Synonymous Flow Labels

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The Drafts

- draft-ietf-mpls-flow-ident
- draft-bryant-mpls-sfl-framework
- draft-bryant-mpls-rfc6374-sfl
- draft-bryant-mpls-sfl-control
- draft-bryant-mpls-rfc6374-over-udp
The Purpose Today

- To restart this project after a slight pause.
- To ask the WG a number of questions about a number of design decisions that we need to make.
A synonymous flow label (SFL) is a label that causes the Egress LSR to perform a previously agreed action in addition to processing and delivering the packet in exactly the same way as the label that it is synonymous with (except if the action says otherwise).

The action may be increment a counter, log a packet, or anything else that is agreed between the MPLS peers.

The additional action that RF6374 needs is the incrementing of a flow specific counter, something that many LSRs can already do!
Revision: Other Possible Synonymous Actions

- Record this packet
- Get IPFIX to look at this packet
- DPI this packet
- Send this packet for DOS washing
- ......
Revision: Synonymous with Application Label

"Normal" Label Stack

Label Stack with SFL

| LSP Label |
| Application Label |
| Payload |

<May be PHPed>

| LSP Label |
| Synonymous Flow Label |
| Payload |
• This is the requirements draft.
• When this was written we really had RFC6374 loss and delay in mind.
• After it was written we thought of other things we might do with SLs. Possibly others have thought of further applications since then?
• When this was written we were thinking of garden variety LSPs. What about:
  – Segment Routed LSPs?
  – LSPs under repair via FRR, or fast repair?
  – Do we need to consider them, or can we mark them FFS?
• Do we need to add other applications, and/or other requirements?
• If we have nothing to add, this is pretty much complete.
Our judgement on the completeness of this draft needs to be based on our discussion of the requirements draft.

Do we add SR, and/or FRR, and/or Prot Sw?

If not this is pretty much complete, other than adding some text about control plane, and management.
Initial draft describing how we run RFC6374 in conjunction with SFLs.

Needs two major additions

- Delay
- More thought on multiplexing the RFC6374 message

Assumption is that we would mux using GAL, but we could use another SL or perhaps send it over UDP, or send it some other way.

Is everyone happy with using GAL, or do we need to look at another method?
Control Protocol

• We need a method of exchanging SLs.
• What type of control protocol do we need?
  – Extension to the existing control planes (LDP + RSVP + SDN + Operator Config etc)?
  – A purpose designed control plane that complements the existing control protocols?
  – (Many) Application extensions (let them manage their own labels)
A Purpose Designed CP

• Has the advantage that we design it once and it applies to all MPLS applications.
• Means that we do not need to touch the existing CPs (assuming we can make it work in all cases!)
• Has the advantage and possible disadvantage that the existing CPs don’t know SL is happening.
• Has the disadvantage that operators will need to understand, configure and manage a new protocol.
draft-bryant-mpls-sfl-control-00

- A request/response/refresh/die-of-old-age protocol that runs over an ACH.
- Very much from the MPLS-TP stable rather than the LDP/RSVP/BGP stable.
- In the style that you would expect of an OAM control protocol.
- Should we continue to develop this, or should we use a different approach, or should we adapt the exist control protocols?
This was just a thought piece considering the case where we could not use GAL as the mux.

Is this a scenario that we need to consider, or can we regard GAL support as an invariant?

We sketched out UDP, do we need to consider any other approach for example using SLs as the mux (one for the data and a further one for the application/OAM)
  – i.e. normal == data == application (e.g. RFC6374)