

# draft-akiya-mpls-lsp-ping-lag-multipath

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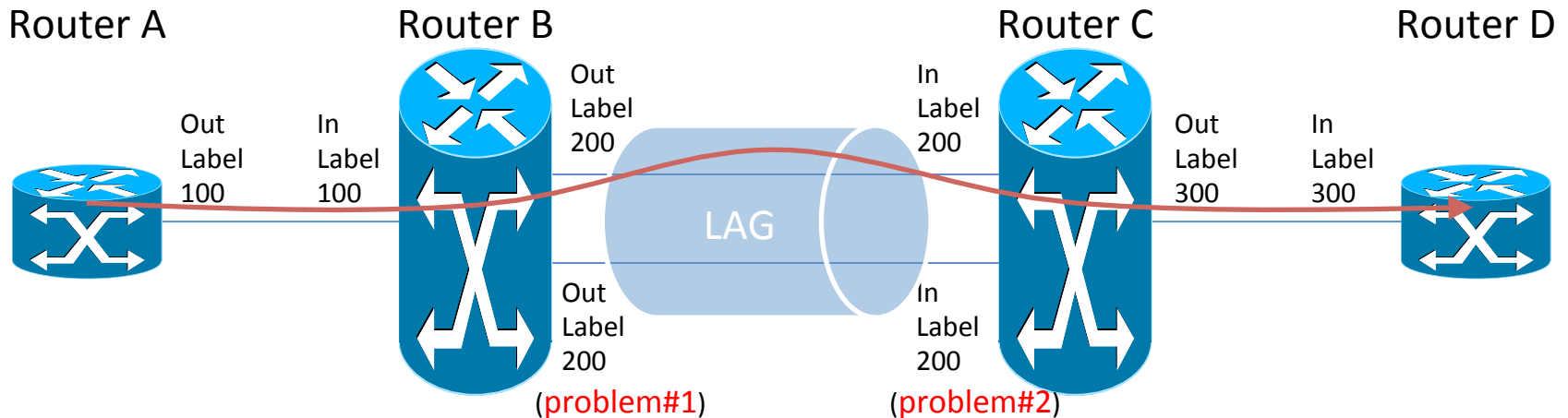
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# What is this document about ...

- Topic of this document:
  - How do we ensure that we are empowered to validate LSPs when the LSPs are traversing LAGs
- Why?
  - There are LAG specific OAM tools:
    - LACP, BFD on LAG, etc.
  - But, validating L2/L3 workings on LAG members is not sufficient to say LSPs over the LAG is working.
  - Unfortunately, no OAM tools are capable of deterministically exercising LSPs over every LAG member.

# For example ...

- Take an LSP from Router A to Router D

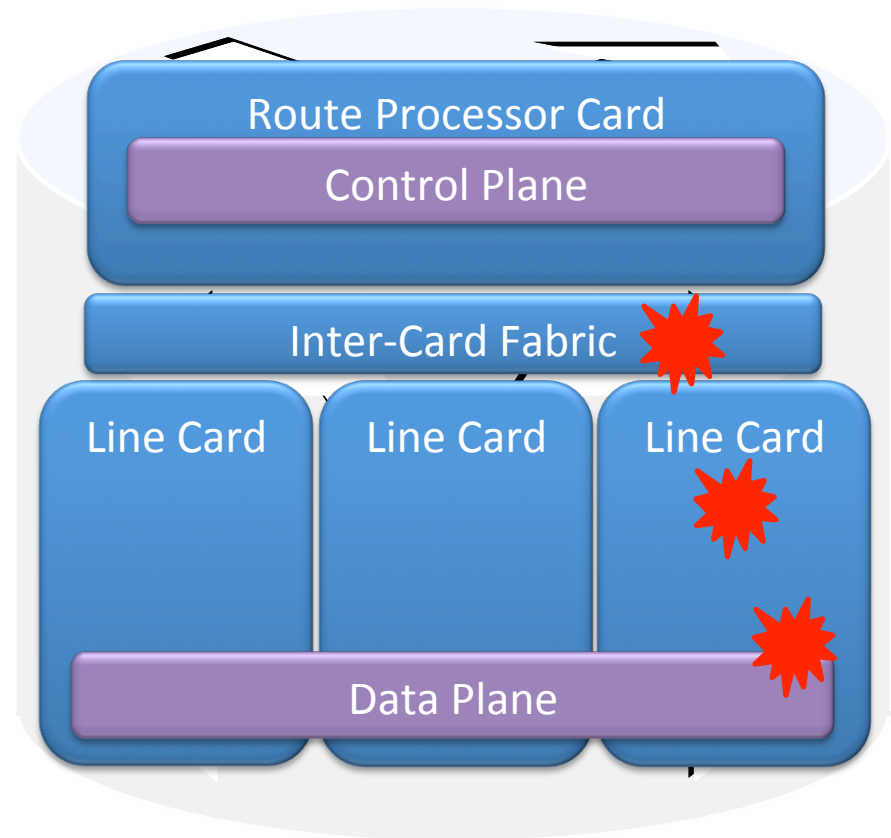


- LSP Ping/Trace is taking **dark red path** and is successful.
- **Problem#1**: Router B has incorrect out label ( $\neq 200$ ) in the forwarding table that bottom LAG member is associated with.
- **Problem#2**: Router C has incorrect in label ( $\neq 200$ ) in the forwarding table that bottom LAG member is associated with.
- Traffic on this LSP over bottom LAG member can black hole



# How can such issue happen ...

- Many “things” exist between the control plane and data plane on a system.
- Inconsistencies between the control plane and data plane often causes traffic black hole.
- Depending on the nature of the fault that caused the inconsistency, it is possible for the result (problem) to appear on subset of the forwarding tables.



# This document ...

- Introduces a mechanism for LSP trace to:
  - Discover multipath info per LAG member
  - Validate traversal over each LAG member
- Extends RFC4379:
  - LAG Interface Info TLV: used by initiator to request this mechanism, used by responder to describe its capabilities
  - DDMAP TLV extension: used by responder to describe multipath info and interface index per LAG member
  - Detailed Interface and Label Stack TLV: used by responder to describe interface index of incoming LAG member

# Next steps ...

- Requesting comments from the WG.

Thank you!

Questions/Comments?