DHCP

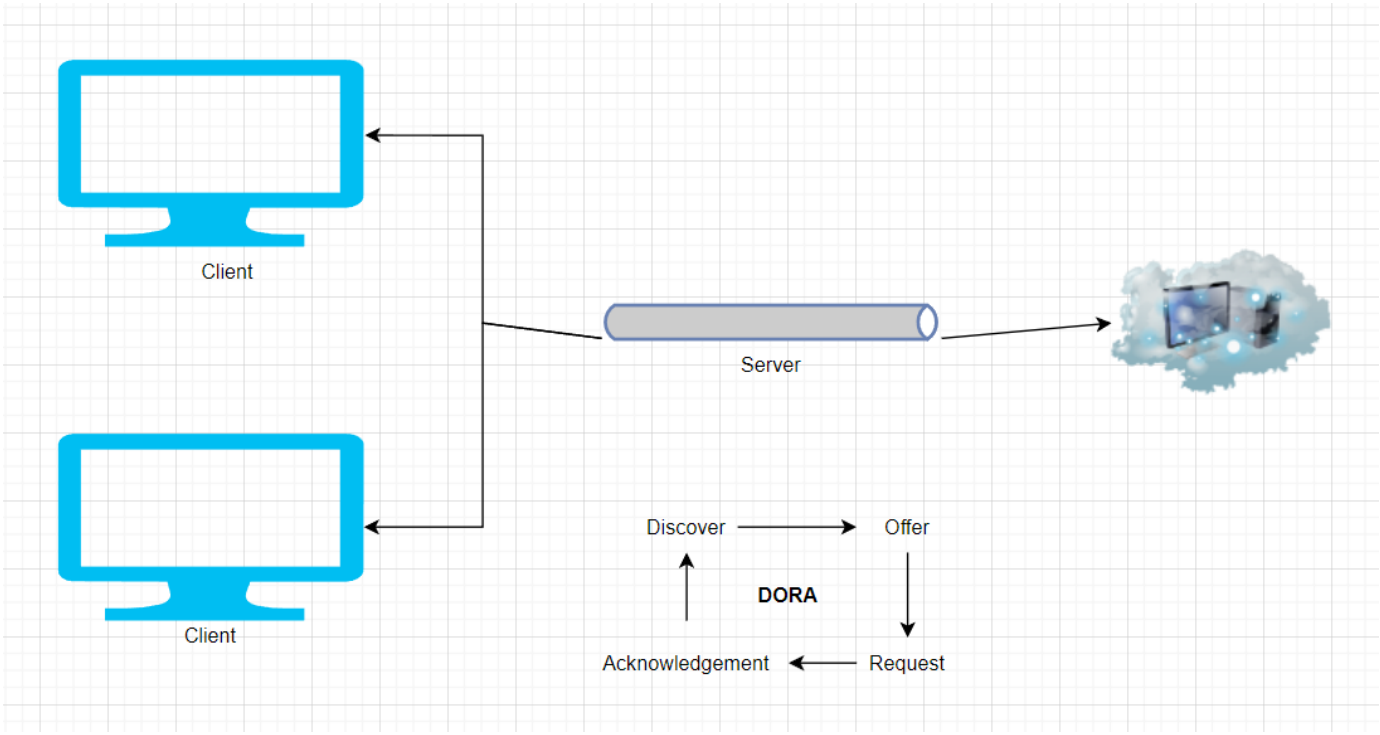
Dynamic Host Configuration Protocol

- Provide Unique IP address to the hosts on the network.
- Also provides different information about network like subnet mask, default gateway and DNS.
- It is of 2 types:
  - client
  - server

SCOPE : It is the range of IP addresses the Server can assign to the Clients.

START IP address	10.0.0.1
END IP address	10.0.0.100

Each computer runs a DHCP client and this allows computer to ask IP address.
Somewehre on the network there is a DHCP server, which manages the IP addresses.
DHCP can be run by router or server.



DORA

- **DISCOVER** : All computers send out a *BROADCAST* message to all clients which they read and drop but the server listens to it.

- **OFFER** : The server responds with an IP address which it can give out. This is also a *BROADCAST*. If more than one clients recieve the offer the server listens to the one who responds first.
- **REQUEST** : The client responds with acceptance of the IP given by the host with a *BROADCAST* and requests the IP.
- **ACKNOWLDEMENT** : The DHCP then sends the IP to the client with the subnet mask, default gateway, and DNS server details. This is a *UNICAST*

The server saves the records of all the IP address given out and the lease times.

LEASE TIME:
The DHCP server when appoints an IP to a client it also gives out a lease time. This is the time period during which the host has to renew the IP or the IP lands back in the DHCP IP pool.
Lease helps the DHCP to not run out of IP addresses.
Even if the client is not connected to the internet or is inactive, the client continues to have the IP it is given out till the lease expires.

RESERVATION:
In situation when a client needs to keep the same public IP for the network an IP is set up on reservation which is identified by the MAC address. In this situation the IP lease never expires and whenever the same MAC address joins the network it is given out the same IP by the DHCP server. This is not needed for all computers but just in special cases eg:

- Network Printer
- Router
- Servers

DHCP uses UDP ports - 68 and 67

-Shakti Sikka