

BUSINESS VALUE SPOTLIGHT

Improve Data Management and Reduce Infrastructure Costs with Enterprise Application Archiving and Test Data Management: A Case Study of IKON

February 2010

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Background

IKON Office Solutions Inc., a Ricoh company, is a provider of document management systems and services. IKON integrates copiers, printers, MFP technologies, and document management software and systems to deliver tailored solutions that are implemented and supported by its team of services professionals. Ricoh Company Ltd. is a global technology company with annual sales in excess of US\$20 billion.

As IKON grew, it soon became necessary to employ a large-scale enterprise resource planning (ERP) system to manage its expanding operations. IKON acquired and deployed Oracle E-Business Suite. Given that the company distributes office equipment and supplies from a number of large regional warehouses and configuration centers, managing the inventories in these warehouses efficiently is a critical success factor for its business.

As the company continued to expand, the size of the application databases became overwhelming. Database management costs were escalating out of control, with storage growth for production and nonproduction databases projected to top 80%. The company sought a technology that could help curb that growth and more effectively manage the data.

In 2004, IKON implemented a project to reduce the size and contain the growth of its databases. The company's goal was to select an application that would reduce the production database size by moving infrequently accessed data that was no longer updated to an online accessible database archive. In its development and test environments, it wanted to move away from building a complete copy of the production database for each instance, which was

Business Value Highlights

Industry: Office solutions

Location: Pennsylvania

Challenge: To contain storage, server, software, and staffing costs by reducing database sizes and curbing their growth as ERP transaction rates grow over time

Solutions: Informatica Data Subset and Informatica Data Archive

Cumulative benefits:

- ROI of 542%
- Payback in 7.7 months

Specific annual benefits:

- 4 CPUs saved per environment
- IT staff saving over 3 FTEs
- 25% improvement in business user productivity

becoming increasingly time consuming and expensive in terms of storage. It needed to be able to select and move user-selected data subsets to the test database while maintaining confidence that the test data would be sufficient to produce valid test results.

To do this, the company chose the information lifecycle management (ILM) products of Informatica and executed a staged deployment of Informatica Data Subset and Informatica Data Archive over the course of six months. IDC defines ILM software as that which is used to manage the lifecycle stages of data from its creation to the point at which it is no longer active in a business process. In many cases, such data is simply deleted, but in other cases, it must be retained for ongoing query and reporting purposes. ILM software enables users to archive such data so that it may be deleted from the database. This software includes database subsetting, data masking, and test data generation tools. It also includes tools that build and maintain archives of databases, often allowing transparent access to archived data, preserving original schema information about archived data and intelligence for selecting referentially complete subsets of data for archiving.

Using Informatica Data Archive, IKON could identify data that was no longer updated and infrequently accessed and build a referentially complete collection of such data. It could then offload that data to an archive database on cheaper storage, making the online transaction database smaller and more efficient. The archive database enables data to be quickly accessed and reported just as if it were still maintained online.

Using Informatica Data Subset, IKON could build a representative test database that was much smaller than the production database, making it easier, faster, and cheaper to build, yet still supporting a full test suite. The software enables users to select a range of transactions and then find all related master data to build a complete "lean" system maintaining full data integrity. Taking this action has enabled IKON to substantially reduce costs for storage, database software-related fees, and staff time due to the smaller, simpler database it now has. Balaji Rangaswamy, Vice President of Business Solutions and Architecture at IKON, said, "Since the deployment, this process is a strategic component of our business, not just a commodity/utility in our company."

IDC developed a five-year ROI model based on an in-depth interview with IKON. The results show a ROI of 542% and a payback period of 7.7 months.

Overview

IKON is currently using Informatica ILM products to manage one production database and 13 nonproduction databases for its warehouse management system (WMS). The production database also supports the company's ERP system. The ERP system and the WMS are components of Oracle E-Business Suite.

IKON had found that as its database grew, it became more and more inefficient, and performance suffered. Because IKON also maintained 13 copies of the production database for nonproduction uses, including development, testing, and training, database growth resulted in a 14-fold increase in cost. The solution was to either expand hardware capacity and spend more staff time tuning the databases on an escalating scale or find a way to reduce the size and complexity of the existing databases while still retaining the data it needs in an easily accessible form. IKON turned to the Informatica ILM products to accomplish the latter.

