802.3 Ethernet Over SONET Ad Hoc Report

ITU-T SG7 Liaison Communications To IEEE 802

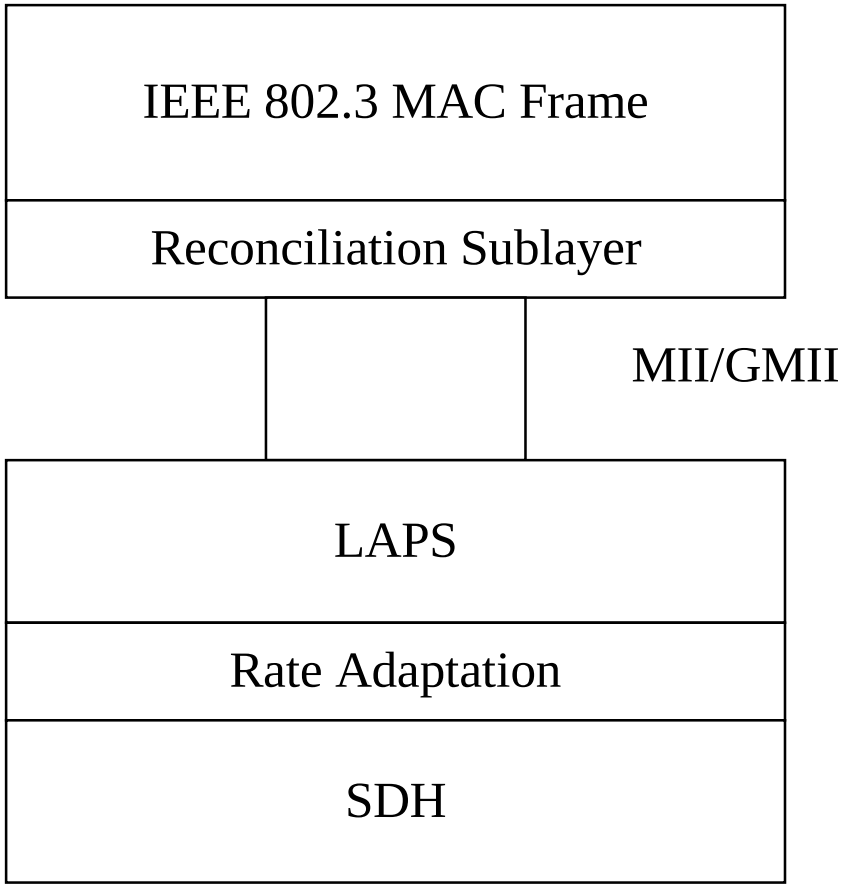
Roy Bynum

802 Plenary Meeting
March 12, 2001

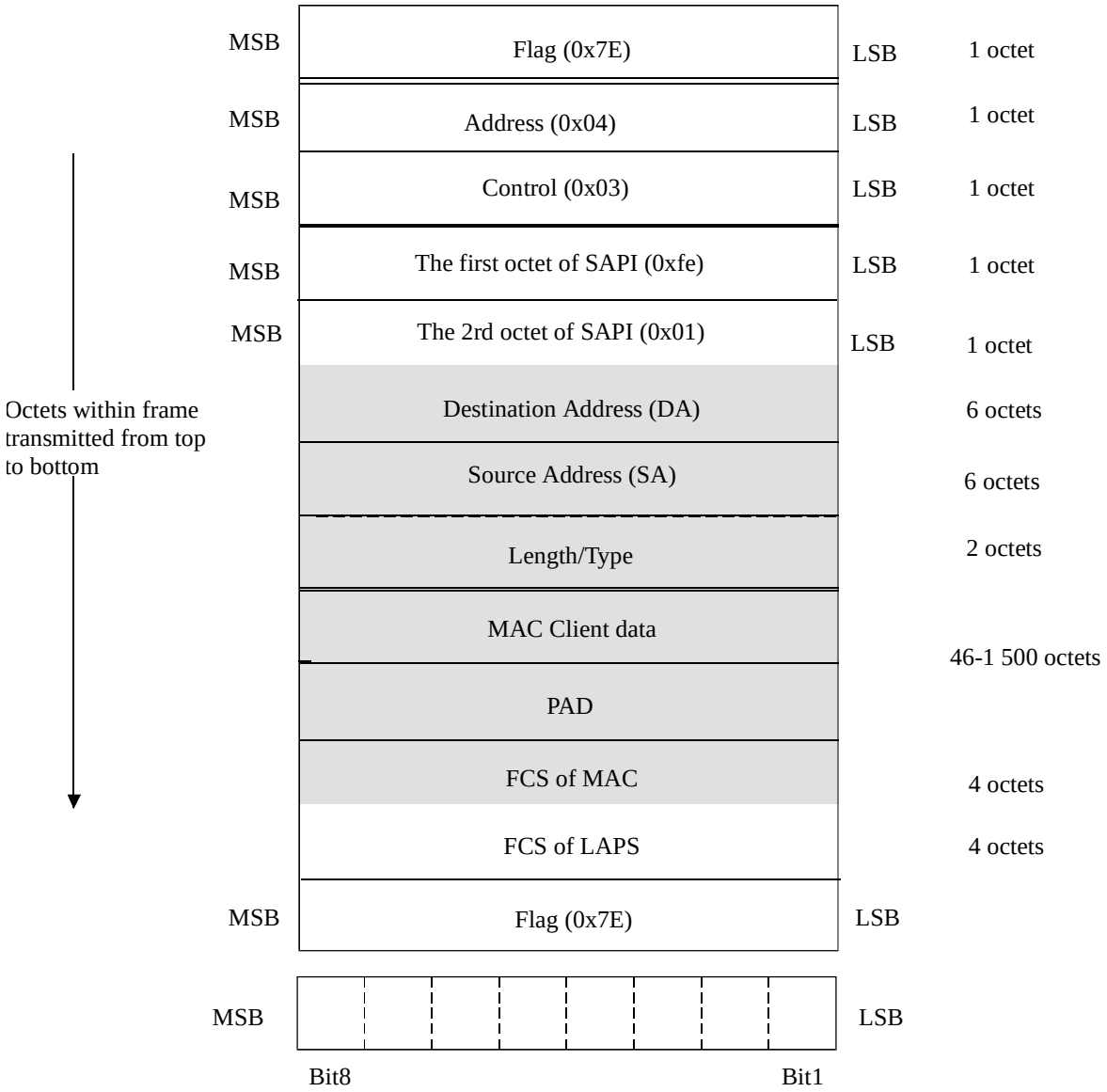
ITU-T SG7 Approved Recommendation X.86

"ITU-T SG 7 at its 29 January-2 February 2001 meeting has approved the draft Recommendation X.86 on Ethernet over LAPS. (Link Access Procedure - SDH) Recommendation X.86 is a new physical interface sublayer (PHY) for 802.3 Ethernet Media Access Control (MAC) frames. Recommendation X.86 provides for the encapsulation of 802.3 MAC frames in a sublayer level address and control frame, LAPS. Recommendation X.86 will allow 802.3 Ethernet switches and Hubs to interface directly with SDH (Recommendation G.707) transmission infrastructure for point to point data link communications over Wide Area Networks (WANs). The data transfer rates for this new PHY reflect the various concatenated and non-concatenated payload rates in the SDH standard. It is expected that Recommendation X.86 will provide at lower data transfer rates, some of the same functionality that is currently being considered by 802.3ae for 10GbE WAN PHY. IEEE 802 Committee is requested to provide comments regarding work in 802.3 standards that might be related to Recommendation X.86 and future work on Recommendation X.86."

X.86 Ethernet PHY Stack Relationship



X.86 Ethernet Encapsulation By LAPS



X.86 Rate Adaptation

"If the Rate Adaptation is needed in the LAPS transmit processing, transmit entity adds the rate adaptation octet(s) "0xdd" within the frame by sending sequence(s) of {0x7d, 0xdd}. This function is performed just after transparency processing and before the end flag is added. In receive direction, receive entity will remove the Rate Adaptation octet(s) "0xdd" within the LAPS frame when detecting sequence(s) of {0x7d, 0xdd}, This function will be done just before transparency processing and after the end flag is detected."

This works well with the initial implementation of 100BaseX into SDH VC-4 (150Mb) by expanding the data transfer rate to match the SDH payload rate. This will not work well with mapping Ethernet frames into lower SDH payload rates, such as 1000BaseX into SDH VC-4.

