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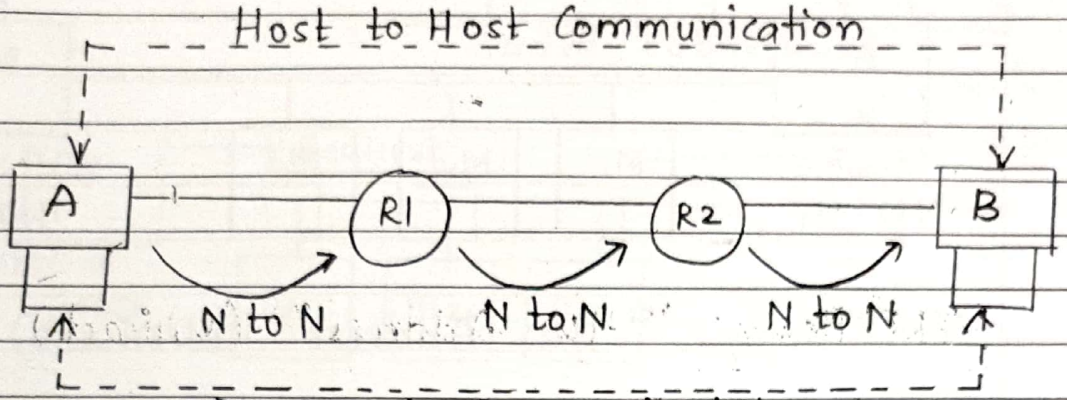
ARP and RARP

Note:

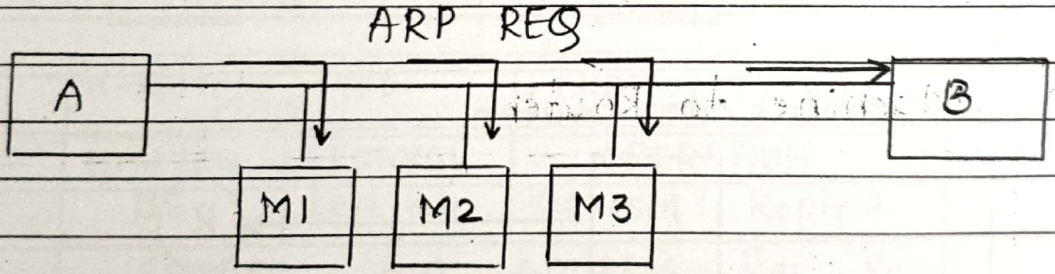
Port Address V/s IP Haddress V/s Mac Address



N: Node (48 bit MAC)

Adress Resolution Protocol (ARP) :-

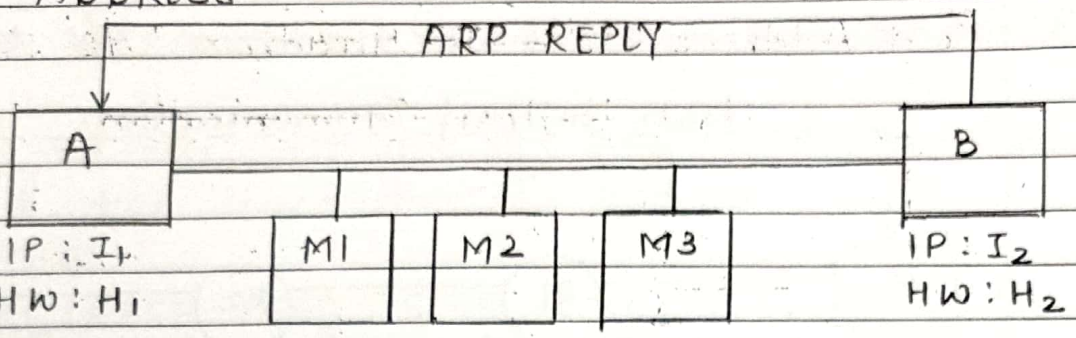
It is a n/w layer protocol which is used for resolving hardware address for a given IP Address



ARP REQ : "Give HW address of I_2"
(Broadcast)

As shown in the diagram A knows IP address of B. But to forward the packet on same Ethernet it should know hardware address So it sends broadcast request.

