

Enhanced Source Routing



Problem and models

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No problem.

Problem

- Definition
 - Source routes established per session may not be optimal
 - Invalid path detected after long timeout causing session loss for clients
- Improvements
 - Clients know explicit route through bridged LAN and can take advantage of this knowledge

Objectives and Goals

- Objective:
 - Provide increased availability through knowledge and usage of redundant paths in source routed networks
- Solution goals
 - Compliant with *non-enhanced* source routing devices
 - Require minimal changes to existing source routing devices

Scope

- Specifies how redundant paths can be used
 - Path discovery - how and when
 - Network path status monitoring
- What's not in the standard
 - Load sharing considerations, I.e. distribution schemes and requirements for distribution

Enhanced Source Routing models

- Frequent path (re)discovery model
- Path invalidation model
- Source Route reinterpretation model
- any other models of interest

Frequent path (re)discovery

- Use ARE and STE frames more often
- Pros:
 - Session loss quickly detected and alternate route found
 - Lower cost paths are discovered and used if available
 - No changes in bridges
- Cons:
 - Noisy scheme - though intelligence may be incorporated
 - Requires changes to end-stations
 - Path calculation may preempt slow links and congest fast (any news here?)

Path invalidation

- Allow interconnected devices to signal paths as invalid because of topology changes
- Pros:
 - Less overhead than previous model
 - Can be (mis-)used for other purposes
- Cons:
 - Requires changes to end-stations and bridges
 - Fully interoperable solution requires a path monitoring scheme anyway

Source Route reinterpretation

- Use source route field as identifier for route through entire cloud instead of hop-by-hop field
- Pros:
 - Allows paths to change with no end-station notifications
 - Remove 7-hop limit barrier
 - No changes to end-stations, not even for using alternate routes
- Cons:
 - Requires ***lots*** of changes to core bridges
 - interoperability is an issue
 - Hard to sell?