

# **LAPORAN PRAKTIKUM JARINGAN KOMPUTER**

## **MODUL 9**

### **“PENGENALAN STATIC NETWORK ADDRESS TRANSLATION PADA ROUTER CISCO”**



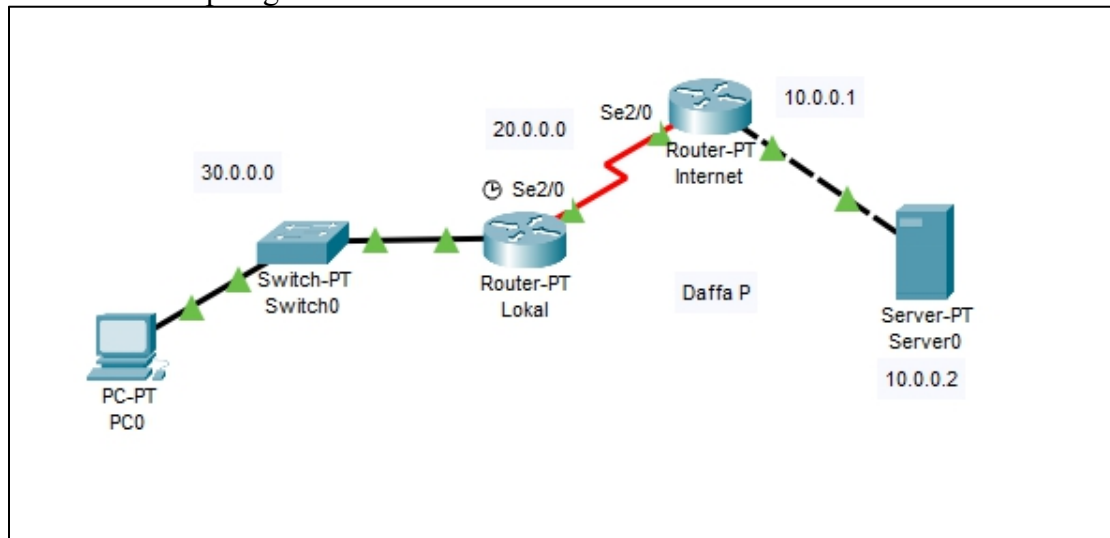
**Oleh:**

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**NIM : L200190031**  
**KELAS : A**  
**PRODI : INFORMATIKA**

**Fakultas Komunikasi dan Informatika Universitas  
Muhammadiyah Surakarta**

## D. Kegiatan Praktikum

### 1. Membuat Topologi.



### 2. Konfigurasi Router.

#### Router Internet

```
Internet
Physical Config CLI Attributes
IOS Command Line Interface

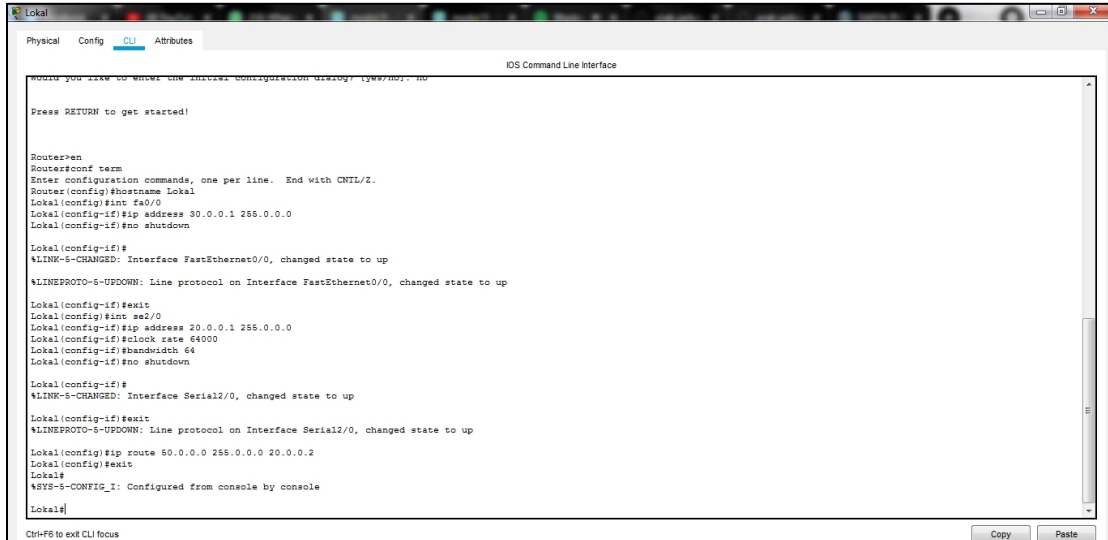
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: n
Press RETURN to get started!

Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Internet
Internet(config)#int fa0/0
Internet(config-if)#ip address 10.0.0.1 255.0.0.0
Internet(config-if)#no shutdown

Internet(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Internet(config-if)#exit
Internet(config)#int se2/0
Internet(config-if)#ip address 20.0.0.2 255.0.0.0
Internet(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Internet(config-if)#exit
Internet(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.1
Internet(config)#ip nat inside source static 10.0.0.2 50.0.0.1
Internet(config)#int fa0/0
Internet(config-if)#ip nat inside
Internet(config-if)#exit
Internet(config)#int se2/0
Internet(config-if)#ip nat outside
Internet(config-if)#exit
Internet(config)#
Ctrl-F6 to exit CLI focus
```

