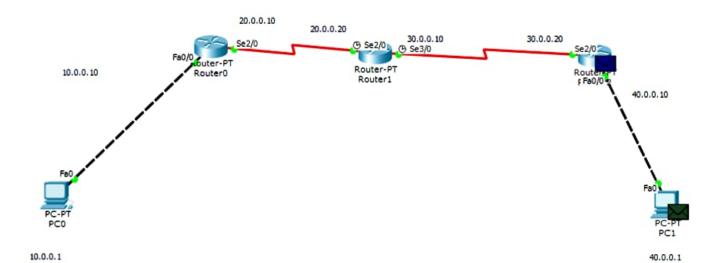
10/8/23 Enferiment - 12 pernonstate the TTL/Life of a Packet. Topology: 200010 Router Router Router Routh2 40.0.0.10 PCO Procedure. if create a 2 pc's and 3 routers configuration USE serial DTE b/w rowers of copper cross over b/whouter fre i) configure the ipaddress frateway of PC & configure herouters Renter > enable (fonter o) Router# config t Renter (config) # interface fastething to Router (config-1) # ip address 10.0.0.10 255.0.0.0 Router (config-if) # no shut Router (config-i) # exit Router (config)# ip route 30.0.00 255.0002000000 Rowler (conf. g) # if soute 40000 255.0.6.6 20.00.20 Router (config) # exit funter senable (Router 1) Rower # config + Konter (config) # interface Serial 2/0 Routh (config-if) # 1/2 address 20 0 0.20 Router (conf. g-1) H no sout Router (config-if) # eni+ fronter (config) of interface serial 3/0. Ronter (config-il) # ip gldren 3000 10 255000 Konter (config - 1) # voislet

harter(conf.g) # 1/2 route 10000 251000 200016 Results (confy) # ip route 40 000 251000 30.000 20 Ronter (long) # exit Router > enable (Router 2) Nonter H config t houter (vonfy) # Interfere serial 2/0 Route (config-if) # ip address 30.00.00 2550.00 Router ( config ... ) It us shut Router (config ) # exit Konter (config) # interface postedient of Kanter (config-1) # if address 400010 255.000 Router (config-15) # no slut Router (config -i) H emit porter (conf. of) # ip look 10000 255000 300013 houter (config) # ip rout 20.000 255.000 30.0010 iii) select simulation mode, select simple PDV and select source of destination PCs.

iv) sure capture button to sent PDU from Reto Ronter to roteroutes to pe V) click on PDV thaving every transfer to see the Inbound and outbour PDV details . observe the different in the Tris Barult: outbound POU details PDU information at Device: Router O Embound POU details TTL: 255 out bound PAU setails TTL: 250

po vinformation at Device Router 1 in bound PDU Details 111.254 out bond PDU Details 111:25 3 PDU information at Depurce : Routerz Enbound PDU Details 176:253 outband PDV details 252 TTL: 252 PDU information at debia: Row PC, Intrand PDU Details 111:252 An enample: for Inbonad details of pouter o PAU fonds o & themet a Preanble DEST MAC: SRC MAC: 101010.1011 DOE 0. F939.53CB 0009.700.E079 DATA (VARIABLE LENGTH) BALLEN DSCP: UX O IHL TL 28 10 0x 01. OXO OXO pro or TTL: 255 CHKSUM SRC 18: 10.0.0.1 DST 1P: 40.00.1 OPT: OYO Ox O BATA (VARIABLE LENGTH) al (MP CHE CKS UM TYPE: OX8 (ODE: OX8) 1P:0x4 SEG NUMBE: 6 Observation: The TIL is reduced by I in every louder. Time to live Fry is a mechanisms which limit the lifespoon of lifetime of Folata in a computer or network It is 255 is sot as man TTL



```
Router0
 Physical
          Config
                  CLI
  IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)
  Technical Support: http://www.cisco.com/techsupport
  Copyright (c) 1986-2005 by cisco Systems, Inc.
  Compiled Wed 27-Apr-04 19:01 by miwang
  PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
  Processor board ID PT0123 (0123)
  PT2005 processor: part number 0, mask 01
  Bridging software.
  X.25 software, Version 3.0.0.
  4 FastEthernet/IEEE 802.3 interface(s)
  2 Low-speed serial(sync/async) network interface(s)
  32K bytes of non-volatile configuration memory.
  63488K bytes of ATA CompactFlash (Read/Write)
           --- System Configuration Dialog ---
  Continue with configuration dialog? [yes/no]: n
  Press RETURN to get started!
  Router>enable
  Router#config t
  Enter configuration commands, one per line. End with CNTL/Z.
  Router(config) #interface fastethernet 10.0.0.10 255.0.0.0
  § Invalid input detected at '^' marker.
  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) #interface serial 2/0
  Router(config-if) #ip address 20.0.0.10 255.0.0.0
  Router (config-if) #no shut
  %LINK-5-CHANGED: Interface Serial2/0, changed state to down
  Router (config-if) #exit
  Router (config) #exit
  Router#config t
  Enter configuration commands, one per line. End with CNTL/Z.
  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) sexit
  Routers
  $LINK-S-CHANGED: Interface FastEthernet0/0, changed state to up
  *LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
  SYS-5-CONFIG_I: Configured from console by console
  %LINK-5-CHANGED: Interface Serial2/0, changed state to up
```

