



## FNS Lowers TCO of BANCS\* Application with Intel® Architecture and Microsoft Windows Server\* 2003

<p><b>WHO</b></p> <p>Financial Network Services Pty. Ltd. (FNS) is an Australian-based company with international reach, providing sophisticated, mission-critical software solutions for the financial services industry worldwide.</p>	<p><b>WHAT</b></p> <p>FNS set out to test the feasibility of adapting its flagship BANCS* banking solution on a low-cost, Intel® architecture-based platform without sacrificing the scalability, reliability and performance that are the solution's hallmarks. BANCS is a highly scalable, modular and end-to-end core banking application, which automates every aspect of a bank's back-, middle- and front-office operations. The BANCS package is used worldwide in leading financial institutions.</p>
<p><b>WHY</b></p> <p>By adapting its BANCS application for lower-cost platforms, FNS can offer its customers a viable option for reducing total cost of ownership (TCO) of their core banking applications through a greatly lowered hardware investment and ongoing reduction in IT overhead. An Intel architecture-based BANCS application can offer significant cost savings to current FNS customers seeking to migrate to the Microsoft Windows Server* 2003 operating system and can attract potential new customers.</p>	<p><b>WHY INTEL?</b></p> <p>A dedicated Intel testing facility and support from Intel® Solution Services enabled FNS to develop and test BANCS on a platform comprising proven Intel architecture and Windows Server 2003. The collaboration was bolstered by Intel's alliances with IBM, EMC and Microsoft, which helped the team build the optimum solution stack for the inherent BANCS capabilities that are usually experienced in much larger and costlier hardware environments.</p>

### Low-Cost Platform Helps FNS Expand Market Opportunities

Financial Network Services Pty. Ltd. (FNS) is a global leader in providing flexible, modular integration solutions for the financial services industry. The company has more than 100 corporate clients in over 35 countries, including some of the world's leading financial services organizations. With its flagship BANCS\* banking solution, FNS has won a reputation for increasing productivity, profits and flexibility, while responding rapidly to market demands for new financial products.

FNS is a private company with 10 international offices and approximately 320 employees around the world. Headquartered in Sydney, Australia, FNS has a network of international offices in Dubai, Hong Kong, Jakarta, Johannesburg, Kuala Lumpur, London, Manila, Santiago and Seoul, and works through its strategic business alliances in many other countries around the world.

FNS recognized the value in a system that could lower total cost of ownership (TCO) of an integrated banking solution by reducing both the up-front cost of the platform on which it runs and subsequent operating costs.

"Developing a lower-cost platform offers FNS the possibility of not only broadening its existing offering to mainstream financial services institutions interested in investing in the latest IT

platforms and technology, but also makes BANCS eminently affordable to a host of financial institutions with much tighter constraints on their IT budgets,” notes FNS Vice President of Corporate Marketing Trevor Builder.

## Business Challenge

Before migrating to the new platform, FNS wanted assurance the BANCS application would meet performance expectations. FNS proposed two metrics—an online processing minimum of 500 transactions per second (tps), and a batch processing requirement of 10 million accounts per hour. These metrics define performance levels that would sufficiently meet the needs of most banks. Achieving these levels on an Intel® architecture-based platform could help financial institutions reduce TCO for their BANCS implementations.

TCO takes into account a wide range of considerations, including the capital and maintenance costs of hardware, associated software licenses, the gross floor area of a data center required to accommodate a solution, annual system maintenance costs and the support staff required to run a

system. It also includes the costs associated with account issues such as scalability, compatibility with other components and solutions, and the degree of investment protection afforded by a given solution.

“Optimizing TCO is a key consideration for all CIOs, regardless of the size of their organization,” notes Builder. “For financial services organizations of every size and complexity, the cost of establishing a secure platform for their mission-critical core banking functions can represent a significant financial impediment to upgrading their outdated legacy systems.”

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**Trevor Builder**  
Vice President of  
Corporate Marketing  
FNS

## Solution Overview

The challenge was a daunting one: to build from scratch a new server-based solution stack for BANCS on an Intel architecture-based platform that would offer the reliability expected in mainframe systems. BANCS performance would be judged against the benchmark metrics—500 tps for online processing and 10 million accounts per hour for batch processing—set by FNS.

The test platform was built using the latest software and hardware in completely new configurations. Much of the technology was either still in development or had never been implemented together. This made the task much more difficult: First, these components could not simply be obtained “off the shelf”; second, there was limited knowledge and understanding of the full capabilities of these new products in a live test environment.

“Despite these obstacles, implementation proved remarkably smooth,” states Dean Mathieson, FNS product development manager, delivery channels and windows. “In fewer than 40 days, the system was designed, sourced, configured and fine-tuned to deliver a performance metric that comfortably exceeded our targets.”

## THE INTEL ADVANTAGE

Intel® Solution Services was contracted to provide expert insight in developing the new Intel architecture-based solution on which BANCS would run. The Intel® Solution Center in Sydney, Australia, was used for the dedicated testing environment.

Intel Solution Services is Intel’s worldwide professional services organization, helping enterprise companies capitalize on the full value of Intel architecture through consulting focused on architecture transitions. Intel Solution Services’ expert consultants work closely with customers to design and deploy scalable, manageable, reliable and available solutions based on the latest Intel technologies.

