PW VCCV – INBAND CC USING OFFSET

SRIGANESH KINI, DAVID SINICROPE
IETF 79 (BEIJING), NOV 2010
PROBLEM STATEMENT

› Multi-path is essential for load-balancing and redundancy but requires *flow-label* which may not be available
  – Additionally, in-band OAM using CC Type-1 requires *CW* which may not be available

› TTL Expiry VCCV (without CW) is not inband even though it is a MUST (especially for MS-PW)

› Need a CC that is inband for any “flow” of the PW that needs OAM – Must not depend on “flow-label & CW”
CONSIDERATIONS

› Looking beyond label stack to do multipath is widely deployed

› IP header can be used to do multi-path by not using CW. This helps to utilize the true end-to-end flow info that is already present.
SOLUTION

› Extend an existing CC type rather than define a new one

› CC Type3 is extended since it is required for MS-PW anyways

› Start the VCCV CC at a fixed offset from the PW label

› The bytes between the PW label and the CC are set according to the flow for which OAM is required
  – These bytes are referred to as *pseudo flow header*
SOLUTION (CONT'D)

› The **pseudo flow header** is a fixed size entity that typically consists of the packet header of the flow for which OAM is desired.

› A fixed size of 64 is chosen since in almost all applications that is enough to accommodate the header of any protocol. It is also easy to implement in hardware/firmware.

› Intermediate nodes forward the CC packet as if it is a real packet by looking at the label stack and beyond that into the **(pseudo) flow header** for forwarding decisions.
PACKET FORMAT

<table>
<thead>
<tr>
<th>LSP Label</th>
<th>PW Label (TTL=1)</th>
<th>Pseudo flow header</th>
<th>OAM message</th>
</tr>
</thead>
</table>

64 bytes
PACKET FORMAT FOR PPW-EIM

› Say OAM for the flow src-addr=192.168.1.1, dst-addr=192.168.1.2, protocol-type=TCP, source-port=80, dst-port = 20000

- LSP Label
- PW Label (TTL=1)
- IPv4/TCP header
- OAM message
e.g. PW-ping
The END

COMMENTS?