

Microloop prevention using local delay

draft-ietf-rtgwg-uloop-delay-01

Stephane Litkowski Orange

Bruno Decraene Orange

Pierre Francois Cisco Systems

Clarence FilisFils Cisco Systems

Facts

- IP/MPLS networks are suffering from transient forwarding loops:
 - Limit FRR efficiency (no 50msec guarantee)
 - May affect customer traffic not directly linked to a failure (side effect)
- Some of RTGWG propositions:
 - PLSN: I-D.ietf-rtgwg-microloop-analysis
 - Loop Free Convergence Framework: RFC 5715
 - OFIB: RFC 6976
- None implemented

Goal/non goals

- Goal: Incremental improvement.
 - Partial but deployable solution rather than full but non-deployed solution.
- Non Goal: 100% coverage.
- Same path than LFA for FRR.

Uloop delay solution

- Reuse concepts from OFIB: ordered convergence.
- But limited to the local node.
 - Pro: local feature, much simplified.
 - Con: only covers local loops.
- □ Upon local event, introduce a delay between:
 - the convergence of the local (PLR) node
 - the convergence of network.

Changes: -00 to -01

- “Link Up” case removed
 - More complex to implement (need to trick IGP flooding)
 - Not implemented (running code)
- \sqsubset scope reduced to “Link Down”
- Improved guidance on when to defer route installation :
 - Early implementations had inconsistent behavior depending on LSP/LSA received order
 - NEW:
 - implementation SHOULD implement a logic to correlate protocol messages and topology changes
 - determining a topology change MUST be independent of the order of reception of the protocol messages for a particular SPF run.

Changes: -00 to -01 (2)

- Providing examples
 - sequence of events illustrating when to defer route installation and when it must not be done.
- “Implementation status” section added
 - 3 existing implementations: Juniper, Cisco XE, Cisco XR.
 - Implementations were tested showing no side effect and good micro-loop avoidance behavior.
- Draft improved based on implementation and testing feedback
- Cosmetic: Timelines redrawn using table to enhance

Summary & Next steps

- Multiple running implementations. (3)
- Draft updated to reflect implementations
 - “Link up” removed as not implemented
 - Polishing
- Authors believe draft is ready for WGLC.

thank you