

SK Telecom Achieves High Availability and Scalability with Clustered Database Solution



SK Telecom
Seoul, Korea
www.sktelecom.com

Industry:

Communications

Annual Revenue:

US\$10 billion

Employees:

4,500

Oracle Products & Services:

Oracle Database
Oracle Real Application Clusters

Key Benefits:

- Ensured the stability and high performance of marketing system through the use of clustering technology
- Enabled processing of 2,000 transactions a second
- Cut billing time to 13 hours from three to four days
- Reduced sales reporting time from three days to one day
- Achieved high availability by distributing workload across multiple servers, ensuring hardware failures did not affect system performance
- Lowered total cost of ownership by adding low-cost commodity servers when extra processing power is needed

“We successfully completed a ‘Big Bang’ migration from a mainframe system to a clustered server environment. The Oracle environment is highly stable and offers powerful performance and easy scalability, which has enhanced user satisfaction and customer service.” – NoCheol Park, CIO & Senior VP, NGM Program Manager, SK Telecom

SK Telecom is the largest mobile communications service provider in Korea, with more than 20 million subscribers. The company specializes in data-driven applications and advanced multimedia services delivered to cellular phones, personal digital assistants, and MP3 players. It provides music and streaming video services such as movies, video clips, animation, games, and sports and television programs, as well as real-time financial information (stock trades, investments, and insurance policies).

To ensure it could conduct more effective sales activities, SK Telecom developed a new system to keep track of all customer and marketing-related activities. The company was looking for a stable, reliable, secure, and highly available database platform to run the business-critical system.

SK Telecom selected Oracle Database 10g and Oracle Real Application Clusters 10g as the foundation of a four-node clustered database server environment. The database servers—HP Integrity Superdome servers each with 56 processors and 160GB of memory—are among the largest servers available today.

This configuration provided SK Telecom with a powerful platform that can currently process up to 2,000 transactions per second. A clustered solution also ensures high system availability by spreading the workload across multiple servers.

Searching for a Reliable, Scalable Solution

To strengthen its leadership in the Korean mobile communications market, SK Telecom developed a next-generation marketing (NGM) system to boost customer service, improve billing processes, and gain better insight into market trends. The sophisticated system oversees billing, customer and

partner relationship management, content management (manuals, service details, campaigns), and provisioning of services to the network.

SK Telecom was looking for a powerful database platform that could store large amounts of information and grow with its business. The mainframe system installed 10 years ago did not offer the performance or flexibility to support rapidly changing business needs.

Oracle 10g technology offered SK Telecom a database foundation that was stable, secure, scalable, and high performing. The company implemented a clustered database server environment based on Oracle Database 10g and Oracle Real Application Clusters (RAC) 10g. Forty-six sub-systems were consolidated onto the 10TB Oracle database.

Powerful, Always Available Platform

SK Telecom's NGM system is one of the largest online transaction processing platforms in the world running Oracle RAC using Cluster Ready System technology. Oracle's clustering technology spreads the database workload across four servers. If one server in the cluster fails or has to be shut down for maintenance, the workload is instantly distributed across the other three servers.

"This configuration ensures hardware failures do not affect our business," said NoCheol Park, CIO and senior vice president, NGM Program manager, SK Telecom. "A clustered database environment guarantees the NGM system is always up, so our customers receive the services they need 24/7."

The stability and availability of Oracle RAC is backed by powerful performance. SK Telecom reported that the NGM system can process up to 2,000 transactions a second. It can also simultaneously complete large amounts of online batch processing.

This enabled the company to reduce billing processes to 13 hours, compared to three to four days previously. Sales information reporting (sales, payment status, fees, incentives etc) has also been cut from three days to one day, ensuring managers base decisions on up-to-date data.

Pay-As-You Grow Scalability Lowers Costs

Another attraction of the Oracle technology is its 'pay-as-you grow' scalability. It allows SK Telecom to maximize the use of existing resources and install extra nodes only when it needs additional processing power, lowering total cost of ownership. The company also has the option of using low-cost commodity boxes rather than making a big upfront investment.

Why Oracle?

SK Telecom considered the database to be the most critical component of its new environment. The database had to have the capacity to support 30,000 users (12,000 of whom would be accessing the NGM system at the same time) and 60 million transactions a day.

"Oracle Database was the most suitable solution, with the reliability, availability, and scalability we needed to run the NGM system," said Park.

Implementation Process

SK Telecom launched the database migration project in 2004, one of the largest projects of its kind in Korea. The company worked with Oracle Korea and SK C&C to configure and install Oracle Database and Oracle RAC, and migrate the billing, CRM, and call center systems to the new environment. The second phase of the project was completed in September 2006.

The company tested the system exhaustively before the launch date. After each test, the performance level of each application was readjusted. This enabled SK Telecom to meet stated performance goals of 3,500 transactions per second, where 99% of response time (excluding leased network time) met 0.7 seconds for read/inquiry transactions and 1.7 seconds for update transactions.

"The project was a challenge because the environment was new and various issues arose during the implementation," said Park. "By forming a global virtual taskforce team with hardware and middleware vendors and with help from Oracle headquarters, we were able to solve all the issues before the go-live date. Happily, we were able to get system stabilized in less than a month."

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