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So this past week I've been learning more about Dynamic Host Configuration Protocol version 4. Dynamic Host Configuration Protocol(DHCP) is a protocol that communicates between a client and a server to provide IP addresses allowing clients to send and receive data through the internet. It also automatically provides other related configuration information such as the subnet mask and default gateway. There are 3 address allocation methods: Dynamic, Automatic, and Manual. Dynamic protocols lease IPv4 addresses for a limited time period and then has the address return to a pool for redistribution. Automatic allocation permanently assigns an IP address to a client. Manual allocation allows administrators to manually assign pre-allocated IP addresses. DHCPv4 is used to allow fast easy IP address assignments. DHCPv4 uses 4 processes to assign addresses: DHCP Discover (Broadcast), DHCP Offer (Unicast), DHCP Request (Broadcast), DHCP Acknowledgement (Unicast). DHCP Request messages are sent as a broadcast to notify all DHCP servers that that an IP address was leased. A client after receiving a DHCP Pack, performs an ARP request to see of the address is assigned anywhere else to avoid conflicts. Clients also send DHCP Request unicasts to the server to renew leases. DHCPv4 servers use the client hardware address when sending packets when the client is requesting an IP because their IP Address has not yet been configured. Overall, DHCP is a useful protocol to assign IP addresses for large amounts of devices especially if there are various clients who are on the networking for varying time ranges.