

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

	1st TG Ballot		2nd TG Ballot	
TR	221	50.80%	191	45.05%
T	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-to-multipoint ESP.

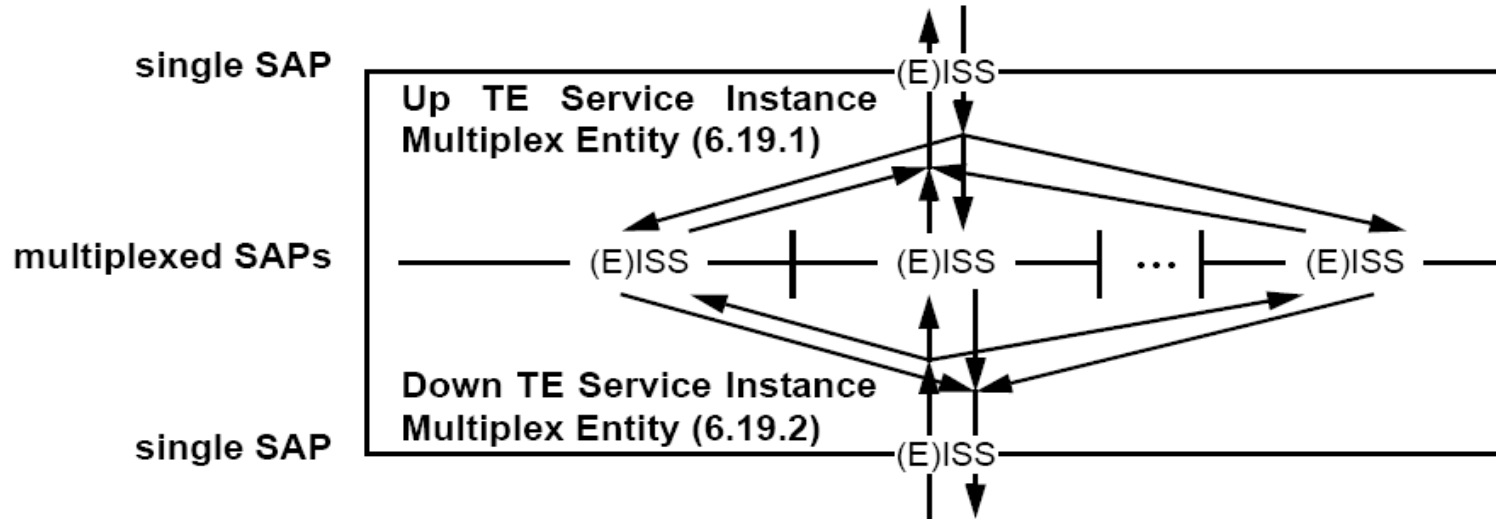
Definitions/Other

- **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.

