GMPLS UNI

Best Current Practices

draft-beeram-ccamp-gmpls-uni-bcp-01.txt

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Changes from .00

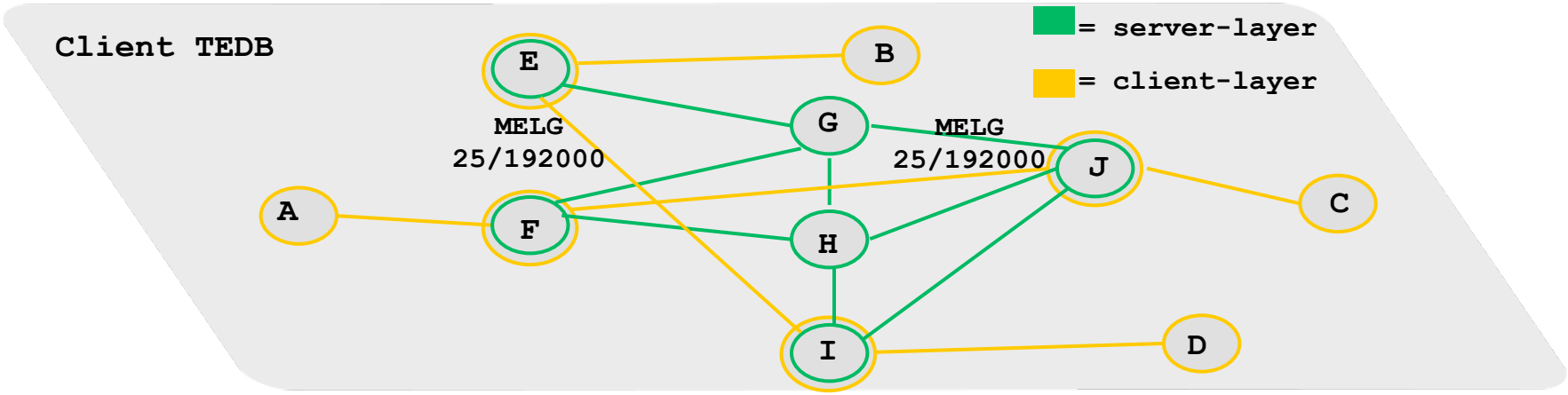
- Comments addressed:
  - References to existing RFCs
  - BCP language
  - Generalized from the network layering point of view (client is not necessarily IP/MPLS, network is not necessarily WDM)
- Sections added:
  - MELGs
  - Path computation aspects
  - L1VPNs
  - Use cases

Use Cases

- IP/MPLS layer recovery scheme (e.g. FRR) based on TE links supported by GMPLS UNI LSPs

- IP/MPLS Offloading with UNI automation
  - IP/MPLS TE links supported by GMPLS UNI LSPs are added/removed dynamically based on user traffic volume/demand

