

802.1 TSN Rev Tasks

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tsn-phkl-rev2-tasks-0313-v3

802.1 TSN Tasks

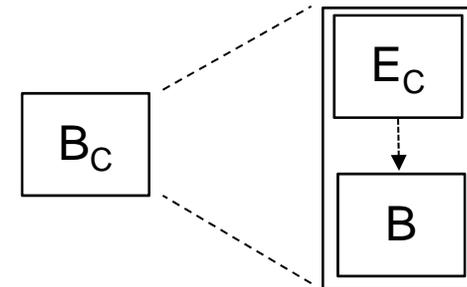
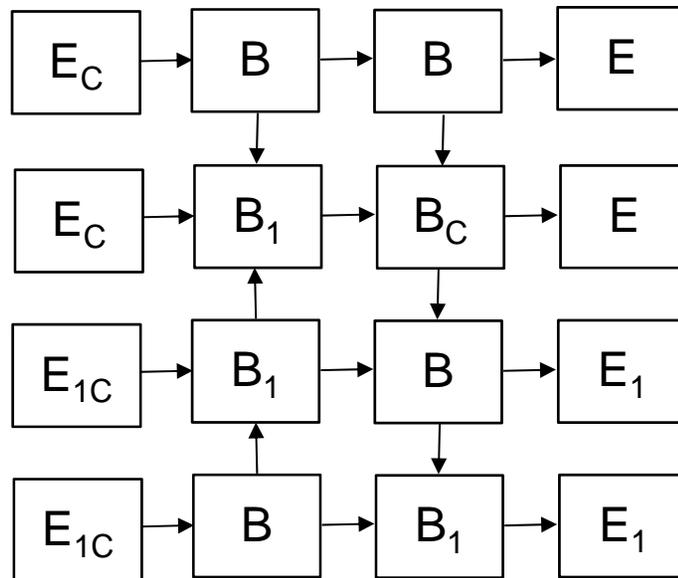


- Defined main tasks for Rev2

Task	Functionality	PAR
Timing Protocol	Timing and Synchronization: Enhancements and Performance Improvements	802.1ASbt
Flow Management	Path Control and Reservation	802.1Qca
	Frame Replication and Elimination for Reliability	802.1Qcb
Traffic Shaping	Enhancements for Scheduled Traffic	802.1Qbv
	Frame Preemption	802.1Qbu

Timing Protocol - 1

- Define a Model for 802.1AS / IS-IS:
 - End (E) & Bridge (B) Devices
 - E_C Master Clock capable devices
 - E_1 are 802.1AS Rev 1 compliant devices
 - B_1 are 802.1AS Rev 1 compliant bridges
 - B are IS-IS capable bridges
 - B_C are bridge with Master Clock capabilities
 - B_C are composed of 2 entities: $E_C + B$



Timing Protocol - 2



- Define the functional behavior for each entity and port

Port	Link Delay	BMCA	Advertise Msg	Sync Msg
$E_C \rightarrow B$				
$E_C \rightarrow B_1$				
$E_{1C} \rightarrow B$				
$E_{1C} \rightarrow B_1$				
$B \rightarrow B$				
$B \rightarrow B_1$				
$B_1 \rightarrow B$				
$B_1 \rightarrow B_1$				
$B \rightarrow E$				
$B \rightarrow E_1$				
$B_1 \rightarrow E$				
$B_1 \rightarrow E_1$				

Timing Protocol - 2

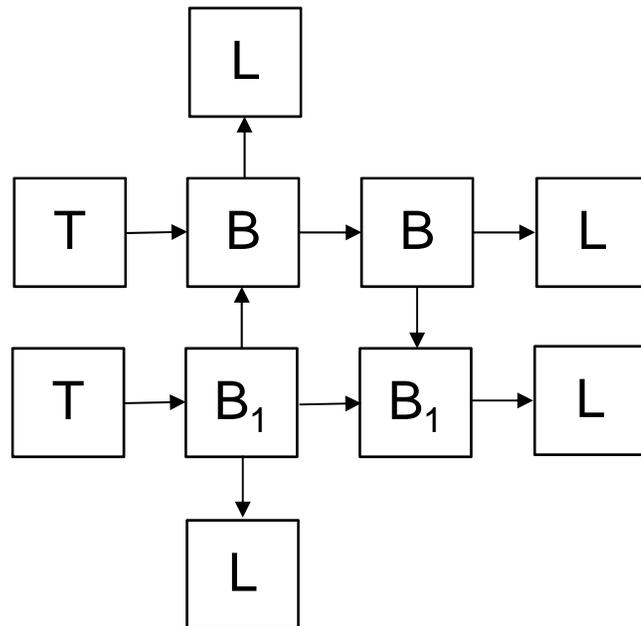


- Define the functional behavior for each entity and port
- Example:

Port	Link Delay	BMCA	Advertise Msg	Sync Msg
$E_{1C} \rightarrow B$	<ul style="list-style-type: none"> ▪ Pdelay/Resp Protocol 	<ul style="list-style-type: none"> ▪ E_C performs BMCA to determine the BMC (and Backup BMC) 	<ul style="list-style-type: none"> ▪ E_C send Advertise Msgs ▪ I incorporates clock information in its IS-IS DB 	<ul style="list-style-type: none"> ▪ E_C could send Sync Msgs if BMC (or Backup BMC) ▪ I adds source ID to Sync Msgs if missing in the Msg
$B \rightarrow B$	<ul style="list-style-type: none"> ▪ Pdelay/Resp Protocol 		Clock information is part of the IS-IS LSRs	<ul style="list-style-type: none"> ▪ Propagates Sync Mgs
$B \rightarrow E_1$	<ul style="list-style-type: none"> ▪ Pdelay/Resp Protocol 	<ul style="list-style-type: none"> ▪ E performs BMCA to determine the BMC (and Backup BMC) 	<ul style="list-style-type: none"> ▪ I generates Advertise Msgs to E, build from its IS-IS DB clock information 	<ul style="list-style-type: none"> ▪ E notifies of received Sync with a source ID different of the BMC (and Backup BMC)

Stream Management - 1

- Define a Model for MSRP / IS-IS:
 - Talker (T), Bridge (B) & Listener (L) Devices
 - T & L devices could be MSRP Rev1 compliant devices
 - B_1 bridges are MSRP Rev1 compliant bridges
 - B bridges are IS-IS capable bridges



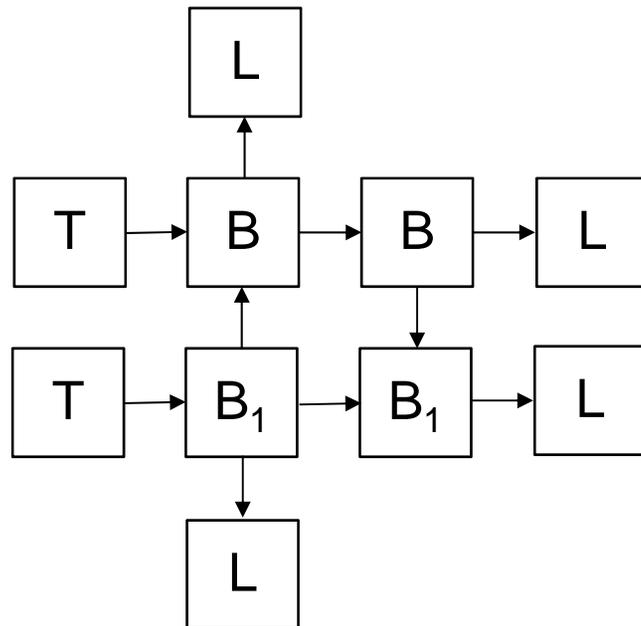
Stream Management - 2



- Define the functional behavior for each entity and port

Port	MAD Join (new)	MAD Join	MAD Leave	MAD Leave All
$T \rightarrow B_1$				
$T \rightarrow B$				
$B_1 \rightarrow B_1$				
$B_1 \rightarrow B$				
$B \rightarrow B_1$				
$B \rightarrow B$				
$B_1 \rightarrow L$				
$B \rightarrow L$				

- Define a Model for Traffic Shapers:
 - Talker (T), Bridge (B) & Listener (L) Devices
 - T devices could be Credit Base Shaper Rev1 compliant devices
 - B_1 bridges are Credit Base Shaper Rev1 compliant bridges
 - B bridges are IS-IS capable bridges



Traffic Shaping - 2



- Define the functional behavior for each entity and port

Port				
$T \rightarrow B_1$				
$T \rightarrow B$				
$B_1 \rightarrow B_1$				
$B_1 \rightarrow B$				
$B \rightarrow B_1$				
$B \rightarrow B$				
$B_1 \rightarrow L$				
$B \rightarrow L$				

Thank You



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