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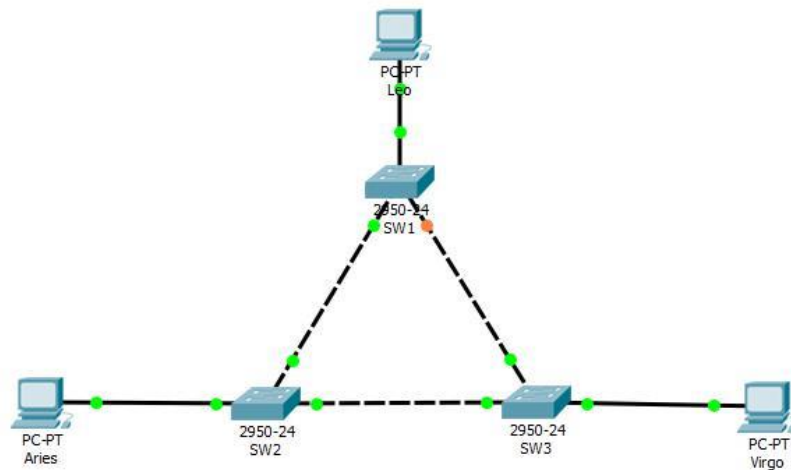
NIM : L200180081

Kelas : B

## MODUL 6

### Kegiatan 1. Topologi 1

#### Membuat topologi



#### **Tugas 1A :** Langkah pembuatan topologi

- ☐ Pada bagian Network Devices, klik bagian Switches, dan letakkan 3 buah Switch tipe 2950-24 dengan rangkai seperti gambar.
- ☐ Klik ikon End Devices, klik ikon PC dengan keterangan Generic Computer, letakkan 3 buah di dekat Switch masing-masing satu.
- ☐ Untuk menghubungkan Switch dan PC, pada bagian Connections klik ikon petir, lalu sambungkan rangkaian.

#### **Tugas 2A :** Memberi nama Switch melalui mode user

Switch>enable

Switch#conf term

Switch(config)#hostname SW1

SW1(config)#end

## Konfigurasi masing-masing PC

□ Leo

The screenshot shows a configuration window for a device named "Leo". The window has a title bar with standard minimize, maximize, and close buttons. Below the title bar is a tabbed interface with four tabs: "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is currently selected and highlighted in blue. The "Desktop" tab contains three main sections: 1. A radio button group for "DHCP" (unselected) and "Static" (selected). Below this are four text input fields: "IP Address" (172.21.1.1), "Subnet Mask" (255.255.255.0), "Default Gateway" (0.0.0.0), and "DNS Server" (0.0.0.0). 2. An "IPv6 Configuration" section with a radio button group for "DHCP" (unselected), "Auto Config" (unselected), and "Static" (selected). Below this are four text input fields: "IPv6 Address" (empty), "Link Local Address" (FE80::260:2FFF:FE9A:3146), "IPv6 Gateway" (empty), and "IPv6 DNS Server" (empty). 3. An "802.1X" section with a checkbox "Use 802.1X Security" (unchecked). Below this is a dropdown menu for "Authentication" set to "MD5", and two text input fields for "Username" and "Password" (both empty). At the bottom left of the window is a "Top" button with a small square icon next to it.

