



## Best Practices: Faster Data Processing Supports Bokwang Familymart Expansion

IDC Retail Insights: Asia/Pacific IT Opportunity: Retail and Wholesale

BEST PRACTICES

#AP9140602T

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### IDC RETAIL INSIGHTS OPINION

This IDC Retail Insights study believes an effective stock order processing, which is based on advanced software and hardware abilities that support planning and efficient execution, enables retailers to support their quest for faster, effective, and punctual delivery in relation to the increasing number of stores and enlarging array of fresh food products available on the shelves. Investments made to optimize order processing have proved to bring concrete results and payback to food retailers. An optimized stock order process aimed to reduce logistics fragmentation, stock availability errors, and hardware and software maintenance costs will result in optimized inventory management capabilities to support consumers' demands and accordingly, the retailer's strategic positioning. Following the implementation of Oracle Exadata Database Machine, Bokwang Familymart achieved significant improvements in its stock ordering process and also a relevant reduction of IT costs.

- **Faster order processing.** After implementation, the company reduced the processing time for 900,000 orders from 50 to 10 minutes.
- **Improved analysis ability.** It now takes 30 seconds for Familymart to analyze 16 months worth of order, product, and revenue data compared with the five minutes needed in the previous system.
- **Optimized stock availability while expanding stores.** Due to on-time delivery resulting from faster order processing, Familymart improved their competitive positioning while ensuring required quality standards for strategic lines like fresh food products.
- **Infrastructure costs reduction.** There is a 15–20% decrease due to server consolidation, storage integration, and a lower price point of Exadata for the required processing power.

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## **IN THIS STUDY**

In this study, retail IT best practices in the area of ordering systems optimization are analyzed by discussing the Bokwang Familymart case study. The leading convenience store chain in South Korea implemented the Oracle Exadata Database Machine in April 2010. This study provides valuable insights, predictions, and prescriptions for retail executives and IT vendors targeting the retail sector.

Three main areas of best practices are investigated:

- Improvement of ordering system to optimize daily store deliveries and transactions
- Enhancement of data analysis capabilities
- Optimization of on-time delivery and inventory levels

## **SITUATION OVERVIEW**

Bokwang Familymart is South Korea's leading convenience store chain, with 5,500 outlets across the country, more than 1,000 employees, and an annual revenue of US\$1.7 billion. The retailer has plans to open 3,000 new stores by 2015.

Among the company's strategic missions, a strong focus is given to its ability to deliver fresh food and groceries to customers across South Korea. Product freshness at Bokwang Familymart is a strategic value that goes along with the promotion of local social activities, the use of environmental-friendly policies and sustainable materials is implemented in its first Green Store that opened in March 2010.

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## **Business Needs**

Given the nature of its product offering, Familymart processes orders throughout the day to be dispatched to the logistics center, which is in charge of organizing three deliveries a day to relevant outlets.

In order to defend its leadership position from competitors such as GS25 and 7-11 and their rapid growth in terms of outlets in the mature market of South Korea, Familymart decided to open an average of 1,000 outlets per year until 2015, and also invest in the design of nonstandard types of outlets for specific niche locations like in subway stations, high schools, and universities.

With the growing number of chain stores by 2010, Familymart observed that there were substantial hurdles in its ordering system to keep up with efficient stock order processing, causing late deliveries to the stores. Instead of the 10-minute company requirement to process orders and deliver stock on time to 5,500 of its chain stores, the ordering system in use needs up to 50 minutes, resulting in a very limited time dedicated to check the order data processed, which increased the errors in the distribution flow of the products — fresh food and groceries in particular.

The role of order management for convenience outlets is of top importance. An ineffective ordering system that is unable to process the data generated in stores at the right speed results in an unproductive stock replenishment, which endangers sales and decrease consumers' confidence.

One of the strongest challenges to the expansion of retailers is the implementation of an ordering system that ensures a fast and reliable performance. With an optimized system performance, retailers can obtain a near real-time image of stores' needs and consequently make effective and timely ordering decisions.

Convenience store chains typically generate orders that are processed on a daily basis and are dispatched to relevant logistics centers. In the case of Bokwang Familymart, orders received by logistics centers generate three deliveries a day based on location and transportation schedules.

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## **Management Challenges**

With the increasing number of outlets across the country, the organization realized how speed and accuracy of data processing became the most important competitive advantage that holds Familymart's leadership position.

Convenience stores greatly rely on stock ordering on a daily basis as they deliver fresh food products in particular that must be delivered on time in order to maintain its freshness throughout its availability in stores.

