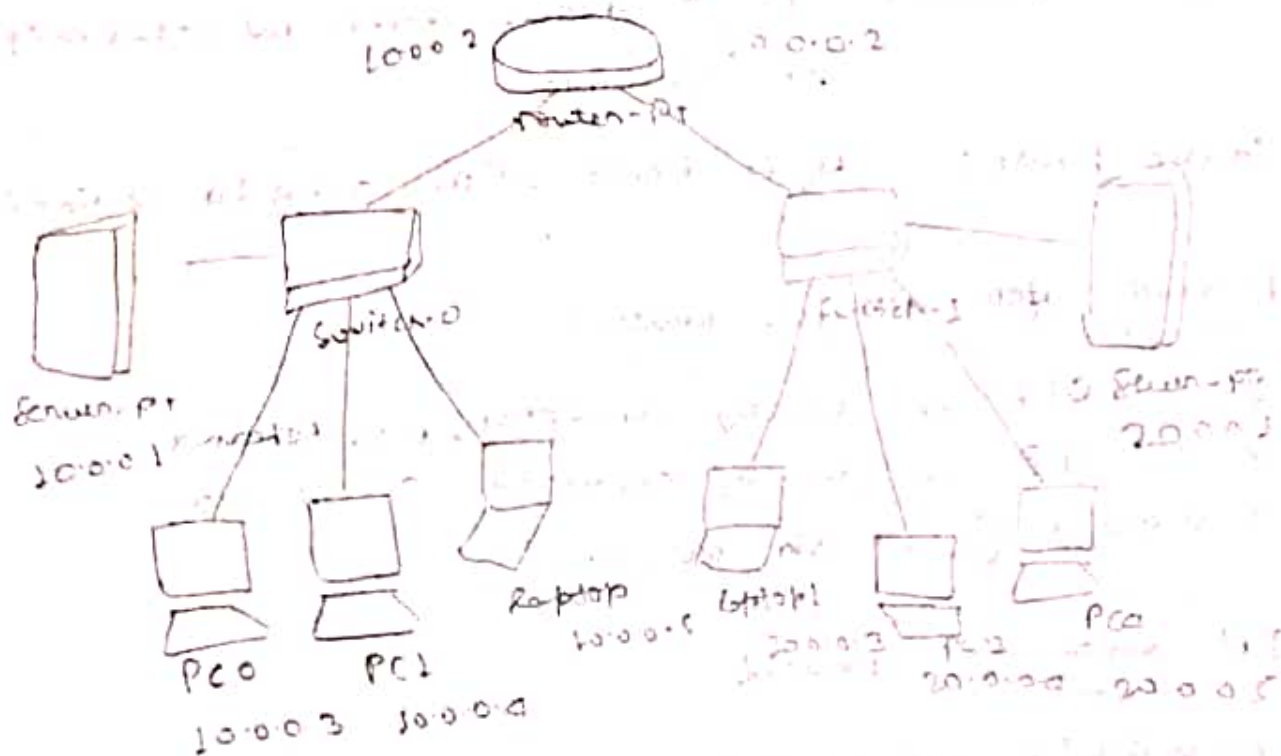**Question :-** Configure DHCP within a LAN and outside LAN.

Aim :- To form connection b/w a network and another network using a single server.

Topology :-

1 Router connects 2 switches via Fa 0lo and Fa 1/0 which further connect 4 devices each one server, two PCs and one laptop.

Procedure :-

1. Establish connection b/w a switch and 3 end devices - 1 server, 2 PC and 1 laptop.

2. Create a switch at server in server (DHCP) obtain IP address using DHCP.

3. Merge Router, another switch and it's end device with this arrangement.

4. Create another pool named switch2 and also config using router.

5. Obtain IP address using DHCP

Observation

IP address allocated dynamically to end devices

. Ping successful

→ 10.0.0.2

    ping 10.0.0.3

    Pinging 10.0.0.3 with 32 bytes of data.

