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LS 001 – E

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Question(s): 11/15

Shenzhen, 15-19 October 2007

LIAISON STATEMENT

Source: ITU-T SG15

Title: Liaison Statement to OTN Support for 40 GbE and 100 GbE

LIAISON STATEMENT

To: IEEE 802.3 Higher Speed Study Group

Approval: ITU-T Q11/15 Interim Meeting

For: Action

Deadline: 10 February 2008

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ITU-T Question 11/15 notes that the IEEE 802.3 Higher Speed Study Group has proposed a PAR including objectives for specifying Ethernet operation at both 40 and 100 Gbit/s and with appropriate support for OTN. Question 11/15 intends to specify mappings into the OTN for both of these new Ethernet MAC rates.

For 100 GbE, our plans include specification of a new tier of the OTN hierarchy supporting a payload rate sufficient for transparent transport of Ethernet at that rate, along with the ability to transport 100 GbE transparently over lower rate OTN wavelengths using virtual concatenation. As there is no existing transport network for 100 Gbit/s clients and 100 GbE is considered to be an important client for this next phase of standardization, there are no concerns at this point about the ability to provide the required level of transparency for 100 GbE transport over OTN. With appropriate communication between IEEE and ITU-T, we expect that the standards for both 100 GbE in IEEE and for the mapping of 100 GbE into OTN in ITU-T can be completed concurrently.

For 40 GbE, we previously communicated our desire to be able to transport this over the already standardized and deployed transport network at 40 Gbit/s, which has a payload rate of 40,150,519.322 kbit/s \pm 20 ppm. One proposal for how to accomplish this which has been discussed in both IEEE and ITU-T is for IEEE to specify a PCS similar to 10G BASE-R (64B/66B) for 40 GbE, but for ITU-T to transcode this to a more compact code (e.g., 512B/513B) in the mapping into OTN.

Question 11/15 considers this to be a promising solution which could allow IEEE and ITU-T to specify compatible solutions for Higher Speed Ethernet and OTN with minimum constraints on either side. But the viability of this solution requires clear identification of the dependency between the standards.

In particular, the transcoding proposal we have seen would require the following:

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- Every 66B block has sync bits of either "01" or "10".
- Every 66B block with sync bits of "10" has a block type field containing one of the fifteen values shown in Figure 49-7 of IEEE Standard 802.3-2005.

In order to rely on transcoding as the comprehensive solution for transparent mapping of 40 GbE into OTN, it would be helpful if the 40 GbE standard explicitly prohibits transmission of 66B blocks that are not of this form and make it clear that such blocks will be treated as an error if received.

In addition, elements of IEEE and ITU-T standards that depend on each other should be clearly identified with notes in the text so that the interoperability using transcoding will not inadvertently be broken by future evolution of either standard.

We look forward to collaborating with you during the process of 40 GbE and 100 GbE standardization to ensure that we can provide a robust solution for transparent transport of these new rate Ethernet signals over OTN.
