CS8601 –MOBILE COMPUTING

UNIT 3

MOBILE NETWORK LAYER

3.2. DYNAMIC HOST CONFIGURATION PROTOCOL(DHCP):

DHCP is used to merge the world of mobile phones with the internet and to support mobility. Automatically assigns a unique IP address to each device that connects to a network. Used to simplify the installation and maintenance of networked computers.

If a new computer is connected to a network, DHCP can provide it with all the necessary information for full system integration into the network, e.g., addresses of a DNS server and the default router, the subnet mask, the domain name, and an IP address.

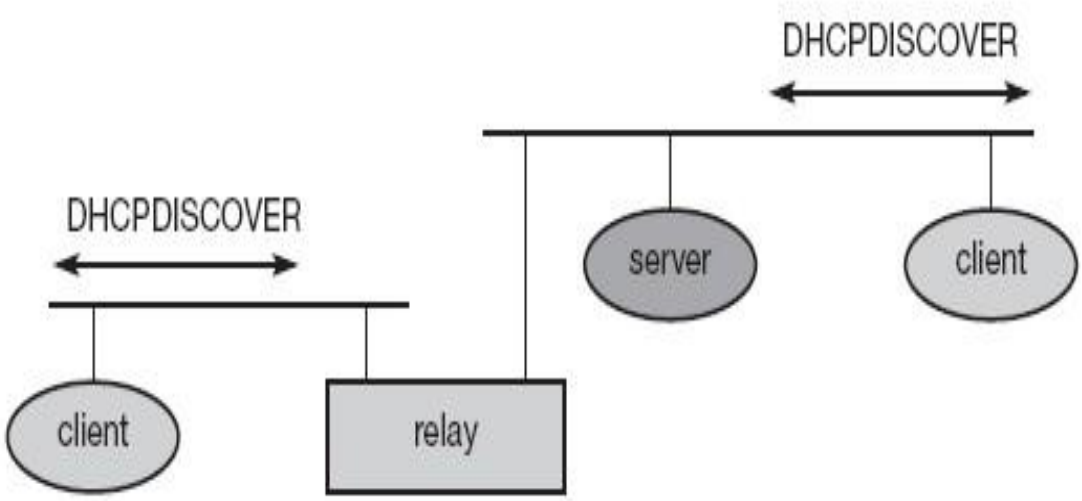

Fig. Basic DHCP Configuration

DHCP clients send a request to a server (DHCPDISCOVER) to which the server responds.

A client sends requests using DHCP is based on a client/server model.

MAC broadcasts to reach all devices in the LAN.

A DHCP relay might be needed to forward requests across inter-working units to a DHCP server.

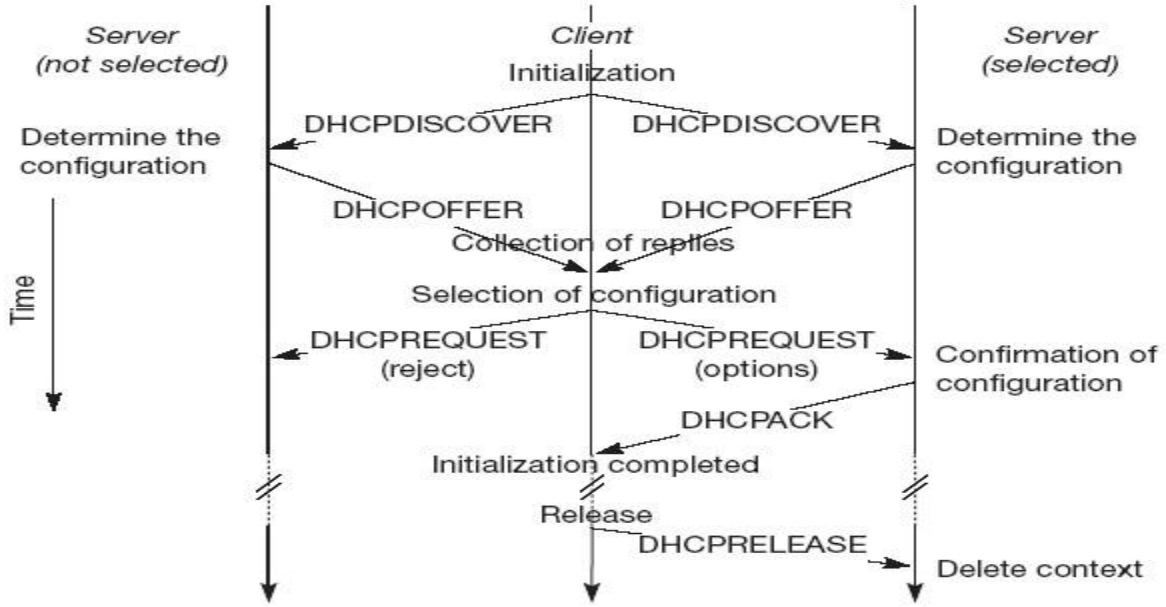

Fig. Client initialization via DHCP

The above figure shows one client and two servers.

1. The client broadcasts a DHCPDISCOVER into the subnet.

2. Two servers receive this broadcast and find the configuration they can offer to the client.

3. Servers reply to the client's request with DHCPOFFER and offer a list of configuration parameters.

4. Then the client can choose one of the configurations offered.

5. Then the client in turn replies to the servers, accepting one of the configurations and rejecting the others using DHCP REQUEST.

6. If a server receives a DHCP REQUEST with a rejection, it can free the reserved configuration for other possible clients.

7. The server with the configuration accepted by the client now confirms the configuration with DHCP ACK. This completes the initialization phase.

8. If a client leaves a subnet, it should release the configuration received by the server using DHCP RELEASE.

9. The configuration a client gets from a server is only leased for a certain amount of time, it has to be reconfirmed from time to time.