

SYSB-II CASE STUDY

TIAA optimizes CICS application availability and automates recovery to improve IT operations



Financial Service Organization



Overview

TIAA, a Fortune 100 financial services company, recently implemented SYSB-II from H&W to help manage transaction volume, shorten its nightly batch window, and automate recovery from abends. The company's successful implementation has led to many uses for SYSB-II.

Business need

- ✓ Better manage the growing volume of financial transactions so that the company can continue to offer and support new products and services.
- ✓ Increase the efficiency of back-office and call-center personnel.
- ✓ Eliminate the time and cost associated with manual recovery from abends.

Solution

- ✔ Shorten the nightly batch window using SYSB-II: Process specific transactions earlier in the day without limiting access to VSAM files.
- ✔ Automate the abend recovery process by using the journaling backout feature of SYSB-II.

Benefits

- ✔ Increased system availability for personnel, who now have consistent access.
- ✔ Reduced time and personnel costs associated with recovery from abends. Reduced data errors and complexity of the environment.
- ✔ Improved customer service resulting from the ability to post funds to a recipient's account sooner.

In 1918, the Carnegie Foundation established the Teachers Insurance and Annuity Association (TIAA), a fully funded system of pensions for professors. Today, TIAA is a Fortune 100 financial services company with more than 1.2 trillion in combined assets under its management. It is the leading retirement system for people who work in the academic, research, medical, and cultural fields and currently serves 5 million individuals and 15,000 institutions.

Headquartered in New York City, TIAA has more than 17,000 employees. The company has major operations in Charlotte, NC, and Denver, CO, as well as nearly 60 local offices nationwide.

Just a few years ago, TIAA recognized upcoming IRS regulation changes as an opportunity to grow its business and standardize many of its systems. The IRS changes made this possible because after enacted, they altered many retirement programs, such as 403B and 457, to match the reporting regulations of 401K plans. With more standardized reporting, TIAA could move to a single, integrated system for all retirement programs, which would eliminate duplicate systems and reduce redundancy.

TIAA chose the Sungard OmniPlus recordkeeping system. VSAM-based, OmniPlus is an integrated suite of solutions that supports the administration of a variety of retirement plans offered by TIAA. It is the industry standard, holding a large market share in the retirement-programs management space.

The company also needed to manage a growing volume of transactions. Over a two-year period, the company saw average daily transaction volume grow from 200,000 to almost 500,000 and sometimes reaching more than 1.3 million.

TIAA saw OmniPlus as a best-of-breed solution that offered robust functionality, provided a standardized platform for its programs, and allowed the company to become more competitive. However, with that functionality came some limitations. Specifically, because OmniPlus is VSAM based, it doesn't offer concurrent access to data by both CICS and batch programs. TIAA's business is batch intensive, requiring that transactions be entered during the day and then processed and updated using batch at night.

To be successful with the new platform, TIAA needed to provide concurrent access for CICS and the batch programs. That's when the company began looking at SYSB-II from H&W Computer Systems, Inc. SYSB-II enables batch jobs and CICS online transactions to concurrently update shared VSAM files.



We trialed multiple products and decided that SYSB-II was the most robust and provided us with everything that we needed.

- **John Santanello**

Shortening the nightly batch run and improving customer service

Customers and TIAA employees transfer, purchase, and sell funds within TIAA accounts throughout the business day. Upon receiving a final pricing schedule, TIAA completes these transactions through a batch-intensive process. Before it began making changes, this process required TIAA to close access to OmniPlus for online users. The batch window began around 9 p.m. and lasted until 7 a.m. the next morning.

“The key for us was to give our back-office folks and our call center as much availability to the online systems as possible,” said John Kosco. However, with more transactions being funneled to the integrated OmniPlus platform, and with new service-level agreements (SLAs) designed to shorten the batch window, the IT department needed to do more with less.

“ SYSB-II is allowing us to post while online is up, which is unique in a batch mode.
- John Kosco

TIAA's first step was to turn the pricing schedule into a SYSB-II process, giving CICS and batch concurrent access to the data. This meant that batch processing could start when the schedule arrived like it always had, but now OmniPlus remained available to users while batch processed using the schedule. This was a small first step, but now the IT department began to really analyze the batch process, which was its critical path.

The IT staff found they could remove from the critical path transactions that didn't rely on the final pricing schedule. These included certain types of fund transfers, deposits, withdrawals, loan payments, fund maintenance transactions, and reporting processes.

The staff also identified processes that would benefit from updates earlier in the day. TIAA began running a batch process for these types of transactions in the middle of the day. Typically, this would mean an interruption of access for online users. However, with the concurrent access SYSB-II provided, TIAA could allow the batch process to run while online users continued entering transactions.

“You really want to be able to post real time or as close to it as possible, especially with our midday process. SYSB-II is allowing us to post while online is up, which is unique in a batch mode,” said John Kosco.

