

# ILNP – Identifier Locator Network Protocol

## FreeBSD 14

### Dynamic host multihoming for UDP and TCP

<https://ilnp.cs.st-andrews.ac.uk/>  
University of St Andrews  
NetDEF

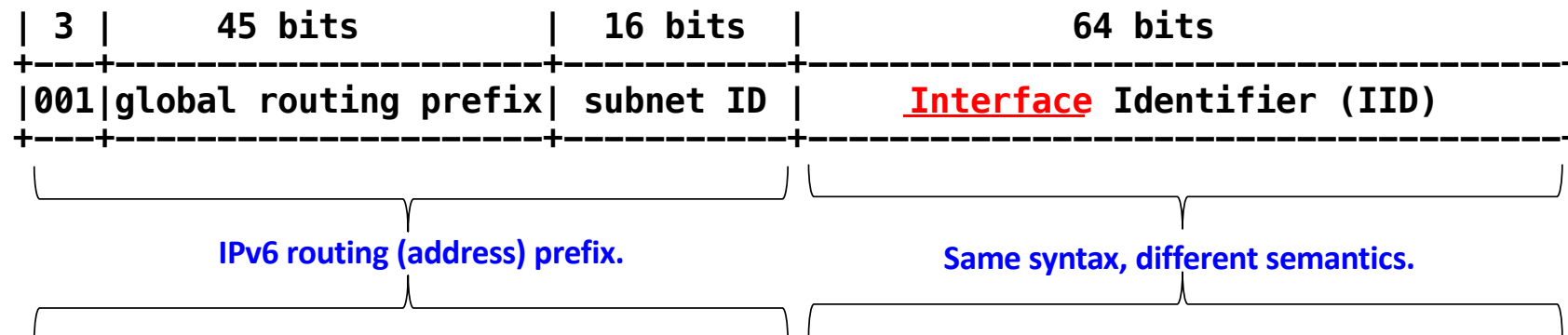


# People

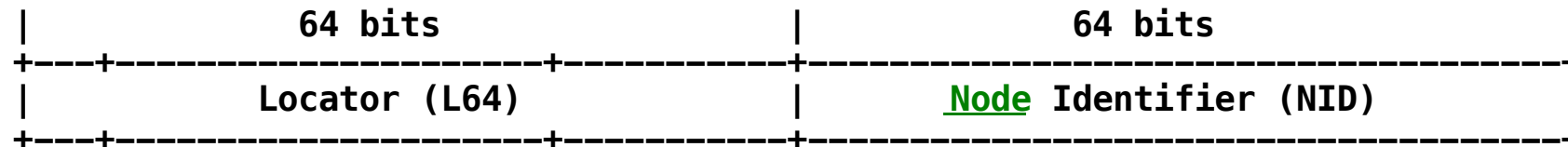
- Rodney Grimes (NetDEF / FreeBSD)
- Alistair Woodman (The Cat in the Hat / NetDEF)
- Saleem Bhatti
- (With support from the ICANN Grant Program.)

# ILNP addressing

IPv6 (RFC8200(S)) – general IPv6 global address format:



ILNP (RFC6741(E)) – Identifier Locator Vector (I-LV):

