IETF Hackathon

NMOP Session 2
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Montreal, Canada

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SIMAP Hackathon Plan

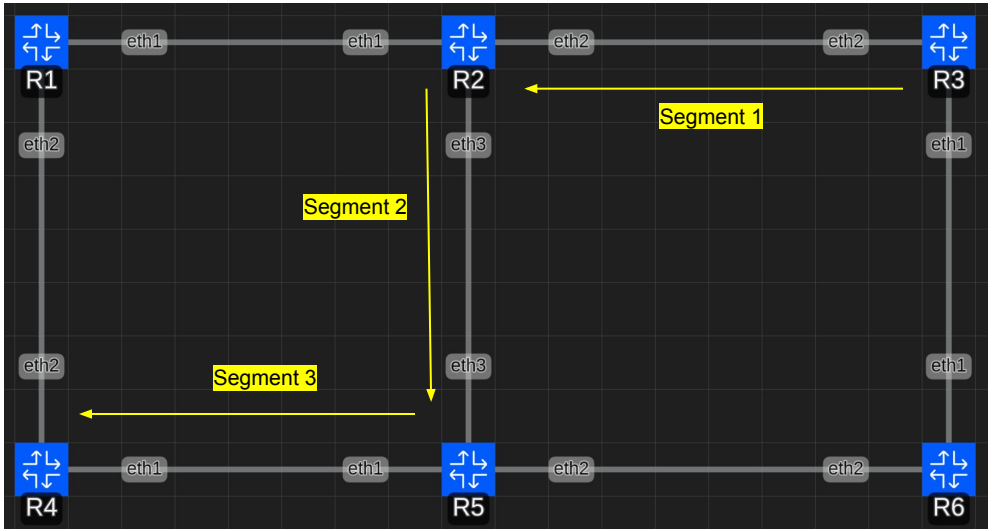
- IETF 121 Hackathon:
  - Filling RFC8345 gaps for ISIS
  - Prototype of adding external references to topological elements
- IETF 122 Hackathon:
  - Explore options for adding external references to topological elements (Templates)
  - Start modelling SRv6 for SIMAP
- Templates design ⇒ **draft-vivek-simap-external-relationship-00**
- IETF 123 Hackathon:
  - Support of draft-vivek-simap-external-relationship-00 in the code
  - Add VPN Services transported with SRv6 based on previous modeling efforts
- IETF 124 Hackathon:
  - Compute the physical path of a packet based on an SRv6 SIMAP model
  - Analyze what extensions are needed for the SIMAP model based on RFC8345 to support path computation

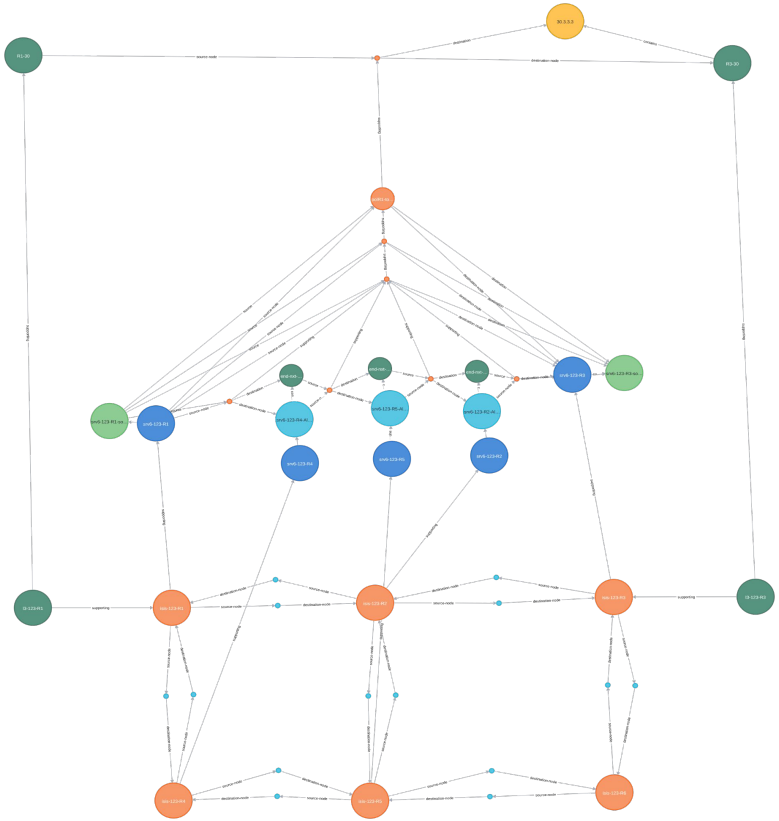
SIMAP Hackathon: What we achieved

- Now supports MicroSIDs in our Labs
- Implemented link enable/disable mechanism
- Developed algorithm to compute the physical path of a packet
  - Source: VRF
  - Destination: Prefix
  - Path computation driven by SRv6 Policy
- Started modeling the path using RFC8345
  - Determined there is need for extensions and confirmed SIMAP requirements

