IEEE 802.1aq Shortest Path Bridging (SPB) Deployment Considerations

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Roger Lapuh
Paul Unbehagen
Peter Ashwood-Smith
Phillip Taylor
Steve Emert
Ludovico Stevens
Srikanth Keesara

Abstract

Based on life deployments and three interoperability events, this document provides advice to network operators about best practices when implementing IEEE 802.1aq Shortest Path Bridging (SPB) networks.

It is principally addressed to system integrators and solution providers, including those that do not yet support SPB. Some advice to implementers is also included. The intention of the advice is to facilitate multi vendor network deployments as well as provide guidance for new installations.

MOTIVATION AND BACKGROUND

This document provides a checklist of recommendations which are based on multiple documented multi vendor Interoperability tests and more than 12 months of production deployment experiences.

It summarizes the learning's and experience acquired during those activities. New SPB installations can benefit from following the recommendations below.

Deployments Described

- Deployment Scenario A
  - SPB as a Inter-Datacenter-Fabric for DC redundancy and DC Migrations
- Deployment Scenario B
  - SPB to re-architect Security Zones – Security in virtualized Environments
- Deployment Scenario C
  - SPB for Enterprise Campus Virtualization
- Deployment Scenario D
  - SPB as multi-tenant Fabric solution

General Deploment Recommendations

- Recommendation 1
  - In order to achieve fast failover and recovery avoid shared segments and deploy point-to-point interconnects between SPB nodes.

- Recommendation 2
  - Define network wide Service-Ids (ISIDs) concept for network virtualization, don't tie VLAN Ids 1-to-1 to service Ids.

General Deploment Recommendations cnt'd

- Recommendation 3
  - Use SPB to segment large legacy Spanning Tree (STP) regions into smaller entities to reduce overall network impacts of STP root bridge failures.

- Recommendation 4
  - Provide and use L3 routing functionality between virtualized L2 entities (ISIDs).

Infrastructure Configuration Recommendations

- ## Recommendation 5
  - It is a good practice to define and use a network wide System ID and SPB Nickname concept for ease of network operations

- ## Recommendation 6
  - For interoperability reasons it is recommended to agree on a common set of Backbone VLAN Ids (BVIDs): recommended BVID range: 4050 - 4065

Standard Improvement Recommendations

- Recommendation 7
  - In order to reduce network convergence time, it is recommended to use a default ISID for link-state update propagation instead of today's hop by hop based relay functions

OA&M Recommendations

- Recommendation 8
  - It is recommended that IEEE 802.1ag based connectivity check mechanisms: Layer 2 Ping, Layer 2 Traceroute and Layer 2 Tracetree are being implemented.
  - Additionally y.1731 extensions of 802.1ag should be considered for delay, loss, and jitter testing in a SPB network

Next Steps

- Continue to collect feedback

- Become a working group document

Authors

Roger Lapuh
Paul Unbehagen
Ludovico Stevens
Steve Emert
Srikanth Keesara
Avaya

Phillip Taylor
Leeds Metropolitan University

Peter Ashwood-Smith
Huawei