DHCP

- DHCP is a method by which a client PC can request for an IP address and a DHCP server can provide a suitable IP address for the client. DHCP server can be a server computer router, ADSL modem, etc. Usually the DHCP server can be present in the same LAN where the client belongs.

DHCP

- DHCP Methods : -

-> Dynamic:- In this case DHCP server will provide a different IP address for the same client each time the client requests an IP address.

-> Automatic:- Here the DHCP server at first provides an IP address to a client and then remembers it. So, the clients get same IP address with every fresh request.

-> Static:- In this case the Network Admin specifies the DHCP server about which IP address to be provided for which MAC address. So, any particular client will get the particular IP address that previously set by the Admin.

DHCP

- DHCP Scope : -

This is a collection of distributable IP address that every DHCP server maintains. Whenever a client request comes, if any IP address is available from this scope is provided by the server.

DHCP

- DHCP Leased Period : -

  This is the time period for which the IP address is given to client by the server. Both the server and the client must keep track of that time period. If the lease period is coming to an end but the client still needs the IP address then it sends a request to the server for that same address for another leased period. If the server has no policy restriction, it'll increase the period. If the server doesn't respond within 20 secs, the client broadcasts fresh DHCP request. If the client sends no request and the lease period gets expired then the server automatically withdraws the address from the client and gives it to some other client.

DHCP

- DHCP Configuration Parameters : -

Some information are provided by the DHCP server for the clients. These are IP address, Subnet Mask, Default Gateway, DNS Server address, Leased Period, etc.

DHCP

- How DHCP works : -

  The total process of DHCP has 4 steps. They are,

  Discover, Offer, Request, Acknowledgement.

DHCP

1. Discover : -

   Here the host searches for any available DHCP server to get an address from it. As the host doesn't know where the DHCP server is, it'll send a discover request to everyone on the network (broadcast).

   -> Can somebody give me an address?

   -> Sender = 0.0.0.0, UDP port 68

   -> Receiver = 255.255.255.255, UDP port 67

DHCP

2. Offer : -

Here the DHCP server broadcast the offer in the current network. As it doesn't know where to find the new host, it offers everyone in the network.

-> I can offer you 192.168.1.3 for the next 3600 seconds

-> Sender = 192.168.1.1, UDP port 68

-> Receiver = 255.255.255.255, UDP port 67

DHCP

3. Request : -

The host again sends a broadcast the DHCP request to the everyone. In this message, it says which IP address it picked.

-> I want to accept the offer to use 192.168.1.3 for 3600 seconds

-> Sender = 0.0.0.0, port UDP 68

-> Receiver = 255.255.255.255, port UDP 67

DHCP

4. Acknowledge : -

Here the DHCP server will confirm to the host that it can start using the IP address. Here the message will also be broadcasted.

-> As of now, you can use 192.168.1.3 for next 3600 seconds.

-> Sender = 192.168.1.1, UDP port 67

-> Receiver = 255.255.255.255, UDP port 68

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NETWORKING (CCNA TRAINING)

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