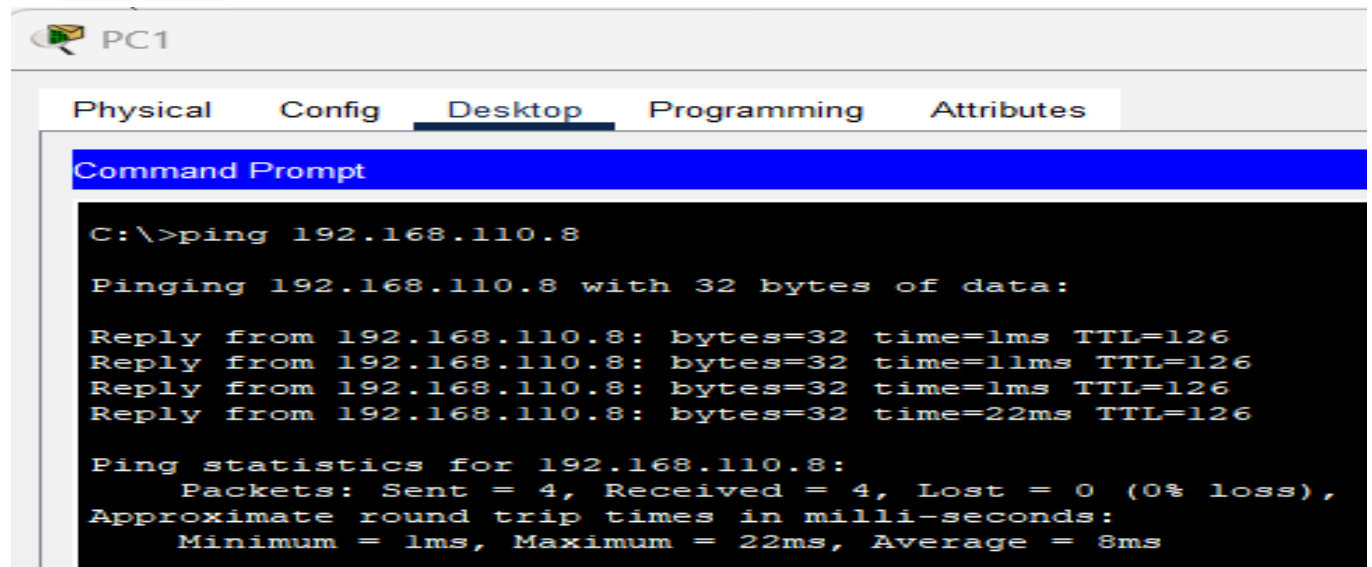
```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.10.10.2, timeout is 2 seconds:
```

```
!!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/15/23 ms
```

- Ping from PC 1 (Network A, VLAN 10) to PC 8 (Network B, VLAN 110)



The screenshot shows a PC1 window with a 'Desktop' tab selected. Inside the desktop environment is a 'Command Prompt' window. The command prompt displays the command 'C:\>ping 192.168.110.8' and its output. The output shows four successful replies from 192.168.110.8 with varying times (1ms, 11ms, 1ms, 22ms) and a TTL of 126. It also includes ping statistics: 4 packets sent, 4 received, 0% loss, and average round trip times of 8ms.

```
PC1
Physical  Config  Desktop  Programming  Attributes
Command Prompt
C:\>ping 192.168.110.8

Pinging 192.168.110.8 with 32 bytes of data:

Reply from 192.168.110.8: bytes=32 time=1ms TTL=126
Reply from 192.168.110.8: bytes=32 time=11ms TTL=126
Reply from 192.168.110.8: bytes=32 time=1ms TTL=126
Reply from 192.168.110.8: bytes=32 time=22ms TTL=126

Ping statistics for 192.168.110.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 22ms, Average = 8ms
```