As databases grow, they not only demand more storage but also require more processor time to operate. This means that in addition to storage costs increasing, servers must be upgraded with memory and processors. Adding processors to database servers causes database license and maintenance fees to increase because those fees are processor (or, in the case of Oracle, "socket") based. Also, as databases grow, mapping the data to storage volumes becomes more difficult, and as their tables grow, their indexes also grow. This causes performance to degrade and forces more frequent database reorganization and other operational activities that take up system time, database administrator (DBA) time, and operations staff time.

Because ERP applications regularly add transactional data, the database continues to grow. But also, because transactional data has a lifecycle, it reaches a point where it is no longer updated but is kept only for purposes of historical reference. Such data can be safely removed from the production database without impacting the ongoing operation of the ERP application, but it must be kept available in an easily accessible form online, which the database archive is able to provide. Because it is infrequently accessed, it can be kept on cheaper storage. The result of this approach is a smaller, faster, cheaper online database that serves the ERP application while maintaining ready access to the archived data when needed.

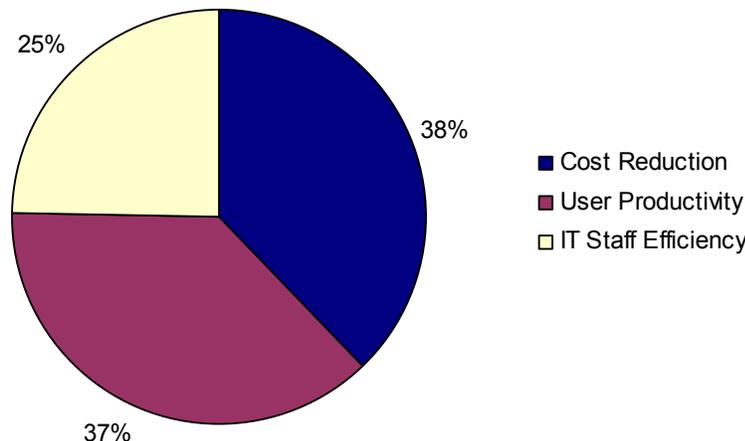
Benefits

The benefit of database archiving technology is that it can safely identify and archive data from an ERP database without jeopardizing the operation of the application while keeping the archived data available on much lower-cost storage. IKON chose Informatica Data Archive for this purpose and realized better operational efficiency, lower costs, and slower, more manageable cost growth over time. To cut the size of the 13 nonproduction databases, IKON chose Informatica Data Subset, which enables the company to define and move a referentially complete subset of data for test purposes, thus allowing it to perform development, testing, and training functions against much smaller subset copies of the production database.

Figure 1 shows the proportions of average annual benefit of Informatica ILM.

Figure 1

Average Annual Benefit of ILM at IKON



Source: IDC, 2010

Cost Reduction

Before the implementation of the Informatica ILM products, IKON was continually adding more storage, which was driving up annual costs. But since the deployment, the company avoids adding more storage and saves approximately 10% of its total space. Rangaswamy said, "Our 14 database environments are about 7.5TB each. One is a production database, and 13 are nonproduction copies. By using the subsetting product, eight of my nonproduction environments have been brought down to 2.5TB, for a space savings of 5TB each. In the meantime, the production database was growing. We used Data Archive to archive and delete enough data that I've saved at least 800 Gigs in the production database and in the five nonproduction databases that are exact copies. So, if we didn't have archiving in place, the total production database size and each of the five copies would have grown to nearly 8.5TB."

IKON also indicated that the smaller production database size resulted in a 25% shorter backup time window. IDC calculated the value of the amount of storage IKON avoided by multiplying the TB saved by IDC industry research data on the cost per TB.

At IKON, the nonproduction environments might include as many as 52 CPUs. Because of the benefit offered by Informatica Data Subset, the company is able to maintain performance without growing the total number of servers. Rangaswamy said, "Without subsetting, I would easily need twice as many CPUs in support of the nonproduction environments." This is because larger databases require more CPU time for table scans and index maintenance. By keeping the nonproduction databases small (less than a third of their original size), IKON is able to deploy fewer CPUs in the systems associated with those databases.

