

# BGP-SPF for Multi-segment SDWAN

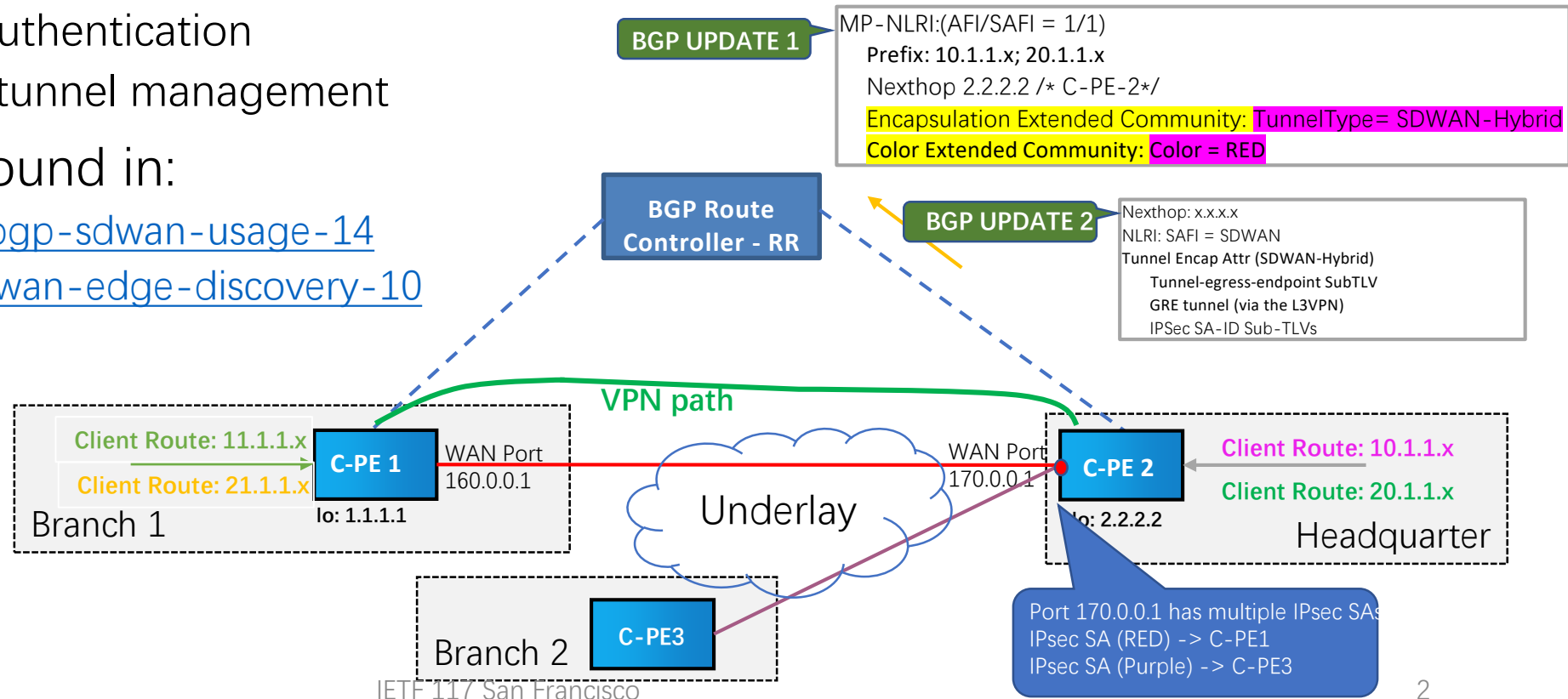
