

Proposal for Discovery GATE and REGISTER_REQ modifications

IEEE 802.3av Task Force

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History

- A number of presentations have been presented over the past two meetings regarding changes to the discovery messages for registration of 10GEPON ONUs.
 - 3av_0707_mandin_2.pdf
 - 3av_0709_lynskey_1.pdf
 - 3av_0709_mandin_1.pdf
- We now provide a joint proposal and motion for modification to these messages.

How this helps discovery process

- How this helps the OLT
 - If necessary, OLT can open window for single speed.
 - If capable, OLT can open a window for multiple speeds.
 - OLT learns at what speed ONU is attempting to register at.
 - OLT learns what speeds ONU is capable of transmitting at.

- How this helps the ONU
 - Allows 10G ONU to ignore windows it has no chance of registration in.
 - Lets ONU know what discovery windows may be coming in the future, and multi-speed ONU could wait for optimal speed.

Overview of changes

- Discovery GATE message informs the ONU of the following for 10G ONU registration:
 - OLT is capable of 10G/10G or 10G/1G
 - Discovery window is opening for 10G/10G ONUs
 - Discovery window is opening for 10G/1G ONUs
 - Discovery window is opening for 10G/10G and 10G/1G ONUs
- REGISTRATION_REQ message informs the OLT of the following for 10G ONU registration:
 - ONU is 10G/10G or ONU is 10G/1G
 - ONU is attempting to register at 10G
 - ONU is attempting to register at 1G

Proposal for Unified Discovery GATE

- Since no room exists in Flags field, propose adding 1-byte bitmap for discovery GATE messages.
- Field will indicate which speed(s) OLT will be “listening” for during the next discovery window.
- Field can indicate that one or more speeds can register during discovery window.
- No change to normal GATE messages.

Existing Discovery GATE	Octets	Proposed Discovery GATE	Octets
Destination Address	6	Destination Address	6
Source Address	6	Source Address	6
Length/Type = 88-08	2	Length/Type = 88-08	2
Opcode = 00-02	2	Opcode = 00-02	2
Timestamp	4	Timestamp	4
Flags	1	Flags	1
Start Time	4	Start Time	4
Length	2	Length	2
Sync Time	2	Sync Time	2
Pad/Reserved	31	Discovery Information	1
FCS	4	Pad/Reserved	30
		FCS	4

Proposal for REGISTER_REQ

- Propose adding 1-byte bitmap for REGISTER_REQ messages.
- Field will indicate which abilities ONU is attempting to register with.
- Field is symmetric with Discovery GATE.

Existing REGISTER_REQ	Octets	Proposed REGISTER_REQ	Octets
Destination Address	6	Destination Address	6
Source Address	6	Source Address	6
Length/Type = 88-08	2	Length/Type = 88-08	2
Opcode = 00-04	2	Opcode = 00-04	2
Timestamp	4	Timestamp	4
Flags	1	Flags	1
Pending grants	1	Pending grants	1
Pad/Reserved	38	Discovery Information	1
FCS	4	Pad/Reserved	37
		FCS	4

Proposed definitions of new fields

- Fields are symmetric, providing common information for both GATE and REGISTER_REQ.
- Expansion room still available in both GATE and REGISTER_REQ.

REGISTER_REQ

Bit	Indication
0	ONU is 10G/1G upstream capable
1	1G registration attempt
2	10G registration attempt
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Reserved

Discovery GATE

Bit	Indication
0	OLT is 10G/1G upstream capable
1	OLT is opening 1G discovery window
2	OLT is opening 10G discovery window
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Reserved

Motion

- Adopt modifications to Discovery GATE and REGISTER_REQ as defined 3av_0709_lynskey_3.pdf
- M:
- S:
- Technical ($\geq 75\%$)
- Y
- N
- A