

# IS-IS BFD Enabled TLV

<draft-chopps-isis-bfd-tlv-00.txt>

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For

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# What is the Problem?

- There exists certain scenarios in which BFD will fail to detect a forwarding plane failure without use of either this TLV or some other method
- We observe that to allow for mixed use (i.e., some routers running BFD and some not) the protocol does not require a BFD session be established prior to the establishment of an IS-IS adjacency.

# What is the Problem.1?

- The problem with this solution is that it assumes that the transmission and receipt of an IS-IS IIH shares fate with forwarded packets.
- This is not a fair assumption to make given that the primary use of BFD is to protect IPv4 (and IPv6) forwarding and IS-IS does not utilize IPv4 or IPv6 for sending or receiving it's hellos

# What is the Problem.2?

Therefore, if a router (A) is currently experiencing an IPv4 forwarding failure that allows for IS-IS IIHs to be sent and received, when an adjacent router (B) first starts (or restarts) it will assume that “A” simply does not support BFD and may incorrectly forward IPv4 traffic through “A.”

# What is the Solution?

- The ISIS router will advertise that BFD is running on an interface in a TLV in the IIH.
- If no advertisement, don't attempt a BFD session w/ that neighbor.
- When receiving an IIH from a neighbor on an interface with BFD enabled, and if the IIH contains the BFD enabled TLV:
  - then the establishment of a BFD session with that neighbor will be required before allowing the adjacency to the neighbor to reach the UP state.

# Solution.2

- To allow for a non-disruptive transition to the use of BFD some amount of time should be allowed before bringing down an UP adjacency on a BFD enabled interface when the BFD TLV is first added to a neighbor's IIG.
  - A simple way to do this is to not update the adjacency holdtime when receiving an IIG from an UP adjacency with the BFD enable TLV until a session is established with the neighbor
  - The actual mechanism is outside the scope of the spec.

# Solution Questions

- Should there be an explicit mechanism such as not advertising the link in any LSPs?
- There is no mechanism in the P2P IIR (if 3-way is not in use) to keep the adjacency from advancing to Up when hellos are flowing, other than refusing to believe it
  - Can we require 3-way?  
(We think it is now reasonable to require 3-way)