Background / Motivation

Background
• Multicast traffic monitoring is important
  • Reconstruct and visualize the multicast tree
  • Performance monitoring and trouble shooting
• Conventional OAM techniques are insufficient
• On-path telemetry techniques (IOAM, PBT, HTS) in IPPM WG.

Problem
• Currently on-path telemetry techniques have flaws for multicast.
  • IOAM: Every packet carries the entire data trace → data redundancy
  • PBT: No branch identifier → can’t correlate the postcards

Objective
• Modifications are proposed to allow the original multicast tree to be correctly reconstructed without unnecessary replication of telemetry information
Summary

• Two solutions
  • Per-hop Postcard – an enhancement to the original PBT scheme
  • Per-section Postcard – an enhancement to the original IOAM scheme

• Per-hop Postcard
  • A branch node is either the root or any node that replicates packets
  • Each branch node adds a branch identifier to the instruction header
    • For global uniqueness, can use the tuple \{node ID, index\}
Example

- Per-section Postcard
  - A section is the path between two adjacent branch node or between a branch node and its adjacent leaf node.
  - A postcard is send at each section’s end node
    - The postcard contains the data for the entire section
    - Postcards for one packet can be easily stitched together.
  - No need to modify IOAM header format, just need to refresh the header at each section head.

```
\[
P: \{A, B\} \\
\vdots \\
\vdots \\
\vdots \\
\vdots \\
P: \{B, C, D\} \\
\vdots \\
\vdots \\
\vdots \\
\vdots \\
\vdots
\]
```
Next Steps

• Perhaps add more of an OAM overview section at the start.

• Develop the sections.