The changes also removed additional processing from the critical path and further shrank the batch window. In fact, with these and other improvements, TIAA cut its critical path in half. Now the nightly batch process starts at 10 p.m. and finishes at 3 a.m. Online users can begin accessing OmniPlus again at 6 a.m., which gives the IT staff a three-hour buffer in case they need it.

“When I started our window was about seven hours, and now it's three and a half to four. A lot of the improvements we've made have made it the success it is,” said John Kosco.

And this success translates into better business for TIAA.

““ With increased online availability, we're able to put more transactions through the system. And by having more transactions, we can take on even more growth because, in our industry, we're constantly trying to offer new products and services to our customer base.

- John Kosco



Optimizing performance at each step

The batch run in the middle of the business day helped TIAA reduce the length of the nightly batch run and improve service to customers, but the company wasn't done yet. TIAA also wanted optimal performance from its midday run, but without compromising CICS online performance. H&W experts jumped in to help tune the process and make it as efficient as possible.

“For example, we were logging or committing every transaction as it came through rather than grouping them into batches,” said Mason Douglass. “We found that when you tweak that number of how many are grouped together, you could get faster throughput because you didn't have all of that overhead between every transaction.”



With modifications that H&W suggested, TIAA began processing the same volume of data while reducing the wall-clock time of the batch run by 75 percent, which also reduced the associated MIPS and CPU time.

Reducing the cost of recovery and testing

TIAA continued to look for new ways to improve its internal processes. Working together, TIAA and H&W found that SYSB-II could also improve the recovery process.

The existing model for restoring files had the potential to impact changes that CICS made, as well as disrupt the user community. TIAA and H&W saw an opportunity to improve this process with the SYSB-II real-time journal and recovery facility designed to handle recovery in a shared environment.

Batch abends are a fact of life. At TIAA, recovery from these abends was a manual process that took 45 to 90 minutes, during which time IT had to notify the command center, the national call center, and many other groups of the issue.

H&W looked at the TIAA system for possible solutions. Obviously, batch and CICS shared some VSAM files with the help of SYSB-II; however, the system also contained files that weren't shared for concurrent update. Because SYSB-II journals everything it touches, it can log back into CICS and back out all changes automatically. This meant that recovery was automatic for the shared files. However, the nonshared files that SYSB-II didn't touch weren't journalled and couldn't be automatically backed out. When an abend occurred, these nonshared files required TIAA to implement its manual recovery.

H&W experts found that by adapting SYSB-II to allow native VSAM access to the nonshared files, the product could journal all I/O. Now, if an abend occurs, SYSB-II recovers the VSAM files that CICS and batch share as well as the VSAM files that batch accesses natively. SYSB-II begins recovery without any manual intervention and then backs out the updates.

To TIAA this means a fully automated, error-free recovery process.

“ H&W worked with us and basically made the modifications. Since then, we have implemented what we call our automatic recovery, where if the batch job abends, the SYSB-II backout step executes automatically.

- **Jim Beam, Senior Systems Programmer.**

Now, the IT staff identifies the folder or record responsible for the abend within 15 to 30 seconds, and users remain unaffected.

“Within 5 minutes we rerun the job, skip the bad data, and all along the users are still keying in and posting their transactions because the backout happens so quickly,” said Mike Akers, Product Architect. “Generally, it is within a second or two — maybe even less.” Today, manual recovery is no longer necessary, recovery time is between 5 and 10 minutes, service to users is not interrupted, and the IT department no longer has to contact several groups when an abend occurs.

Shortening the testing process

TIAA also found that the SYSB-II journalling and backout feature could improve and shorten its testing process. Typically, when developers needed to run test scenarios during development, they had to request a test environment from the system administrator and wait until the environment was set up.

Developers could then run a test, look at the results, and make modifications. However, when they finished, they had to request that the system administrator restore the environment, which could take several hours to coordinate. With the SYSB-II journalling and backout feature, this is no longer necessary. Developers can simply run the SYSB-II recovery step and start from a clean environment.

“ Once developers process their transactions, they can run the journal backout and be right back where they were. They are saving hours that it used to take to do a restore.

- **Mike Akers**

TIAA seeks more success with SYSB-II

Initially, TIAA brought in SYSB-II to give batch and CICS concurrent access to VSAM files, reduce the length of its nightly batch run, and give its back-office staff more time to enter transactions. With SYSB-II and its own improvements, TIAA has cut its batch window by 50 percent.



Since the initial success, the IT staff has successfully engaged SYSB-II to fully automate recovery from abends, saving the time and expense of manual recovery and reducing the risk of errors. They've also implemented SYSB-II's recovery process in development, saving the countless hours required to restore test environments.

“ We are a big champion of the product.
- John Kosco

The future promises continued exploration of the ways SYSB-II can help TIAA improve processes and do more with less. “The relationship with H&W and SYSB-II has worked out really well for us,” said Mason Douglass.

“ We are in a great position to take full advantage of SYSB-II's capabilities.
- Mason Douglass

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