Remarks for Special Issue on IoT That Supports Digital Businesses

The term "Internet of Things" (IoT) was coined in 1999 by Kevin Ashton, a consumer sensor expert best known for the creation of RFID. The phrase has since become popular among the general public and has attracted a great deal of attention from a wide range of businesses who see it as a way to create new value through its ability to connect and exchange information with various "things" via the Internet - including humans.

IoT's advent has accelerated the growth of connectivity between the cyber world and the real world, providing the foundation for the next great transformation in human evolution, one that can be called the fourth wave, following in the wake of the Agricultural Revolution (the first wave), the Industrial Revolution (the second wave), and the Information Revolution (the third wave). Industrie 4.0, or the fourth wave, was initiated by the German government through the implementation in 2012 of the High-Tech 2020 Strategy which integrates its policies for technology and innovation.

Part of that strategy, Industrie 4.0, which aims at flexible production by incorporating IoT and Internet of Services (IoS) into manufacturing while integrating storage/inventory systems for raw materials, components, and final products with production equipment and facilities to remodel production systems and product output. IoT is also seen as a means of optimizing all the processes that manage supply chains and life cycles including manufacturing. IoT is now

MOCHIZUKI Yasunori

Senior Vice President

expanding into all sectors such as distribution, traffic, energy, healthcare, public, and agriculture, as well as manufacturing.

Over the past few years, NEC has moved rapidly to strengthen its position in IoT, honing its expertise and acquiring in-depth experience by undertaking a number of IoT-related projects with many customers. By taking advantage of our proprietary know-how in both IT and networking as well as our original leading-edge AI technology, we have been able to provide our customers in various industries with tangible outcomes. In the public sector, for example, we have contributed to the significant suppression of crime rates through the use of street surveillance systems. In the distribution sector, we have facilitated reductions in disposal volume through the application of demand prediction of food products. And, of course, in the manufacturing sector, we have helped engineer big gains in production efficiency and inventory control by installing demand prediction of maintenance components. We have also witnessed case studies where our customers who use the NEC Industrial IoT solution have achieved tremendous improvements in their customer satisfaction indices by adopting autonomously operating manufacturing lines which are coupled with their management indices.

Furthermore, we are aiming at contributing to the improvement of overall customer management, while challenging for Value Chain Innovation, which promotes advancement of products and services and evolution of delivered value, by efficiently collaborating with supply chains that connect fabrication (manufacturing industry), transportation (logistics industry), and sales (retail/service industry).

Thanks to its broad experience in such IoT-related projects, NEC has built up a vast store of cutting-edge knowledge that has allowed us to distill the essence of the new digital business into a five-layer model of IoT architecture. We then have turned it into a system of interconnected products we call NEC the WISE IoT Platform. This platform offers our customers a wide range of powerful capabilities that facilitate fast, smooth transitions from the launch of a validation environment to the startup of an actual production environment.

In this special issue, we take a closer look at the IoT tools and technology that we can offer to support digital businesses. In particular, we will zoom in for a close-in look at the NEC the WISE IoT Platform and other IoT solutions, examining how they have been successfully implemented by a variety of different businesses in a variety of different situations.

We hope you will find the material contained in this special issue not only enlightening, but practical and inspiring. We look forward to receiving your continued support and encouragement. Thank you very much.

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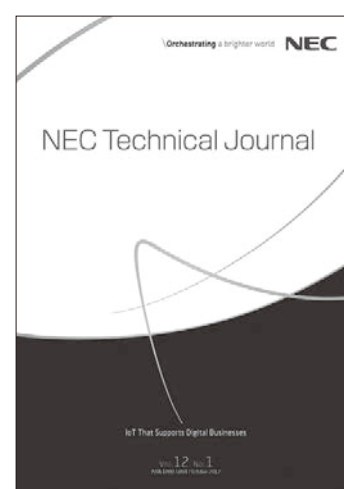NEC's IoT Operations That Support Digital Businesses

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Edge Computing Technologies to Connect the Missing Link of IoT
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