= A Serial Introduction Part 3= Winners of ITU-AJ Encouragement Awards 2016

In May every year, The ITU Association of Japan (ITU-AJ) proudly presents ITU-AJ Encouragement Awards to people who have made outstanding contributions in the field of international standardization and have helped in the ongoing development of ICT.
These Awards are also an embodiment of our sincere desire to encourage further contributions from these individuals in the future.
If you happen to run into these winners at another meeting in the future, please say hello to them.
But first, as part of the introductory series of Award Winners, allow us to introduce some of those remarkable winners.

Ryota Mibu
NEC Corporation
r-mibu@cq.jp.nec.com http://www.nec.com/
Fields of activity: Network Functions Virtualization (NFV)

Open Source and Standardization in Network Virtualization Technology

It is a great honor to receive the ITU-AJ Encouragement Award (ICT Field), and I would like to express my appreciation not only to the Selection Committee but also to everyone who helped me along the way. This award recognizes the contribution that has been made to the standardization of network virtualization technology from the seemingly unrelated field of open-source development.

Network Functions Virtualization (NFV) seeks to simplify the construction and operation of carrier systems by virtualizing various network functions and eliminating hardware dependencies. It is expected to provide benefits including flexible resource sharing, greater agility for the launch of new services, and fast disaster recovery. Furthermore, it is also expected to evolve into a common platform for telecom and IT/cloud services, since it shares many aspects with IT/Cloud technology in the telecom domain.

In 2014, an open source project called Open Platform for NFV (OPNFV)[1] was launched with the aim of contributing to the development of standard NFV specifications by implementing a reference NFV platform. This platform was expected to elevate the role of open source technology in the IT / cloud domain, but became entrenched due to differences in the requirements of existing open source technology.

I am the leader of the OPNFV Doctor project, which aims to solve this problem by implementing fault management (an important part of telecom carrier systems where high availability is required). We started by organizing the requirements and solutions, and creating generalized use cases and scenarios. We then submitted a list of required functions to OpenStack[2], which is becoming the de facto open source cloud platform. OpenStack is continuing to work out the design details and implement the necessary functions. These functions were also incorporated into OPNFV's reference literature when it was released after verification with functional testing. It is currently referred to in the standardization activities of ETSI ISG NFV Stage 3.

The speed of development in these open source projects has been remarkable. For example, the function that I oversaw was implemented in OpenStack in about 6 months from the proposal. One of the attractions of the open source project is that engineers from multiple companies were able to complete a feasible specification in a short period of time. We believe that the development of standard specifications can be accelerated by making use of open source projects in this way.

This activity has also been attracting attention in OpenStack, and a demonstration was carried out at the event of October 2016[3].

[1] https://opnfv.org/
[2] http://openstack.org/
[3] https://www.youtube.com/watch?v=Dvh8q5m9Ahk

Yoshio Miyadera
Japan Radio Co., Ltd.
miyadera.yoshio@jrc.co.jp http://www.jrc.co.jp/eng/
Fields of activity: Maritime Radiocommunication

International Standardization of Maritime Radiocommunication

I'd like to present a brief introduction to maritime radiocommunication, which is the field of international standardization that I am involved with. Maritime radio uses all sorts of frequencies and radio systems. The frequencies in current use range all the way from 400 kHz to 30 GHz, and the radiocommunication systems are too numerous to list, but examples include the use of Narrow Band Direct Printing (NBDP) for Maritime Safety Information (MSI) broadcasting, analog voice communication, digital voice communication, various forms of data communication, distress communication via Digital Selective Calling (DSC), the Automatic Identification System (AIS) for ship collision avoidance, the Emergency Position Indicating Radio Beacon (EPIRB) system for distress communication, radar systems and GPS navigation equipment. There are even stations still communicating by Morse code, including some high-seas fishing vessels.

Although analog systems prevailed in maritime radio for many years, digital communication has gradually been making inroads since the launch of GMDSS in 1992. More recently, the introduction of data communications has really taken hold following the HF and VHF band allocations of WRC-12.

At WRC-15, digital communication was also introduced for UHF maritime on-board communications, and VHF band data communication was formalized as the VHF Data Exchange System (VDES). At WRC-15, it also became possible to use Ka band (20/30 GHz) satellite communication (ESIM: Earth Stations in Motion) for high-speed data communication on board ships. The use of satellite communication in VDES is due to be discussed at WRC-19.

