draft-ketant-lsr-ospf-bfd-strict-mode-02

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Recap

- First presented at IETF 104 Prague
- Draft proposes a mechanism that enables an OSPFv2/v3 router to signal its neighbour that
  - It desires to use BFD for monitoring liveliness, and
  - It does not want to bring up OSPF adjacency until BFD session establishment is successful
- When OSPF neighbours on a link detect that they both want to operate with "strict mode" for BFD, they wait for BFD session establishment before bringing their adjacency to FULL state

- RFC 6213 specifies similar extensions for IS-IS

Reminder of how this is done?

- OSPF router indicates its desire to operate in "strict mode" for BFD to its neighbour using Link-Local Signalling block included in its Hello Messages
  - SET "B" Flag in LLS Extended Option & Flags Field
- Adjacency is brought up in a "strict mode" for BFD only when both routers on a link indicate this capability
- BFD session establishment is requested when a new neighbour is detected with B flag set in it's Hello
- Neighbour FSM is held in Init State until BFD session UP
  - i.e. do not include neighbour in your hello until BFD session is UP
- On BFD UP, the neighbour address is included in the hello and adjacency proceeds to 2-way/Exstart

Updates

- Title changed from "OSPF BFD Strict-Mode" to "OSPF Strict-Mode for BFD" based on feedback
  - the "strict" aspect is related to OSPF mechanism and not BFD
- Clarifications on GR considerations
  - GR timers need to allow for BFD session establishment as well when strict-mode is enabled
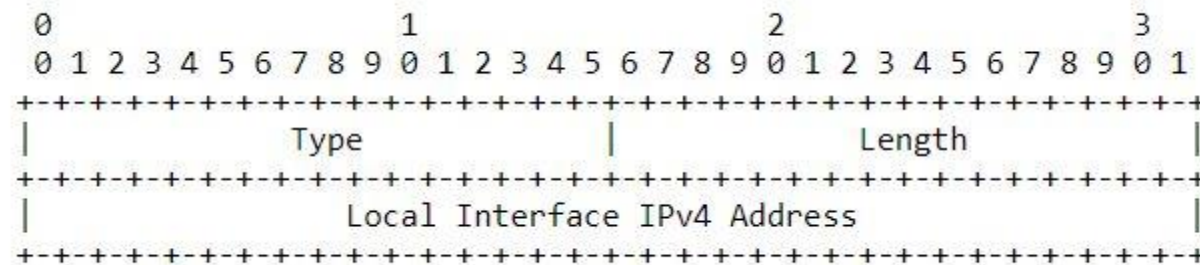- Describes operations for IPv4 AF instances for OSPFv3

OSPFv3 Multi-AF for IPv4 instances

- RFC5838 describes OSPFv3 adjacency establishment for IPv4 instances using IPv6 link-local addresses in the Hello messages

- Neighbor IPv4 address is learnt only later in the adjacency establishment process through link LSA

- BFD monitoring is desired for the IPv4 reachability and hence it is not possible to setup BFD session during Init FSM stage as proposed in this draft

- For "strict-mode" operations, router needs to learn neighbor IPv4 address on link

Exchange of IPv4 Local Address via LLS

- Draft proposes new Local Interface IPv4 Address TLV extension to LLS for use by OSPFv3 for hello messages for IPv4 AF instances

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|             Type              |             Length            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                  Local Interface IPv4 Address                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

- This enables router to learn neighbor's IPv4 address during Init FSM state and follow the strict-mode procedures defined in the draft

- When Local Interface IPv4 Address TLV is not signalled then Strict-Mode for BFD cannot function for OSPFv3 IPv4 AF instances
  - "B" bit is ignored in such cases – fall back to BFD session establishment after adjacency formation

Next Steps …

- Have received good feedback and interest from WG members on this work

- It would help to standardize OSPF operations in "strict-mode" for BFD

Request for WG adoption of this document