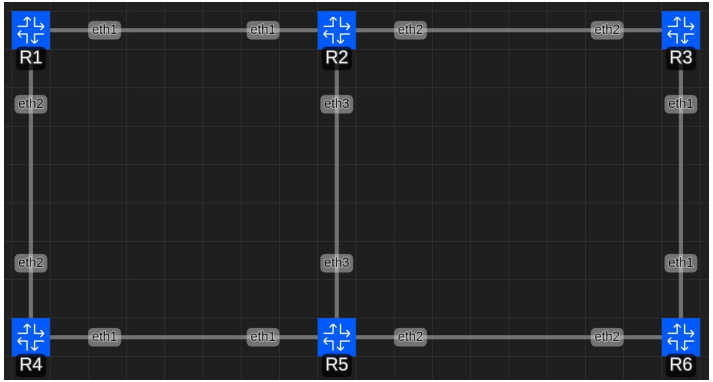
SIMAP Hackathon: LABs & SIMAP Model

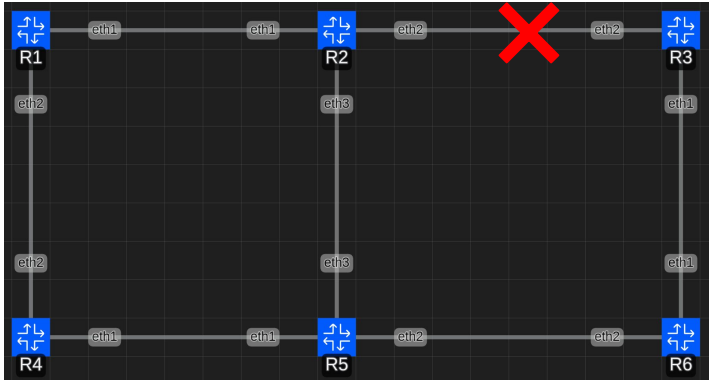
2 Operator LABs (Swisscom, Telefonica)
2 Virtual LABs
L2, L3, IGP, BGP, SRv6, L3VPN

