**DHCP:**

A DHCP (Dynamic Host Configuration Protocol) server automatically assigns IP addresses to devices in a network. When a device connects, it broadcasts a DHCP request. The DHCP server responds with an available IP address, along with the subnet mask, default gateway, and DNS server details. The device leases the IP for a specific time. Before expiration, it can renew the lease or request a new IP. This eliminates the need for manual IP configuration and prevents IP conflicts. If the server runs out of addresses, new devices won’t get an IP until one is freed.