    Reply from 10.0.0.3 byte 32 $t = 1$ ns
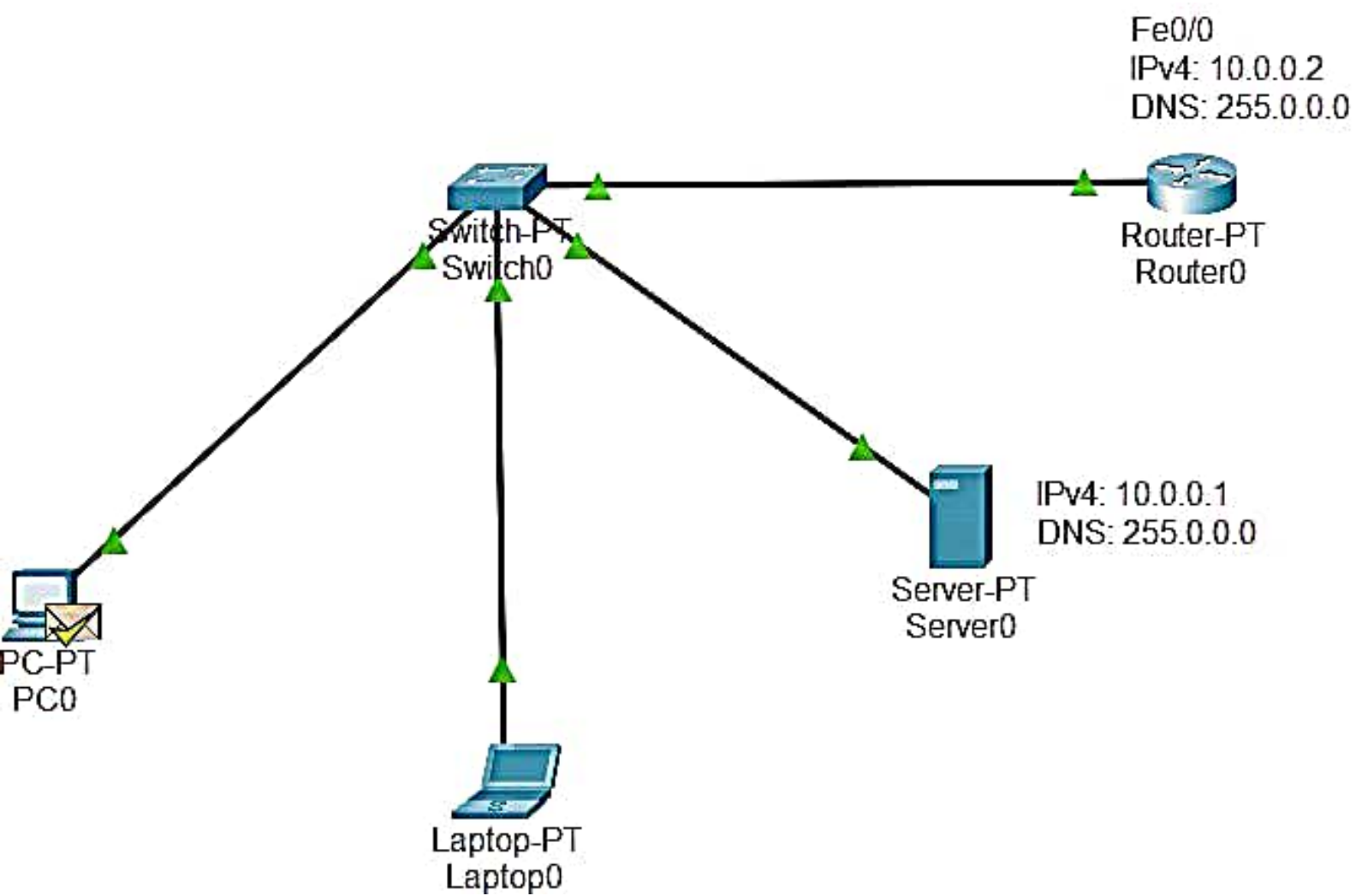
Ping statisa 10.0.0.3

