

March 23, 2015

A Joint Paper Awarded by the “Technical Committee on Network Systems” at IEICE

Joint Research on End-to-End Delay Guaranteed Network Service
with Prof. Noriharu Miyaho at Tokyo Denki University et al.

The joint paper written by three engineers at Kozo Keikaku Engineering Inc. (Head Office: Nakano-ku, Tokyo, President: Shota Hattori, “KKE” hereafter) and by Prof. Noriharu Miyaho and Prof. Yoichiro Ueno at the School of Information Environment, Tokyo Denki University, was awarded “The Prize of Technical Committee on Network Systems, 2014 (14th)” by the Institute of Electronics, Information and Communication Engineers (IEICE).

The Prize of Technical Committee on Network Systems has been awarded annually to research activities that are regarded as the best and most promising among all of the proceedings of the events held by Technical Committee on Network Systems since 2001.

■ Prize-Winning Paper and Winners

“Core Network Control for End-to-End Delay Guaranteed Network”, NS2014-42

Natsuko Ouchi, KKE

Tsutomu Saito, KKE

Shinji Iwaki, KKE

Yoichiro Ueno, Tokyo Denki University

Noriharu Miyaho, Tokyo Denki University



The Award Ceremony on Mar. 2nd, 2015

■ Research Abstract

Due to the capacity shortage of mobile networks that has arisen recently, workarounds, such as saving communication bandwidth by offloading data to Wi-Fi networks, are being studied and put into practice. It is predicted that challenges other than the shortage of communication bandwidth will occur in the near future. One such challenge is the delay guarantee that will be required when delay-sensitive communication services are provided to the market.

Delay-sensitive communication services are services for which even a slight end-to-end delay can cause substantial impact, such as online trading, multi-sensory communication as typified by telesurgery, and inter-datacenter communications.

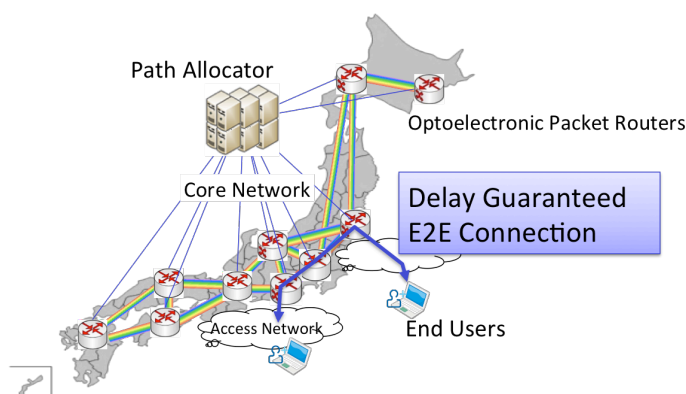


Fig.1 Delay Guaranteed Network Service

In order to face such challenges in the future, KKE is investigating methodologies (i.e. network control methods) to build end-to-end delay guaranteed network services.

In the prize-winning paper, a delay-guaranteed core network control method is introduced, together with the challenges for realizing it. Combining two technologies in different fields that KKE specializes in (Operations Research and Network Virtualization/SDN), the method is based on a core network that consists of packet routers with constant transferring performance. What makes this method unique is that the core network controls and allocates delay guaranteed communication paths in a simple way, as shown in Fig.1.

The award-winning engineers and other team members are eager to further study methodologies for a network quality control system for end-to-end connection, combining the technologies of wireless access network/point virtualization.

Note that this research project derives from the contract research, “Research and Development for Base Technologies of High-performance Optoelectronic Fusion Packet Router”, commissioned by the National Institute of Information and Communications Technology (NICT).

■ About KKE (<http://www.kke.co.jp/en/>)

Established as a structural design firm in 1956, KKE has expanded its objects of analysis from buildings to the surrounding natural environment (i.e. earthquakes, tsunami, wind, etc.), society, business, and communities. As a professional design and engineering company that bridges the academic and industrial worlds, KKE strives to solve the various issues and challenges that society faces, utilizing its engineering knowledge acquired through knowledge exchanges in diverse fields. Thus KKE will contribute to creating a better society and systems for the next generation.

■ For More Information

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