10G Broadcast: Review and Motion

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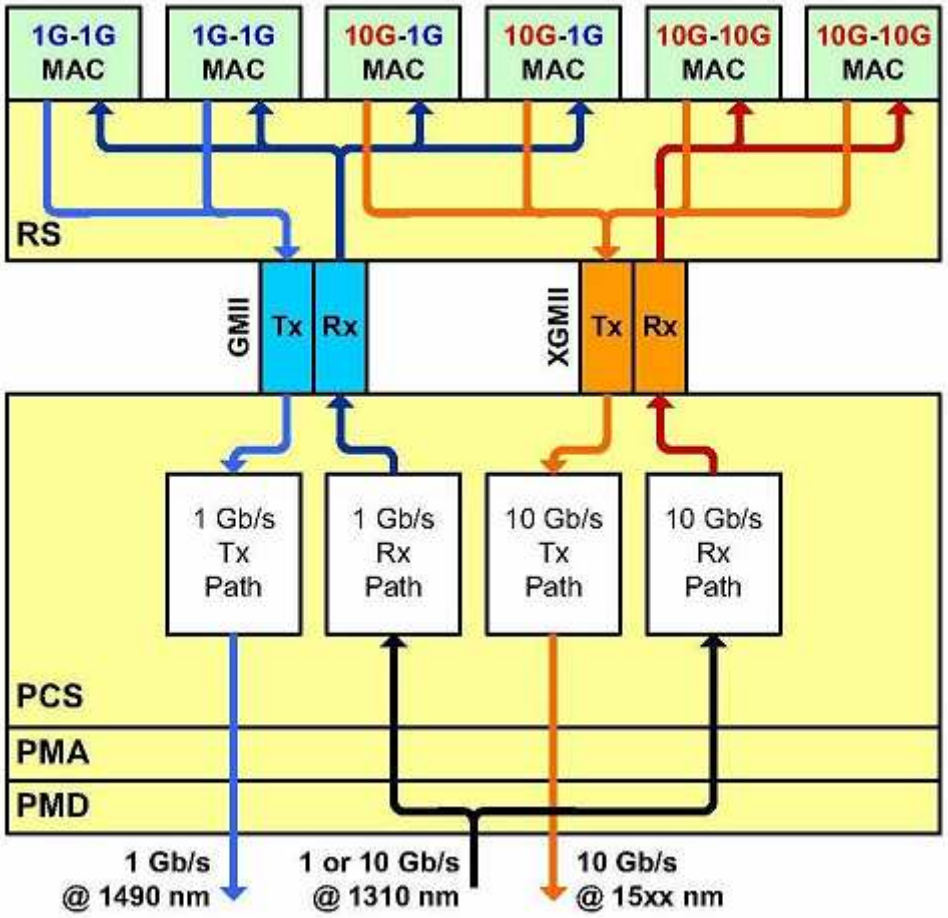
10GEPON OLT with full coexistence support

- 10G/10G, 10G/1G, and 1G/1G ONUs are supported
- 10GEPON OLT RS supports both the GMII and XGMII interfaces
- RS routes downstream data from MAC instances to appropriate Downstream according to LLID



From 3av_0701_kramer_1.pdf

Motion (Tuesday)

There shall be a Broadcast MAC instance for 10G distinct from the 1G Broadcast MAC instance

