Networking Services

Domain Name Server DNS

is globally and HIGHLY Distributed network service that resolve string of letters into ip address
As it is hard to remember all that IP of each website and if there is an ip change user must be updated and try to keep in mind all that number is very difficult so DNS help users in that as all the need to know the domain name of the website then the services will do the other work

Name Resolution

DNS need to be specifically configured at a node on network it is the final part of standard modern network configuration

5 Primary Types of DNS:

(1) Caching name Servers
(2) Recursive name Servers
(3) Root name Servers
(4) TLD name Servers
(5) Authoritative name Servers

1&2 are provided by Internet Service Provider or Local Network their purpose is to known domain name , looks up for certain amount of time

Recursive Perform full DNS Resolution Request

3- 13 Physical root name server These root servers are a network of hundreds of servers in countries around the world

4- TLD Top Level Domain is the last part of any domain name

5- check that there is a domain has the same name and it is safe an authorized

DHCP Dynamic Host Configuration Protocol

It is an Application Layer Protocol That Automates Configuration Process of hosts on Networks
there is 4 thing that DHCP Configure
IP, Subnet Mask, Gateway, Name Server

Types of Allocation of Address:

Dynamic : Range of IP address set a side for client devices and one of Ips is Issued to Devices when they request one

Automatic : range of Ips set aside for assignment purposes as the DHCP look if this device take an IP before if that IP is available so that the device can take it again or not

Fixed: require manual specified list of MAC address and their corresponding IP used commonly for Security purposes

DHCP works to help Network layer

How Client Take IP from DHCP Server

DORA

DHCP Discovery
Client configure to use DHCP attempts to get network configuration information client send broadcast from UDP port 68 and DHCP server Listen on UDP port 67

DHCP Offer
the DHCP specify the MAC of The device that sent the discovery and send a packet has The suggested IP and MAC of DHCP and MAC of the Client

DHCP Request
the client send back to the DHCP server that it has received the offer and accepted the ip address

DHCP Acknowledgement
The DHCP send back to the Client with IP address and the Subnet Mask it send it broadcast but it is unicast in the data link layer