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Kelas : **D**

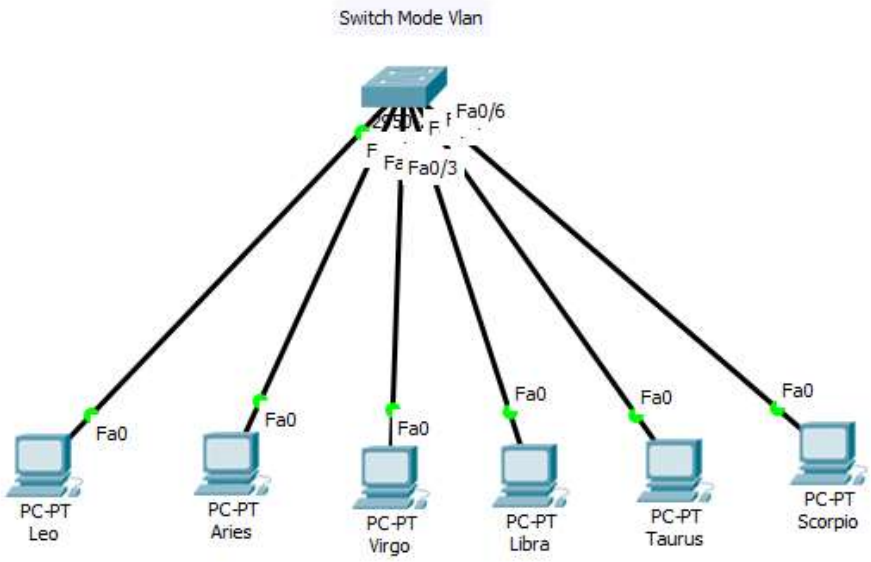
Modul : **4**

KEGIATAN PRAKTIKUM JARINGAN KOMPUTER MODUL 4

A. Praktikum 1 Switch Mode VLAN

1. Merancang topologi jaringan yang akan dibangun dan dikonfigurasi dengan simulasi cisco packet tracer.

   - Jaringan terbangun dengan user device yang saling terkoneksi dengan Switch



   - Jaringan terdiri dari 1 buah switch dan 6 buah host(PC), yang dihubungkan dengan kabel sehingga menjadi seperti gambar diatas.

2. Konfigurasi IP pada setiap Host (PC)
   - Konfigurasi dilakukan dengan detail sebagai berikut :

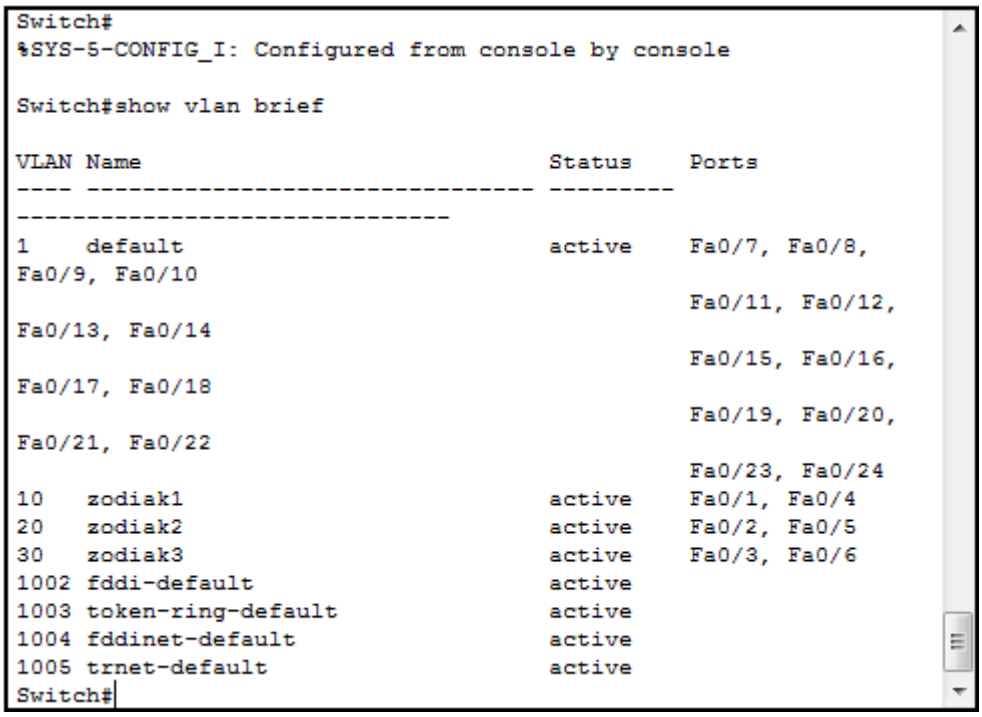
NO	NAMA PC	IP
1	Leo	= 172.21.1.1/24
2	Aries	= 172.21.1.2/24
3	Virgo	= 172.21.1.3/24
4	Libra	= 172.21.1.4/24
5	Taurus	= 172.21.1.5/24
6	Scorpio	= 172.21.1.6/24