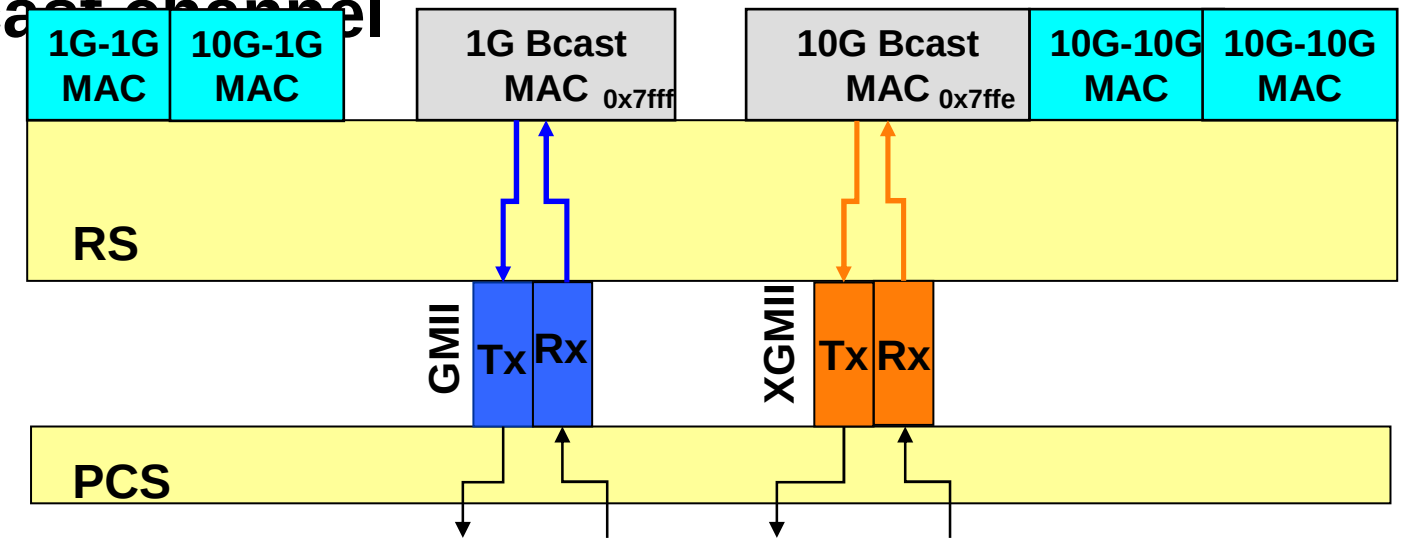
Y __19___

N __0____

A __11___

Moved: Jeff Mandin
Second: Frank Effenberger

Option 1: LLID 0x7ffe is allocated for the 10G broadcast channel



Each Broadcast MAC instance is associated with a unique LLID. The ONU transmits REGISTER_REQ with an LLID according to its upstream rate. A 10G/1G ONU receives broadcasts on LLID 0x7ffe and sends REGISTER_REQ to 0x7fff.

- Advantages:
  - Retains 1:1 association of MAC instance and LLID in RS
- Disadvantages:
  - 10G/10G and 10G/1G ONUs receive broadcasts over LLID 0x7ffe

Adjustments to Reconciliation Sublayer (Option 1)

Descriptive text in 65.1.3.3.2 is updated as follows**:**

"b) If the received logical_link_id value matches 0x7FFF or 0x7FFE and an enabled MAC exists with a logical_link_id variable with the same value then the comparison is considered a match to that MAC.

c) If the received logical_link_id value is any value other than 0x7FFF or 0x7FFE and an enabled MAC exists with a mode variable with a value of 0 and a logical_link_id variable with a value matching the received logical_link_id value then the comparison is considered a match to that MAC.

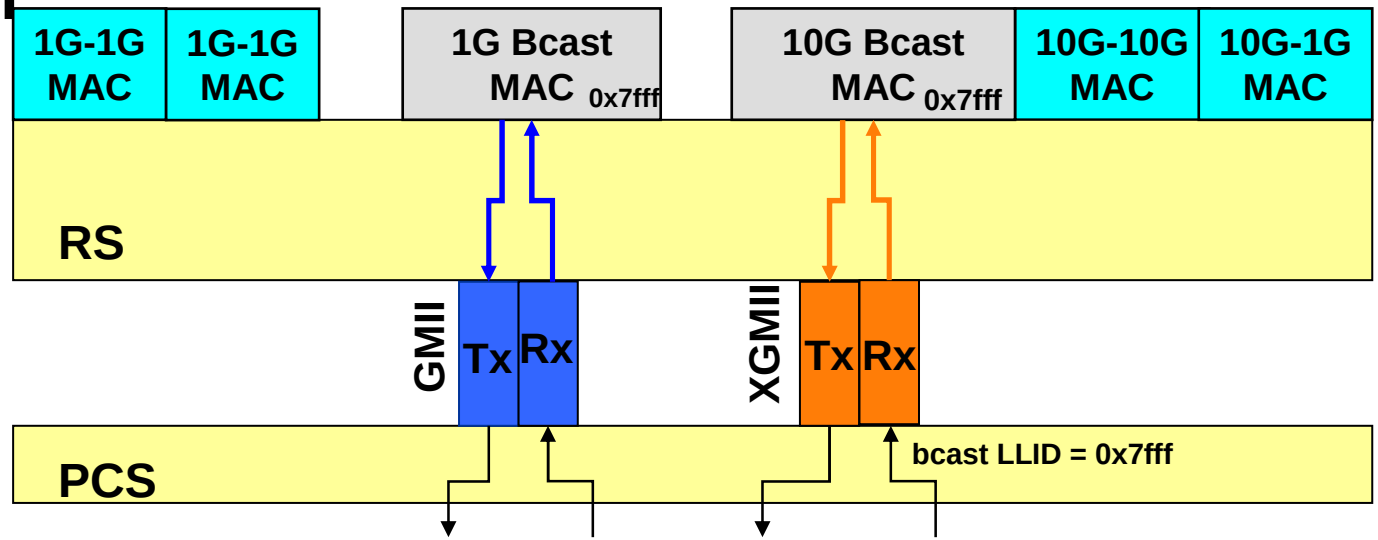
.....

