U2LO78

DHCP

What is DHCP?

Dynamic Host Configuration Protocol

It is a network protocol used to automate the process of assigning IP addresses and other network configuration parameters to devices (such as computers, smartphones, and printers) on a network.

Dynamic Host Configuration Protocol

Instead of manually configuring each device with an IP address, DHCP allows devices to connect to a network and receive all necessary network information, like IP address, subnet mask, default gateway, and DNS server addresses, automatically from a DHCP server.

Dynamic Host Configuration Protocol

This makes it easier to manage and maintain large networks, ensuring devices can communicate effectively without conflicts in their network settings. DHCP plays a crucial role in modern networks by simplifying the process of connecting devices and managing network resources efficiently.

Why do we use DHCP?

Importance of DHCP

DHCP helps in managing the entire process automatically and centrally. DHCP helps in maintaining a unique IP Address for a host using the server. DHCP servers maintain information on TCP/IP configuration and provide configuration of address to DHCP-enabled clients in the form of a lease offer.

Components of DHCP

Components of DHCP

DHCP Server: DHCP Server is a server that holds IP Addresses and other information related to configuration.

Components of DHCP

DHCP Client: It is a device that receives configuration information from the server. It can be a mobile, laptop, computer, or any other electronic device that requires a connection.

Components of DHCP

DHCP Relay: DHCP relays basically work as a communication channel between DHCP Client and Server.

Components of DHCP

IP Address Pool: It is the pool or container of IP Addresses possessed by the DHCP Server. It has a range of addresses that can be allocated to devices.

Components of DHCP

Lease: It is simply the time that how long the information received from the server is valid, in case of expiration of the lease, the tenant must have to re-assign the lease.

Components of DHCP

DNS Servers: DHCP servers can also provide DNS (Domain Name System) server information to DHCP clients, allowing them to resolve domain names to IP addresses

Components of DHCP

Options: DHCP servers can provide additional configuration options to clients, such as the subnet mask, domain name, and time server information.

Components of DHCP

Renewal: DHCP clients can request to renew their lease before it expires to ensure that they continue to have a valid IP address and configuration information.

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Failover: DHCP servers can be configured for failover, where two servers work together to provide redundancy and ensure that clients can always obtain an IP address and configuration information, even if one server goes down.

Components of DHCP

Audit Logging: DHCP servers can keep audit logs of all DHCP transactions, providing administrators with visibility into which devices are using which IP addresses and when leases are being assigned or renewed.