

# Planning for the Future: Proxying new Opcodes

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# PCP Proxy: Design Goals

- Allow introduction of new opcodes
- Introduce new opcodes without changing proxies
- New opcode [ might / might not ] require proxy to comprehend the new opcode
  - Comprehension means “Opcode fails unless NAT or firewall state is created”
- Thus, need indication of comprehension required

# Considered Designs That Don't Work

- Add “PROXY\_COMPREHENSION\_REQUIRED” option to request
  - Proxy cannot parse unknown Opcode

# Design Proposal

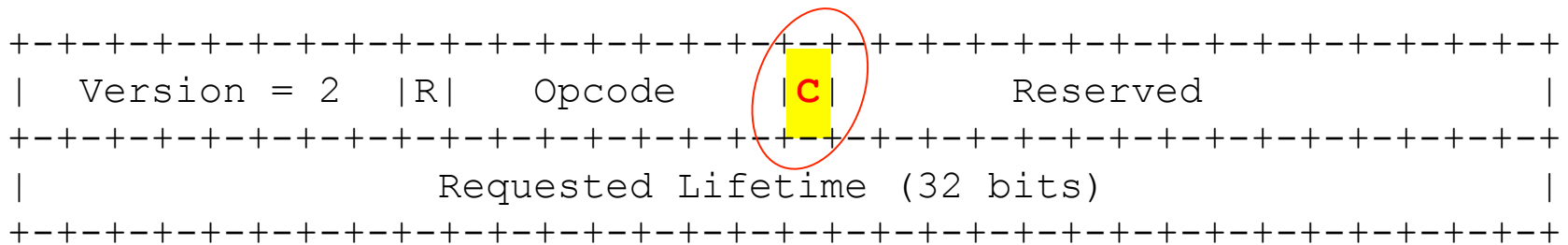
- Specify a new “comprehension required” bit

# Three Bit Encodings

1. Proxy sets “comprehension required” bit
2. Client sets “comprehension required” bit
3. Split Opcode range

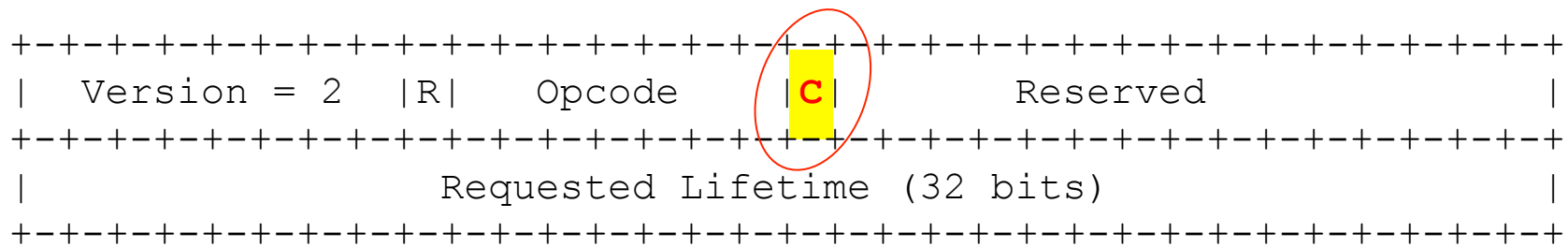
# Proxy Sets Bit

- New “I did not comprehend this opcode” bit, **set by the proxy**
- Final server determines if proxies needed comprehension



# Client Sets Bit

- Define new new “comprehension required” bit, **set by the PCP client**
- New Opcodes would need to indicate value of this bit, MAP and PEER grandfathered in



# Split Opcode Range

- If Bit 7 of opcode is set, PCP proxy has to comprehend the opcode
- New opcodes follow new allocations:
  - 0-63 is mandatory-proxy-comprehension
    - 0 = ANNOUNCE, 1 = MAP, 2 = PEER
    - 0-31 = standards action (32 code points)
    - 32-47 = specification required (16 code points)
    - 48-62 = private use (15 code points)
    - 63 = reserved, standards action
  - 64-127 is optional-proxy-comprehension
    - 64-95 = standards action (32 code points)
    - 96-111 = specification required (16 code points)
    - 112-126 = private use (15 code points)
    - 127 = reserved, standards action



End

# Message Diagram

