

Applicability of PCE for Computing Protection Paths

draft-chen-pce-protection-applicability

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Introduction

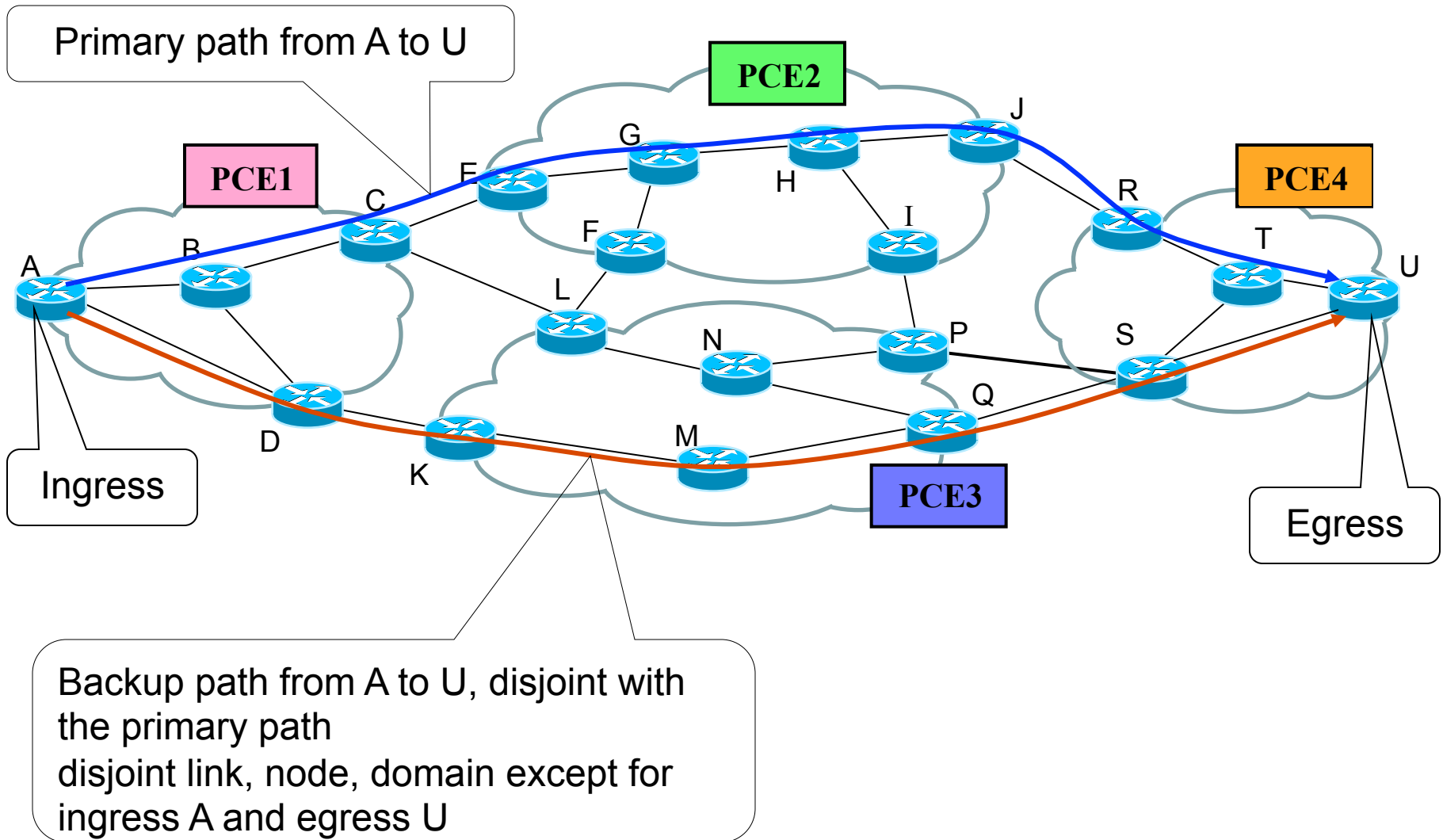
- Discussions initiated by Daniel King on List.
- Applications such as Cloud drive increasingly more traffic across longer ranges over LSP crossing domains
- It is very important to provide protections for the traffic against failures
- PCE is used for computing paths for LSP crossing domains
- PCE COULD also be used for computing protection paths for LSP crossing domains

