

Advertising Per-node Admin Tags in IS-IS

draft-psarkar-isis-node-admin-tag-03

Pushpasis Sarkar psarkar@juniper.net

Shraddha Hegde shraddha@juniper.net

Harish Raghuvver harish.r.prabhu@gmail.com

Hannes Gredler hannes@juniper.net

Stephane Litkowski stephane.litkowski@orange.com

Bruno Decraene bruno.decraene@orange.com

Summary of Updates

- Node-admin tags
- Guidelines on Implementation
- Applications

Node Admin Tags Semantics

- Meaning of a node-admin tag is
 - Local to the network operator.
 - But unique across all the nodes in the same administrative domain.
 - Independent of the order the nodes are tagged with.
- Facilitate any routing applications, that
 - Require advertisement of any node characteristics within the network deployment.
 - No need to define well-known values for each new characteristic required to be advertised.

Implementations Guidelines

- TLV 242 [RFC 4971] has 2 flooding scopes
 - Global (across Level 1 and Level 2, S-bit = 1)
 - Per-level (one per level, S-bit = 0)
- **MUST** allow configuring tag values per flooding scope.
- If already configured under global scope
 - **MUST NOT** allow configuring same tag value in any of Per-level scope.
- If already configured under per-level scope for specific level
 - **MAY** allow configuring same value under per-level scope for the other level.
 - **MUST NOT** allow configuring same tag value in the global scope.
- For MT deployments[RFC5120], **MUST NOT** allow configuring same tag value under different topologies.

Applications

- Auto-Discovery of Services.
- Policy-based Path Selection.
 - Including/excluding specific sets of node characteristics.
 - Selection of Primary paths (using route-policies)
 - Selection of FRR Backup paths (draft-ietf-rtgwg-lfa-mageability)
 - TE path computations using
 - Node-preference constraints
 - Node-exclusion constraints.
 - Policy-based Explicit routing.

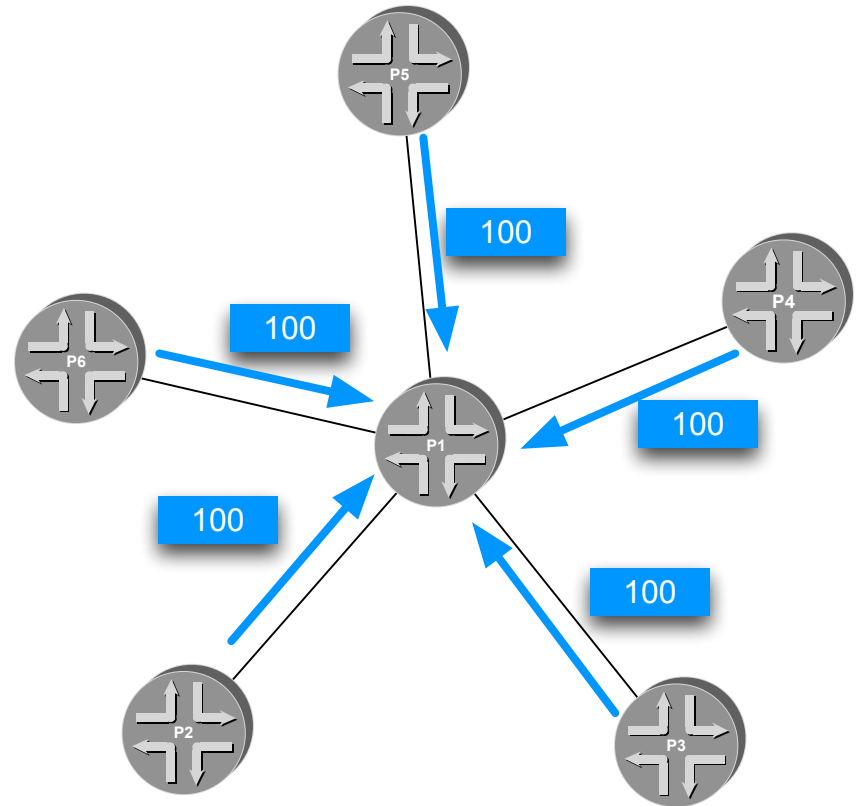
Next Steps

- Questions ?
- Adoption as a WG draft.

Background Slides

Prior Art

- Link colors [RFC5305]
 - Does not really represent a node characteristic.
 - Even if used to represent node characteristic, **all incoming links need to be colored** (one per node characteristic type).



Prior Art

- Prefix tags [RFC5130]
 - If the router-ID is considered the prefix representing the node
 - Router-ID encoded in TLV134 or TLV242.
 - Corresponding tag encoded in TLVs 135, 235, 236 and 237.
 - ***Additional implementation complexity***
 - No prefix tagging mechanism for OSPF yet
 - Looking for ***consistency across protocols***
 - draft-ietf-ospf-node-admin-tag-00
 - Most Traffic Engineering Database (TED) schema support
 - ***Nodes***
 - ***Links***
 - But ***not Prefixes***

Basic Concepts

- Per-Node Admin Tags
 - **32-bit unsigned integer** value.
 - Represents a specific **node characteristic** exhibited by one or more nodes in the network
 - **One per type** of node characteristic.
 - Facilitates **logical grouping of nodes** in network, that suites deployment needs.
 - **One tag per group** (per node characteristic type).
 - **Multiple nodes** exhibiting same characteristics
 - Belong to a group,
 - **Tagged with same tag** value.
 - **Single node** exhibiting multiple characteristics
 - Belongs to multiple groups.
 - **Tagged with multiple tag values** (one per group or node characteristics).

Per-Node Admin Tag SubTLV

- *SubTLV of Router-Cap TLV #242 (RFC 4971)*
 - Unbound List of 32-Bit node colors (TLV-max-size constraints still applies)

