Unit-3

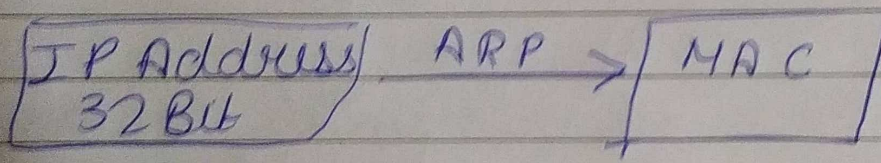
ARP

→ Address Resolution Protocol

→ It is a simple common protocol used in IP and Ethernet network

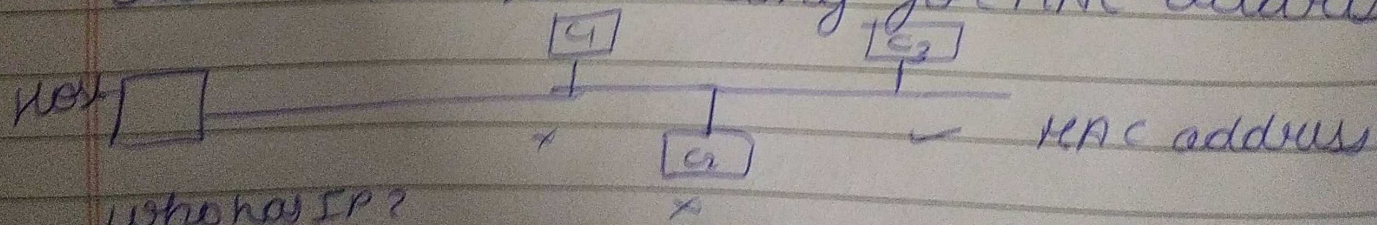
→ Its main purpose is to discover and associate IP address to physical MAC address.

→ When a computer needs to send data across a N/W to another physical device, it must find Physical address (MAC) of the destination device. This is where ARP used.



→ ARP is used to find MAC address of a device from IP address

→ The ARP Protocol will make a broadcast out to the N/W asking for MAC address



→ Used by data link protocol

Page :
Date: / /

RARP

→ Reverse Adress Resolution Protocol

MAC address	RARP →	IP Address

→ used when devices does not Know IP address

→ used by Diskless workstation to obtain their IPaddress from RARP server

→ The workstation sends a broadcast msg containing its MAC address & RARP server responds with corresponding IP address

IGMP

→ IGMP stands for Internet Group Message Protocol

→ The IP protocol support two type of comm^n
Unicasting (explain Karna h)
Multicasting

→ IGMP used by the hosts and router to support Multicasting

→ IGMP is a Part of IP layer, IGMP has a fixed size message

← IP datagram →

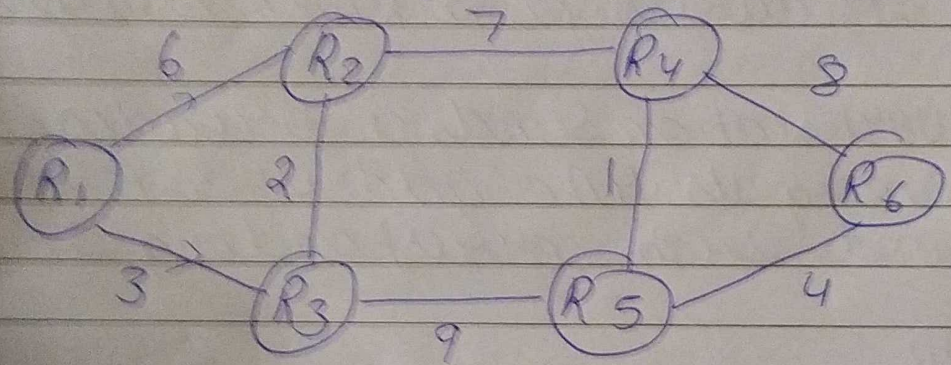
IP Header	IGMP message
20 Bytes	8 Byte

→ IGMP msg is encapsulated with an IP datagram

→ IGMP is used to establish multicast group membership b/w hosts and routers so that multicast traffic can be efficiently delivered to all members of the group.

→ IGMP is an important protocol for managing multicast traffic on IP networks.

Link State routing



R1	
R2	6
R3	3

R3	
R1	3
R2	2
R5	9

R5	
R3	9
R4	1
R6	4

R6	
R5	4
R4	8

~~Shared with~~ Flooding

↓

B.W High
congestion High

2. Flooding
3. Dijkstra Algorithm
4. Routing Table

$R_1 - R_2$
$R_1 - R_2$
$R_1 - R_3$

DHCP

→ DHCP stands for Dynamic Host Configuration Protocol.

→ is a protocol used by a network administrator to automatically assign IP address.

→ DHCP allows devices to obtain their IP address, Subnet mask, DNS etc

→ DHCP servers can also assign IP address Based on device MAC address.

→ reduce the workload of network administrator by automating IP address assignment

→ Important protocol for managing IP address

→ Help to prevent conflict b/w devices that might otherwise try to use the same IP address

DHCP Lease Process -

1) Client must connected to the Internet

2) DHCP client request to an IP address

3) DHCP server responds to the client request by providing IP server address and other configuration. This include time period, called lease.

Page
Date / /

When refreshing an assignment, a DHCP client request same parameter but DHCP server may assign new IP address

Components

DHCP server → that holds IP address configuration related Info.

DHCP client → DHCP client that receive info from DHCP server.

IP address Pool – range of address that are available in DHCP client

Subnet – Subnet partitioned segment of IP network

Lease – length of time for which DHCP client hold the IP address Info

DHCP relay – agent h server client Ka beech ma