Though having installed enterprise-class servers and implemented database systems to improve performances, the existing ordering system required almost an hour, which is up to five times longer than the company's requirement. This left Familymart an average of only one hour available to check orders between processing and the pickup of goods at warehouses or manufacturers. The consequence being the lack of time to control if orders were communicated correctly affected the products' availability and value, with the risk to reduce consumers' confidence in the brand.

In September 2009, Bokwang Familymart decided to address the worsening issue by challenging vendors in a series of tests to be completed by January 2010. The tests were aimed at selecting the best solution to improve the retailer's performance in order processing system and support its expansion strategy

## **THE BEST PRACTICES**

Order management applications are designed to automate processing of sales order from capture to invoice and settlement, and built with features to handle order planning and demand management capabilities. Item lookup and order placement are the prerequisites of order management applications, followed by issuance of receipts and advance shipping notices, and payment processing functions.

In addition, Web-based order management applications are replacing legacy systems for faster and more accurate order processing. Order and product configurations, pricing options, freight calculation, and credit checking are being combined to form an integrated application regardless of sales channels. Other features include view price history, profit management, multiple order types (including quotes and credit orders), blanket and release orders, direct ship and transfer orders, kit processing, and product returns processing.

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### **Solution Description**

Familymart selected Oracle Exadata solution to score its goals and streamline its IT infrastructure. The solution enables both ordering and analysis systems, previously run on eight enterprise-class servers, to run on a quarter-rack Oracle Exadata Database Machine and six Web servers. At the same time, Exadata is used to integrate the two storage systems originally allocated to analysis and ordering systems. The implemented solution includes the following components:

- **Oracle Database 11g.** This is the foundation of the new infrastructure.
- **Oracle Exadata Database Machine.** It represents the platform to consolidate onto grids or private clouds both data warehousing and online transaction processing (OLTP) applications. The machine is composed of servers, storage, networking, and Oracle Exadata Storage Server Software. This is also used for the consolidation of multiple databases onto a single grid.

- **Oracle Exadata Storage Server.** It enables a dynamic storage grid for Oracle Database deployments by leveraging the parallel architecture. Query performance is improved by offloading intensive query processing and data mining scoring to scalable intelligent storage servers. Query response times and throughput are improved by Exadata Smart Flash Cache, solid state nonvolatile flash, which transparently caches data to fast solid-state storage.
- **Database Machine Quarter Rack.** This module was selected according to the database to be deployed for Bokwang and the relevant processing and I/O bandwidth.

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### **Selecting the Solution**

Following an Oracle seminar, Familymart IT experts suggested to the CEO to investigate opportunities given by Exadata. The CEO influenced the selection by supporting the best available option to improve the performances of the processing system without focusing on pure financial aspects of the implementation.

Familymart held tests with vendors over a period of five months from September 2009 to January 2010. Oracle's Exadata solution was selected after three months of successful trials that proved the solution can immediately improve the performances of the organization's stock order processing while taking into account scalability requirements from new stores opening.

In April 2010, Bokwang completed the tests and installed the Oracle Exadata Database Machine. Bokwang expects the infrastructure deployed by Oracle will maintain its current level of performance for the next five years without investments in new hardware components and that performance will scale linearly with the increase in data volumes, which will be brought about by the opening of 8,000 new stores by 2015.

