

20/11/2024

## Experiment 7- Demonstrate the TTL/ Life of a Packet

Observation Book:

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(01) Demonstrate the TTL/ life of a packet

Topology:

The diagram illustrates a network topology with three routers connected in a chain. Router 0 is connected to Switch 0, which has PC0 and PC1. Router 1 is connected to Switch 1, which has PC2 and PC3. Router 2 is connected to Switch 2, which has PC4 and PC5. IP addresses are assigned to each device.

Router 0: 10.0.0.1 (connected to Switch 0)  
Router 1: 20.0.0.1 (connected to Switch 1)  
Router 2: 30.0.0.1 (connected to Switch 2)

Switch 0: 10.0.0.2 (PC0), 10.0.0.3 (PC1)  
Switch 1: 20.0.0.2 (PC2), 20.0.0.3 (PC3)  
Switch 2: 30.0.0.2 (PC4), 30.0.0.3 (PC5)

procedure:

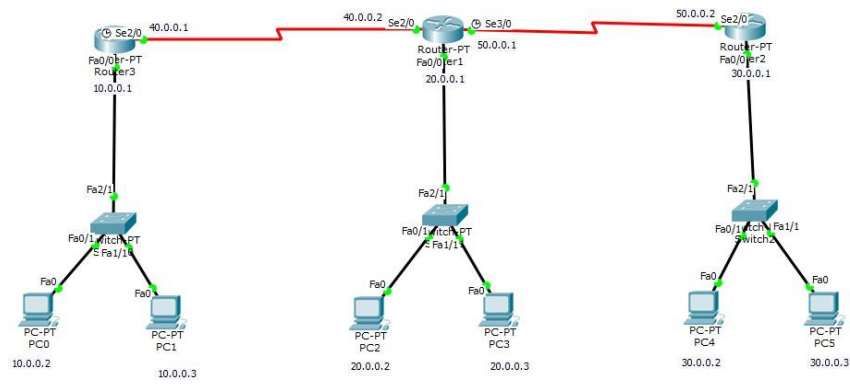
1. Switch to simulation mode
2. send a sample pdu from one pc to other
3. check on the onto con in the simulation panel.
4. To see the TTL value, go to inbound and outbound blocks
5. notice the TTL value change when packet passes through from router

Observation:

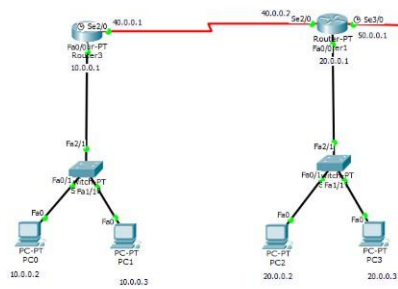
1. Decrement of TTL: each hop (router) reduces the TTL by 1.  
\* The number of hops the packet can traverse is equal to the initial TTL value.
2. Expiration of TTL: If the TTL becomes 0 before reaching the destination, the packet is discarded, and an ICMP "TTL exceeded" message is sent back to the sender.

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## Topology:



Output:



PDU Information at Device: Router2

OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

ETHERNET II		IP		ICMP	
PLG:	ADR:	CONTROL:	DATA:	TYPE:	CODE:
0111	0x0f	0x0	(VARIABLE LENGTH)	0x0	0x0
1110					

ETHERNET II

ETHERNET II		IP		ICMP	
PLG:	ADR:	CONTROL:	DATA:	TYPE:	CODE:
0111	0x0f	0x0	(VARIABLE LENGTH)	0x0	0x0
1110					

IP

IP		ICMP	
PLG:	ADR:	TYPE:	CODE:
0111	0x0f	0x0	0x0
1110			

ICMP

ICMP		CHECKSUM	
TYPE:	CODE:	CHECKSUM	
0x0	0x0	0x0	
10:	0x4	SEQ NUMBER: 6	

Event List

Vis.	Time(sec)	Last Device	At Device	Type	Info
0.000	---	PC0	ICMP		
0.001	PC0	Switch0	ICMP		
0.002	Switch0	Router3	ICMP		
0.003	Router3	Router1	ICMP		
0.004	Router1	Router2	ICMP		
0.005	Router2	Switch2	ICMP		
0.006	Switch2	PC4	ICMP		
0.007	PC4	Switch2	ICMP		
0.008	Switch2	Router2	ICMP		

Reset Simulation ☒ Constant Delay Captured till: 0.735 s

Play Controls: Back Auto Capture / Play Capture / Forward

Event List Filters - Visible Events: ACL Filter, ARP, BGP, CD, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, LACP, NTP, NETFLOW, NTP, OSPF, OSPFv6, PAgg, PAggS, RADIUS, RDP, RDPv6, STP, STPv6, SSH, SSHv6, STPv6, STPv6v2, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters Show All/None

