

# A Framework for Service-Driven Co-Routed MPLS Traffic Engineering LSPs

draft-li-mpls-serv-driven-co-lsp-fmwk-03

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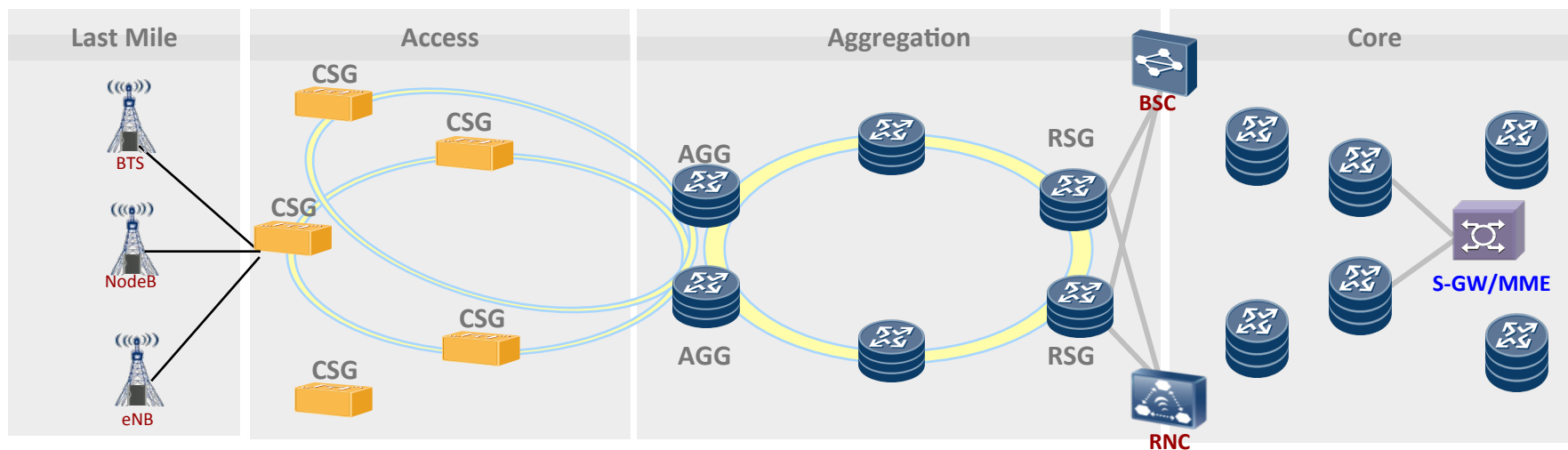
IETF 90, Toronto, Canada

# Updates

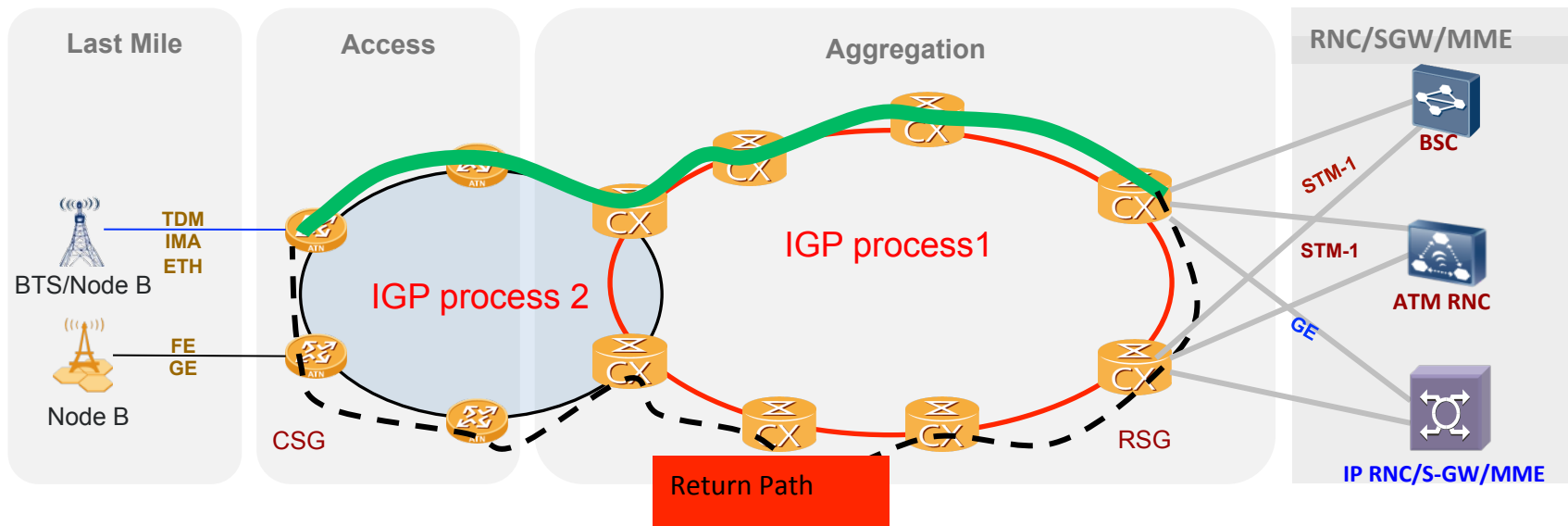
- More description on why introduce the solution.
- Detailed description on Framework and Procedures.
- Refine