## Router Lokal



```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Lokal
Lokal(config)#int fa0/0
Lokal(config-if)#ip address 30.0.0.1 255.0.0.0
Lokal(config-if)#no shutdown

Lokal(config-if)#
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

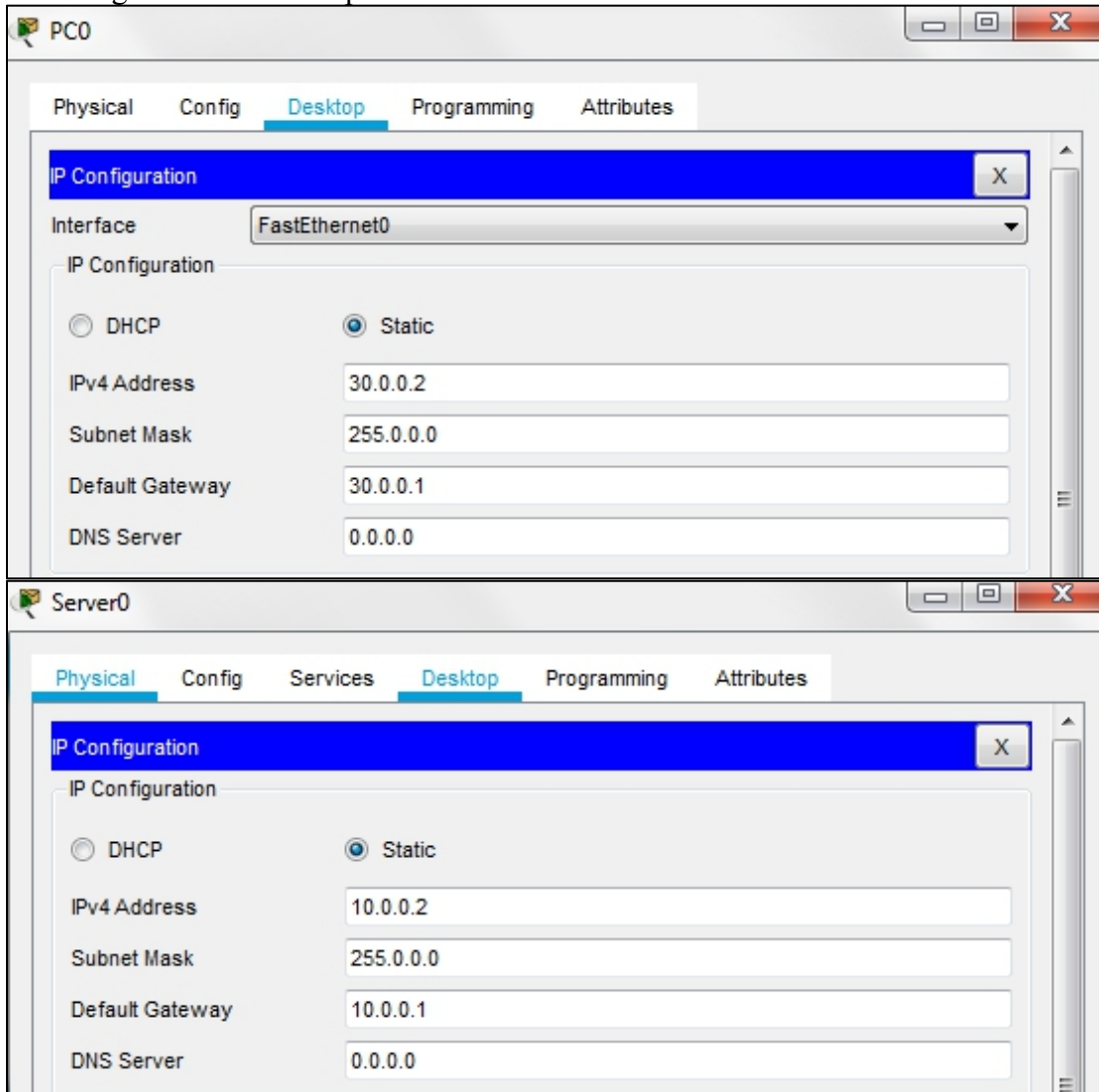
Lokal(config-if)#exit
Lokal(config)#int se2/0
Lokal(config-if)#ip address 20.0.0.1 255.0.0.0
Lokal(config-if)#clock rate 64000
Lokal(config-if)#bandwidth 64
Lokal(config-if)#no shutdown

Lokal(config-if)#
%LINK-3-CHANGED: Interface Serial2/0, changed state to up

Lokal(config-if)#exit
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Lokal(config)#ip route 50.0.0.0 255.0.0.0 20.0.0.2
Lokal(config)#exit
Lokal#
%SYS-5-CONFIG_I: Configured from console by console
Lokal#
```