Many Application Scenarios

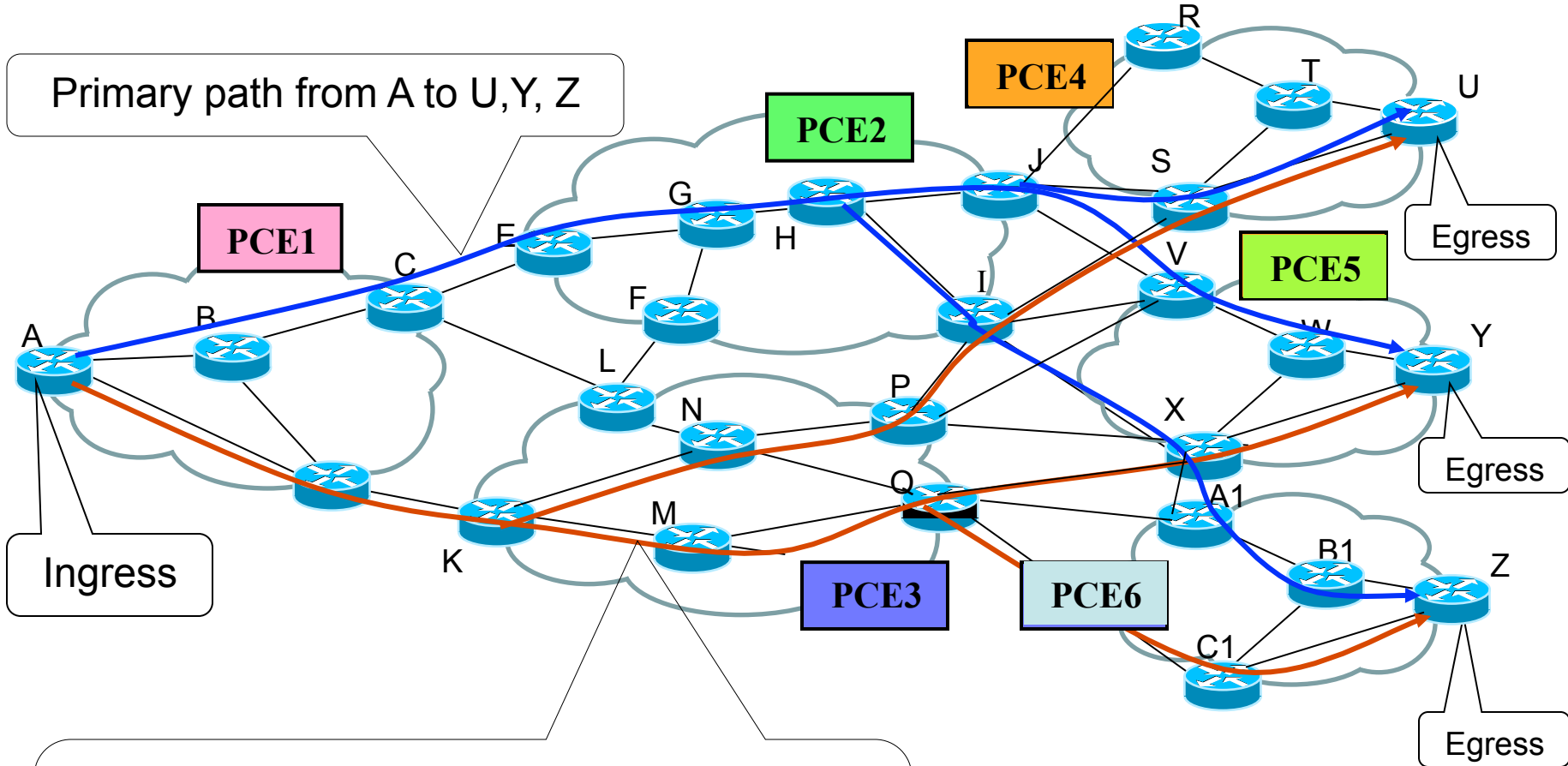
- End to end disjoint path
 - P2P disjoint path from an ingress to an egress
 - P2MP disjoint path from an ingress to a number of egresses
- Multi-homing end to end disjoint path
 - P2P disjoint path from a backup ingress to a backup egress
 - P2MP disjoint path from a backup ingress to a number of backup egresses
- One to one Local Protection Path
 - P2P
 - ◆ Path for link protection
 - ◆ Path for intermediate node protection
 - ◆ Path for ingress and egress protection
 - P2MP
- Facility Local Protection Path
 - P2P
 - ◆ Path for protecting a set of LSPs over a link
 - ◆ Path for protecting a set of LSPs through an intermediate node
 - ◆ Path for protecting a set of LSPs via ingress and egress
 - P2MP