In addition to support from Intel Solution Services, the team was composed of consultants from IBM (for server hardware and technical support), Microsoft (for the operating system, SQL database and technical support), Micro Focus (for the compiler and technical support) and EMC (for storage solutions and technical support). FNS provided its BANCS core banking application, engineers and the necessary simulation of the real-world data transaction volumes.

Testing at the Intel Solution Center in Sydney was conducted on a number of different configurations designed to assess the overall performance and scalability of BANCS. The core implementation comprised a single-chassis IBM eServer xSeries\* 440 server with 16 Intel® Xeon™ processors MP at 2.0GHz and the Microsoft Windows Server\* 2003, Datacenter Edition (release candidate 2) operating system.

The Microsoft SQL Server\* 2000 database (32-bit version) ran on an IBM eServer xSeries 440 server with eight Intel Xeon processors MP at 1.4GHz. Storage was provided by an EMC storage array using 60 disks—25 percent fewer disks than are usually required for an application and processing volume of this size. A server with dual Intel Xeon processors MP at 2.0GHz fed real-world transaction volumes into the BANCS application.

## The Results

Under the optimized configuration, the online load peaked at 811 tps, easily exceeding the 500 tps performance goal set by FNS. Batch loading peaked at 19.9 million accounts per hour—nearly doubling its performance target.

“This simple solution easily handled a volume of almost 20 million accounts at speeds probably not matched by many banks today,” says Mathieson. “It is not hard to imagine the upside potential of this Intel architecture–based solution with only a modest increase in processing power and speed.”

The new Intel architecture–based solution stack developed for BANCS demonstrated TCO savings when compared to other platforms offering an equivalent level of functionality. FNS was delighted with the results because they provided proof it is possible to deliver a core banking solution at just a fraction of the cost of other platforms, while offering an equivalent level of performance.

Furthermore, the new Intel processors enabled a configuration with greatly reduced size, complexity and operating expense—even when compared to earlier Windows-based systems. Quantifiable savings were made in reducing the number of processors required, the size of the server chassis, the number of storage array disks and the number of supported database software licenses, as well as the gross floor area required to house the new solution. FNS also anticipates corresponding savings in servicing requirements, which will enable the IT staff to perform a wide variety of functions and system enhancements instead of being bogged down in routine maintenance tasks.

### SUBSTANTIAL SAVINGS REALIZED IN KEY AREAS

Key savings delivered by the Intel architecture–based Windows Server 2003 platform include:

- Reduction in the number of processors in the application server from 32 to 16
- Reduction in the number of processors in the database server from 32 to 8

- Corresponding reduction in chassis size, footprint and power requirement
- Reduction in the number of storage array disks from 256 to 60
- Considerable reduction in disk storage units and gross floor area
- Potential to cut Microsoft SQL Server costs by reducing the number of database server processors from eight to four

“The successful testing of the new Intel Xeon processor MP–based solution has created a new cost paradigm for core banking services delivery based on TCO,” says Mathieson. “Furthermore, it represents a major triumph for multivendor cooperation in the pursuit of better outcomes for our customers.”

In addition, an unprecedented number of “firsts” were established during testing of the solution:

- The first 16-way configuration of Intel Xeon processors MP on an IBM eServer xSeries 440 server was built.
- Microsoft Windows Server 2003 was deployed on a 16-way IBM eServer xSeries 440 server for the first time.
- A new version of Micro Focus\* Compiler was successfully deployed.
- A 64-bit version of Microsoft SQL Server 2000 was implemented on Windows Server 2003 (and tested on Intel® Itanium® 2 processors) for the first time.

### IMPRESSIVE SCALABILITY OF THE INTEL ARCHITECTURE–BASED WINDOWS PLATFORM

Besides reducing the required processing power for a given volume and number of transactions, the efficient architecture of BANCS is highly scalable on Windows-based platforms. To determine lower scalability levels, the team also tested the system with a smaller, 8-way IBM eServer xSeries 440 server, which achieved a credible 528 tps and 13 million accounts per hour. A 4-way version of the same server reached 358 tps and 9.1 million accounts per hour.

Further testing replaced the 8-way Intel Xeon processors MP at 1.4GHz underpinning the database with alternative

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**Dean Mathieson**  
Product Development Manager,  
Delivery Channels and Windows  
FNS

configurations of 4-way and 2-way 64-bit Intel Itanium 2 processors at 1.0GHz. This demonstrated the same level of service can be delivered with fewer processors—effectively reducing TCO even further when calculating license costs for Microsoft SQL Server database software on a per-processor basis.

“The integration of so many new and untried elements within the BANCS solution running on Windows Server 2003 bears witness to the long-standing collaboration in solution design and development among the key players in the Intel and Microsoft architecture space,” states Mathieson.

One factor important to the success of the testing was Microsoft’s clear understanding of FNS’ key requirements. Microsoft also proved willing to make prerelease products available at very short notice to support the solution.

“Another upside is the ability to continually scale up the system’s capabilities with further increases in processing power,” says Mathieson. “This scalability makes this solution capable of running in even larger banks in the future, while filling a vital gap in the market for small and midsize financial institutions looking for a cost-effective solution today.”

## About FNS

FNS has been recognized within the financial services industry for its innovation and contributions to IT and e-Commerce developments. In 1996, FNS was given the “Australian Exporter of the Year” award. The company continues to be a leading provider of global banking solutions, building on the banking and finance backgrounds of its key management and its demonstrated world-class expertise in e-Commerce and IT. For more information about FNS, please visit <http://www.fns.com.au>.

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