CS & IT ENGINEERING

Computer Networks

IP Support Protocol

Lecture No.- 3

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Recap of Previous Lecture

Topic One **ICMP Query message** ✓

Topics to be Covered

Topic ICMP Query message ✓

Topic Application of ICMP ✓

ICMP Request and reply

Topic : Internet Control Message Protocol

Topic : Echo request & reply

A router or a host can send an echo-request message. It is used to ping a message to another host that "Are you alive". If the other host is alive, then it sends the echo-reply message. An echo-reply message is sent by the router or the host that receives an echo-request message.

Topic : Router Solicitation& Advertisement

•The ICMP Router Solicitation message is sent from a computer host to any routers on the local area network to request that they advertise their presence on the network.

•The ICMP Router Advertisement message is sent by a router on the local area network to announce its IP address as available for routing.

Topic : Time stamp request and reply

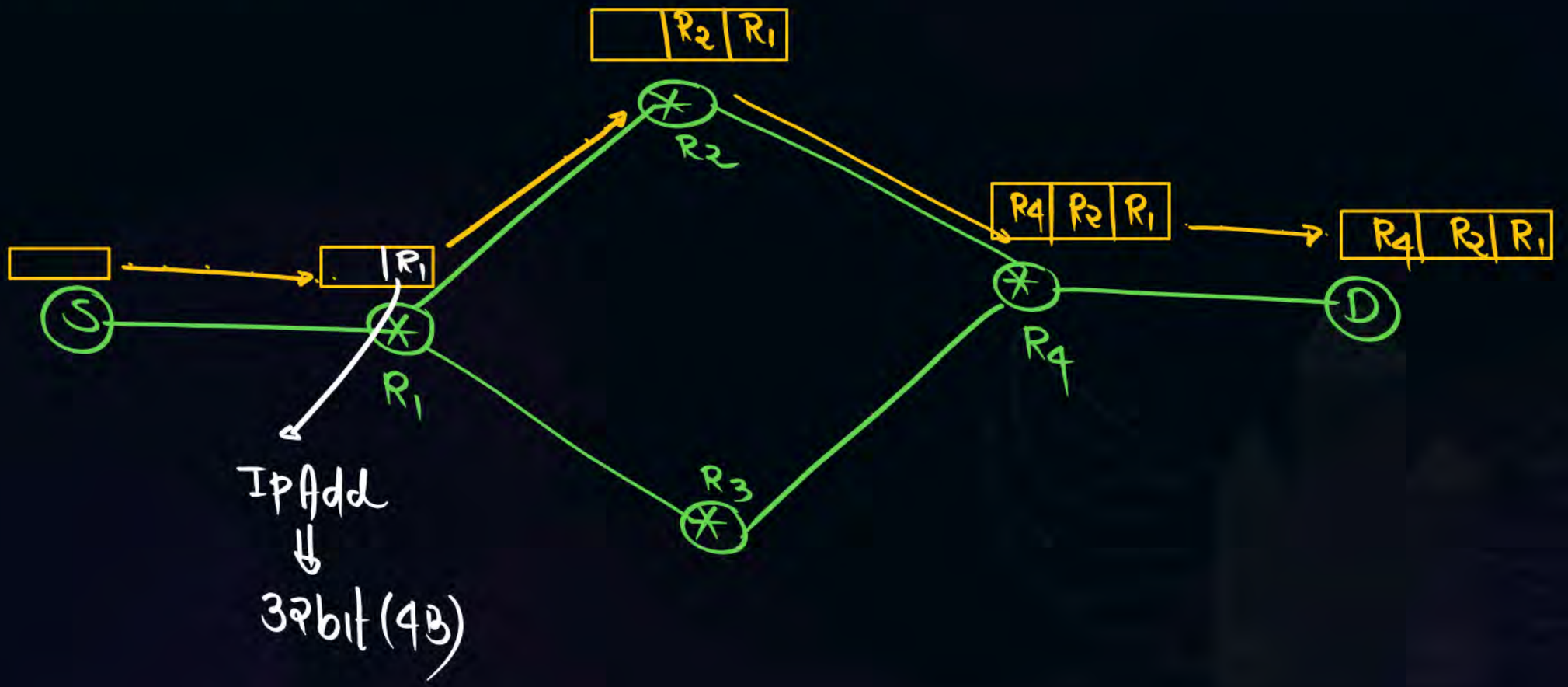
The timestamp-request and timestamp-reply messages are also a type of query messages. Suppose the computer A wants to know the time on computer B, so it sends the timestamp-request message to computer B. The computer B responds with a timestamp-reply message

