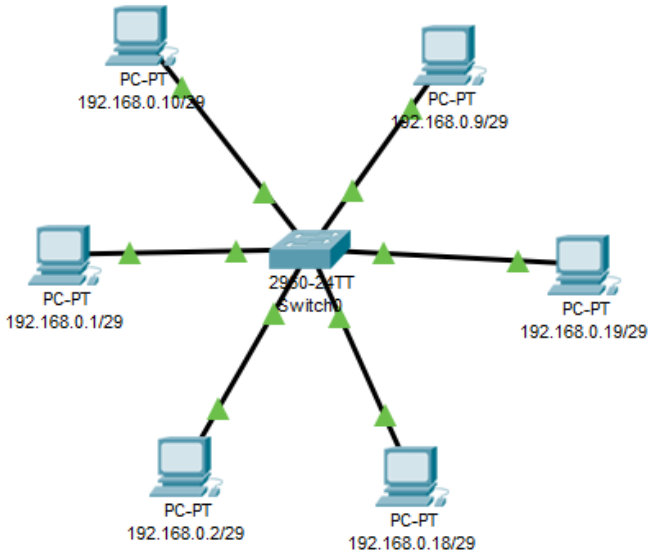
BAB II

SUBNETTING, VLAN

Wyne Habsari/L200160080

---

1. Konfigurasi VLAN A



a. Konfigurasi Switch

IP	VLAN	Port
192.168.0.1/29	1	Fa0/1
192.168.0.2/29	1	Fa0/2
192.168.0.9/29	2	Fa0/9
192.168.0.10/29	2	Fa0/10
192.168.0.18/29	3	Fa0/18
192.168.0.19/29	3	Fa0/19

b. Konfigurasi Switch

```
Switch>en
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name fki1
Switch(config-vlan)#int range Fa0/9-10
Switch(config-if-range)#sw
Switch(config-if-range)#switchport access vlan 2
Switch(config-if-range)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name fki2
Switch(config-vlan)#int range Fa0/18-19
Switch(config-if-range)#switchport access vlan 3
Switch(config-if-range)#
```

c. Tes ping PC ke PC dalam VLAN sama (192.168.0.1 ke 192.168.0.2)

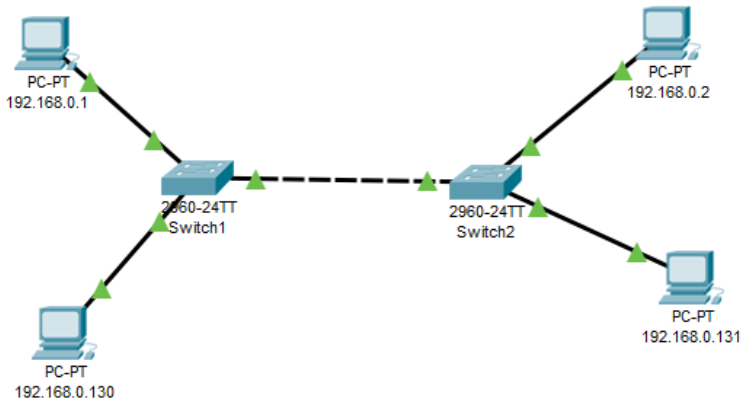
```
C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=6ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 1ms
```

d. Tes ping PC ke PC yang berbeda VLAN (192.168.0.1 ke 192.168.0.10)

```
C:\>ping 192.168.0.10

Pinging 192.168.0.10 with 32 bytes of data:

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

Ping statistics for 192.168.0.10:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Didapati hasil RTO karna jaringan sudah terbagi saat pengelompokkan anggota VLAN

2. Konfigurasi VLAN B



a. IP 192.168.0.1/29 dan 192.168.0.2/29 satu network beda switch
b. IP 192.168.0.130/29 dan 192.168.0.131/29 satu network beda switch
c. IP 192.168.0.1/29 dan 192.168.0.130/29 dalam VLAN yang sama
d. Setting switch 1

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name ums1
Switch(config-vlan)#int Fa0/1
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#vlan 2
Switch(config-vlan)#int Fa0/15
Switch(config-if)#switchport access vlan 2
Switch(config-if)#
```

e. Setting switch 2

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 3
Switch(config-vlan)#int Fa0/1
Switch(config-if)#switchport access vlan 3
Switch(config-if)#ex
Switch(config)#vlan 3
Switch(config-vlan)#int Fa0/14
Switch(config-if)#switchport access vlan 3
Switch(config-if)#ex
```

f. Melakukan trunking dari switch 1