"LOOKING FOR MAC ADDRESS FOR GIVEN IP ADDRESS"

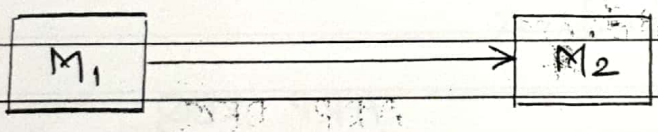


ARP Reply : "HW Address" (Unicast)

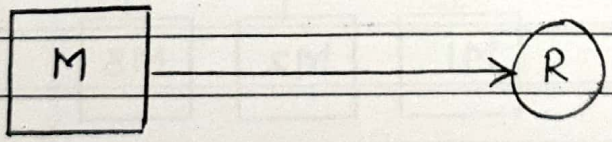
The request message was only accepted by B and now it sends a unicast reply as its own hardware address to A.

Four Cases of ARP :-

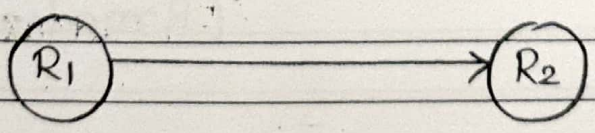
(1) Machine to Machine



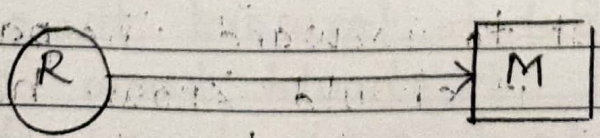
(2) Machine to Router



(3) Router to Router



(4) Router to Machine



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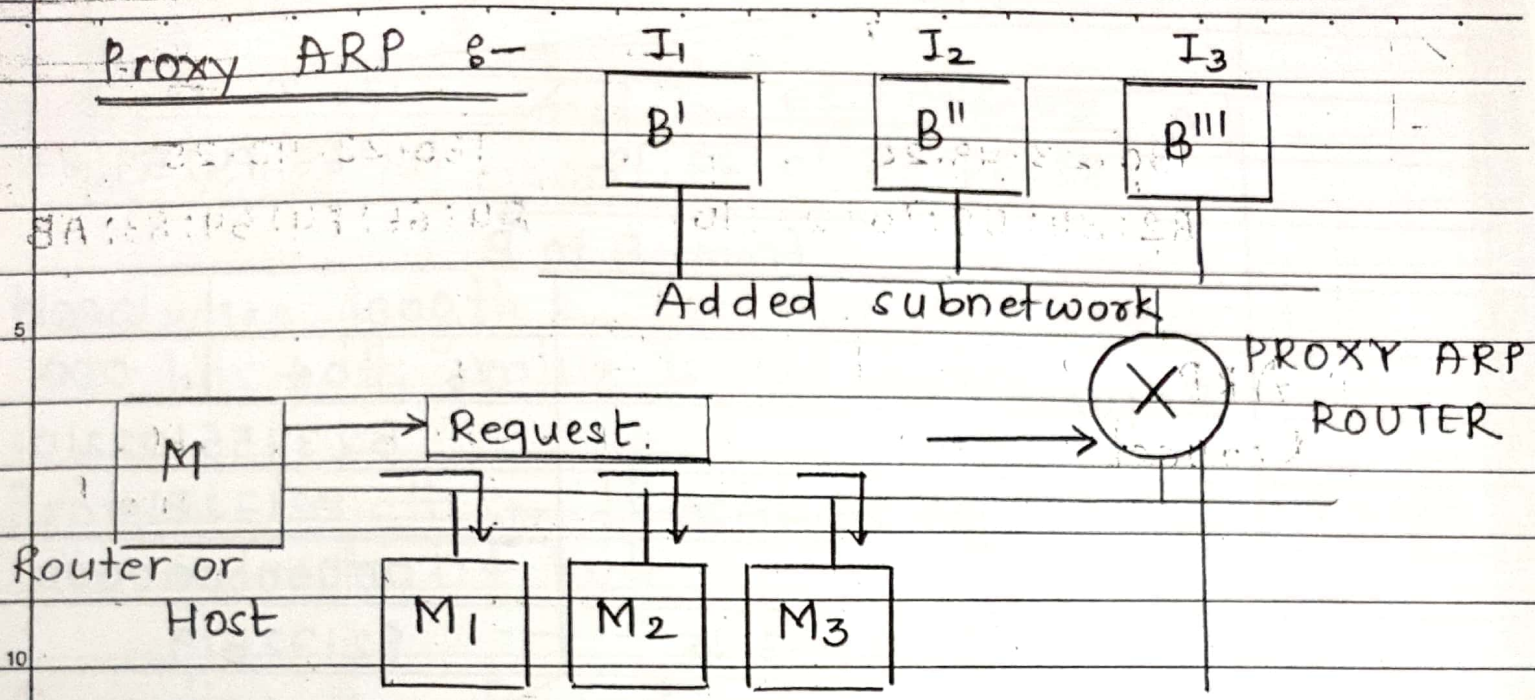
Proxy ARP :-



