

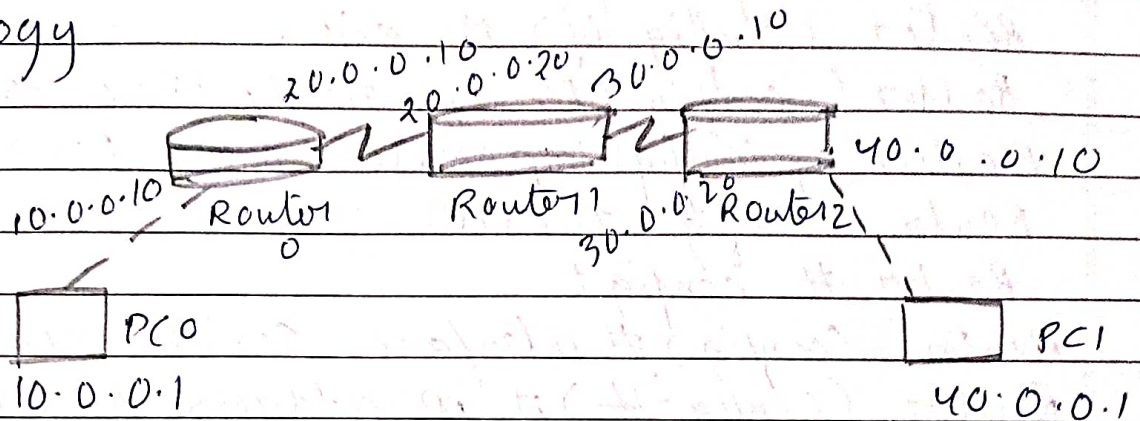
10-8-23

classmate

Date _____
Page _____

Aim: Demonstrate TTL / life of a packet

Topology



Procedure:

- 1) Create a 2 PC's and 3 router configurations use serial DTE b/w router and copper cross over b/w router and PC.
- 2) configure the IP address and gateway of PC and configure routing
router > enable (Router 0)

Router # config t

Router(config)# interface fastEthernet 0/0

Router(config-if)# ip address 10.0.0.10 255.0.0.0

Router(config-if)# no shut

Router(config-if)# exit

Router(config)# ip route 30.0.0.0 255.0.0.0 20.0.0.20

Router(config)# ip route 40.0.0.0 255.0.0.0 20.0.0.20

Router(config)# exit

Router > enable (Router 1)

Router # config t

Router(config-if)# interface Serial 2/0

Router(config-if)# ip address 20.0.0.20 255.0.0.0

Router(config-if)# no shut

Router(config-if)# exit


```

Router (config-if) # interface serial 3/0
Router (config-if) # ip address 30.0.0.10 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit.
Router (config) # ip route 10.0.0.0 255.0.0.0 20.0.0.0
Router (config) # ip route 40.0.0.0 255.0.0.0 30.0.0.0
Router (config) # exit.
Router # config t
Router (config) # interface serial 2/0
Router (config-if) # ip address 30.0.0.20 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit
Router (config) # interface fastEthernet 0/0
Router (config-if) # ip address 40.0.0.10 255.0.0.0
Router (config-if) # no shut
Router (config) # ip route 10.0.0.0 255.0.0.0 30.0.0.0
Router (config) # ip route 20.0.0.0 255.0.0.0 30.0.0.0

```

- (iii) Select simulation mode, select simple PDU and select source & destination PC's
- (iv) Use capture button to send PDU, from PC to router to PC.
- (v) Click on PDU every transfer to see the inbound and out PDU details observe the different in the TTLs

Result

PDU information at service PC
outbound PDU details
TTL : 255

PDU information at device: routers
Inbound PDU details

TTL: 255

outbound PDU Details

TTL: 255

PDU information at device: router 1

Inbound PDU Details

TTL: 254

outbound PDU Details

TTL: 253

PDU information at device: router 2

Inbound PDU details

TTL: 253

outbound PDU details at device: PC1

Inbound PDU details

TTL: 252

An example: for Inbound details of router 0
PDU format

Ethernet II

Bytes
19

Preamble		DEST MAC		SRC MAC	
1010101011		D0E0.F439.53C13		0009.7C05.E079	
Type:		DATA:		FCS:	
0x800		(variable length)		0x5	
OP	4	8	16	19	31
4	1 H L	D S E P: 0x0	T L: 28		
10: 0xa			0x0	0x0	
TTL: 255		PRO: 0x1		CHK SUM	
SRC IP: 10.0.0.1					
DST IP: 40.0.0.1					
OPT: 0x0					
DATA (VARIABLE LENGTH)					

