

# **User Fairness in EPON**

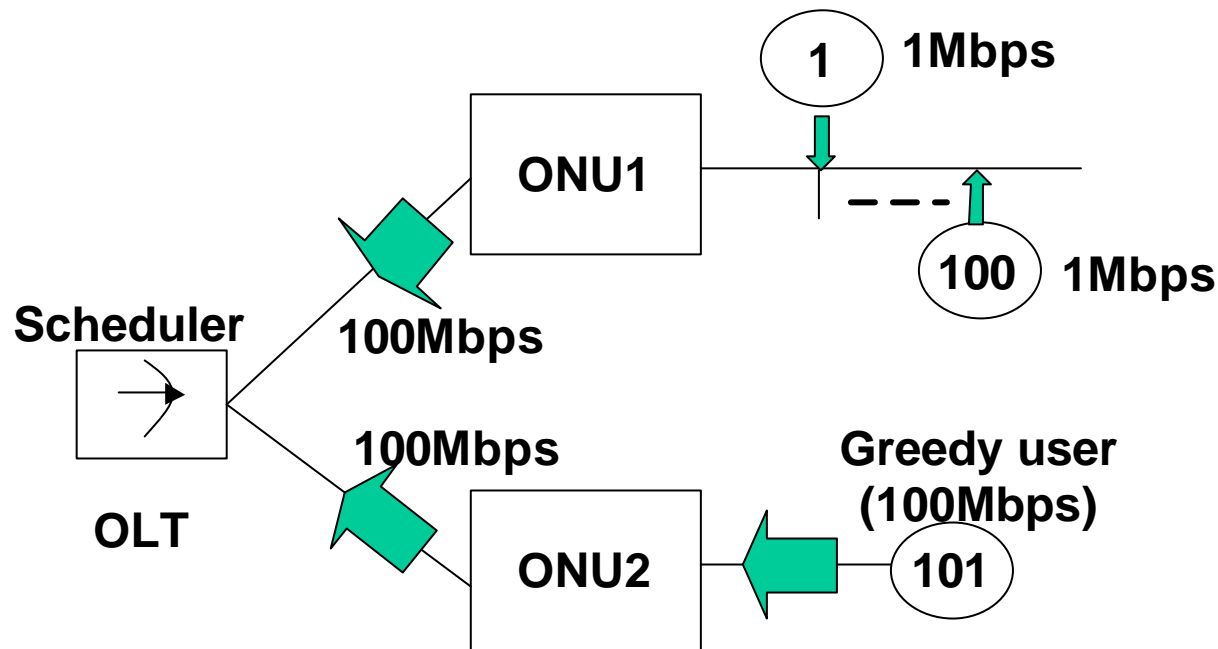
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# Backgrounds

- ✍ It is important to provide the fairness between user stations.
- ✍ The current REPORT message only reports total queue size in ONU, and which can not guarantee the fairness.
- ✍ EPON may needs a hook to WFQ (Weighted Fair Queuing).  
But, How?



# Solutions

- ✍ ONU needs to provide to OLT how many user stations are currently active.
- ✍ OLT uses this information during bandwidth allocation to provide the fairness between user stations.
- ✍ Of course, DBA is out of scope. However, how to inform number of active user stations in ONU to OLT needs to be considered in EPON.

Option 1 : Report Message, MPCP

Option 2 : Keep Alive Message, OAM

# Solutions – Using MPCP message

DA	6
SA	6
Type (8808)	2
Opcode (00-03)	2
Timestamp	4
Report Bitmap	1
Queue #0 Report	0/4
Queue #1 Report	0/4
Queue #2 Report	0/4
Queue #3 Report	0/4
Queue #4 Report	0/4
Queue #5 Report	0/4
Queue #6 Report	0/4
Queue #7 Report	0/4
Station Number	2
Pad	5-37
FCS	4

**Use 2 bytes in the current MPCP REPORT message for the ONU's active user station number.**

**Every time ONU reports its bandwidth request, ONU also reports number of active user station.**

# Solutions – Using OAM message

DA	6
SA	6
OAM Type = 8809	2
OAM Sub Type = 01	1
Version	1
Flags	2
Code	1
Station Number	2
Data/Pad	--
FCS	4

**Use 2 bytes in the current OAM Keep Alive message for the ONU's active user station number.**

**The Keep Alive message is periodically transmitted once per second.**

**User station number is updated every one second.**

# **Which one do you prefer?**

- 1. No support of user fairness**
- 2. Option 1 – Using MPCP Report Message**
- 3. Option 2 – Using OAM Keep Alive Message**