MELGs


Client TEDB
= server-layer
= client-layer
E
B
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MELG
25/192000
MELG
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J
A
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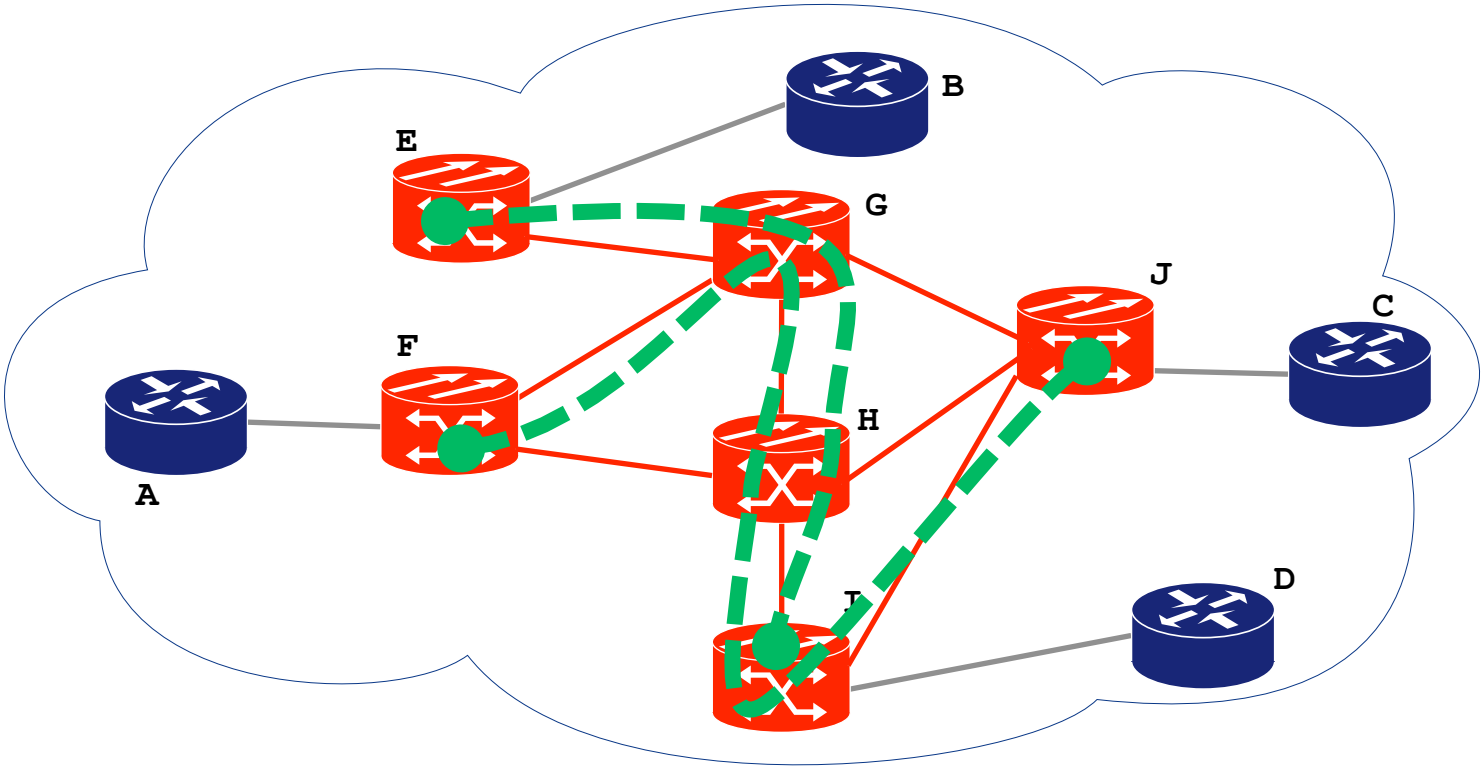
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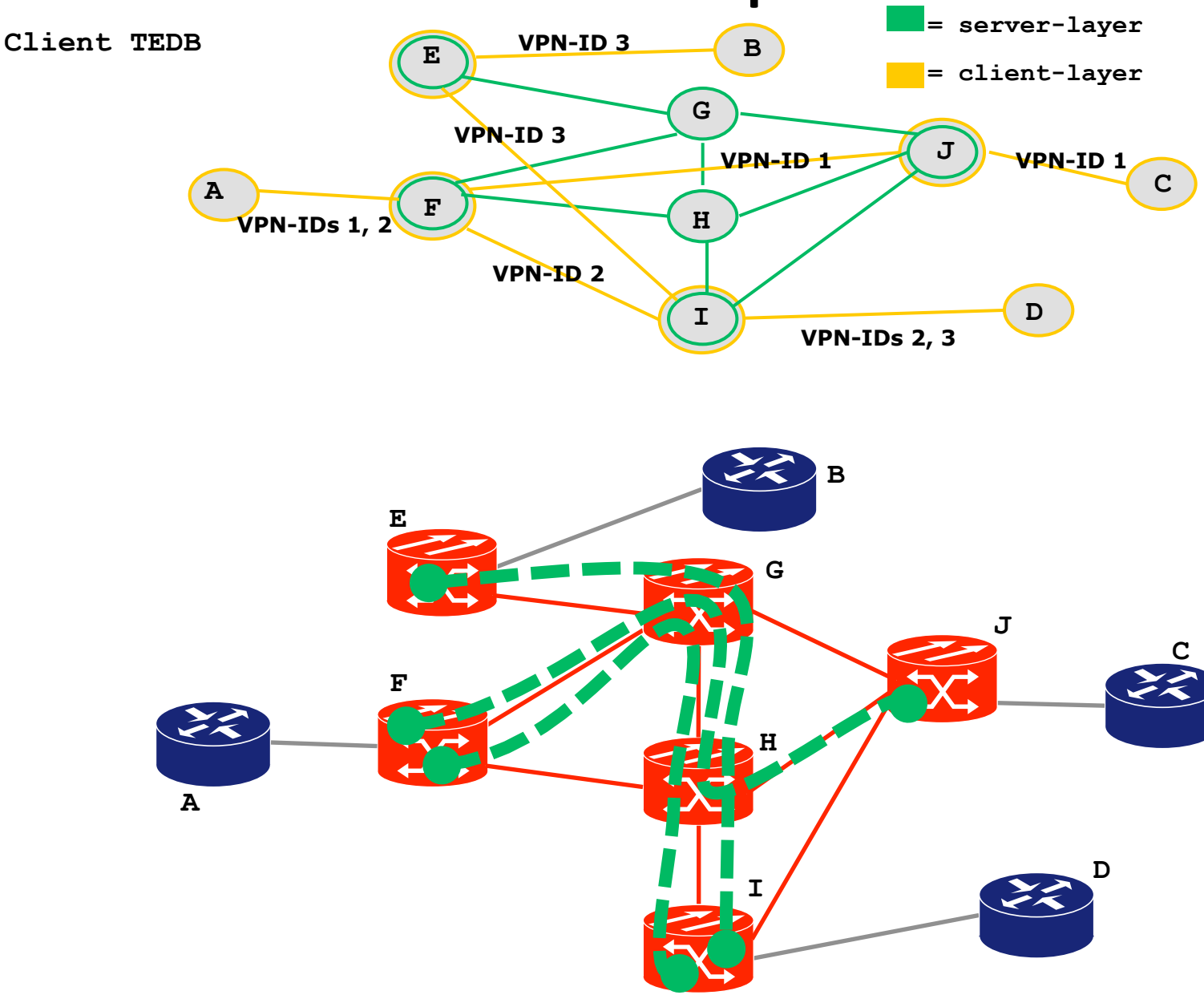
MELGs

