Role based Auto Mesh TE

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Problem Statement

• Auto mesh TE defined in RFC4972
  – The LSRs of a TE mesh-group are connected by a full mesh of TE LSPs
  – IGP (OSPF and ISIS) extensions for membership auto-discovery
  – Largely simplify the configurations and deployments of TE LSPs.

• Full mesh TE LSPs may not necessary for some scenarios
  – In a mobile backhaul network, TE LSPs are normally setup between the Cell Site Gateways (CSGs) and the Radio Network Controller (RNC) Site Gateways (RSGs)
  – The TE LSPs among CSGs and TE LSPs between RSGs may not necessary
  – With the existing Auto-mesh TE
    • Large amount of unnecessary TE LSPs established among CSGs and between RSGs
      – May not scale for the CSG devices and is waste of network resources.
    • Or, extra policies and configurations required to avoid unnecessary TE LSPs
Solution

- Role based Auto mesh TE group
  - TE LSPs setup depends on the roles of the LSRs in a group

- Two types of group introduced:
  - “Hub-Spoke” TE mesh-group
    - Two roles: **Hub** and **Spoke** LSR
    - TE LSPs SHOULD be setup between Spoke and Hub LSRs
    - TE LSPs MUST NOT be setup between/among Spoke LSRs
    - TE LSPs MUST NOT be setup between/among Hub LSRs
  - “Root-Leaf” TE mesh-group
    - Two roles: **Root** and **Leaf** LSR
    - Root LSRs signal P2MP TE LSPs toward all the Leaf LSRs once membership determined

![Diagram of auto mesh TE and role based auto mesh TE](image)
Extensions to OSPF

- OSPF Role-based TE-MESH-GROUP TLV
  - H (Hub-spoke) bit
    - 1: Hub LSR, 0: Spoke LSR
  - R (Root) bit
  - L (Leaf) bit
- Carried within the OSPF Routing Information LSA
- Originate new LSA whenever the content of any of the advertised TLV changes
  - Join/Leave a group
  - Role changed
- Area or routing domain scope
Comments from the list

- Mesh-group type (Thanks Gregory Mirsky)
  - One way is to explicitly encode the mesh-group type in the TLV.
  - Another way is to implicitly identify the mesh-group type by comparing the received TE mesh-group number with the TE mesh-group number of local configured TE mesh-groups (used in the current draft).

  - **Which way does the WG prefer to?**
Next Steps

- Would like to solicit comments and opinions of the WG.

- This draft will be progressed in CCAMP WG.