MIBs

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

PBB-TE MEPs on a CBP

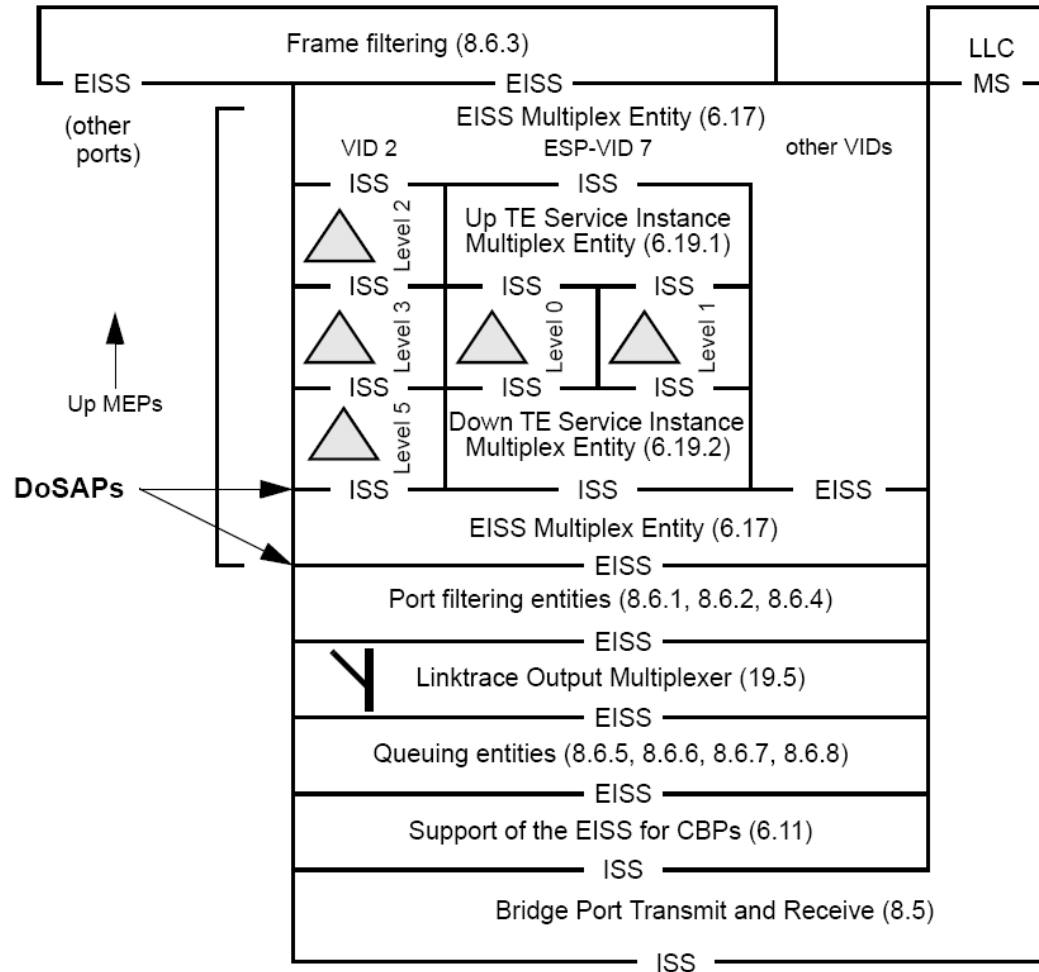
