# Ingress Protection
## What Problem Are We Trying to Solve?

Adrian Farrel

adrian@olddog.co.uk

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# History

- Ingress protection has been discussed since at least 2010
  - draft-chen-mpls-p2mp-ingress-protection
  - draft-torvi-mpls-rsvp-ingress-protection
  - draft-ietf-mpls-rsvp-ingress-protection
  - draft-ietf-teas-rsvp-ingress-protection
- We still have very inconclusive debate about the solutions
  - 90 minute interim meeting Jan 28th, 2016
    - https://www.ietf.org/proceedings/interim/2016/01/28/teas/minutes/minutes-interim-2016-teas-1
- Several different solutions offered
- Lack of clarity in objectives leads to inability to select one solution

# Objectives Today

- Highlight the scope of the problem to be solved
- Reach some agreement about what is in scope and what is out of scope
- Non-objectives
  - Make progress discussing solutions
    (That is for the proponents of solutions to do)
- Beware!
  - Some solutions may be better or worse in some scenarios
    - Do not pick the problem scope to suit the solution!

# High-Level View – Please Discuss!

LSP

Traffic

Traffic

- A "local" failure
  - LSP ingress fails
  - First hop failure is out of scope
    - Can be handled by existing mechanisms  (such as FRR)
- Objectives
  - Continue to deliver traffic
  - Minimise repair time
  - Re-use network resources
  - Minimise steady-state network state

# Traffic Diverted to Another Ingress
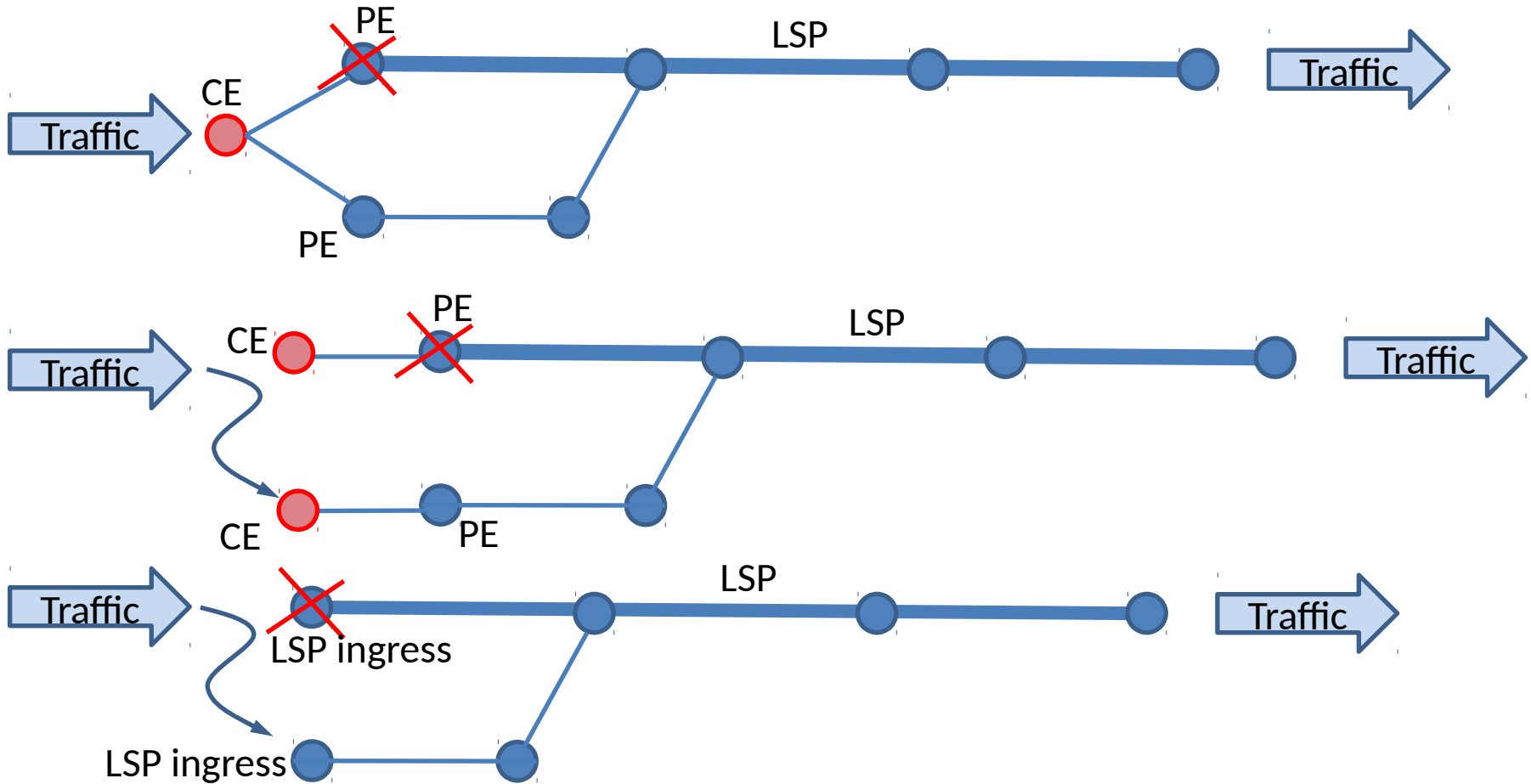


- Dual-homed CE is definitely in scope
  - Allows CE-PE link failure to be in scope as well
- Are we considering other cases?
- No comment yet on "inside" the network

# What Happens Inside the Network?

- This is the debate about solutions
  - Lots of options
    - Bypass tunnel
    - MP2P segment
    - Segment protection
    - End-to-end protection
    - Etc., etc., etc.
  - Not my objective to resolve this discussion
- But…
  - It will be helpful if we clarify the objectives…

# Objectives Inside the Network

- Don't contend for resources with the protected LSP
- Rapid repair
- Scale state in the network
- <your requirement here>

# Did Anyone Mention Fault Detection?

- Upstream point needs to know how to route traffic
- May need to know when to set up repair path
- Implies some form of fault detection and propagation
  - Considerably dependent on the scenario
  - Might not depend on the solution technology