IEEE 802.3 Ethernet Working Group
Liaison Communication

Source: IEEE 802.3 Working Group[1]

To: Yoichi Maeda, Chairman, ITU-T Study Group 15 (yoichi.maeda@ntt-at.co.jp)
Members ITU-T Question 2/15

CC: Paul Nikolich, Chair, IEEE 802 LMSC (p.nikolich@ieee.org)
Adam Healey, Secretary, IEEE 802.3 Ethernet Working Group (adam.healey@lsi.com)
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Subject: Liaison letter ITU-T SG15 to IEEE 802.3 LS 1

From: David Law – Chair, IEEE 802.3 Ethernet Working Group (David_Law@3Com.com)

Approval: Agreed to at IEEE 802.3 Plenary meeting, Denver, July 17, 2008

Action: Response / Information

Dear Mr. Maeda and members of ITU-T SG15:

The IEEE 802.3 Working Group thanks SG15 for their liaison regarding the proposed interworking of ITU next generation PON and IEEE P802.3av standards systems. The group supports the basic goal of having standards from the two groups work together in a harmonious way, with the IEEE 802.3 standard providing the necessary interfaces such that the ITU standards may provide extended functions that are beyond the scope of IEEE 802.3 while not modifying the base IEEE 802.3 standard.

Concerning the specific interfaces, we would like to note that IEEE Std 802.3 already provides an extensible interface to the OAM channel, as described in IEEE Std 802.3 Clause 57.4.3.6. An organization specific OAMPDU is defined with a code of 0xFE. The message data field begins with the organizational unique identifier (OUI) of the relevant organization, and the remainder of the data field is defined by that organization. We note that ITU-T has already been allocated an IEEE OUI: 00-19-A7 (hex). Therefore, the mechanism is in place to address any extensions to the OAM channel.

In addition, the next revision of the standard is proposed to provide an additional extension to the slow protocol channel, as described in Annex 57B. Here, an organization specific slow protocol sub-type is defined with a code 0x0A. The message contents begin with an OUI, and the remainder of the message contents are defined by the indicated organization.

To the specific request to extend the MPCP channel, the preferred approach is to follow the precedent of the OAM channel. However, to make this even more generic and widely usable, the extension will be applied to the MAC control channel, as described in IEEE Std 802.3 Clause 31. (MPCP is a subtype of MAC Control.) A new opcode shall be defined that will indicate an

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[1] This document solely represents the views of the IEEE 802.3 Working Group, and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802.

organization specific MAC Control message. The payload will then consist of the OUI of the defining organization and the organizationally defined contents. With this in place, it will be possible for ITU to define specific extensions to the MPCP channel. For your reference, we attach the two documents that contain the proposed text for this function. Please note that this material is only a proposal, and is subject to change during balloting.

We believe that with these three extensible message types in place, the necessary interfaces for the successful interworking of the ITU and IEEE standards will be in place. We look forward to continuing our dialog with SG15 on this and other matters. Our next plenary session will be in held in Dallas, Texas, USA on the week of Nov. 10th.

Annex 31A

(normative)

MAC Control opcode assignments

Update Table 31A-1 by replacing the last row in the table with the following three rows:

00-07 through xx-xw	Reserved			
xx-xx	EXTENSION		This frame is used for Organization-Specific Extension. Upon reception of this message, the MAC Control generates MA_CONTROL.Indication informing the MAC Control Client to perform the relevant action.	No
xx-xy through xx-xz	Reserved			

Add a new Table 31A-8 after Table 31A-7 with the description of EXTENSION frame with the following contents:

Table 31A–8—EXTENSION MAC Control indications

EXTENTSION (opcode 0xFFFE)		
indication_operand_list element	**Value**	**Interpretation**
OUI	24 bits	Organizationally-Unique Identifier that determines the format and semantics of the Value field and its subfields, if any are defined.
Value	variable	Organization-specific value, distinguished by the OUI.

Annex 31C

(normative)

MAC Control organization specific extension operation

31C.1 Organization specific extension description

The extension operation is used to provide a standardized means for organizations to define their own MAC Control protocols outside the scope of this standard. The requirements defined in @@Clause 31@@ apply to these protocols.

31C.2 Transmission of Extension MAC Control frame

Upon receipt of a MA_CONTROL.request primitive containing the EXTENSION opcode from a MAC client, the MAC control sublayer calls the MAC sublayer MAC:MA_DATA.request service primitive with the following parameters:

a) The destination_address is set equal to the destination_address parameter of the MA_CONTROL.request primitive. This parameter is currently restricted to either the value 01-80-C2-00-00-01 or to the 48-bit individual address of the destination station.
b) The source_address is set equal to the 48-bit individual address of the station.
c) The length/type field (i.e., the first two octets) within the mac_service_data_unit parameter is set to the IEEE 802.3 MAC Control type value assigned in @@Subclause 31.4.1.3@@.
d) The remainder of the mac_service_data_unit is set equal to the concatenation of the Extension Opcode, the Organizationally Unique Identifier, and the Organization specific data.
e) The frame_check_sequence is omitted.

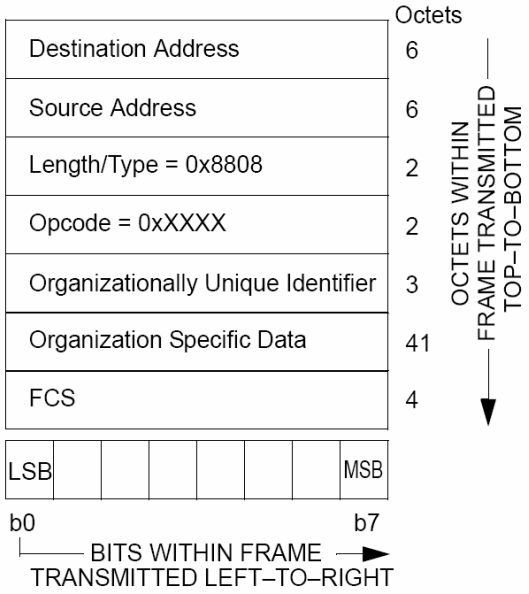

Figure 31C–1—MAC Control EXTENSION Frame

31C.3 Receive operation

The opcode-independent MAC Control sublayer Receive state diagram accepts and parses valid frames received from the MAC sublayer. MAC Control sublayer entities that implement the EXTENSION operation shall implement the Receive state diagram specified in this subclause. The functions specified in this subclause are performed upon receipt of a valid Control frame containing the EXTENSION opcode and define the function called by the INITIATE MAC CONTROL FUNCTION state of @@Figure 31–4@@ (See @@Subclause 31.5.3@@).

31C.3.1 Receive state diagram (INITIATE MAC CONTROL FUNCTION) for EXTENSION operation

@@Figure 31C-2@@ depicts the INITIATE MAC CONTROL FUNCTION for the EXTENSION operation (See @@Subclause 31.5.3@@). Upon reception of EXTENSION frames, the frame is sent to the MAC CONTROL client.

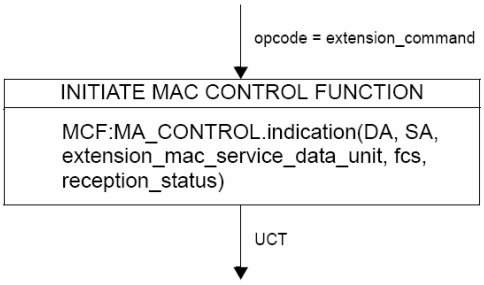

Figure 31C–2—EXTENSION receive function