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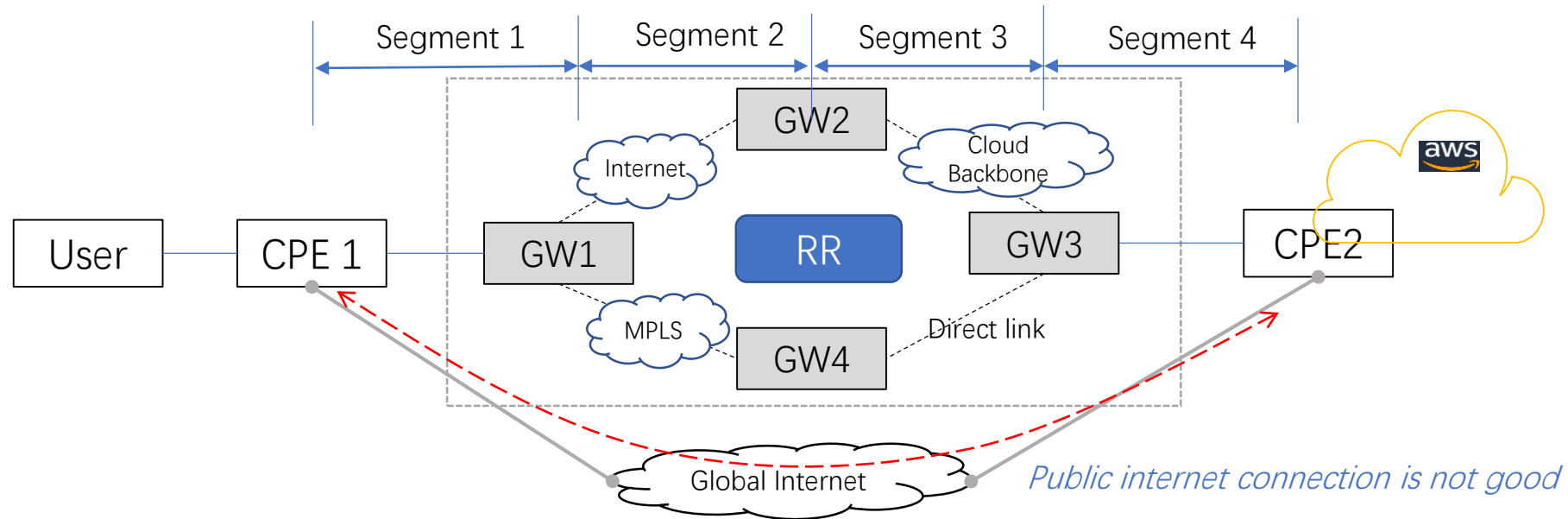
IETF 117

