Newsletter

Issued on January 25, 2012 No.4

IEEE Tokyo Section
Life Members Affinity Group

The new year 2012 has just started and LMAG Tokyo welcomed its 43 new members. We wish all the members with their friends and families a fruitful and productive new year.

This issue follows our second “LMAG Lecture” co-sponsored by IEEE Tokyo Section Technical Program Committee held on December 2, 2011.

LMAG will continue to organize “LMAG Lectures” by inviting speakers having rich experiences on various hot topics. Active participation by not only Life Members but also by any Tokyo Section Members is very welcome.

Chair Greeting

Thanks to your support, LMAG Tokyo had its first anniversary in October 2011. For us LMAG Tokyo, March 11th, when the Great East Japan Earthquake occurred, was just the day of our General Assembly. We were in the center of Tokyo and experienced ourselves the difficulty caused by communication network congestions. But in the same moment, people in North-East Japan were attacked by the tsunami and are still suffering from its serious effects.

Based on such background, we organized the second LMAG Lecture meeting on December 2nd co-sponsored by IEEE Tokyo Section TPC. We invited as our lecturer, Kazuo Hagimoto, Executive Director, NTT Science and Core Technology Laboratory Group and asked him to talk about “the Communication Network seen from the Great East Japan Earthquake”. He gave us realistic insights on the actual damages of the networks caused by the disaster, explained about the NTT group’s efforts for the recovery, gave us his views on the network in the coming future. Active discussion followed.

I am expecting such discussion will be extended to “inter-generation” exchanges with young members resulting in future development of science and technology. I hope these objectives will be achieved through your active contribution and support.

IEEE Tokyo Section Life Members Affinity Group
Chair Kohei HABARA

Report on the 2nd “LMAG Lecture”

The second Tokyo Section LMAG Lecture was held on Friday, December 2, from 4:00 pm at Tokyo International Forum with 89 participants.

1. **Lecture:** "The Communication Network seen from the Great East Japan Earthquake” by Kazuo Hagimoto.

Lecturer: Mr. Kazuo Hagimoto

Summary of the talk

The Great Earthquake on March 11, 2011 destroyed huge amount of telecommunication facilities and buildings in north-east Japan, the damage was further enlarged through the battery exhaustion caused by the long time power failure. Whole telecommunication office buildings and mobile base station buildings distributed in large areas were washed away by the tsunami, and cable ducts and telephone poles there were destroyed as well. Also the long distance trunk routes in the north-east Japan were damaged and many trans-pacific submarine cable systems were broken.

NTT restoration team was set up immediately. As for the fixed-line services, they first recovered the high-priority hubs by temporary restorations of transmission lines, relocating the functions into other office buildings or placing movable facilities. As for the access systems, recovery for social infrastructures such as Self-Defense Forces, airport or railways were given the priorities. The large-zone mobile base-station systems covered efficiently several base-station areas and provisional microwave or optical fiber systems were introduced. Movable dynamo lorries supplied power to the base-stations. In the nuclear power plant area in Fukushima, the movable base-station and high-performance antenna covered the area.

NTT's fixed-line system lost 385 buildings and 1.5 million lines, docomo's mobile systems 4900 base-stations. Human resources and necessary materials were called up from all parts of Japan so that 90% of the damage was recovered by the end of March and almost all facilities in the inhabit areas normalized by the end of April. As for the areas destroyed severely by the tsunami, the recovery will be done together with other infrastructures such as roads.

Compared with the Great Hanshin Awaji Earthquake in 1995, much more mobile phones, internet-based services like e-mails were used. Twitter or Facebook were found useful while conventional telephone services were largely affected by congestion management. The handset battery exhaust by the long time power failure raised an important challenge.

NTT started discussions about the countermeasures against disasters. Distributed node/center structures or multi-route line planning for wide area disasters, robustness against the long-time power failures, efficient usage of satellite and wireless systems, large-zone base-stations for dense populated areas, underground access cable systems for high-priority public users, more efficient traffic management to avoid congestions, etc. As for the longer term studies, promotion of broadband systems as well as more efficient and flexible network resource management for sharing the capacity among larger number of users, or handset power consumption management by minimizing the functions for the very long time usage. While customer's needs are shifting to e-mails and internet, there are still strong requirements to use voice communications for psychological security, so voice data file transfer service is studied.

2. Discussions

Among many Q&A and comments, the following opinions were expressed and discussed. "New ICT and their usage should be also useful in the daily and normal life. For example, 'cloud' technology for medical service, usage of sensors for daily life security. "Mobile phone should have 'pier to pier' communication function so that we can save our neighbors and could have new attractive services in the daily life." "We expect robust, flexible and resilient networks, which never stop in the disaster." "In the emergency situation, primitive technologies such as 'Morse Code' or 'semaphore: flagging message' are useful, which should be trained in the school." "Engineering societies such as IEEE should continue to work for the networks which can save the valuable human lives."

Dr. Habara, Chair, concluded the productive session.

Event information

Mini-symposium with GOLD and WIE members is under preparation and will be announced shortly.

IEEE Tokyo Section Life Members Affinity Group Newsletter Issued on January 25, 2012 No. 4

Issued by IEEE Tokyo Section Life Members Affinity Group

Kikai-Shinko-Kaikan Bldg., 517

3-5-8 Shibakoen, Minato-ku, Tokyo 105-0011 JAPAN

URL: http://www.ieee-jp.org/section/tokyo/lmag/index.htm

E-Mail: tokyosec@ieee-jp.org