MPLS-TP P2MP shared Protection

draft-liu-mpls-tp-p2mp-shared-protection-01

Guoman Liu (liu.guoman@zte.com.cn))
Yuefeng Ji(jyf@bupt.edu.cn)
Jian Yang(yang.jian@zte.com.cn)
Jinghai Yu(yu.jinghai@zte.com.cn)
Zongpeng Du(duzongpeng@gmail.com)

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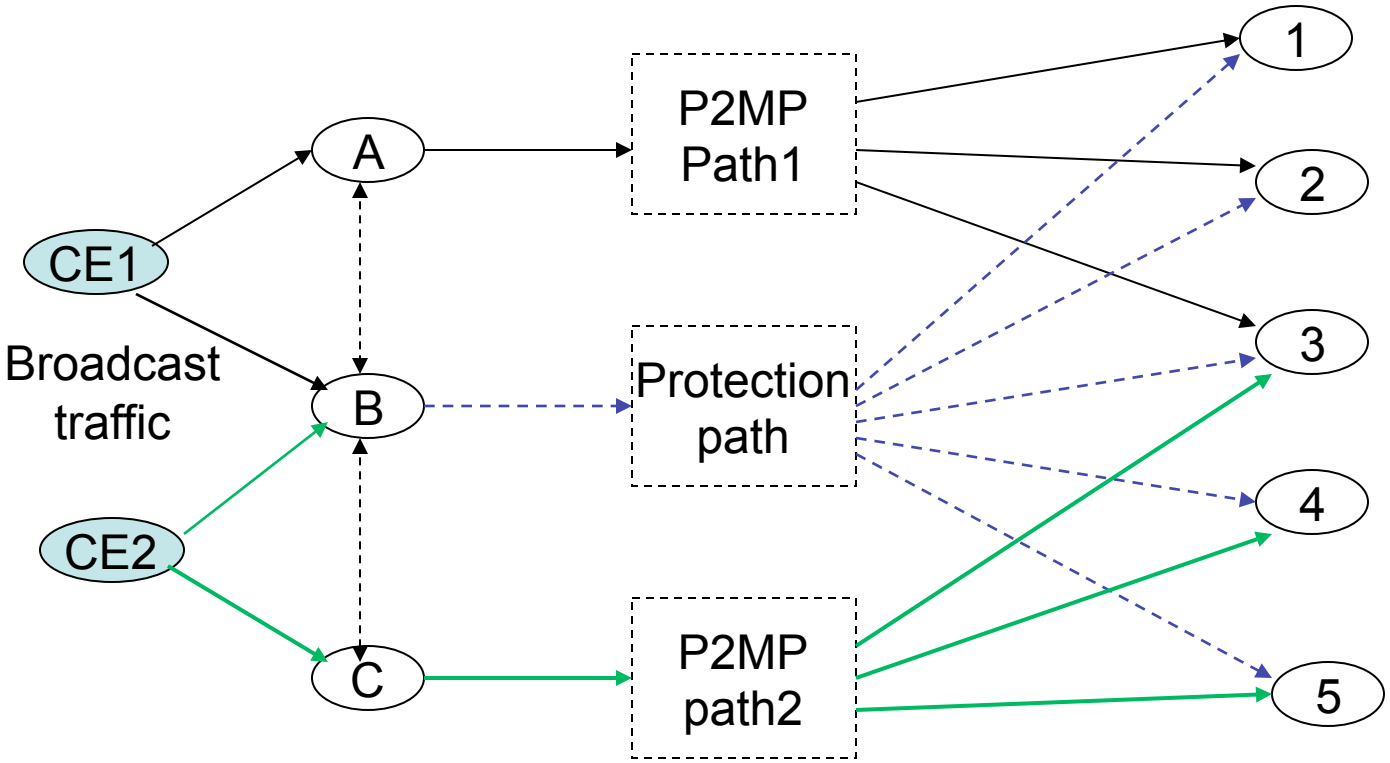
Motivation

- Requirements from RFC5654
  - Req.67B : MPLS-TP MUST support unidirectional 1:N protection for P2MP
  - Req.69: MPLS-TP MUST support sharing of protection resources