User Productivity

Business users see the greatest impact in the production environment. IKON has approximately 9,000 "heavy" users who work with Oracle E-Business Suite and its data at least six hours per day. Since the deployment of Informatica Data Archive, IKON estimates that each user is saving approximately 15 minutes per day on tasks as a result of increased system performance. In addition, customers are receiving better service because queries run faster and results are available more quickly.

IT Staff Efficiency

Since the deployment of Informatica ILM products, IKON manages its storage capacity more efficiently. As Rangaswamy said, "We have many environments. So when subsetting or archiving is taking place on one database, during that downtime, we provide other available space so the users can continue to work. We are able to manage the archiving operations more tightly."

With regard to maintenance, IKON runs archiving and data size reduction cycles once a quarter. An archive cycle typically requires approximately two weeks for a technician to execute. By reducing database sizes, the company can now perform maintenance tasks in less time as well as save time on database tuning. As Rangaswamy stated, "We would have needed to increase our DBA staff by at least 20% had it not been for the Informatica tools we use."

With greater efficiency in storage management, the IT staff can now pursue other activities that benefit the business. Rangaswamy said, "They use their extra time to catch up on backlog, work on strategic projects, perform maintenance, and address trouble tickets."

IKON estimates that it is saving time provisioning data for its nonproduction databases since deploying Informatica Data Subset. Without use of the Informatica ILM products, the organization would have to allocate 8.5TB for provisioning, but since the deployment, only 2.5TB are required. IKON estimates that the amount of storage saved relates directly to the amount of work required for database management — the company has saved approximately 10% of its total production database space, 70% of its nonproduction database space (for 8 databases), and roughly 20% in labor required for tasks associated with managing storage. Rangaswamy said, "The labor would be proportional to the space allocated. Out of 10 people, we're saving 2 FTEs per month because of ILM."

Informatica ILM Return on Investment

IKON has realized a five-year return of 542% since the deployment of the ILM products — with a payback of 7.7 months. The IDC results show that 57% of the investment is made in the first year (initial purchase of the solution, user licenses, consulting, deployment FTEs, hardware, and internal maintenance). After the deployment year, annual investments require just 8% of the total cost.

Conclusion

By anyone's estimation, a 542% ROI is impressive. Because the increases in costs associated with database growth compound over time, this ROI is sustained, representing profound cost savings as years go by. The benefits of database subsetting and archiving are logically obvious, but the actual figures are even more compelling. It does not make business sense to allow a database to grow in size and complexity, becoming more difficult to tune, consuming more disk space and processor power, demanding more in hardware and software fees, and ultimately making the application become slower and more brittle despite the best efforts of an expert DBA staff.

These figures support what should be intuitively clear: Smaller and simpler is invariably cheaper. The savings found in this case study not only involve storage, server, and software costs but also demonstrate benefits in terms of staff time and more efficient and effective operations for application users. Database subsetting and archiving are necessary components of any ERP system configuration where ongoing business growth is a feature.

ROI Calculation Methodology

IDC performs a three-step process to calculate the ROI and payback period:

1. Measure the benefits from user productivity, cost reduction, IT staff efficiency, and better storage management since the deployment.
2. Ascertain the total investment made while deploying the solution (hardware, software, FTE requirements for deployment and annual maintenance, customization, training, and consulting).
3. Project the investment and benefit over five years and calculate the ROI and payback from the use of the Informatica solutions. The ROI is shown as the five-year net present value (NPV) of the benefit divided by the discounted five-year investment.

ROI Calculations

- At IKON's request, IDC converted the metric used to report business benefits from U.S. dollars to a percentage proportion.
- Benefit (discounted) is the present value of the five-year benefit.
- Investment (discounted) is the present value of the five-year investment, plus the initial investment during deployment.
- Given that the ROI model assesses monetary value over time, and that the real value of money changes over that time, the present value must be applied to the figures above in order to examine these figures in today's current value.
- Net present value is the present value of the five-year benefit minus the present value of the five-year investment.
- ROI is the net present value divided by the investment (discounted).
- Payback period is the year 1 investment divided by the average monthly year 1 benefit.
- To account for the time value of money, IDC bases the ROI and payback period calculations on a 12% discounted cash flow.

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