Physical Config **Desktop** Programming Attributes

☐ DHCP ☒ Static

IP Address 172.21.1.1

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::260:2FFF:FE9A:3146

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

□ Top

Aries

Aries

Physical

Config

Desktop

Programming

Attributes

Configuration

Interface

FastEthernet0

IP Configuration

DHCP

Static

IP Address

172.21.1.2

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

DHCP

Auto Config

Static

IPv6 Address

/

Link Local Address

FE80::207:ECFF:FEAB:9C9A

IPv6 Gateway

IPv6 DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Top

Virgo

Virgo

Physical

Config

Desktop

Programming

Attributes

DHCP

Static

IP Address

172.21.1.3

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

DHCP

Auto Config

Static

IPv6 Address

/

Link Local Address

FE80::20A:41FF:FECD:EB7B

IPv6 Gateway

IPv6 DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

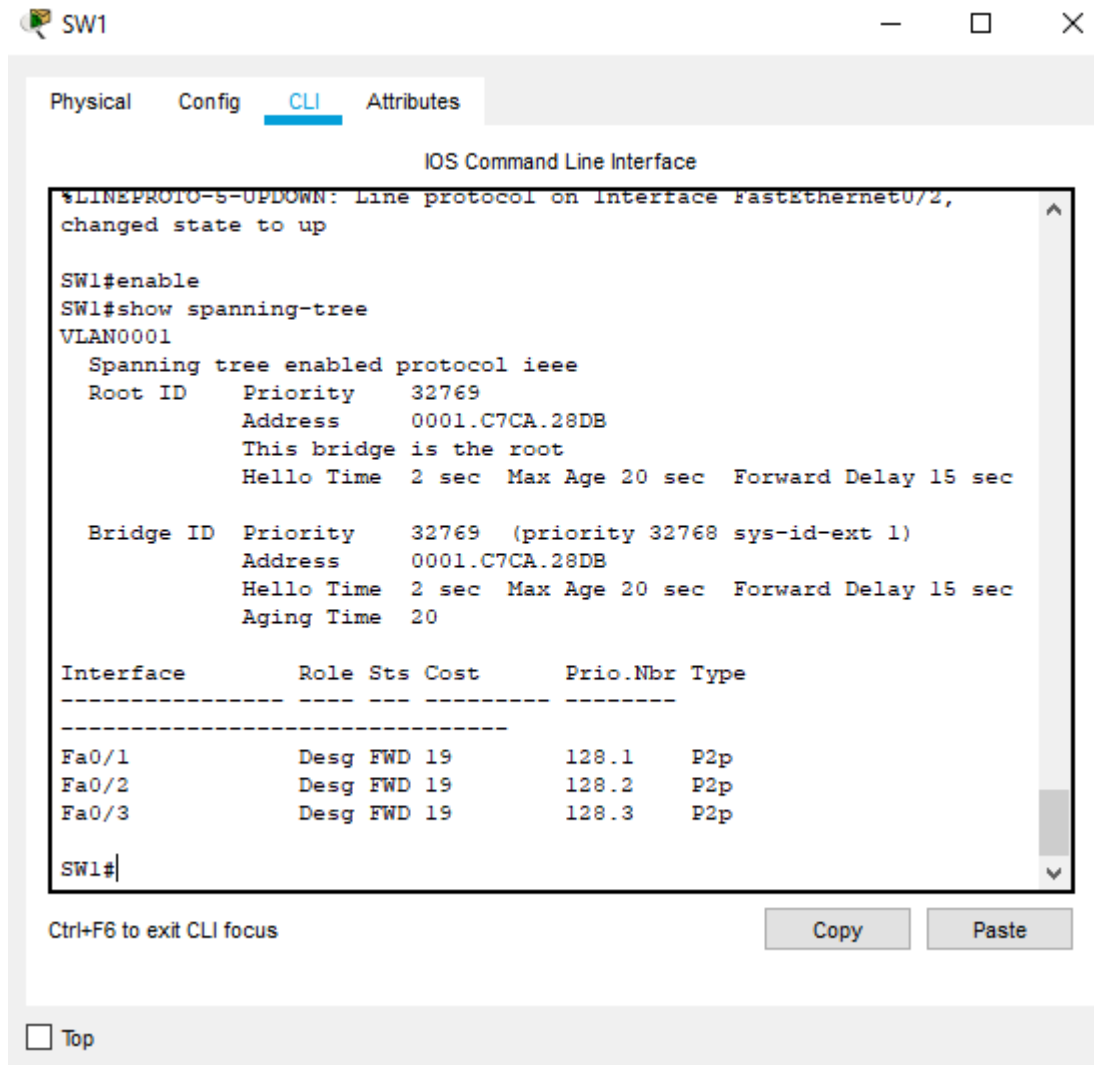
Username

Password

Top

**Tugas 4A :** Pada mode *user* atau *privileged*, lihat status STP pada masing-masing switch.

☐ SW1



The screenshot shows a network switch CLI window titled "SW1". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area displays the "IOS Command Line Interface" with the following text:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2,
changed state to up

