

SAS: RPR Protection and spanning tree

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Objectives

- Provide SAS functions to support network topology changes resulting from spanning tree changes

Terminology and terms (1)

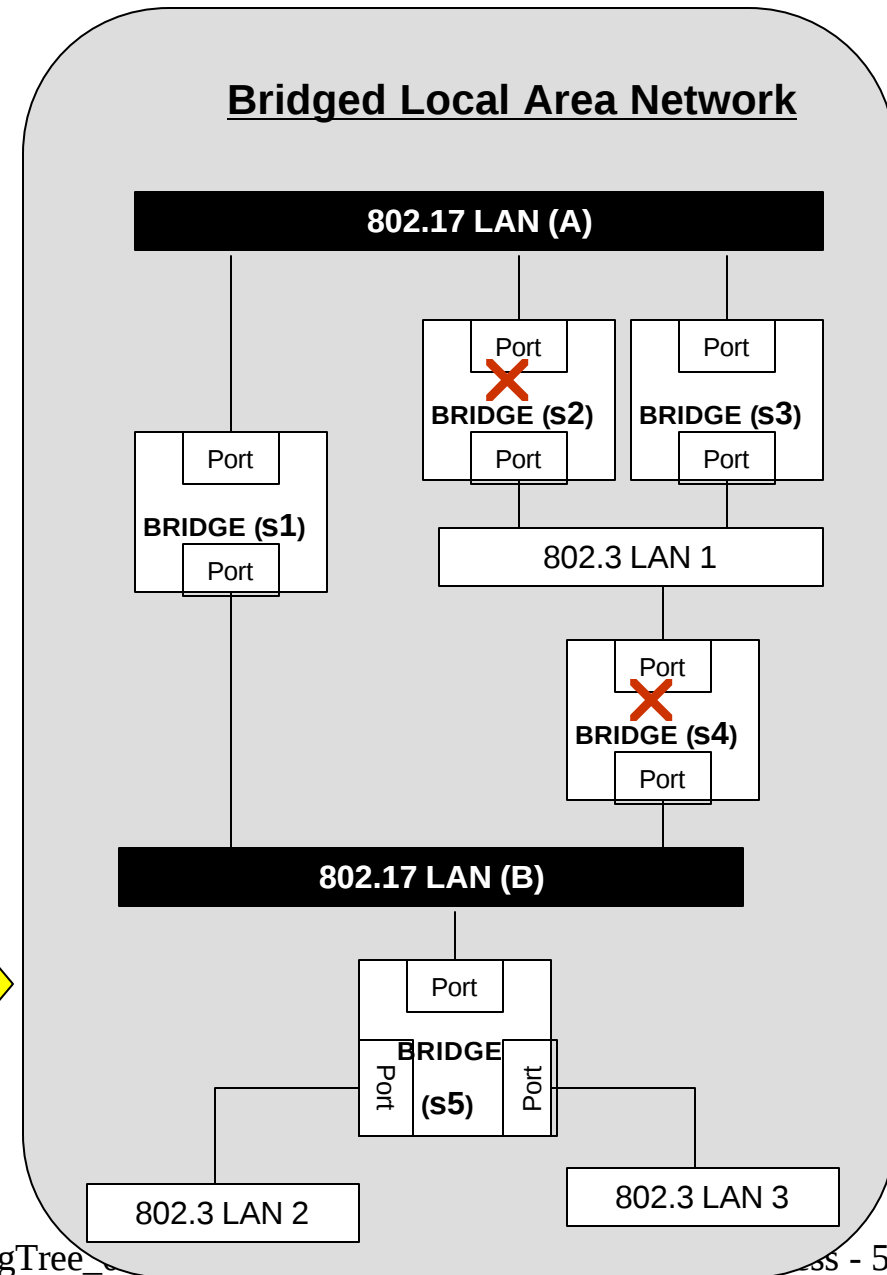
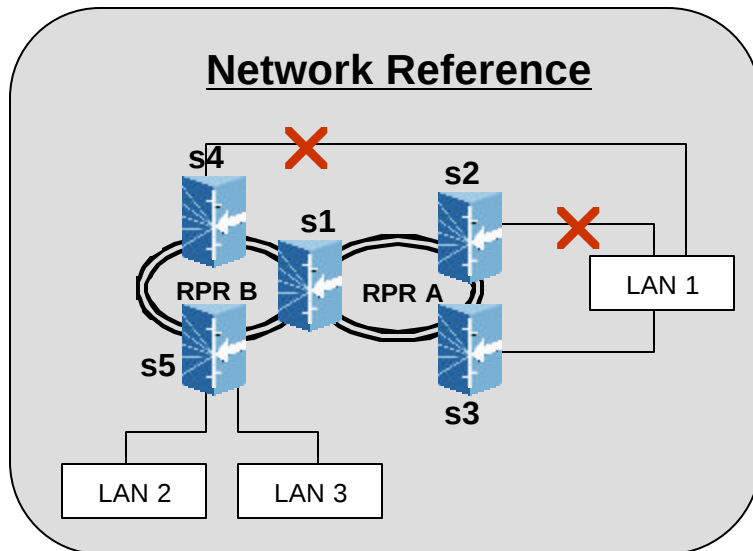
- SAS – Spatially aware sublayer
- Directed transmissions – Refers to a RPR source station transmitting to a designated (unicast) destination address on the ring
- Undirected transmission – Refers to a RPR source station flooding a frame over the ring

