

BFD in Demand Mode over Point-to-Point MPLS LSP

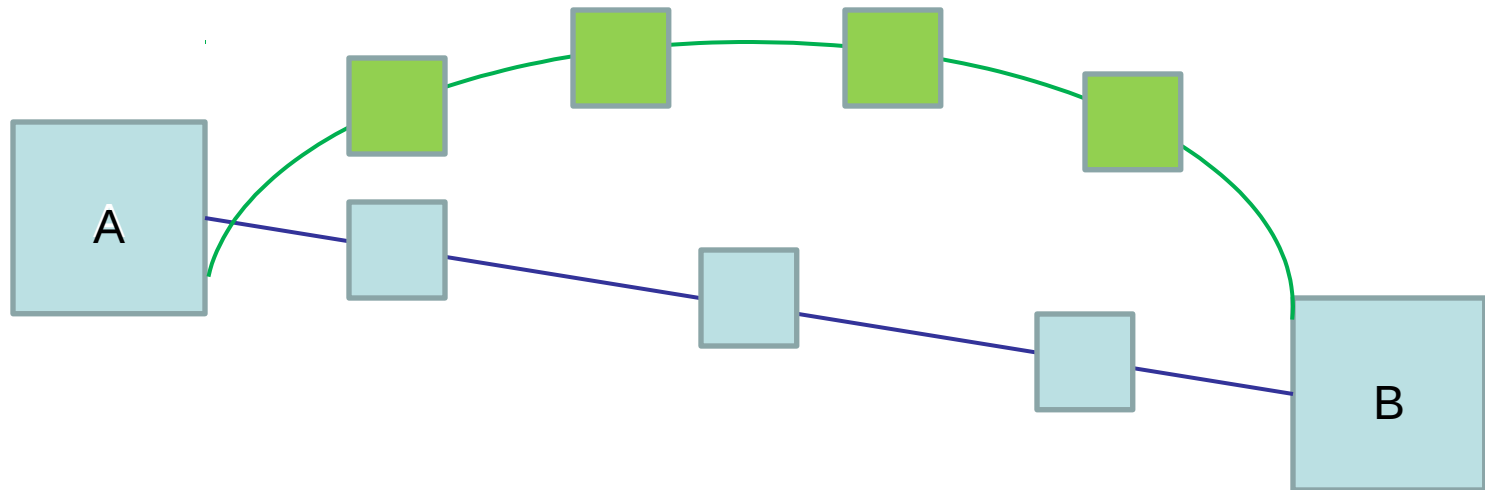
draft-mirsky-bfd-mpls-demand

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BFD over MPLS LSP: Now

- RFC 5884 considers only use of BFD Asynchronous mode for p2p MPLS LSP
- Ingress LER A periodically transmits BFD control messages over MPLS LSP
- Egress LER B periodically transmits BFD control messages over IP network
- Transmission intervals in forward and reverse directions may be negotiated to different values but usually are the same, e.g. from the set of values discussed in RFC 7419 Common Interval Support in BFD

