

Bridging Issues in Integration of IEEE 802.16 and Carrier Ethernet

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Re:

Call for Contributions IEEE 802.16-13-0032-01-Gdoc.

Base Contribution:

IEEE 802.16-13-0049.

Purpose:

To seek comment from an 802.1 perspective on a proposal to IEEE Project 802.16r.

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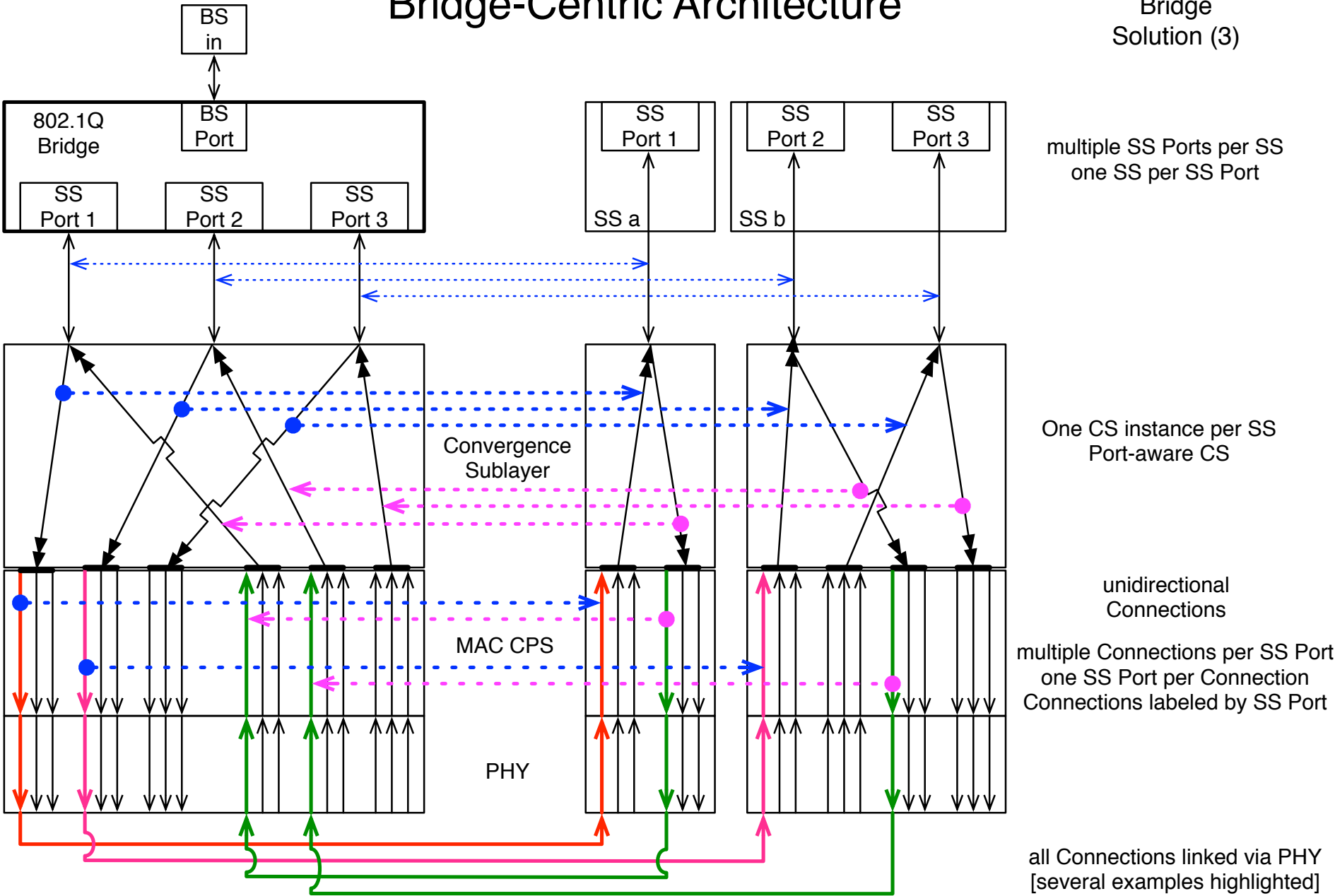
Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and <http://standards.ieee.org/board/pat>.

Integration of IEEE 802.16 and Carrier Ethernet

- Contribution IEEE 802.16-13-0049 (“Integration of IEEE 802.16 and Carrier Ethernet”) submitted to IEEE Project 802.16r for March 2013:
 - <http://doc.wirelessman.org/16-13-0049>
- Proposes operation of IEEE 802.16 (using the IEEE 802.16 Packet Convergence Sublayer) in bridge-centric architecture with an explicit 802.1Q bridging function at the base station;
- Some issues regarding the bridge function require further clarification.