These diverse forms of maritime radiocommunication require an internationally unified communication systems structure such as the GMDSS (Global Maritime Distress and Safety System), and the ITU's activities are essential for achieving international standardization. I hope to continue with my international standardization efforts as a communication professional in order to promote the effective use of frequency resources and the introduction of new technology, and to ensure the safety and security of seafarers everywhere.

Akihiro Nakao

The University of Tokyo
nakao@nakao-lab.org https://www.nakao-lab.org
Fields of activity: Computer Networks

Network Softwarization and Slicing Technology for the Fifth-generation Mobile Network

I am very grateful to ITU-AJ for this award.

This award recognizes the research and development of 5th generation (5G) mobile communication systems promoted throughout Japan centered on the Fifth Generation Mobile Communication Promotion Forum (5GMF), especially the importance of an infrastructure with extreme flexibility as advocated by the 5GMF Network Committee and by the ITU-T IMT-2020 focus group (FG) from the viewpoint of standardization, working in partnership with the TTC and Japanese companies and leading discussions.

We advocated the concepts of network softwarization and network slicing to the ITU-T as key technologies. Network softwarization is a very important trend in communication networks whereby software is being used to implement network equipment and functions, allowing services to be configured and deployed faster and with greater flexibility.

Since the communication infrastructure is implemented in software, it can be modified flexibly and it is also possible to implement network functions in the vicinity of terminals, as in multi-access edge computing (MEC).

Network slicing refers to the concept of slicing up network infrastructure into independent sets of programmable computing, storage, and network resources that implement network functions and services in such a way that separate slices accommodate the traffic of applications and services with different requirements.

Since 5G networks must accommodate diverse groups of applications with greatly differing requirements, including eMBB (enhanced Mobile Broad Band), URLLC (Ultra Reliable and Low Latency Communication) and mMTC (massive Machine Type Communication), it is important to have technology for end-to-end service construction.

Thus, in the communication infrastructure to be implemented in the near future, it will be essential to quickly identify key global technology trends and actively ensure that priority is given to discussions of standardization in order to maintain the competitive edge of Japanese companies.

Based on our recent achievements, Q21 was established by ITU-T SG13, and in February 2017 work started on the standardization of network softwarization technology in IMT-2020. In the future, we intend to strongly promote Japan's leadership in the field of 5G wired technology and wireless technology, especially in the fields of network softwarization and slicing where Japan is expected to lead the rest of the world.

Kunihiro Toge

NTT (Nippon Telegraph and Telephone Corporation)
toge.kunihiro@lab.ntt.co.jp http://www.ansl.ntt.co.jp/e/global/index.html
Fields of activity: ITU-T SG15

Standardization of Maintenance and Operation of Outdoor Facilities for FTTx

It is a great honor to receive the ITU-AJ Encouragement Award, and I would like to express my sincere appreciation not only to the Selection Committee but also to everyone who helped me with my standardization activities.

I began participating in ITU-T Study Group 15 in 2012, and have mainly been working on the standardization of outdoor FTTx facilities such as optical cables and optical passive devices. In 2013, I started serving as Rapporteur of ITU-T Q17/SG15 (maintenance and operation of optical cable networks) and actively contributed to new Recommendations and revisions in this area.

I have mainly focused on organizing these Recommendations into three categories relating to optical cable network maintenance, facility management and disaster management. By doing so, I hope to make it easier for users to understand the current Recommendations, especially in countries that are continuing to deploy FTTx.

The primary goal of this activity is to create an environment where many countries can easily voice their concerns regarding daily maintenance and operation. The most important aspect of standardization in this area is to identify common issues among operators as a starting point for discussions of systems and technical requirements. Japan has a lot of experience in FTTx maintenance and technologies. It is important not only to promote Japan's experiences but also to find operational issues that are shared by various operators and countries for future standardization.

Currently, ITU-T Q17/SG15 is working on the standardization of frameworks for disaster management and water detection in underground optical cable networks, and exploring new operational system requirements for the maintenance of passive optical access networks and supporting infrastructures. I will continue to lead discussions while serving as Rapporteur of ITU-T Q17/SG15. I hope that our activities will help solve the operational issues of international/regional operators, and promote advances in commercial technologies and products.