### 3. Konfigurasi IP Address pada PC0 dan Server0.



**PC0**

Physical Config **Desktop** Programming Attributes

**IP Configuration** [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 30.0.0.2

Subnet Mask: 255.0.0.0

Default Gateway: 30.0.0.1

DNS Server: 0.0.0.0

**Server0**

Physical Config Services **Desktop** Programming Attributes

**IP Configuration** [X]

IP Configuration

☐ DHCP ☒ Static

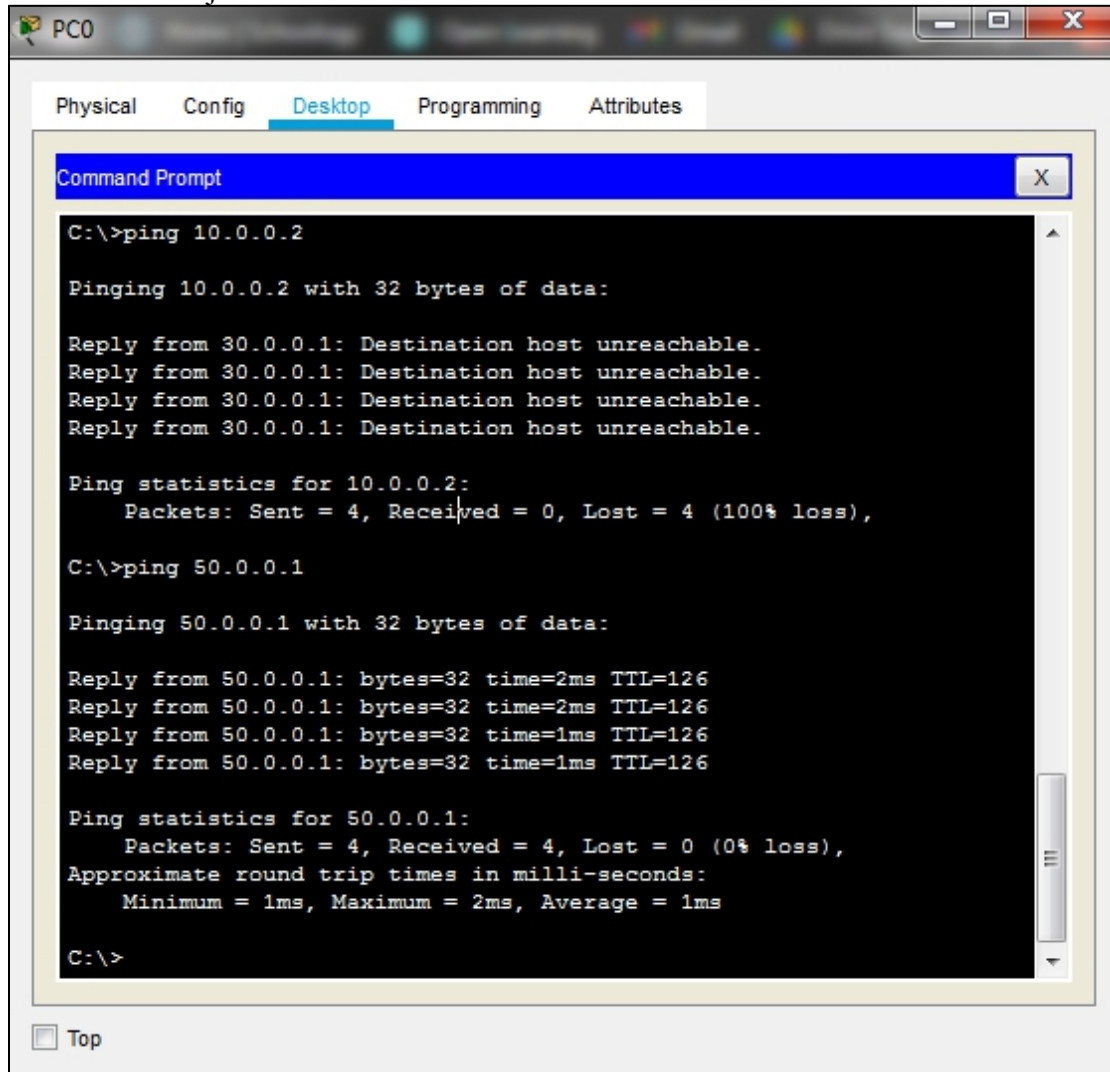
IPv4 Address: 10.0.0.2

Subnet Mask: 255.0.0.0

Default Gateway: 10.0.0.1

DNS Server: 0.0.0.0

4. Melakukan uji coba koneksi PC Lokal ke Web Server.



