20|11|2024                    Week-6 (Experiment 7)

Observation Book:

**AIM:**
Demonstrate TTL/Life of Packet :-

Topology: Same as experiment - 5

Procedure :
→ In simulation Mode, select the packet to be sent from source and destination.

→ Observe the packet transfer using Auto Capture/Play and observe the TTL.

→ Initially TTL was 225 then after reaching the destination and the response back the TTL is reduced to 128.

→ Repeat the step to check for each packet transfer for each step and TTL decrease is observed.
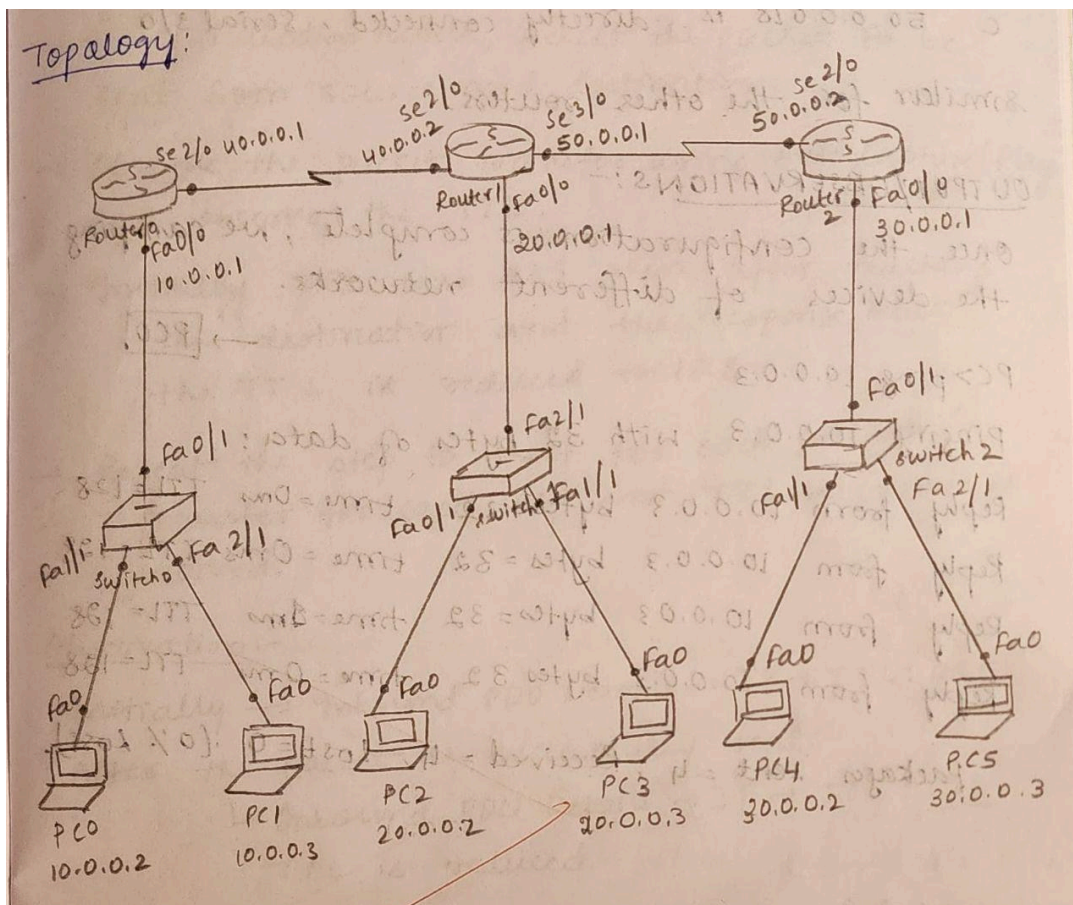
Observation :-
Initially → Inbound PDU Details → IP → TTL: 255
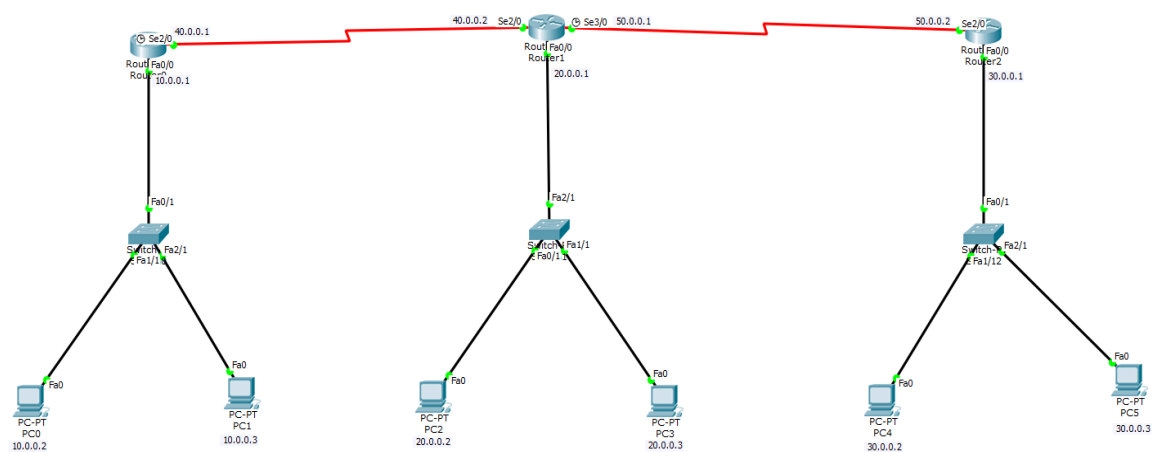After the packet is successfully sent
        ↳ Inbound PDU Details → IP → TTL: 126
    TTL is reduced.

