

# draft-gredler-bgp-te-01

Hannes Gredler – hannes@juniper.net

Jan Medved – jmedved@juniper.net

Stefano Previdi – sprevidi@cisco.com

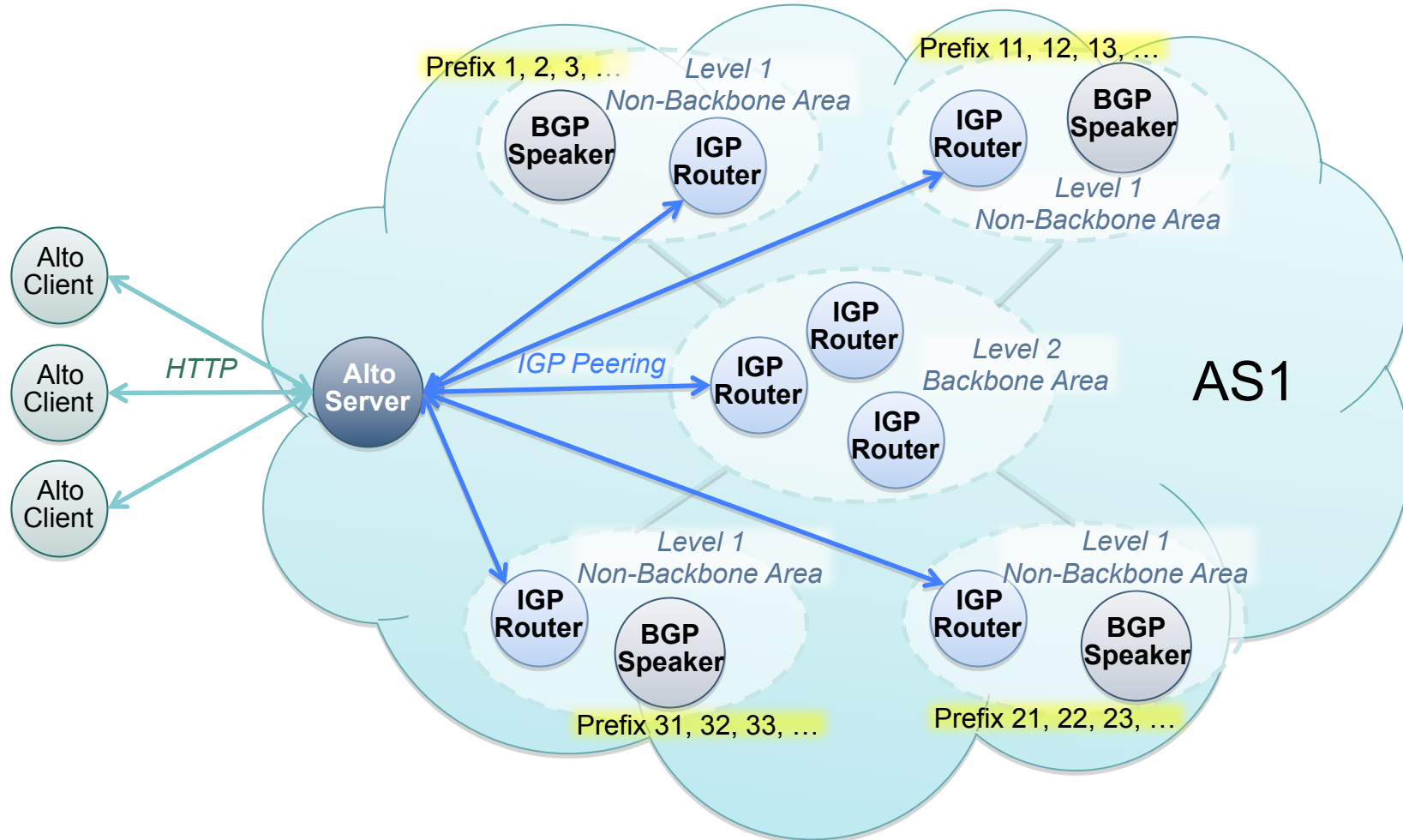
Thanks to:

Nischal Sheth, Alia Atlas, David Ward, John Scudder, Kaliraj Vairavakkalai, Yakov Rekhter, Les Ginsberg, Mike Shand and Richard Woundy

# draft-gredler-bgp-te-01

- Scope:
  - Network API to communicate topology to outside servers (ALTO Server, Path Computation Server)
  - Allow external (to routing layer) components to extract topology without requiring participation to the link-state routing scheme
    - E.g.: ALTO
  - Allow the distribution of virtual topology where:
    - E.g.: Part of the real topology is hidden or aggregated
    - E.g.: Virtual connectivity is represented in the topology hiding intermediate hops/nodes
- Out of scope:
  - Leak link-state information between routers in separate areas/domains

# Use case Alto Servers: multi-area IGP topology



- ALTO server needs to know all areas topology
- Manually crafting of “IGP peering” topology is tedious and error prone