The screenshot shows a Packet Tracer PC configuration window for a device named 'PC0'. The 'Desktop' tab is selected, displaying a 'Command Prompt' window. The Command Prompt shows the execution of two ping commands. The first command, 'ping 10.0.0.2', results in four 'Destination host unreachable' replies and a 100% packet loss. The second command, 'ping 50.0.0.1', results in four successful replies with varying times and a 0% packet loss.

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 50.0.0.1

Pinging 50.0.0.1 with 32 bytes of data:

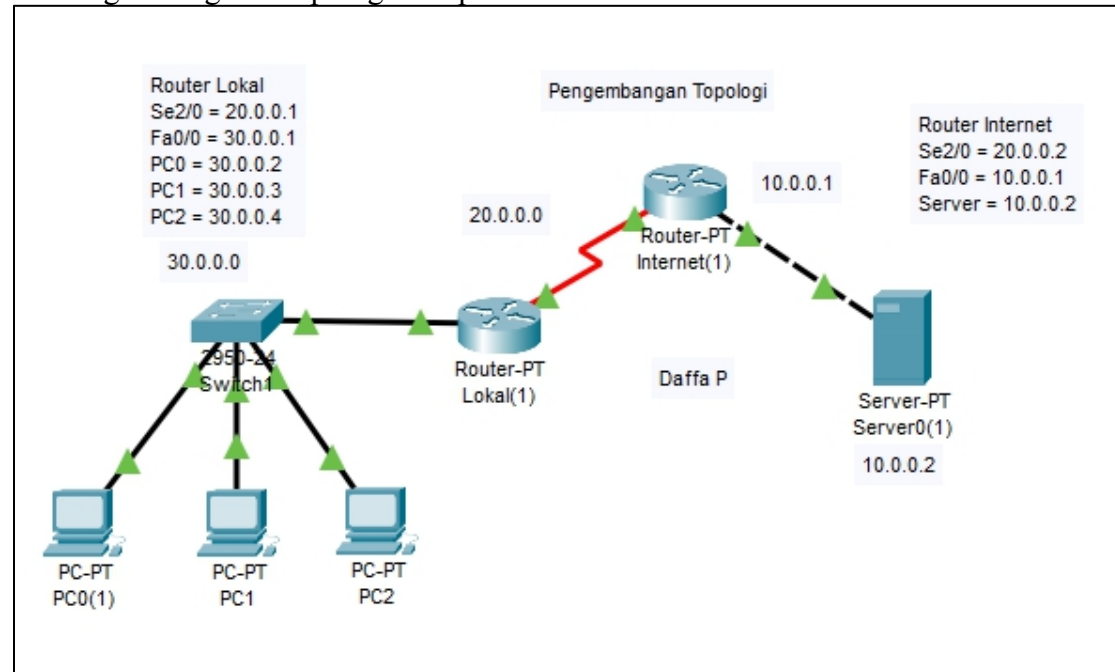
Reply from 50.0.0.1: bytes=32 time=2ms TTL=126
Reply from 50.0.0.1: bytes=32 time=2ms TTL=126
Reply from 50.0.0.1: bytes=32 time=1ms TTL=126
Reply from 50.0.0.1: bytes=32 time=1ms TTL=126