```
Switch(config)#int fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#
```

g. Melakukan trunking dari switch 2

```
Switch(config)#int Fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#
```

h. Tes ping antar PC yang memiliki VLAN sama (192.168.0.1 ke 192.168.0.130)

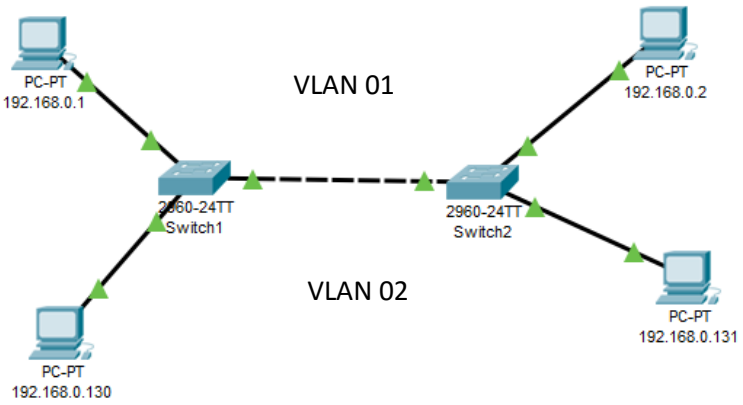
```
C:\>ping 192.168.0.130

Pinging 192.168.0.130 with 32 bytes of data:

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

Ping statistics for 192.168.0.130:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

i. Tes ping antar PC yang memiliki VLAN berbeda (192.168.0.1 ke 192.168.0.2)

```
C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

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

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Menurut langkah-langkah di modul, pada gambar konfigurasi VLAN B, PC yang memiliki network sama pada vlan yang sama,
tapi pada langkah-langkah percobaan disebutkan bahwa PC yang berbeda network memiliki VLAN yang sama, sehingga ping antar network yang sama ataupun vlan yang sama akan terjadi RTO meskipun di trunking

konfigurasi jika sesuai gambar



Konfigurasi switch 1

```
Switch>en
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 1
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport access vlan 1
Switch(config-if)#exit
Switch(config)#vlan 2
Switch(config-vlan)#int fa0/15
Switch(config-if)#switchport access vlan 2
Switch(config-if)#
```

Konfigurasi switch 2

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 1
Switch(config-vlan)#int fa0/1
Switch(config-if)#switchport access vlan 1
Switch(config-if)#exit
Switch(config)#vlan 2
Switch(config-vlan)#int fa0/14
Switch(config-if)#switchport access vlan 1
Switch(config-if)#
```

Trunking sw1

```
Switch(config)#int fa0/24
Switch(config-if)#switchport mode trunk
```

Trunking sw2

```
Switch(config)#int fa0/24
Switch(config-if)#switchport mode trunk
```

Tes ping pada vlan yang sama

```
C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Tes ping pada vlan yang berbeda

```
C:\>ping 192.168.0.130

Pinging 192.168.0.130 with 32 bytes of data:

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

Ping statistics for 192.168.0.130:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Pada hasil percobaan tersebut, didapatkan hasil bahwa trunking berfungsi untuk menghubungkan 2 atau lebih PC yang memiliki network yang sama pada switch yang berbeda,

Namun akan gagal ketika tes ping, karna memiliki network yang berbeda.

192.168.1.0 /27

11111111 . 11111111 . 11111111 . 111 00000
255 255 255 224

1. Jumlah ~~ke~~ subnet = 2^x
= 2^3
= 8

2. Host /subnet = $2^5 - 2$
= 32 - 2
= 30

3. Blok Subnet = 256 - 224 = 32

4. Tabel Subnet

network	192.168.1.0	192.168.1.32	192.168.1.65	dst
Host pertama	192.168.1.1	192.168.1.33	192.168.1.66	dst
Host terakhir	192.168.1.30	192.168.1.63	192.168.1.96	dst
Broadcast	192.168.1.31	192.168.1.64	192.168.1.97	dst