



Extreme Efficiency

Kojima Press Industry Co., Ltd. Moves **High-Performance Processing** into an Open Systems Environment

Kojima Press Industry Co., Ltd. is a 70-year-old automobile parts manufacturer and a main partner of Toyota Motor Corporation. The company has more than 10,000 products and boasts world-class standards in precision, quality, and safety. In recent years, the company has actively taken up the challenge of manufacturing parts for the electrical and electronic communication fields.

Transitioning from Mainframes to an Open Environment

The company decided to downsize from mainframes to an open systems environment and to integrate the main systems of its 21 group companies, which had been built individually up to that point, into a single system for shared use. The company adopted Ashisuto's DODAI data management solution, which provides Oracle databases with pre-verified hardware, and started a giant-scale project in which all the main systems were transitioned.

At the final stage of the project, batch-processing programs had to be rebuilt for the purchase processing, internal notification, and verification processing systems. The purchase processing system aggregates the acceptance inspection data for materials delivered by suppliers and presents suppliers with the payment

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— Mr. Kazuhiro Ikeda, Data Systems Group

schedule from month to month. The internal notification system aggregates order information sent from automobile manufacturers and transfers it to the Production Division, and the verification processing

system checks the accounts receivable data against accounts payable data for any missed invoices or payments. These three systems are comprised of more than 300 programs — some of which are run regularly at night, while others are processed upon request by the user divisions.



INDUSTRY

- Manufacturing

CHALLENGE

- Transitioning from mainframe computing to an open environment while maintaining high-performance processing capabilities
- Rebuilding batch processing programs, including purchase processing, internal notification and verification processing systems
- Reducing the I/O burden on Oracle when online processing programs are running

SOLUTION

- Syncsort DMExpress improved batch processing and accelerated and simplified mainframe modernization

BUSINESS VALUE

- Improved development productivity by more than 5x and increased processing performance by more than 6x
- Increased efficiency as individual user departments execute their own batch programs, resulting in faster turnarounds and freed-up resources to work on other initiatives
- Expanded staff productivity with 100% of trained staff engaged in proactive program development after one-day course
- Moved from development to real-world operation in fewer than four months

Initially, the Data Systems Group planned to develop the required batch processing programs from scratch using Java, but they changed direction when the amount of data to be processed grew and the programs did not perform as expected.

The group then decided to use PL/SQL, a procedural language for Oracle, for the project. Performance improved compared to Java, but there were other problems. Only two employees had the necessary skills to perform the work, and the I/O demands of PL/SQL placed a greater burden on Oracle, so it was difficult to use during the day, when online processing programs were running. Their ability to meet the deadline for transitioning the batch processing programs was in jeopardy, and a radical solution was required.

The Importance of High-Speed Processing

For the Data Systems Group, the biggest requirement in transitioning to batch processing programs was maintaining the high processing speeds experienced on the mainframes because lower processing speeds would decrease the work efficiency of the user divisions.

Meanwhile, with plans to develop the more than 300 programs in-house, high development productivity was also an essential requirement. However, there was also concern about cost. Enhancing the hardware might improve the processing speed while maintaining the existing work system, but that would involve enormous expense. After consulting with Ashisuto about these three concerns, they proposed using an ETL tool.

The Data Systems Group ultimately chose Syncsort DMEExpress after two months of testing that demonstrated the solution's revolutionary high-speed processing performance and high development productivity.

For example, one purchase-processing program was developed in over 28 hours using Java and PL/SQL and took 65 minutes to process 800,000 pieces of data. With DMEExpress, the same program took five hours to develop

and the processing speed was shortened to 10 minutes. In other words, development productivity improved by 82% and processing performance improved by 85%.

Seeing these results, the Data Systems Group decided to proceed with DMEExpress for the entire project of transitioning the batch processing programs. Mr. Haruhiko Hashimoto, Head of the Data Systems Group, reflected on the decision to use DMEExpress for the entire batch processing program project.

"We felt that if in-house engineers could use DMEExpress to quickly develop programs capable of high-speed processing, this would be best. If in-house development was not possible, we would have to outsource, but in that scenario, we would have to be prepared to pay costs that were many times higher than for in-house development.

