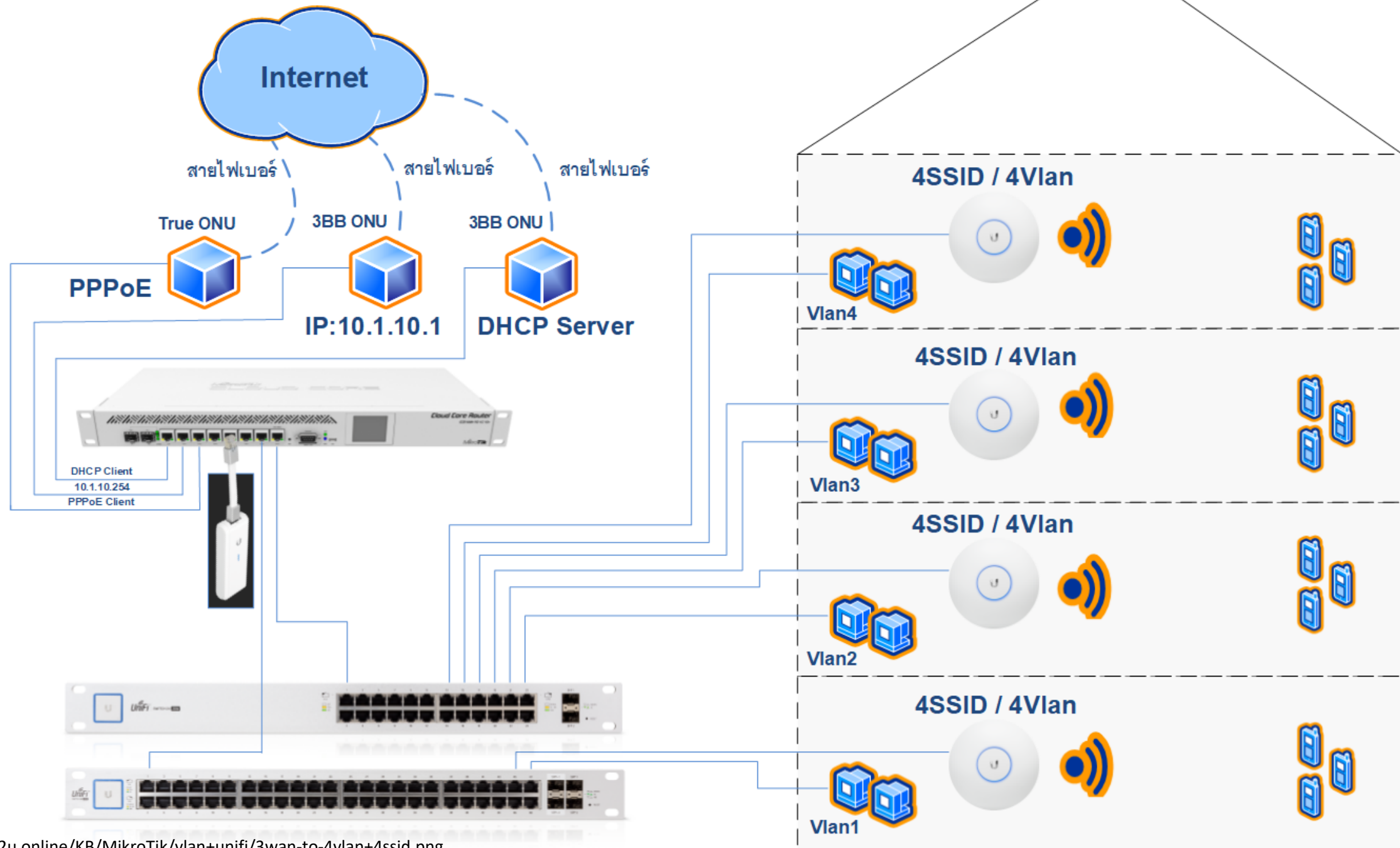# VLAN

P. SuLAiMaN

Optical Network Unit
