

PCE support for Domain Diversity

draft-dwpz-pce-domain-diverse-00

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Motivation

Domain Diversity is defined in [RFC6805].

- A pair of paths are domain-diverse if they do not traverse **any of the same transit domains** (apart from ingress and egress domains).

Maximizing Domain diversity

- Domain diversity may be maximized for a pair of paths by selecting paths that have **the smallest number of shared domains**.

Why domain diversity?

- Selection of domain diverse paths as a way to reduce the risk of shared failure and automatically ensure path diversity.

Thank Qilei Wang for starting this discussion in the mailing list.

Examining Domain Diversity

Per Domain

- **Non-Synchronized:** After primary path setup, signal a domain diverse path by encoding the transit domain identifiers in XRO or EXRS in RSVP-TE.

BRPC

- **Non-Synchronized:** After primary path computation, request a domain diverse path by encoding the transit domain identifiers in XRO or EXRS in PCEP. Or use a domain-diverse domain sequence in IRO.

H-PCE (E2E or Domain-Sequence)

- **Non-Synchronized:** After primary path computation, request a domain diverse end to end path or domain-sequence by encoding the transit domain identifiers in XRO or EXRS in PCEP.
- **Synchronized:** a dependent and synchronized domain diverse end to end paths or domain-sequences from parent PCE.

Examining Domain Diversity

Per Domain

Ingress aware of the transit domains of the primary path to signal a domain diverse path.

BRPC

PCC aware of transit domains of the primary path to request a domain diverse path.

H-PCE

+ a new bit in SVEC object.

Minimize Shared Domains

Synchronized

- Objective Function: Minimize the number of common transit domains (MCTD).

Non-Synchronized

- X bit in XRO or EXRS set as 1 indicates that the domain specified should be excluded but may still be included in the absence of a viable path.

Next Steps!

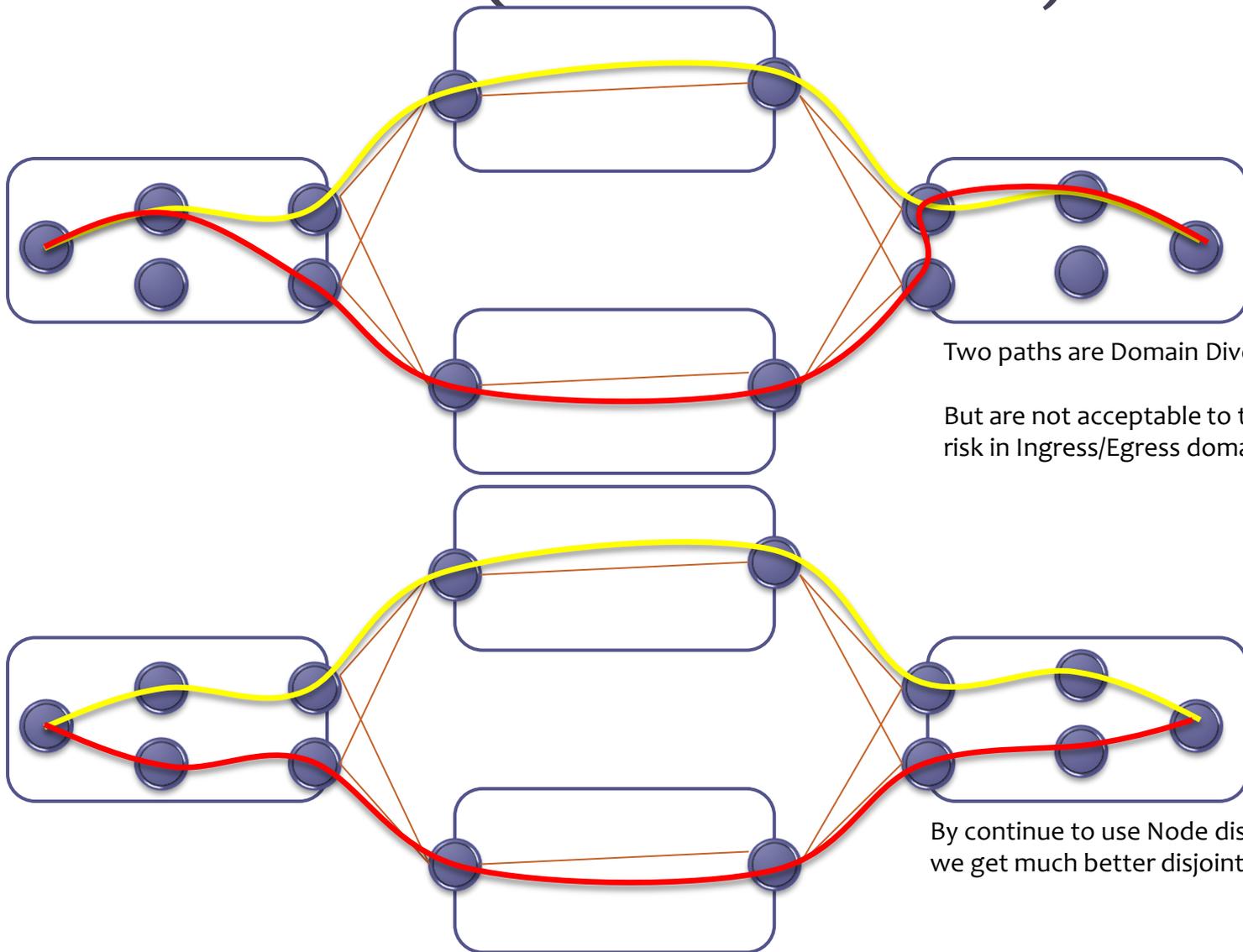
- Some text can be moved to the H-PCE ext. Thoughts?
- Feedback from the WG.

Questions
&
Comments?

Thanks!

Backup Slides

O (Domain diverse) bit



Two paths are Domain Diverse!

But are not acceptable to the end-user because of shared risk in Ingress/Egress domain

By continue to use Node disjoint in Ingress/Egress domain, we get much better disjoint path!