

To PSD or not to PSD? That is the Question

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ISD

- The case for ISD is made.
- However:
 - ISD may consume stack space in quantities that stress some implementations.
 - Parameters carried in ISD are of necessity limited in size.
 - ISD may interact with ECMP.
 - ISD that changes from packet to packet may change ECMP selected path
 - ISD that changes along the path could be confusing and difficult to manage and would potentially change the ECMP selected path in an “unpredictable” way.

ISD EL

- There has been discussion on this topic at MPLS MNA DT and Interims
- One proposal is to mandate ELI/EL on any path that MAY carry an ISD parameter that would result in inconsistent ECMP, however
 - Extra 2 LSEs per packet
 - Not all routers support it.

PSD

- PSD use cases are not yet well specified, although a number have been put forward.
- PSD solutions are not yet well developed, and the need is not universally accepted by the WG.
- PSD would be difficult for some forwarders to access particularly if the label stack was large (e.g. SR and significant ISD).
- PSD interacts with other post stack information needed by the application parameters such as Control Words. Methods of carrying PSD and non-IP payloads need to be defined.
- PSD may have a greater capacity to carry AD and has no ECMP issues (assuming the IP alias issue is avoided – 1st Nibble)

Possible PSD Use Cases Not Be Precluded

- Time of flight
 - Precision time transfer – (more integrated than RFC8196)
 - Enhanced QoS solutions
 - Kill late packets
 - Priorities packets for JIT delivery
 - An embedded solution vs the DETNET overlay solution
- OAM
 - We have OAM solutions not using PSD. Will some OAM applications require embedded information?
- Security
- Fragmentation

ISD/PSD Compatibility - To Be Discussed

- The MNA design needs to include a simple elegant method that indicates the presence of PSD.
 - An example of such a method might be an ISD flag carried in a minimal MNA header or an ISD Op-code to indicated the presence of PSD.
- Development of PSD solutions needs to be able to proceed in parallel with development of ISD solutions.

PSD Discussion So Far

- To date the issues have been discussed:
 - On the list by a subset of the community.
 - In MNA interim meetings
- To come to a satisfactory conclusion for the community, we need to hear from others.
- Please review the material to date and present your views on the list or in the interim meetings.

Please Discuss