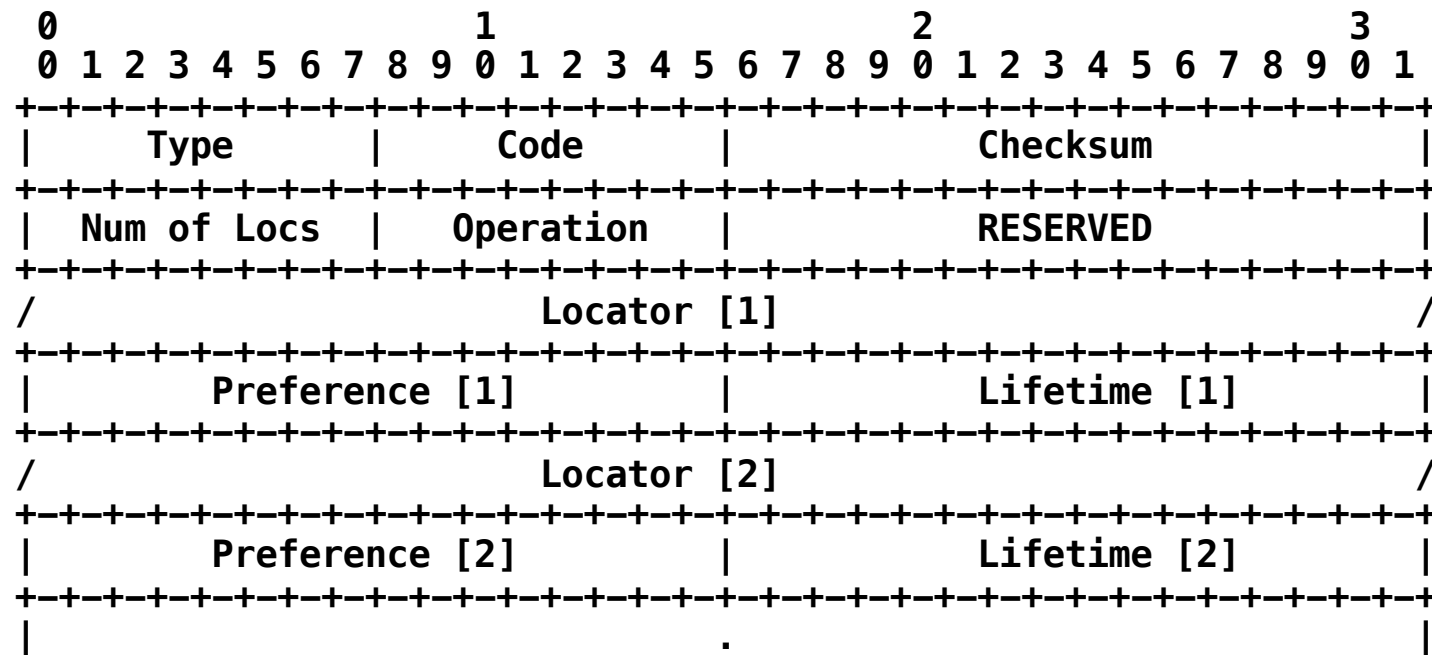


Same syntax and semantics as IPv6 routing (address) prefix, so IPv6 core routers work as today.

These bits only examined and acted upon by end systems.

# ILNP Locator Update (LU)

ICMPv6 Locator Update Message (RFC6743(E)):



