

Storage Speeds Database Applications at Dialogic's Brooktrout Technology

The information technology director at Brooktrout Technology found a way to dramatically increase the corporate network database server without exceeding the budget, without making any software changes, and with the confidence the solution would work. Routine transactions and certain jobs now run 24 to 50 times faster.

The Company

Brooktrout Technology, Inc., now a subsidiary of Dialogic Inc., offers world class multimedia and signaling technologies. Brooktrout's primary computer for its own internal database applications is a Hewlett-Packard server, running Unix. Brooktrout began adding database applications to this server and the number of applications on the server had risen, as had the sophistication level of those applications and the number of users relying on them.

The Problem

But all the while, performance had been going downhill. Response time for several batch jobs finally became intolerable and users throughout the company were starting to grumble. In some cases, even very simple transactions were taking up to four minutes to process. This situation was having a ripple effect on other jobs on this computer, causing all of them to back-up and require more time to run.

"We'd expected some performance degradation as we added applications

and users—but not like that," recalled Christopher Ledoux, director of information systems for Brooktrout in Needham, MA. "There were complaints from all quarters about the delays and worsened performance, and, of course, it was my responsibility to address them." Ledoux turned the situation over to Pangea Database Systems, Inc., a database administration consulting firm based in Plymouth, MA. "Brooktrout was up against the wall in terms of the capabilities of their hardware," recalled Jonathan Ramaci, president of Pangea.

Ramaci and his staff analyzed the situation in multiple ways, methodically making changes, which should have improved performance. For example,

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he experimented with the placement of the data on the HP disk array in the hope that this might improve I/O performance. Nevertheless, these efforts produced only marginal change and, after analyzing the situation from several different perspectives, Ramaci concluded that he'd run out of ways to improve things, given the hardware Brooktrout was using. "We had tuned the databases as much as they could be tuned, so we knew we'd hit a hardware threshold," Ramaci noted. "The



channels were a bottleneck and that forced the CPUs to work harder, which produced follow-on degradation. It was a tough situation with no easy solution." He concluded that the bottleneck was being caused by three factors: there were not enough spindles, there weren't enough channels, and the actual performance of the disks was just not good enough. Ramaci recommended buying a disk system with substantially higher performance.

The Solution

Armed with this information, Chris Ledoux began investigating what alternatives were available. When he learned that costs for disk storage typically began around \$90,000 for systems with performance similar to the one he already owned, "I was not very happy," he recalled. That amount was not in the budget and would not likely improve performance anyway.

"The idea of spending that much without improving performance was just out of the question. Those were the only answers I was getting until I found a vendor whose products offered high performance and were priced much more reasonably," he said. That vendor was Winchester

Systems, a disk-storage manufacturer in Billerica, MA.

After Ledoux learned how cost effective Winchester Systems' FlashDisk was, and that he could bring one in for a 30-day free trial, "We didn't spend a lot of time contemplating the other solutions," he explained. Ramaci arranged a trial of a FlashDisk RAID array. The trial would let him experiment with the system to see if it really would improve system performance.

Pangea wanted to proceed conservatively, so Ramaci moved files from the older disk system to the FlashDisk RAID array a few at a time. Migrating to the new hardware in this manner and running the original disk system in tandem with the FlashDisk RAID array had little effect. Ultimately, however, all the files were moved to the FlashDisk RAID array, the original disk

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Database Performance Analyst

removed—and the results were dramatic.

One application involved printing or processing of Packing Slips. After tuning the system, response time went from 4 minutes to only 7 seconds—time savings of more than 97%. A purchasing application that had slowed down to the point where it took five minutes to print a

Purchase Order was speeded up to 6 seconds—a time savings of 98% and 50 times faster. Other requests improved comparably. The long delays in getting other jobs done disappeared.

"This hardware really speeded things up," said Ramaci. Most of the improvement comes from FlashDisk's caching system. Caching disk reads and writes in electronic memory allows FlashDisk to deliver data in microseconds, which is 1,000 times faster than the millisecond speeds of mechanical things like disk drives.

Ramaci added, "Brooktrout has recaptured dozens of hours per week in employee productivity that was previously wasted and the dollar value of this time repaid the purchase price of the FlashDisk system within weeks. In addition, system batch jobs are no longer piling up and employees are no longer frustrated."

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