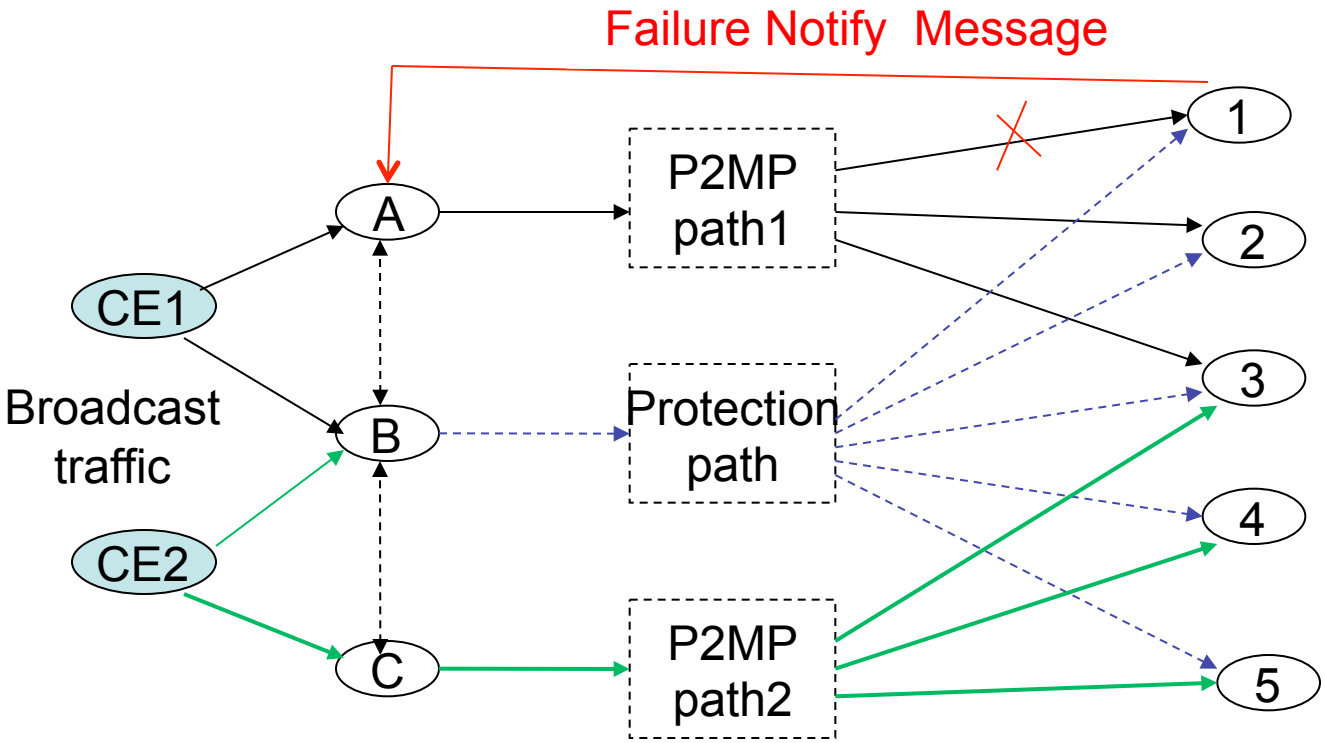
- Purpose of this draft
  - This draft provides two shared protection solutions to fulfill the two requirements. But the protection of ingress and egress node failure is not in the scope of the document.

Solution 1



- Two working p2mp path
  - path 1: Root=A, Leaf=1,2,3
  - path 2: Root=C, Leaf=3,4,5
- One protecting p2mp path
  - protecting path: Root=B, Leaf=1,2,3,4,5

