BFD for Geneve

draft-ietf-nvo3-bfd-geneve-01

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Main updates from -00 to -01

- Update the latest statuses of two most relevant referenced documents
  - **Geneve** is published as RFC 8926
  - **BFD for VXLAN** is published as RFC 8971
- Resolve open issues with **BFD over Ethernet over Geneve** encapsulation
  - If the VAP of the originating NVE has no IP address, then what IP address to be used for IPv4/IPv6
  - If the VAP of the terminating NVE has no IP address, then what IP address to be used for IPv4/IPv6
- Clarify the exchange of BFD discriminator if needed

Reference to "BFD for VXLAN"

- **BFD for VXLAN** is published as RFC 8971
  - **BFD for Geneve** document would reuse RFC 8971 as much as possible
  - There are two main differences between **BFD for Geneve** and RFC 8971
    - **BFD for Geneve** specifies non-management VNI solution, nevertheless RFC 8971 specifies management VNI solution. Plan to include management VNI solution by referencing to draft-ietf-nvo3-geneve-oam
    - **BFD for Geneve** uses **IP over Geneve** as well as **Ethernet over Geneve**, nevertheless RFC 8971 uses only **Ethernet over VXLAN** due to VXLAN characteristics

Open Issue 1 and Resolution

- If the VAP of the originating NVE has no IP address, then what IP address to use for IPv4/IPv6
  - In -00 version draft, the IP address of the originating NVE is used
  - In -01 version draft, the IP address 0.0.0.0 for IPv4 or ::/128 for IPv6 SHOULD be used
  - 0.0.0.0 for IPv4 or ::/128 for IPv6 is unspecified address. According to RFC 4291, "An IPv6 packet with a source address of unspecified must never be forwarded by an IPv6 router"

Open Issue 2 and Resolution

- If the VAP of the terminating NVE has no IP address, then what IP address to use for IPv4/IPv6

  - In -00 version draft, the IP address MUST be chosen from the ::ffff:127.0.0.0/104 range for IPv6

  - In -01 version draft, the IP address SHOULD be set to ::1/128 for IPv6

  - ::1/128 for IPv6 is loopback address. According to RFC 4291, "An IPv6 packet with a destination address of loopback must never be sent outside of a single node and must never be forwarded by an IPv6 router"

One Remaining Question

- Why using **BFD over Ethernet over Geneve**, instead of **CFM over Ethernet over Geneve**?
  - In some scenarios using one OAM protocol is beneficial
  - We, co-authors, assume the DC operators are unwilling to learn and operate two totally different OAM mechanisms, if they are going to deploy both IP service and Ethernet service in their DC networks
  - Last but not least, we're in favor of BFD much more than other OAM mechanism outside IETF

- Are the above reasons acceptable to the WG?

Exchange of BFD Discriminator

- Exchange of BFD discriminator (My Discriminator value) is deemed optional and outside the scope of this draft
  - the exchange of BFD discriminator may be achieved by **Echo Request/Reply**
  - the exchange of BFD discriminator may be achieved by **EVPN**
  - the exchange of BFD discriminator may be achieved by **OpenFlow**
  - ……

Next steps

- Revise this draft to resolve comments
- Ask for WG LC