It is used for security reasons, whenever there is an ARP request for B', B'' and B''' the proxy ARP Router replies with its own hardware address

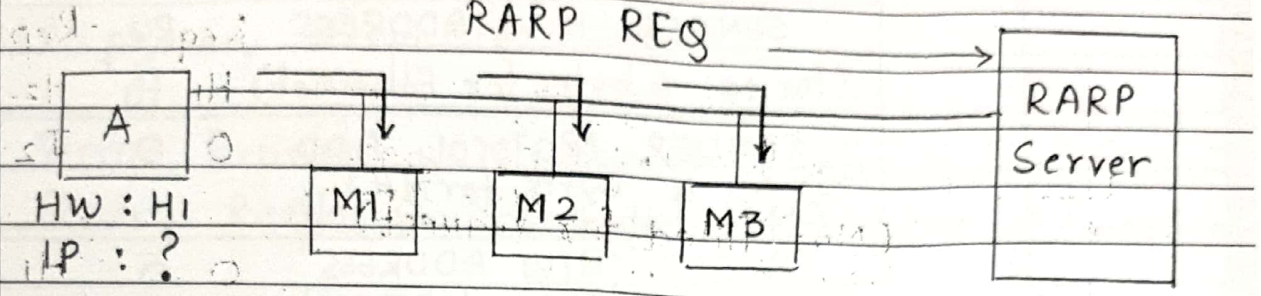
Hence h/w address B', B'' and B''' is hidden.

→ m/c without hard disk

RARP (Reverse ARP) :-

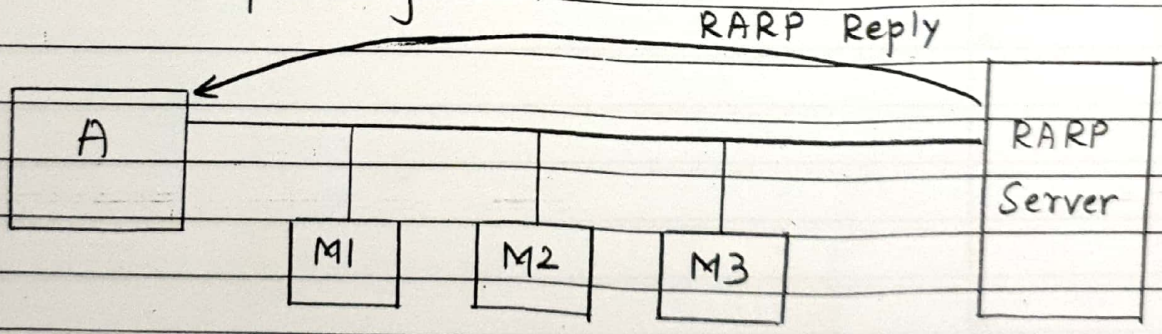
It is an application layer service used for diskless environment.

For example :- Whenever A boots it only knows its hardware address but doesn't know its IP address.



RARP REQ : "This is my HW address i.e. H1, Please give me IP address"
(Broadcast)

So A now sends RARP request, which is only accepted by RARP server which has a table that maps hardware address to its IP address and RARP server sends reply to only to the requesting node.



RARP REPLY : " IP Address of client"
(Unicast)