Daiwa Institute of Research, Fujitsu, and KDDI Build Myanmar's First Cloud-Computing Environment

Deployed to the Central Bank of Myanmar, cloud-enhanced operating efficiency will contribute to development of the nation's financial markets

Tokyo, December 25, 2012 – Daiwa Institute of Research Ltd. (DIR),Fujitsu Limited, and KDDI Corporation today announced that they have collaborated to build the Republic of the Union of Myanmar's first cloud computing environment. Built for the Central Bank of Myanmar, the new cloud environment is designed to improve efficiency in the bank's operations. It consists of a private cloud platform designed, constructed, and operated in compliance with the Alliance Cloud, a standardized cloud model certified by the DIR-led Global Alliance for User-driven Cloud Computing, as well as a desktop service that features security countermeasures.

In advance of the fast-approaching economic integration of ASEAN nations scheduled for 2015, Myanmar, now rapidly implementing democratic reforms, has been actively seeking to modernize its financial sector by relaxing financial regulations, making preparations to establish a stock exchange (*1) and taking other initiatives. Under these circumstances, operating stability at the Central Bank of Myanmar is ever-more crucial to the country's financial system given its pivotal role in issuing and managing currency and implementing monetary policy.

Up until now, many aspects of the Central Bank of Myanmar's complex operations were being performed by hand. With the volume of the bank's work expected to rapidly increase in line with the country's economic development, handling a higher volume of paperwork was considered a potential problem. In addition to significantly improving the bank's operational efficiency, the new computing environment incorporates high-grade security levels required by government financial institutions, and allows for the quick and stable implementation of monetary policy measures by the central bank, thereby supporting the sustainable growth of Myanmar's economy.

In introducing the new computing environment, DIR was in charge of designing and building the cloud platform and terminal environment. Fujitsu was responsible for providing hardware equipment, such as servers and computer terminals as well as building and delivering palm vein authentication systems. KDDI was responsible for designing and building the bank's local area network. Going forward, the three companies intend to use Japanese-level quality, highly reliable solutions to promote the adoption of ICT within Myanmar's finance industry as well as among a variety of other companies, thereby contributing to the further development of Myanmar's economy.

Comment by Takashi Fukai, President, Daiwa Institute of Research Ltd.
For many years, DIR has been providing support for the cultivation of Myanmar's financial markets. In May of this year, DIR and Tokyo Stock Exchange Group, Inc. concluded a memorandum of understanding with the Central Bank of Myanmar to collaborate on the establishment of a securities exchange. This new computing environment paves the way to build an ICT infrastructure that is indispensable for the modernization of Myanmar's financial system and represents an important milestone toward the establishment of a stock exchange. We are honored that this important computing environment employs our cloud platform and uses our desktop services. As we move ahead, DIR would like to leverage its diverse expertise, such as its experience as a think tank in developing financial markets and building systems. We will also be making a significant contribution to the development of Myanmar's financial markets using the securities business know-how of the Daiwa Securities Group.

Comment by Masami Yamamoto, President, Fujitsu Limited
Fujitsu is honored to participate in this project to build an ICT environment for Myanmar's financial markets, which will be undergoing rapid modernization. Even prior to this project, Fujitsu has built cloud platforms that comply with the Alliance Cloud standards, making an array of proposals that leverage our cloud capabilities. We aim to utilize this expertise to support the development of Japanese-level quality cloud-based ICT resources in Myanmar and other Asian countries to contribute to the sustainable development of society.

Comment by Takashi Tanaka, President, KDDI Corporation
For over 51 years, KDDI has had local subsidiaries in Southeast Asia and provided solutions to support both the local companies based in the region as well as the local subsidiaries of Japanese businesses. We want to use that wealth of experience and expertise to help build the office networks of companies establishing operations in Myanmar. We will also use the KDDI Group's ICT business experience in Southeast Asia to contribute to the development of Myanmar while delivering services that are equivalent in quality to the services we provide in Japan.

Glossary and Notes
1. On May 29, 2012, DIR, Tokyo Stock Exchange Group, Inc., and the Central Bank of Myanmar concluded a memorandum of understanding pertaining to cooperation toward establishing a stock exchange in Myanmar.

