Consideration of Extended MPCP message for 10G EPON

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Consideration of extended MPCP message

- In current situation, dedicated extensions by carriers (or venders) allow EPON systems to be used for carrier-grade optical access systems although the original EPON standardization is insufficient.
- However these extensions prevent the interoperability with other EPON systems because these are not international standardizations.
- So we think the extension of EPON systems for a carrier-grade access should be achieved in a proper standardization body to achieve the interoperability.
- Fortunately, we can expect ITU-T will extend EPON systems because the momentum of the harmonization with ITU-T has become higher such as holding some joint workshops.
- So I think we should be ready for future extension in ITU-T.

Consideration of extended MPCP message

- The EPON standardization already has the organization specific OAM message, it will allow ITU-T to achieve flexible extensions of EPON systems to meet the most of requirements for realizing carrier-grade access systems.
- However it is only an slow protocol. So it is insufficient for realizing the high reliable functions such as redundancy functions with fast a start-up or route-switching functions without any signal losses.
- Especially, the development of IP telephony services as a life line requires the higher reliability.
- Moreover we expect higher bit-rate can allow EPON systems to be applied to another application such as high-reliable leased line services as well as best-effort optical access services.
- Therefore, we propose the extended control message format, which is a fast protocol message, to extend 10G EPON for achieving a carrier-grade access in ITU-T in the future.

Proposal for EXTENDED_CONTROL message

- We propose we define an EXTENDED_CONTROL.
- We set Opcode = 00-08 and add 1-byte message_id field in EXTENDED_CONTROL.
- A message_id and remains can be used for future use to achieve a carrier-grade access.

Proposed EXTENDED_CONTROL

Destination Address	6
Source Address	6
Length/Type = 88-08	2
Opcode = 00-08	2
Timestamp	4
MESSAGE_ID	1
Data/pad/reserved	39
FCS	4

Conclusion

- We proposed the extended control message format to extend 10G EPON for future use to realize a carrier-grade access in ITU-T.