

KIRA – Scalable ID-based Routing Architecture for Control Planes

- Goals: 1st connectivity, 2nd route efficiency → highly resilient control plane
- Scalability: 100,000s of nodes (in a single domain)
- Routes on NodeIDs (no ID → locator mapping)
- Routing Table:
 - Size: $O(\log n)$ entries [NodeID → <Path Vector>], shortest paths
 - Per-node selectable memory/stretch trade-off
- Zero-touch: no configuration required
- Topological versatility: works well in various topologies
- Loop-free (even during convergence)
- Uses PathIDs as labels in its forwarding tier
- Provides zero-conf IPv6 connectivity

KIRA: Kademia-directed ID-based Routing Architecture

KIRA – What else? Where can I get more info?

- Special **end-systems** mode → reduces overhead even more
- Supports **multi-path routing** and **forwarding**
- **Built-in DHT**, e.g., for name or service lookups / discovery
- KeLLy – Scalable, efficient **topology discovery** based on KIRA

KIRA provides highly scalable, resilient, zero-conf control plane connectivity

More information on KIRA:

- Scheduled **presentations @IETF115**
 - **RTGWWG** Thursday (Nov 10th), 13.45h
 - **ANIMA WG** Thursday (Nov 10th), 14.30h

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Paper:



<https://s.kit.edu/kira>