Failure notification



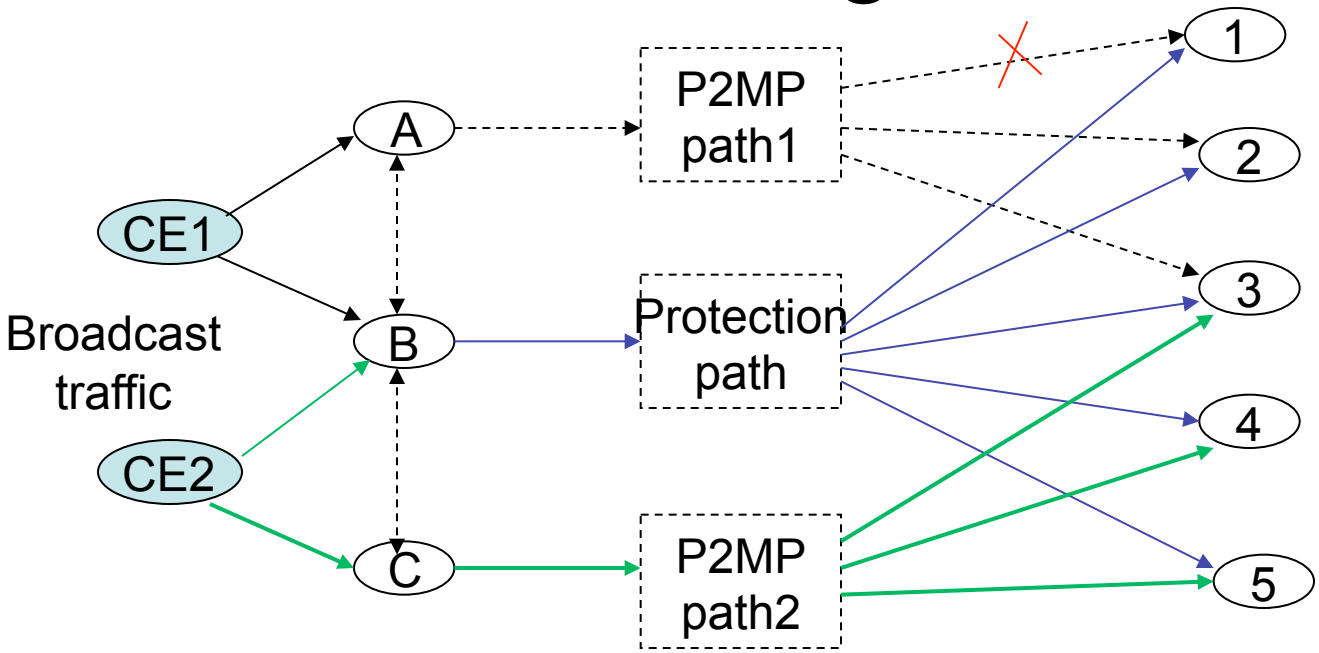
1 Leaf node 1 will detect a defect on the branch path(A-1)and send Failure Notify message to Root node A .

2 Node A will send switch requirement message to node B by control channel.

3 B will select one defective working path to be protected based on the priority;

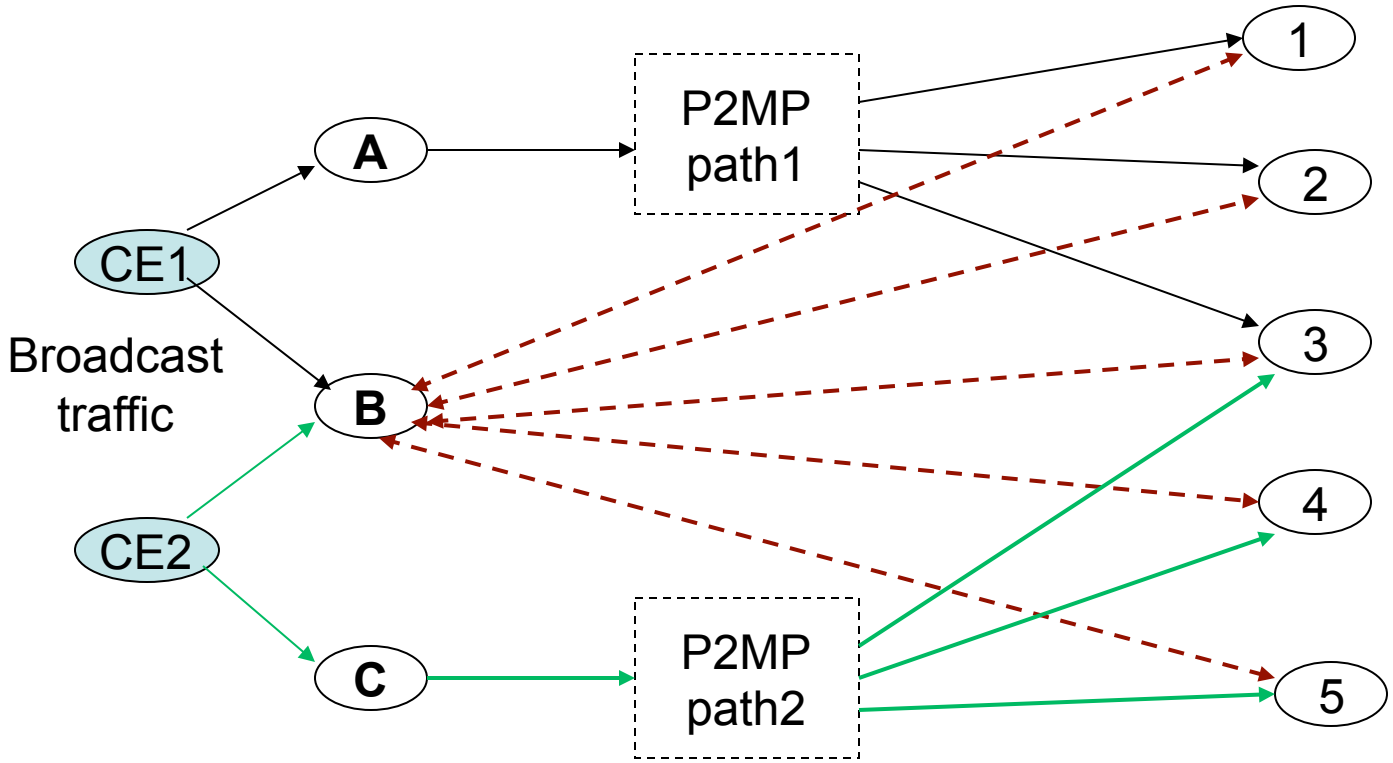
4 node B will send replying message to root nodes of all defective working path ,so that they can know which working path will be protected.