   - Konfigurasi IP dari keseluruhan PC pada diatas menggunakan prefik (/) 24 maka dari itu konfigurasi pada setiap PC menggunakan subnet mask 255.255.255.0

3. Melakukan konfigurasi VLAN pada switch
   - VLAN pada dasarnya ialah salah satu teknik yang bisa diterapkan di konsep switching dalam jaringan. VLAN banyak digunakan karena banyak menguntungkan dibanding teknik routing.
   - Cara kerja dari VLAN adalah semua data yang mengandung informasi pengalamatan akan disimpan dalam sebuah tabel/ database. Switch akan menentukan kemana data akan diforward
   - Melakukan konfigurasi sesuai dengan contoh dalam lembar moduk praktikum Dengan detail konfigurasi sebagai berikut :

NO	VLAN ID	NAMA VLAN	DAFTAR HOST
1	VLAN 10	ZODIAK1	LEO, LIBRA
2	VLAN 20	ZODIAK2	ARIES, TAURUS
3	VLAN 30	ZODIAK3	VIRGO, SCORPIO

Gambar setelah dilakukan konfig vlan dan "show vlan brief"



Gambar “show vlan id 10”

```
Switch#show vlan id 10

VLAN Name                                Status    Ports
---- ----------------------------------- ---------
-------------------------------
10   zodiak1                             active    Fa0/1, Fa0/4

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
10   enet  100010     1500  -      -      -        -    -
0      0

Switch#
```

Gambar “show vlan id 20”

```
Switch#show vlan id 20

VLAN Name                                Status    Ports
---- ----------------------------------- ---------
-------------------------------
20   zodiak2                             active    Fa0/2, Fa0/5

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
20   enet  100020     1500  -      -      -        -    -
0      0
```

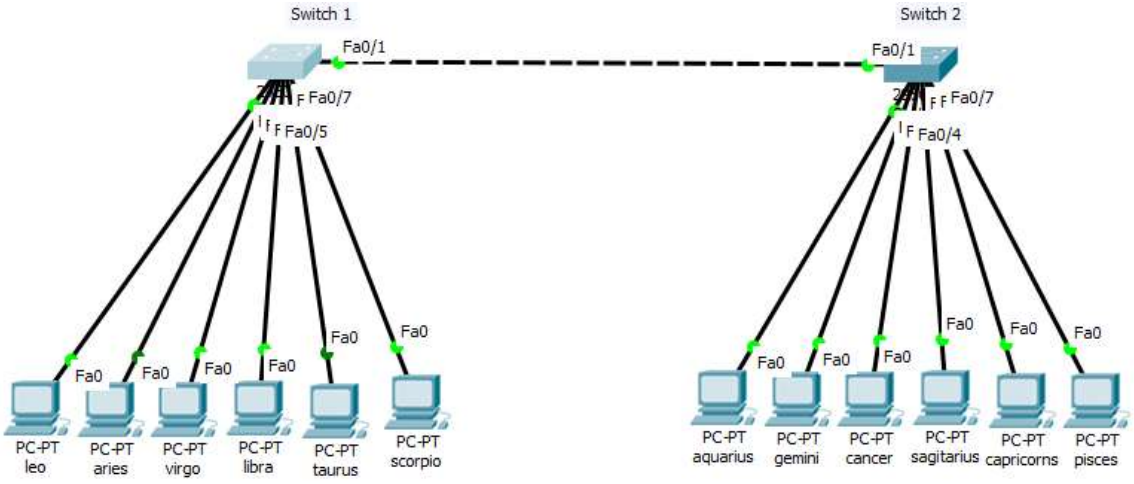
Gambar “show vlan id 30”

```
Switch#show vlan id 30

VLAN Name                                Status    Ports
---- ----------------------------------- ---------
-------------------------------
30   zodiak3                             active    Fa0/3, Fa0/6

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
30   enet  100030     1500  -      -      -        -    -
0      0

Switch#
```

