BFD Stability use case
(draft-ashesh-bfd-stability-01.txt)

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Objective

- BFD stability will be used to detected why BFD flapped.

- BFD stability will also be used to detect BFD packet drops and delays.

- BFD will *NOT* attempt to measure traffic loss or delay on the link/tunnel.

- BFD stability is *NOT* equipped to replace CFM, LM/DM or any other loss and delay measurement tools.

Use cases

- There are two use cases for BFD stability.
  - BFD packet drops and delay detection.
  - BFD flap reason notification.

- BFD stability could be useful in two different scenarios
  - Healthy link but lossy BFD.
  - Lossy link/tunnels.

- Healthy link but lossy BFD path
  - Different host path for BFD and other OAM.
  - Running CFM and LM-DM may not help.

- Lossy link/tunnels
  - Lossy link/tunnel is causing BFD packets to be dropped.

BFD Drops and Delay Detection

- Legacy BFD can't detect any BFD packet loss or delay, if loss or delay does not last for dead interval. That could potentially lead to flap.

- Healthy link but lossy BFD path
  - Drops or delay could lead to flap which could be avoided by monitoring BFD health.
  - Will trigger reroute if enabled.
  - Force to utilize suboptimal path.

- Few suboptimal path scenarios
  - Single-hop with LFA enabled
  - Micro BFD and load balancing
  - MPLS and MPLS-TP with primary and protected LSP's

- Lossy link and tunnels
  - If the link or tunnel is lossy then BFD drop or delay notification can be used to trigger heavy weight loss/delay measurements.
  - Details of how BFD drop notification are used are outside the scope of this document.

BFD flap notification

- Healthy link but lossy BFD path
  - BFD would notify about BFD flap reason (loss or delay).
  - This information may be used to run heavyweight loss/delay measurement protocols.
  - Along with loss/delay measurement protocols, problem can be isolated to system.

- Flap detection
  - Implementation should keep a minimum local state up to threshold interval configured before publishing reason for flap.

Few WG questions

- What you do when you detect there is a loss.
  - Debug faster and can avoid potential flaps.
  - Customer MAY use this info to trigger link/tunnel health check.

- How do you detect if BFD session went down due to packet loss or due to delay in the packet as the BFD session would have already gone down and lost the state?
  - This is left to implementation, it could be possible that a BFD minimal state is retained till next dead interval or threshold interval before declaring packet loss or delay.

- OAM for OAM?
  - This is not OAM for OAM. This is just to ensure we debug the cause of BFD flap and ensure no false negatives.

Thank you