PCE for Computing E2E Disjoint Path

- P2P disjoint path from an ingress to an egress



➤ P2MP disjoint path from an ingress to multiple egresses



Primary path from A to U, Y, Z

Ingress

Egress

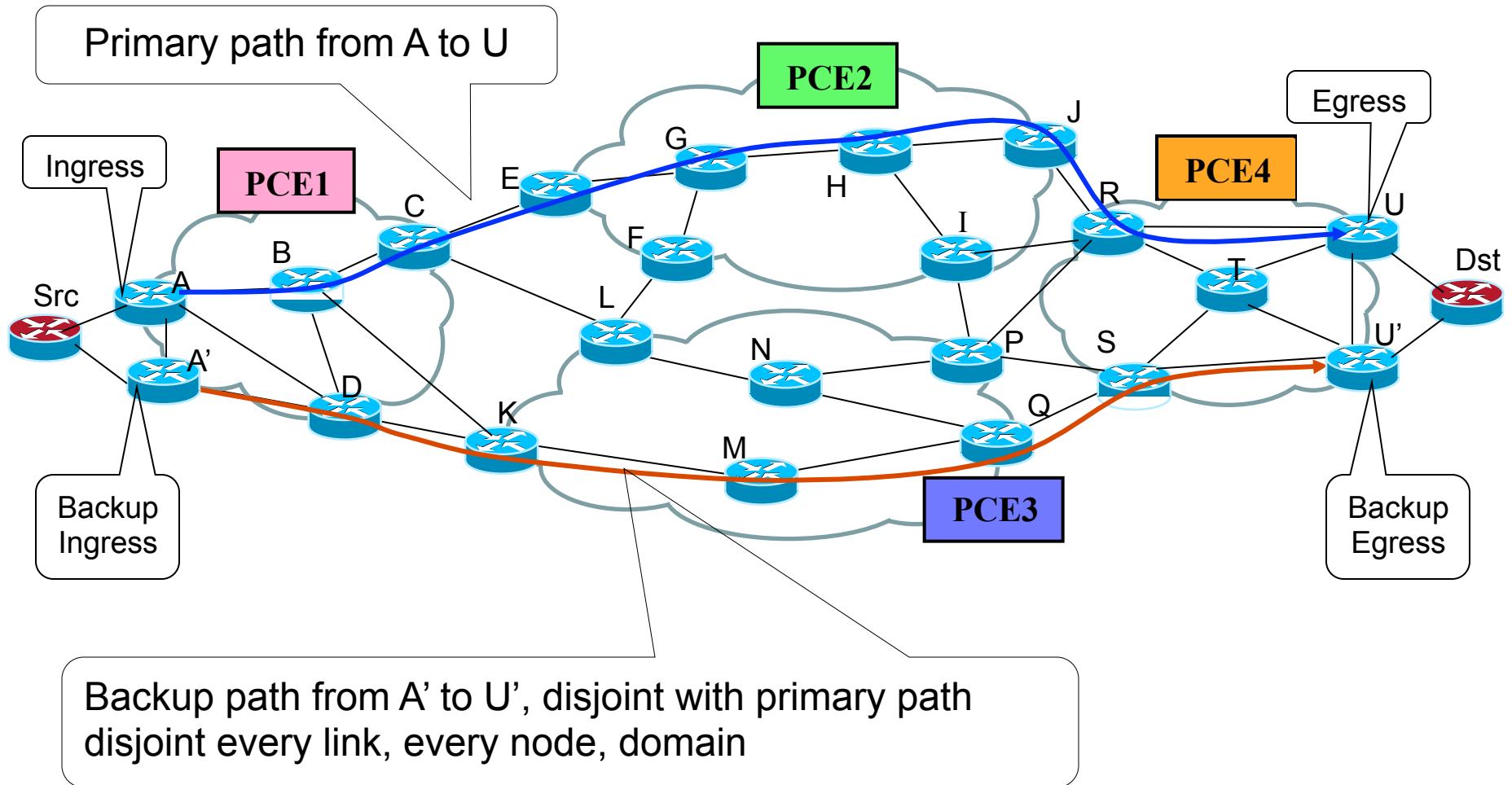
Egress

Egress

Backup path from A to U, Y and Z, disjoint with the primary path
Possible disjoint link, node, domain except for ingress A and egresses U, Y and Z