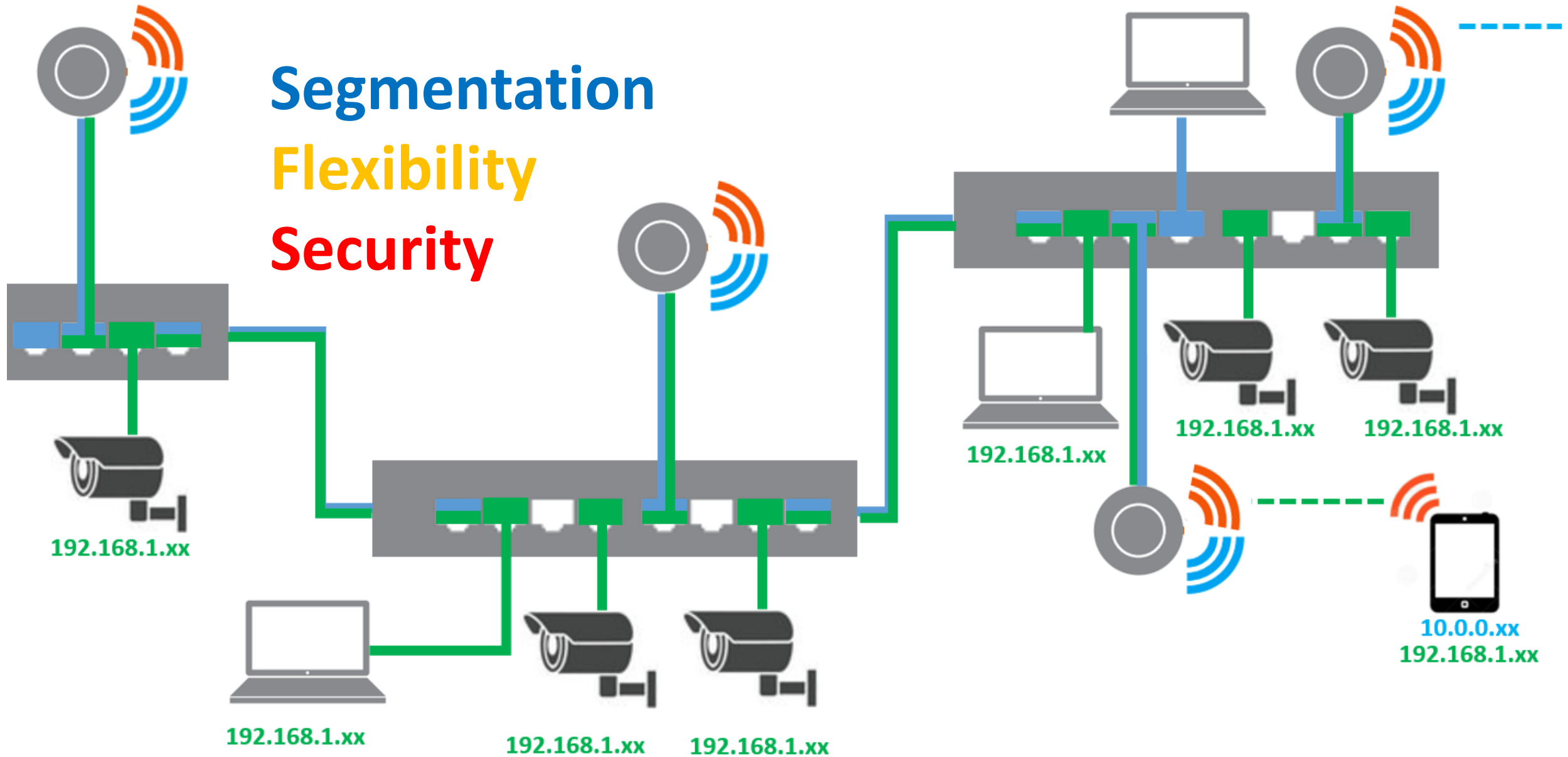
VLAN = Broadcast Domain = Logical Network (Subnet)