- Describe mutually exclusive relationship between two or more Virtual TE Links (links cannot be used concurrently)
- This relationship is stronger than fate sharing (described via SRLGs)
- Meaningful only for Virtual TE Links
- Requires a new Sub-TLV to be advertised within TE Link TLV
- Virtual TE Link state (committed vs. non-committed) needs to be advertised

Path Computation aspects

- Client path computation function can and should make use of Virtual TE Links advertised by the network:
  - end-to-end paths could be computed, using any path computation criterions and subject to any constraints;
  - SRLGs, MELGs, switching limitations should be considered as constraints
- Centralized concurrent computation of paths for a set of source/destination pairs is recommended (better use of SRLG and MELG information)
- It is recommended to avoid path computations performed by the network on behalf of clients (better to rely on end-to-end paths computed by clients)

L1VPN aspects



L1VPN aspects

- RFC4208 states that GMPS UNI allows for L1VPNs

- Virtual TE Link model makes L1VPN application a matter of policy:
  - Any access and/or Virtual TE link could be configured with 0, 1 or more VPN IDs
  - VPN IDs are advertised within the TE Link TLV (a new sub-TLV is required)
  - Network is responsible for proper filtering of the TE Link advertisements, so that the information pertinent to VPN X is leaked only to the clients that are members of VPN X
  - Client path computation computes end-to-end paths only within VPNs the client is member of

- This approach achieves the following:
  - Provides to the clients VPN specific view of the network;
  - Partitions network resources between VPNs;
  - Provides automatic VPN member auto-discovery;
  - Scopes path computations (and thus connectivity) to members of the same VPN

Next steps

- Documents for MELG and VPNID sub-TLV definitions and processing rules
- Multi-domain GMPLS-UNI ?
- More use cases
- Working Group status ?

Thank you