IEEE802.1Qay

Current Status



PBB-TE Current Status

- Draft P802.1Qay/D2.0 is the second draft to enter a Task Group. Ballot closed on March 11th
- Aim is to enter a Sponsor Ballot in the 2nd quarter of 2009
 - 7 more meetings till March 2009
 - One new draft version per meeting

P802.1Qay/D2.0 major new items

- The addition of the TE Service Instance Multiplex Entities and related changes on the CFM operation;
- Addition of the Load sharing functionality;
- Updates on the main 1:1 Protection Switching operation;
- Updates on PBB-TE terminology; and
- A number of editorial changes.
- It still lacks MIB support.

Ballot statistics

- 73 members have answered (the current total number of voting members is 98)
- 29 members have sent disapprove ballots (same number as in previous ballot)
 - 44 abstained
- A total of 424 comments have been sent

	1 st TG Ballot		2 nd TG Ballot	
TR	221	50.80%	191	45.05%
Т	36	8.28%	15	3.54%
ER	121	27.82%	166	39.15%
E	54	12.41%	48	11.32%
Other	3	0.69%	4	0.94%
	435		424	

Major comments

- TE service instance definition
- MIBs
- TE service instance multiplexer
- Loopback
- G.8031
- Protection Switching State machine changes
- Managed objects for the PS state machine
- Load sharing issues
- Load sharing method choice

Definitions/ESP

- ESP: A provisioned traffic engineered unidirectional connectivity path between CBPs that extends over a PBBN. The path is identified by a 3-tuple <ESP-MAC DA, ESP-MAC SA, ESP-VID>, where ESP-MAC DA, and ESP-MAC SA are MAC addresses and ESP-VID is a VID allocated to TE-MSTID. An Ethernet Switched Path is point-to-point or point-to-multipoint.
- Point to point ESP: An ESP where the ESP-MAC DA and the ESP-MAC SA in its 3-tuple identifier are individual MAC addresses.
- Point to multipoint ESP: An ESP between one root CBP to n leaves CBPs, identified by a 3-tuple where the ESP-MAC DA is a group MAC address identifying the n leaves CBPs, and the ESP-MAC SA is the individual MAC address of the root.

Definitions/TE service instance

- TE service instance: An instance of the MAC service provided by a set of ESPs and identified by TE-SID, forming a bidirectional service. A TE service instance is point to point or point to multipoint.
- Point to point TE service instance: An instance of the MAC service provided by two co-routed point-to-point ESPs forming a bidirectional service where the ESPs' endpoints have the same CBP MAC addresses.
- Point to multipoint ESP: A TE service instance provided by a set of ESPs which comprises one point-to-multipoint ESP from a root to each of n leaves plus n point-to-point ESPs, routed from each of the n leaves to the root along the branches of the point-tomultipoint ESP.

Definitions/Other

- TE-SID: An implementation dependent identifier of the TE service instance which corresponds to a series of 3-tuples <ESP-MAC DA, ESP-MAC SA, ESP-VID>, each one identifying one of the TE service instance's component ESPs. The TE-SID is not used as a tag parameter.
- TE: Traffic Engineering (TE) is the process that controls the traffic through a network, in order to optimize the resource utilization and to ensure respect of quality of service objectives for each defined class of service
- Co-routed paths: Two paths are co-routed if they traverse exactly the same bridge ports in the bi-partite graph that describes the active topology, but in the reverse order, within known bounded time after the last change in active topology.



Subclause 17 will be updated in the next P802.1Qay draft.



TE SI Multiplex Entity



- Up TE Service Instance Multiplex Entity
 - Single SAP -> Multiplexed SAPs: selection based on SA
- Down TE Service Instance Multiplex Entity
 - Single SAP -> Multiplexed SAPs: selection based on DA

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 Frame parameters remain unchanged in Single SAP <-> Multiplexed SAP

PBB-TE MEPs on a CBP





PtMP/PtP (Destination Address)



PtMP/PtP (VID)



Updated TE SI Multiplex Entity



- (Up & Down) TE Service Instance Multiplex Entity
 - Single SAP -> Multiplexed SAPs: selection based on DA, SA and VID (the last check is not needed if we required all the return paths in a PtMP to use the same ESP-VID)

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 Frame parameters remain unchanged in Single SAP <-> Multiplexed SAP

LBM in a PtMP MA



Updates in the PBB-TE MIP TLV

Octet



- In PBB-TE MEP associated with a point to multipoint MA
 - An LBM to an MHF has to carry a PBB-TE MIP TLV with the Reverse MAC field providing the MAC SA to be used by the associated LBR

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PS state machine



Figure 26-12—Protection Switching State Machine

PS with load sharing

- Protection Group is configured with
 - A reference to one PBB-TE MA -> working entity
 - A reference to one (but can be extended to a list of PBB-TE MAs)
 -> protection entity(-ies)
- A list of services protected by a Protection Group defined by their I-SID values
- For each I-SID in the protection group the following is provided
 - Preferred PBB-TE MA: by default the PBB-TE MA associated with the working entity, can be configured to be any of the PBB-TE MAs in the Protection Group
 - Alternate PBB-TE MAs: by default the PBB-TE MA associated with the highest priority protection entity, can be configured to be any of the PBB-TE MAs in the Protection Group

BSI Table for PS with load sharing

Protected Group BSI2	"Working" PBB-TE MA	Protection1 PBB-TE MA	Protection2 PBB-TE MA
I-SID1	Preferred	Alternate	
I-SID2	Preferred		Alternate
I-SID3	Alternate	Preferred	
I-SID4	Alternate		Preferred

PBB-TE 1:1 Protection Switching Example



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Path state machine for working entity



Backbone service instance



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