



New business intelligence system for leading South African bank

Overview

Nedbank, one of South Africa's 'big four' banks, has implemented a new, data warehousing environment in its Retail Banking Division. The technology is enabling the company to understand its customers, deliver consistent service across all channels, and measure performance, profitability, and operational risk. It is also building sophisticated solutions to improve credit ratings and other processes internally. By maximising the value of operational data in this way, the bank estimates that it could make savings far in excess of the costs of the technology investments. The new business intelligence solution comprises a Unisys ES7000 server based on Intel Itanium 2 processors, Microsoft Windows Server 2003, Datacenter Edition 64-bit operating system, EMC Storage, and SAS 9.1 business intelligence 64-bit applications. The company believes that ES7000 servers provide the performance of RISC/UNIX servers at a fraction of the cost.

The business challenges

As well as providing a range of innovative, flexible, and secure financial services, banks in South Africa must deliver the best possible customer experience. Only those that achieve this across multiple channels can reduce churn, drive new revenue streams, extend their services to "unbanked" individuals and communities, and enhance their profitability.

These were the challenges facing Nedbank Limited, one of South Africa's "big four" banks. The group, which had total assets of R312 billion (€40.3 billion; US\$48.9 billion) in December 2003, offers a range of wholesale and retail banking services through three principal business clusters: Nedbank Corporate, Nedbank Capital

Challenge

Nedbank needed a more powerful enterprise-wide data warehouse to better understand customers and implement a range of efficiency-driven initiatives such as more sophisticated credit risk assessment.

Solution

A new business intelligence solution that runs SAS Business Intelligence applications on a Unisys ES7000 server that is powered by 12 Intel Itanium 2 processors. It will scale to 32 Intel Itanium 2 processors in a two-partition cluster in the near future. The Microsoft Windows Server 2003 DataCenter Edition is the underlying operating system. The solution includes EMC CLARiiON Storage.

Benefits

- ▶ Lowest possible TCO
- ▶ Excellent performance
- ▶ Tools for achieving compliance
- ▶ ROI of millions of rand per year
- ▶ Data processing takes hours instead of days

Software and services

- ▶ Microsoft Windows Server 2003, 64-Bit Datacenter Edition
- ▶ SAS 9.1 applications, which include a data warehouse, data mining, business modelling, balanced scorecard, and financial and portal applications
- ▶ Unisys Server Sentinel systems management software
- ▶ Unisys Technology Consultancy Practice services
- ▶ EMC CLARiiON management software

Hardware

- ▶ Unisys ES7000 Model 420 64-Bit Server configured in two partitions
- ▶ EMC CLARiiON CX600 Storage

Collaborators

Intel
 Unisys
 Microsoft
 SAS
 EMC
 Nedbank Group Technology & Support Services

and Retail, and Wealth Management. Nedbank's Internet site (www.nedbankgroup.co.za) has extensive information on the group. It also provides a regular update on business developments and other matters of interest in relation to the Nedbank Group.

Nedbank is committed to achieving maximum profitability with a mixture of cost-cutting initiatives and technology-driven projects. The objective is to increase operational efficiency and drive new revenue streams. To this end, it operates a data warehouse to conduct customer relationship management (CRM) initiatives and analysis of its operational data.

Charles Guise-Brown, Assistant General Manager, Head eCRM, Nedbank, says: "To deliver a good customer experience, we must have quality data in our core systems. In 1997, we standardised on an operational data store environment. By 2000, this could no longer handle our growing data analysis requirements.

"After outsourcing our data management and business intelligence functions for two years, we decided that we wanted to bring our mission-critical customer data back in-house. We built a data warehouse running on a server with four Intel Xeon processors and 8GB of RAM. The server ran Microsoft Windows 2000 Advanced server and SAS business intelligence software."

This data warehouse offered a range of new opportunities for improved customer service and streamlined operations at Nedbank. The company used the environment to build data marts for profitability analysis, operational risk analysis, and other functions at the rate of approximately six a year.

Adrian Mattioli, Retail Data Warehouse Delivery Manager, Nedbank, says: "Our data processing and analysis requirements put increasing strain on our systems, and we ran out of headroom in mid-2003. Not only were we facing serious limitations when building additional data marts, but we were also having system performance issues when even small numbers of users ran reports.