Ping statistics for 50.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

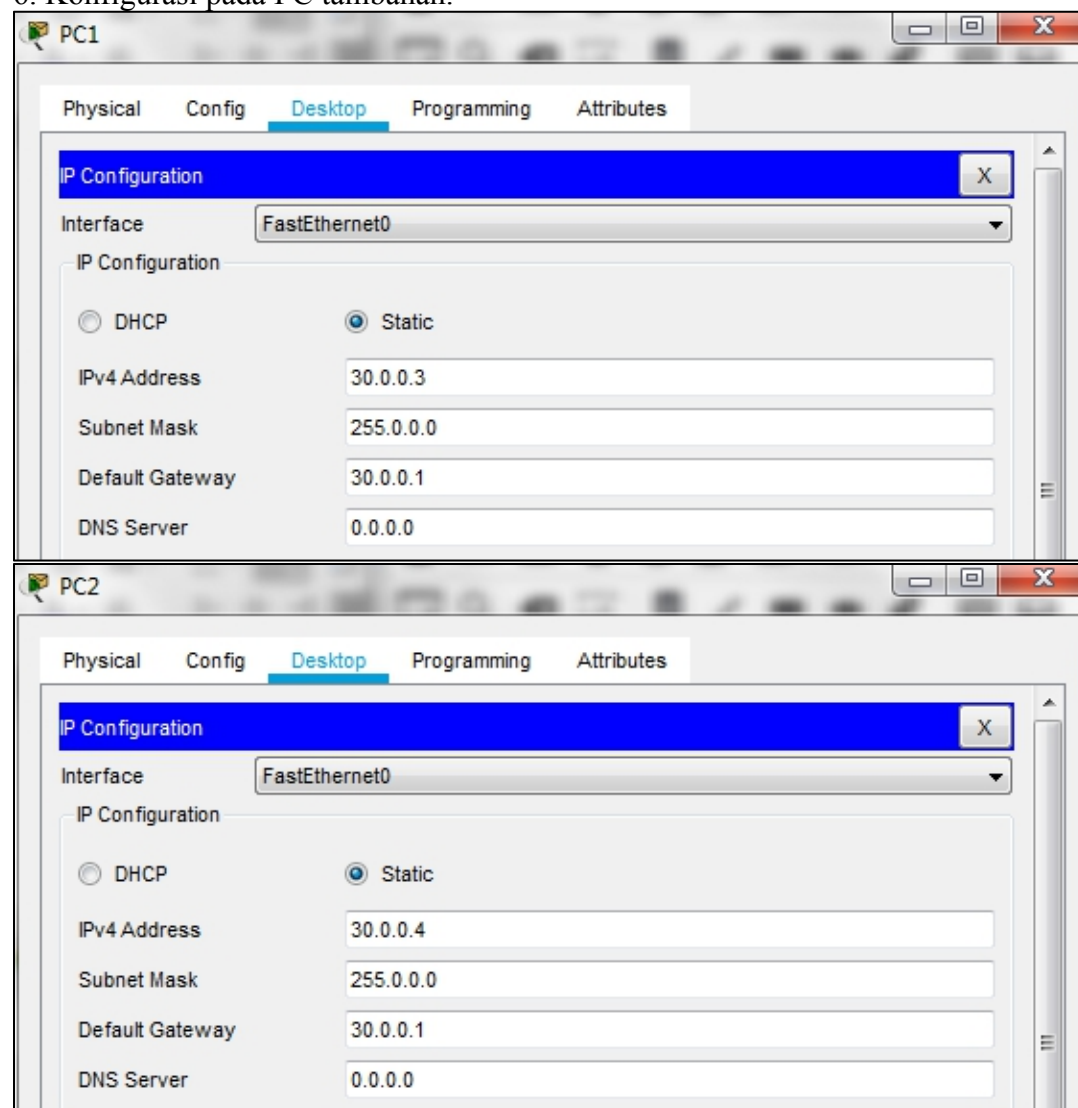
C:\>
```

☐ Top

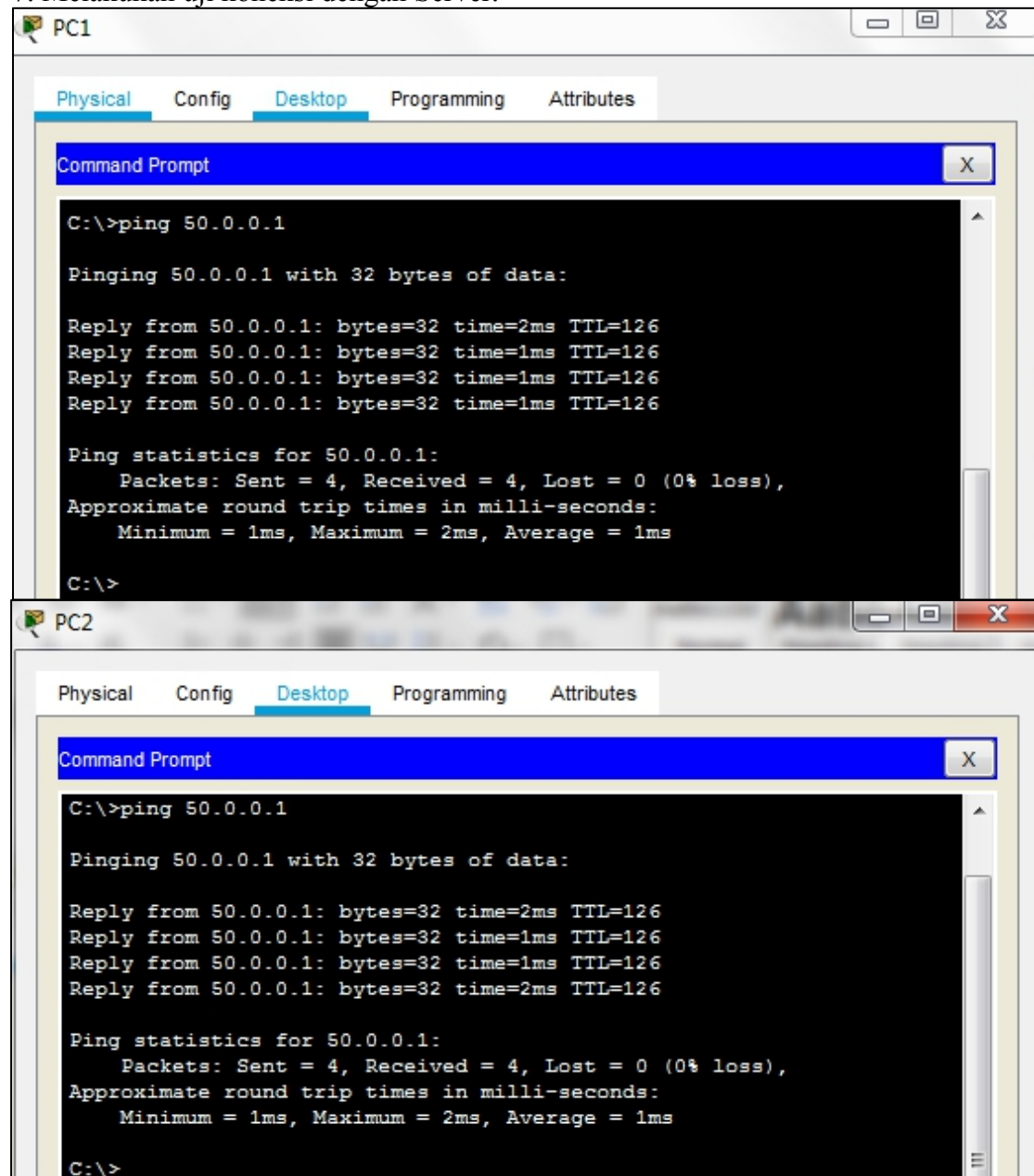
