Using Dummy IPv4 Address and Node Identification Extensions for IP/ICMP translators

draft-equinox-v6ops-icmpext-xlat-v6only-source

(was: draft-equinox-intarea-icmpext-xlat-source)

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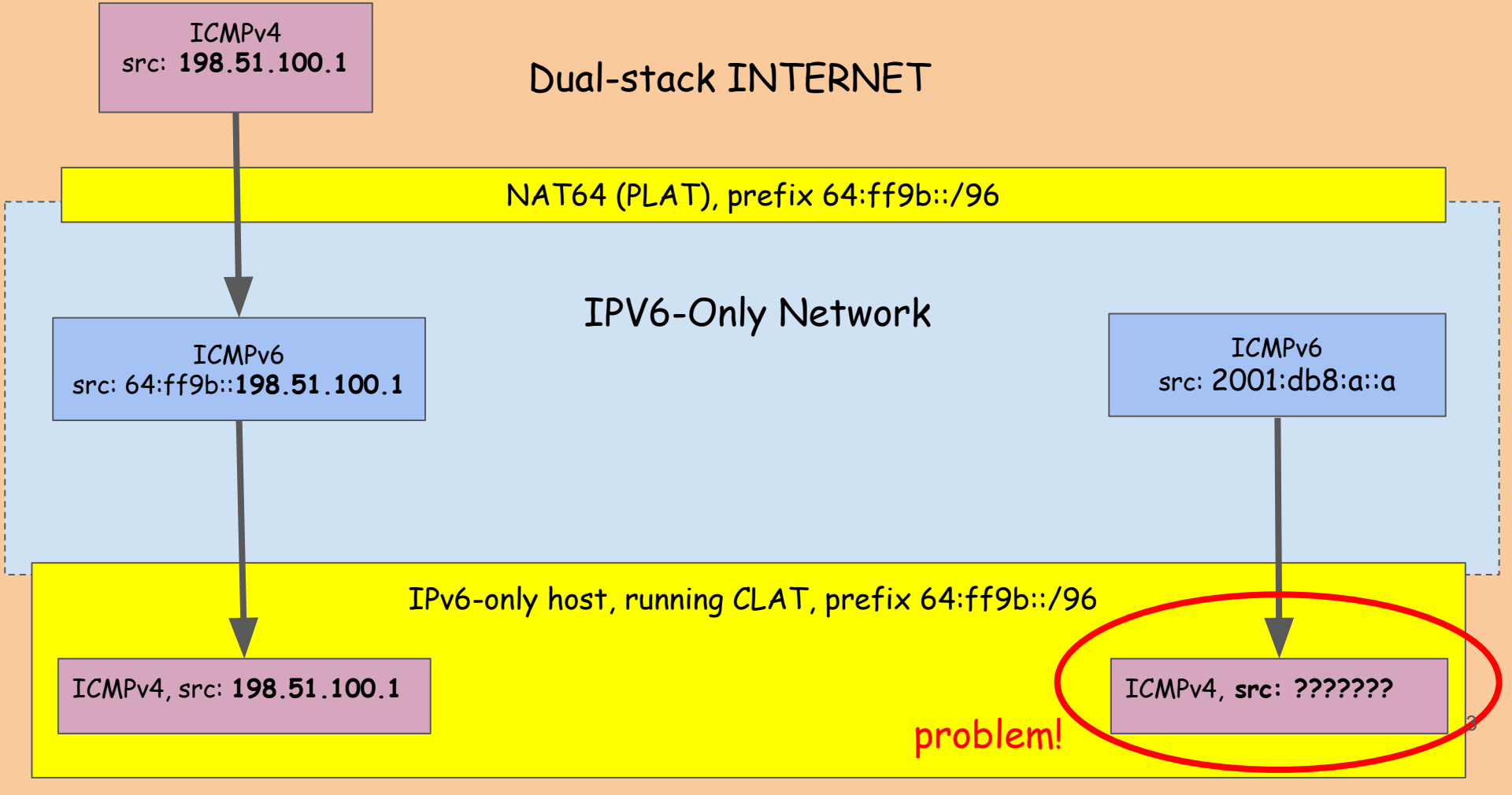
Quick Recap


ICMPv4
src: 198.51.100.1
Dual-stack INTERNET
NAT64 (PLAT), prefix 64:ff9b::/96
IPV6-Only Network
ICMPv6
src: 64:ff9b::198.51.100.1
ICMPv6
src: 2001:db8:a::a
IPv6-only host, running CLAT, prefix 64:ff9b::/96
ICMPv4, src: 198.51.100.1
ICMPv4, src: ???????
problem!