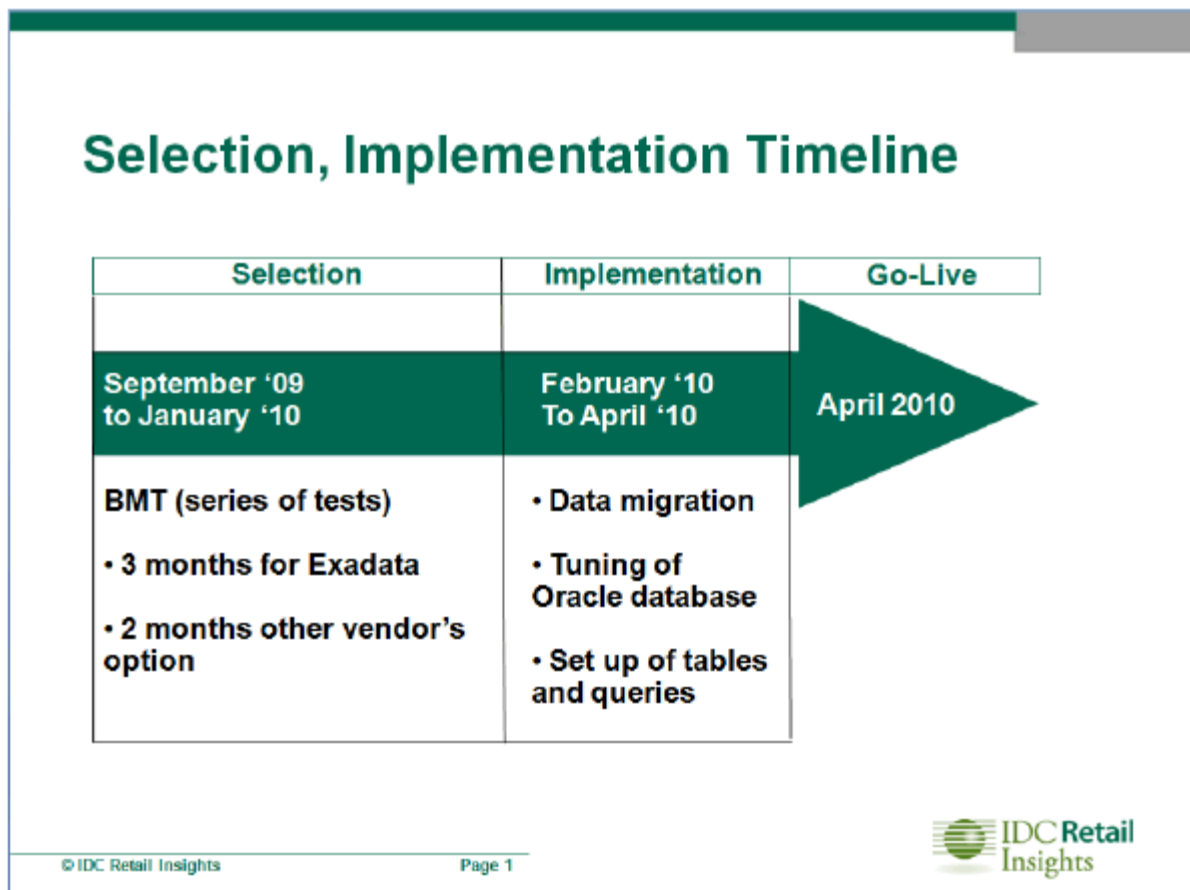
### **Implementing the Solution**

Bokwang Familymart relied on Oracle for the whole implementation process to match the organization's requirements. Data migration, alignment of Oracle Database 11g, parameters setting for tables and queries took three months and were successfully completed as planned, to have the system go live in April 2010.

In order to simplify and stream the business processes, Oracle suggested considering Exadata as the standard to be used for the whole infrastructure. Existing systems were fully integrated with Exadata without the need to reengineer the process. As the main goal for Bokwang was the optimization of performance of data processing and upgrade of overall IT infrastructure, there was no need to change the data transaction process itself as it proved to be already optimized for retail organizations like Familymart.

**FIGURE 1**

Selection, Implementation Timeline



Source: IDC Retail Insights, 2011

## **Business Value**

Following the implementation of the Oracle Exadata solution, Familymart was able to assess the benefits and business values of their new stock order processing capabilities, which are listed as follows:

- **Infrastructure costs reduction.** There was a 15–20% decrease in cost due to server consolidation, storage integration, and a lower price point of Exadata for the required processing power. Total cost of ownership (TCO)–wise, Exadata deployment ensures the necessary scalability for the next five years, saving on the purchase of new high-end servers.
- **Lesser time to process orders.** Instead of the 50 minutes required by the previous system, it only takes less than 10 minutes to process up to 900,000 orders.
- **Faster access to business-critical information.** Exadata allows Familymart to complete order filtering from stores in 30 seconds — product code, transactions and stock availability checking — compared with the 15 minutes in the previous system necessary to conduct the same tasks.
- **Improved accuracy and reliability.** This new solution enhanced Familymart's ability to take decisions in real time and benefit from the whole logistics and manufacturers flow. This resulted in extra time to check the orders accordingly and deliver the required stock to each store punctually, when and where it is needed, thus supporting store sales while ensuring high quality standard for fresh food delivery.
- **Reduction of daily errors and issues.** The diminution of frequent errors related to the previous order processing solution enables IT staff to look after system issues.

## **Lessons Learned**

Although it was the first time for the retailer to adopt a Linux OS-based system, the implementation of Exadata solution by Familymart did not encounter any particular issue and followed a smooth path.

If business performances are in danger, the costs related to a new IT solution are justified by its ability to deliver top quality results, supporting the organization's leadership position. This was the case of the deployment of Exadata solution, which now serves as the IT infrastructure for Familymart.

The successful implementation of Exadata for OLTP processing convinced IT managers at Familymart that the solution is also very relevant for batch processing.

## **FUTURE OUTLOOK**

Given the strategic expansion plan of Bokwang Familymart, approximately 1,000 new outlets to be opened on a yearly basis by 2015, data processing will remain to be one of the most relevant factors for the success of the retail store.