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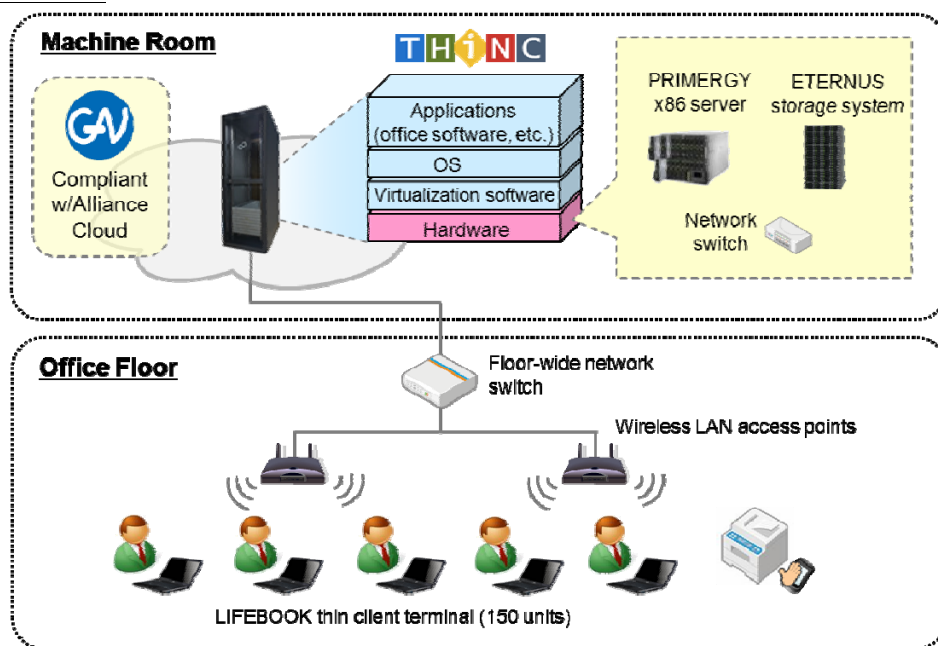Media Relations Department
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Overview of the Computing Environment
This particular computing environment is a thin client system employing DIR's THiNC desktop virtualization solution, which has a proven track record in a host of applications within the Daiwa Securities Group. The system platform for THiNC utilizes a cloud environment that is designed, constructed, and operated in compliance with the Alliance Cloud, a standardized cloud model certified by the Global Alliance for User-driven Cloud Computing. A virtual desktop environment will be accessible from each thin client terminal and applications needed for carrying out word processing and work on spreadsheets will be available for use just like on regular computers.

The environment is composed of Fujitsu hardware, including PRIMERGY x86 servers, ETERNUS storage systems, and LIFEBOOK notebook PCs. A total of 150 terminals are currently in operation at the Central Bank of Myanmar's office in Yangon. For enhanced security, a secure printing system has been introduced that uses the Fujitsu PalmSecure palm vein authentication technology.

The bank's local area network is being developed by KDDI, which boasts a lengthy track record of delivering solutions in Southeast Asia, as well as experience in supporting the construction of offices for many Japanese corporations in Myanmar. Within the bank's building, from access points to individual terminals, connections are made via a wireless LAN that maintains the same high security standards that can be found in Japan. Moreover, in light of Myanmar's unstable supply of power, the system incorporates capabilities such as uninterruptible power supply (UPS) and Power over Ethernet (PoE) functionality.

<u>System Overview</u>

By leveraging the know-how in building and operating systems in Myanmar gained through this project, Fujitsu, DIR and KDDI will strive to meet the demand for ICT in Myanmar, which is expected to grow considerably in the future. As a result, the companies will support the country's continued development through the provision of leading-edge services and solutions with Japan-level quality and high reliability.

About the Global Alliance for User-driven Cloud Computing
The Global Alliance for User-driven Cloud Computing is an effort spanning multiple companies that pursues, and implements via cloud computing, ICT services that meet the needs of users from a user-driven perspective. One main priority of these activities is to bring together multiple cloud platforms

configured with a diversity of devices and software and develop a framework for sharing surplus resources among these various platforms.

To meet this goal, the Global Alliance for User-driven Cloud Computing is collaborating with a wide range of vendors to test cloud platform technologies capable of running as mission-critical systems. As part of this initiative, the group is working to develop virtualization technologies and establish operating guidelines that can help to assimilate differences between devices used among each platform. It is also building a framework that will benefit both users and vendors by providing feedback to vendors regarding problems discovered during the tests.

As one example of how the results of these tests have been put to use, in November 2011 operations commenced for Japan's first hybrid cloud platform, compliant with the Alliance Cloud. The new platform is operated from Fujitsu's Tatebayashi System Center and is connected to Daiwa Institute of Research's own datacenter. In addition, in October 2012, two verification centers in Kanagawa and Osaka were connected and are currently holding continuous tests using the latest technologies, including the construction and verification of a fully automatic disaster recovery system between the two datacenters.

There are currently three participant companies that form the Global Alliance for User-driven Cloud Computing: Daiwa Institute of Research Holdings Ltd., NS Solutions Corporation, and Panasonic Information Systems Co., Ltd. Going forward, the society plans to continue promoting the development of cloud platforms and ICT services that are easy to use for users inside and outside of Japan, with an eye toward expanding its efforts in Myanmar and other Asian countries.