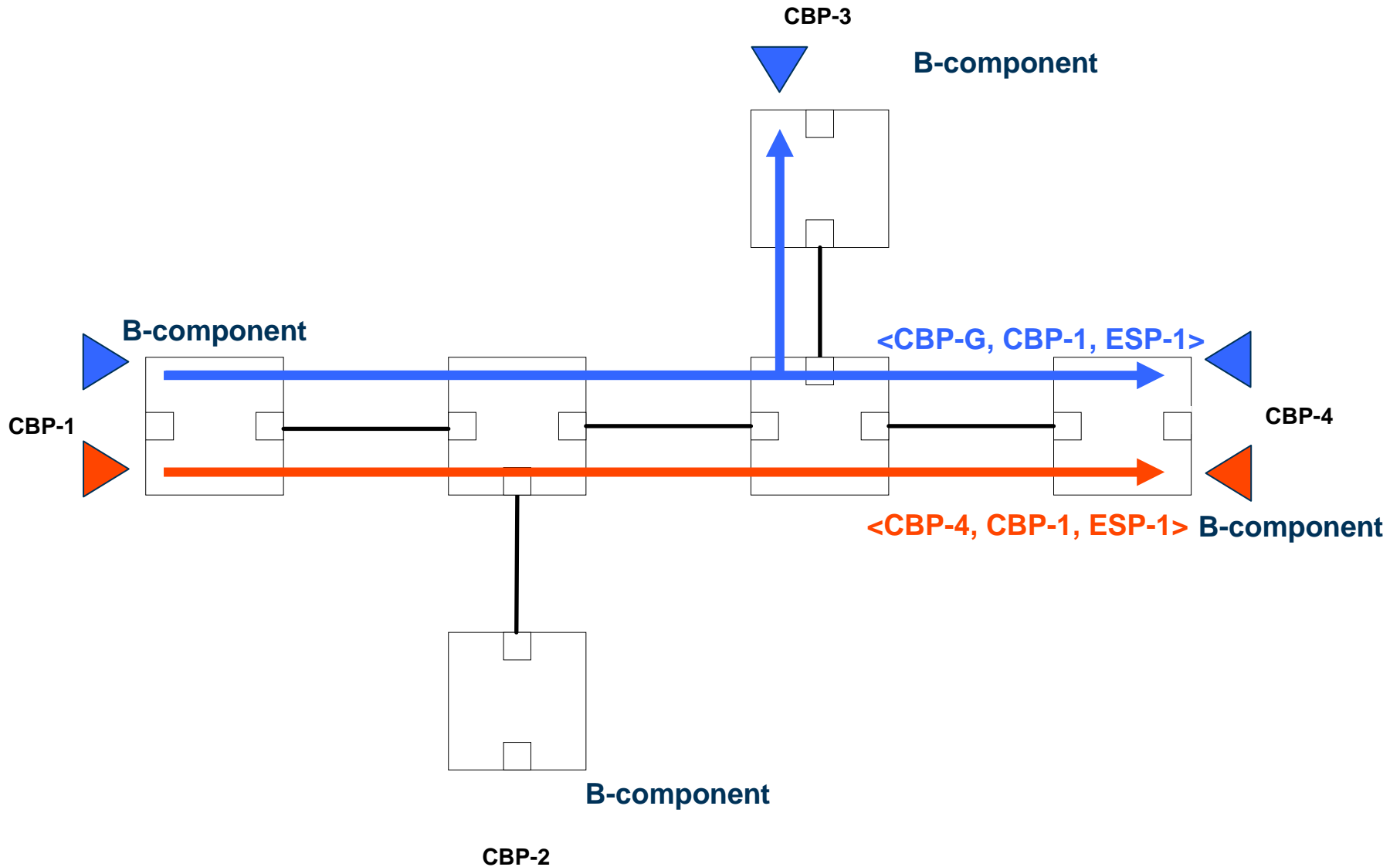
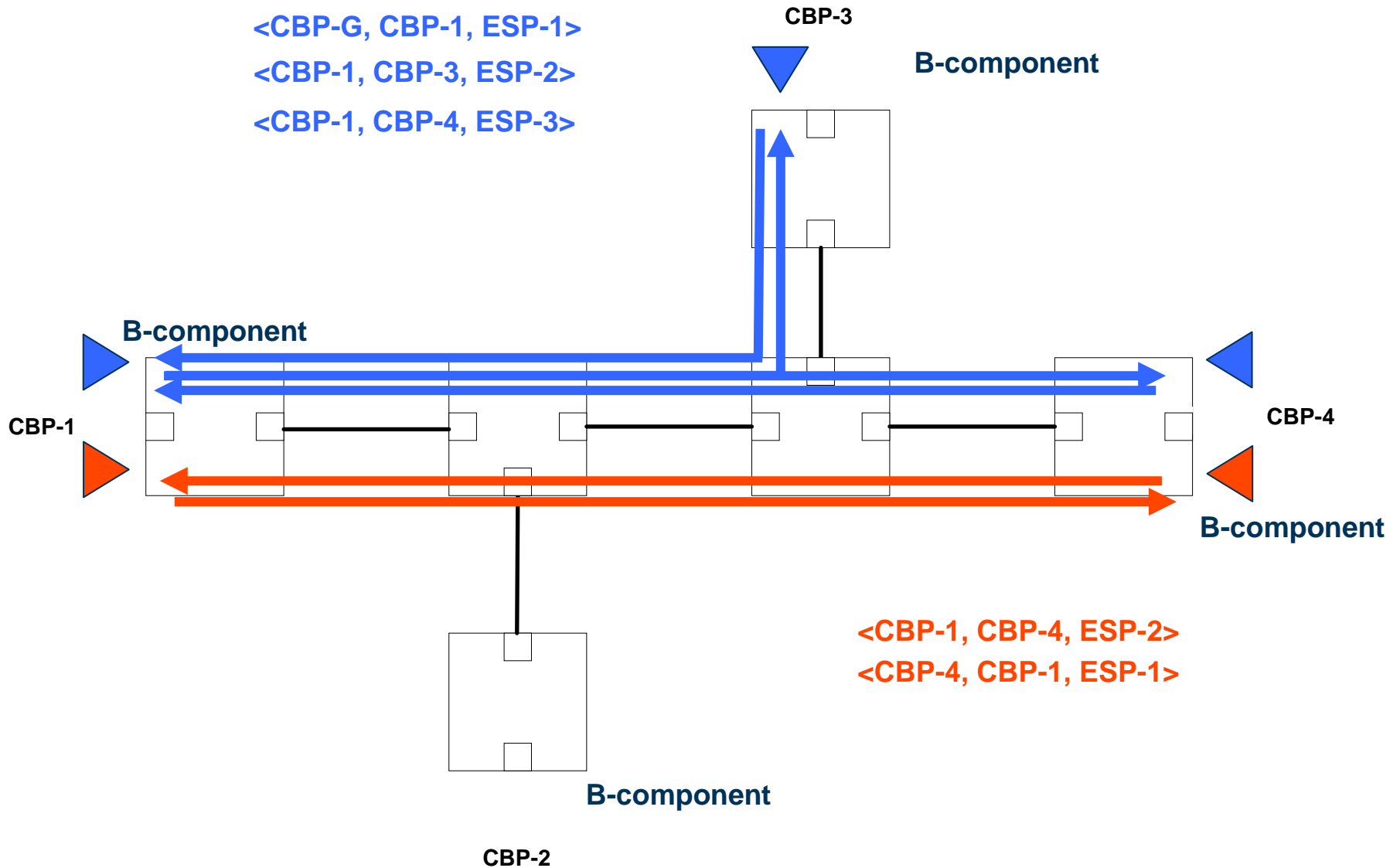