Terminology: Untranslatable

- "Untranslatable" IPv6 address:
  - doesn't belong to NAT64 prefix
  - there is no explicit address mapping

Operational Issues

- Traceroute does not represent IPv6-only hops
  - Confused users
  - Unhappy NOC
- ICMPv6 Packet Too Big are not translated
  - Broken PMTUD

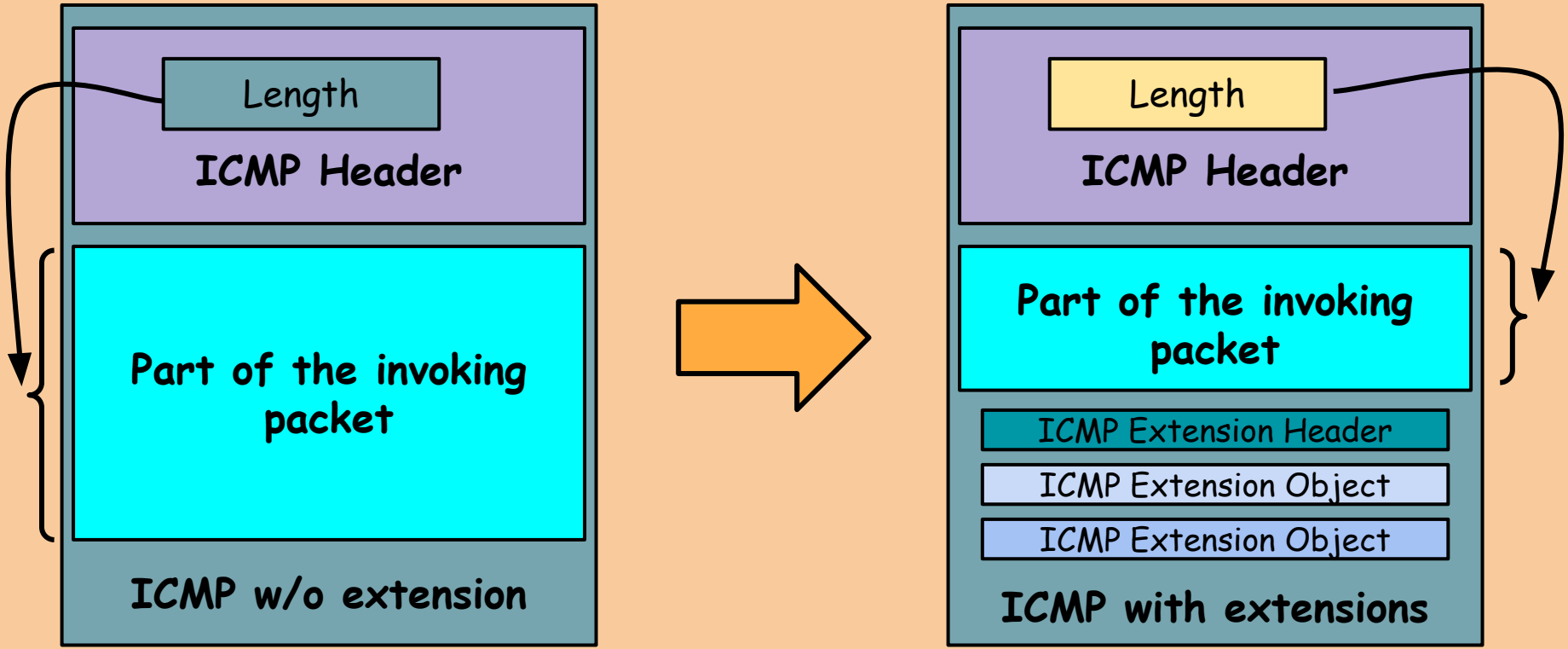
ICMPv6 -> ICMPv4 Translation

1. Define how to translate “untranslatable” IPv6 addresses

   Proposed Solution: IPv4 Dummy Address: 192.0.0.8

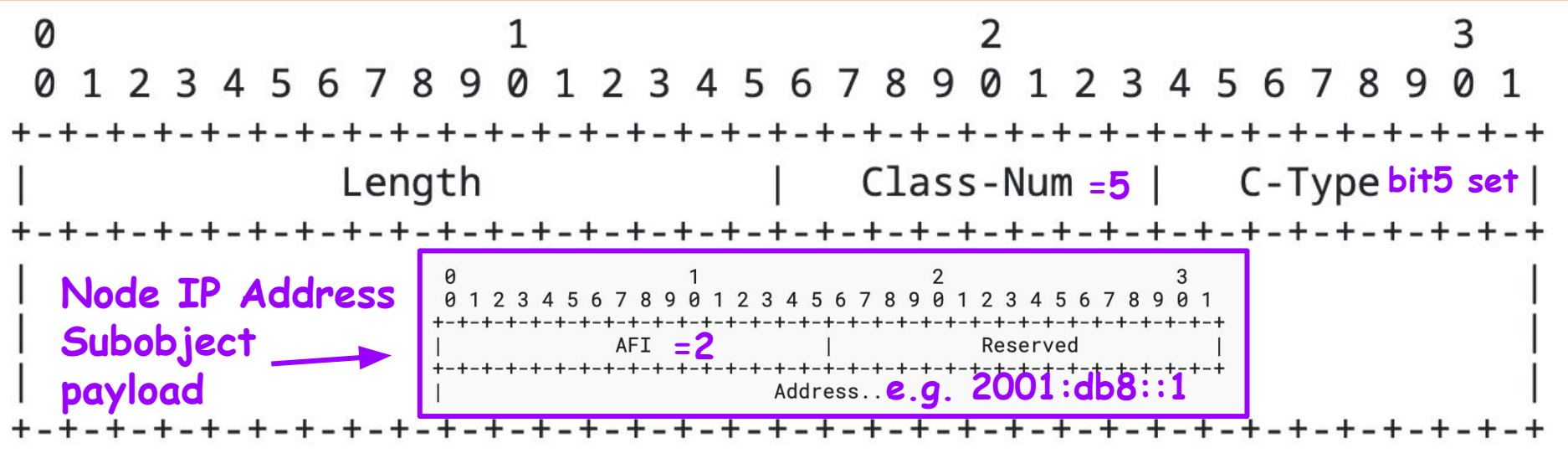
2. Preserve information about the original IPv6 address

Quick Recap: ICMP Extensions (RFC4884)



Preserving the Original IPv6 Source Address

Node Identification Object
Node IP Address Sub-Object



draft-ietf-intarea-extended-icmp-nodeid

What's New (Old) Since IETF121

What Has Been Done Will Be Done Again ©

Internet Engineering Task Force (IETF)
Request for Comments: 6791
Updates: 6145
Category: Standards Track
ISSN: 2070-1721

X. Li
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November 2012

Stateless Source Address Mapping for ICMPv6 Packets

Abstract

A stateless IPv4/IPv6 translator may receive ICMPv6 packets containing non-IPv4-translatable addresses as the source. These packets should be passed across the translator as ICMP packets directed to the IPv4 destination. This document presents recommendations for source address translation in ICMPv6 headers to handle such cases.

Thanks to Tore Anderson for pointing this out

Why Still This Draft?

- Using 192.0.0.8 is cleaner
  - Real IPv4 addresses are confusing
- RFC6791 seems to conflicts with RFC5837

> If the eliciting datagram was IPv4, the IP Interface Sub-Object MUST represent an IPv4 address. Likewise, if the eliciting datagram was IPv6, the IP Interface Sub-Object MUST represent an IPv6 address.

Now, Something New

- Stop overspecifying how to add ICMP extensions:
  - The draft only defines requirements for the resulting packet
  - Example algorithm is moved to Appendix
- Fixing typo in RFC7915 OLD/NEW text/

Next Steps

- Is this problem worth solving?
- Comments? Suggestions?
- **Adoption?**