## 5. Mengembangkan Topologi dari poin 1.



## 6. Konfigurasi pada PC tambahan.

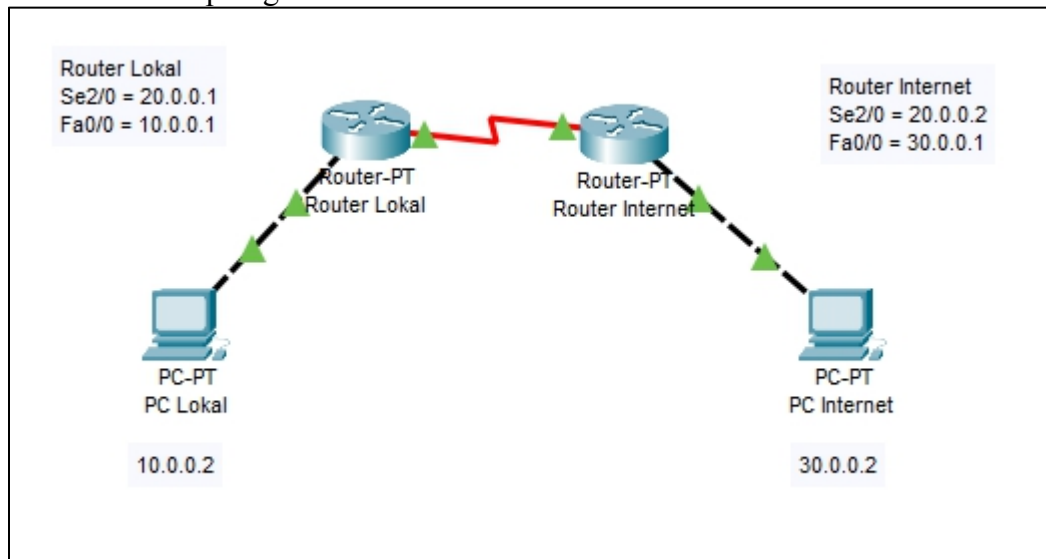


7. Melakukan uji koneksi dengan Server.



## Topologi 2

### 1. Membuat Topologi 2



### 2. Konfigurasi Router