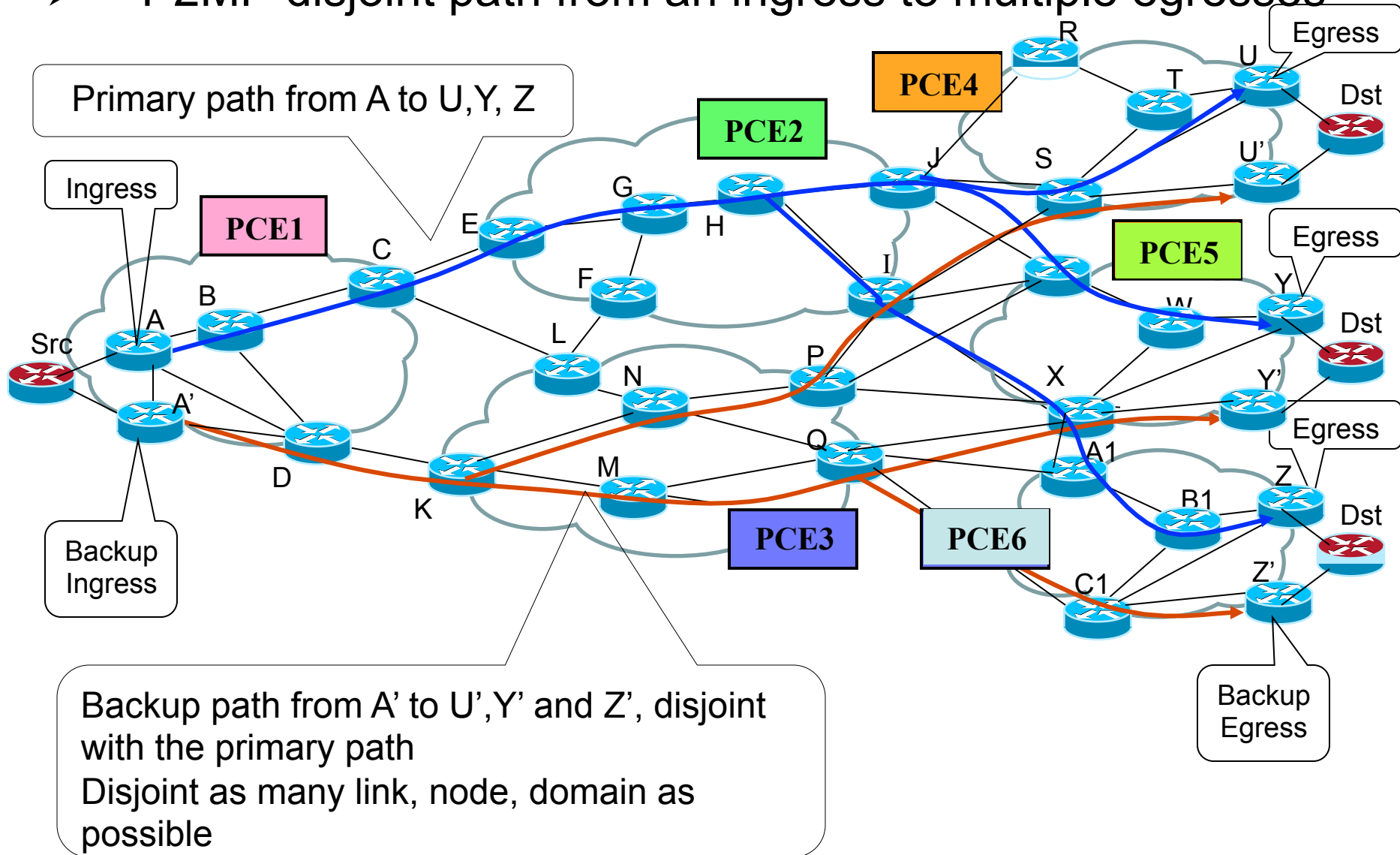
PCE for Multi-homing E2E Disjoint Path

- P2P disjoint path from a backup ingress to a backup egress



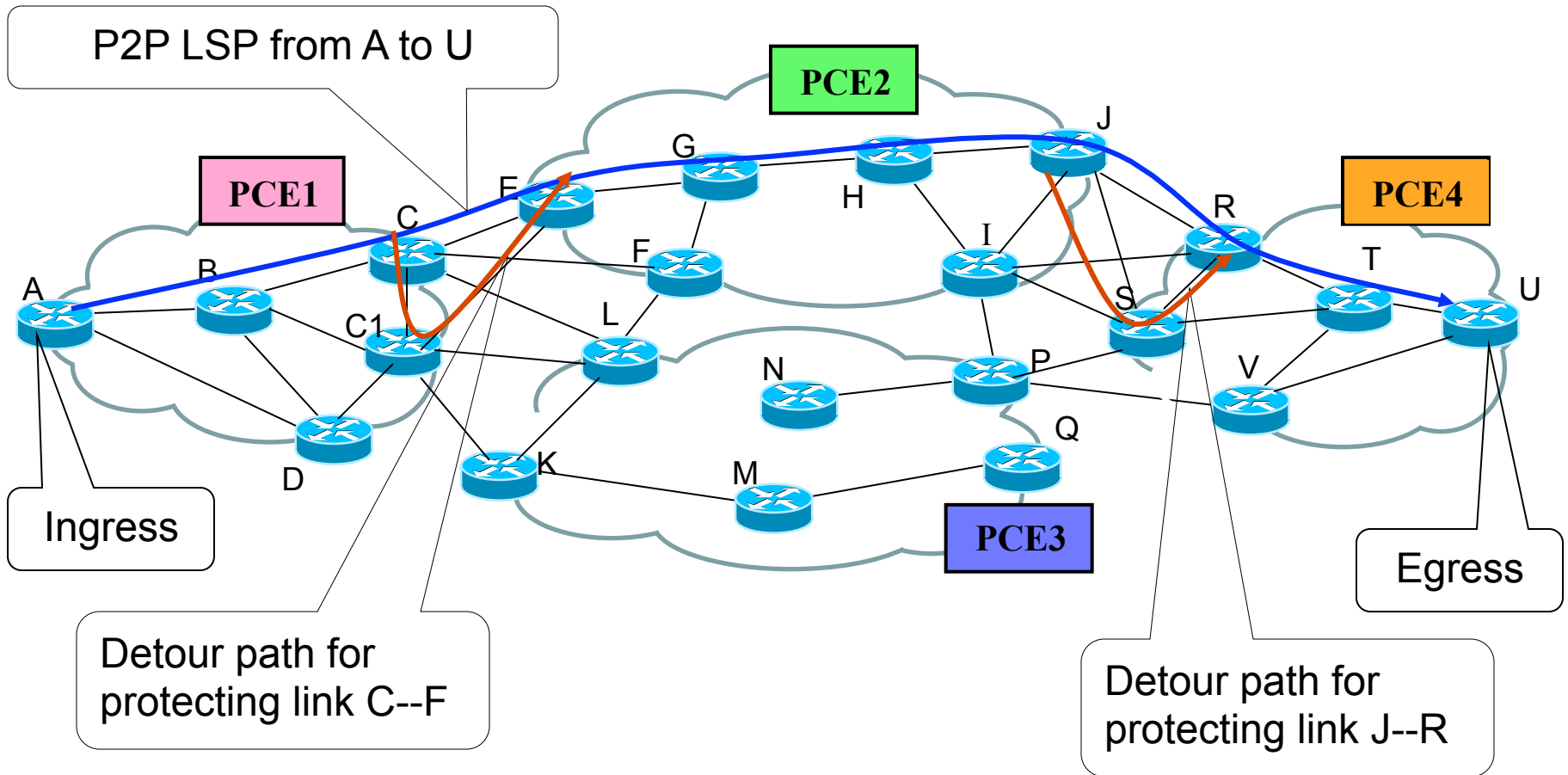