Segmentation
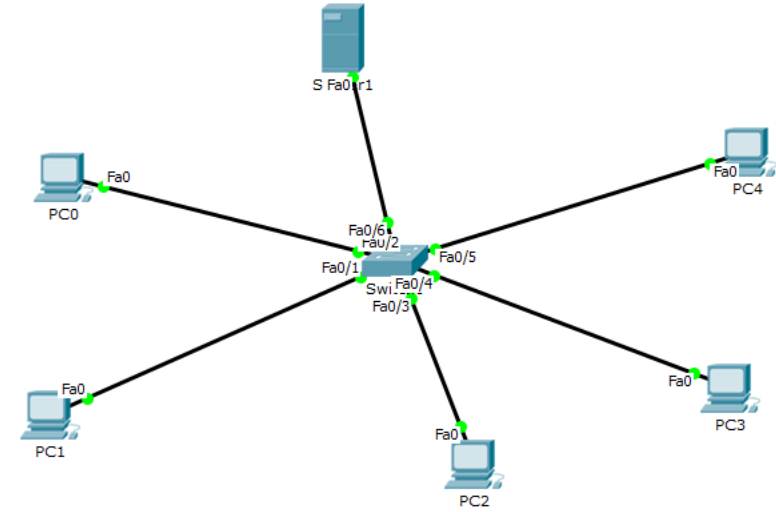**Flexibility**
Security

10.0.0.xx

192.168.1.xx

192.168.1.xx

192.168.1.xx

192.168.1.xx

192.168.1.xx

192.168.1.xx

192.168.1.xx

10.0.0.xx
192.168.1.xx

VLAN

Switch >> Broadcast Domain


```
SW-A#show vlan brief

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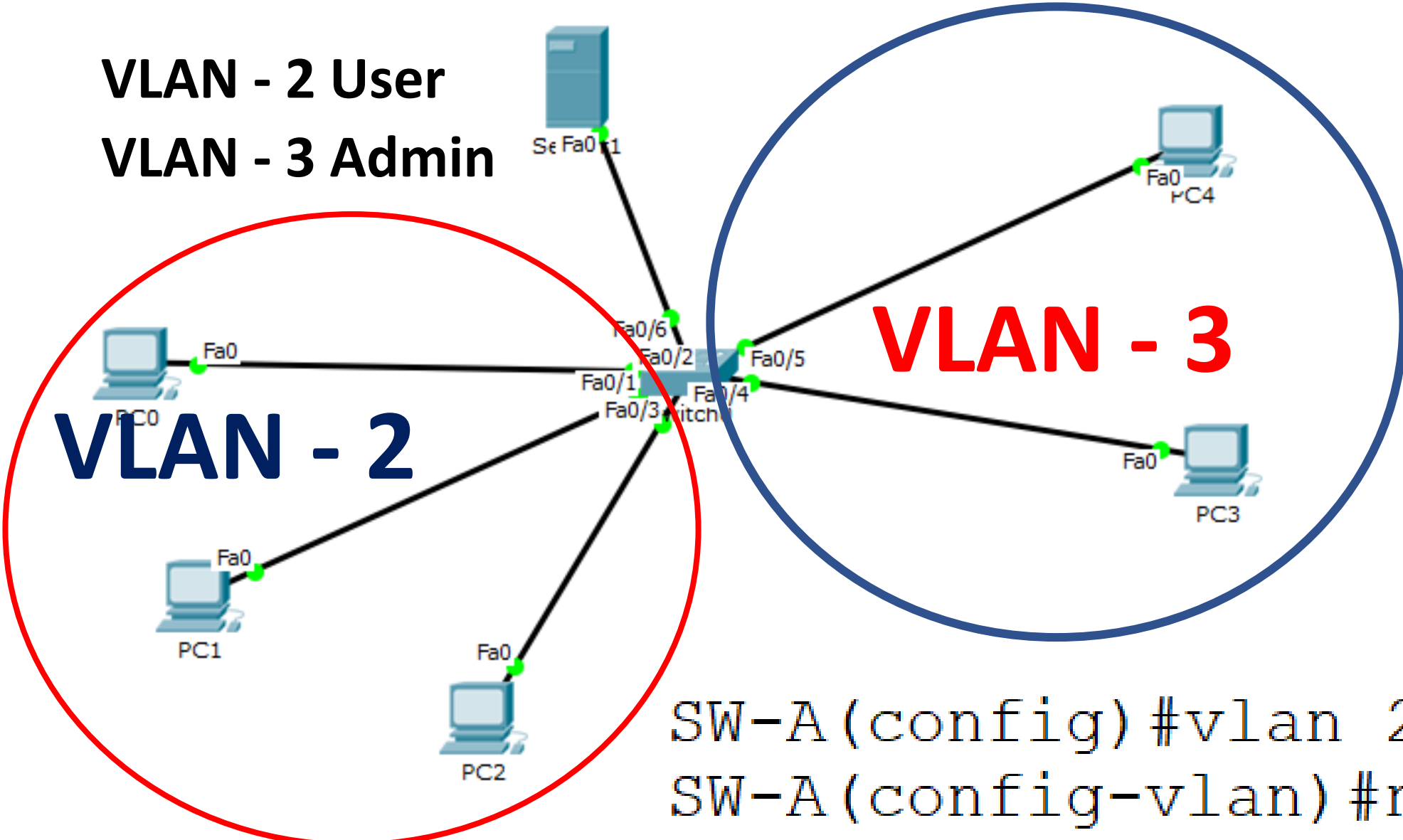
VLAN - 2 User
VLAN - 3 Admin

VLAN

VLAN - 3

VLAN - 2