Figure 26-8—PBB-TE MEP placement in a CBP

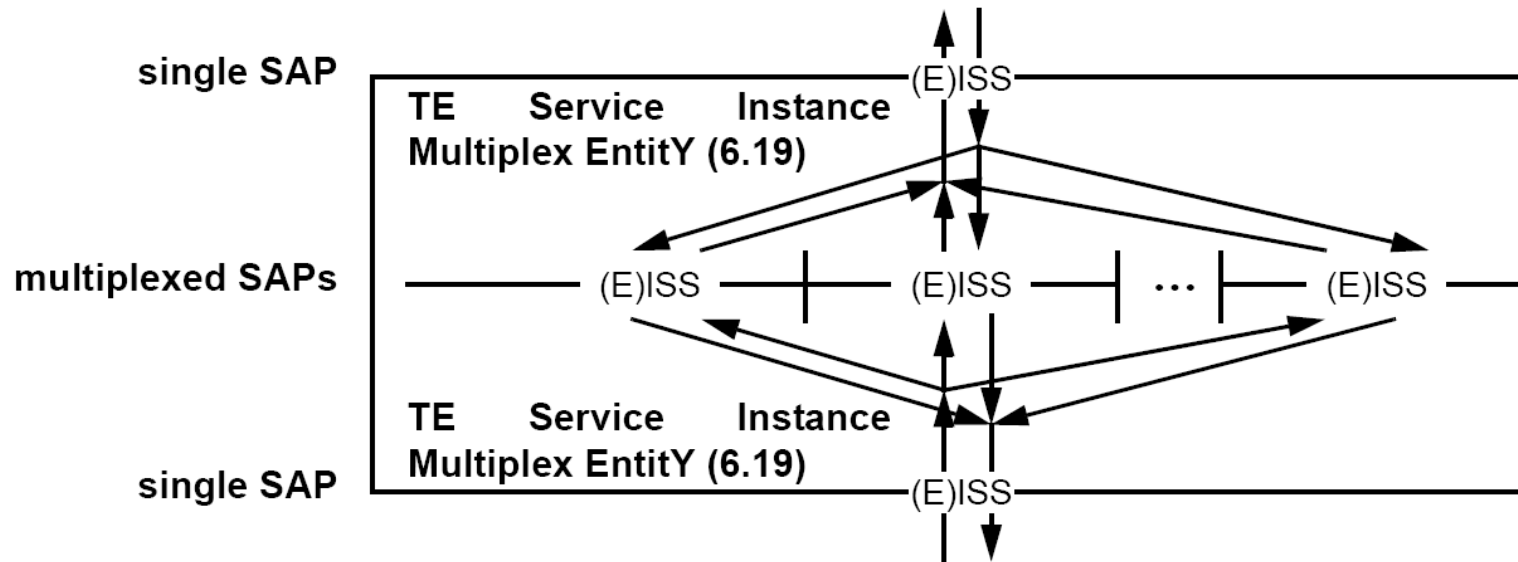
PtMP/PtP (Destination Address)