SW1#enable
SW1#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address     0001.C7CA.28DB
            This bridge is the root
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
            Address     0001.C7CA.28DB
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/1          Desg FWD 19        128.1    P2p
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p

SW1#
```

Below the CLI window, there is a "Ctrl+F6 to exit CLI focus" label and two buttons: "Copy" and "Paste". At the bottom left, there is a "Top" button.

SW2

SW2

Physical

Config

CLI

Attributes

IOS Command Line Interface

changed state to up

SW2#enable

SW2#show spanning-tree

VLAN0001

Spanning tree enabled protocol ieee

Root ID      Priority      32769

Address      0001.C7CA.28DB

Cost      19

Port      2 (FastEthernet0/2)

Hello Time 2 sec    Max Age 20 sec    Forward Delay 15 sec

Bridge ID    Priority      32769    (priority 32768 sys-id-ext 1)

Address      0060.5CE3.55AE

Hello Time 2 sec    Max Age 20 sec    Forward Delay 15 sec

Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/3	Altn	BLK	19	128.3	P2p
Fa0/2	Root	LRN	19	128.2	P2p
Fa0/1	Desg	FWD	19	128.1	P2p

SW2#

Ctrl+F6 to exit CLI focus

Copy

Paste

Top

SW3

SW3

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
changed state to up

SW3#enable
SW3#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     0001.C7CA.28DB
             Cost        19
             Port        1(FastEthernet0/1)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0060.3E70.0441
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Desg FWD 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p
Fa0/1          Root FWD 19        128.1    P2p

SW3#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

☐ Top

**Tugas 4B** : Tabel tiap switch

□ SW1

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost (0/1 ; 0/2 ; 0/3)	19

6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

☐ SW2

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost (0/1 ; 0/2 ; 0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

☐ SW3

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost (0/1 ; 0/2 ; 0/3)	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec



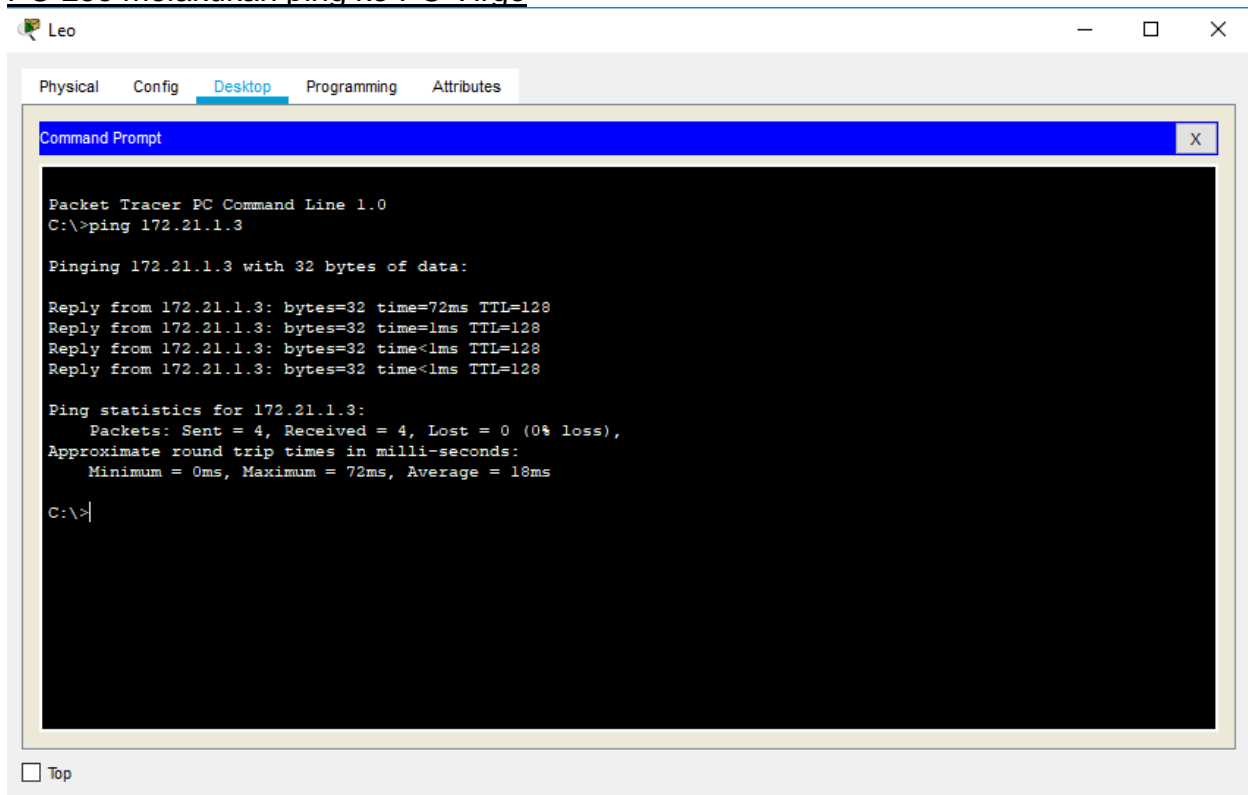
#### Tugas 4C :

- ☐ Root bridge : SW1
- ☐ Designated bridge : SW3
- ☐ Root port : SW2 (Fa0/2), SW3 (Fa0/1)
- ☐ Designated port : SW1 (Fa0/1, Fa0/2, Fa0/3), SW2 (Fa0/3, Fa0/2, Fa0/1), SW3 (Fa0/2, Fa0/3, Fa0/1)

#### Tugas 4D :

- ☐ Keadaan forwarding :
  - SW1 (Fa0/1, Fa0/2, Fa0/3),
  - SW2 (Fa0/1),
  - SW3 (Fa0/2, Fa0/3, Fa0/1)
- ☐ Keadaan Blocking : SW2 (Fa0/3)

#### PC Leo melakukan ping ke PC Virgo