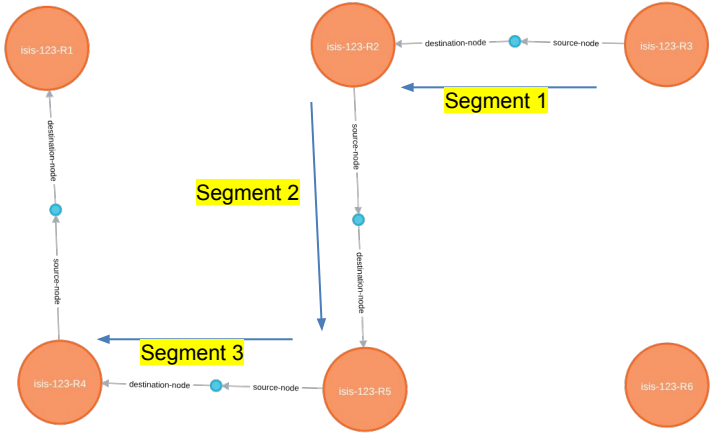


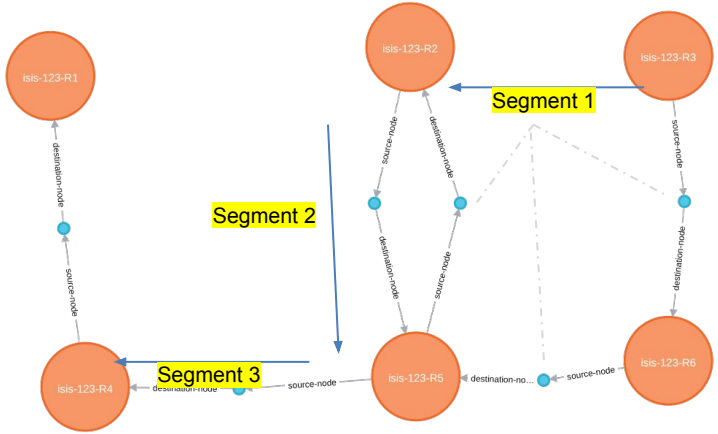


SIMAP Hackathon: Path change



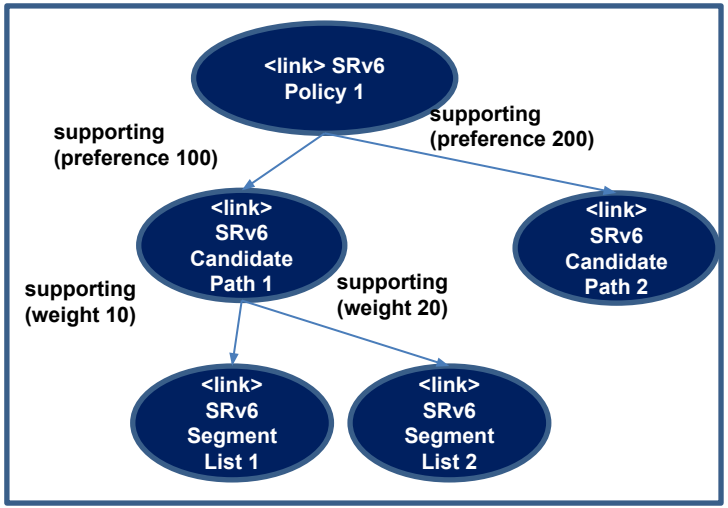


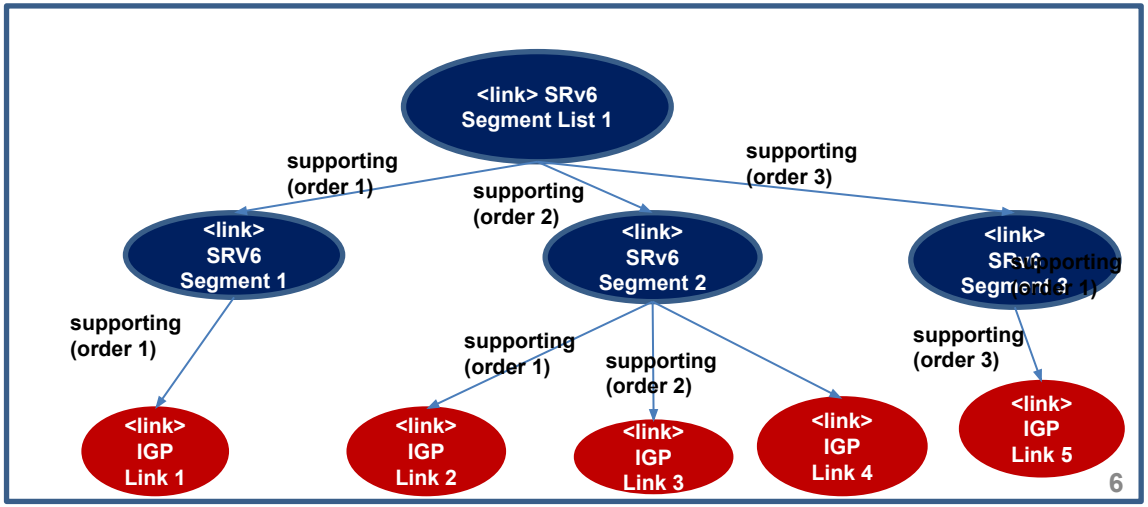




SIMAP Requirements Confirmed

- ✔ Path is modelled via directed graph
- ✔ The complete path can be computed, only hierarchical path is provided in SIMAP – no need to expose the physical path directly
- ✔ The path inside a layer can be either computed or stored in the controller, depending on the implementation
- ✔ **SIMAP Requirements: REQ-GRAPH-TRAVERSAL and REQ-SEMANTIC** from draft-havel-nmop-simap-yang address the need for graph traversal for paths and the need for additional semantic for supporting relationships
- ✔ This Hackathon determined there is need for RFC8345 extensions: **order** (for sequential) and properties (**preference** for selection, **weight** for load balancing)





SIMAP Hackathon: What next

- Required extensions (order, preference, weight) to be implemented at IETF125 hackathon and model extensions proposed in draft-havel-nmop-simap-yang
- Keep in synch with other draft-havel-nmop-simap-yang gaps, evaluate candidate implementations for the gaps and extensions
- Keep in synch with draft-ogondio-nmop-isis-topology
- Extend the path computation algorithm to support more advanced, protocol specific computations via external relationship mechanisms