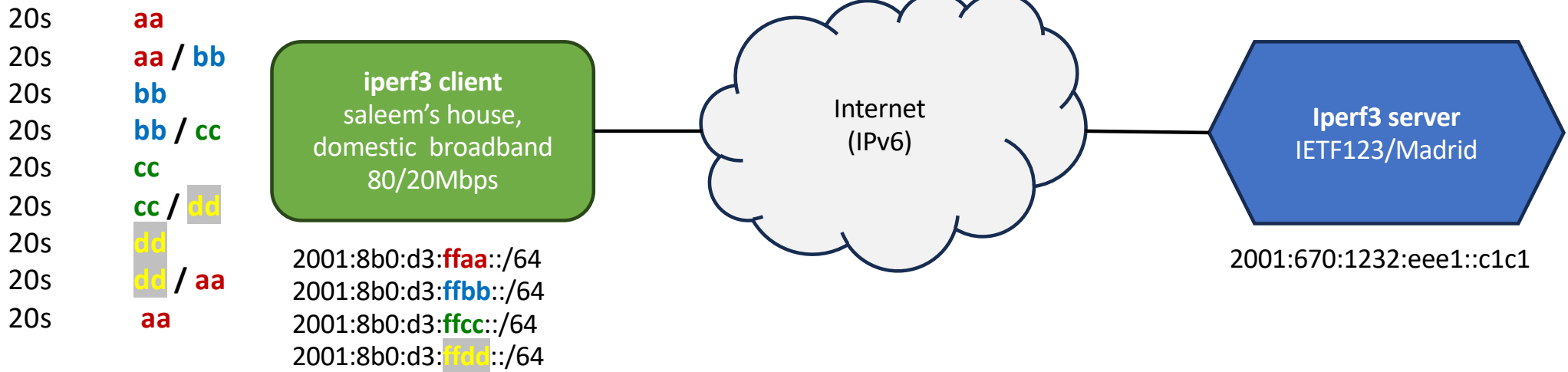
Type = 156, Code = 0

# Experiment

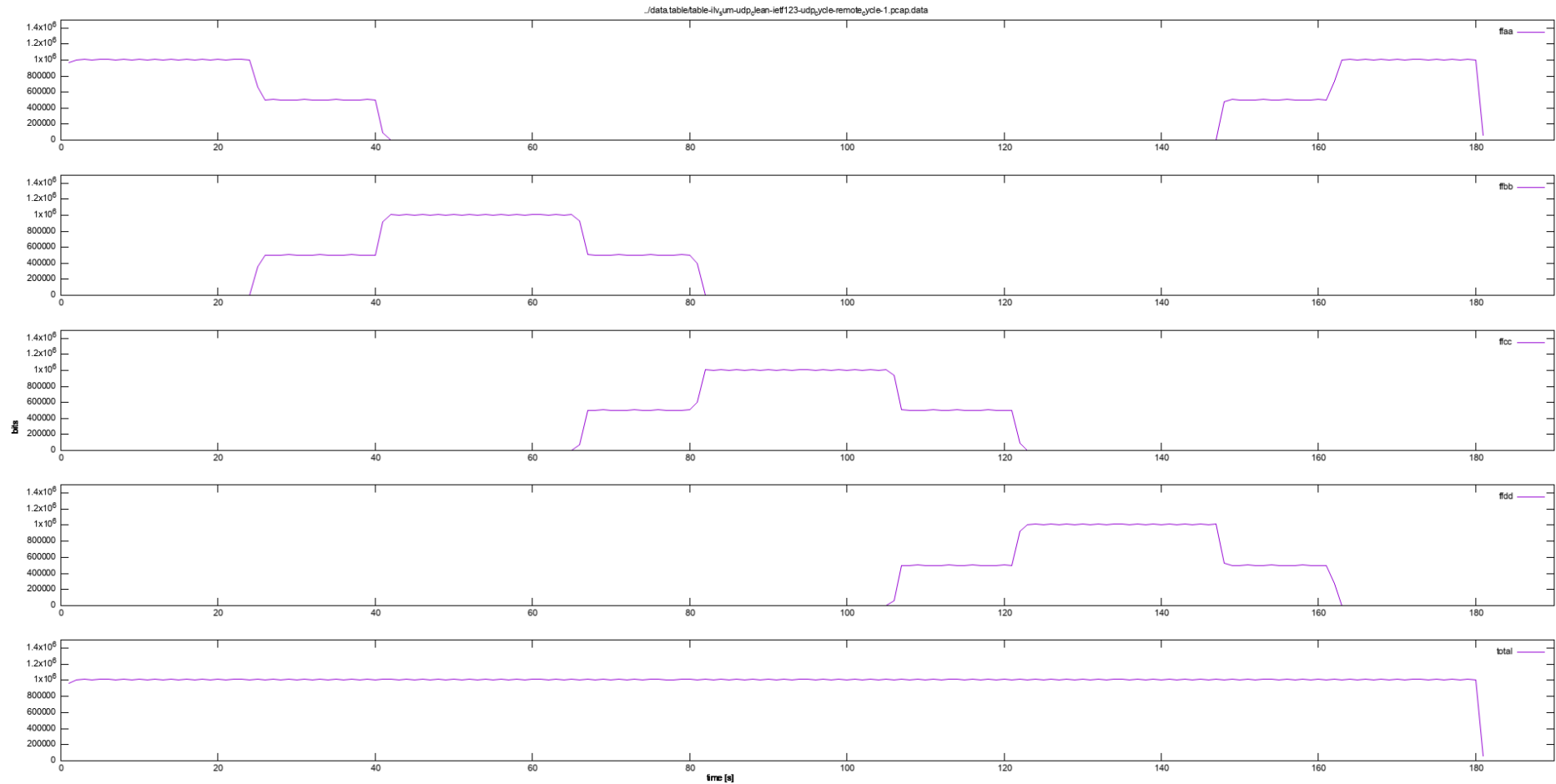
Dynamic multihoming by a **remote** host on a **home** network (broadband 80/20 Mbps):

- *iperf3* server IETF123/Bangkok.
- client adds/removes Locators (prefixes), dynamically, for Multipath UDP and TCP flows with *iperf3*.
- (Purely end-to-end control plane.)
- Multiple locator (prefix) / interface sequence:  
aa, aa/bb, bb, bb/cc, cc, cc/dd, dd, dd/aa, aa
- **Normal IPv6 binaries (no modifications needed for ILNP).**

