

# Basic ARP process

- **What is ARP?**

ARP stands for 'Address Resolution Protocol'. It is a protocol for mapping an IP address to a MAC address.

- **What are basic functions of ARP?**

ARP is used by Data link layer to provide two basic functions,

- 1.Resolve IPv4 or IPv6 addresses to MAC address
- 2.Maintain a Cache table of MAC to IP addresses.

- **What is ARP Cache?**

It is a list of resolved IP-to-MAC addresses. When a packet is received, the ARP cache is checked to see if the resolution has already been added to the cache. If so, the packet is immediately forwarded to the resolved address. If the ARP cache does not contain the listing, a process must be initiated to resolve IP address to MAC address

# How ARP works

When an incoming packet destined for a host machine on a particular local area network arrives at a gateway, the gateway asks the ARP program to find a MAC address that matches the IP address. The ARP program looks in the ARP cache and, if it finds the address, provides it so that the packet can be sent to the specific machine.

If no entry is found for the IP address, ARP broadcasts a request packet to all the machines on the LAN to see if one machine knows that it has that IP address associated with it. A machine that recognizes the IP address as its own returns a reply so indicating. ARP updates the ARP cache for future reference and then sends the packet to the MAC address that replied.

# Example

