

IEEE 1910 Working Group Loop-Free Switching and Routing

Project 1910.1

**Standard for Meshed Tree Bridging
with Loop Free Forwarding**

Agenda

1. Call to Order
2. Role Call / Introductions and Disclosure of Affiliations
3. Call for Patents
4. Approval of the Agenda
5. Standards Development
 - Policies and Procedures
 - Current Officers
 - Introduction to Project 1910.1
 - Purpose and Scope
6. Any other Business
7. Adjournment

Role Call / Introductions and Disclosure of Affiliations

Bill Stackpole

Sign in Sheet

Call for Patents

Meshed Tree Algorithms

Approval of Agenda

Standards Development – Project 1910.1

- Policies and Procedures
- Current Officers
 - Nirmala Shenoy – Chair
 - Bruce Hartpence – Co-chair
 - Daryl Johnson – Vice chair
 - Bill Stackpole – Secretary
- Purpose and Scope
 - Novel algorithms
 - Security

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NEED

Loop free forwarding and improved convergence times are continuing challenges in layer 2 networks that support link and path redundancy. Existing solutions to overcome frame looping in bridged or switched networks are addressed by special protocols at layer 2. These solutions block ports to prevent frame forwarding and build loop free topologies. Recent developments attempt to improve upon these issues through the use of link state routing techniques, which increase protocol and computing complexity, requiring another layer of frame encapsulation.

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SCOPE

This standard specifies a meshed tree bridging protocol for the purpose of forwarding unicast, multicast and broadcast frames in a loop free forwarding topology with near immediate failover on detection of link or switch failure. The meshed tree scheme imposes low operational and control overhead as it operates through local information dissemination that does not flood link details to all switches in the topology. Advanced features will be incorporated by defining two additional mutually non-exclusive modes; secure and static topology construction.

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PURPOSE

The purpose of this proposed standard is to establish tree-like structures on an existing topology along several pathways. The protocol leverages any useable path rather than eliminating possible alternate links. Upon changes to the topology, the meshed tree protocol significantly reduces convergence time through the use of pre-determined viable pathways.

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APPROACH

The meshed tree algorithm aids in building and maintaining multiple overlapping trees from a single root without blocking any ports from forwarding frames. Upon detection of link failure, nodes fall back to another tree or branch without the need for information dissemination resulting in near immediate re-convergence. The tree branch from the broken link can be pruned without impacting frame forwarding. There can be multiple instances of the meshed tree algorithm in order to provide Virtual Local Area Networks (VLAN) specific topologies.

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SECURITY

Security in the bridging protocols will be considered from ground up during the design phase. The specifications of the meshed tree bridging protocol will incorporate a secure mode of operation to prevent un-authorized bridges from joining the network and participating in the meshed-tree creation algorithm. The topology will be protected from maliciously injected traffic and passive discovery.

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SUMMARY DOCUMENT

Any Other Business

Adjournment

Next meeting details will be emailed