IETF Hackathon: ILNP

IETF 105
20-21 July 2019
Montreal

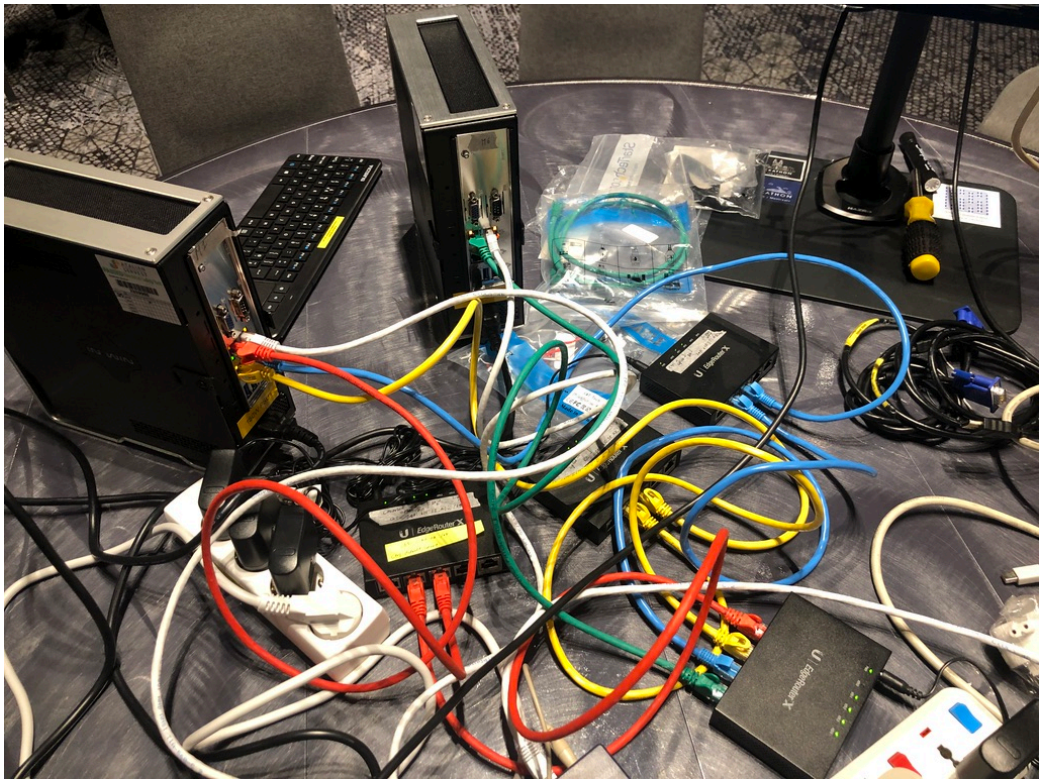
University of St Andrews | FOUNDED 1413

ILNP background information

- RFCs 6740 – 6748 (Experimental)
  - IRTF Routing RG (now concluded)
- **First demo at IETF104/Prague.**
- Work in progress:
  - Development work on Linux kernel v4.9 LTS.
  - (Refinements and updates to RFCs.)
  - (Continuing research, also.)
- https://ilnp.cs.st-andrews.ac.uk/