Recommended Response to ITU-T SG7

Recommend a motion to respond to ITU-T SG7 with a request to include 802.3x MAC Control Frames (802.3 Clause 31, Appendix 31A) be used as an alternative Rate Adaptation mechanism specific to mapping Ethernet MAC transfer rates into lower SDH Payload Rates.

This motion will be made at the 802.3 Plenary closing session on Thursday

802.3 Ethernet Over SONET Ad Hoc Report

IEEE 802 Liaison Communications To ITU-T SG7

Roy Bynum

802 Plenary Meeting
March 15, 2001

802.3 Ethernet Over SONET Ad Hoc Meeting

•The 802.3 EoS Ad Hoc Meeting was held on Wednesday Morning, 3/14/01, with 7 attending.

•A review of X.86 with specific focus on relative characteristics of PHY versus 2 port bridge.

• It was concluded that 802.3 has recognized that X.86 represents a simple 2 port bridge between an MII/GMII interface and transmission system payloads.

•It was also recognized that 802.3x (Flow Control) could be used as an alternative method of rate adaptation between the Ethernet data transfer rates and the transmission payload rates.

•It was decided to write a response to ITU-T SG7 and make a motion to 802.3 WG to respond with the following text:

Motion For Text To Send To ITU-T SG7

Move that the following text be sent to ITU-T SG7 in the form of a liaison letter from IEEE 802:

Thank you for informing us of the approval of your specification X.86 which seems to conform to our interface specification of the MII/GMII in ISO/IEC 8802-3.

You describe this as a new PHY for Ethernet. Because X.86 makes changes to the Ethernet frame transfer rate, and uses a store and forward functionality in LAPS, we believe that it is more appropriate to describe this device as a simple 2 port bridge to connect an MII/GMII to a SDH transmission payload.

In addition, in order to provide full functionality for rate adaptation to lower as well as higher payload rates from Ethernet frame transfer rates, we advise that you should consider the addition of 802.3x flow control capability to your Ethernet side interface."

Proposed: Roy Bynum

Seconded: David Martin

Yes:_____ No: _____ Abstain: _____

Pass: By Acclamation____