

ISO/IEC/IEEE 8802-1Q AMD 1:2017-07 (E)

Path control and reservation

Contents

Page

1. Overview.....	2
1.3 Introduction.....	2
2. Normative references.....	3
3. Definitions.....	4
4. Abbreviations.....	6
5. Conformance.....	7
5.4.6 Path Control and Reservation (PCR) (optional)	7
7. Principles of Virtual Bridged Network operation.....	8
7.1 Network overview.....	8
7.3 Active topology.....	8
8. Principles of Bridge operation.....	10
8.4 Active topologies, learning, and forwarding.....	10
8.6.1 Active topology enforcement	10
8.8.9 Querying the FDB	10
8.9.3 ID to MSTI Allocation Table	11
12. Bridge management.....	12
12.25 Shortest Path Bridging managed objects.....	12
12.25.4 The SPB ECT Static Entry managed object	13
12.28 Path Control and Reservation (PCR) management.....	13
12.28.1 The PCR ECT Static Entry managed object	14
12.28.2 The PCR Topology ECT Table managed object	16
17. Management Information Base (MIB).....	18
17.2 Structure of the MIB.....	18
17.2.19 Structure of the IEEE8021-SPB-MIB	18
17.3 Relationship to other MIBs.....	19
17.3.22 Relationship of the PCR MIB to other MIB modules	19
17.4 Security considerations.....	19
17.4.22 Security considerations of the PCR MIB	19
17.7 MIB modules.....	19
17.7.19 Definitions for the IEEE8021-SPB-MIB module	19
27. Shortest Path Bridging (SPB).....	64
27.1 Protocol design requirements.....	64
27.4 ISIS-SPB VLAN configuration.....	64
28. ISIS-SPB Link State Protocol.....	66
28.6 Symmetric ECT framework.....	66
28.7 Symmetric ECT	66
28.8 Symmetric ECT Algorithm details.....	66

28.12.4	SPB Base VLAN-Identifiers sub-TLV	67
28.12.5	SPB Instance sub-TLV	67
28.12.10	SPBM Service Identifier and Unicast Address (ISID-ADDR) sub-TLV	67
45.	Path Control and Reservation (PCR)	68
45.1	Explicit trees	68
45.1.1	Tree structures	72
45.1.2	Explicit ECT Algorithms	73
45.1.3	ISIS-PCR VLAN configuration	75
45.1.4	Use of VIDs for strict explicit trees	79
45.1.5	MAC addresses and ISIS-PCR	80
45.1.6	Filtering Database entries for explicit trees	80
45.1.7	ISIS-PCR support	81
45.1.8	Attributes for path computation	81
45.1.9	Topology sub-TLV	83
45.1.10	Hop sub-TLV	86
45.1.11	Administrative Group sub-TLV	89
45.1.12	Bandwidth Constraint sub-TLV	89
45.2	Reservation	90
45.2.1	Bandwidth Assignment sub-TLV	90
45.2.2	Timestamp sub-TLV	92
45.2.3	Precedence ordering	92
45.3	Redundancy.....	92
45.3.1	Loop-free alternates for unicast data flows	93
45.3.2	Static redundant trees	93
45.3.3	Maximally Redundant Trees (MRTs)	94
45.3.4	MRTs with centralized GADAG computation	97
Annex A	(normative) PICS proforma—Bridge implementations	101
Annex Q	(informative) Bibliography.....	105

Figures

Figure 7-1	VLAN Bridging overview	8
Figure 12-3	SPB managed objects (MOs)	12
Figure 27-1	Configuring VLAN support in an SPT Region (example)	65
Figure 45-1	An SPT Region controlled by a single PCE	69
Figure 45-2	An SPT Region controlled by multiple PCEs.....	70
Figure 45-3	The use of the SPB Instance sub-TLV for MRT	78
Figure 45-4	Shared Risk Link Group (SRLG) TLV	82
Figure 45-5	Topology sub-TLV	83
Figure 45-6	A strict tree and its descriptor Topology sub-TLV	84
Figure 45-7	Topology sub-TLV of a loose tree.....	85
Figure 45-8	Hop sub-TLV.....	86
Figure 45-9	Administrative Group sub-TLV	89
Figure 45-10	Bandwidth Constraint sub-TLV	90
Figure 45-11	Bandwidth Assignment sub-TLV	91
Figure 45-12	Timestamp sub-TLV	92
Figure 45-13	A GADAG and its descriptor Topology sub-TLV.....	98
Figure 45-14	MRT-Blue and MRT-Red for MRT Root 55.....	98
Figure 45-15	A GADAG for a topology with multiple blocks.....	99

Tables

Table 17-1	Structure of the MIB modules.....	18
Table 17-25	IEEE8021-SPB-MIB structure and relationship to this standard	18
Table 45-1	ECT-ALGORITHM values for explicit trees	73
Table 45-2	Bridge Priority Masking for the LT and LTS ECT Algorithms	74
Table 45-3	Hop sub-TLV flags	87