    Packets : sent = 4 received = 4 lost = 0

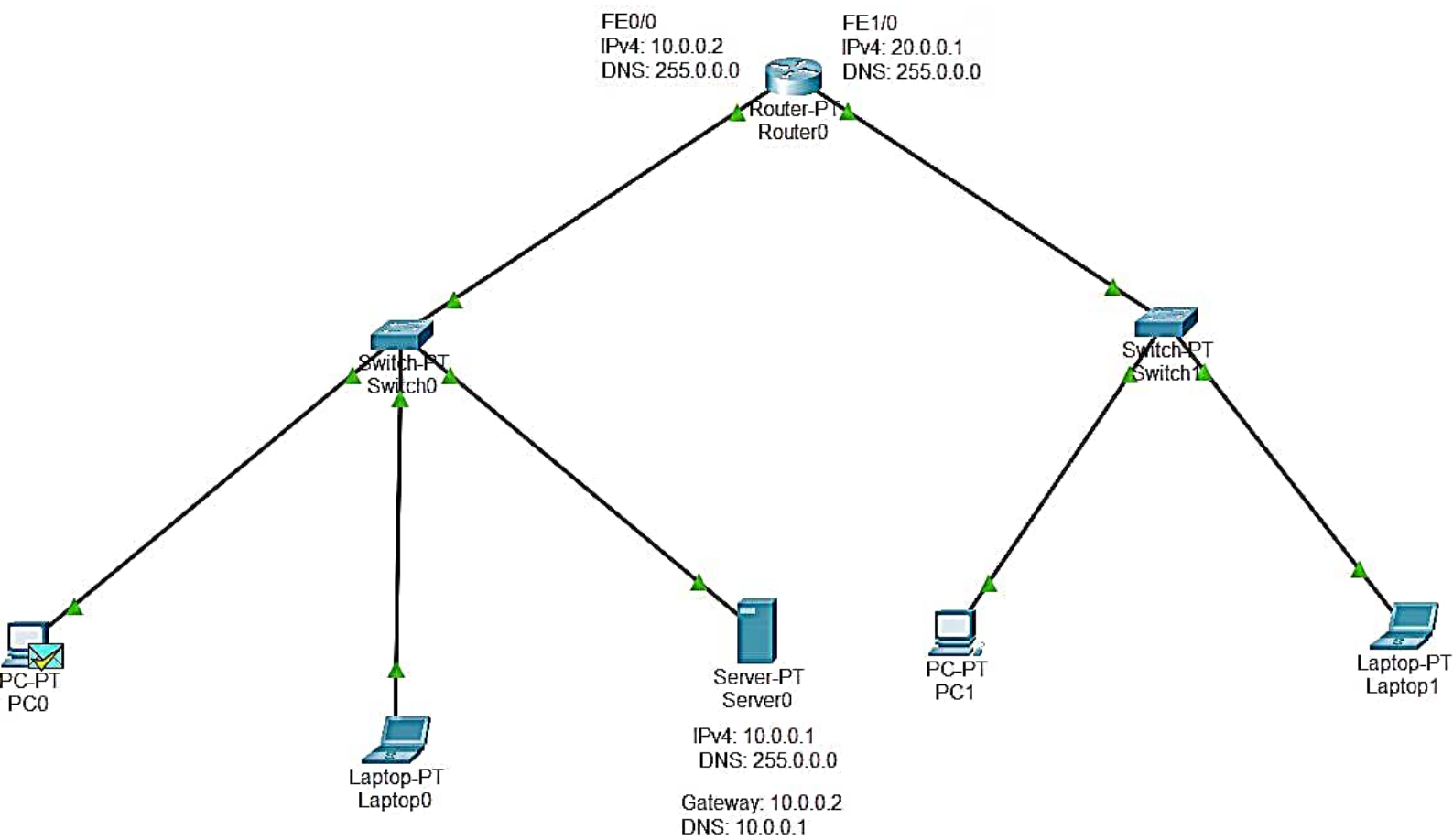   approx route trip times ns

        min = 0 ns   max = 7 ms   avg = 2 ms

This eliminates the need for network administra-
to manually assign IP address to each
devices.