```
SW-A(config)#vlan 2
SW-A(config-vlan)#name User
SW-A(config-vlan)#vlan 3
SW-A(config-vlan)#name Admin
```
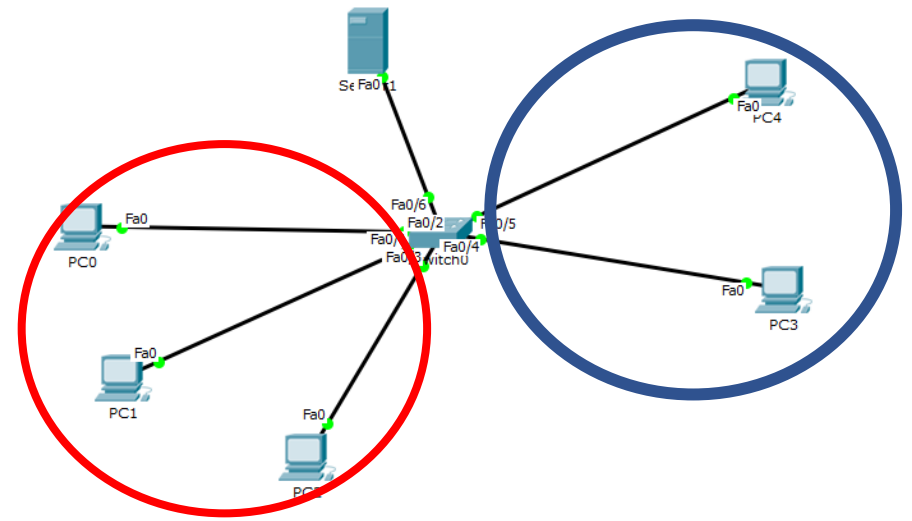
VLAN

```
SW-A(config)#vlan 2
SW-A(config-vlan)#name User
SW-A(config-vlan)#vlan 3
SW-A(config-vlan)#name Admin
```

SW-A(config)#interface range f0/1-3

SW-A(config-if-range)#switchport mode access

SW-A(config-if-range)#switchport access vlan 2

SW-A(config)#interface range f0/4-5

SW-A(config-if-range)#switchport mode access

SW-A(config-if-range)#switchport access vlan 3

VLAN