If the device is an ONU then the following comparison is made:

….

b) If the received mode bit is 1 and the received logical_link_id value does not match the logical_link_id variable, or the received logical_link_id matches 0x7FFE, then the comparison is considered a match."

Option 2: Both Broadcast channels use LLID 0x7fff



RS is responsible for routing traffic between the MAC instance and corresponding MII

Advantages:

- 10G ONUs still use 0x7fff as broadcast LLID

Disadvantages:

- REGISTER_REQ from 10G/1G ONU received by 1G Bcast MAC (probably doesn't break anything, but architecturally questionable)
- There is no longer a 1:1 association of MAC instance and LLID in the RS

Adjustments to Reconciliation Sublayer (Option 2)

Descriptive text in 65.1.3.3.2 is updated as follows**:**

"If the device is an OLT then the following comparison is made:

b) If the received logical_link_id value matches 0x7FFF [and an enabled MAC exists with a logical_link_id variable with the same value] then the comparison is considered a match to the [that MAC] SCB MAC associated with the receiving MII.

c) If the received logical_link_id value is any value other than 0x7FFF and an enabled MAC exists with a mode variable with a value of 0 and a logical_link_id variable with a value matching the received logical_link_id value then the comparison is considered a match to that MAC."

MAC Issues (Both options)

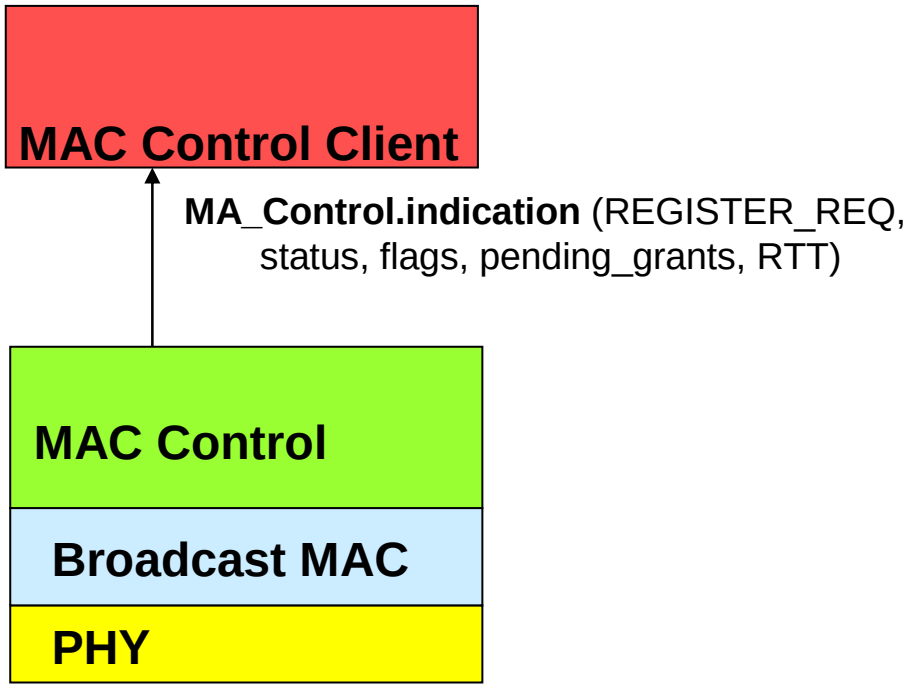
1. State Machines that are specified by clause 64.3.3.6 as implemented in the broadcast MAC Control instance must be specified as being implemented in *each* of the broadcast MAC Control instances

2. No changes to MAC-layer state diagrams at OLT or ONU

   – however there is various descriptive text that must be updated to refer to the potential of two broadcast MACs rather than one (clauses 64.1.2, 64.3.2.3, 64.3.6.1 …..)