• TTL gets reduced after every successful transfer

27/11/24

Topology:

Se 2/0 40.0.0.1   Se2/0   Se3/0   se 2/0 50.0.0.2
40.0.0.2   50.0.0.1
Router0 Fao/0   Router1 fao/o   Router 2 Fa0/0
10.0.0.1   20.0.0.1   30.0.0.1

Fao/1   fa2/1   Fa0/1

Switch0   Switch1   switch 2
Fa1/1   Fa 2/1   Fao/1   Fa1/1   Fall   Fa 2/1

fao   fao   fao   fao   fao   fao

PC0   PC1   PC2   PC3   PC4   PC5
10.0.0.2   10.0.0.3   20.0.0.2   20.0.0.3   30.0.0.2   30.0.0.3

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Topology:

40.0.0.1   40.0.0.2  Se2/0   Se3/0  50.0.0.1   50.0.0.2   Se2/0
Se2/0   Router Fa0/0   Router Fa0/0
Router Fa0/0   Router1   Router2
Router   10.0.0.1   20.0.0.1   30.0.0.1

Fa0/1   Fa2/1   Fa0/1

Switch Fa2/1   Switch Fa1/1   Switch Fa2/1
Fa1/1   Fa0/1   Fa1/1   Fa1/1

Fa0   Fa0   Fa0   Fa0   Fa0   Fa0

PC-PT   PC-PT   PC-PT   PC-PT   PC-PT   PC-PT
PC0   PC1   PC2   PC3   PC4   PC5
10.0.0.2   10.0.0.3   20.0.0.2   20.0.0.3   30.0.0.2   30.0.0.3

# Output:



PDU Information at Device: Router0

OSI Model | Inbound PDU Details | **Outbound PDU Details**

PDU Formats

**HDLC**

| | | | | | |
|---|---|---|---|---|---|
| 0 | 8 | 16 | 32 | 32+x | 48+x 56+x |
| FLG: 0111 1110 | ADR: 0x8f | CONTROL: 0x0 | DATA: (VARIABLE LENGTH) | FCS: 0x0 | FLG: 0111 1110 |

**IP**

| 0 | 4 | 8 | 16 19 | 31 Bits |
|---|---|---|---|---|
| 4 | IHL | DSCP: 0x0 | | TL: 28 |
| | ID: 0x4 | | 0x0 | 0x0 |
| TTL: 254 | | PRO: 0x1 | | CHKSUM |
| | | SRC IP: 10.0.0.2 | | |
| | | DST IP: 20.0.0.2 | | |
| | | OPT: 0x0 | | 0x0 |
| | | DATA (VARIABLE LENGTH) | | |

**ICMP**

| 0 | 8 | 16 | 31 Bits |
|---|---|---|---|
| TYPE: 0x8 | CODE: 0x0 | CHECKSUM | |
| | ID: 0x5 | SEQ NUMBER: 4 | |

50.0.0.2  Se2/0
Rout Fa0/0
Router2
30.0.0.1

Fa0/1

Switch Fa2/1
Fa1/12

Fa0

PC-PT
PC4
30.0.0.2

**Event List**

| Vis. | Time(sec) | Last Device | At Device | Type | Info |
|---|---|---|---|---|---|
| | 0.000 | -- | PC0 | ICMP | |
| | 0.001 | PC0 | Switch0 | ICMP | |
| | 0.002 | Switch0 | Router0 | ICMP | |

Reset Simulation  ☑ Constant Delay    Captured to: 0.002 s

**Play Controls**

Back | Auto Capture / Play | Capture / Forward

**Event List Filters - Visible Events**
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None

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New Cluster | Move Object | Set Tiled Background | Viewport