B. Praktikum 2 Switch mode VLAN dan Trunk

1. Merancang topologi jaringan yang akan dibangun dan dikonfigurasi dengan simulasi cisco packet tracer.

   - Jaringan terbangun dengan user device yang saling terkoneksi dengan Switch (2)



   - Jaringan terdiri dari 2 buah switch dan 6 buah host(PC) per segmen switch. Dengan dibuhungkan kabel maka menjadi seperti gambar diatas

2. Konfigurasi IP pada setiap Host (PC)
   Konfigurasi dilakukan dengan detail sebagai berikut :

NO	NAMA PC	IP
1	Leo	= 172.21.1.1/24
2	Aries	= 172.21.1.2/24
3	Virgo	= 172.21.2.1/24
4	Libra	= 172.21.2.2/24
5	Taurus	= 172.21.3.1/24
6	Scorpio	= 172.21.3.2/24
7	Aquarius	= 172.21.1.3/24
8	Gemini	= 172.21.1.4/24
9	Cancer	= 172.21.2.3/24
10	Sagitarius	= 172.21.2.4/24
11	Capricorn	= 172.21.3.3/24
12	Pisces	= 172.21.3.4/24

   - Konfigurasi IP dari keseluruhan PC pada diatas menggunakan prefik (/) 24 maka dari itu konfigurasi pada setiap PC menggunakan subnet mask 255.255.255.0

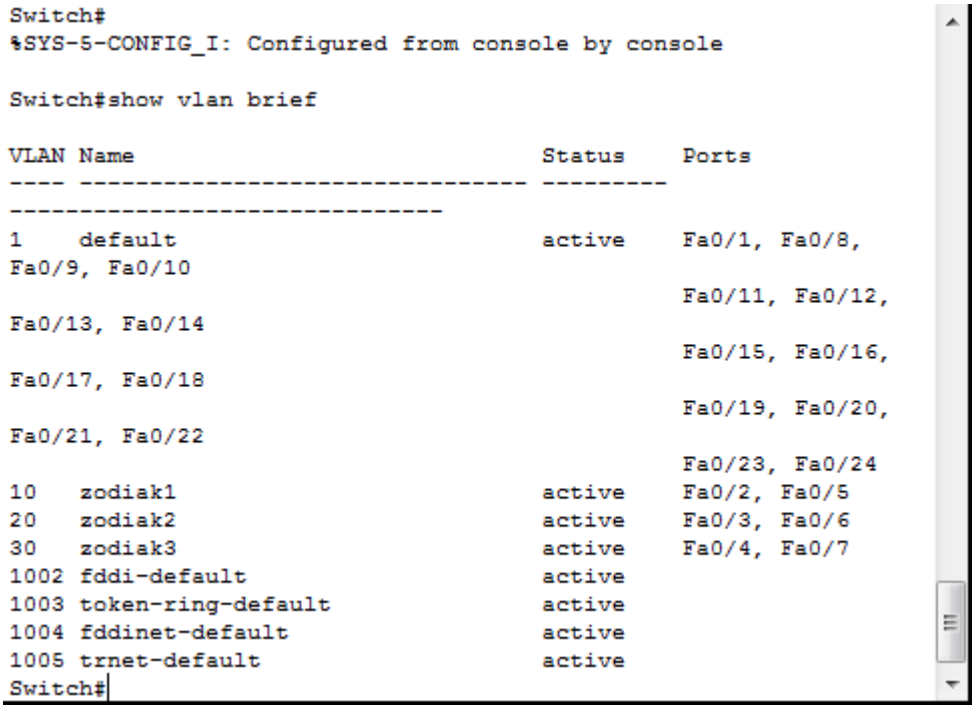
3. Melakukan konfigurasi VLAN dan Trunk
   - Konfigurasi VLAN di switch segmen 1 sama dengan pada kegiatan 1 diatas pada switch tunggal

