

KEY HIGHLIGHTS  
INDUSTRY: FINANCE / BANKING



#### Operation Environment

- VMware Products used:
- VMware Infrastructure 3 Enterprise Edition
  - VMware Virtual Desktop Infrastructure

## Establishing a VMware Infrastructure 3 based Environment for a Continuously Operating 24 hour Online Trading System and Disaster Recovery (DR) Site

FXOnline Japan has migrated all of their infrastructure to a Virtual Environment to establish a highly stable and available Foreign Exchange Trading System. This new system, which also includes a Disaster Recovery (DR) site to avoid trading downtime caused by disasters, has high availability and flexibility through VMware Infrastructure 3 and has become the IT foundation for FXOnline – allowing the firm to recover quickly from disasters and to quickly introduce new products to help expand its business.

### Due to Increasing Transaction Volumes, Ensuring High Availability and Business Continuity During a Disaster Becomes a Challenge

Established in December 2002, FXOnline Japan Co., Ltd (FXOnline Japan), is the first Foreign Exchange (FX) Trading Firm in Japan to implement zero commission trades. FXOnline offers online trading for 23 currency pairs under fair trading conditions that meet global banking standards, and is currently handling over 800,000 trades every month (as of June 2008) for more than 4 trillion yen. The exchange trading system of FXOnline Japan is highly praised by their customers for its excellent operability. It allows ordering directly from charts, as well as the ability to view trade rates, position, charts and margin without having to switch screens.

Mr. Kazuyasu Hakata, Director and CFO of FXOnline Japan comments: "Our role is to provide the trading tools, the information and the environment for our customers to do FX trading freely on their own. But the most important aspect is the environment that it enables customers to do the trading they want at the speed they desire. The IT infrastructure of online trading is the key to that and it is important for the customers to have a system that is easy to use and be able to obtain the necessary information when they need it."

Just as the stock market has become popular over the Internet, FXOnline forecasts that the use of Internet will expand the FX trading market to over 3 million users, more than doubling the current market size. When that becomes a reality, having a stable system becomes essential. When the market expands, not only will the number of trades increase, but there will be an enormous increase in data volume as the rate history of 23 different currencies pairs must be recorded for each second over the past five years.



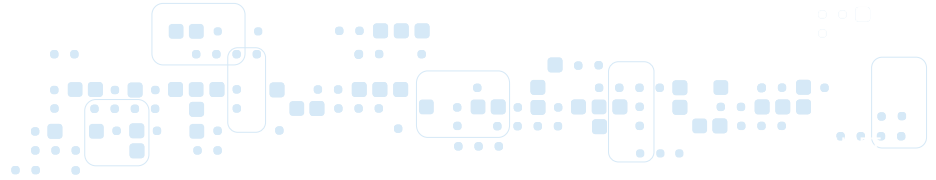
"In FX trading, where major price movements can happen in seconds, even an instant of downtime can impact customers and cause loss of credibility. We have now been able to quickly construct a system, including a DR site, based on VMware Infrastructure 3. In this way, we have put in place an environment that gives customers with confidence, as well as infrastructure for our business growth with the provision of new products."

FXOnline Japan  
Director, Chief Financial Officer Mr. Kazuyasu Hakata

FX trading has rapid price fluctuations even over one second, making even an instant of system stoppage very crucial, with the potential to damage the trust of customers. Therefore, it is essential to operate a strong, highly dependable system, and also to prevent any system stoppage by unexpected accidents or disasters. FXOnline has established a stable system that minimizes downtime, along with a Disaster Recovery (DR) mechanism that allows the continuation of trading even if the main site is lost due to disasters, etc...

### Completing All Development in 3 Months in parallel, on a virtualized server Environment

FXOnline Japan's online trading system consists of the trading system (operated in the U.S.) that executes all the trades on the world's major Exchange Markets and the Customer Trading System that the customers access. In order to implement a highly functional and stable system, FXOnline Japan decided to completely renew both systems including the establishment of the DR site. Fusion Systems Japan was the company selected to re-establish the online trading system operated in Japan.



