

PCP Base

draft-wing-pcp-base

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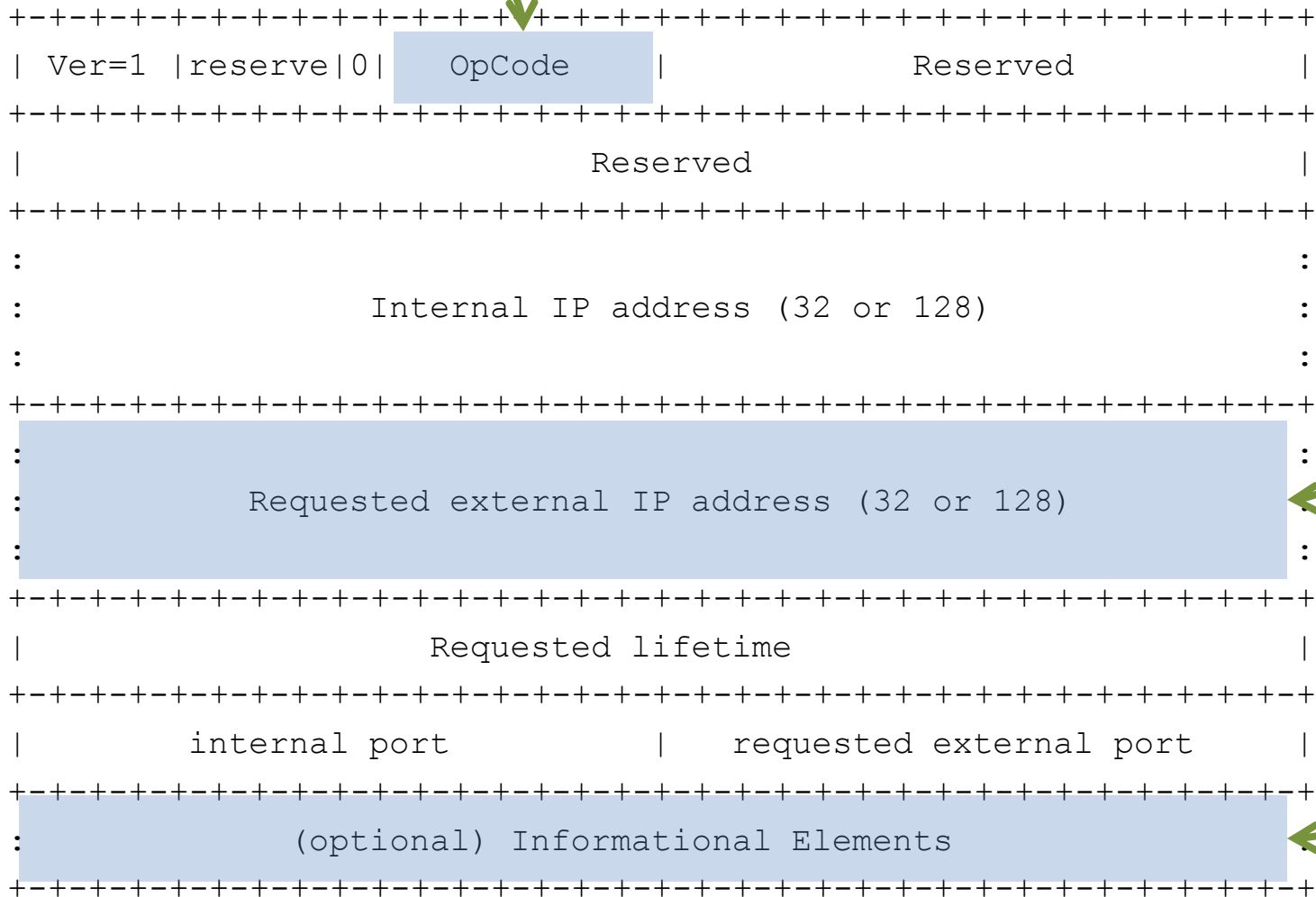
IETF79
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Packet Format

- UDP, request/response
- Same packet layout for requests and responses
- Extensible using *Informational Elements* (IE)

Request

Described
next slide



To attempt
to regain
same
mapping

extensions

Opcodes

- PIN44, IPv4 address to IPv4 address
 - NAT44 or IPv4 firewall
- PIN46, IPv4 address to IPv6 address
 - NAT46
- PIN64, IPv6 address to IPv4 address
 - NAT64
- PIN66, IPv6 address to IPv6 address
 - NAT66 or IPv6 firewall

Open Issues (chairs)

- Epoch
- Transaction ID
- Mandatory semantic

Open Issues

- ICMP
- Firewall
- PCP lifetime
- Multi-homing
- Requesting multiple ports
- RTP
- PCP server discovery
 - DHCP option, IANA-registered IP address, default router
 - Only allow CPE to do it?
- DS-Lite encapsulation for PCP messages

ICMP

- ICMP for flow associated with TCP or UDP pinhole
- Implicit or Explicit?
 - Implicit: opens as side-effect of TCP/UDP pinhole
 - Explicit: have to separately open ICMP pinhole

Firewall

- How many remote peers? 1?
- Follow draft-ietf-v6ops-cpe-simple-security?
 - This means simple pinhole, no validation of TCP flow
- Implicit ICMP, or explicit ICMP?