Protect Switching



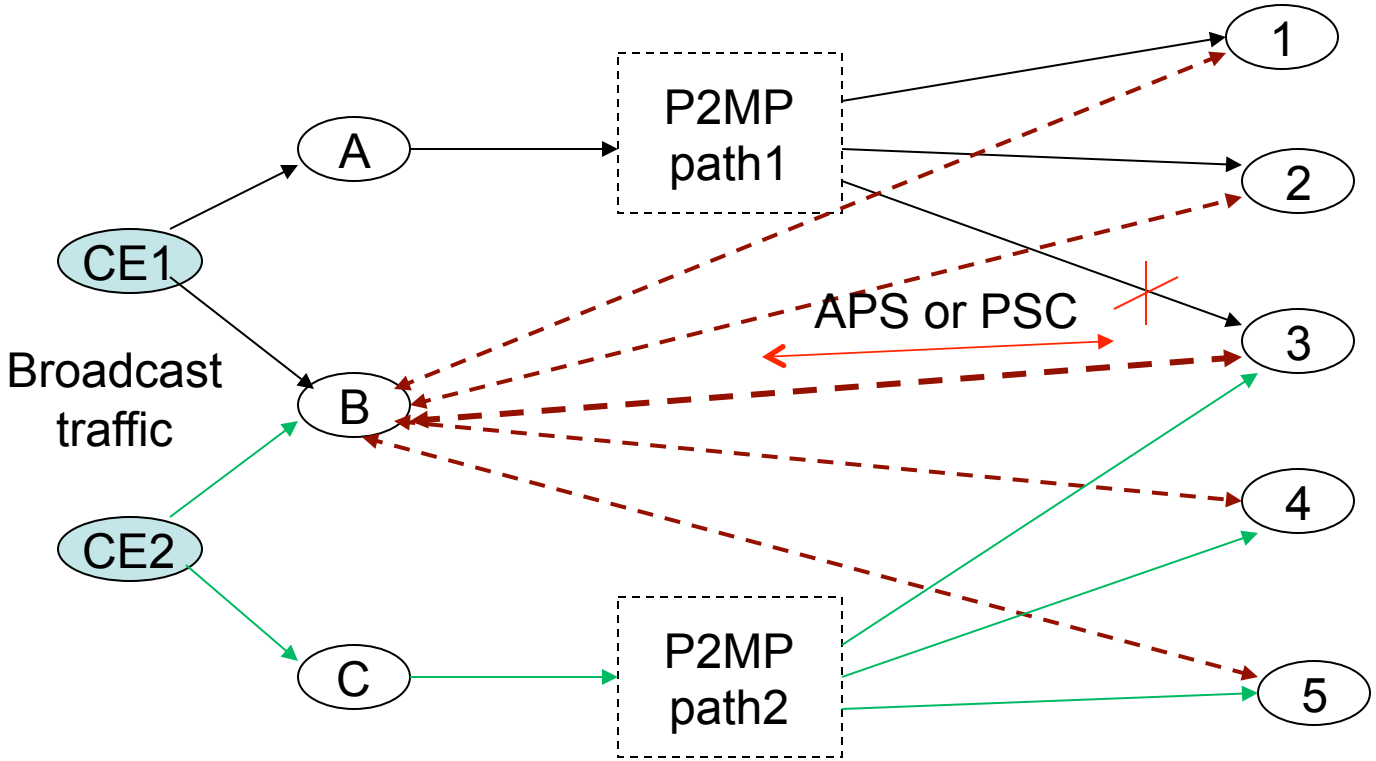
- 1 Node B sends extensive APS or PSC message to all leaf nodes of the protecting p2mp path, it indicates which service will be transported by the protecting path.
- 2 As the working path 1 is selected to be protected, node B begins to send service packet of working path 1 by the protecting p2mp path. leaf node 1,2,3 will receive and process these packets , but Leaf node 4 and 5 will drop the packets received from the protecting p2mp path

