Preface
Special Issue on Middleware
Technologies to Drive Innovation

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The number of Internet users worldwide has reached three billion and continues to grow. This interconnection of people is expanding on a global scale thanks to digital technologies, and it is estimated that 50 billion devices will be connected to the network by 2020 in a scenario described as the Internet of Things (IoT). We are fast approaching the era of the "hyperconnected world" in which all types of things are connected to the Internet and massive amounts of information are exchanged in real time.

In the hyperconnected world, connecting the physical world of human activities to the information and communications technology (ICT) world of data processing will accelerate innovation in business and society. The role of ICT will expand to include forecasting future events and supporting decisions about future actions by analyzing both historical and real-time data. Some services of this type have already begun. For example, there is a service that identifies the optimal procedure for operating equipment on the basis of on-site image data, information from a variety of sensors, and analysis data. Another service gives advice on how to lead a healthy and enriching life on the basis of lifelog data, location information, etc. obtained from personal sensors.

Middleware has been serving as a software execution platform, providing system operation and management functions that support the stability of mission-critical systems and public infrastructure systems. Fujitsu middleware is based on technologies that have been evolving since the mainframe era. These technologies guarantee high performance and high reliability. More recently developed smart software technologies are used to assess the hardware and software environment and autonomously optimize it for safe and secure use.

Going forward, we can expect middleware to be found in all sorts of personal devices and everywhere in the social infrastructure, including medical care, energy supply, and traffic control. We see middleware becoming a means of enhancing efficiency and safety and driving innovation throughout business and society. Fujitsu has taken up the challenge of developing middleware with "intelligence" for recognizing events in the real world and predicting the future on the basis of massive amounts of data obtained worldwide.

Fujitsu plans to integrate the knowledge and know-how obtained through innovation fostering and co-creation activities with our customers and to promote an evolution toward "middleware with intelligence."

This special issue introduces Fujitsu's innovation-driving middleware technologies, which continues to evolve.

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FUJITSU Sci. Tech. J., Vol. 51, No. 2 (April 2015)