```
SW-A#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                Fa0/22, Fa0/23, Fa0/24, Gig0/1
                                                Gig0/2
2    User                             active    Fa0/1, Fa0/2, Fa0/3
3    Admin                            active    Fa0/4, Fa0/5
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```
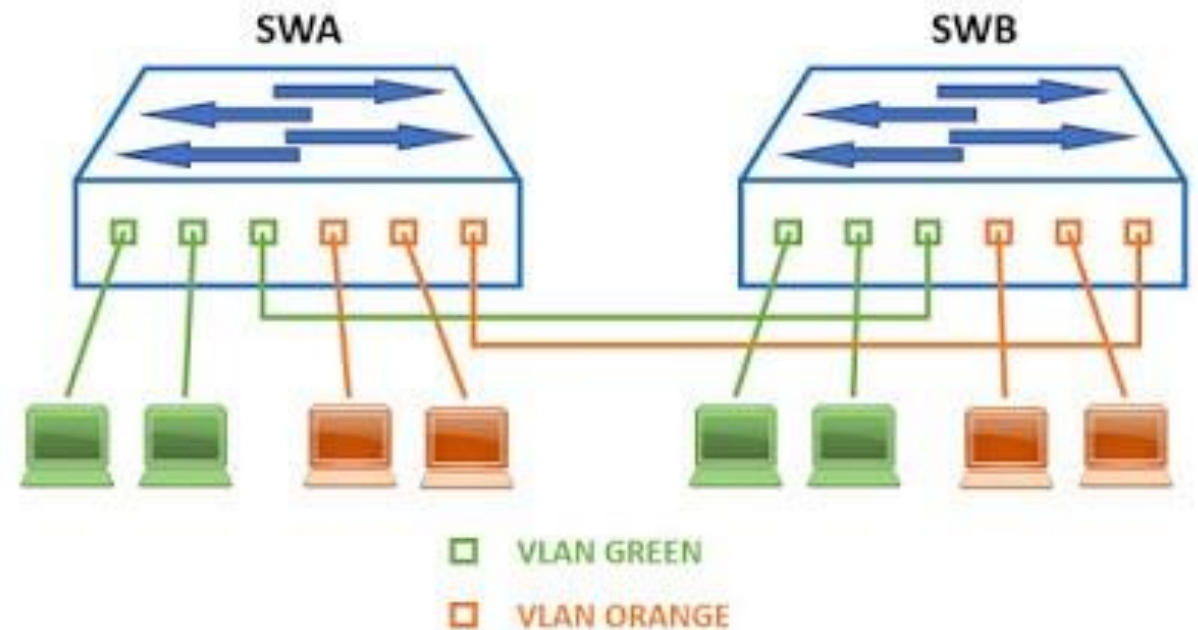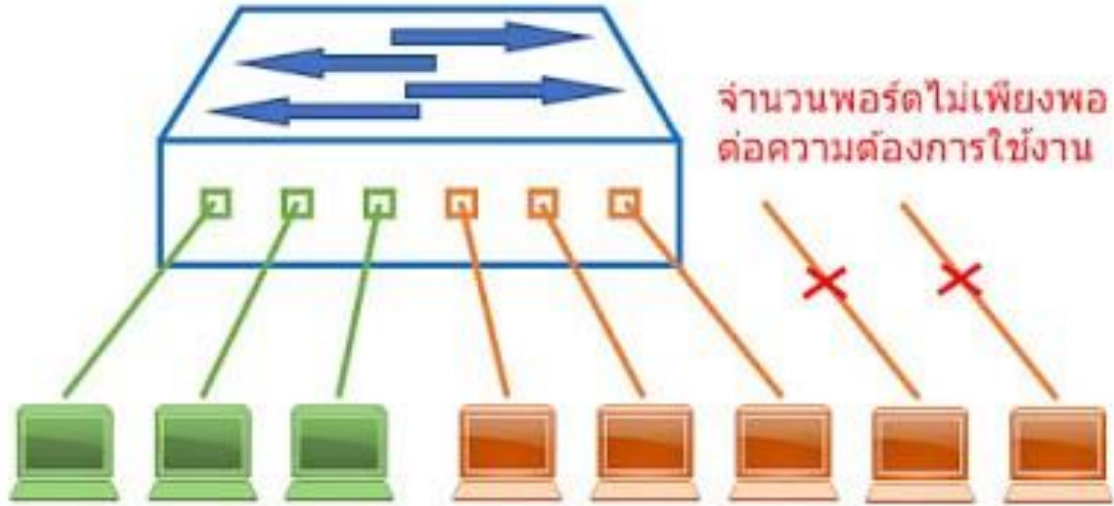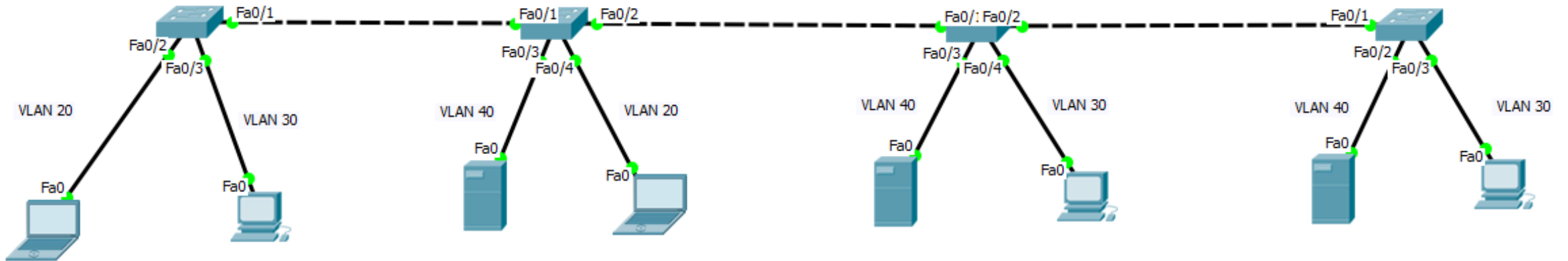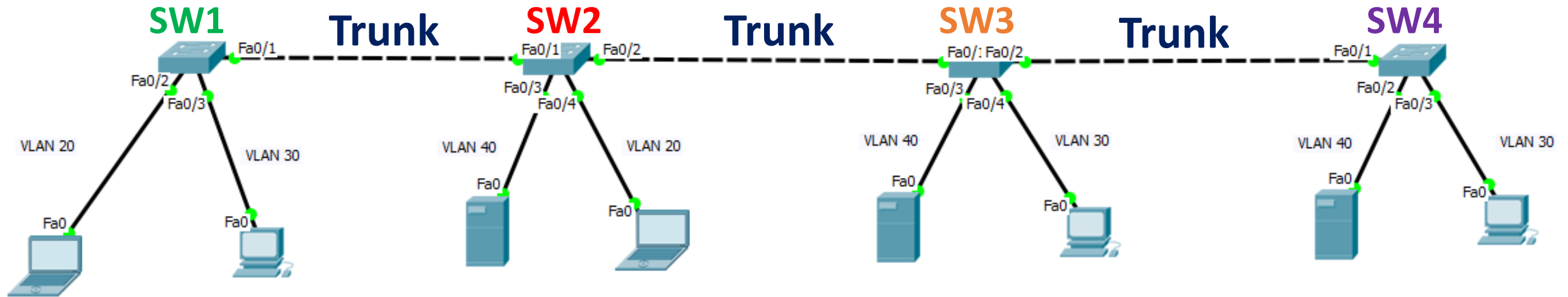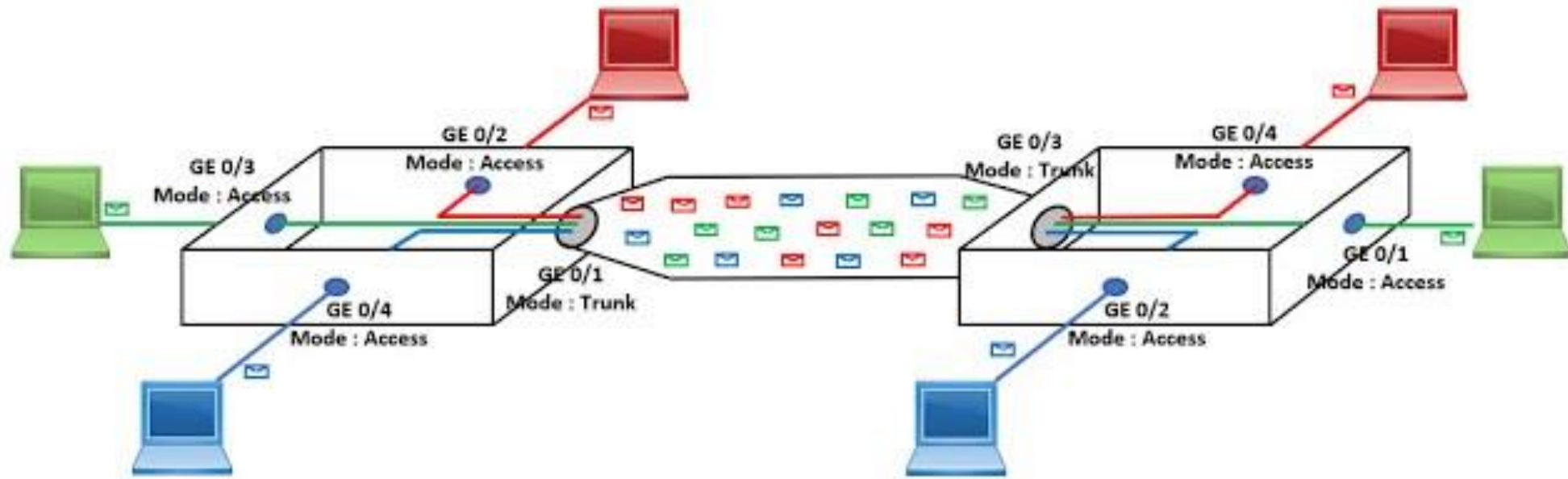
VLAN Trunking   IEEE 802.1Q