```
Packet Tracer PC Command Line 1.0
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=72ms 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 = 72ms, Average = 18ms

C:\>
```

**Tugas 5A** : Langkah perintah ping

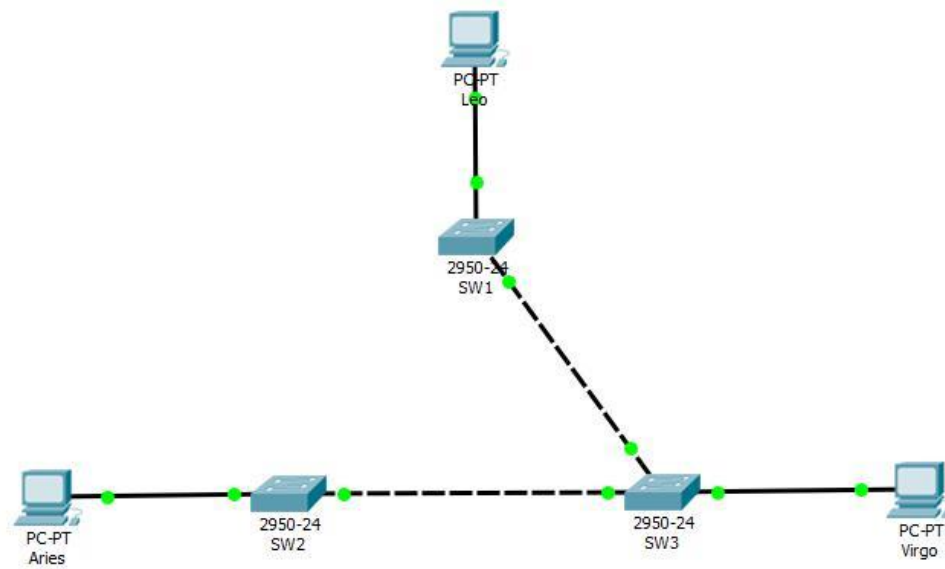
1. Klik PC Leo
2. Pilih tab desktop
3. Pilih command prompt
4. Ketikkan ping 172.21.1.3

**Tugas 6A** : Langkah menyimpan konfigurasi jaringan

1. Klik File
2. Pilih Save
3. Beri nama lab2.ekstensi akan menyesuaikan dengan aplikasi yg digunakan

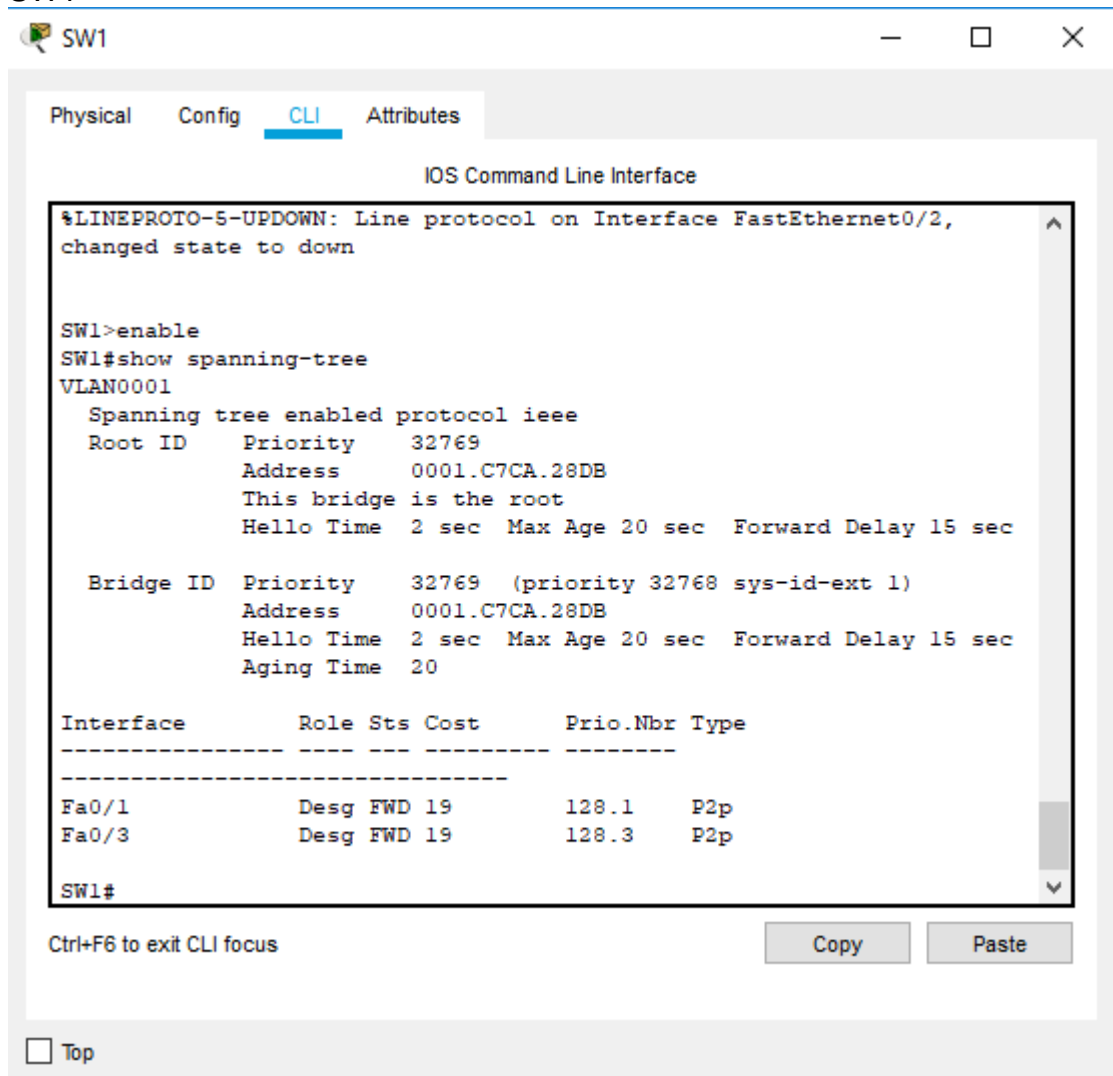
## Kegiatan 2. Topologi 2

Membuat topologi



## Tugas 9A : Status STP masing-masing switch

### SW1



The screenshot shows the CLI of switch SW1. The 'CLI' tab is selected. The command history shows the following sequence of commands and their outputs:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2,
changed state to down

SW1>enable
SW1#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address     0001.C7CA.28DB
              This bridge is the root
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
              Address     0001.C7CA.28DB
              Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time 20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/1          Desg FWD 19       128.1    P2p
Fa0/3          Desg FWD 19       128.3    P2p

SW1#
```