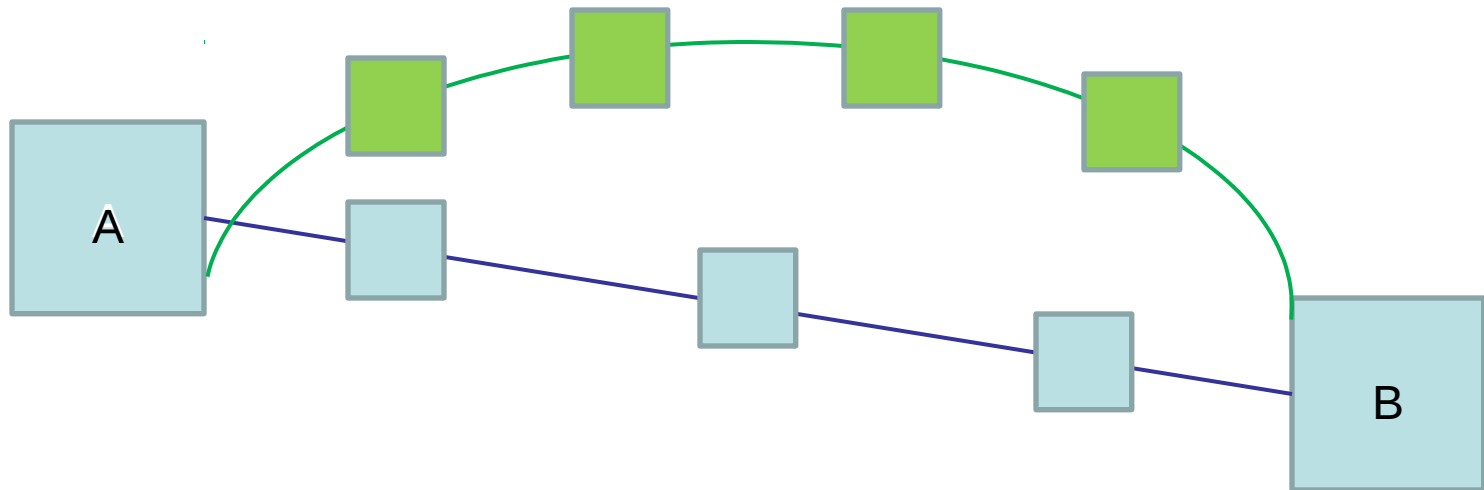


BFD Demand mode

- RFC 5880 defined BFD Demand mode
- BFD node controls mode of its peer, i.e. the BFD node MAY switch its peer into and out of the Demand mode
- To verify bi-directional continuity the node in Demand mode MAY initiate Poll sequence by simply setting Poll (P) bit in BFD control messages sent periodically to its peer
- BFD node in the Demand mode MAY send BFD control messages with Poll (P) bit set if any of its parameters have changed

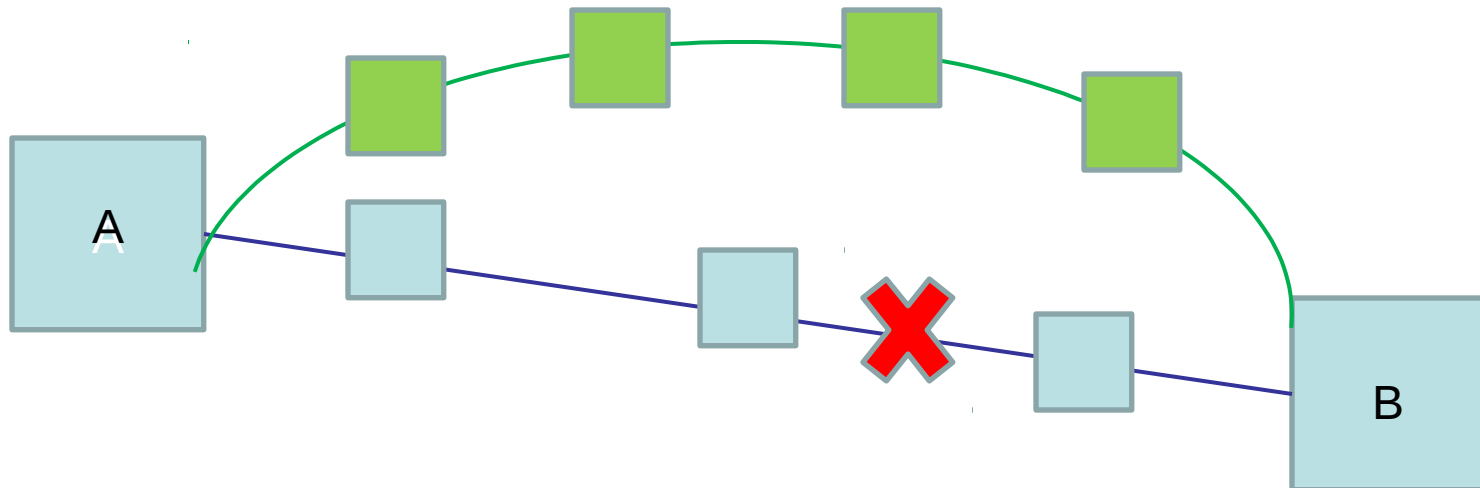
Theory of operation I

- Ingress LER A bootstraps the BFD session to LER B using LSP Ping
- BFD session between A and B in Async mode reaches Up state
- BFD node A switches mode to Demand using Poll sequence
- Node B ceases transmission of periodic BFD packets



Theory of operation II

- Ingress LER A bootstraps the BFD session to LER B using LSP Ping
- BFD session between A and B in Async mode reaches Up state
- BFD node A switches mode to Demand using Poll sequence
- Node B ceases transmission of periodic BFD packets
- Node B detects failure
 - Node B initiates Poll sequence with Diagnostic code set to Control Detection Time Expired
 - Because Node A have received failure notification from the node B (RDI) it sends BFD control packet with Final bit set over IP network as following:
 - destination IP address MUST be set to the destination IP address of the LSP Ping Echo request message
 - destination UDP port set to 4784
 - Final (F) flag in BFD control packet MUST be set
 - Demand (D) flag in BFD control packet MUST be cleared
 - Node A moves BFD session state to Down
 - Node A switches the BFD session to Async mode
 - Node A transmits BFD control packets periodically at slow rate



Next steps

- Your comments, suggestions, questions always welcome and greatly appreciated
- WG adoption?