Karlsruhe Institute of Technology

KIRA – Scalable Zero-Touch Routing for Control Planes

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KIRA – Motivation

- Goals
  - resilient control plane connectivity → robust network operation
    - e.g., for SDN, NFV, VIM, AI-based Control, Intent-based NM, OAM, …
    - guarantee controllability of every networked device → IETF standard
  - no manual configuration, no dependencies (just link layer connectivity)
  - support for inband, out-of-band, hybrid management/control

- Existing solutions not scalable, zero-touch, or topology specific
- KIRA could be an alternative routing protocol for ANIMA's ACP (Autonomous Control Plane)
  - Offering advantages over RPL-ACP
- Offers additional services: topology discovery, DHT (Key/Value Store)

SDN: Software Defined Networking,
NFV: Network Function Virtualization,
VIM: Virtual Infrastructure Management,
NM: Network Management,
OAM: Operations Administration, and Maintenance

Ready for Standardization…

- Internet-Draft https://datatracker.ietf.org/doc/draft-bless-rtgwg-kira/
  - Updated to -01: added action descriptions for sending/receiving messages
  - Please provide feedback!
- Running Code available
  - Hackathon IETF 121
  - Native Routing Daemon Linux (Rust)
    - Forwarding Tier uses nftables
    - Alternative eBPF implementation underway
- Want IETF expertise
  - WG Draft
- Side meeting Wednesday Nov 6th, 19.00–20.00h, WMR 4
  - KIRA Intro, Q&A, collaboration, next steps towards standardization

KIRA

https://s.kit.edu/KIRA