



Preface

Special Issue on Engineering Cloud

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As development and production hubs continue to become globalized, manufacturers are faced with the problem of how to expand their activities worldwide. In this environment, I feel that the grand mission of Fujitsu is to apply its experience in *monozukuri* (Japanese style of manufacturing) and its expertise in information and communications technology (ICT) to helping its customers bolster their product development capabilities and improve their value-added offerings.

In June 2011, Fujitsu announced its “Engineering Cloud,” providing advanced computer-aided design (CAD) software and simulation tools for customer use as an ICT solution supporting our customers’ manufacturing. This is an “integrated technology infrastructure” that uses ICT to consolidate a wide variety of *monozukuri* know-how covering a wide range of processes from development to manufacturing and maintenance. I firmly believe that our Engineering Cloud will be highly useful in linking and optimizing our customers’ existing ICT and design assets and creating new value.

This special issue describes how Fujitsu’s Engineering Cloud is revolutionizing the world of manufacturing and presents examples of putting it into practice, as summarized below.

1) Integrated design development environment using ICT

Our integrated design development environment (Flexible Technical Computing Platform: FTCP) in the Engineering Cloud enables close coordination of the applications, processes, and resources needed for product development such as 3D-CAD, electrical-design CAD, parts databases, physical/electrical simulation, and digital

mockup. It covers all development areas from upstream design to production preparation, manufacturing management, and maintenance through the use of ICT. It provides support for dealing with electrical/mechanical/thermal-fluid multi-physics problems in the development of products with increasingly complex and compound designs. In this way, FTCP can reduce rework in design and shorten the development period.

2) Know-how consolidation and support of diverse work styles

Constructing an integrated design development environment in a private cloud makes it possible to use a homogeneous development infrastructure at a scale appropriate for the customer's needs. Such an environment enables the creation of a framework for integrating the management, accumulation, use, and inheritance of technologies (knowledge) and know-how previously dispersed among different entities. At the same time, it is a highly secure development environment that, while preventing development-related data from being carried away or left on an individual's PC, can be accessed by authorized users at anytime and from anywhere, such as a global hub, satellite office, or manufacturing/maintenance site.

3) Advanced, high-speed display and process technologies for moving work to a cloud

Fujitsu has developed and implemented high-speed display technology called Remote Virtual Environment Computing (RVEC). This technology enables high-speed transmission of large volumes of data so that applications and development data in the cloud can be displayed and manipulated from a client terminal. Fujitsu is also equipping its Engineering Cloud with ultra-massively parallel solvers incorporating in-house know-how to meet the need for large-scale simulations and to provide a development environment that can be comfortably used by developers over the network.

Fujitsu has applied its Engineering Cloud to the development of diverse products, from the RIKEN-Fujitsu jointly developed the K computer (the English name given to this supercomputer by RIKEN in July 2010) to servers, network devices, and ubiquitous products. Looking forward, we plan to leverage these technologies in helping our customers develop global manufacturing infrastructures that can create new value in innovative ways.