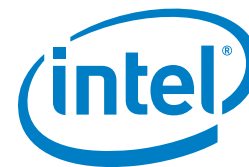


CASE STUDY

Intel® Xeon® processors E5 Family

Financial Services

Cloud Computing



Securities transactions get speed with cloud

Yuanta Securities uses Intel® Xeon® processor E5 series to boost the speed and stability of its cloud computing system and keep pace with fast securities transactions



“The efficiency and stability of Intel Xeon processor E5 family, coupled with the substantial costs and investment benefits it offers, has led us to gradually replace numerous RISC-based systems with x86 platforms. All our internal operating systems, processing business with heavy traffic, and online order placement services operate on Intel Xeon processor-based platform.”

Wu Boyi
Senior IT Manager
Yuanta Securities

CHALLENGES

- **Build a solid IT system foundation.** Ensure a stable IT environment to carry out any securities transaction activities and launch new services efficiently.
- **Ensure fast flow of securities transactions.** Guarantee the securities system can quickly complete processing transactions to ensure uninterrupted placement of orders for clients.
- **Meet other complex commercial applications.** Ensure that technologies incorporated in the IT framework can meet the requirements of the current environment as well as other applications.

SOLUTIONS

- **Carry out comprehensive architectural planning.** Build a stable IT infrastructure for the virtualized system to keep up with the demands of securities trading.
- **Ensure efficient cloud computing core.** Properly integrate high-speed network, highly efficient processing core, and storage to attain ideal network computing for fast completion of transactions.
- **Standardize on Intel® Xeon® processor.** Come up with a set of standard procurement specifications using main systems with Intel Xeon processor E5-4650 to ensure the hardware meets the needs of the internal cloud computing system.

BUSINESS VALUE

- **Solid IT infrastructure for business growth.** Ensuring a stable IT environment allows Yuanta Securities to provide quality service to satisfy investors' needs.
- **Accelerated securities transactions.** Faster completion of transaction processes allows the company to meet trading demands with ease and efficiency.
- **Increased value of IT management.** Standard specifications for all procurements using Intel Xeon processor-based servers increase the speed of procuring and installing new servers, eliminating lengthy hardware assessment processes.

TECHNOLOGY RESULTS

- **Stable IT environment.** A stable hardware and network foundation for the virtualization system resource pool eliminates maintenance and operation issues and makes both existing and new services more efficient.
- **Strong cloud computing core.** Proper integration of high-speed network, highly-efficient processing core and storage boosts network computing, the core of cloud computing.
- **Standardized procurement process.** Using servers based on Intel Xeon processor E5-4650 ensures that only servers with the same standards can be quickly incorporated into the IT resource pool, achieving a high-speed network architecture that responds completely to transaction demands.

Boosting financial services with a solid IT system

The IT system plays a critical role in providing quality service to customers. In the financial services industry, it drives the businesses to success, since meeting investors' needs faster and more efficiently gauges business growth.

In an environment of interrelated systems such as securities transactions, each segment, whether it is the front-end utilized by the public or the back-end system dealing with cash flow, has to be examined stringently to ensure flawless operation of the entire IT system.

“Securities transactions, especially financial services, concern the rights and interests of every investor. In the event of a fault, the fallout can result in massive losses,” says Wu Boyi, senior IT manager at Yuanta Securities.

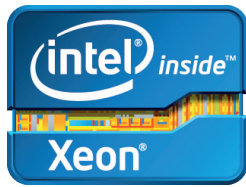
Yuanta Securities is a leading player in the financial services industry in terms of IT development, providing Web services to its customers. Wu, who oversees the planning of the company's IT

infrastructure and network architecture, likens building an IT system to the construction of a building. Only when the foundation is solid can the activities on top be carried out safely. Hence, there is a need for comprehensive architectural planning, starting from the hardware at the bottom, which has to be continually reassessed according to external developments to keep the IT infrastructure up to date, as well as to keep up with continuous innovations in investment and wealth management services.

Most IT systems are consolidated through virtualization systems (i.e., turning all system resources into a resource pool). If the hardware that constitutes the resource pool is unstable, it will cause issues in the follow-up maintenance and operation of the systems in the upper levels.

To providers of financial services such as securities transactions, this is an impermissible mistake.

Therefore, before any component, either the server or networking equipment, is incorporated, it has to be subjected to the most stringent checks to ensure uninterrupted trading of securities.



Yuanta Securities builds a stable and efficient cloud computing system running on Intel® Xeon® processor E5 family, enabling fast securities transactions and better service for its clients

Accelerating securities transactions

Other than being stable, a securities system that deals with tens of thousands of transactions per second has to be fast to complete the transaction as quickly as possible after a client places an order.