จำนวนพอร์ตไม่เพียงพอ
ต่อความต้องการใช้งาน

SWA   SWB

VLAN GREEN
VLAN ORANGE

Network Diagram – Lab VLAN + VLSM

192.168.1.0/24

VLAN 20	Admin	50	Host
VLAN 30	Officer	125	Host
VLAN 40	Engineer	5	Host

IP-VLSM

192.168.1.0/24

VLAN 20	Admin	50 Host	/25
VLAN 30	Officer	125 Host	/26
VLAN 40	Engineer	5 Host	/29

VLAN 20	192.168.1.128/26
VLAN 30	192.168.1.0/25
VLAN 40	192.168.1.192/29

GE 0/3
Mode : Access

GE 0/2
Mode : Access

GE 0/3
Mode : Trunk

GE 0/4
Mode : Access

GE 0/4
Mode : Access

GE 0/1
Mode : Trunk

GE 0/1
Mode : Access

GE 0/2
Mode : Access

SW1

Trunk

SW2

Trunk

SW3

Trunk

SW4

Fa0/1

Fa0/2

Fa0/3

Fa0/1   Fa0/2

Fa0/3   Fa0/4

Fa0/: Fa0/2

Fa0/3   Fa0/4

Fa0/1

Fa0/2   Fa0/3

VLAN 20

VLAN 30

VLAN 40

VLAN 20

VLAN 40

VLAN 30

VLAN 40

VLAN 30

Fa0

Fa0

Fa0

Fa0

Fa0

Fa0

Fa0

Fa0

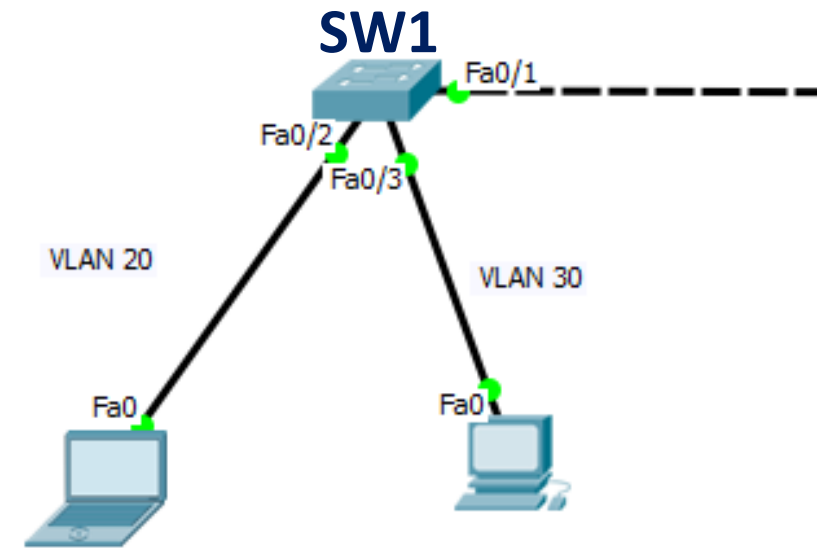# VLAN

1. Config Trunk Port

2. Create VLAN

3. Add Port To VLAN

1. Config Trunk Port

sw1(config)#interface Fa0/1
sw1(config-if)#switchport trunk encapsulation dot1q
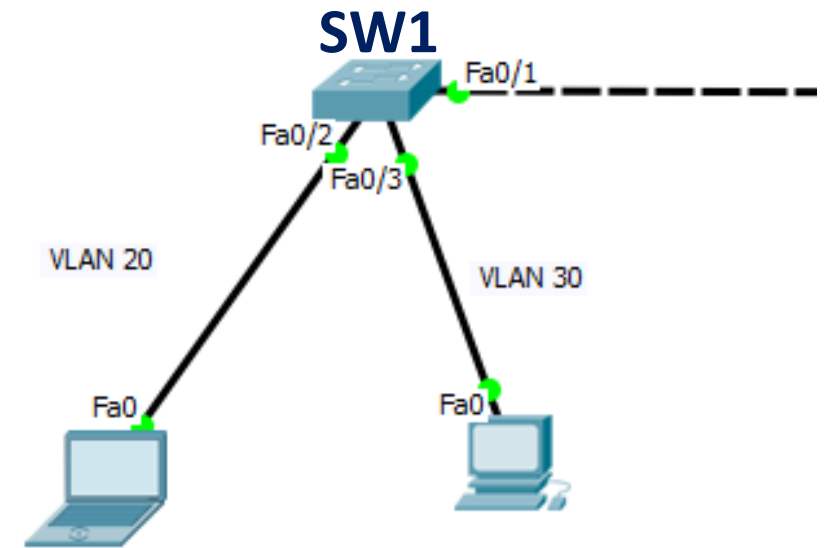sw1(config-if)#switchport mode trunk
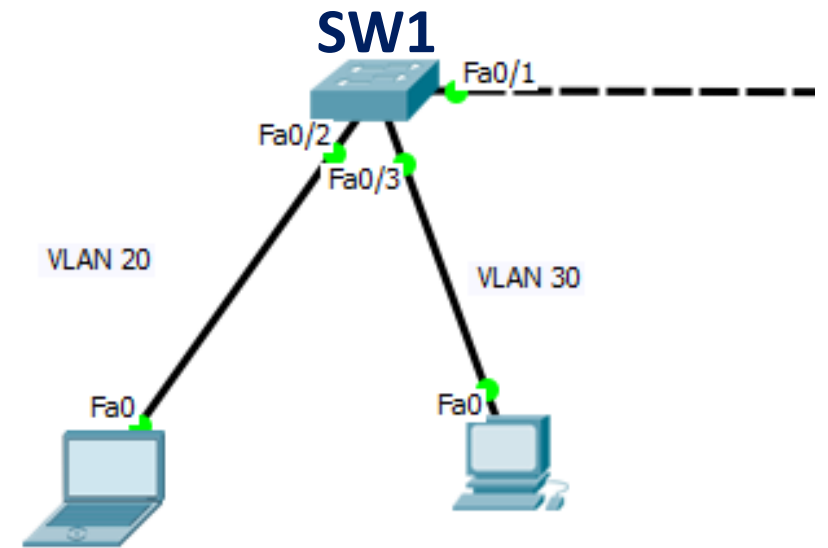