PtMP/PtP (VID)



Updated TE SI Multiplex Entity

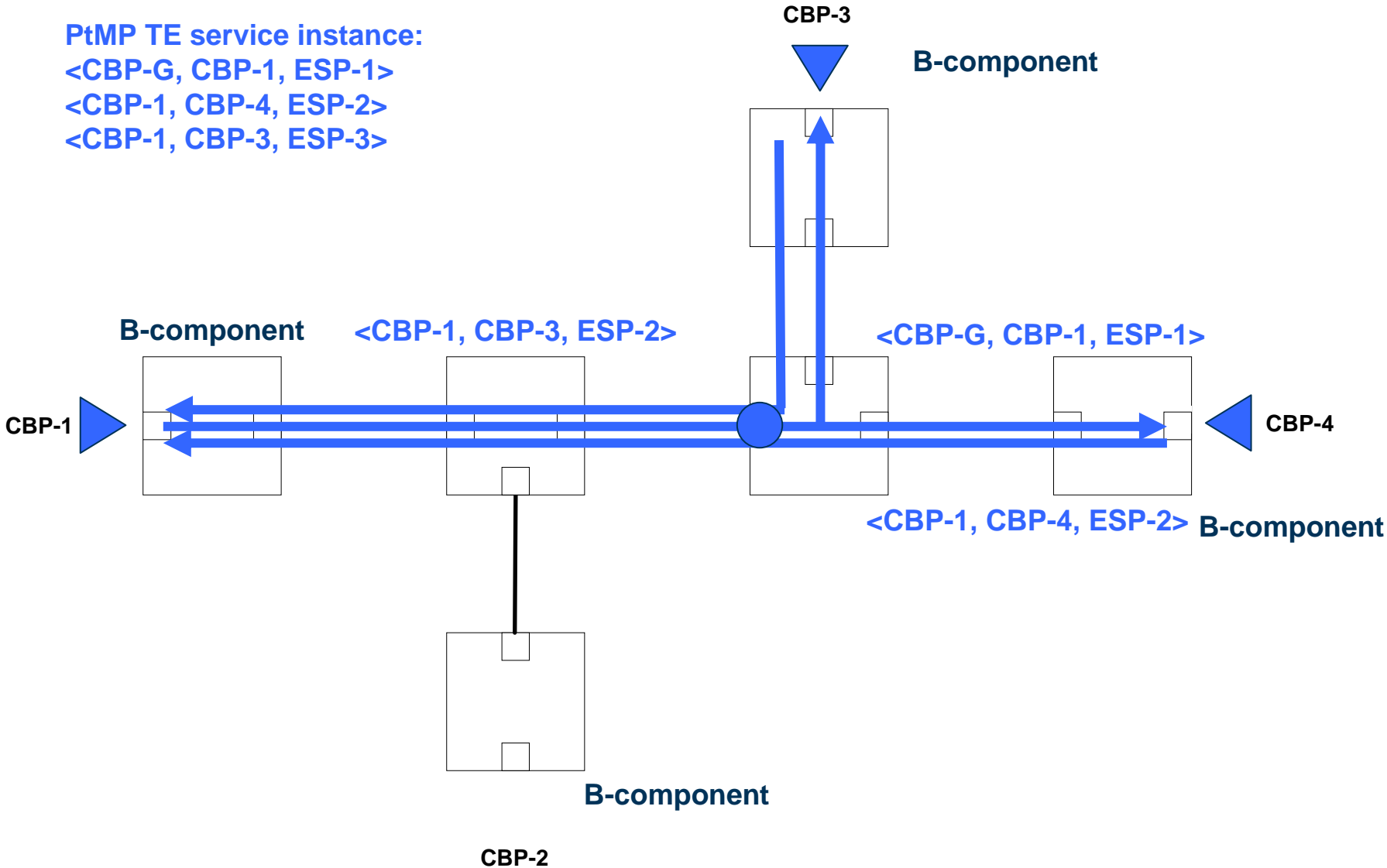


- (Up & Down) TE Service Instance Multiplex Entity
 - Single SAP -> Multiplexed SAPs: selection based on DA, SA and VID (the last check is not needed if we required all the return paths in a PtMP to use the same ESP-VID)
- Frame parameters remain unchanged in Single SAP <-> Multiplexed SAP

LBM in a PtMP MA

PtMP TE service instance:

- <CBP-G, CBP-1, ESP-1>
- <CBP-1, CBP-4, ESP-2>
- <CBP-1, CBP-3, ESP-3>



Updates in the PBB-TE MIP TLV

	Octet
Type = 9	1
Length	2 - 3
MIP MAC address	4 - 9
Reverse VID	10 - 11
Reverse MAC	12 - 17

