

Dynamic Host Configuration Protocol (DHCP)

Communicating with IP

- Need three things (plus one)

- ▶ IP address

- ▶ Subnet mask

- ▶ Gateway router

- ▶ A DNS server IP address is also useful (but not necessary for IP)

- Problem: how do we get these values?

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→ IP

In the Old Days

- Your system administrator gives them to you
 - ▶ “Type these values into your network configuration control panel...”
 - ▶ I had to do this at Brown in 1995 (stopped by the time I graduated)
- Many problems
 - ▶ Doesn't work if machine moves
 - ▶ How long does it last?
 - ▶ Garbage collection

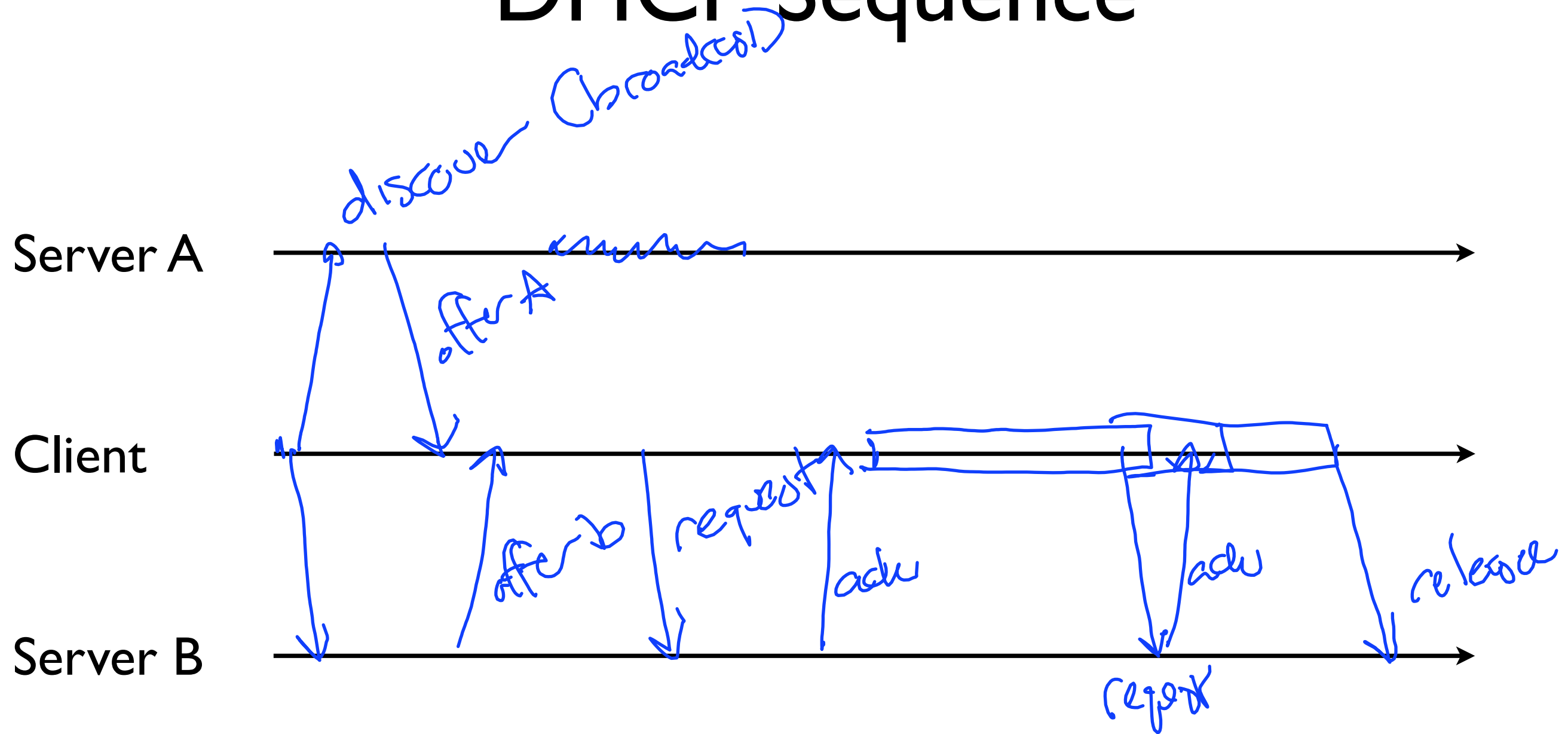
yes

IP address
Subnet mask
Gateway address
DNS addresses

DHCP

- Dynamic Host Configuration Protocol (DHCP), RFC 2131
- A machine can request configuration from a DHCP server
 - ▶ Movement: just request configuration again
 - ▶ Configuration has a duration: a “lease,” which can be renewed
 - ▶ Garbage collection: when lease expires
- Discover, offer, request, ack, release ↗
client server client server

DHCP Sequence



Communicating Without IPv4

- UDP ports 67 (server) and 68 (client)
- Broadcast IP address: 255.255.255.255
- Use relays to forward across links