draft-ietf-lsr-flex-algo-00

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- LSR WG document
- Replaced:
  - draft-hegdeppsenak-isis-sr-flex-algo
  - draft-ppsenak-ospf-sr-flex-algo
- Early IANA allocations has been made:
  - FAD Sub-TLV:
    - Sub-TLVs for TLV 242 (IS-IS Router CAPABILITY TLV)
    - OSPF Router Information (RI) TLVs

Changes From Previous Version

- Includes extensions for ISIS, OSPF and OSPFv3

- Usage not restricted to SR
  - Allows Flex-Algo to be used by any application
  - Application specific handling needs to be defined for each application
  - This draft only defines the SR application handling

- Lots of editorial improvements
  - Terminology section has been added
  - Document has been restructured with several new sub-sections added
  - Improved readability

- Thanks to Eric Rosen and Tony P. for their excellent comments

FAD Sub-TLV

- FAD Sub-TLV
  - Algorithm -> Flex-Algorithm
    - value between 128 and 255 inclusive from "IGP Algorithm Types" registry
    - numeric identifier that represents the combination of {calculation-type, metric-type, set of constraints}
  - Alg. Type -> Calc-Type
    - value from 0 to 127 inclusive from the "IGP Algorithm Types" registry
    - only "calculation-type" defined for the specified IGP Algorithm is used

FAD Handling

- Handling of Flexible Algorithm Definition TLV:

If a node is configured to participate in a particular Flexible- Algorithm, but the selected Flex-Algorithm definition includes calculation-type, metric-type or constraint that is not supported by the node, it MUST stop participating in such Flexible-Algorithm. That implies that it MUST NOT announce participation for such Flexible-Algorithm and it MUST remove any forwarding state associated with it.

Flex-Algo Node Participation

- Advertisement of node participation in any particular Flex-Algorithm MUST be done on a per application basis
  - Application specific forwarding MUST be supported if the node participates
- Advertisement of node participation for Segment Routing
  - Topology independent – defined in SR IGP extensions
  - Participation in an SR-Algorithm applies to all topologies in which the advertising node participates
- Advertisement of node participation for other applications
  - MAY be topology specific or MAY be topology independent depending on the application itself
  - Application specific advertisement for Flex-Algo participation MUST be defined for each application (outside of this draft)

Flex-Algo Calculation

- Calculation of the paths for any particular Flex-Algorithm MUST be application specific
  - It MUST take the application specific node participation into consideration
- Handling of nodes that do not participate in Flexible-Algorithm is application specific
  - MPLS Segment Routing : only considers participating nodes
  - Other applications: MUST define their behavior (outside of this draft)

Flex-Algo Forwarding

- Application specific forwarding plane

- Segment Routing MPLS forwarding for Flex-Algo
  - Flex-Algo Specific Prefix-SIDs MUST be used
  - If Flex-Algo specific Prefix-SID is not available forwarding entry MUST not be present
  - Traffic that is supposed to be routed via Flex-Algo path MUST be dropped if no Flex-algo path is available

- Other Applications' Forwarding for Flex-Algo
  - Application specific forwarding for Flex-Algo MUST be defined
  - Outside of this draft

Next Steps ...

- Feedback from the WG
- Continue to evolve the draft
- Implementations - some are available