Receive direction handling on Broadcast MAC

OLT



- "The SCB MAC handles all downstream broadcast traffic, but is never used in the upstream direction for client traffic, except for client registration." (64.3.2.3)

- The Broadcast MAC instance and MAC Control entity do not retain any state information on the received REGISTER_REQ PDU. So no impact if REGISTER_REQ from 10G/1G ONU is received by 1G Broadcast MAC

Straw Poll

I prefer:

- 10G Broadcast channel scheme using Option 1 (LLID 0x7ffe) __0___
- 10G Broadcast channel scheme using Option 1 (with proviso that LLID 0x7ffe 10G/1G ONU receives on 0x7ffe and sends on 0x7fff) __20__
- 10G Broadcast channel scheme using Option 2 (LLID 0x7fff) ___1__

No Opinion __27___

Motion

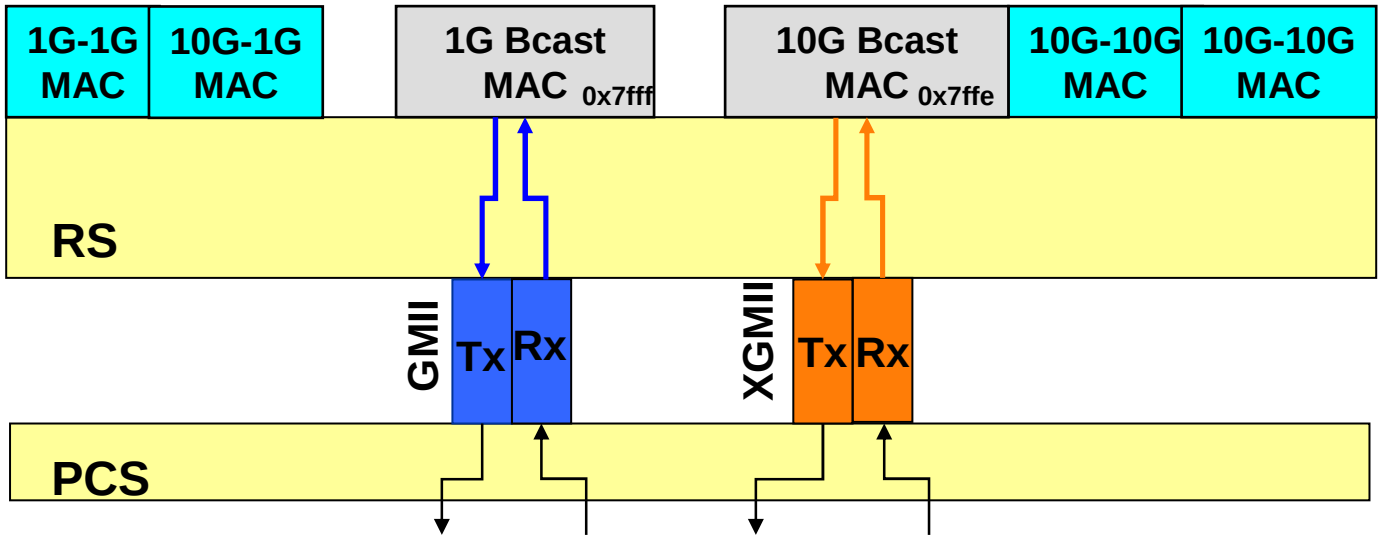
Each Broadcast MAC instance shall be associated with a unique LLID. The 10G broadcast channel shall be associated with LLID 0x7ffe. The 1G broadcast channel shall be associated with LLID 0x7fff.

The ONU transmits REGISTER_REQ with an LLID according to its upstream rate. A 10G/1G ONU receives broadcasts on LLID 0x7ffe and sends REGISTER_REQ to 0x7fff.

- Y __17_____
- N ___0____
- A ___25____

Moved: Jeff Mandin
Second: Brian Holden

Motion (continued)



- Advantages:
  - Retains 1:1 association of MAC instance and LLID in RS
- Disadvantages:
  - 10G/10G and 10G/1G ONUs receive broadcasts over LLID 0x7ffe