

## = A Serial Introduction Part 4= Winners of ITU-AJ Encouragement Awards

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;

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ITU-T/SG13/Q15 – Data Aware Networking



### Standardization of Data Aware Networking (DAN) for Future Networks

These days, we tend to use networks more for content retrieval than for communication between people. To respond to this trend, ITU-T Recommendation Y.3001 states that Future Networks should be able to deal efficiently with enormous amounts of data in distributed environments regardless of where the data is located. This design goal is embodied in a new form of network architecture, which ITU-T refers to as Data Aware Networking (DAN).

My first job at ITU-T was to edit the Y.FNDAN draft Recommendation initiated at SG13/Q15 in February 2012, which was the first step toward standardizing DAN for future networks. Nowadays, network architectures similar to DAN are called Information Centric Networking (ICN). However, when DAN was introduced, they went under various different names such as Content Oriented Networking (CON), Named Data Networking (NDN), or Content Centric Networking (CCN). These names were globally unified into ICN due to the advent of ICNRG (Information Centric Networking Research Group) under IRTF (Internet Research Task Force) in August 2012. This is the reason why DAN and ICN have different names despite fulfilling similar objectives. In November 2013, the draft Recommendation Y.FNDAN was approved, and became ITU-T Y.3033 – Framework of data aware networking for future networks. This is the world's first standard Recommendation describing the high-

level requirements of network architectures for efficient content dissemination.

In February 2014, a draft Supplement to ITU-T Recommendation Y.3033 was initiated in the name of Y.supFNDAN, which includes DAN use-case scenarios. The purpose of the draft Supplement is to clarify the requirements in the design of DAN architecture from use-case scenarios. I have actively contributed to and edited the draft Supplement, which currently (May, 2015) contains six use-case scenarios: 1) content dissemination, 2) sensor networking, 3) vehicular networking, 4) networking in a disaster area, 5) advanced metering infrastructure in smart grids, and 6) proactive video caching. As the draft matures, we are able to derive the requirements of DAN architectures, and in May 2015, this resulted in the initiation of draft Recommendation Y.DAN-req-arch – “Requirements and Architecture of data aware networking”, which specifies the requirements of DAN derived from the use-case scenarios in Y.supFNDAN, and defines a functional architecture to fulfill its requirements.

As an editor of the ITU-T DAN series including the framework (ITU-T Y.3033), use-case scenarios (Y.supFNDAN), and requirements & architecture (Y.DAN-req-arch), I hope that these Recommendations will guide the international standardization of network architectures like ICN in the future.