"Furthermore, even if the programs would be completed, the company would not come away with any know-how. We wanted to avoid a situation where we might want to make revisions, but would not be able to. In addition, our company is dedicated to craftsmanship, so we like 'hand-made' things. The data systems departments are no exception, and our in-house production rate up to that point was 80%. We wanted to maintain that. Therefore, we needed to select a 'good tool' that in-house staff could use with high productivity."

Implementing a "Small-Start" Strategy

In the two-month verification run, DMEExpress displayed tremendous performance and development productivity. However, the Data Systems Group believed they could only determine actual capability in a real-world environment, so they started small. They used an entry-class PC server to run DMEExpress, prepared two licenses for development clients, and had eight engineers take a one-day development technology-training course on DMEExpress.

There had never been a case in the past in which all staff who took a development-training course became developers because, once the actual programming started, it was harder than expected or some staff were uncomfortable with the operating characteristics. However, all the staff who took the DMExpress training course started proactively working on program development. Everyone wanted to use the PCs on which the development client was installed, so in some cases people were waiting in line to use them. The Data Systems Group responded by adding four licenses, and phenomenal results were achieved as development moved forward.

For example, one internal notification-processing program that took 12 hours to develop with 40 minutes of processing time using a Visual Basic development tool took only three hours to create and 20 seconds to process with DMExpress. A verification-processing program took eight hours to develop and 12 minutes to process using COBOL on the mainframe, but was shortened to 30 minutes to develop and 45 seconds to process when recreated using DMExpress.

Mr. Hashimoto initially thought that it might be difficult to rebuild the entire batch processing programs using DMExpress, as some of the programs involved extremely complex data processing. However, when the development was actually started, that was no longer a concern.

One of the main internal notification processing programs was transitioned to real-world operation three and a half months after the start of development — which exceeded the expectations of the Data Systems Group. The unanimous opinion was that “this would not have been possible without DMExpress.”

“This Tool is the One”

“I don’t have a lot of programming experience. With Java, I program a little bit at a time by asking senior colleagues for help,” said Mr. Ryōsuke Hanai, one of the Data Systems staff

involved with the programming. “However, programming with DMExpress is fun because I can think about everything on my own as I do it. Even with complex data processing, if I have the thought that ‘maybe I can do it this way,’ then I am successful.

Mr. Kazuhiro Ikeda of the Data Systems Group says that the appeal of DMExpress is in its “high-speed processing.”

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Mr. Yoshimasa Kusumoto of the Data Systems Group said that using DMExpress made it easier to do program tests. “When doing program tests, previously we would have to prepare in advance a test Oracle environment in which the applicable tables were copied, because it wasn’t possible to obtain a real-world Oracle environment. However, with DMExpress there is no need to prepare such things. It is possible to use an editor, or the like, to edit text data uploaded to the server, and the program can be run many times to see the processing results.”

“Big Changes” to How Work Gets Done

With the implementation of DMExpress, the internal notification processing system, purchase processing system, and verification processing system transitioned to real-world operation, according to plan. Furthermore, it was possible to rebuild the verification processing system by using DMExpress alone. Initial concerns about whether the project’s goals could be achieved were erased with the implementation of DMExpress. Furthermore, Mr. Hashimoto predicts that the project will result in a big change in the way work is done.

“Up until now, batch processing caused a heavy load, even for mainframe computers. So, once we received a request

from a user division, the Data Systems Group would create an operation plan table by looking for available processing time, and a dedicated operator did the work according to that schedule. However, the current processing speed is such that the time required changed from 'hours' or 'minutes' to 'seconds.' With this level of speed, and because a heavy burden is not placed on the system, user departments do not need to go through the Data Systems Group; they can do the processing and obtain the results whenever they wish. This means they do not have to wait another night or another week, and I think the resulting improvement in work efficiency is significant."

"We at the Data Systems Group also no longer need to work on user division requests, so we are able to spend that time on other tasks. I think we are going to see a big change in work style."

The next steps include addressing the delivery processing system and possibly to removing mainframe computers used exclusively for batch processing by the end of the following year. The plan is to eventually share this DMExpress server among the entire Kojima Press Industry group,

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About Syncsort

Syncsort is a global software company that helps the world's most successful organizations rethink the economics of data. Syncsort provides extreme data performance and rapid time to value through easy to use data integration and data protection solutions. With over 15,000 deployments, Syncsort has transformed decision making and delivered more profitable results to thousands of customers worldwide.

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