draft-ketant-lsr-ospf-l2bundles-00

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Problem Statement

• OSPF runs over Layer 3 interfaces which comprises of a bundle of individual Layer 2 links – LAG (IEEE802.1AX) in many deployments

• In certain specific deployments, new use-cases have arisen which require information of these member links to be advertised as part of the OSPF topology

  • Controlling steering of flows over individual links based on their characteristics or for bandwidth management (e.g. using SR adj-SIDs associated with each member link)
  
  • Performing OAM validation for member links by steering probes over them individually

• Description of Layer 2 member links as part of a Layer 3 link object of the OSPF topology enables existing applications (e.g. PCE and other controllers) for supporting these use-cases
What does this draft propose?

• When enabled for this feature, an OSPF router includes information of layer 2 member links of Layer 3 bundle interface as part of it’s topology advertisements
  • Description of the layer 2 member link
  • Specific attributes of that layer 2 member link
• This applies to both OSPFv2 & OSPFv3
• The Layer 2 member links are not used for OSPF SPF computation and does not impact OSPF route computation procedures

• draft-ietf-isis-l2bundles specifies similar extensions for IS-IS
How is this done?

• Layer 3 links in OSPF are advertised along with their attributes via
  • OSPFv2 Extended Link TLV of the OSPFv2 Extended Link Opaque LSA (RFC7684)
  • Router Link TLV of the OSPFv3 E-Router LSA (RFC8362)

• This draft proposes a new L2 Bundle Member Attributes sub-TLV for the OSPFv2/v3 TLVs above
  • The new sub-TLV carries the descriptor (link local identifier e.g. ifIndex) of the Layer 2 member link
  • Sub-TLVs where existing Link Attribute sub-TLVs of OSPFv2/v3 can be used to advertse attributes of that Layer 2 member link

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Link Attributes of Layer 2 member links

• No new link attribute sub-sub-TLV is defined for Layer 2 member
  • Existing link attribute sub-TLVs defined for Layer 3 links are reused
• Draft specifies the link attributes which are applicable for Layer 2 member links e.g.
  • Adj-SID
  • Maximum Link Bandwidth
• And others that are not applicable e.g.
  • Remote Address
  • Local/Remote Identifiers
Next Steps ...

• Request review and feedback from WG