I2RS Interim Group #7: Topology

Presenter:

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Use Case Description

- Topology of the network
  - And how it relates to I2RS
- Standardized information model
  - Representing multiple layer networks
  - In support of PCE, Capacity Planning, and Traffic Engineering, ad ALTO
  - Represent multiple layers
    - With relationships between and within layers

Scope and Scale

- Representing service layers
  - Within the administrative scope
- The graph elements represent
  - Devices, Ports, links (unidirectional)
  - Abstractions thereof
    - LAG, ECMP Groups, logical nodes
  - Graph elements have properties
    - Reachable addresses, Customers, bandwidth
    - Tagging for which “kind” of operation to use this in
      - For example, which layer path computation should use this
      - Or for filtering

Operational Scope

- The primary focus here is information abstraction
- At each layer, needs information at the same dynamics as the modeled network changes
  - May be notifications or polling
  - Depth and breadth depend upon use case
- This needs also to be usable for handling requests for changes to the topology
  - Not all topology elements are equally mutable
  - Don't know write rate? Seems to be use case dependent
  - Computations support planning for protection switching
    - Protection Switching is in the network
    - Writes have to be damped
- Need filtering and recursion

I2RS Differences

- Standard API / Protocol for
  - Active and passive elements
  - Representing relationships between elements in distinct layers
  - Dependencies vertically and horizontally
  - Across vendors
  - Agreed Information about network elements
  - Consolidation of detail and abstract models
    - Including device and network models
  - Have to be able to talk about service abstraction
    - Including application specific or customer specific
  - Integration of information gathering, abstraction, and control