SYS-5-CONFIG I: Configured from console by console

\*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

```
Cisco Internetwork Operating System Software
IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 27-Apr-04 19:01 by miwang
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
         --- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n
Press RETURN to get started!
Router>enable
Routersconfig t
Enter configuration commands, one per line. End with CNTL/2.
Router(config) #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) #interface serial 3/0
Router(config-if) #ip address 30.0.0.10 255.0.0.0
Router (config-if) #no shut
*LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router (config-if) #exit
Router (config) #exit
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #ip route 10.0.0.0 255.0.0.0 20.0.0.10
Router(config) #ip route 40.0.0.0 255.0.0.0 30.0.0.20
Router (config) #exit
Routers
*LINK-5-CHANGED: Interface Serial2/0, changed state to up
SYS-5-CONFIG I: Configured from console by console
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
SYS-5-CONFIG I: Configured from console by console
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

Config

Physical

CLI

```
subject to restrictions as set forth in subparagraph
(c) of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.
           cisco Systems, Inc.
           170 West Tasman Drive
           San Jose, California 95134-1706
Cisco Internetwork Operating System Software
IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 198€-2005 by cisco Systems, Inc.
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PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
         --- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n
Press RETURN to get started!
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #interface serial 2/0
Router(config-if) p 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-if) #exit
Router(config) #ip route 10.0.0.0 255.0.0.0 30.0.0.10
Router(config) #ip route 20.0.0.0 255.0.0.0 30.0.0.10
Router (config) #
*LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

### 3

## PDU Formats

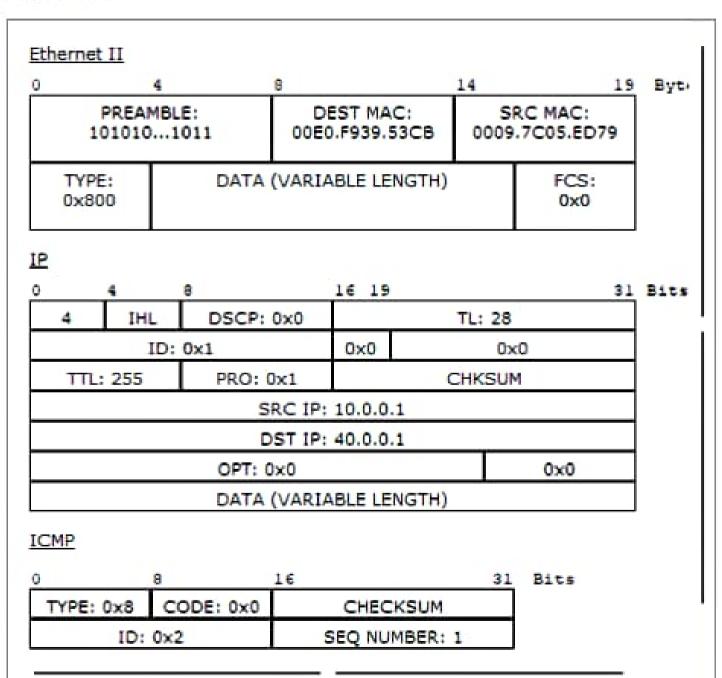
|                |           |                        |         |     | RC MAC:<br>.7C05.ED79 |      |
|----------------|-----------|------------------------|---------|-----|-----------------------|------|
| TYPE:<br>0x800 | DATA      | DATA (VARIABLE LENGTH) |         |     | FCS:<br>0x0           |      |
| <u>IP</u>      | 8         | 16                     | 19      |     | 31                    | Bits |
| 4 IHL          | DSCP:     | 0x0                    | TL: 28  |     |                       |      |
| ID: 0x2 0x0    |           | 0                      | 0x0     |     |                       |      |
| TTL: 255       | PRO;      | 0x1                    | CHKSUM  |     | 1                     |      |
|                | S         | RC IP: 10.0            | 0.0.1   |     |                       |      |
|                |           | ST IP: 40.0            | .0.1    |     |                       |      |
| OPT: 0x0       |           |                        |         | 0x0 |                       |      |
|                | DATA      | (VARIABLE              | LENGTH) |     |                       | ]    |
| ICMP           |           |                        |         |     |                       |      |
| and the second | 8         | 16                     |         | 31  | Bits                  |      |
| TYPE: 0x8      | CODE: 0x0 | CH                     | ECKSUM  |     |                       |      |
|                |           |                        |         |     |                       |      |