20/11/24

Fe0/0
IPv4: 10.0.0.2
DNS: 255.0.0.0

Router-PT
Router0

Switch-PT
Switch0

IPv4: 10.0.0.1
DNS: 255.0.0.0

Server-PT
Server0

PC-PT
PC0

Laptop-PT
Laptop0

FE0/0
IPv4: 10.0.0.2
DNS: 255.0.0.0

FE1/0
IPv4: 20.0.0.1
DNS: 255.0.0.0

Router-PT
Router0

Switch-PT
Switch0

Switch-PT
Switch1

PC-PT
PC0

Laptop-PT
Laptop0

Server-PT
Server0

IPv4: 10.0.0.1
DNS: 255.0.0.0

Gateway: 10.0.0.2
DNS: 10.0.0.1

PC-PT
PC1

Laptop-PT
Laptop1

PC0

Physical Config Desktop Programming Attributes

GLOBAL	FastEthernet0

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status .... ☑ On

Bandwidth .... ◯ 100 Mbps ◯ 10 Mbps ☑ Auto

Duplex .... ◯ Half Duplex ◯ Full Duplex ☑ Auto

MAC Address 0005.5EA7.9778

IP Configuration

◉ DHCP

◯ Static

IPv4 Address 10.0.0.3

Subnet Mask 255.0.0.0

IPv6 Configuration

◯ Automatic

◉ Static

IPv6 Address _____ / _____

Link Local Address: FE80::205:5EFF:FEA7:9778

Physical   Config   Services   Desktop   Programming   Attributes

SERVICES

HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP

DHCP

| Interface | FastEthernet0 ⌄ | Service ● On | ○ Off |

Pool Name	serverPool1
Default Gateway	10.0.0.2
DNS Server	10.0.0.1

| Start IP Address : | 10 | 0 | 0 | 0 |
| Subnet Mask: | 255 | 0 | 0 | 0 |

Maximum Number of Users :	512
TFTP Server:	0.0.0.0
WLC Address:	0.0.0.0

| Add | Save | Remove |

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	PC0	Laptop0	ICMP	▢	0.000	N	0	(edit)	

Laptop0

— ☐ ✕

Physical | Config | Desktop | Programming | Attributes

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

FastEthernet0

Port Status	☑ On
Bandwidth	○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex	○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address	00E0.F968.7CD6

IP Configuration
- ● DHCP
- ○ Static

IPv4 Address	10.0.0.4
Subnet Mask	255.0.0.0

IPv6 Configuration
- ○ Automatic
- ● Static

IPv6 Address _____ / ____

Link Local Address: FE80::2E0:F9FF:FE68:7CD6

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	Laptop0	ICMP		0.000	N	0	(edit)	
	Successful	PC1	Laptop1	ICMP		0.004	N	1	(edit)	

Physical   Config   Desktop   Programming   Attributes

GLOBAL	FastEthernet0

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

FastEthernet0

Port Status   ☑ On
Bandwidth   ⚪ 100 Mbps ⚪ 10 Mbps ☑ Auto
Duplex   ⚪ Half Duplex ⚪ Full Duplex ☑ Auto
MAC Address   0005.5EA7.9778

IP Configuration
🔵 DHCP
⚪ Static
IPv4 Address   10.0.0.3
Subnet Mask   255.0.0.0

IPv6 Configuration
⚪ Automatic
🔵 Static
IPv6 Address   _____ / _____
Link Local Address: FE80::205:5EFF:FEA7:9778

☐ Top

FastEthernet0

☑ On	

Port Status   ◉ 100 Mbps ○ 10 Mbps ☑ Auto
Bandwidth   ○ Half Duplex ◉ Full Duplex ☑ Auto
Duplex
MAC Address   0090.2189.9958

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

IP Configuration
◉ DHCP
○ Static
IPv4 Address   20.0.0.3
Subnet Mask   255.0.0.0

IPv6 Configuration
○ Automatic
◉ Static
IPv6 Address _____ / _____
Link Local Address: FE80::290:21FF:FE89:9958

SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP

DHCP

Interface	FastEthernet0 ⌄	Service ● On	○ Off

Pool Name	serverPool1
Default Gateway	10.0.0.2
DNS Server	10.0.0.1

Start IP Address :	10	0	0	0
Subnet Mask:	255	0	0	0

Maximum Number of Users :	512
TFTP Server:	0.0.0.0
WLC Address:	0.0.0.0

Add	Save	Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool1	10.0.0.2	10.0.0.1	10.0.0.0	255.0.0.0	512	0.0.0.0	0.0.0.0
serverPool2	20.0.0.1	10.0.0.1	20.0.0.0	255.0.0.0	512	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	10.0.0.0	255.0.0.0	512	0.0.0.0	0.0.0.0

Physical   Config   Desktop   Programming   Attributes

GLOBAL	▲	FastEthernet0

GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth

FastEthernet0

Port Status   ☑ On
Bandwidth   ○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex   ○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address   00E0.F968.7CD6

IP Configuration
  ● DHCP
  ○ Static
IPv4 Address   10.0.0.4
Subnet Mask   255.0.0.0

IPv6 Configuration
  ○ Automatic
  ● Static
IPv6 Address   /
Link Local Address: FE80::2E0:F9FF:FE68:7CD6

PC0

Physical   Config   Desktop   Programming   Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time<1ms TTL=128
Reply from 10.0.0.4: bytes=32 time<1ms TTL=128
Reply from 10.0.0.4: bytes=32 time<1ms TTL=128
Reply from 10.0.0.4: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```