IETF Hackathon

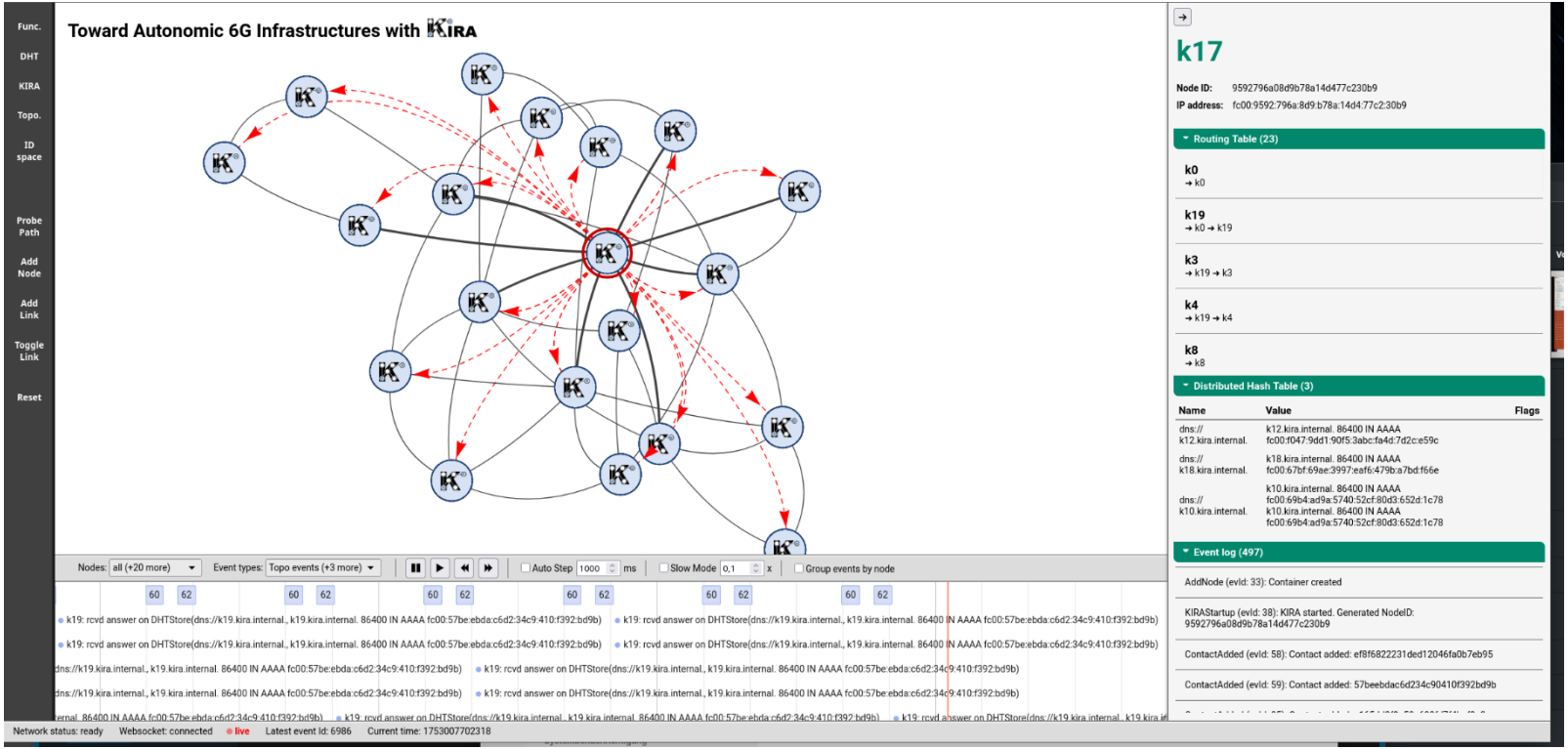
IETF 123
19–20 July 2025
Madrid, Spain

KIRA Hackathon Plan

- Scalable Zero-touch routing protocol KIRA implementation in Rust
  - https://datatracker.ietf.org/doc/draft-bless-rtgwg-kira/
  - ID-based routing, uses PathIDs for forwarding (all IPv6)
  - Testing in NeST and ContainerNet