Below the CLI window, there are buttons for 'Copy' and 'Paste', and a 'Top' link.

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

□ SW2

The screenshot shows a network configuration window for SW2. The 'CLI' tab is active, displaying the IOS Command Line Interface. The user has entered the command 'show spanning-tree' for VLAN0001. The output shows that the spanning tree is enabled with protocol IEEE. The root ID is 32769, with a priority of 32769, MAC address 0001.C7CA.28DB, and a cost of 19. The bridge ID is also 32769. The hello time is 2 seconds, max age is 20 seconds, and forward delay is 15 seconds. A table at the bottom shows the status of interfaces Fa0/3, Fa0/2, and Fa0/1, all in a 'Desg' (Designated) state with a cost of 19 and priority 128.3, 128.2, and 128.1 respectively.

```

SW2>enable
SW2#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     0001.C7CA.28DB
             Cost        19
             Port        2(FastEthernet0/2)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0060.5CE3.55AE
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface          Role Sts Cost      Prio.Nbr Type
-----
Fa0/3              Desg FWD 19        128.3    P2p
Fa0/2              Root FWD 19        128.2    P2p
Fa0/1              Desg FWD 19        128.1    P2p
SW2#
  
```

Ctrl+F6 to exit CLI focus

Copy Paste

□ Top

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

□ SW3

SW3
— □ ×

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