```
Router Lokal
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Lokal
Lokal(config)#int fa0/0
Lokal(config-if)#ip address 10.0.0.1 255.0.0.0
Lokal(config-if)#no shutdown

Lokal(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Lokal(config-if)#int se2/0
Lokal(config-if)#ip address 20.0.0.1 255.0.0.0
Lokal(config-if)#clock rate 64000
Lokal(config-if)#bandwidth 64
Lokal(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Lokal(config-if)#
Lokal(config-if)#exit
Lokal(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.2
Lokal(config)#ip nat inside source static 10.0.0.2 30.0.0.1
Lokal(config)#int fa0/0
Lokal(config-if)#ip nat inside
Lokal(config-if)#int se2/0
Lokal(config-if)#ip nat outside
Lokal(config-if)#end
Lokal#
%SYS-5-CONFIG_I: Configured from console by console
Lokal#write
Building configuration...
[OK]
Lokal#

Ctrl-F6 to exit CLI focus

Router Internet
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Internet
Internet(config)#int fa0/0
Internet(config-if)#ip address 30.0.0.1 255.0.0.0
Internet(config-if)#no shutdown

Internet(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Internet(config-if)#int se2/0
Internet(config-if)#ip address 20.0.0.2 255.0.0.0
Internet(config-if)#no shutdown

Internet(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Internet(config-if)#exit
Internet(config)#ip route 60.
% Invalid input detected at '^' marker.
Internet(config)#ip route 60.0.0.0 255.0.0.0 20.0.0.1
Internet(config)#end
Internet#
%SYS-5-CONFIG_I: Configured from console by console
Internet#write
Building configuration...
[OK]
Internet#