Solution 2



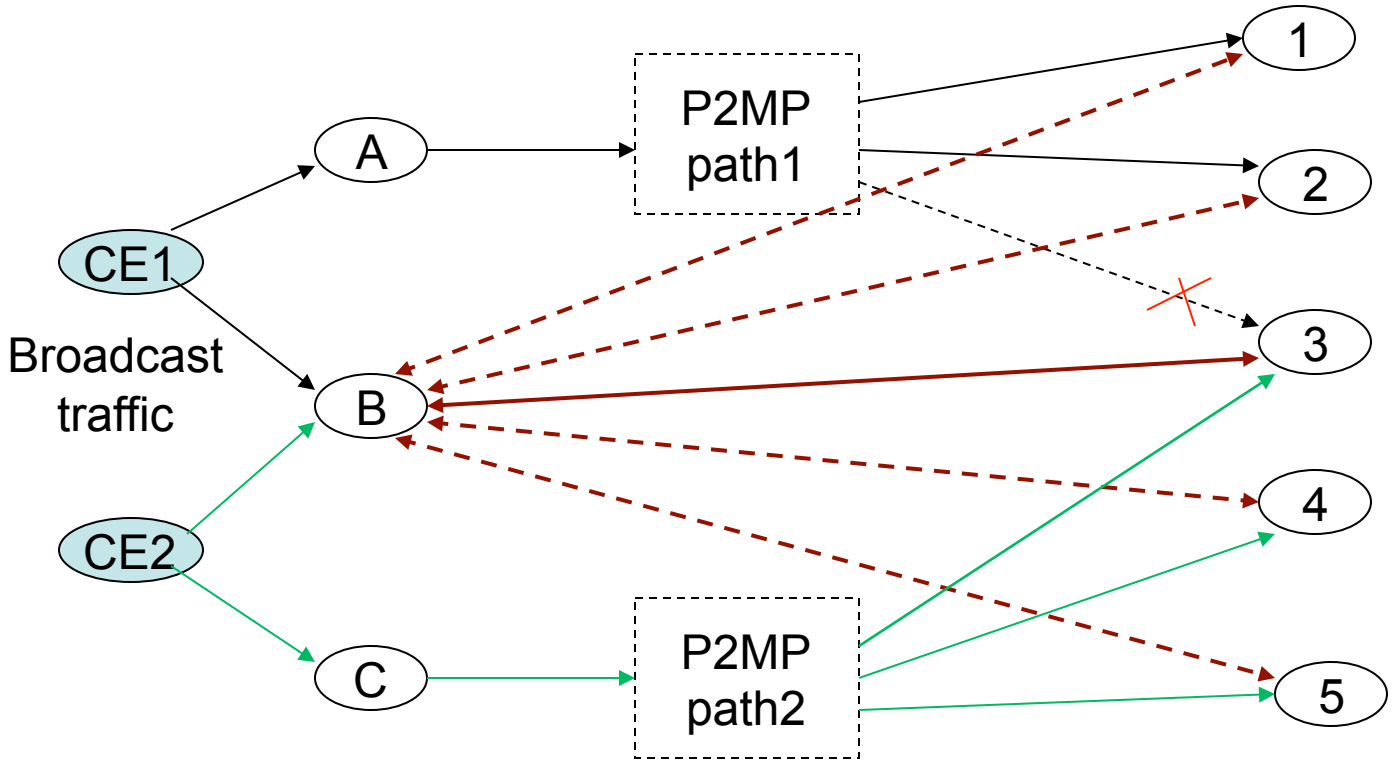
- Two working p2mp path
  - path 1: Root=A, leaf=1,2,3;
  - path 2: Root=C, Leaf=3,4,5 ;
- Five protecting P2P Tunnels: B-1, B-2, B-3, B-4, B-5

Failure Notification



when leaf node 3 detects a defect on the branch path(A-3) .Leaf Node 3 would select one path to be protected based on the priority, then switch to the protecting path to receive the service packet and send extensive APS or PSC message including the selected defective working path ID to source protection node B by p2p tunnel;

Protect Switching



when Node B received the extensive APS or PSC Message,it will send the service packet of selected protected working path by p2p protecting Tunnel(B-3) . For other leaf node 1 and 2 still receive service packet from working path 1

Next step

Update this document according to comments of this meeting and Mailing list.

Comments and questions?

Thank you!