Development and Promotion of Application Technologies for Digital Business Platforms

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In October 2015, Fujitsu launched FUJITSU Digital Business Platform MetaArc (hereafter, MetaArc), a cloud-based package with the latest technologies for business customers' digital transformation. This is a global platform designed to foster digital businesses, and it helps to bridge between people, information, and infrastructure in ways that go beyond corporate/industrial boundaries, thereby bolstering our customers' value-creation and competitiveness. Our division is responsible for making Fujitsu's global business stronger and faster through a structural reform of the entire service-oriented business the Company offers, as we accumulate knowledge (know-how possessed by Fujitsu) in system integration (SI) from borderless activities in Japan as well as internationally. We also pursue a variety of measures to have MetaArc and FUJITSU Cloud Service K5 (hereafter, K5) used domestically and globally. This paper explains some of the measures, including the accumulation of SI knowledge and preparation of internal/external documents in relation to the technical support and preparation of applied technologies through K5-related business deals. In addition, this paper describes measures to make customer systems more adaptable to changes by preparing applied technologies to update to K5, measures to globally distribute MetaArc application technologies, and measures to bolster collaboration with U.S. startup companies.

1. Introduction

To achieve a digital transformation for customers' business, Fujitsu launched in October 2015 FUJITSU Digital Business Platform MetaArc (hereafter, MetaArc), a cloud-based digital business platform equipped with the latest technologies.[1)]

Digital transformation of business (business digitization) refers to incorporating advanced technologies such as the cloud, mobile systems, the Internet of Things (IoT), big data and artificial intelligence (AI) into products, services, and business models. This can enhance product competitiveness, reinforce the relationships with customers, or improve efficiency of business on a scale different from the conventional forms of improvement.

Digital transformation has already started everywhere in Japan as well as overseas. A survey by Gartner shows that 75% of Japanese companies have already made preparations for business digitization, and about 20% of them are promoting business digitization across the board.[2)]

MetaArc helps to bolster our customers' value-creation and corporate competitiveness. It does this by helping to bridge between people, information, and infrastructure in ways that go beyond corporate/industrial boundaries as a global platform that realizes business digitization.

To support the initiative mentioned above, Fujitsu has merged the integration service division for the domestic market and the global delivery division for the overseas market into a new global service business system.

Our division is responsible for making Fujitsu's global business stronger and faster through a structural reform of the entire service-oriented business the Company offers. We will do this as we accumulate knowledge (know-how possessed by Fujitsu) in system integration (SI) from borderless activities in Japan as well as overseas. We also pursue a variety of measures to have MetaArc and FUJITSU Cloud Service K5 (hereafter, K5) used domestically and globally.

This paper gives an explanation about the

development of application technologies for MetaArc and its core cloud service K5 and major activities carried out by Fujitsu for promoting their global distribution.

2. Technical support in K5-related business deals and preparation of applied technologies

1) Technical support in K5-related business deals

Since 2010, Fujitsu has continued to provide technical support in business deals for internal systems engineers (SEs) for public clouds. The purpose is to gather cloud-related application technologies and know-how through actual business deals and spread them among field SEs. This will raise the level of cloud technology skills of Fujitsu SEs.

When the business deal technical service started, it mainly included support for usage of products called FUJITSU Cloud Service S5 and Microsoft Azure-based FUJITSU Cloud Service A5 for Microsoft Azure and design and construction of business systems. Recently, however, we have been providing technical support for developing systems on other vendors' clouds such as Amazon Web Service (AWS) in addition to Fujitsu's cloud. In 2015, we started providing technical support for business deals for K5 and are now promoting K5-related business deals, gathering application technologies and know-how, and implementing information dissemination and technology transfer to SEs.

Since we launched K5 in October 2015, we have attracted a great deal of interest from customers and the requests for support from field SEs are also steadily increasing. Of the cloud technology support provided in FY2015, as much as 67% was related to K5. In addition, we established the MetaArc Technical Center, a virtual organization spanning major relevant internal divisions, in May 2016. At the Center, one-stop provision of K5-related technical support for business deals is carried out and field SEs and sales personnel are working to provide a prompter service for customers.