Topic : Address – mask request & reply

A host may know its IP address, but it may not know the corresponding mask. For example, a host may know its IP address as 159.31.17.24, but it may not know that the corresponding mask is /24. To obtain its mask, a host sends an address-mask-request message to a router on the LAN. If the host knows the address of the router, it sends the request directly to the router. If it does not know, it broadcasts the message. The router receiving the address-mask-request message responds with an address-mask-reply message, providing the necessary mask for the host. This can be applied to its full IP address to get its subnet address.

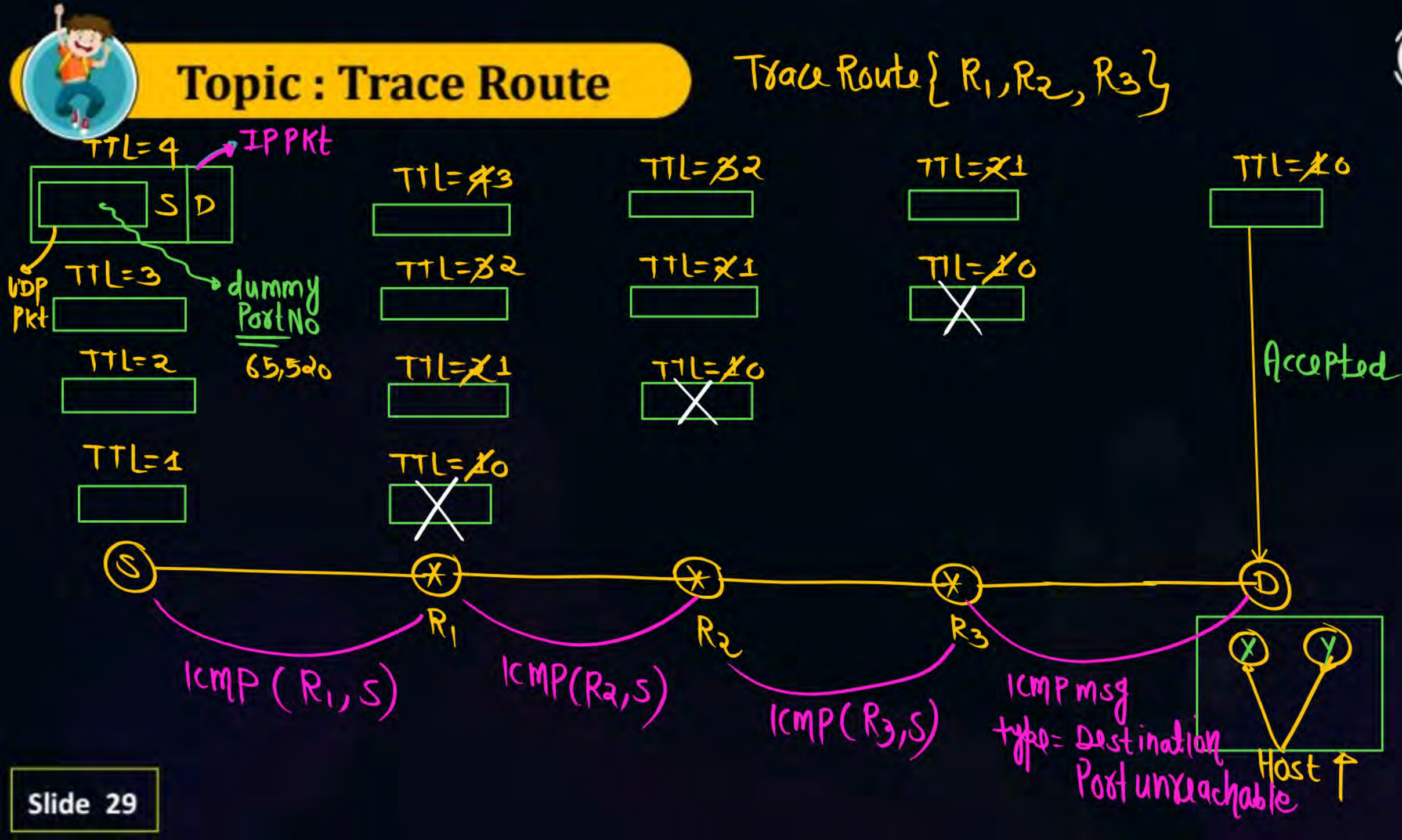
Application of ICMP

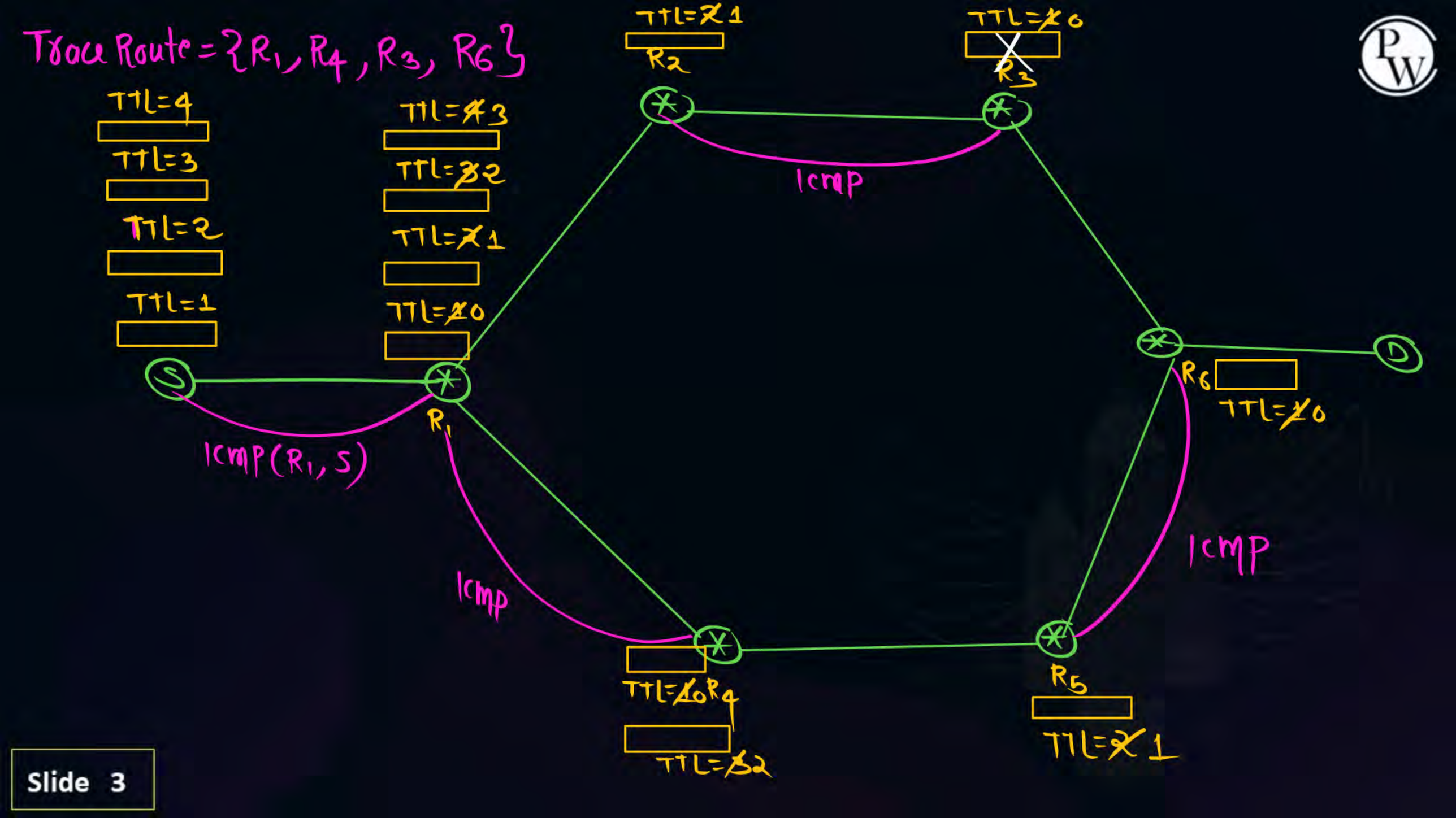
Record Route



Topic : Trace Route

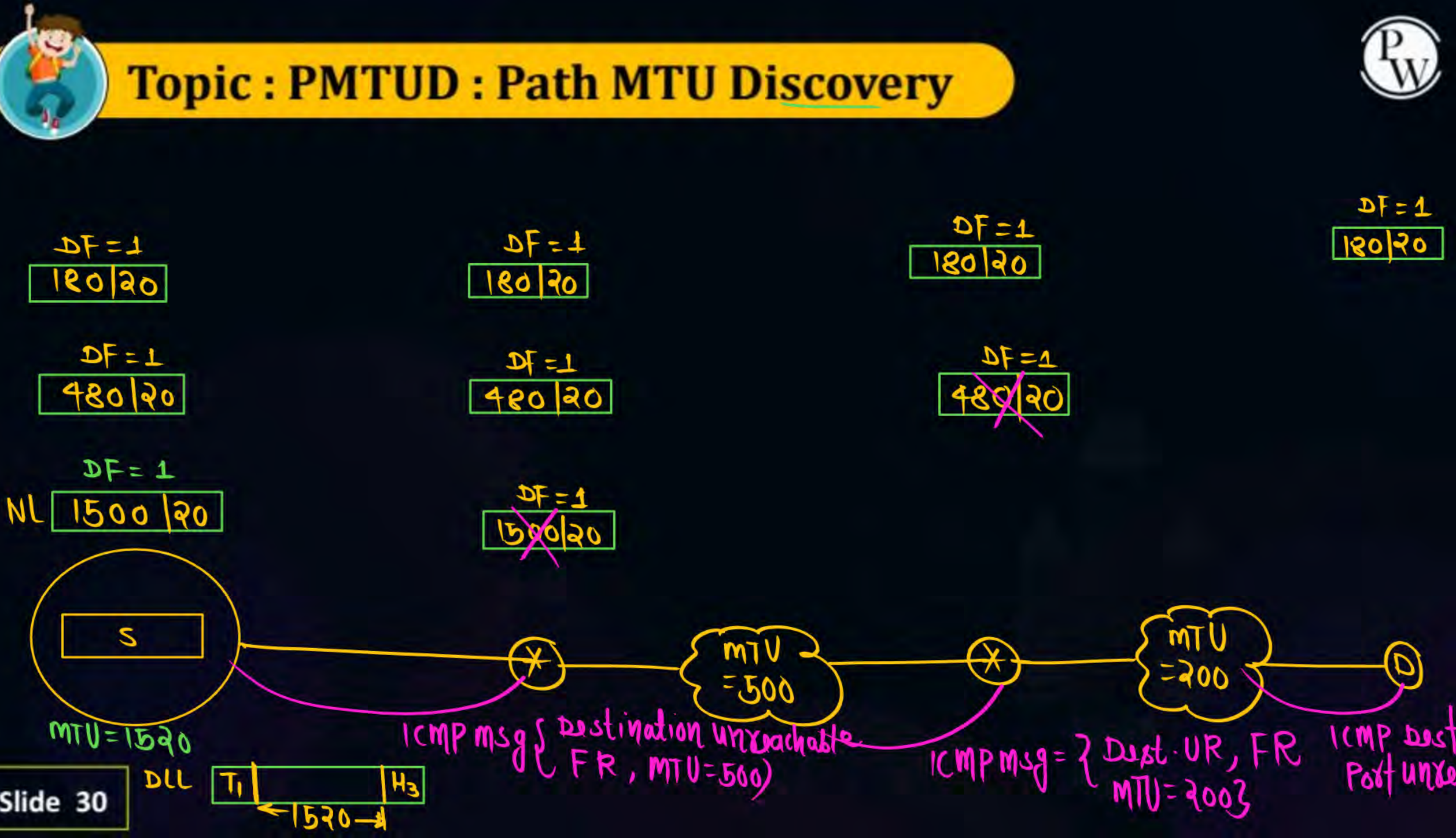
Trace Route { R_1, R_2, R_3 }




Trace Route = {R1, R4, R3, R6}
TTL=4
TTL=3
TTL=2
TTL=1
TTL=3
TTL=2
TTL=1
TTL=0
TTL=1
R2
TTL=0
R3
S
R1
D
R6
TTL=0
icmp(R1, S)
icmp
icmp
TTL=0 R4
TTL=0
R5
TTL=1

Slide 3

Topic : PMTUD : Path MTU Discovery



Note:

If a source does not use a path MTU Discovery technique. It Fragment the datagram to a size of 1280 Byte or smaller. This is the minimum size of MTU required for each Network connected to Internet.

2 mins Summary

Topic

Application of ICMP

THANK - YOU