changed state to down

SW3>enable
SW3#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     0001.C7CA.28DB
             Cost        38
             Port        2 (FastEthernet0/2)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
             Address     0060.3E70.0441
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Fa0/2          Root FWD 19        128.2    P2p
Fa0/3          Desg FWD 19        128.3    P2p

```

Ctrl+F6 to exit CLI focus

Copy
Paste

☐ Top

No	Variabel	Nilai
1	Root ID	32769
2	Priority	32769
3	MAC Address	0001.C7CA.28DB
4	Bridge ID	32769
5	Cost	19
6	Hello Time	2 sec
7	MaxAge	20 sec
8	Forward Delay	15 sec

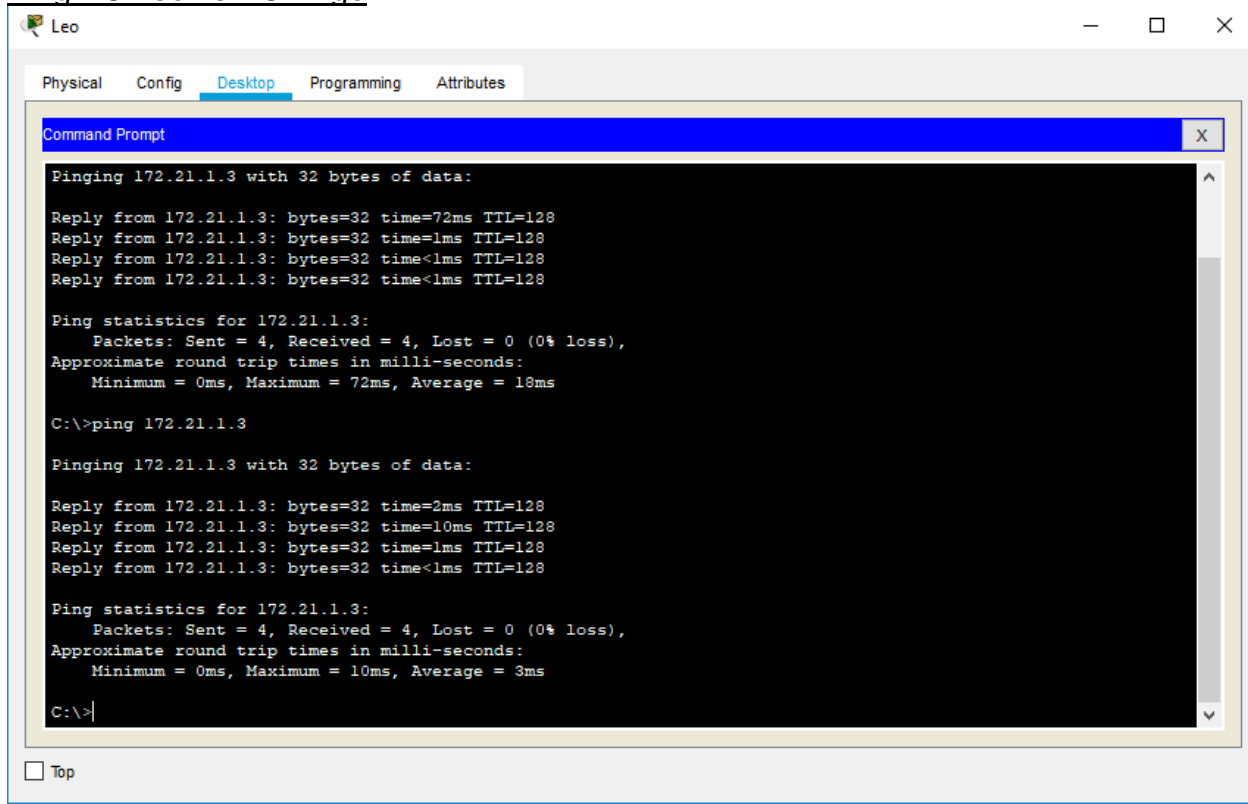
## Menentukan :

- ☐ Root bridge : SW1
- ☐ Designated bridge : SW3
- ☐ Root Port : SW2 (Fa0/2), SW3(Fa0/2)
- ☐ Designated Port : SW1 (Fa0/1, Fa0/3), SW2 (Fa0/3,Fa0/1), SW3 (Fa0/3)

## Menentukan :

- ☐ Keadaan forwarding :
  - SW1 (Fa0/1, Fa0/3)
  - SW2 (Fa0/3, Fa0/2,Fa0/1)
  - SW3 ( Fa0/2, Fa0/3)
- ☐ Keadaan blocking : tidak ada

## Ping PC Leo ke PC Virgo



Leo

Physical Config Desktop Programming Attributes

Command Prompt

```
Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=72ms 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 = 72ms, Average = 18ms

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=2ms TTL=128
Reply from 172.21.1.3: bytes=32 time=10ms 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 = 10ms, Average = 3ms

C:\>|
```

☐ Top