**Simulation Panel**

Event List

PDU Information at Device: Router0

OSI Model | **Inbound PDU Details** | Outbound PDU Details

PDU Formats

**Ethernet II**

| 0 | 4 | 8 | 14 | 19 Byt |
|---|---|---|---|---|
| | PREAMBLE: 101010...1011 | DEST MAC: 000D.BD16.D235 | SRC MAC: 000A.41E9.3114 | |
| TYPE: 0x800 | DATA (VARIABLE LENGTH) | | FCS: 0x0 | |

**IP**

| 0 | 4 | 8 | 16 19 | 31 Bits |
|---|---|---|---|---|
| 4 | IHL | DSCP: 0x0 | | TL: 28 |
| | ID: 0x4 | | 0x0 | 0x0 |
| TTL: 255 | | PRO: 0x1 | | CHKSUM |
| | | SRC IP: 10.0.0.2 | | |
| | | DST IP: 20.0.0.2 | | |
| | | OPT: 0x0 | | 0x0 |
| | | DATA (VARIABLE LENGTH) | | |

**ICMP**

| 0 | 8 | 16 | 31 Bits |
|---|---|---|---|
| TYPE: 0x8 | CODE: 0x0 | CHECKSUM | |
| | ID: 0x5 | SEQ NUMBER: 4 | |

50.0.0.2  Se2/0
Rout Fa0/0
Router2
30.0.0.1

Fa0/1

Switch Fa2/1
Fa1/12

Fa0

PC-PT
PC4
30.0.0.2

**Event List**

| Vis. | Time(sec) | Last Device | At Device | Type | Info |
|---|---|---|---|---|---|
| | 0.000 | -- | PC0 | ICMP | |
| | 0.001 | PC0 | Switch0 | ICMP | |
| | 0.002 | Switch0 | Router0 | ICMP | |

Reset Simulation  ☑ Constant Delay    Captured to: 0.002 s

**Play Controls**

Back | Auto Capture / Play | Capture / Forward

**Event List Filters - Visible Events**
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None

40.0.0.2   Se2/0   Se3/0   50.0.0

Router-PT
Ro Fa0/0

20.0.0.1

Fa2/1

Switc Fa1/1
Fa0/11

Fa0

PC-PT
PC2
20.0.0.2

PC3
20.0.0.3

PC4
30.0.0.2

**Simulation Panel**

**Event List**

| Vis. | Time(sec) | Last Device | At Device | Type | Info |
|------|-----------|-------------|-----------|------|------|
| | 0.000 | -- | PC0 | ICMP | |
| | 0.001 | PC0 | Switch0 | ICMP | |
| | 0.002 | Switch0 | Router0 | ICMP | |
| | 0.003 | Router0 | Router1 | ICMP | |
| | 0.004 | Router1 | Switch1 | ICMP | |
| | 0.005 | Switch1 | PC2 | ICMP | |
| | 0.005 | Switch1 | PC3 | ICMP | |
| | 0.006 | PC2 | Switch1 | ICMP | |

Reset Simulation    ☑ Constant Delay

Captured to:
0.006 s

**Play Controls**

Back    Auto Capture / Play    Capture / Forward

**Event List Filters - Visible Events**
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters    Show All/None

**PDU Information at Device: Switch1**   x

OSI Model    **Inbound PDU Details**    Outbound PDU Details

**PDU Formats**

_Ethernet II_

| 0 | 4 | 8 | 14 | 19 | Byt |
|---|---|---|---|---|---|
| PREAMBLE: 101010...1011 | | DEST MAC: 000A.F350.DD71 | SRC MAC: 0001.9696.9A46 | | |
| TYPE: 0x800 | DATA (VARIABLE LENGTH) | | | FCS: 0x0 | |

_IP_

| 0 | 4 | 8 | 16 | 19 | 31 | Bits |
|---|---|---|---|---|---|---|
| 4 | IHL | DSCP: 0x0 | | TL: 28 | | |
| ID: 0x1 | | | 0x0 | 0x0 | | |
| TTL: 128 | PRO: 0x1 | | CHKSUM | | | |
| SRC IP: 20.0.0.2 | | | | | | |
| DST IP: 10.0.0.2 | | | | | | |
| OPT: 0x0 | | | 0x0 | | | |
| DATA (VARIABLE LENGTH) | | | | | | |

_ICMP_

| 0 | 8 | 16 | 31 | Bits |
|---|---|---|---|---|
| TYPE: 0x0 | CODE: 0x0 | CHECKSUM | | |