SR based Loop-free implementation

draft-deng-rtgwg-sr-loop-free-01

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Motivation

- **Microloops**
  - If a node or link fails, a loop may occur on the network because LSDBs are not synchronized. However, such a loop disappears after all devices on the forwarding path complete convergence. Such a transient loop is called a “microloop”.
  - Microloops may cause packet loss, delay variation, and packet disorder on the network.

```
+----------------------------------------------------------------+
|                                            X  link failure     |
|                                                                |
|   +-------+      +-------+       +-------+                     |
|   |  R1   |------|  R2   |-------|  R3   |                     |
|   +-------+      +-------+       +-------+                     |
|                      |               |                        |
|                      |               X                        |
|                      |               |                        |
|                  +-------+       +-------+       +-------+    |
|                  |  R4   |-------|  R5   |-------|  R6   |    |
|                  +-------+       +-------+       +-------+    |
|                                                                |
|                                                                |
+----------------------------------------------------------------+
```

Failure of link R3-R5

Informational draft

- **This document describes some optional implementation methods of SR for microloop avoidance in different scenarios.**
  - Anti-Microloop Scheme for Tangent Scenarios
    - Tangent microloop refers to the microloop caused by node or link failures.
  - Anti-Microloop Scheme for Cut-back Scenarios
    - Cut-back microloops occur after the failure recovering.
  - Anti-Microloop Scheme for Multi-source Scenarios
    - Multi-source microloop occur when multiple nodes advertise the same route with inconsistent convergence speeds.
  - Anti-Microloop Scheme for Multi-point Scenarios
    - Multipoint microloop occur when multiple nodes fail.

Last Update

- **References update.**

- **Add anti-microloop scheme for multi-point scenario**
  - In the scenario of multiple faults, anti-microloop can be achieved by strictly displaying the path.

Next steps

- Any questions or comments are Welcomed.

Thanks!