- 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

PS state machine

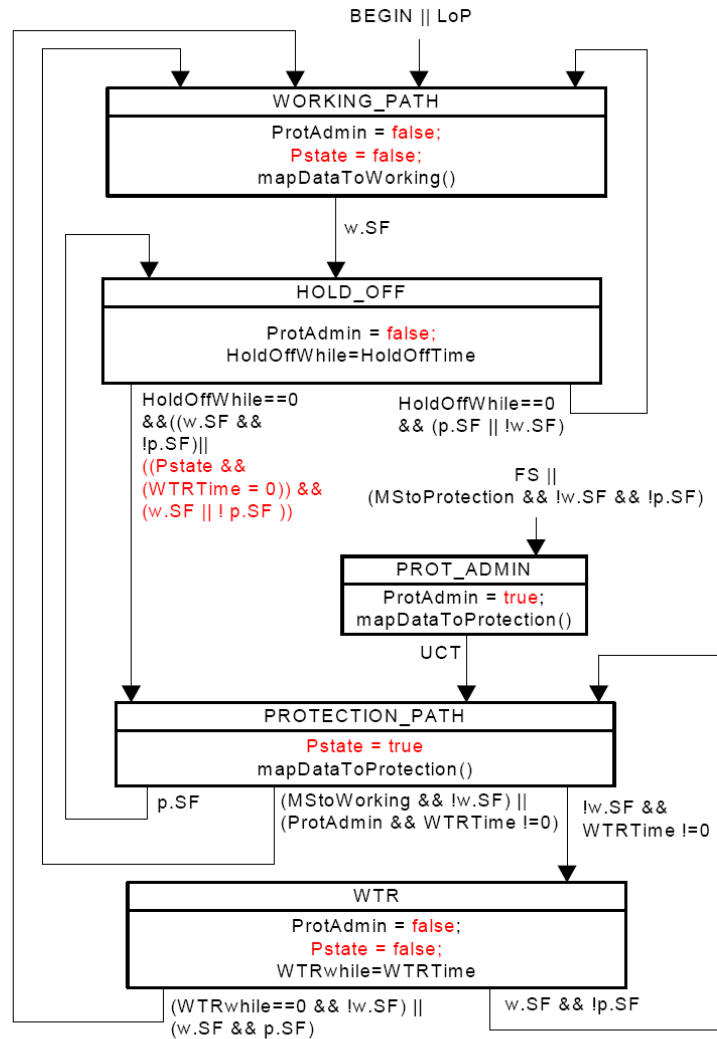


Figure 26-12—Protection Switching State Machine

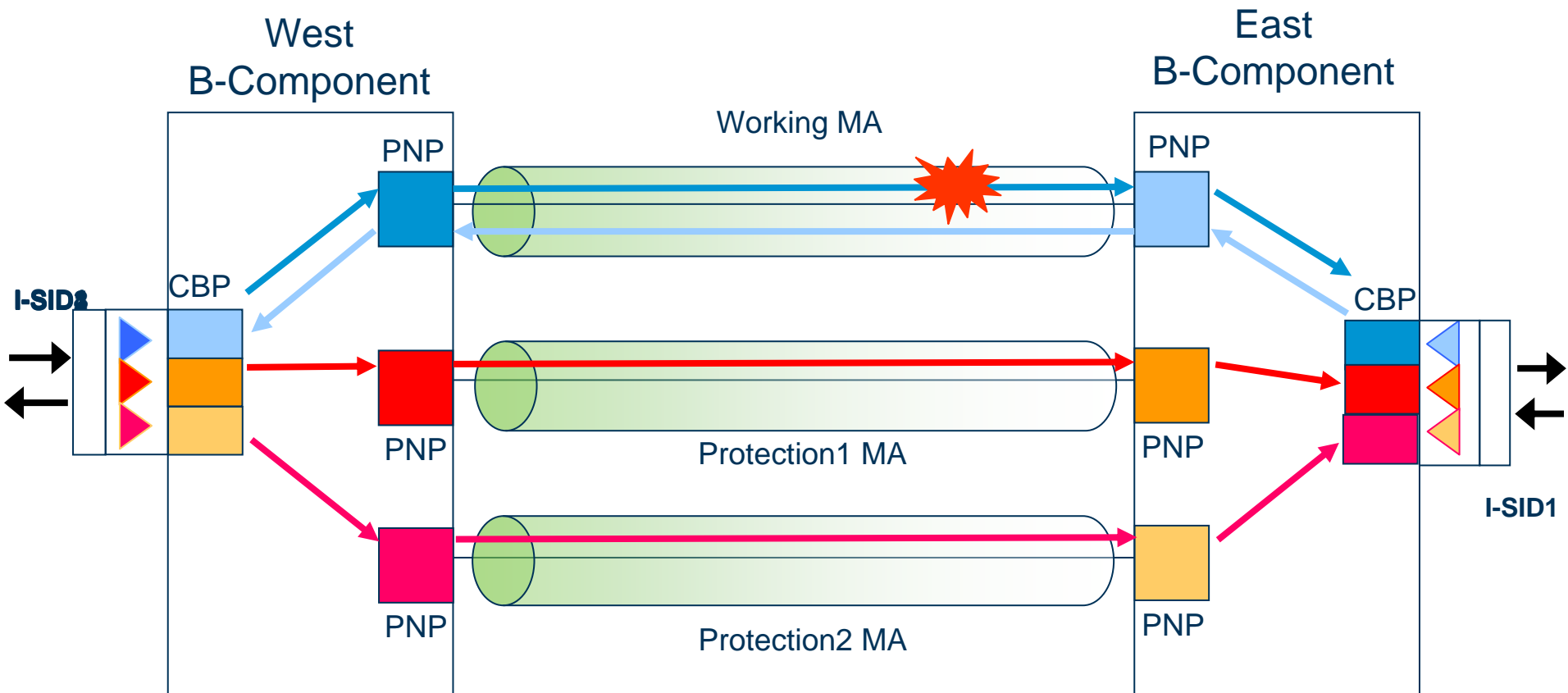