2) Development of K5 application technologies

One purpose of the technical support for the business deal activities described in the previous section is development of K5 application technologies.

We cooperate with the SEs in charge to meet various requirements of customers and study the architectural design and system configuration with K5 applied through actual technical support for business deals. Often among those requirements are functions and usages not assumed by the design and development divisions. By cooperating with field SEs in studying ways to meet customer requirements by elaborating the setting and system configuration within the scope of the service specification, various application technologies and know-how are accumulated. In addition, for requirements that are difficult to fulfill with the present service specification, we escalate them into requests for additional functions for the design and development division, and thereby improve the functions of the service itself.

The main output of technology development is technical documents such as design guides and a collection of cloud design patterns for in-house SEs. We also provide internal/external K5 education content and technical documents for customers to use K5 on our open Website as important output.

3. Development of modernization application technologies for K5

With conventional systems that were constructed using previous-generation technology and that have become complicated, it is not easy to agilely respond to business changes. Meanwhile, MetaArc, which is offered by Fujitsu, provides a highly flexible platform that can adapt to business changes.

Then, can the flexibility and agility be obtained simply by migrating the existing systems to MetaArc including K5? The answer is no. To eliminate the complexity of the existing systems and adapt them to the latest technology (architecture), modernization of the systems themselves (migration of obsolete existing systems to new systems equipped with adaptivity to changes) is necessary.[3)]

The modernization advocated by Fujitsu is neither extraordinary nor a magical technique. It involves carrying out inventory-taking on the assets of the existing systems so that any unnecessary or redundant program can be deleted. Then, programs are loosely coupled for improvement. The existing systems can obtain flexibility and agility by implementing this modernization technique on MetaArc.

Fujitsu has been working to modernize customer systems for some time and has achieved many results. Needless to say, we also support modernization to MetaArc and K5 and are working on the development

of relevant application technologies.

Meanwhile, modernization requires considerable cost and time and there are demands from many field SEs and customers for a "prompt migration to a cloud." To meet these demands, we have "FUJITSU TransMigration K5 Migration Service" (**Figure 1**). This service uses a special tool provided by Fujitsu to migrate customers' physical and virtual servers to K5.

The service features a standardized procedure and has a proven track record, and so it offers customers a sense of security in use. Another feature is that it allows customers to conduct migration in a short period by using the special tool to scan the set values of the targeted server environment, the result of which is used as the basis for migrating the entire system environment to K5.

First, we offer the K5 Migration Service for migration to a cloud, which is followed by full-scale modernization of systems. We intend to help customers achieve flexible and agile systems by providing this phased approach.

4. Promotion of global distribution

Fujitsu not only provides K5 technical support within Japan but also offers technical support and information for Fujitsu sites outside Japan. The purpose is to develop and strengthen K5 global business and develop engineers in overseas sites by distributing the application technologies and know-how and the latest information in Japan to overseas sites.

The overseas targets of support mainly include Asia (Singapore), Europe (U.K., Germany, Finland and Spain), North America, and Australia, and they will be bases for K5 regions (regions with K5 installation), including those where the establishment of K5 is planned. In the U.K., a K5 region was opened in July 2016. Subsequent K5 region opening is scheduled for November in Finland, December in Germany, and January 2017 in Singapore. In advance of these openings, Japanese engineers are already providing technical support and developing site engineers.

In addition, Fujitsu is globally distributing services and solutions based on MetaArc including K5. An example of the former is provision of the operation support service for multi-cloud environments including on-premises environments (hybrid ICT) and an example of the latter is proposal of IoT solutions. Both are being promoted through cooperation with engineers of the respective overseas sites and of Japan to meet local business needs and distribution of a cooperation scheme like this to the respective overseas sites is another important mission for the Japanese side.