# Massive MPLS TE Configuration Issue in MBB

- Typical Configurations: 66,000 command lines for MPLS TE configuration
  - 1,000 CSGs need to connect to one RSG
  - 3 types of bi-directional services. Each type of service needs one VPN and one TE
  - 10 command lines for typical MPLS TE tunnel configuration
- The operation is not only time consuming but also prone to mis-configuration for Service Providers.

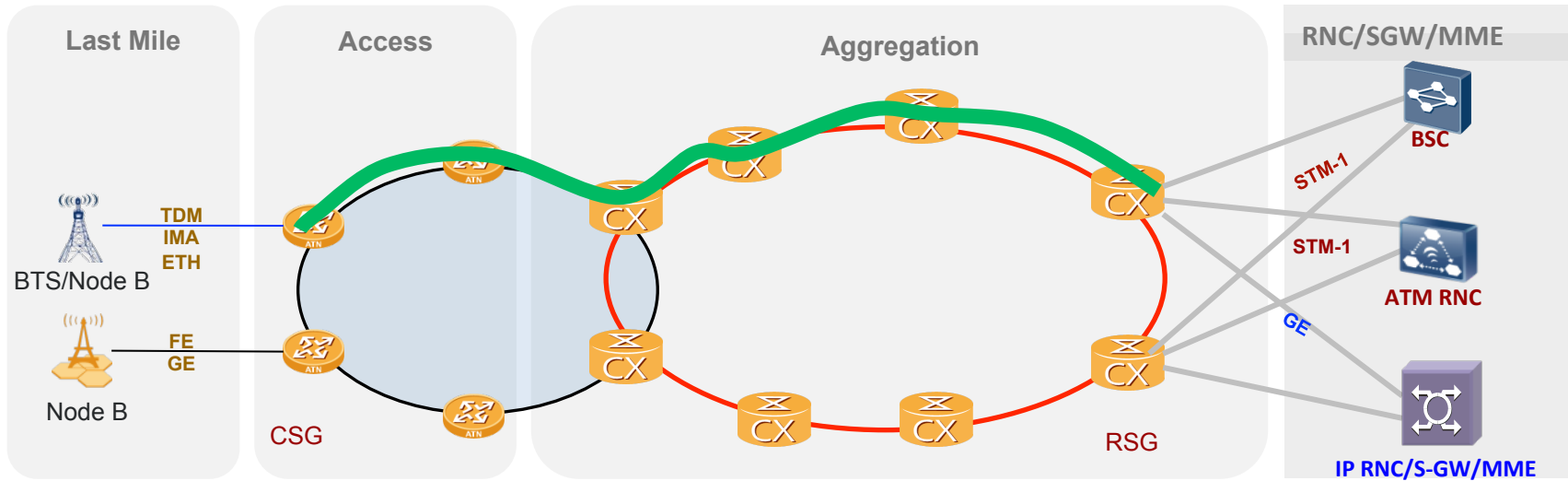


# Return Path Issue of BFD for LSP



- **Return Path Issue for BFD:** When BFD for LSP is deployed, the return path may take IP path which is different from the forwarding path. The failure that happens in the return path may trigger wrong traffic switch.
- **Configuration to guarantee the return path to be co-routed will deteriorate the configuration issue:** explicit path and tunnel binding.
- **Static Configuration Issue:** if the forward path changes, the return path may not change accordingly.