PCE for Multi-homing E2E Disjoint Path

- P2MP disjoint path from an ingress to multiple egresses



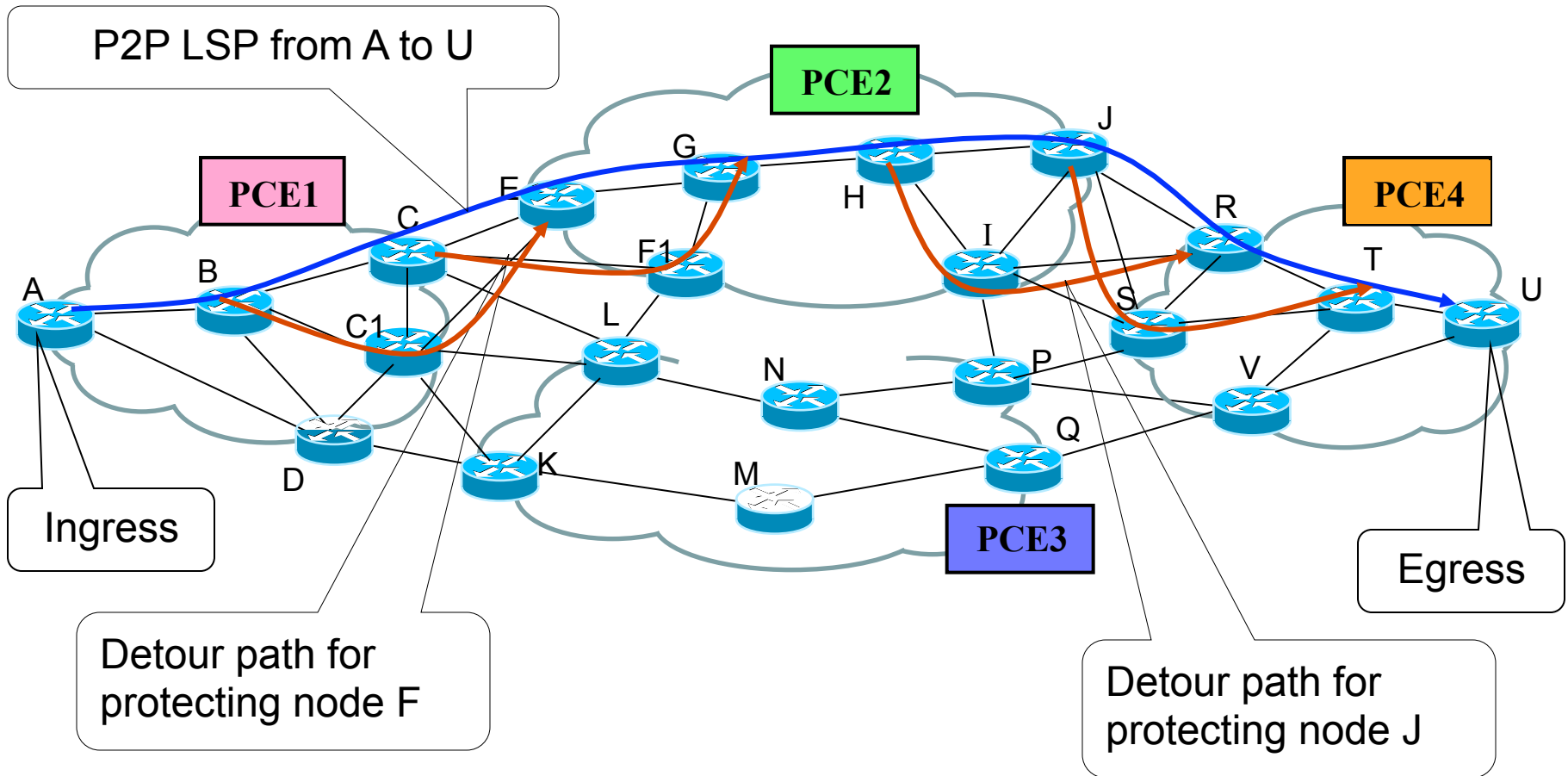
PCE for P2P Detour Local Protection Path