Another approach to introduce as a global effort is activities of the Silicon Valley Office. A few engineers from Japan are permanently stationed in Fujitsu Laboratories of America, Inc. in Silicon Valley (Sunnyvale, California). At the Office, they are working to identify technologies owned by local startup companies (newly emerged companies that have developed totally new business models) so that

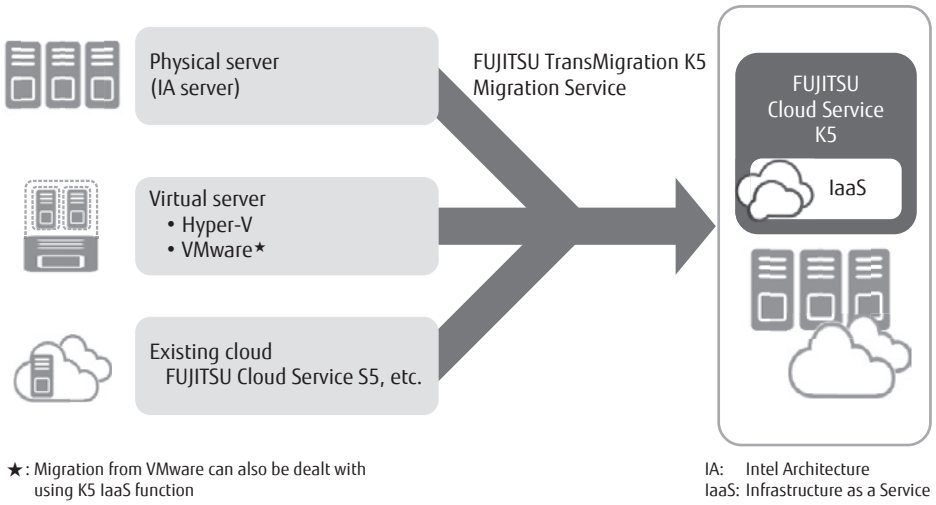

Figure 1
FUJITSU TransMigration K5 Migration Service.

promising technologies can be promptly incorporated into MetaArc. They have already intermediated between some promising startup companies and the K5 design and development division of Fujitsu, and are striving to offer to customers unprecedentedly innovative services through MetaArc in the near future.

5. Other measures

Fujitsu is pursuing various measures in addition to those described in the previous section. This section presents three measures:

1) Conversion of SI knowledge into software and incorporation into MetaArc

The enormous amount of SI knowledge possessed by Fujitsu can be implemented in MetaArc by various methods (such as conversion into software) to make the SI knowledge naturally available to MetaArc users. In this way, we intend to realize a platform that allows MetaArc users to transparently take advantage of the benefits such as improved development efficiency, prevention of troubles and optimization of system operation and maintenance.

2) Provision of "Development Support Service (tentative)"

This service aggregates development tools, which were separately deployed for each development process in the past, into one development platform to provide them to users as a virtual environment on MetaArc (mainly K5). This environment is not just a mixture of tools. For example, it is built with a strong awareness of the need to link between the individual development processes as in automatic execution of program quality analysis after execution of automatic testing. Use of this environment provides users with benefits such as improved quality and lower costs of application development.

3) Promotion of MetaArc utilization at "FUJITSU Knowledge Integration Base PLY"

In May 2016, we opened a place of co-creation named "FUJITSU Knowledge Integration Base PLY" (hereafter, PLY)[4] at Fujitsu Solution Square (Kamata, Ota-ku, Tokyo). PLY provides a scene of open innovation where Fujitsu SEs collaborate with companies from different industries and people from the local community to generate ideas. As a platform that provides the foundation for realization and verification of those new ideas, we make use of IaaS/PaaS (Infrastructure as a Service/Platform as a Service) of K5 and provide operation of PLY and offer technical support.

PLY is open to customers for visits and use through sales personnel or SEs of Fujitsu. Please visit this place of open innovation when you have the opportunity.

In addition to these, we are considering "Business and Technology PaaS" (tentative name), which integrates business knowledge and advanced technology/general-purpose middleware into a service, and implementing measures such as establishment of system development standards in the Systems of Engagement (SoE) domain.

6. Conclusion

This paper has presented the development of application technologies for MetaArc and K5 and major activities that we are carrying out for promoting their global distribution.

We intend to continue developing MetaArc application technologies and driving forward with MetaArc's distribution in Japan and overseas. In this way, we will help to improve the value of customers' businesses that use MetaArc directly or indirectly.

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