# Upgrading Issue of Co-routed Bidirectional LSP



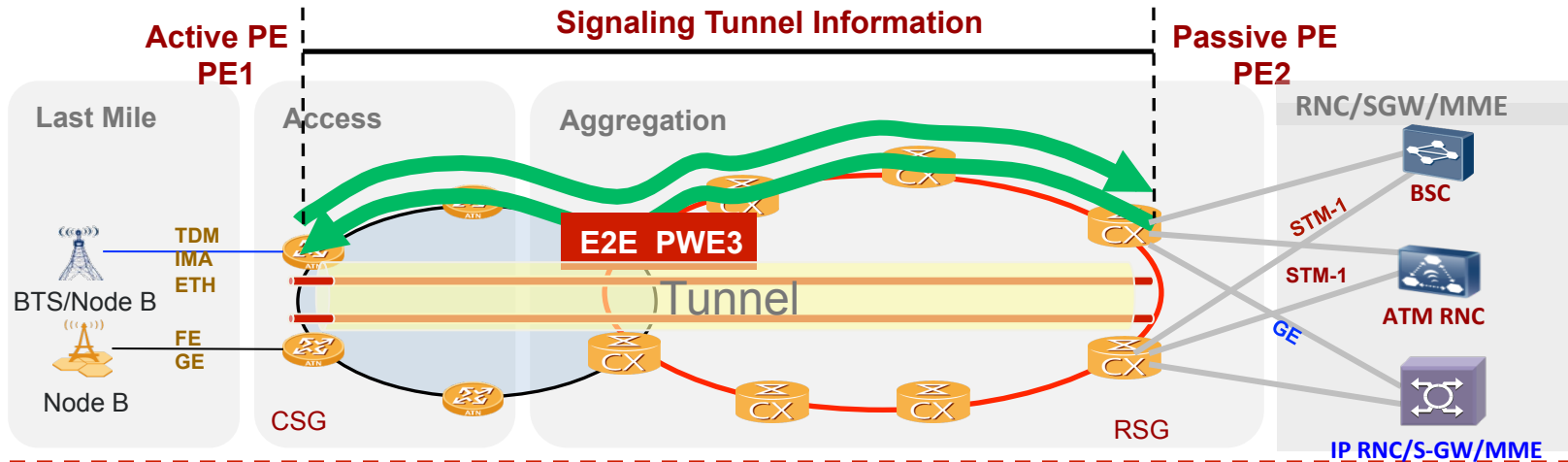
## ■ Upgrading Issue from GMPLS Co-routed Bidirectional LSP:

- The unidirectional MPLS TE LSP has been deployed widely and it is difficult for the service provider to upgrade all possible routers to support co-routed bidirectional LSPs.