Bridge-Centric Architecture

Bridge Solution (3)



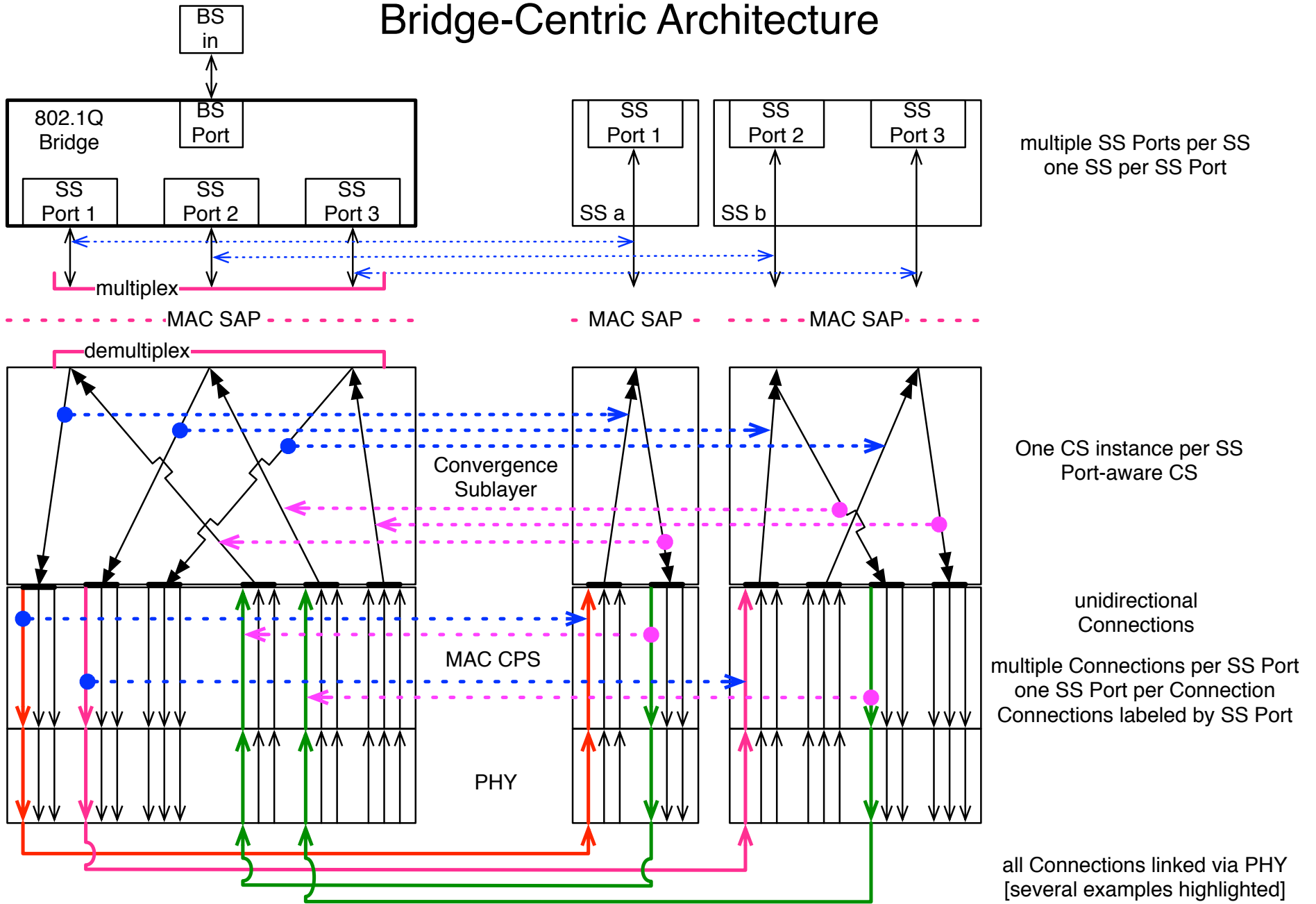
Notes on Bridge-Centric Architecture

- Bridge functionality at the base station port
- Multiple Ethernet ports per subscriber station (SS)
 - VLAN-multiplexing at those ports is essential
 - C-Tag
- Bridge does the hard work
- 802.16 MAC/PHY simply provides point-to-point links from bridge ports to SS ports
 - lower layers are transparent

Issues that Arise

- 802.16 MAC transports frames on connections
- Currently, connections are not identified with the SS port to which they are connected.
 - This can be easily remedied within IEEE Std 802.16
- Requires the following:
 - 802.16 MAC must receive frames from bridge along with identification of the bridge egress port.
 - 802.16 MAC must hand frames to bridge along with identification of the bridge ingress port.
- But there is no physical bridge port
- Multiplexing/demultiplexing required at the bridge.
 - Use some tag (such as S-Tag) to multiplex?

Bridge-Centric Architecture



MAC Service

indication (destination_address, source_address, mac_service_data_unit, priority, drop_eligible, frame_check_sequence, service_access_point_identifier connection_identifier)	request (destination_address, source_address, mac_service_data_unit, priority, drop_eligible, frame_check_sequence, service_access_point_identifier connection_identifier)
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- This looks like the 802.1Q ISS
- Can use service_access_point_identifier as the port identifier
- What protocol do we use to express that parameter?

Outstanding Issues

- Are there flaws in this architectural model?
- Does 802.1 specify the protocol for identifying the bridge port in a multiplexed frame emerging from a single point? What is the standard tag?
- It's preferable for 802.16 to specify an 802.1 protocol rather than inventing one, because:
 - It would be more likely to work correctly.
 - It opens up the possibility of introducing standardized bridging hardware/software implementations into 802.16 base stations