# draft-gredler-bgp-te-01

- New BGP NLRI
  - Safi 1/128
  - New MP Capability
- Section 3.1: NLRI format

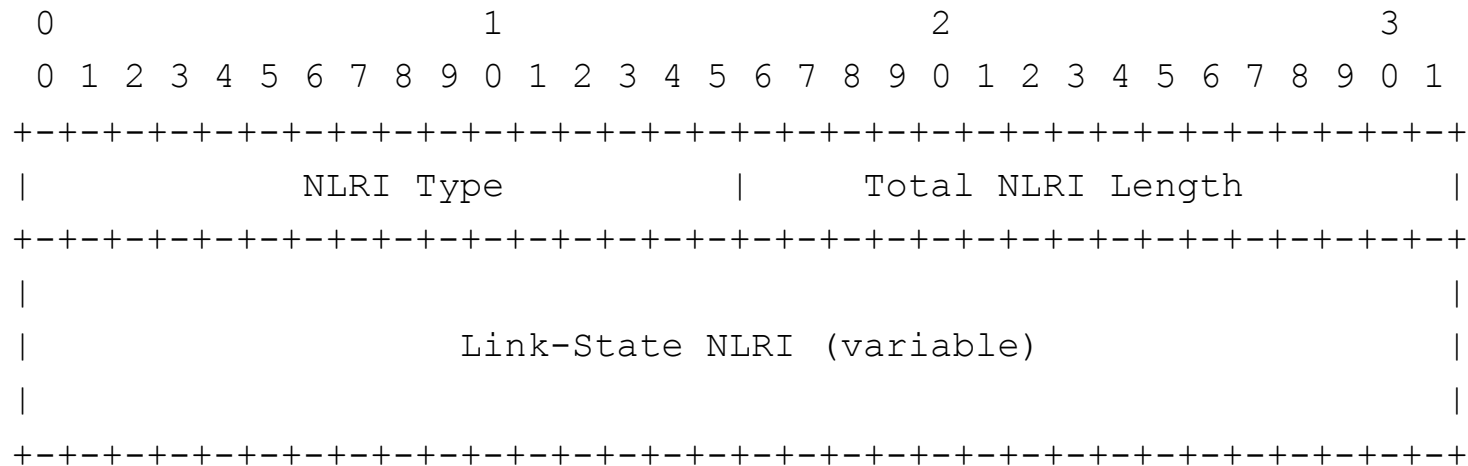


Figure 1: Link State SAFI 1 NLRI Format

# draft-gredler-bgp-te-01

- Section 3.1: NLRI format

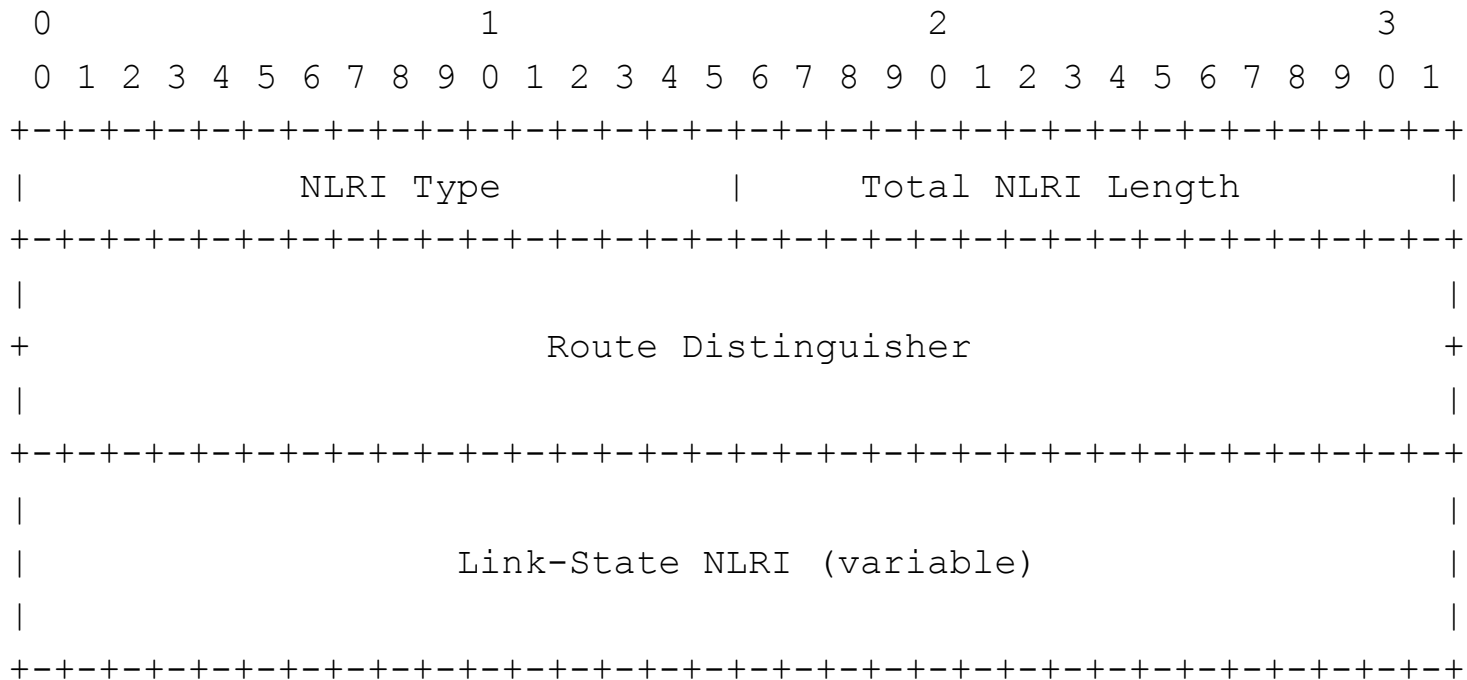


Figure 2: Link State SAFI 128 NLRI Format

# draft-gredler-bgp-te-01

The 'NLRI Type' field can contain one of the following values:

Type = 1: Link NLRI, contains link descriptors and link attributes

Type = 2: Node NLRI, contains node attributes

The Link NLRI (NLRI Type = 1) is shown in the following figure.

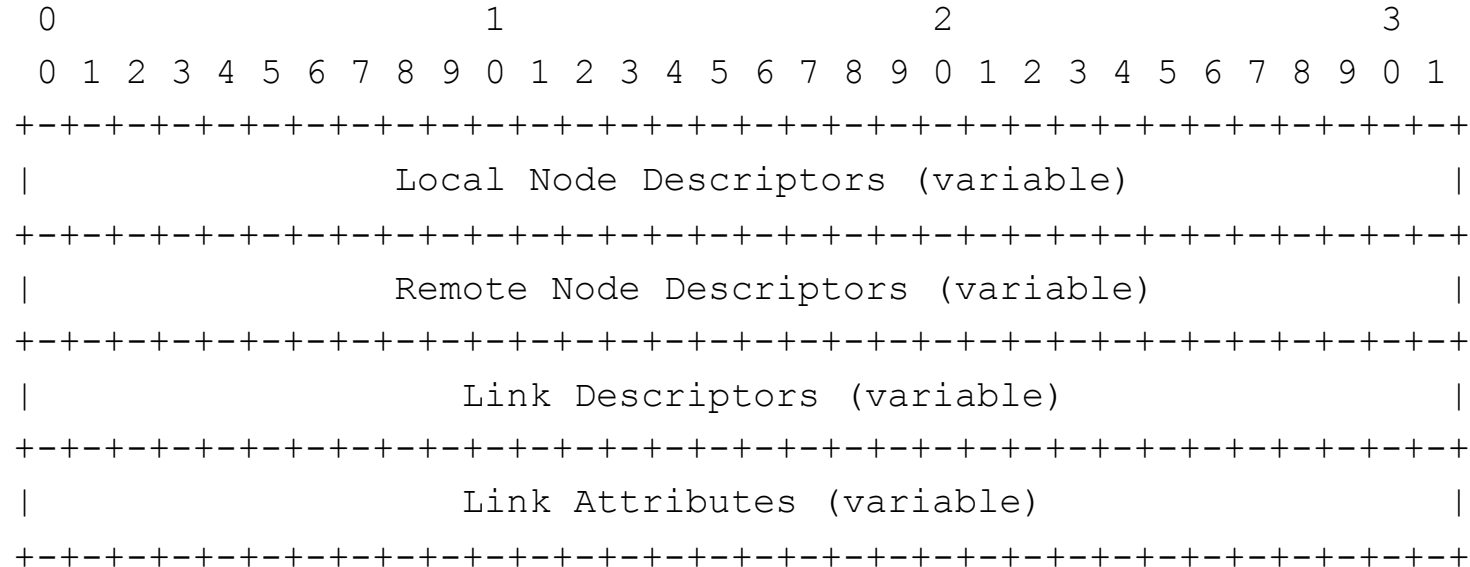


Figure 3: The Link NLRI format

# draft-gredler-bgp-te-01

- Encodings
  - Link Centric
    - Link can represent a path
  - Leverage existing IS-IS encoding format
    - Where possible
  - Each link is represented by
    - Its endpoints (i.e.: nodes)
    - Its attributes
  - Each node is represented by
    - Its identity (AS/v4/v6/cIns)
    - Its attributes/capabilities

# draft-gredler-bgp-te-01

- Operations
  - No changes in BGP procedures
    - Loop prevention and path selection
  - BGP Path selection rules apply
    - May be used by receiver to prefer given source



# draft-gredler-bgp-te-01

- To Do List
  - Add section with details on scope and procedures
    - Redistribution of link-state information between routing areas is not in scope
    - Fast Routing Convergence is not a requirement
  - Document Area ID advertisement
    - New TLV Vs. Community
    - Dynamic Vs. Static provisioning
  - Security Section
    - Document procedure for secure topology advertisement (e.g.: no leak of link-state info outside AS)

draft-gredler-bgp-te-01

Thank You