➤ Link protection



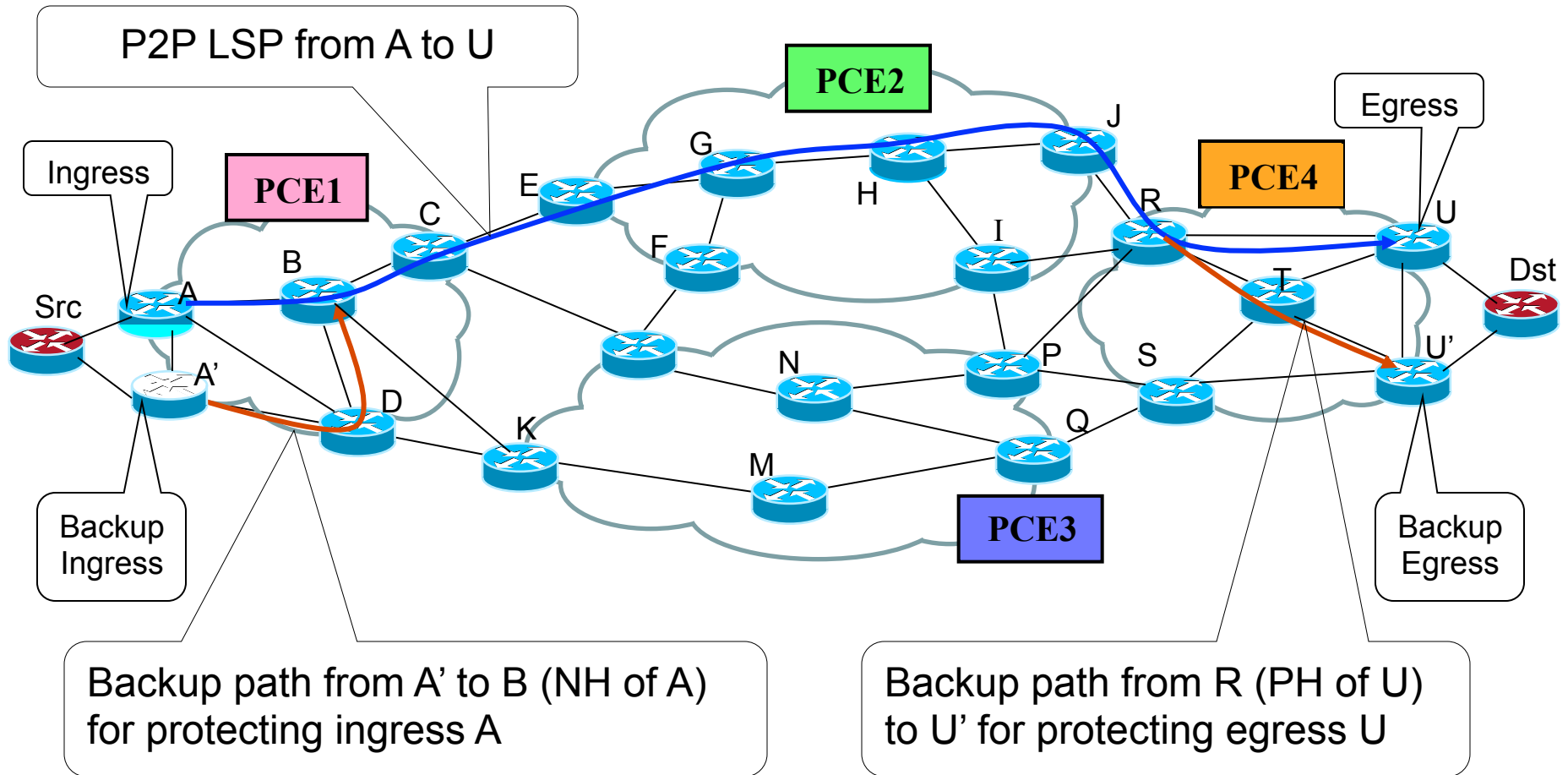
PCE for P2P Detour Local Protection Path

