

Using CoreFirst® to help identify, isolate and resolve performance problems

An online banking application case study

Abstract

In October 2006, the online banking division of one of the world's largest international bank's launched a new version of its client website that served as the primary interface for its most highly-valued private banking customers.

This new, business-critical web site was experiencing performance degradation issues right from the start. The root cause of the problem could not be identified and, in order to avoid harming the bank's reputation or possibly losing customers, the application servers were bounced twice a week on average.

In an attempt to diagnose and solve the problem, the website's support team turned to leading experts from BEA Systems as well as the bank's own IT professionals but to no avail.

After three months of repeated, but unsuccessful, attempts to find the root cause of the problem, the team turned to OpTier for help. Using OpTier's innovative Business Transaction Management™ technology, CoreFirst diagnosed the problem in a matter of hours and helped resolved it in a matter of days.

Why was CoreFirst successful while other alternatives were not?

CoreFirst features the industry's first real-time, end-to-end business transaction tracking and monitoring technology. It is unique in its ability to link application resource consumption to specific business transactions and users – with 100% accuracy. In this case, CoreFirst revealed a gradual increase in CPU consumption for a specific group of business transactions. The root cause was diagnosed as repeated access to shared memory by the code generating the web's disclaimer page. This repeated access led to synchronization issues that, over time, became a bottleneck for the entire system. This kind of problem is completely undetectable by other tools.

CoreFirst findings in this scenario included:

- A 100% accurate proof-point that the problem occurred at the portal container and not at the backend application tier or one of the databases
- Proof that the issue was not related to container memory leakage, garbage collection or I/O problems
- The observation that the CPU consumption issue was only happening at certain transactions and not across the board
- A clear indication that the problem was not associated with certain users or user profiles

See diagram #1 below.



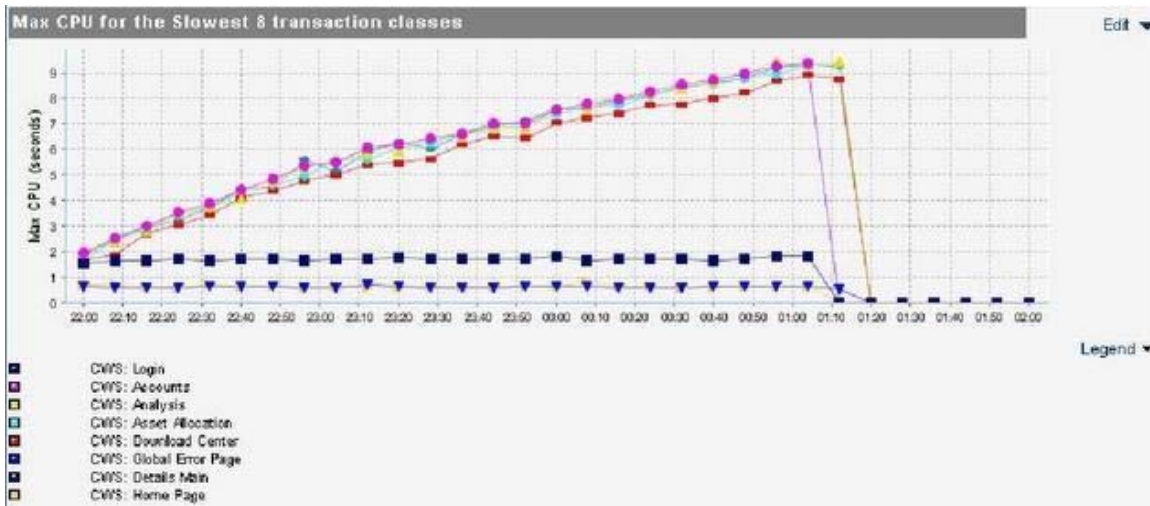


Diagram #1 – CoreFirst showed an increase in CPU consumption for specific business transactions. This pattern was undetectable by any other tools and was key to understanding the true nature of the problem.

Why was the problem unsolvable using available expertise and tools?

During the three months of troubleshooting prior to introducing CoreFirst, the website support team turned to its most skilled resources:

- BEA engineers, who developed the application and the underlying WebLogic portal servers
- The bank's own IT professionals, who used some of the most advanced "deep dive" code diagnostics tools available (e.g. Symantec i3 for J2EE)

Both teams were unable to diagnose the root cause of the problem because they lacked a clear view into the business transaction behavior from a performance and resource consumption perspective.

The BEA team focused on system-level garbage collection issues and tried tuning garbage collector themes. Unfortunately this course of action addressed a symptom, not the cause.

Using a code profiling tool "i3 for J2EE", the bank's in-house team noticed that a particular process was consuming more resources than any other activity in the portal server. However, further investigation proved that this process was central to every single portal call.

In contrast, CoreFirst instantly showed that a particular set of transactions behaved differently than all other transactions in terms of CPU usage. That one insight eventually led to pinpointing the root cause of the problem.

Summary

An elusive performance problem that was causing the bank's online support team to restart their client website application twice a week for months was diagnosed in a matter of hours and resolved within a matter of days. The problem was not detectable with traditional monitoring tools even in the hands of the most experienced developers, because it was tied to a particular group of business transactions that utilized a shared piece of code that was otherwise functioning normally. The value of OpTier's Business Transaction Management technology was evident from the moment CoreFirst was first deployed all the way through to production.



For further information, please visit www.optier.com or email us at info@optier.com.

About OpTier

OpTier® harnesses the power of real business transactions with its Business Transaction Management™ (BTM) software solutions. Based on unique Active Context Tracking™ (ACT) technology, our CoreFirst® product assures that business transactions flow smoothly within IT applications and infrastructure, without bottlenecks or outages, for improved end-user experience. CoreFirst delivers end-to-end visibility – of all business transactions, across all tiers, all the time – by discovering the links between IT components and business services, continuously and automatically. It also prioritizes IT transactions and management processes based on business needs and optimizes IT to reduce costs while meeting service level objectives.

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