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1.0

#### OSI Model Inbound PDU Details Outbound PDU Details

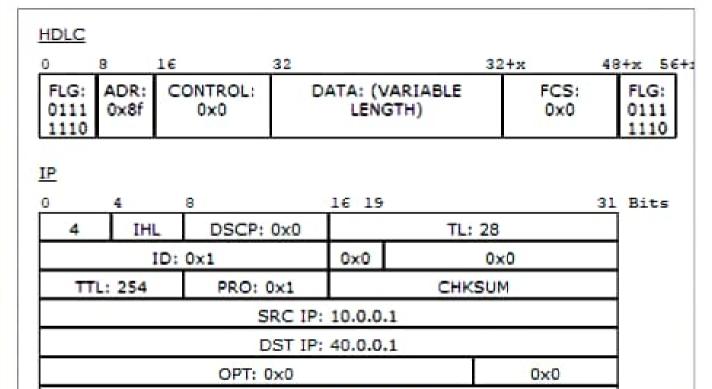
#### PDU Formats



#### OSI Model Inbound PDU Details Outbound PDU Details

#### PDU Formats

1



#### ICMP

| 0         | 8         | 16            | 31 | Bits |
|-----------|-----------|---------------|----|------|
| TYPE: 0x8 | CODE: 0x0 | CHECKSUM      |    |      |
| ID:       | 0x2       | SEQ NUMBER: 1 |    |      |

DATA (VARIABLE LENGTH)

2-PT

.0.1

1

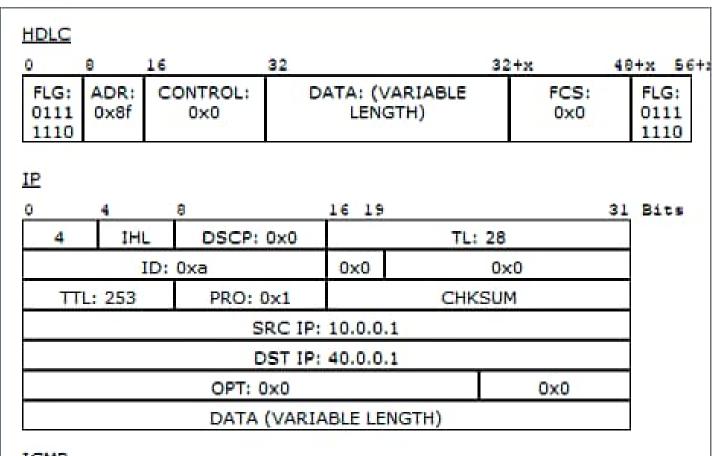
| 0         | Ģ         | 10            | 31 | DICE |
|-----------|-----------|---------------|----|------|
| TYPE: 0x8 | CODE: 0x0 | CHECKSUM      |    |      |
| ID: 0x4   |           | SEQ NUMBER: 6 |    |      |

PDU Information at Device: Router2

OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

1



#### ICMP

| 0         | 8         | 16            | 31 | Bits |
|-----------|-----------|---------------|----|------|
| TYPE: 0x8 | CODE: 0x0 | CHECKSUM      |    |      |
| ID:       | 0x4       | SEQ NUMBER: 6 |    |      |

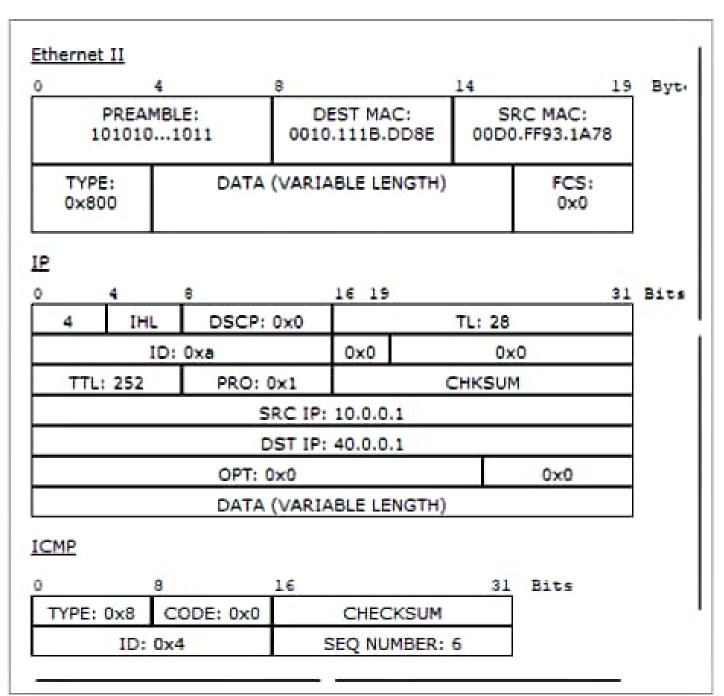
0.0

PDU Information at Device: Router2

OSI Model Inbound PDU Details Outbound PDU Details

#### PDU Formats

1



# PDU Information at Device: PC1

OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