"We needed to have the framework established by August of 2008 since we planned to apply to the authorities, as well as work on a new product within the year. That meant we only had 3 months to complete the project. Only Fusion Systems Japan, a company with both extensive knowledge of the System Guidelines for the Financial Services Agency and technical capabilities in Global Trading Systems projects had the capability to do this project in such a short period of time." (Mr. Hakata)

In designing the system, FSJ decided to adopt VMware products for the virtual environment for the following 3 reasons: (1) It is not only proven but has the stability to be used as the base infrastructure in the actual environment. (2) It is very effective in reducing the number of servers. (3) By employing parallel development, it could shorten the development period.

The development period started in early May, from designing the system and acquiring the physical server. Since it would take at least one month for the delivery of the server, they created a virtualized server environment on an preliminary server, having several engineers develop in parallel on multiple applications. And by the time the server ordered was delivered, the virtualized server with the applications on the preliminary server was copied to the main server, completing the implementation in

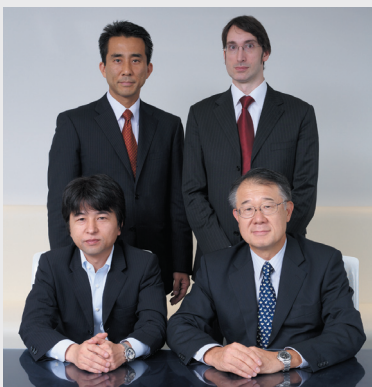
2 weeks. The tests of the virtualized server environment were conducted on July 20th, and the new network and IP lines were reconnected, enabling the actual environment to start operating as early as August 4th. After that, a switching test for the DR site was conducted and by August 20th, the whole Web System including the DR site was up and running. The project was completed in only 3 months, without having to wait for the hardware to arrive because the testing and application development was done on the virtualized server.

Daniele Cereghino, a Senior Consultant at Fusion Systems Japan says "Without VMware Infrastructure 3, we couldn't have finished this project in a mere 2 and a half months. VMware Infrastructure 3 is not only beneficial in cutting costs through server integration, but it helps in developing systems efficiently in a limited amount of time."



**"I was anticipating the VMware Virtual Desktop Infrastructure to be fairly slow like an application on a Windows PC. But it was a lot faster than I expected. This can be used as a client environment for financial trading operations without any problems."**

FXOnline Japan  
IT Department Director, CIO Mr. Yasushi Banba



From top left to right...  
Fusion Systems Japan  
Mr. Tony Fujii and Mr. Daniele Cereghino  
From Bottom left to right...  
FXOnline Japan  
Mr. Yasushi Banba and Mr. Kazuyasu Hakata

### Aiming for Business Expansion on the Secure VMware Virtual infrastructure

On the VMware Infrastructure 3 based Online Trading System, there are VMware ESX running on 11 physical servers, which are managed by the VMware Virtual Center. Also, on the DR Site, virtual servers are established on 13 physical servers as well as a Virtual Desktop environment using VMware Virtual Desktop Infrastructure (VDI) to be able to restore operation remotely even after a client PC suffers from a disaster (See Diagram on the left).

Mr. Yasushi Banba, Director of the FXOnline Japan IT Department comments "Using the DR site, it takes no longer than only 2 hours to restore operations if the primary site is disabled by a disaster. Also, if a client PC at the office becomes unserviceable, we can switch to VMware Virtual Desktop Infrastructure and continue important operations remotely."

Since the system, including network, security, and the mail system was implemented in a short period of time, the Infrastructure was successfully promoted, achieving FXOnline Japan's goal of having "An environment that clients can use safely and a foundation for expanding business including providing new products".

"In such a short period of time, we were able to establish the highly stable and available system that we envisioned. The new system has more than 10 times the trading capacity than what we had. We can now aggressively start expanding our business without any worries." (Mr. Hakata)

FXOnline Japan intends to utilize the established infrastructure, aggressively meeting their clients' diversification investment needs, as well as continue expanding their business with transparency.

