Graceful Restart Mechanism for RSVP-TE

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Motivation

• MPLS forwarding state is OK
  – IF…
    • LSR control plane restarts (e.g., due to crash, or s/w upgrade).
    • Control channel between LSR’s restarts.
  – THEN …
    • All LSP’s (at both control and forwarding level) are terminated…

• Graceful Restart
  – Recover control plane
  – … while not disturb forwarding plane
Operation: control plane restart

LSP X
A
B
C

Cap advertise

LSP X
A
B
C

Cap advertise

LSP X
A
B
C

State recovery

LSP X
A
B
C

State recovery
Operation: control channel restart

Cap advertise

LSP X → A → B → C

Cap advertise

LSP X → A → B → C

State recovery

A → B → C

LSP X → A → B → C
Protocol Issues

• **Capability Advertisement:**
  – Use HELLO messages
  – RESTART_CAP object
    • Contain timing parameters

• **Recover labels**
  – SUGGESTED_LABEL object [GMPLS]
    • Contain previously allocated labels

• **Refresh Reduction**
  – Work as it is …
    • Will speed-up control-channel recovery
Conclusions

• Useful feature
• Simple to implement
• Backward compatible