PS with load sharing

- 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

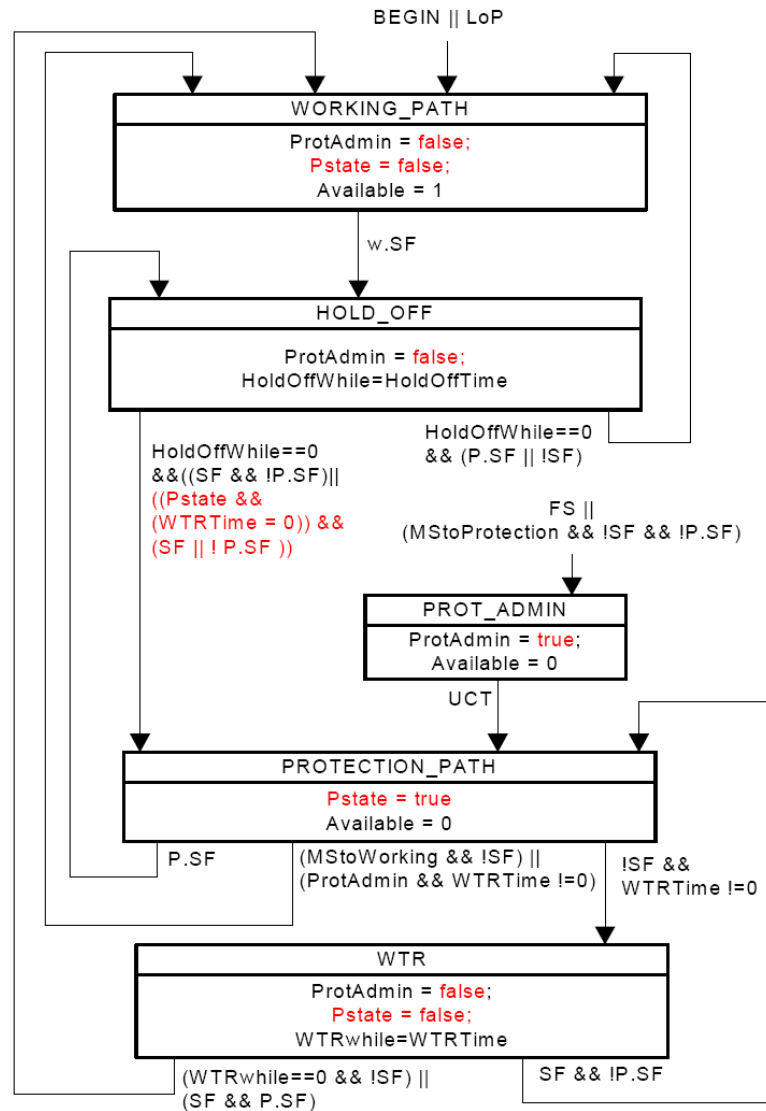
BSI Table for PS with load sharing

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