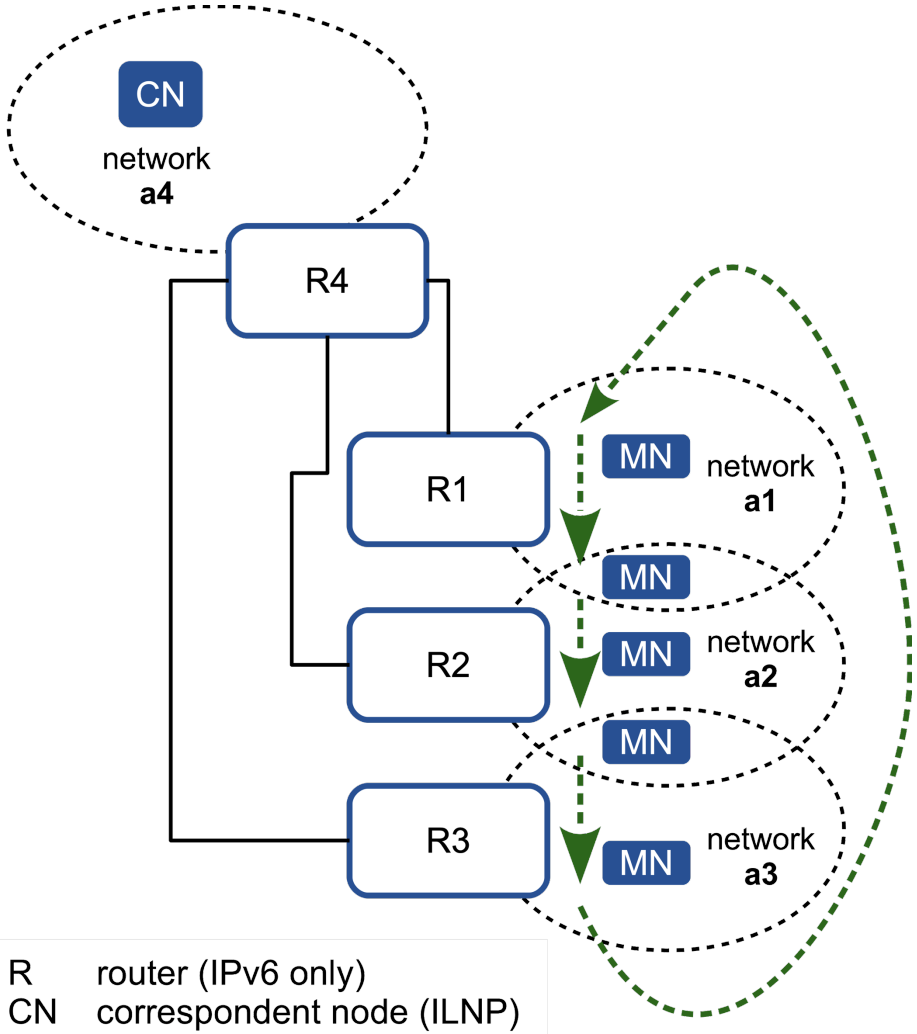
Hackathon Plan

- Improve ILNP working over “real” networks.
- Testing over small network of commercial routers.
  - Ubiquiti EdgeRouterX
  - Modified Linux kernel running on modest desktop machines (Intel Atom 4C).
- (DNS improvements.)

