Role based Auto Mesh TE

draft-li-ccamp-role-based-automesh-00

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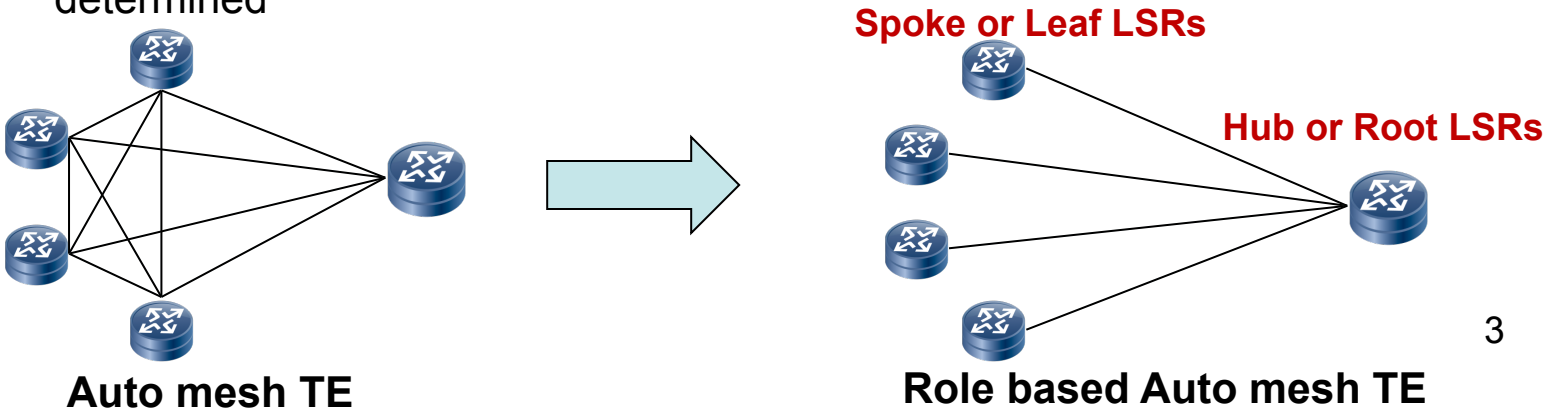
Problem Statement

- 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

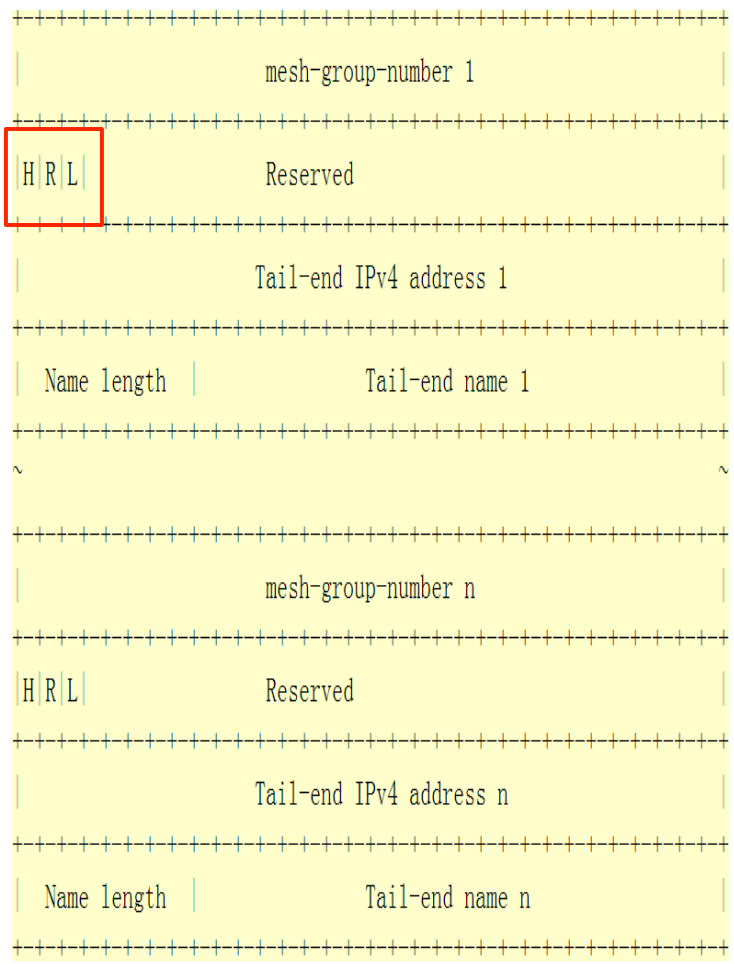
Solution

- 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



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.