Mitsubishi NICOS leverages Akamai to accelerate and protect its Internet-based credit-card POS system

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>
> — **Kenichi Kumada,** Deputy Manager, Acquiring Business Development Department

The Situation

Mitsubishi UFJ NICOS Co., Ltd. has rolled out several credit-card brands, including MUFG Card, DC Card, NICOS, etc. With a combined total of around 17.31 million cardholders and an annual card transaction volume of 8,621.6 billion Yen, Mitsubishi UFJ NICOS is Japan's biggest credit-card company. Working in collaboration with JR East Mechatronics Co., Ltd. (JREM), Mitsubishi UFJ NICOS developed the "J-Mups" (Joint Multi Payment Processing System), a next-generation POS settlement infrastructure. J-Mups, which went live in July 2012, is a cloud-based multi-payment processing system for credit cards and e-money.

J-Mups represents a revolution in credit-card POS settlement systems, which had remained largely unchanged for many years, and Akamai played a vital role in realizing the creation of the new system. We talked to Mr. Kenichi Kumada, Deputy Manager, Acquiring Business Development Department (Manager in charge of the Acquiring Network Development Group), Acquiring Business Unit, Sales & Marketing Division, Mitsubishi UFJ NICOS Co., Ltd., who has been involved with the J-Mups project since the planning stage. When someone pays for something in a store using a credit card, the credit-card settlement system plays a vital role.

The Challenge

Prior to the launch of J-Mups, Japan was still using a settlement system introduced in 1983 that relied on analog telephone lines (and subsequently on ISDN). With the growth in e-commerce website usage by ordinary consumers, it has become commonplace for e-commerce websites to implement settlements using the Internet; however, the settlement systems used by ordinary brick-and-mortar retail stores continue to rely on the same infrastructure they have been using for over three decades.

When a credit-card payment is being settled, the amount of data exchanged with the credit-card company's settlement center is very small, amounting to only a few hundred bytes. However, with the old settlement system, the communication speed was very slow (56–64 Kbps), and processing took around 10–15 seconds to complete. Also, it had become clear that the system needed to be made more scalable in order to meet future needs (including the ability to provide settlement for new types of payment services, such as debit cards and e-money). A further issue was that the POS terminal devices installed in stores were very expensive, at around 200,000–300,000 Yen each; add to this the need to pay telecommunication charges for every single settlement, and it is understandable that small retail stores were reluctant to adopt credit-card payment systems. The need for an overhaul of the settlement system was thus an issue of key importance for the whole credit-card industry.

The Goals

J-Mups was planned as a new-generation system that would solve all of the above-mentioned problems in one go. The goals set for J-Mups were as follows:

- **Keep settlement processing time** within two seconds

COMPANY

Mitsubishi UFJ NICOS Co., Ltd.
Tokyo, Japan
http://www.cr.mufg.jp/english

INDUSTRY

Financial Services

SOLUTIONS

- Web Performance – IP Application Accelerator

KEY IMPACTS

- Contributing to the realization of a POS settlement system that required a high level of reliability

- Safe, high-speed, secure processing of critical data transactions

- Realizing impressive high-speed processing and first-class network security functionality

Mitsubishi NICOS

- **Reduce telecommunication charges** by using the Internet as the communications infrastructure linking retail stores to the credit-card company's settlement center

- **Reduce the price of POS terminals** to about one-third to one-quarter of what it had been previously by having the settlement center handle most of the tasks that had previously been carried out by the POS terminal

Why Akamai?

WIn order to achieve these three objectives, Mitsubishi UFJ NICOS chose to use Akamai as its network infrastructure partner. Mr. Kumada explains the reasons for this choice as follows:

"During our discussions in the planning stage for J-Mups, what really appealed to us about Akamai's solution was the ability to 'achieve high reliability and security while using the Internet.' While credit-card settlement data is very small in size, it is critically important data, making it fundamentally different in nature from the large-volume video streaming data, etc. that Akamai's services had normally been used for previously. However, it was readily apparent that maintaining session stability would be just as important in credit-card settlement, which involves small volumes of data, but with large numbers of transactions taking place over a short space of time—as it is for video streaming, etc.—so we weren't too worried about the technical aspects of Akamai's solution. Data transmission from the retail store's settlement terminal to Akamai's edge server takes place using the regular Internet, but as soon as the data enters the Akamai Intelligent PlatformTM, the data is transmitted only using highly reliable servers and networks, ensuring that it reaches the credit-card company's settlement center rapidly and safely; once the data has been processed, it is sent back safely to the store's POS terminal following the same route in reverse. This was a very important aspect of Akamai's solution from our point of view. Because of its precision and reliability, we decided that we needed to adopt Akamai's solution."

This was the first time that the Akamai Intelligent Platform had been used for a credit-card settlement system like J-Mups, so were there any problems when the system was first introduced?

"The system developers traveled all over Japan carrying out testing to verify whether it really was possible to complete settlement processing within two seconds using Akamai's platform. The tests results showed that, while there were a handful of locations where it was quicker not to use Akamai's CDN, there were no locations where using Akamai resulted in very slow transmission, and overall it was confirmed that using Akamai's CDN provided stable, fast performance, while maintaining consistently high-quality service," notes Mr. Kumada.

Following the launch of J-Mups as a high-speed, highly reliable, low-cost, revolutionary credit card settlement system, there has been a lot of positive feedback from merchants who have been using the system. So far, most of the positive comments that have been received relate to the fact that the new system is much faster and cheaper to use. However, given that there have recently been a lot of news stories all over the world about credit-card data being leaked, as merchants become more aware of the importance of security, it is anticipated that the high level of security J-Mups provides will come to be widely appreciated in the future.

Using Akamai's platform also provides benefits in terms of operational management. One major benefit relates to the ability to clearly identify problems when a complaint is received from a retail store about settlement. When you are using the Internet, with a wide range of network devices and service providers, it can be difficult to determine the precise cause of a problem. However, because J-Mups uses Akamai's platform, in most cases it is readily apparent where a problem has occurred, so the credit-card company is able to provide the retail store with precise information about the issue. As a result, the handling of complaints has actually helped to strengthen retail stores' faith in the J-Mups system.

Regarding the plans for further development of the system in the future, Mr. Kumada points to the need to support consumer mobile devices, such as smartphones, etc., the adoption of which is growing rapidly.

"The obvious next step is to provide settlement solutions for the mobile communications segment. I believe there is an unstoppable trend towards the use of consumer mobile devices as settlement terminals or being used instead of credit cards. We are eagerly looking forward to seeing what kind of solutions Akamai is able to provide for different usage scenarios as these trends progress," says Mr. Kumada

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