"With SAS Financial Management Solutions and Balanced Scorecard already in place to help us with decision-making internally, we wanted to expand our business intelligence operations and gain a single view of the customer, whilst also eliminating the performance issues," Mattioli continued. "We also wanted to add new functionality, such as fraud prevention, across the enterprise. To achieve these goals, we looked into the possibility of deploying a 64-bit computing architecture to support a next-generation software platform."



The solution

Nedbank has established relationships with a number of industry-leading technology collaborators. These include Intel, Unisys, Microsoft, EMC, and SAS. SAS business intelligence applications provide tools for manipulating and analysing data in the bank's core systems. After an extended tendering process, Unisys was selected to help Nedbank build a new and highly-scalable business intelligence architecture.

Unisys was able to deliver the ES7000, a powerful enterprise server based on Intel Itanium 2 processors. The technology takes advantage of the scalability and availability of the Microsoft Windows Server 2003 64-bit Datacenter Edition operating system.

In addition, the latest release of the SAS business intelligence suite (SAS 9.1) benefits greatly from the parallel processing power enabled by the EPIC (Explicitly Parallel Instruction Computing) technology in the Intel Itanium 2 architecture.

From early in the project, the technology collaborators proposed a data warehousing solution that delivered on the benefits of these individual ingredients. Because of the close working relationships between the companies, Nedbank could be sure that all elements of the system could be integrated seamlessly.

At the architecture level, Microsoft and Intel worked together to deliver optimum processing performance and interoperability. These companies also worked closely with Unisys and EMC to ensure that the ES7000 platform and storage solution delivered the best possible reliability and scalability for the SAS application.

This teamwork between Nedbank's Technology and Operations Division and Unisys also made it possible for Nedbank Retail to test the proposed solution at the Unisys Center of Excellence, located at Unisys headquarters in Rivonia, South Africa. In addition, the solution was developed in collaboration with SAS for performance on handling high I/O throughput.

Guise-Brown says: "Unisys gave us access to people who were experts on the SAS applications. The collaboration between hardware and software providers at this early stage eliminated the risk normally associated with new technology deployment.

"The Unisys Center of Excellence, and the close working relationship between our technology collaborators, gave us the flexibility to set up our environment in a real network and check the connectivity between different elements of the solution. We were even able to test small but critical elements, such as our anti-virus software, to ensure

it was protecting the environment effectively. After working at the Center, with great support from our Technology and Operations division, we deployed and configured the new system on our network in just two weeks.”

The data warehouse solution developed by collaborators Intel, Unisys, Microsoft, EMC, and SAS went live in February 2004. It enables Nedbank to measure its business processes and report on them effectively using a balanced scorecard. Most CRM functions are executed on data marts created from the new data warehouse.

In addition, the solution uses SAS tools, including Base SAS and SAS DQ. At the same time, DataFlux dfPower tools were used to generate standardisation schemes, which were applied through Base SAS to clean the bank’s data. This ensures an accurate view of customer transactions and interactions, and it improves the quality of service delivery.

The SAS business intelligence data warehouse currently holds 4TB of data using an EMC CLARiiON storage solution attached to the Unisys ES7000 Server. The remaining approximately 4TB storage is divided among seven other servers and approximately 1.5TB is allocated for Snap Cache. While the old infrastructure had reached its limit of 2.2TB, the data warehouse is growing by approximately 100GB a month and will scale to handle 45TB over the next five years. Eight data marts have been created using the new data warehouse so far. These were built by a team of 30 employees. Around 35 power users generate reports and analyse data using the new system. In total, some 2,000 end users are being supported.

The majority of clients are using desktop PCs, mainly Pentium III or Intel Pentium 4 processor-based. A small number of super-users work with dual Intel Xeon processor-based workstations. User interfaces to the system range from the full SAS installation with Enterprise Guide 2 and Web clients, to SAS services using Microsoft Internet Explorer. Some business units, such as the marketing department, use proprietary applications. The SAS Data Warehouse creates data marts to provide data to these applications.

Guisse-Brown says: “One of the data marts we’ve created enables us to measure our business. It also helps us to see what channels individual customers use to interact with the bank. As well as helping us improve service levels and knowledge of the customer, the system helps with business strategy, such as how to improve our branch footprint, for example.”

The bank is also using the new solution to improve the customer experience using data marts for strategic

marketing, digital messaging, level management, and other critical functions.