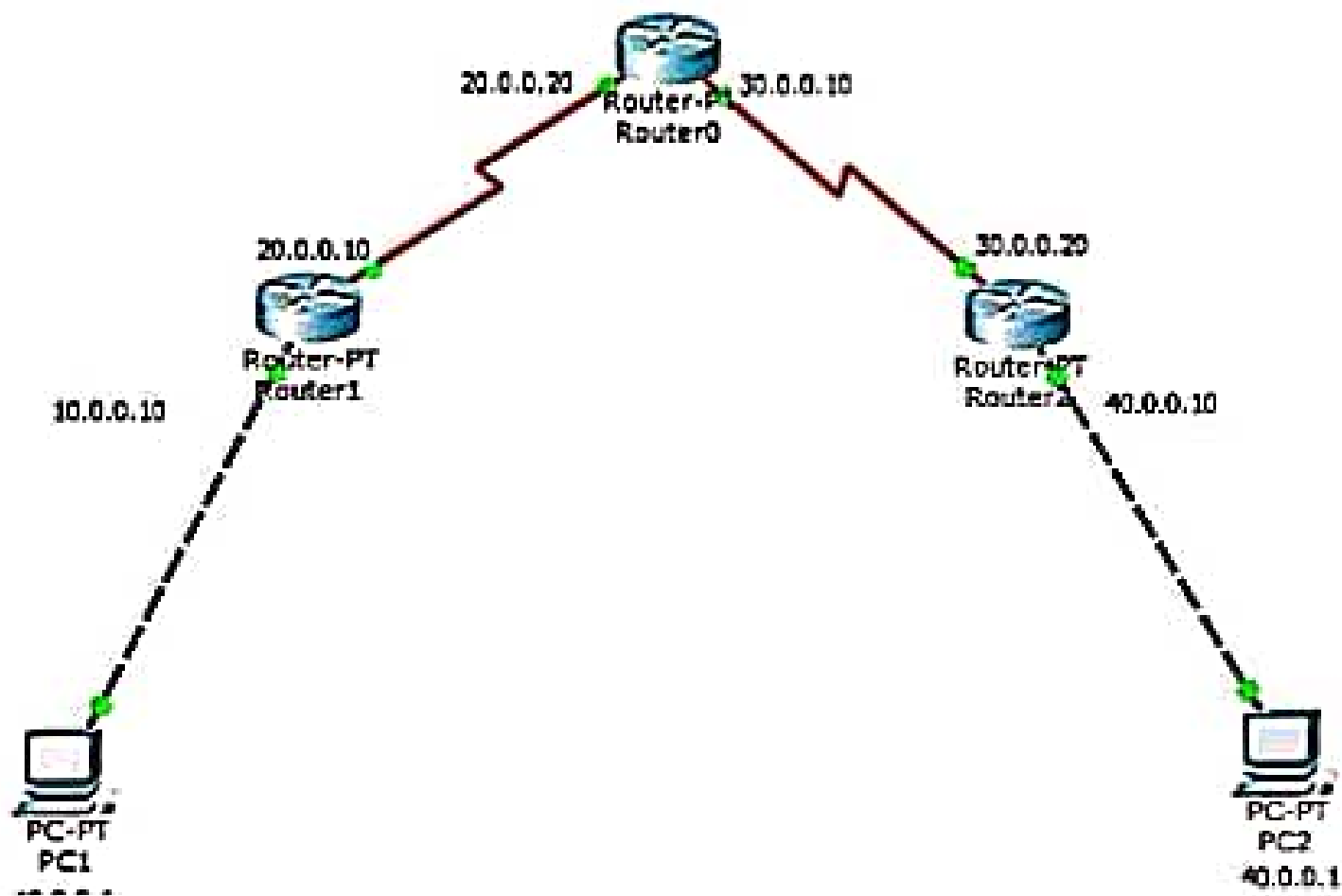
0 CMP	8	16	3
TYPE: 0x8	CODE: 0x0	CHECKSUM	
10: 0x4		SEQ NUMBER: 6	

Observation:

- 1) The TTL is reduced by 1 in every router. Time To Live (TTL) is a mechanism which limits the lifeform or lifetime data in a computer or network. It is a counter & is set as max TTL.

10/10

17/8/23



Network diagram showing a central router (R1) connected to two edge routers (R2 and R3). R2 is connected to a host (H1) and R3 is connected to a host (H2). The diagram illustrates a network topology for a lab exercise.

Configuration window for R1 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.1	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.1	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.1	255.255.255.0	192.168.3.1

Configuration window for R2 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.2	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.2	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.2	255.255.255.0	192.168.3.1

Configuration window for R3 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.3	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.3	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.3	255.255.255.0	192.168.3.1

Summary window showing the configuration details for the network, including the IP addresses and subnet masks for all interfaces.

Network diagram showing a central router (R1) connected to two edge routers (R2 and R3). R2 is connected to a host (H1) and R3 is connected to a host (H2). The diagram illustrates a network topology for a lab exercise.

Configuration window for R1 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.1	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.1	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.1	255.255.255.0	192.168.3.1

Configuration window for R2 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.2	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.2	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.2	255.255.255.0	192.168.3.1

Configuration window for R3 (Router) showing the following settings:

Interface	IP Address	Subnet Mask	Default Gateway
FastEthernet0/0	192.168.1.3	255.255.255.0	192.168.1.1
FastEthernet0/1	192.168.2.3	255.255.255.0	192.168.2.1
FastEthernet0/2	192.168.3.3	255.255.255.0	192.168.3.1

Summary window showing the configuration details for the network, including the IP addresses and subnet masks for all interfaces.

