PW VCCV – Inband CC using offset

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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.

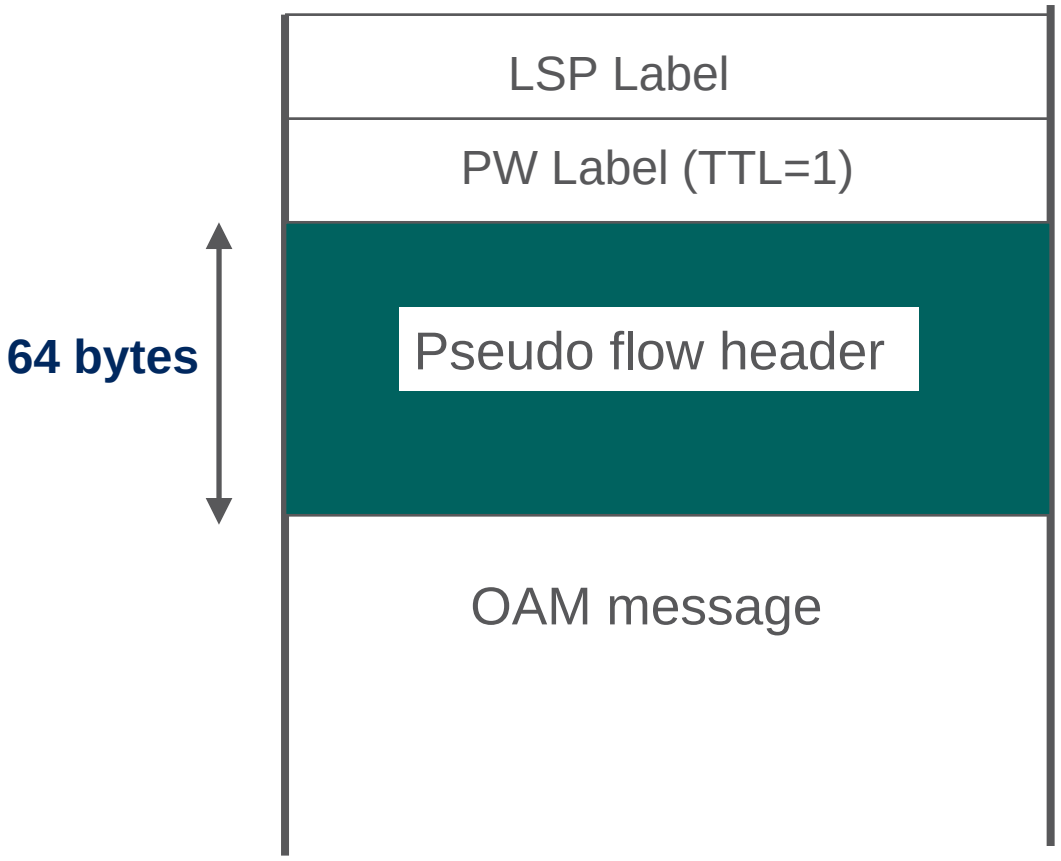
Solution

- 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 (contd)

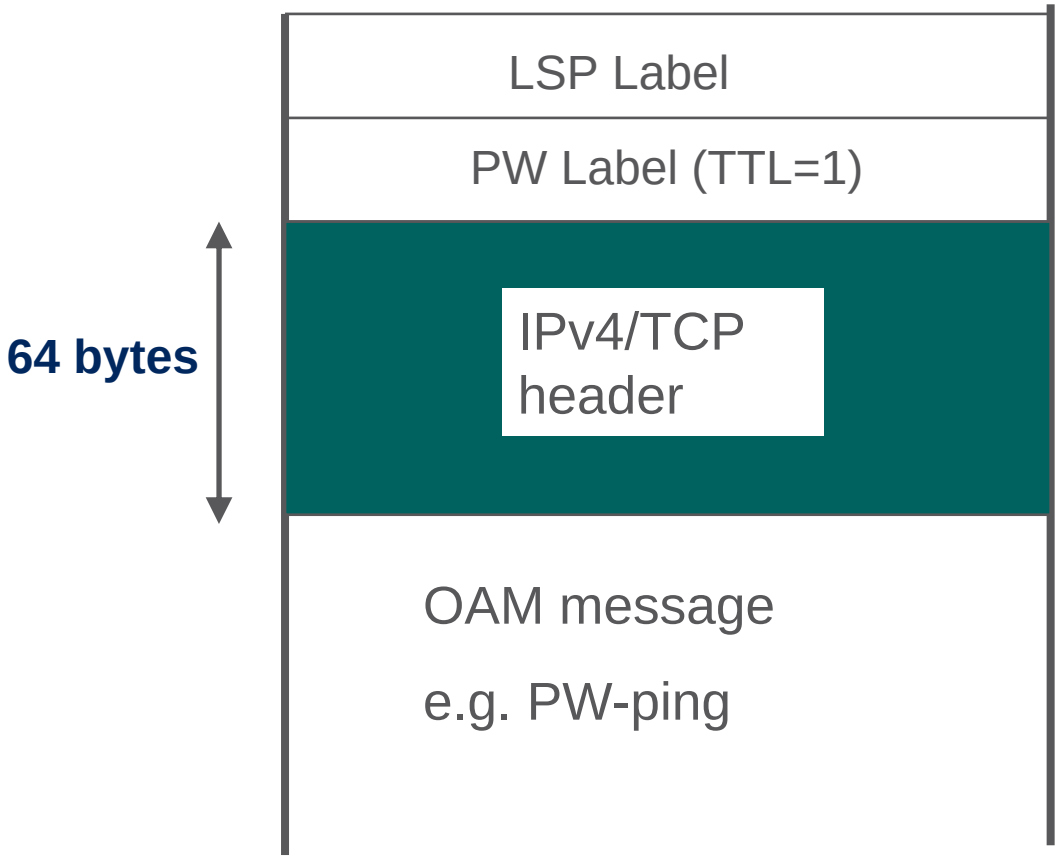
- The **pseudo flow header** is a fixed size entity that typically consists of the packet header of the flow for which OAM is desired.
- A fixed size of 64 is chosen since in almost all applications that is enough to accommodate the header of any protocol. It is also easy to implement in hardware/firmware.
- 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



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



› The END

› COMMENTS ?