   a. Pada segmen switch 1

NO	VLAN ID	NAMA VLAN	DAFTAR HOST
1	VLAN 10	ZODIAK1	LEO, LIBRA
2	VLAN 20	ZODIAK2	ARIES, TAURUS
3	VLAN 30	ZODIAK3	VIRGO, SCORPIO

Hasilnya adalah sebagai berikut :

Gambar Show Vlan Brief segmen switch 1



```
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, 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
10   zodiak1                           active    Fa0/2, Fa0/5
20   zodiak2                           active    Fa0/3, Fa0/6
30   zodiak3                           active    Fa0/4, Fa0/7
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
```

- Menambahkan konfigurasi Trunking pada segmen switch 1
- Menentukan port yang akan dilakukan konfigurasi Trunk pada switch
- Melakukan setting konfigurasi sesuai modul praktikum
-

Gambar status trunk pada segmen switch 1

```
Switch#show int fa 0/1 switchport
Name: Fa0/1
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: All
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
 --More--
```

Gambar detail interfaces trunk switch 1

```
Switch#show int trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       1-1005

Port        Vlans allowed and active in management domain
Fa0/1       1,10,20,30

Port        Vlans in spanning tree forwarding state and not
pruned
Fa0/1       1,10,20,30

Switch#
```

b. Pada segmen switch 2

NO	VLAN ID	NAMA VLAN	DAFTAR HOST
1	VLAN 10	ZODIAK1	AQUARIUS, GEMINI
2	VLAN 20	ZODIAK2	CANCER, SAGITARIUS
3	VLAN 30	ZODIAK3	CAPRICORN, PISCES

Hasilnya adalah sebagai berikut :

Gambar Show Vlan Brief segmen switch 1

```
Switch#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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
10   zodiak1                          active    Fa0/2, Fa0/3
20   zodiak2                          active    Fa0/4, Fa0/5
30   zodiak3                          active    Fa0/6, Fa0/7
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#
```

- Menambahkan konfigurasi Trunking pada segmen switch 2
- Menentukan port yang akan dilakukan konfigurasi Trunk pada switch
- Melakukan setting konfigurasi sesuai seperti switch 1

Gambar status trunk pada segmen switch 2

```
Switch#show int fa 0/1 switchport
Name: Fa0/1
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: All
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
Appliance trust: none
```

Gambar detail interfaces trunk switch 2

```
Switch#show int trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       1-1005

Port        Vlans allowed and active in management domain
Fa0/1       1,10,20,30

Port        Vlans in spanning tree forwarding state and not
pruned
Fa0/1       1,10,20,30
```

4. Melakukan uji koneksi dengan “PING”
   a. PC LEO ke ARIES

```
C:\>ping 172.21.1.2

Pinging 172.21.1.2 with 32 bytes of data:

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

Ping statistics for 172.21.1.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Hasilnya menunjukan request time out (RTO)

   b. PC LEO ke AQUARIUS

```
C:\>ping 172.21.1.3

Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 172.21.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Cek koneksi dapat dilakukan

   c. PC LEO ke PISCES

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.3.4

Pinging 172.21.3.4 with 32 bytes of data:

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

Ping statistics for 172.21.3.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Hasilnya menunjukan request time out (RTO)

d. PC LIBRA ke CANCER

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.2.3

Pinging 172.21.2.3 with 32 bytes of data:

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

Ping statistics for 172.21.2.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Hasilnya menunjukan request time out (RTO)

e. PC LIBRA ke LEO

```
C:\>ping 172.21.1.1

Pinging 172.21.1.1 with 32 bytes of data:

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

Ping statistics for 172.21.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Hasilnya menunjukan request time out (RTO)