- Intermediate node protection



PCE for P2P Detour Local Protection Path

- P2P path for protecting ingress and egress

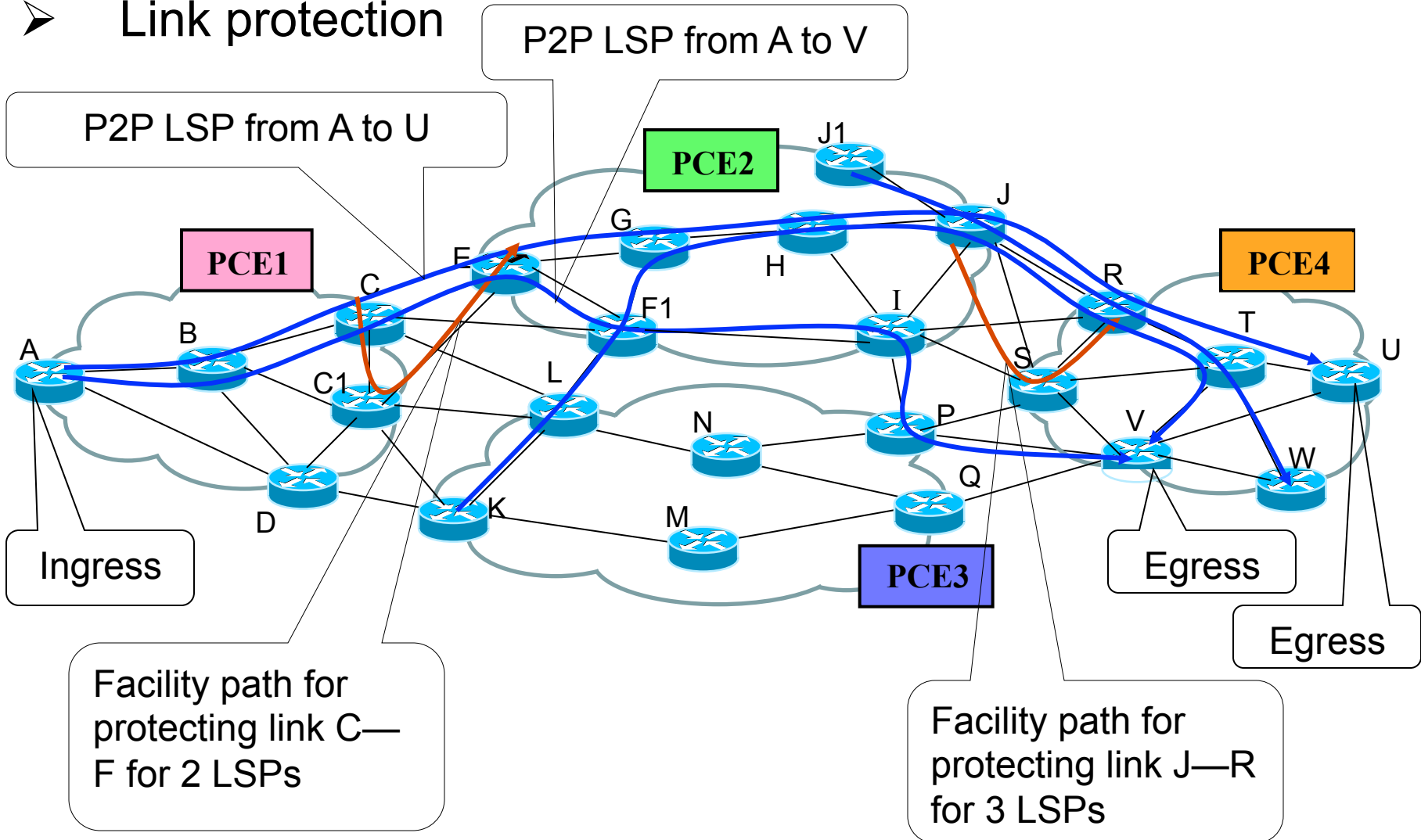


PCE for P2MP Detour Local Protection Path

- Path for protecting link
- Path for protecting intermediate node
- Path for protecting ingress and egress

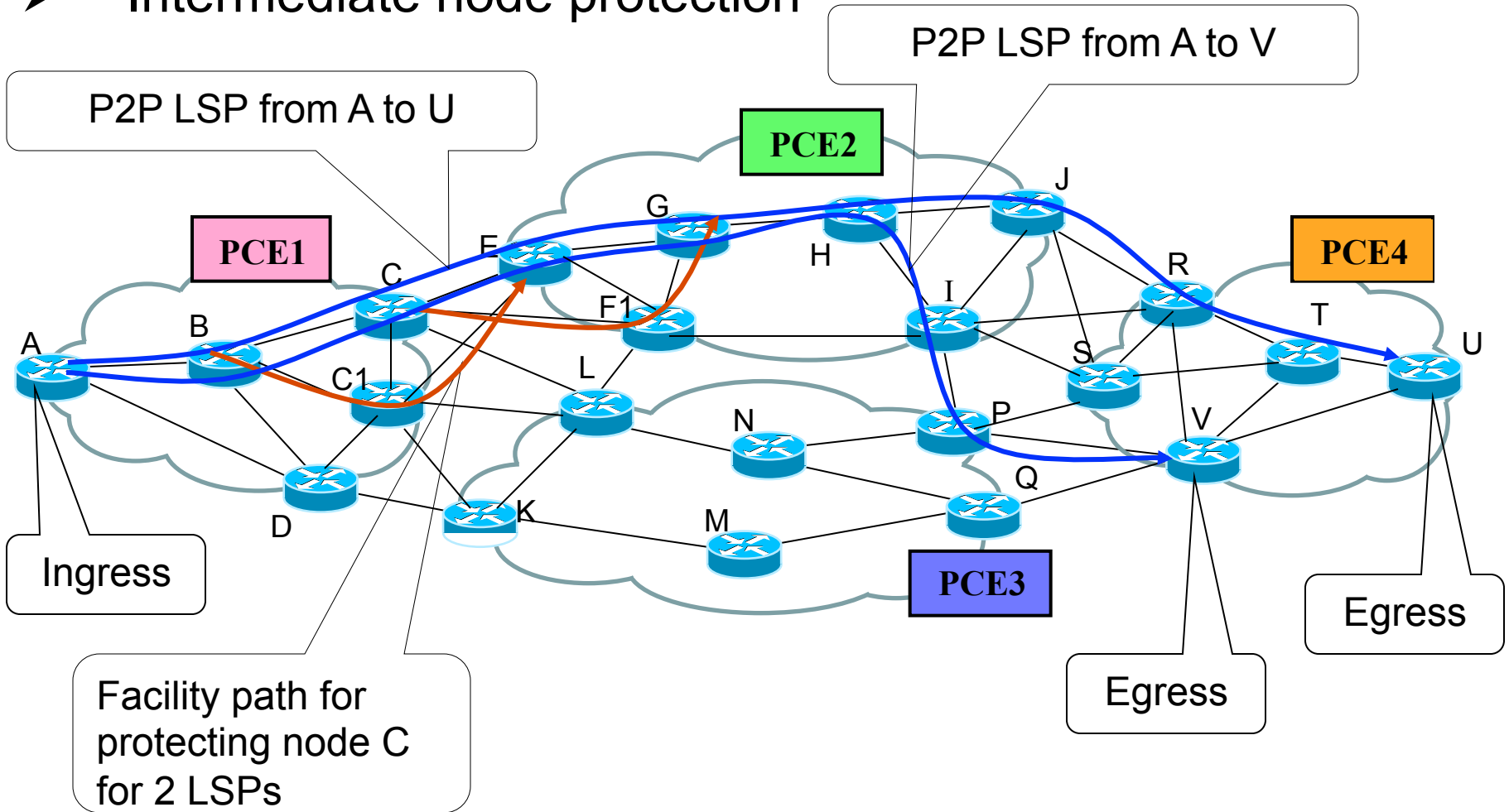
PCE for P2P Facility Local Protection Path

