

Inter-Domain Routing with Shared Risk Groups

draft-many-ccamp-srg-01.txt



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What are the additions

- ✚ Extend the current protocols to
 - Define **per domain** protection capabilities
 - ✖ Link protection (present)
 - Define **inclusive** constraints
 - ✖ Exclusive constraints (present)
 - Provide **risk assessment** to a path
 - ✖ Not possible with present extensions
 - **Summarize** “some” capabilities across areas
 - ✖ No inter-area solution yet
 - ✖ Note: Not every TE parameter is summarizable

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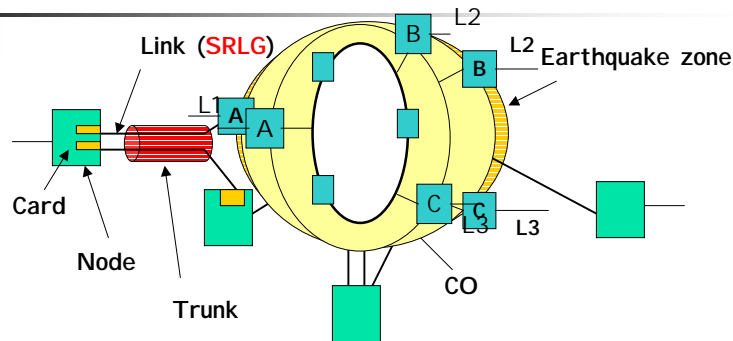


Applications

- ✚ Business applications
 - Preferred quality circuit provisioning
 - Preferably routed circuit provisioning
 - Protected path provisioning
- ✚ Mechanisms applicable to
 - Multi-layer networks
 - ✖ server layer topology capability
 - Tiered networks
 - ✖ Single or multiple administrative domains
 - ✖ Peer-to-peer or overlay control planes
- ✚ With the following in mind
 - Reduce the TE information
 - distributed path computation
 - Others

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On SRG – The Δ



Observation 1: Failure is restricted to a local scope (**Risk Domain**)

Card - (1+1, 1:1, M:N); Node - Capabilities, Redundancy
CO - (Redundant equipment); Link - (Span - 1+1, 1:1, M:N)
Set of links/nodes - Rings, Planned mesh network

→ Use "capability" of the Risk domain

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More on SRG - Scalability

Observation 2: SRLG → Exclude links, SRG → **Include/Exclude**

Observation 3: Example on scalability:

SRLG on trans-continental link ($N \gg 1$)

SRG set of SRLG (or a sequence)

Link, Fibers, Ducts, Transport equipment, Nodes, COs

of TLVs, Diverse path computation - **Not** scalable

→ "Summarize" capability per risk domain

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Protocol extensions

- ✦ Configuration
 - Domain -> SRG, SRG->Capability
 - SRG->Risk assessment, preferred path parameters
- ✦ Encoding
- ✦ Capability
 - Domain capability
 - Link capability
 - Conditional probability for risk

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Protocol extensions (contd.)

- ✦ Routing extension
 - Simple point-to-multipoint will do the magic
 - Carry SRG TLV
 - ✦ Carry capability TLVs as part of SRG
- ✦ Signaling extension
 - Will follow in the next version in a month

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What is new?

- + SRG concept
 - + **Proposal**: Add risk domain concept
 - + **Proposal**: Add SRG capability concept
 - + **Proposal**: Add as a sub-concept in TE summarization
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- + We will extend the signaling protocol extensions

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What next

- + We encourage participation from “operational experts”
- + Accept this as a working group document

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