PCP Lifetime

- What happens when PCP lifetime expires?
 1. Expires at end of lifetime
 2. inside->outside traffic keeps mapping alive
 3. Bi-directional traffic keeps mapping alive

Multi-homing

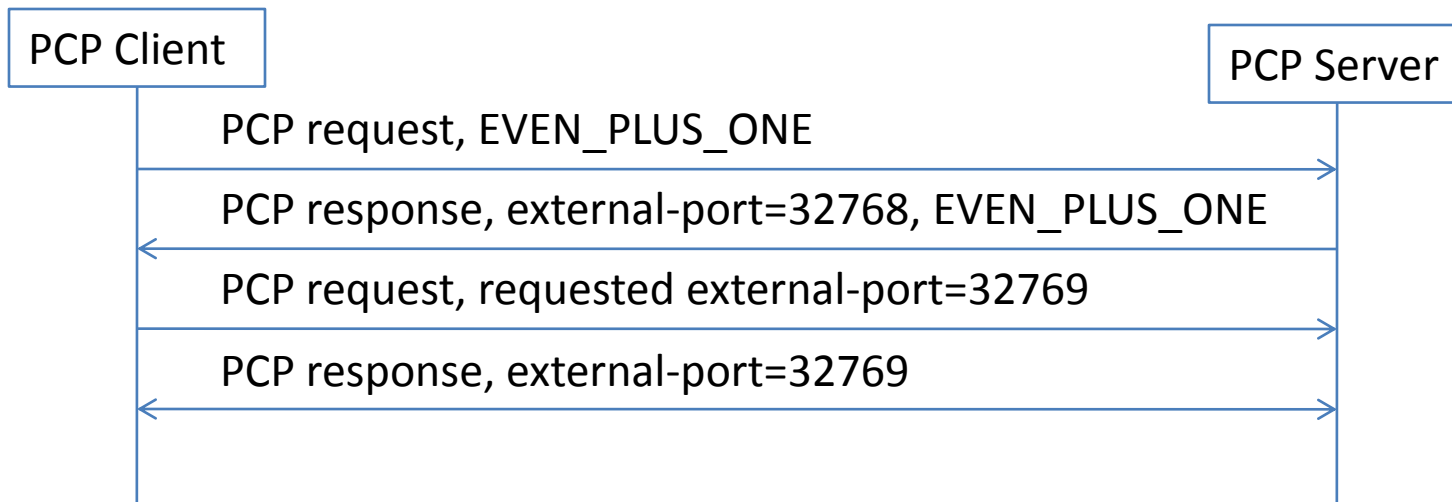
- Common answer is “home users don’t multihome”. But that is changing:
 - E.g., cable/DSL/FTTH with 3G backup link
 - E.g., VPN into enterprise and an Internet connection
- In scope? Out of scope? Defer to later?

Requesting Multiple Ports

- It's an optimization
- The only *cited* protocol is RTP
 - (See next slide)
 - If there are other protocols, **speak up now!**
- Thus, not interested in complicating the protocol

RTP

- RTP likes even+odd port
 - Can't tell if remote peer is legacy RFC1889 device
- New proposal: IE called “EVEN_PLUS_ONE”



PCP Server Discovery

- DHCP option
 - Requires support by CPE router
- IANA-registered IP address
 - Follows normal route towards the Internet
 - Just like a TCP SYN
 - 192.0.2.1 (DS-Lite's AFTR address)
- Default router
 - Requires support by CPE router

PCP encapsulation for DS-Lite

- PCP-over-UDP packets from B4 to AFTR
- Two methods:
 - PCP-over-UDP-over-IPv4-over-IPv6, “Encapsulation Mode”
 - IPv4 addresses = subscriber (192.0.0.*) and AFTR (192.0.0.1)
 - IPv6 address=B4 and AFTR
 - Allows B4 to proxy PCP messages, or pass through
 - PCP-over-UDP-over-IPv6, “Plain IPv6 Mode”
 - IPv6 address=B4 and AFTR
 - Requires B4 to proxy PCP messages from internal hosts