➤ Link protection



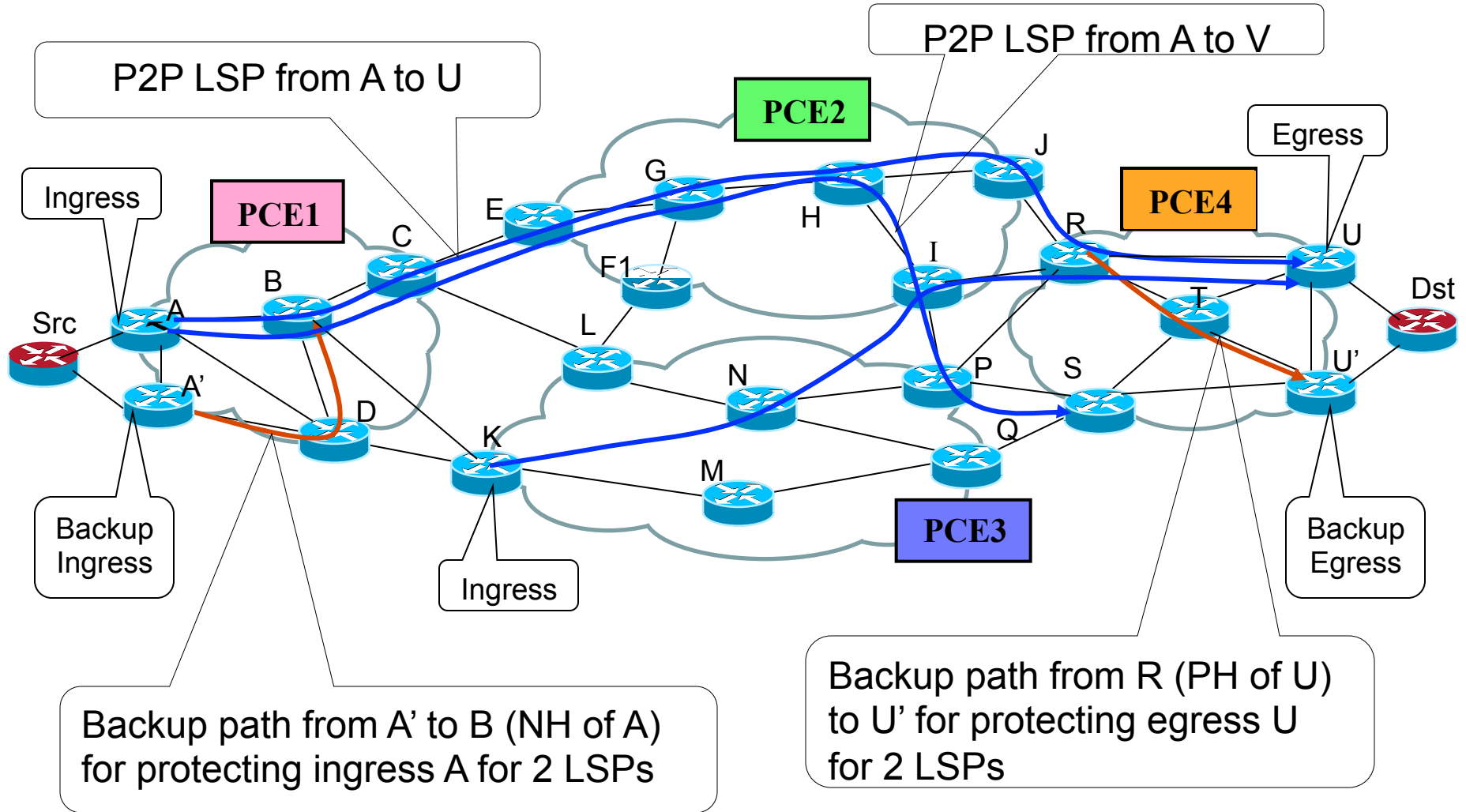
PCE for P2P Facility Local Protection Path

➤ Intermediate node protection



PCE for P2P Facility Local Protection Path

- P2P path for protecting ingress and egress



PCE for P2MP Facility Local Protection Path

- Path for protecting link
- Path for protecting intermediate node
- Path for protecting ingress and egress

Summary/Next Step

- Document highlights best practice, use cases and gaps.
 - Where needed recommendations for further extensions and procedures.
- Would this be a useful document for WG?
- Please provide input and examples
- Thank you!