# SDWAN

- IPsec tunnels added to existing VPN path
- BGP as the control plane to distribute the Port attribute, IPsec SA
  - Simplify peer authentication
  - Scalable IPsec tunnel management
- Details can be found in:
  - [draft-ietf-bess-bgp-sdwan-usage-14](#)
  - [draft-ietf-idr-sdwan-edge-discovery-10](#)



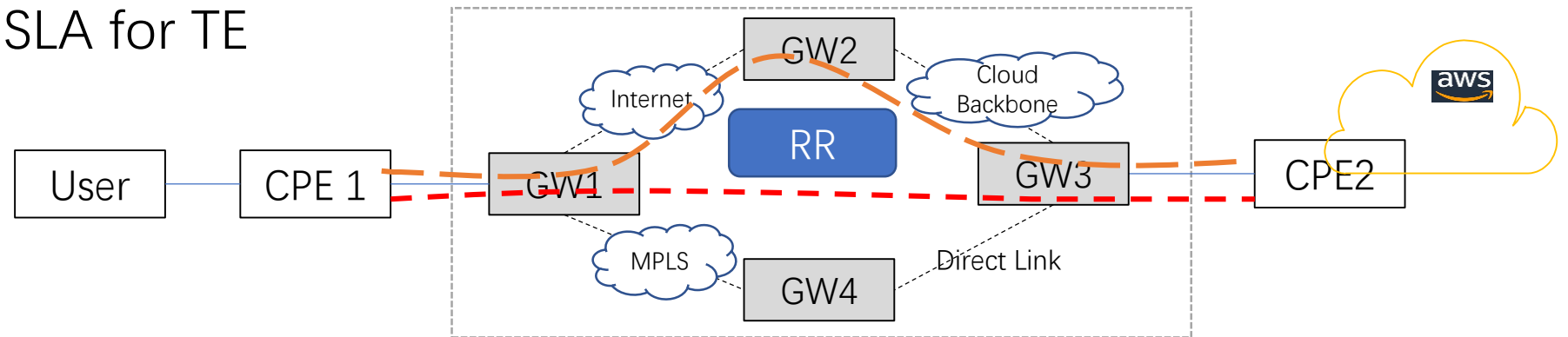
# Multi-segment SDWAN



- Tunnel over public internet connection suffers bad quality, SD-WAN pop gateway is deployed to establish multi-segment tunnel to improve the quality. Multiple local optimal tunnel is stitched together.
- CPE and GW network are under different administrative control
- The gateway forms an overlay network. Between each GW, the link can be:
  - SD-WAN Tunnel over Internet/MPLS, see [draft-ietf-idr-sdwan-edge-discovery-10](#)
  - SD-WAN over Cloud Backbone, see [draft-dmk-rtgwg-multisegment-sdwan-00](#)
  - Direct link

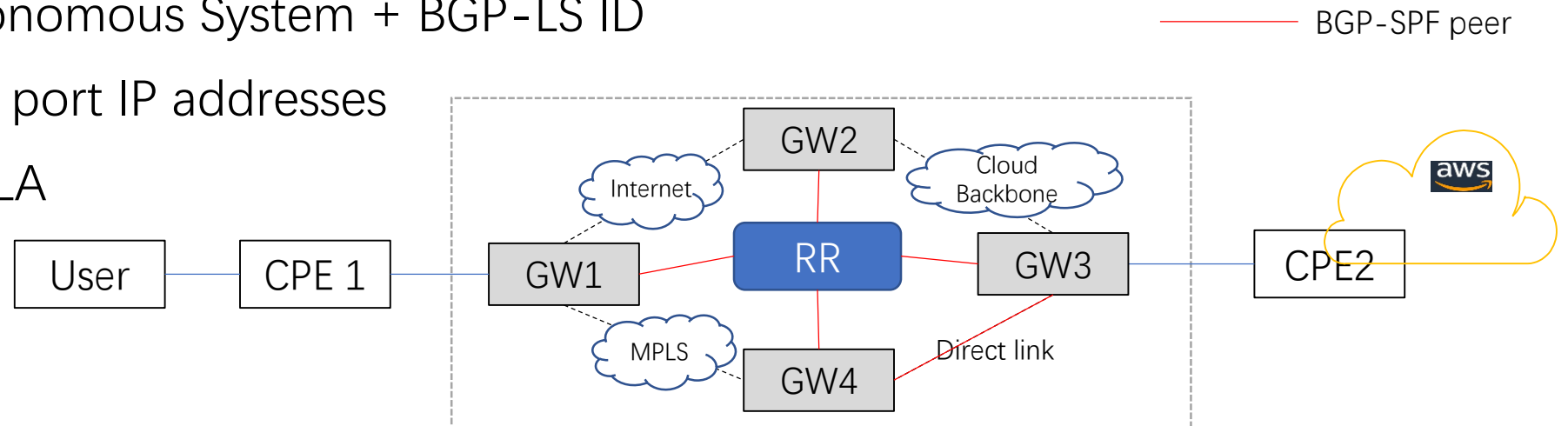
# Find a 'shortest' overlay path

- Multiple overlay paths between CPE
- Need to find best overlay path
- BGP-LS-SPF can be used to
  - Direct link discovery
  - Collect topology information for BE
  - Collect link SLA for TE



# Usage of BGP-LS-SPF for SD-WAN

- For SDWAN tunnel: BGP-LS-SPF relationship is established between GW and RR to collect the topology information.
- For Direct link: BGP-LS-SPF relationship is established
  - Between GWs: link discovery
  - Between GW and RR: topology collection
- Node NLRI: Autonomous System + BGP-LS ID
- LINK NLRI: WAN port IP addresses
- LINK attribute: SLA



Comments and suggestion?