

PROCESSOR

Mainframe Tuning

Get Optimal Performance With The Right Tools

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The mainframe is dead; long live the mainframe. Or is it really dead at all? While some smaller companies have moved to a server rack or other methods of running IT in a small or midsized business, the mainframe is still just as prevalent as ever.

Part of the issue is that, even though IBM (www.ibm.com) has seen double-digit growth in its mainframe line over the past year—according to analyst Richard Ptak of Ptak, Noel & Associates (www.ptaknoelassociates.com)—a mainframe is often viewed as technologically staid and cumbersome to maintain. In some cases, older mainframes have become woefully misaligned with the rest of the business. As a result, CPU cycles are running at much less than optimal timings, and newer technologies—such as blade servers, SAN storage, and VoIP—get all the attention. While IBM introduced four new mainframe models in the last year, you might be hard-pressed to find extensive coverage of these new products.

It's interesting to note that while a mainframe can be more efficient than other solutions, with lower power and cooling requirements and even with a smaller footprint than ever before, the main problem is that mainframes are running at less-than-optimal levels. Admins sometimes throw more hardware at the problem. This can include more CPUs to make applications run faster, more memory to deal with bus throughput latency, and more network bandwidth to get the data off the mainframe faster—even if it is stuck in slow CPU cycles. Also, they try new applications or technologies to speed up the mainframe and new software upgrades for the client to deal with inefficiencies. Each new investment adds more maintenance and actually cripples the CPU cycles more, causing a snowball effect.

“Obviously, all of the ad hoc methods to solving CPU inefficiencies have the problem of requiring significant investment [in new architecture] and bring change to the operating environment, which is usually disruptive,” says Ptak.

■ Mainframe Tuning

A better solution is mainframe tuning. Companies such as IBM, AQM Solutions (www.aqm-solutions.com), and Compuware (www.compuware.com) have products that can fine-tune a mainframe for performance. The products generally examine performance problems at the CPU level and fine-tune the mainframe for a given set of applications. Over a set period, a

product such as AQM Solutions' TriTune might track application performance across an entire enterprise and monitor performance and then make fine adjustments to increase efficiency from 50% usage to as high as 90% usage. The result is a much lower investment in new hardware, especially additional CPUs; lower maintenance costs, due to the fact that mainframe tuning weeds out performance problems; and lower admin costs monitoring mainframes.

“For many small and mid-sized companies, applications on the mainframe remain the lifeblood that flows through the company,” says Osman Aykut, chief technology officer at AQM Solutions. “By improving efficiency and performance of mainframe applications, companies can dramatically improve their end-user experience and overall productivity and postpone their investment in more CPU and software license costs.”

“To put this into practical terms, let's assume your company has a transaction running on the mainframe with an average CPU usage of only 0.05 seconds,” notes Aykut. “This single transaction may not register as a so-called problem; therefore, it does not appear on your performance radar. However, if this transaction is called 150,000 times per day, 50% of that during the peak time, the result is over 125 minutes of CPU time daily, or more than 31,250 minutes per year. At a rate of \$12 per CPU minute, the annualized accounting cost can be in the neighborhood of \$375,000.”

■ Solutions Available

AQM Solutions' TriTune works in complex mainframe and parallel sysplex environments. It analyzes the functions in CICS, IMS, DB2, and many other programming languages. The analysis results report both time and related resources consumption. Compuware's Vantage suite includes modules such as ApplicationVantage and VantageView for troubleshooting and tuning application performance on a mainframe. Meanwhile, IBM offers application performance tuning tools with RS/6000 mainframes and other solutions and provides extensive guidance in the form of Redbook document guides, many of them available online at www.redbooks.ibm.com and with the product itself.

“Virtually any industry can benefit from mainframe tuning,” says Ptak. “There are some generic characteristics for most applications, such as transaction-heavy processing, and those installations that are dependent on significant user input or massive data applications--especially if they require correlations across multiple data tables--and older applications that need to be optimized for current loads and operating environments. I can't think of any specific industry that couldn't benefit.”

The result of mainframe tuning is usually a lessened need to perform costly upgrades or purchase new systems, where each CPU can run more efficiently. There's an added benefit from the lower power and cooling requirements from tuning instead of adding new components, as well. ■