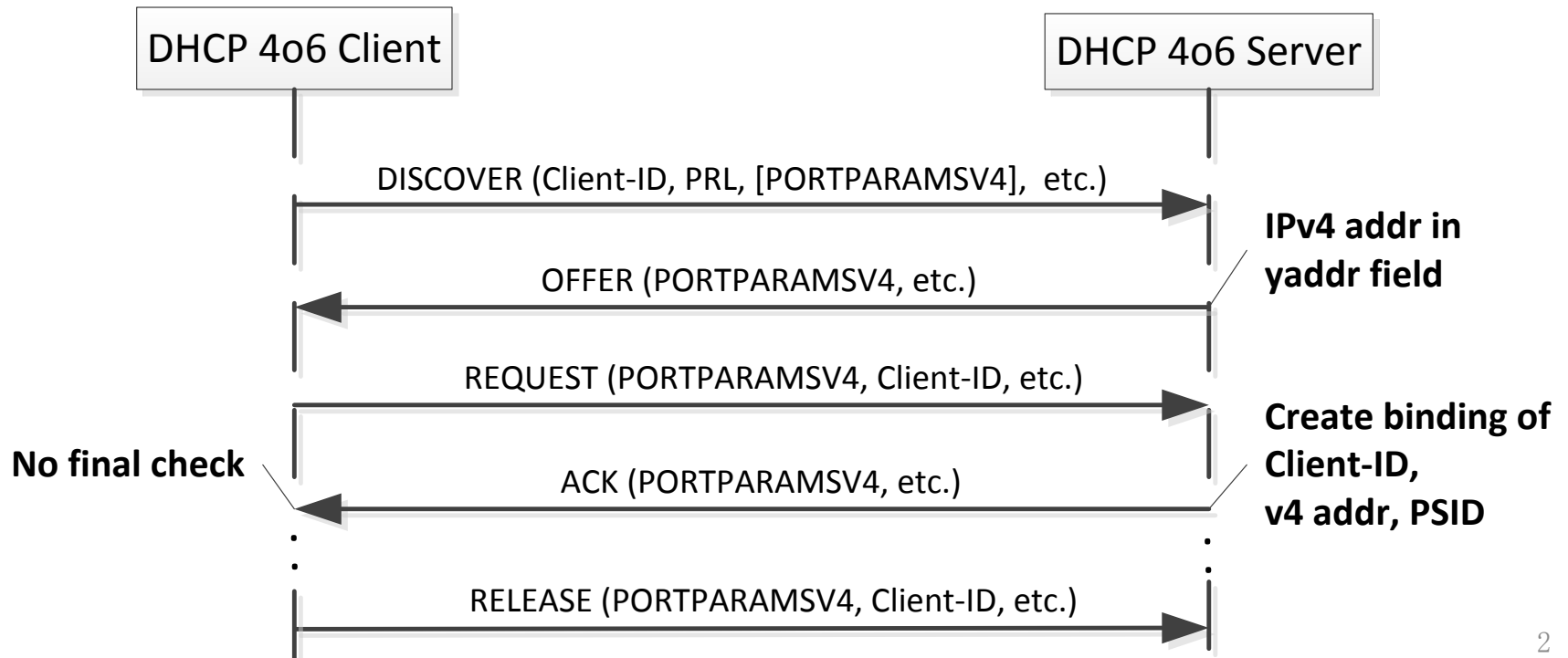


# Background

- Operators have to provide v4 service for the v6 transition and existing v4 networks
  - Utilize limited v4 addresses more efficiently
- Static allocation of v4 addr per pre-determined v6-v4 address mapping wastes v4 addresses
- DHCPv4 supports dynamic allocation of v4
  - Dynamically allocate to multiple clients the same v4 address with different layer 4 port-set
- Applicability
  - Use with DHCPv4 over DHCPv6, etc.
  - NOT applicable in native DHCPv4 environment
- Requirements from Softwire mechanisms for dynamically allocating shared IPv4 addresses

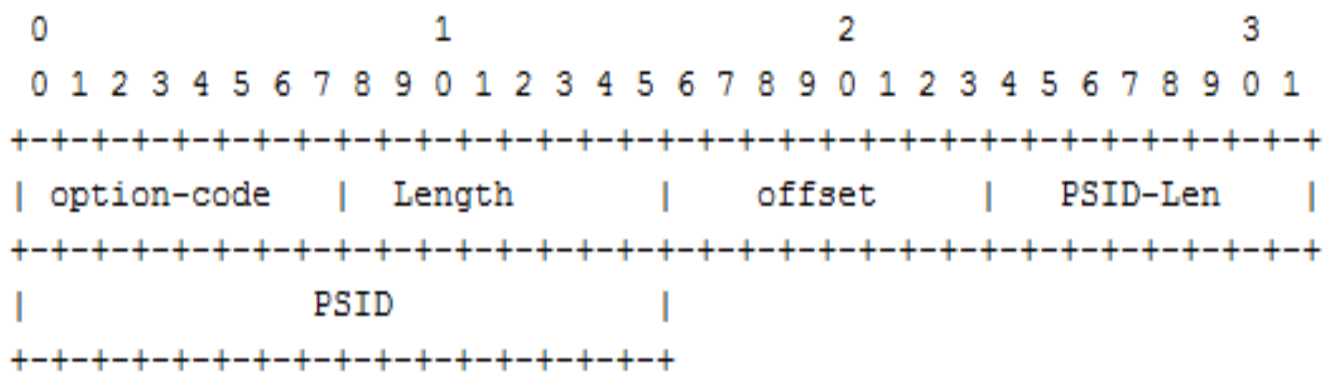
# Server-Client Interactions

- Include OPTION\_PORTPARAMSV4, Client-ID in related DHCPv4 messages
- Transported within DHCPv4-query/DHCPv4-response messages over an IPv6 network



# DHCPv4 Port Parameters Option

- OPTION\_PORTPARAMSV4 format
  - Similar format as OPTION\_S46\_PORTPARAMS in draft-ietf-softwire-map-dhcp-06



# Extensions to DHCP 4o6 Server

- Run address and port-set pools for allocation
  - Using v4 addr & PSID as key for lease assignment
  - Lease database includes: Client-ID, v4 addr, PSID
- Port-set assignment must couple with address allocation process
- Support leasing shared and non-shared v4 address
  - Use DHCPv4 Parameters Request List
  - Separate v4 addr pool and v4 addr + PSID pool
- Do not allocate the port-set including well-known ports

# Extensions to DHCP 4o6 Client

- The allocated shared IPv4 address must not be configured on-link
- If the address allocation process fails, link local v4 address must not be configured
- Client must not probe the duplication of a v4 address (e.g. using ARP)

# History

- Related efforts presented in IETF 84, 85, 87
- Merged version
  - draft-sun-dhc-port-set-option
  - draft-farrer-dhc-shared-address-lease
- Implementations
  - Implement the mechanism with Port Mask, easy to update to use PSID
  - Achieve dynamic allocation of shared IPv4 address
  - Tsinghua Univ., Huawei, GreenNet, etc.

# Next Step

- Question: Currently this draft is written as an update to RFC2131 as it describes changes to the DHCPV4 client/server. Does it really update RFC2131?
- Adopt it as a WG item?