# Service-driven Co-routed MPLS TE LSP

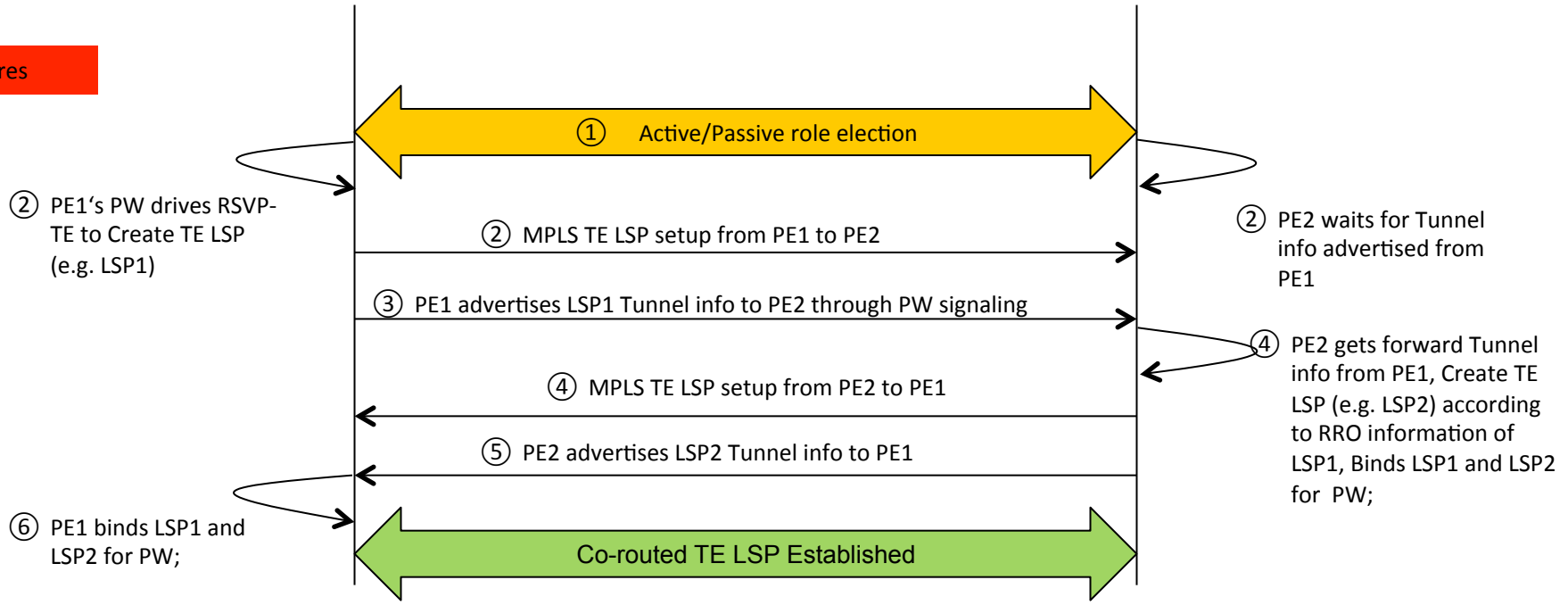
- Topology-Driven: LDP LSP: LSP
  - LSP can setup automatically to save much effort and achieve higher scalability.
- Service-Driven: MPLS TE LSP
  - MPLS TE LSPs always co-exist with the service (L2VPN/L3VPN) beared by these LSPs.
  - Service-driven is a natural way to setup LSP on demand. It can save the unnecessary LSP setup comparing with topology-driven method.
  - Only the edge nodes are involved.