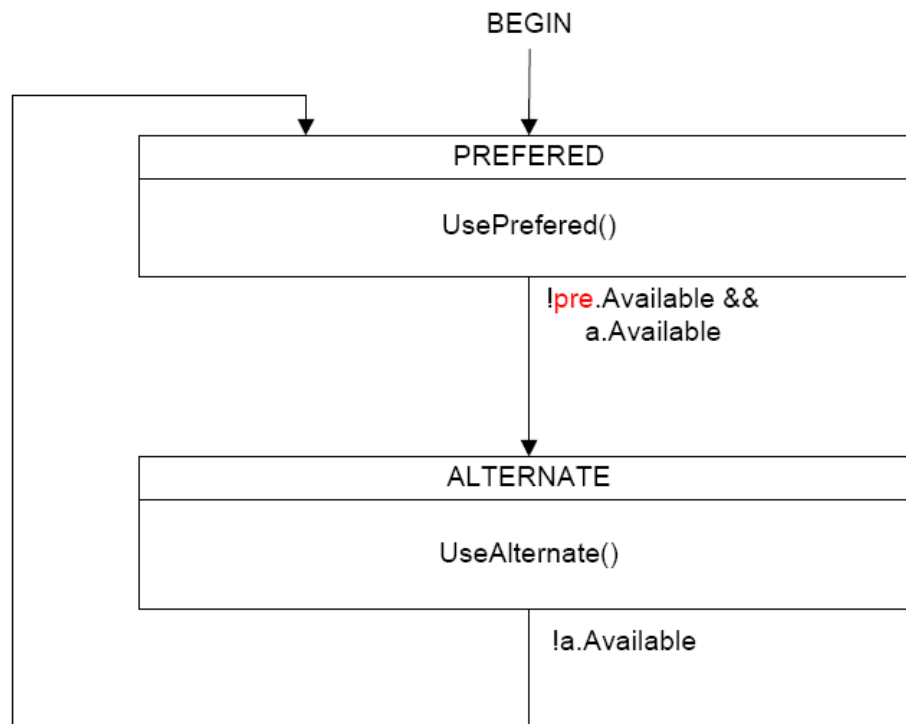
PBB-TE 1:1 Protection Switching Example



Path state machine for working entity



Backbone service instance



ERICSSON



TAKING YOU FORWARD