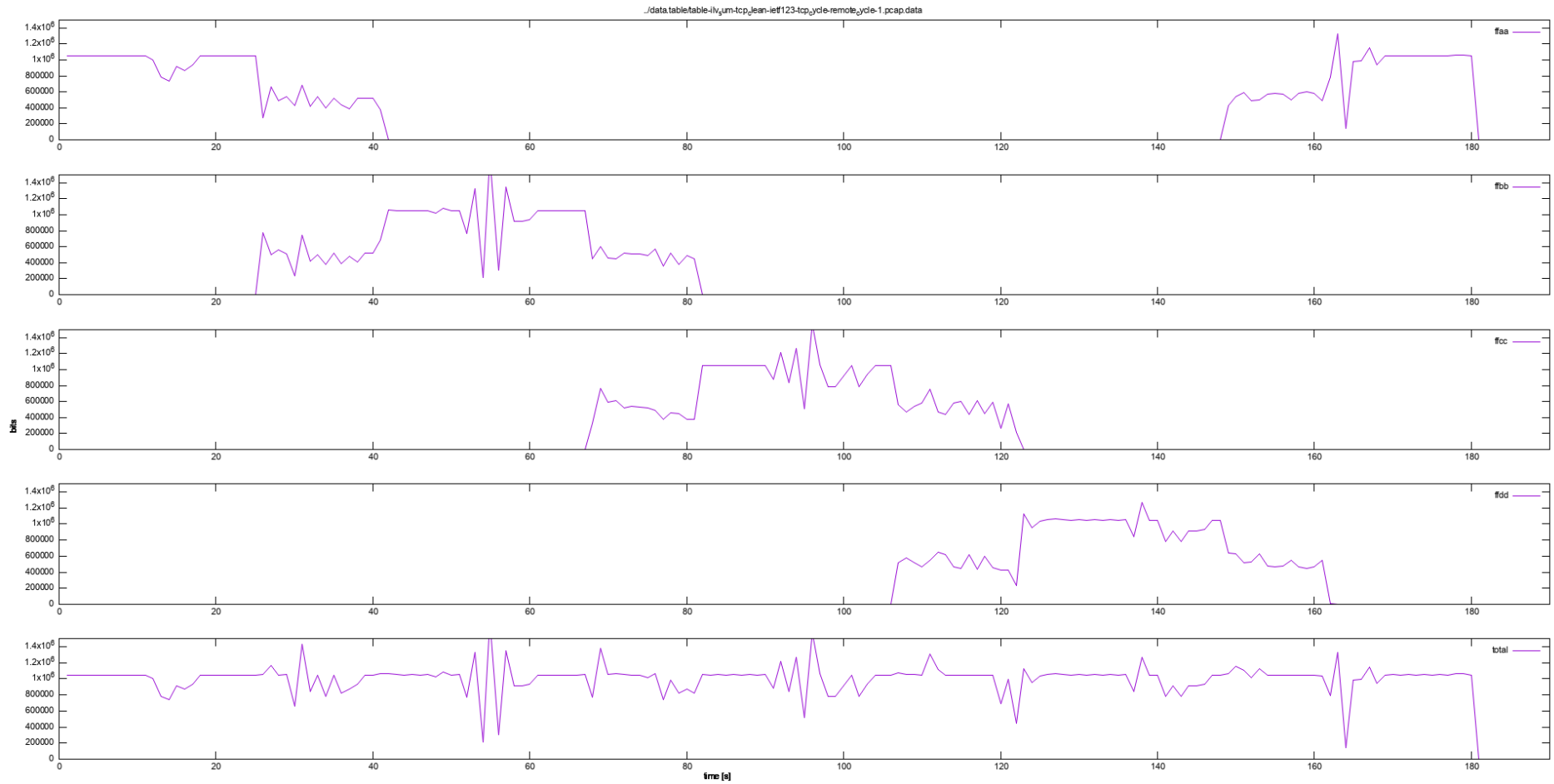
# Network configuration



# UDP single flow, multiple interfaces / prefixes



# TCP single flow, multiple interfaces / prefixes



# More information on ILNP

- Come and talk to us at the Hackdemo Happy Hour 😊
- Links to the following on the ILNP web-site:
  - FreeBSD code on github.
  - RFCs, papers, and datasets.
- <https://ilnp.cs.st-andrews.ac.uk/>

