Database Consolidation in a 64-bit Windows Server environment
Integrated student information management using PRIMEQUEST mission-critical server

Solution	• Consolidated Mission Critical platforms for textbook and learning software delivery and student data management
Industry	• Educational Publishing
Product	• PRIMEQUEST 520
Requirement	• Need to ensure database growth and handle increased loads for student information & data analysis, limited by current 32-bit systems
Benefits	• Easier management, improved performance, fast and straightforward problem resolution, enables better focus on the needs of the business

Overview

The NIKKEN GAKUIN was established to support students seeking to prepare for qualifications in the architectural and construction industries. KENCHIKU SHIRYO KENKYUSHA CO. LTD, (The name means "Architectural data publisher") is their book publishing, teaching aids, sales and management arm. They set about reforming their total system in May 2007. To centralize and consolidate the management of their country-wide student and sales information database, they chose an Intel Itanium 2 processor based Fujitsu PRIMEQUEST 520, with its outstanding reliability characteristics, as their database server. Company-wide system operational stability was further enhanced by standardising on Fujitsu storage and management tools. The result is a solid management foundation.

From Hokkaido in Northern Japan to the island of Okinawa in the South, over 100,000 students annually pre-study for their qualifications in the 660 classrooms of the Institute's 135 schools. Student information and order processing for sales of books, teaching aids, and software, etc., is managed using the database system installed at KENCHIKU SHIRYO KENKYUSHA's head office.

"In the beginning we managed the data using separate databases that reported to head office periodically. But in order to ensure optimum management efficiency it became essential to understand the information in real time, centralized at our head office. Plus to offer services key to the architectural and construction industry students we needed to simultaneously use student data for marketing and the minute data analysis that leads to improved student success," said Yasunori Aoki, Manager, Business management section at KENCHIKU SHIRYO KENKYUSHA.

The company has been gradually improving its systems. In the second half of the 90's, good progress was made in broadband networking and web technology development; advancing a more mission critical open architecture approach. However new and attendant problems surfaced. "As the number of students and use of the internet increased so did the year on year load on the database servers. We were enhancing the hardware each time to maintain performance but we were reaching the limit" said Katsunori Fujishima, Business management section, KENCHIKU SHIRYO KENKYUSHA. In reality, with increasing database server load, restrictions caused by the 32-bit addressable space had become a bottleneck. In addition there were negative effects from the complications of hardware upgrades and subsequent essential retuning of the database software.

Takahide Taoura, General Manager at B.B CO., LTD, the company employed to manage the development and use of the information system, confessed that "Due to the multi-vendor nature of the system, demarcation was difficult when problems arose. Just making enquiries of each vendor required considerable time."

In a one-on-one contest with blade servers PRIMEQUEST efficiency did not deteriorate

KENCHIKU SHIRYO KENKYUSHA, commenced its second look at a company-wide system around 2005. They were inclined towards 64-bit machines as they

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naturally handled very large memory address space, particularly in regard to database system server platforms. Hardware selection shaped up as a one-on-one contest between Fujitsu PRIMEQUEST and another supplier's recommended blade server solution.

"It was the "solid nature" of the Fujitsu PRIMEQUEST that led us to finally choose it as the database server. It had the same work stability as a mainframe. In the period following primary building and architecture qualification examinations access is particularly concentrated. No matter what happens it is essential that we can provide prompt answers, bulletins and self grading support to our students," said Mr. Fujishima.

"In the case of blade servers, when a blade breaks down there is a time lag until it is failed-over to a spare blade. Deterioration in performance during that time is unavoidable. But with the duplex hardware system internal to PRIMEPOWER we were fascinated by the fact that whatever the breakdown, performance deterioration didn't occur and there was no effect on the business," added Hiroshi Oshida, Business management section at KENCHIKU SHIRYO KENKYUSHA.

Implementing DB2 UBD on Windows Server Itanium edition

The former database system used a cluster of Intel architecture systems from another vendor. But moving to a single unit PRIMEQUEST, with its highly available duplex hardware, reduced the number of servers. In addition, the complexities and inconveniences of cluster management were also removed. But it was necessary to grapple with the largest obstacle to database system reform; Itanium 64-bit reliability on Windows Server 2003 Enterprise Edition with old IBM database software, DB2 Universal Database. In this, the B.B CO., LTD and Fujitsu development teams utilized a PRIMEQUEST and the actual applications at the Fujitsu Platform Solution Center in Hamamatsu-cho, Tokyo. There they repeatedly tested and executed the solution. As a result they were able to verify it worked without problem and achieved a 2.3 times performance improvement compared to the old system.

Company-wide standardization on Fujitsu product lights the load considerably

Introduction of the company-wide system started in Oct. 2006 and commenced live operation in May 2007. For functions other than the database server, Fujitsu PRIMERGY BX620 S3 Blade servers were adopted as application and accounting servers and ETERNUS4000 for storage. Further, introduction of Systemwalker middleware product enabled integrated management supervision of the entire system. The standardizing of the company-wide systems on Fujitsu product, saw great benefits for the Information Systems section compared to the former multi-vendor environment.

"By unification under the Fujitsu banner, fast problem identification and resolution became possible. Our own responsibilities also became clear, and removed grey areas in the handling of outsourcing and support. This allowed us to focus on our core application development for increased benefit to KENCHIKU SHIRYO KENKYUSHA." said Mr. Taura with some satisfaction.

"When offering new services and strengthening the management base, database application becomes important. Therefore our future policy is to keep a watching brief on latest technology trends, while continuously reviewing the system. Of course Fujitsu's proposals will be greatly anticipated," Mr. Aoki rounded off.

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System Configuration

Application Server, Accounting Server

PRIMERGY BX620 S3

(2 Chassis / 4 blades each)

Database Server

PRIMEQUEST 520

Database Server development machine

PRIMEQUEST 520

Blade Management Server

PRIMERGY RX300 S2

+

Systemwalker

Resource Coordinator

Backup & Monitoring Server

PRIMERGY RX300 S3

+

Systemwalker

Centric Manager

Storage

ETERNUS4000 mode 300

LTO library

ETERNUS LT210

Windows Server 2003

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