

# ARP & RARP

## Address Resolution Protocol (ARP):

- ARP associates an IP address with the physical address.

Logical Address  $\xrightarrow[\text{(ARP)}]{\text{Mapping}}$  physical Address

- As 'IP' uses the service of Data link layer, it needs to know the physical address of the next hop  $\Rightarrow$  ARP.

## Mapping of IP Address into MAC Address :-

- (1) static mapping
- (2) Dynamic mapping

### (1) Static Mapping

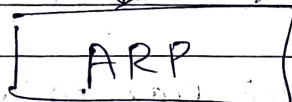
Table is created with logical & physical address.

#### Limitations

### (2) Dynamic Mapping

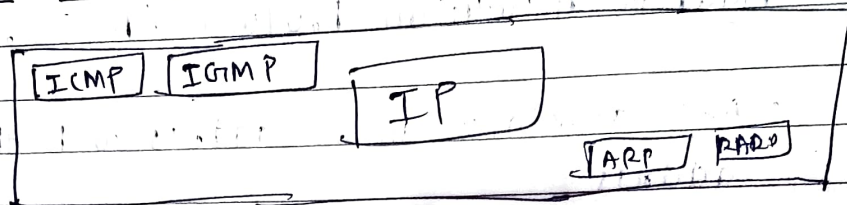
Each time a machine knows the logical addr. of another machine, it can use a protocol to find physical address.

logical Addr.



physical Addr.

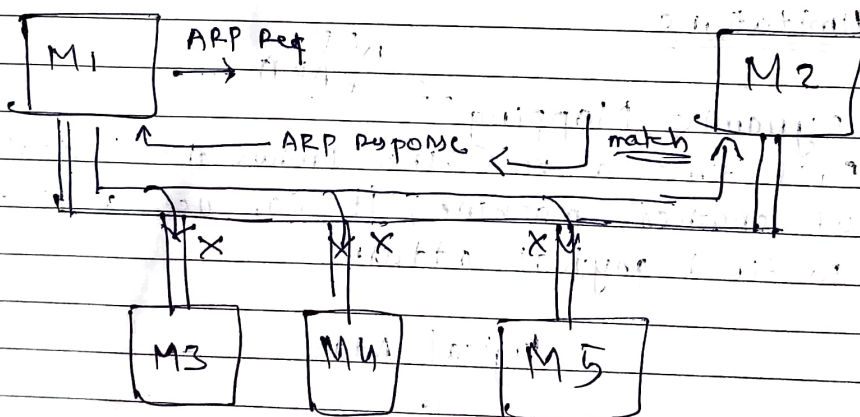
## position of ARP



## Working

### ARP protocol

- Accepts a logical address from the IP protocol
- Maps the address to the corresponding physical address
- pass it to the data link layer



M1 will send ARP Req. packet → IP add M1  
 → MAC add M1  
 → M2 IP add

ARP Response — M2 IP  
 → M2 physical address

ARP → request → Broadcast

ARP → response → Unicast

# ARP Packet Format

IPv4 / IPv6

Type of Hardware

length of physical address

Hardware Type		protocol type
HW Len	Protocol length	operation request (1), reply (2)
	length of logical addr.	sender HW Address
		sender protocol Address
		Target HW Address (Not filled in req. msg)
		Target protocol Address

Receipt IP addr.

## Encapsulation of ARP Packet

Type 0x0806

ARP request or reply packet

Preamble	Destination address	Source address	Type	Data	CRC
4 SFD					
8 bytes	6 bytes	6 bytes	2 bytes		4 bytes

## Four Cases using ARP



## RARP (Reverse Address Resolution Protocol (RARP))

- 'RARP' maps a physical address to a logical address

physical Add  $\xrightarrow{\text{map}}$  logical IP Address