Mattioli says: “As well as all the customer-facing initiatives enabled by the new architecture, we are also building data marts to prevent fraud and money laundering. We also have the freedom and scalability to build and deploy highly effective risk management and profitability analysis solutions.”

Lowest possible TCO

When Nedbank decided to upgrade its data warehousing environment, it had the option of moving to RISC/UNIX-based technologies. After building a business case for all competing solutions, it selected the Unisys ES7000 system based on Intel Itanium 2 processors, running Microsoft Windows Server 2003 Datacenter Edition 64-bit operating system and SAS 9.1 as the best option on price performance.

Guisse-Brown says: “I have a raft of hard evidence that in our case the platform built on Intel, Unisys, and Microsoft components offers the lowest possible total cost of ownership. Now that 64-bit platforms exist, using the power of the Intel Itanium 2 micro-processors, we no longer feel that UNIX can compete on performance or value for money.

“Instead, the only competition is based on price.

The solution we chose is far more cost-effective than any competing technology—including RISC-based environments running on UNIX or Linux—and the mainframe options. This applies to hardware, software, maintenance, and development projects.”

Industry-leading technology collaborators

The efficiency benefits of the industry-standards-based system are complemented by the Microsoft and SAS expertise that already exists at Nedbank. In addition, the close collaboration among SAS, Unisys, EMC, Microsoft, and Intel ensure that the data warehouse operates seamlessly, with few interoperability problems.

Excellent performance

The new architecture has dramatically improved the performance of business intelligence applications at Nedbank. The bank can now have multiple users running reports with no impact on the speed of the system.

Mattioli says: “Some of the data processing jobs that we perform previously took two days. Now, the same tasks are complete in a couple of hours. Previously, updating the data marts was a weekend-long operation. Where it failed to complete in time, users would have to work with inconsistent data. Now,



everyone that uses the system says that performance is an order of magnitude better.”

Mattioli adds: “Moving from 32-bit to 64-bit means we actually have three times as many processors as before. In addition, SAS 9.1, combined with the parallel processing power enabled by the EPIC (Explicitly Parallel Instruction Computing) technology in the Intel Itanium 2 architecture, gives us 10 times greater processing performance.”

Tools for achieving compliance

The new system will enable Nedbank to comply with the kind of regulatory changes outlined in Basel II and elsewhere. This is critical—particularly in view of the large fines imposed on several large financial institutions recently for non-compliance.

Guise-Brown says: “The compliance issue is coming. We will soon have to automate our verification processes. The new system will enable us to achieve this quickly and easily as well as giving us a single, accurate source of information relating to customers. This is critical because accuracy of data is one of the single biggest barriers to achieving compliance.”

ROI of millions of rand per year

New processes enabled by the new system, including sophisticated credit risk analysis, will help Nedbank initiate projects that will improve efficiency and minimise operational risk.

Guise-Brown says: “Through enhanced business intelligence, we expect to drive efficiency savings which will enable many initiatives which are part of the group’s Strategic Recovery Programme, a bank-wide programme directed by the Chief Executive Officer. The annual value of the initiatives is many times larger than the total investment, leading to an infinite ROI giving payback inside one year. While the business is asking us to improve operational and credit risk analysis, we could not have done this with the old architecture in place.

“For example, we currently have inflexible legacy systems to conduct behavioural scoring so as to make informed decisions on whether to offer customers credit. By moving these to the new business intelligence platform, we will make big savings. The benefit of more sophisticated credit risk

analysis and decommissioning our old systems will, on its own, more than payback the investment.”

As a result of the combined Intel, Unisys, and Microsoft 64-bit architecture solution, Nedbank has the scalability to build and deploy any number of similar efficiency initiatives going forward.

Reputation for innovation

In South Africa, Nedbank was the first bank to offer ATM services and Internet banking. In terms of technology-based services, the bank compares favourably with the largest U.S. and European institutions, and the new business intelligence solution will further enhance its reputation for innovation.

Guise-Brown says: “At Nedbank, we understand the value of technology and the value of our customer data. As soon as 64-bit technology became available for our environment, we jumped at the chance to implement it. Having done so, we can maximise the value of our data and use increased business intelligence to drive new competitive advantage.

“Technology is a lifeline for increasing efficiency and delivering unprecedented customer service. The new solution equips Nedbank for long-term growth and success in the face of global competition.”

For more information about Nedbank Limited, visit:

<http://www.nedbankgroup.co.za>

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