

ITU-T / IEEE workshop on Carrier-class Ethernet

Geneva, 31 May – 1 June 2007

Report

The Joint ITU-T / IEEE workshop on Carrier-class Ethernet was held on 31 May afternoon and 1 June where some 250 experts from ITU and IEEE met together to share experiences on Ethernet issues.

The opening sessions chaired by Mr. Yoichi Maeda (ITU-T SG15 Chair), had the addresses to the meeting participants by Mr. Steve Mills, Chairman of the IEEE-SA Standards Board and by Malcolm Johnson, TSB Director.

They highlighted the excellent relationship between IEEE and ITU-T and presenting respective main achievements, concluding in a common willingness for enhanced ITU-T and IEEE co-operation.

Keynote speeches were made by Mr. Bilel Jamoussi (Nortel) and overviews on the status of studies in the respective organizations were given by Mr. Steve Trowbridge (chair of ITU-T SG15 WP3) and by Mr. Bob Grow (IEEE 802.3 Chair).

After the overview of the standards work from ITU-T and IEEE given in the opening session, the workshop drilled down into detail with sessions focusing on:

1) Ethernet based and Ethernet capable access networks.

The session Reviewed the key areas within ITU-T and IEEE 802 that are responsible for the development of Ethernet based and Ethernet capable access network standards. The session covered Ethernet based access network management, Ethernet OAM protocol and Audio/Video Bridging for Home Networks.

2) Ethernet network transport.

Explored current and emerging technologies related to extending Ethernet beyond the local area network. Topics included Resilient Packet Rings (IEEE 802.17), evolution of Ethernet to higher rate transport to support large aggregates in core networks, transport of high rate Ethernet services over Optical Transport Networks (OTN) using Virtual Concatenation, Evolution of OTN to higher bit-rates for support of emerging clients, and high rate serial interface technology that can be applied to evolution of Ethernet and OTN.

3) Ethernet bridging architecture

This session reviewed the architectures used within ITU-T and IEEE 802 that are used in the development of Carrier Ethernet bridging standards. After an overview of the ITU-T and IEEE architectural modelling philosophy and continued presenting questions about what are the principal concerns that drove the architecture and what are the aspects of the architecture that are regarded as being particularly important to the success of the technology. At the end the application of this modelling to the design of bridging protocols within Ethernet standards in IEEE 802 and ITU-T was reviewed.

4) **Ethernet OAM and management**

This session presented the current status and overview of standardization on OAM, protection switching and restoration functions including network management functions and NMS/OSS aspects. Through presentation and discussion, participants had the possibility to see how to identify issues to be studied and standardized through collaboration of IEEE and ITU-T

5) **Ethernet QoS, Timing and Synchronization**

Deployment of Ethernet facilities and services in carrier-class access, metro, and core networks will require enhancement of existing packet-based Ethernet technologies to support QoS control and synchronization requirements. This session described the new requirements, and the resource management, time distribution, and frequency synchronization mechanisms and protocols being standardized to achieve them. The speakers identified applications with particularly demanding QoS requirements; described carrier functions and services requiring precise time and frequency synchronization and summarized the relevant numerical performance objectives. Ongoing standardization efforts and unfulfilled standardization needs were also explored.

Questions put by the participants highlighted hot topics that need further studies but also more technical information were requested also with the aim to ensure an harmonization of the standards produced by the two organizations. Moreover the need of enhanced co-operation between ITU-T and IEEE on certain matters that need further studies was envisaged.

At the end of the meeting a wrap-up session was held. The sessions co-chairs presented a summary of their sessions and the chairman of the closing session, Mr. Jeff Thompson, chair of the close session made recommendations. The session showed that there are many areas of study where further common activities between ITU-T and IEEE and actions to enhance co-operation were envisaged.

Mr. Maeda, in his final remarks, considering that often more co-operation between the two organizations is a very positive element to progress the work, invited the SG15 counselor to present the existing ITU tools able to ease the co-operation such as liaison statements and their use for exchange of information and technical issues. Mr. Steve Mills encouraged the two groups to convene again to talk about co-operation and possibly to co-locate events and envisaged the possibly organization of another common workshop next year.

Conclusions & Recommendations

- Emergence of Ethernet as carrier technology is an opportunity for IEEE/IT cooperation
- IEEE is the body of Ethernet expertise
- ITU-T is the body of expertise for providers and carrier requirements
- To strengthen collaboration , foster the cooperation, and increase momentum
 - To better understand the “culture” of the two worlds
 - To better build personal relationships
- To further explore a number of areas where ITU-T/IEEE cooperation will bear fruit
- Promote Ethernet as NGN Technology