YANG Data Models for IS-IS and OSPF topologies

draft-ogondio-opsawg-isis-topology-01
draft-ogondio-opsawg-ospf-topology-01

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Rationale of the work (reminder)

• Network operators perform the capacity planning for their networks and run regular what-if scenarios analysis based on representations of the real network.

• What-if analysis and capacity planning processes require a topological view (domains, nodes, links, network interconnection) of the deployed network.

• Building a digital map and feed a digital twin requires, among other information, accurate topology views.

• **Goal of the work:** How to use IETF topology model to represent a real carrier network based on IS-IS domains and OSPF domain for planning/simulation purposes.

• 2 documents:
  • draft-ogondio-opsawg-isis-topology-01: Focus on IS-IS domains
  • draft-ogondio-opsawg-ospf-topology-01: Focused on OSPF domain
draft-ogondio-isis-topology Updates from -00

- Editorial review done
- Updated relation with digital map
- Enhanced explanation of the content of the Data model
- Updated Yang model:
  - Alignment with IETF IS-IS device model defined in RFC 9130
  - Model imported and types used when needed

Principles of the draft:
- One IETF-Network per domain
- Build on top of existing topology RFCs
- Add just the necessary information

Sample topology with multiple domains
draft-ogondio-ospf-topology

- Has a similar scope as IS-IS draft, but focused on modeling OSPF domains
- One instance of IETF network per OSPF domain.
- A network can have both OSPF and IS-IS domains (one instance per domain)

module: ietf-l3-ospf-topology
augment /nw:networks/nw:network/nw:network-types:
  +--rw ospfv2-topology!
augment /nw:networks/nw:network/nw:node/
  l3t:l3-node-attributes:
    +--rw ospf-timer-attributes
      +--rw wait-timer?  uint32
      +--rw rapid-delay?  uint32
      +--rw slow-delay?  uint32
      +--rw timer-type?  enumeration
augment /nw:networks/nw:network/nt:link/
  l3t:l3-link-attributes:
    +--rw ospfv2-termination-point-attributes
      +--rw interface-type?  identityref
      +--rw area-id?  area-id-type
      +--rw metric?  uint64
      +--rw is-passive?  boolean

- Indicates the network runs OSPF
- Timers (part of the node)
- OSPF information per link
Next Steps and questions

- Keep improving the Yang models.
- Include examples based on early implementations.
- Current model augments 8435 model and inherits the “limitations”. Follow up efforts on enhancing the base topology constructs.
- Request WG participants to read and review the documents
- Is OPSAWG Working Group interested in these works?
- Request Feedback from routing area WG.
- Questions & Suggestions are welcome