



Preface

Preparing for the Next Generation Network

A handwritten signature in black ink that reads "Toshitaka Tsuda". The signature is fluid and cursive, with the first and last names clearly legible.

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After the telecom bubble burst, the telecommunications business and the related R&D have experienced difficult periods. Even while the bubble was bursting, however, data traffic was increasing at an annual rate of more than 100%, more things were being connected to the network, and more services were being provided from the network. In addition, mobile communications expanded very widely and became dominant in the access part of the network. As a result, the wideband ubiquitous network has been steadily expanding, and the importance of this network as a social infrastructure has been steadily increasing.

Now the telecommunications market is recovering, and the evolution to the next stage — the Next Generation Network (NGN) — has begun. One of the current key words is “convergence.” Convergence is occurring in many areas. Convergence of telecommunications and information technology is common, and the term “ICT” (Information and Communication Technology) is widely used instead of the conventional “IT” (Information Technology). Also underway is convergence of services. Data and voice convergence is already widespread, with VoIP (Voice over IP) being a typical example. TV broadcast and telecommunications convergence is becoming a hot topic, and IPTV is receiving wide interest. At the network level, FMC (Fixed Mobile Convergence), which is the convergence of fixed-line networks and mobile networks, has become one of the key features of the NGN. Together with cellular phones, new wireless communication systems will be adopted in the access part of the network. The transport layer will be unified with packet-based networks, and the network management and service management layers will be unified, resulting in a simple network. Also, network servers and gateways will play more important roles.

To give the NGN a stronger foundation, it requires a broader band-

width communication system, both for fixed and mobile communications. Optical transmission at over 40 Gb/s will be deployed in the core part, and capacities exceeding 1 Gb/s will become popular in optical access networks. To save energy and enhance network flexibility, photonic networks with optical switching capability will be deployed. For wireless communication, capacities of over 1 Gb/s will be provided.

To make this network evolution a reality, innovative research and development must be carried out in many technology fields. Fujitsu, as a leading-edge total ICT system vendor, is carrying out a variety of R&D activities in many technology fields with the aim of being a major contributor towards the realization of a new ICT world. These activities cover photonic technologies for both the access and core networks; wireless communication for beyond the third-generation mobile network; packet-based nodes for telecommunications and enterprise networks; network servers for the NGN; home gateways; network management based on GMPLS (Generalized Multi-Protocol Label Switching), and new telecommunications services such as VoIP, video, and context-aware services. This special issue introduces some typical key activities we are engaged in for realizing the NGN.

Fujitsu is very favorably positioned to contribute to the construction of the next generation ICT because of its strong background in telecommunications, IT systems, service provisioning, and components. Using our innovative technologies, we can realize vertical system integrations. I am pleased to have the opportunity to introduce Fujitsu's total activities for the next generation ICT at this very appropriate time. Finally, I would like to add that Fujitsu will work hard to making society more convenient, efficient, safe, and enjoyable.