Terminology and terms (2)

- Local - implies ring local addresses of RPR station address and/or secondary MAC address associated with local RPR stations
- Remote address – A unicast address not found in the RPR topology DB
- targetAddress - denotes the destination RPR station MAC address associated with the client *da*.

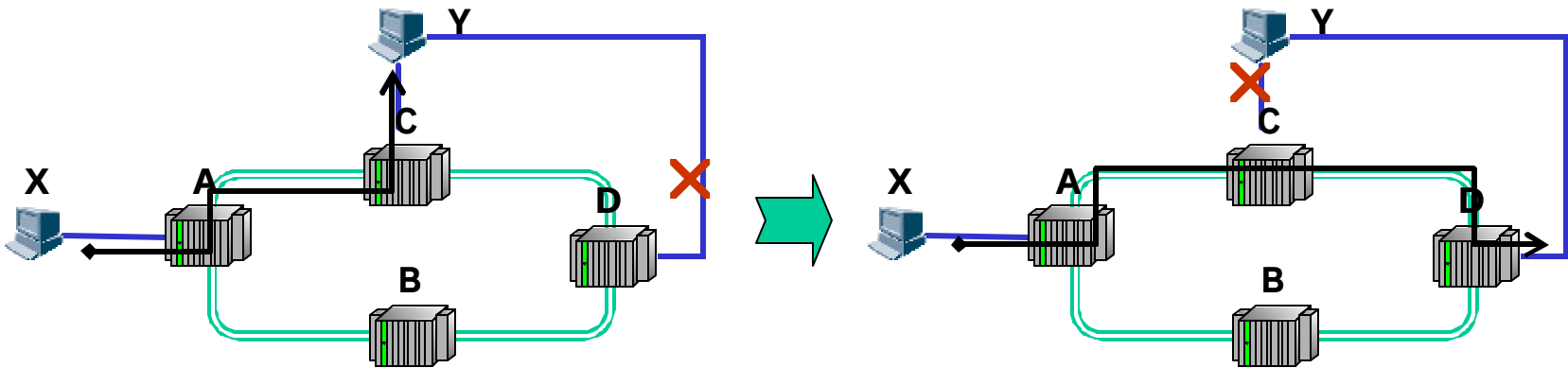
RPR bridging and spanning tree

- Spanning tree does not impact ringlet span connectivity. It disables bridge port access to the media (i.e., ring)!



Problem

- Network topology changes may invalidate SAS DB entries, and cause “black-holing” of traffic



- Prior to network topology change, SAS DB associates remote address Y with local address C; after network topology, remote address Y should be associated with local address D

Solution

- SAS DB should be cleared upon detection of network topology change

NOTE: It is valid to simply describe bulk flush of the FDB. See reference IEEE 802.1D-2004, 17.11.

Note: More intelligent SDB pruning methods can be employed to address this problem.

Mechanism



1. SAS can snoop spanning tree network topology change BPDU and flush SAS DB



2. Define a new control primitive that a bridge client uses to notify a MAC that a topology change notification has been detected

- The RPR MAC would flush the SAS DB upon reception of the control primitive indicating topology change

Consider changing this. Consider specifying that something else invokes a control primitive to denote topology change notification.

Back Up