Ctrl-F6 to exit CLI focus
```

### 3. Konfigurasi IP Address pada PC

The image displays two screenshots of the Packet Tracer configuration interface, specifically the 'Desktop' tab for IP Configuration.

**PC Internet Configuration:**

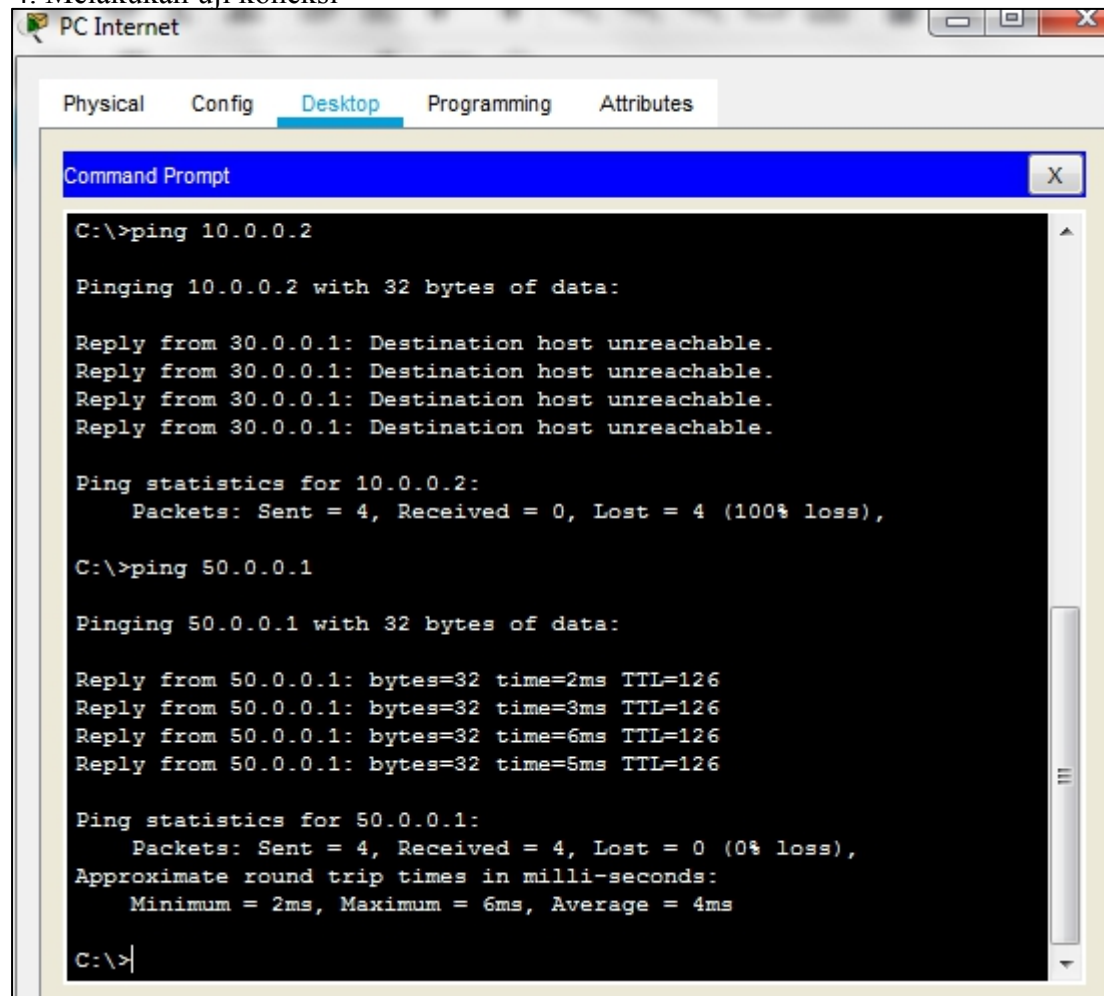
- Interface: FastEthernet0
- IP Configuration:
  - ☐ DHCP
  - ☒ Static
  - IPv4 Address: 30.0.0.2
  - Subnet Mask: 255.0.0.0
  - Default Gateway: 30.0.0.1
  - DNS Server: 0.0.0.0

**PC Lokal Configuration:**

- Interface: FastEthernet0
- IP Configuration:
  - ☐ DHCP
  - ☒ Static
  - IPv4 Address: 10.0.0.2
  - Subnet Mask: 255.0.0.0
  - Default Gateway: 10.0.0.1
  - DNS Server: 0.0.0.0



#### 4. Melakukan uji koneksi



The screenshot shows a window titled "PC Internet" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The Command Prompt shows the following text:

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 50.0.0.1

Pinging 50.0.0.1 with 32 bytes of data:

Reply from 50.0.0.1: bytes=32 time=2ms TTL=126
Reply from 50.0.0.1: bytes=32 time=3ms TTL=126
Reply from 50.0.0.1: bytes=32 time=6ms TTL=126
Reply from 50.0.0.1: bytes=32 time=5ms TTL=126

Ping statistics for 50.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 6ms, Average = 4ms

C:\>
```

## TUGAS MODUL 9

### 1. TUGAS I. STATIC ROUTING TANPA NAT

#### *Static routing (Routing Statis)*

adalah sebuah router yang memiliki tabel routing statik yang di setting secara manual oleh para administrator jaringan. Routing static pengaturan routing paling sederhana yang dapat dilakukan pada jaringan komputer.

Penggunaan routing statik dalam sebuah jaringan yang kecil tentu bukanlah suatu masalah, hanya beberapa entri yang perlu diisikan pada forwarding table di setiap router. Namun Anda tentu dapat membayangkan bagaimana jika harus melengkapi forwarding table di setiap router yang jumlahnya tidak sedikit dalam jaringan yang besar.

Routing static dengan menggunakan next hop cocok digunakan untuk jaringan multi-access network atau point to multipoint sedangkan untuk jaringan point to point, cocok dengan menggunakan exit interface dalam mengkonfigurasi static route.

## **2. Kesimpulan**

**NAT** adalah suatu metode untuk menghubungkan lebih dari satu komputer ke jaringan internet dengan menggunakan satu alamat IP. Banyaknya penggunaan metode ini disebabkan karena ketersediaan alamat IP yang terbatas, kebutuhan akan keamanan (*Security*), kemudahan serta fleksibilitas dalam administrasi jaringan.

Jadi, **NAT** adalah metode translasi IP private menjadi IP public. Agar dapat berkomunikasi dengan Internet kita harus teregistrasi menggunakan IP public.