The flow of capital in the securities industry is immense. In addition, stock prices constantly fluctuate during trading hours. The price changes in a second can affect capital in the range of tens of millions New Taiwan Dollar. Therefore, it is necessary for the securities system to quickly complete processing transactions.

"Three conditions are necessary to make the overall processing speed fast enough: high-speed network, a highly efficient processing core, and storage. These three components have to be properly integrated so the core of the cloud computing system can be attained to provide the most efficient transaction services. Yuanta Securities' foray into cloud computing has progressed beyond virtualization to the more advanced network computing," explains You Tingkun, manager at Yuanta Securities.

For Yuanta Securities' IT environment which has progressed into the cloud computing framework, the computing resources of each server and CPU have been incorporated into the virtualization system. Technologies such as the number of cores in the structure, the processing capacity of the storage, and the virtualization instruction set must satisfy the requirements of the current environment. Apart from meeting securities transaction needs, these technologies also have to satisfy other complex commercial applications. Stability and high efficiency should also be considered.

To address this need, Yuanta Securities has come up with a set of standard procurement specifications for IT equipment. During the purchase of equipment, servers that meet the standard procurement specifications would be chosen. To satisfy stringent IT requirements, Yuanta Securities used Intel Xeon processor-based servers, making this the standard specification for all procurements.

"For the developmental focus of cloud computing, other than the multiple cores of the servers, there is also a need to pay attention to the chipset design of each segment. The chipset used by the network must also support high-speed Internet transmission to obtain optimal performance out of the internal cloud computing system," shares Wu.

Eyeing standardized procurement process to improve IT management

Wu stressed that having a standardized procurement process can increase the speed of procuring and installing new servers. Whenever there is a need, the equipment specifications can be given based on the procurement standards, instead of having to go through the lengthy process of assessing the hardware specifications every time. Having a

standardized procurement process also ensures that the hardware's grade and technology totally satisfy the requirements of the internal cloud computing system.

"Under the cloud computing framework, servers with the same standards can be quickly incorporated into the IT resource pool, and a virtual machine (VM) only has to be constructed as needed. If there is a need for intensive computing, either a server with multiple cores can be used, or numerous VMs can be built and linked to the load balancer, making this a speedy and flexible option. The prerequisite is that the high-speed network architecture is able to respond completely to the demands," adds Wu.

Faster and efficient securities transactions with a stable cloud computing system

Following several years of system development, the efficiency and stability of Intel Xeon processors have improved greatly. This, coupled with substantial cost and investment benefits, has led Yuanta Securities to gradually replace numerous systems on its RISC mainframes with x86 platforms. Other than a couple of database systems, its remaining application service systems are all handled by Intel Xeon processor-based servers. Apart from allowing the cloud computing system to fully make use of all IT resources, using Intel Xeon processor-based servers also reduced operating costs. With such advantages, Yuanta Securities' internal operating systems (e.g., email, FTP), as well as processing business with heavy traffic, and online order placement services that concern revenue, have all been operating on the Intel Xeon processor-based platform.

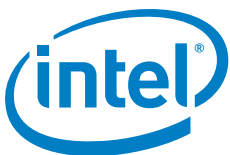
"Maintaining and operating an IT system is akin to navigating a vessel through icebergs. Compared to the part of the iceberg which is exposed, the part which lies below the surface is actually more massive. The application services on the upper level are like the ice which is above the water, crystal clear and flawless. However, the part of the iceberg hidden in the water – that is, the computing and network systems at the bottom – have to be painstakingly maintained. Should there be a lapse in management or an unstable piece of hardware that is brought in, even a company as formidable as the Titanic can end up in a crisis after colliding with a hidden iceberg," remarks Wu.

"Allowing the user to admire the beauty of the iceberg safely, and enjoy the benefits of IT to reach a realm with no obstacles, is what all IT personnel are striving for," he concludes.

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- Comprehensive architectural planning, starting with the hardware foundation, is integral in building a solid IT system.
- High-speed network, highly efficient processing core, and storage are key in building a securities system that can quickly perform transaction processes.
- The number of processor cores in the structure, storage processing capacity, and the virtualization instruction set must all satisfy the requirements of the current environment, existing transaction activities, and other complex commercial applications of the securities system.
- In further developing cloud computing systems, there is a need to pay attention to the chip design of each segment. It should also support high-speed network transmission to obtain optimal performance from the internal cloud computing system.
- Standard procurement specifications for IT equipment increase the value of IT management by simplifying and speeding up procuring, and installing new servers.

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