sw1#show interfaces trunk

2. Create VLAN

sw1(config)#vlan 20
sw1(config-vlan)#name Admin
sw1(config-vlan)#vlan 30
sw1(config-vlan)#name Officer
sw1(config-vlan)#vlan 40
sw1(config-vlan)#name Engineer

sw1#show vlan

SW1

Fa0/1

Fa0/2

Fa0/3

VLAN 20

VLAN 30

Fa0

Fa0

3. Add Port To VLAN

sw1(config)#interface Fa0/2
sw1(config-if)#switchport mode access
sw1(config-if)#switchport access vlan 20
sw1(config-if)#interface Fa0/3
sw1(config-if)#switchport mode access
sw1(config-if)#switchport access vlan 30

sw1#show vlan

VTP (Vlan Trunking Protocol)

Next >>

Inter-VLAN

VLAN & Inter-VLAN

loopback 0 -1.1.1.1/24

GW-1

g0/0.20 - 192.168.1.254/24
g0/0.30 - 192.168.2.254/24

Router

Gig0/0

loopback 0-2.2.2.2/24

SW-L3

GW-2

VLAN 20 - 192.168.1.253/24
VLAN 30 - 192.168.2.253/24

Fa0/1

Multilayer Switch0

Trunk Port

Trunk Port

Fa0/1

VLAN 20-192.168.1.0/24
VLAN 30-192.168.2.0/24

SW- A

Fa0/3

Trunk Port

SW-B

Fa0/1

Fa0/4

Switch0

Fa0/2

Switch1

Fa0/5

Fa0/3

VLAN-20

Fa0

VLAN-30

Fa0

VLAN-20

Fa0

VLAN-30

Fa0

PC0

PC 1

PC 2

PC 3

192.168.1.1/24

192.168.2.1/24

192.168.1.2/24

192.168.2.2/24