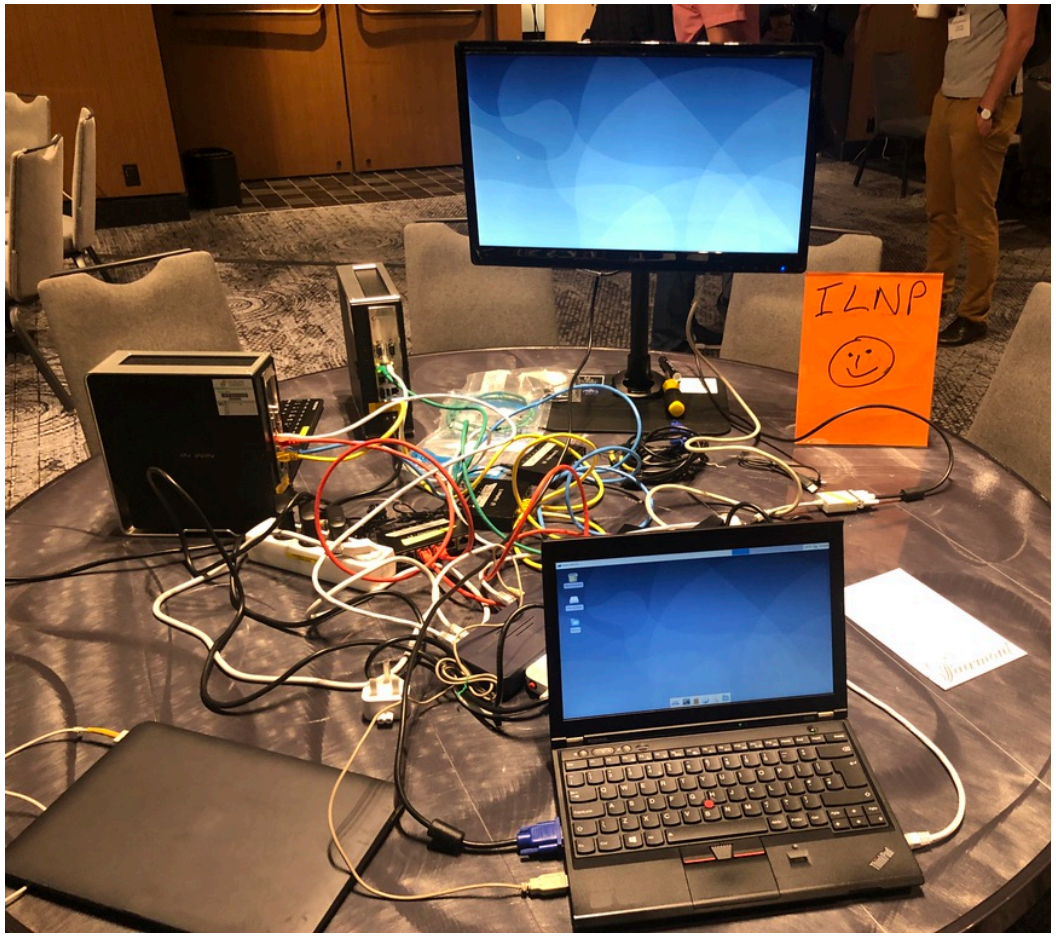


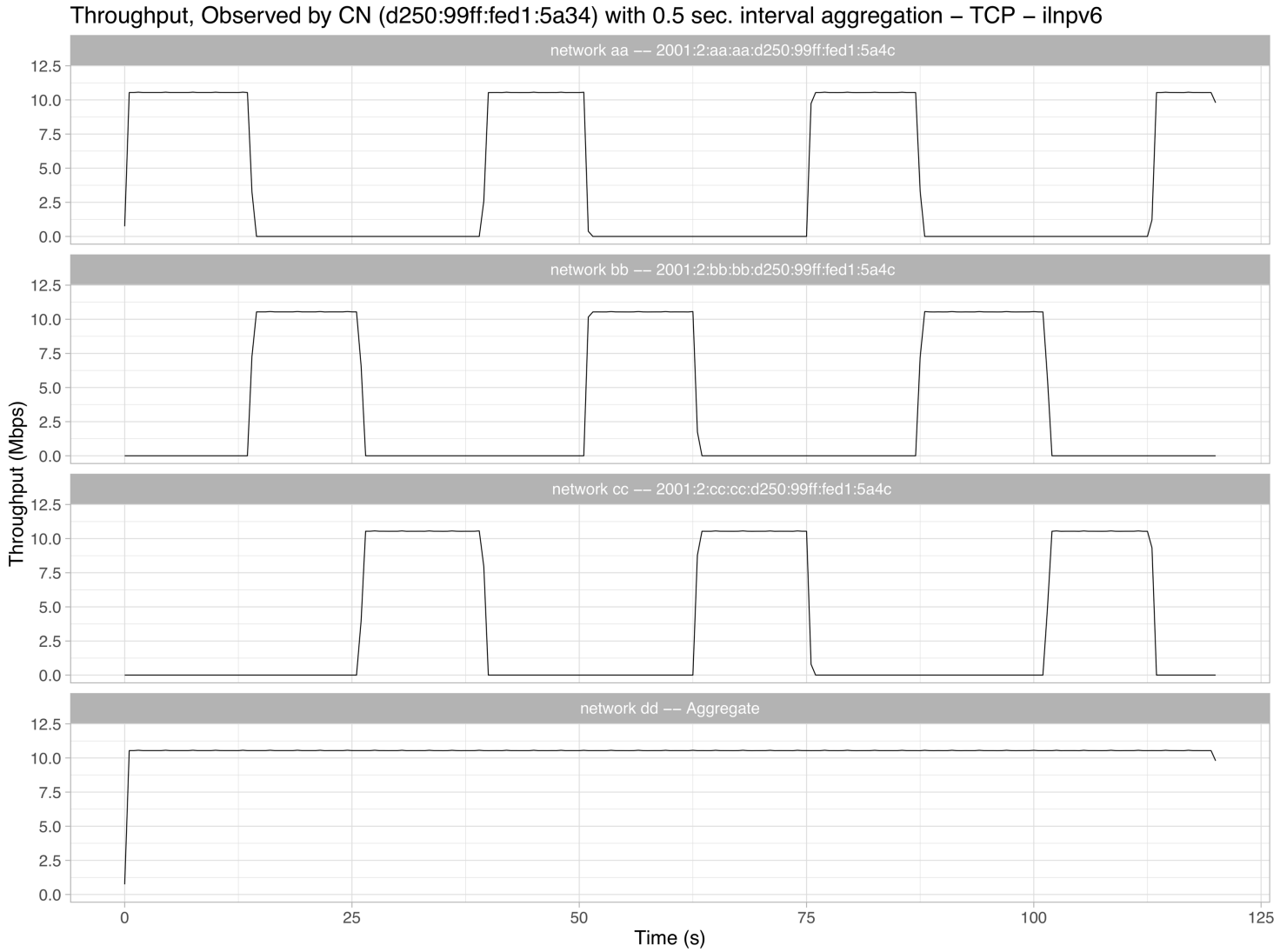
What we found & what we got done

- **Test runs with TCP over ILNP:**
  - Ubiquiti Networks EdgeRouterX units running IPv6 only.
- **Final testing of kernel code before public release of code:**
  - Including fixes to bugs found at IETF104/Prague.
- **Discussion on DNS (regarding section 3.2 of RFC6742):**
  - Thanks to Stéphane Bortzmeyer (AFNIC).
  - (Extensions in progress to KnotDNS and Unbound.)
  - (Discussions on secure write performance with DNS.)



R router (IPv6 only)
CN correspondent node (ILNP)
MN mobile node (ILNP)




Throughput, Observed by CN (d250:99ff:fed1:5a34) with 0.5 sec. interval aggregation – TCP – ilnpv6
network aa –– 2001:2:aa:aa:d250:99ff:fed1:5a4c
network bb –– 2001:2:bb:bb:d250:99ff:fed1:5a4c
network cc –– 2001:2:cc:cc:d250:99ff:fed1:5a4c
network dd –– Aggregate
Throughput (Mbps)
12.5
10.0
7.5
5.0
2.5
0.0
0
25
50
75
100
125
Time (s)

Wrap Up

Current team members:

- Saleem Bhatti (project lead)
- Ryo Yanagida (PhD student)

Former students:

- Khawar Shezhad
- Ditchaphong Phoomikiatissak
- Bruce Simpson

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