Now that Exadata solution is ensuring performing data processing, Familymart is evaluating the potential benefits of a centralized data management system and eventually a cloud computing option.

Following the implementation of a Web point of sale (POS) solution ensuring real-time data exchange, Familymart is considering to redesign its POS interface to increase its usability for in-store staffs, typically composed of part-time collaborators. The updated interface's design will adopt the intuitiveness of most common mobile devices used on a regular basis by the staff for personal purposes such as iPhones and iPads.

## **ESSENTIAL GUIDANCE**

The amount of data to be processed everyday by retailers is increasing. Retail organizations relying on ordering systems that are unable to perform in near real-time, as required for intelligent retail data processing, with risk eating away profit margins and turning away loyal consumers.

Finally, technological developments have now reached the point where effective order processing solutions can be deployed with limited payback time for investment and solid ROI opportunities.

IDC Retail Insights' *Worldwide Retail Industry 2011 Top 10 Predictions* (IDC #GRI226393, December 2010) recommends retailers to reduce their base IT spending by at least 20% in five years with savings coming from infrastructure, back office, and internal support organizations. In line with our predictions, Familymart obtained 20% reduction of its yearly IT costs with the deployment of Exadata's inventory management system.

The savings generated can be used to fund new initiatives and to improve the customer experience by building an information foundation based on retail demand intelligence platform. All retail activities such as merchandising, pricing, promotions, and store layouts can be successfully defined only by a deep understanding of customer preferences and behaviors processed in near real-time. To obtain that, retailers should invest in a unified demand intelligence platform that will be the single source of truth for information-based decision making.

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## **Actions to Consider**

IDC Retail Insights recommends the following actions to retailers that are evaluating investments aimed to improve their inventory management performances:

- Focus on data processing because the retailers' ability to stay competitive is represented by the result of how well the supply network responds to fluctuating demand points and how efficiently and accurately enterprise information is produced, maintained, and shared.
- Address consumers' rising expectations for quality and value by tuning stock ordering system capabilities. Shopping patterns keep evolving, efficiency and responsiveness in data processing is mandatory for retailers to identify, attract, and retain shoppers.
- Deploy flexible and responsive supply systems to successfully match ordering/fulfillment/inventory/logistics needs with consumers' expectations and strategic objectives
- Centralize data processing to enhance real-time retail intelligence. The same system shall be able to analyze customers and inventory data to generate personalized promotion based on the store's real-time stocks and customer's profiles.
- Offer omnichannel stock information to communicate with customers at store, online, and mobile levels. Improved order processing and analysis performances can support retailers in the personalization of the customer's experience as they facilitate a more direct engagement with shoppers across every channel available.

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## **Interviewees**

IDC Retail Insights would like to give special thanks to Young-Seok Lim, Manager of System Planning Team, Information System Department, Bokwang Familymart for his contribution to this case study.

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## **LEARN MORE**

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### **Related Research**

- *Perspective: Earth Day 2011 Reflections — Time to Set New Sustainability Targets and Measure Progress* (IDC Retail Insights #GRI228030, May 2011)

- *Business Strategy: LASAR-Guided Retail Achieving Customer Centricity with Localized Assortments Constrained for Space, Allocation, and Replenishment* (IDC Retail Insights #GRI227250, March 2011)
- *2011 Global Retail Supply Chain Prediction* (IDC Retail Insights #GRI226872, February 2011)
- *Mobile Revolution: The Complete OmniChannel Experience Enabled* (IDC Retail Insights #GRRS51T, January 2011)
- *Business Strategy: Asia/Pacific (Excluding Japan) Retailers Point of Sale Technology Strategies* (IDC Retail Insights #AP0000002S, December 2010)
- *Worldwide Retail Industry 2011 Top 10 Predictions* (IDC Retail Insights #GRI226393, December 2010)
- *Worldwide Retail IT Spending Guide, Version 1, 2010* (IDC Retail Insights #GRI226172, December 2010)
- *Best Practices: 2010 Retail Supply Chain Survey Reveals Top Initiatives and Supply Chain Priorities Align on Efficiency and Lean Execution* (IDC Retail Insights #GRI223369, June 2010)

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## **Synopsis**

This IDC Retail Insights report provides an analysis of the retail IT best practices in the area of ordering systems optimization by discussing the Bokwang Familymart case study.

"Investments aimed to improve data processing performances show a strong payback profile, as assessed in the Bokwang Familymart case study" said Uria Fiano, associate research analyst, IDC Retail Insights. "The faster data processing achieved by Bokwang Familymart following the implementation of Oracle Exadata Database Machine resulted in more efficient operations of stock ordering systems and point of sales (POSs). Our research shows that by streamlining their IT infrastructure, best-in-class retailers can offer a better service to customers while saving on IT costs."

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