# Service-Driven Co-Routed Unidirectional LSPs for L2VPN

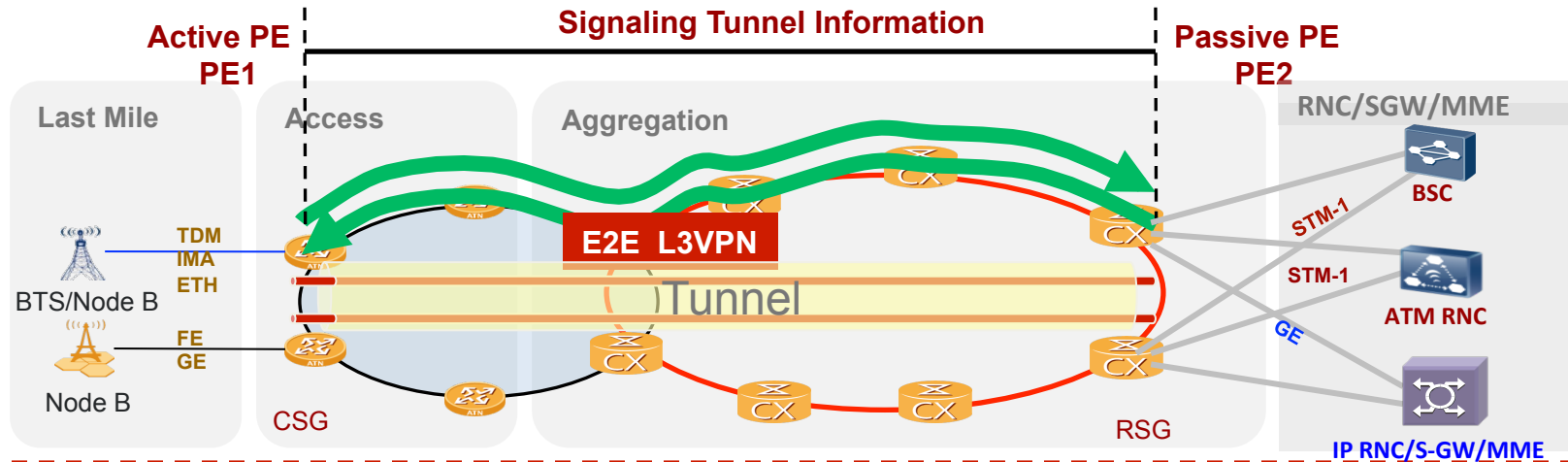


Scenarios

Procedures

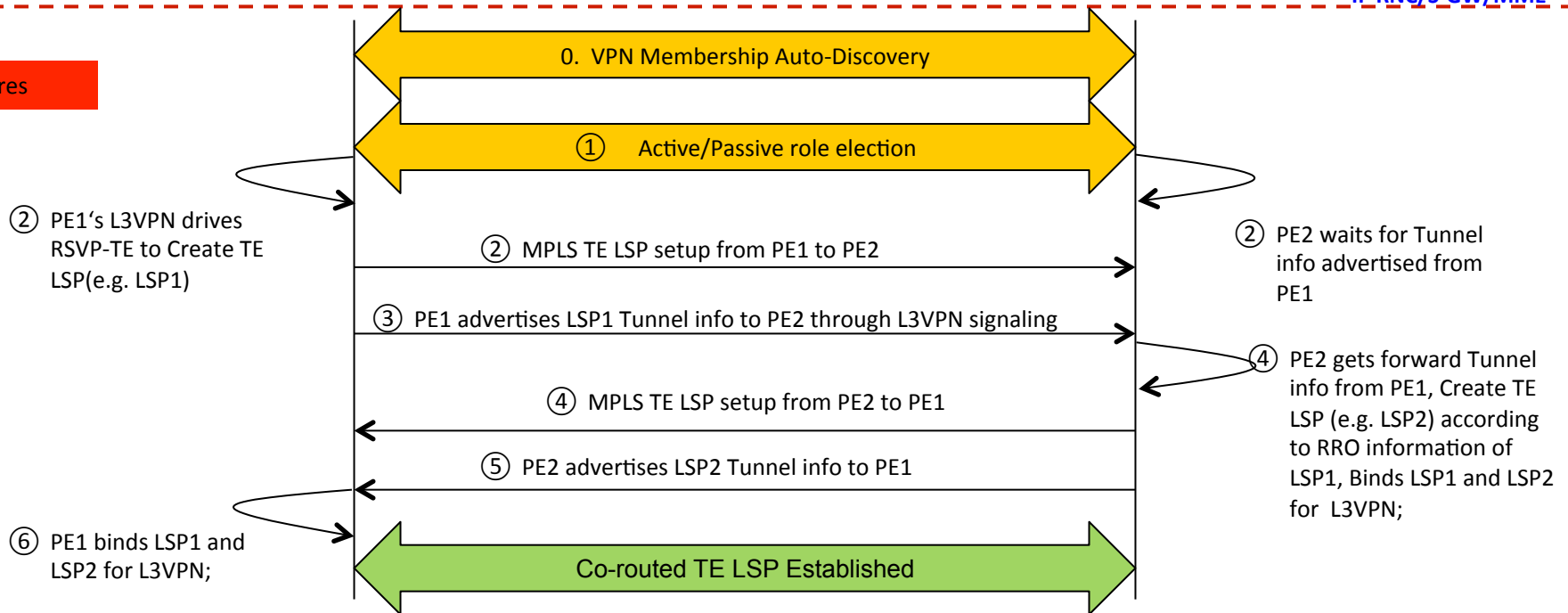


# Service-Driven Co-Routed Unidirectional LSPs for L3VPN



Scenarios

Procedures





# Summary

- Service-driven co-routed MPLS TE LSP has following advantages:
  - Setup LSP on demand and save massive configuration effort:
    - ✓ 30 command lines vs. 60,000 command lines.
  - Guarantee co-routed for the forwarding path and return path and be able to change dynamically
  - Reuse current mechanism instead of whole network upgrading.
- Auto Mesh Group (RFC4972)
  - IGP-based Solution: the internal nodes are involved unnecessarily.

## Next Steps

- Solicit more comments and feedback
- Request for WG acceptance