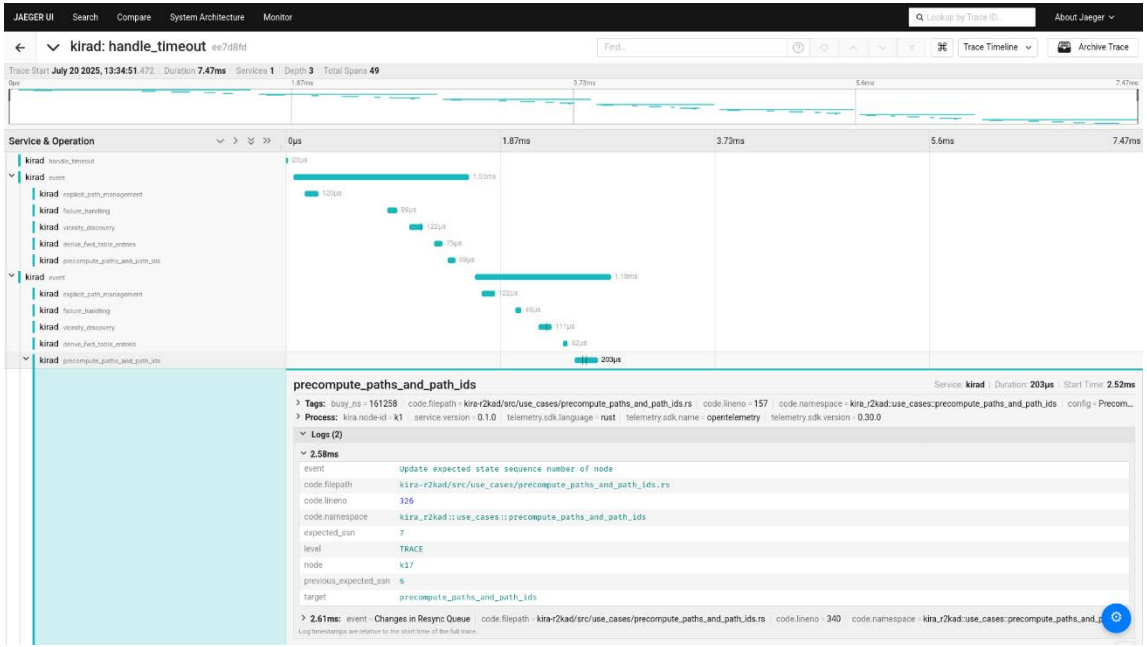
- Debug forwarding table inconsistencies
- Add support for web-based demo with NeST

Web Demo


Toward Autonomic 6G Infrastructures with KIRA
Func.
DHT
KIRA
Topo.
ID space
Probe Path
Add Node
Add Link
Toggle Link
Reset
k17
Node ID: 9592796a08d9b78a14d477c230b9
IP address: fc00:9592:796a:8d9:b78a:14d4:77c2:30b9
Routing Table (23)
k0
→ k0
k19
→ k0 → k19
k3
→ k19 → k3
k4
→ k19 → k4
k8
→ k8
Distributed Hash Table (3)
Name
Value
Flags
dns://k12.kira.internal.
k12.kira.internal. 86400 IN AAAA fc00:f047:9dd1:90f5:3abc:fa4d:7d2c:e59c
dns://k18.kira.internal.
k18.kira.internal. 86400 IN AAAA fc00:67bf:69ae:3997:eaf6:479b:a7bd:f66e
dns://k10.kira.internal.
k10.kira.internal. 86400 IN AAAA fc00:69b4:ad9a:5740:52cf:80d3:652d:1c78
k10.kira.internal. 86400 IN AAAA fc00:69b4:ad9a:5740:52cf:80d3:652d:1c78
Event log (497)
AddNode (evId: 33): Container created
KIRAStartup (evId: 38): KIRA started. Generated NodeID: 9592796a08d9b78a14d477c230b9
ContactAdded (evId: 58): Contact added: ef8f6822231ded12046fa0b7eb95
ContactAdded (evId: 59): Contact added: 57beebdac6d234c90410f392bd9b
Nodes: all (+20 more)
Event types: Topo events (+3 more)
Auto Step 1000 ms
Slow Mode 0,1 x
Group events by node
Network status: ready
Websocket: connected
live
Latest event Id: 6986
Current time: 1753007702318

What got done

- Initial code for NeST Web-Interface (not finished yet)
- Fixed some bugs using OpenTelemetry and Jaeger
- Wrote Greasemonkey script to substitute random NodeIDs with Topology-based IDs



KIRA Wrap Up

Team members:

Roland Bless

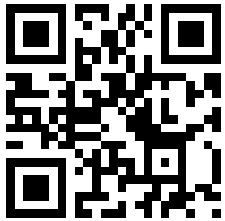
Julius Rüberg (Remote)

1st IETF Hackathon

Many thanks!

- Next steps
  - Align wire encoding with the latest draft

- General project page https://s.kit.edu/KIRA



- Side meeting: Wednesday July 23rd, 16.00–17.00h, Segovia (Intro, Q&A, Collaborations)