

Power and agility for ERP deployments with the Unisys ES7000

Accenture simulation of SAP R/3 on a Microsoft platform delivers dramatic test results

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Using live company data from one of Accenture's largest SAP clients, Accenture, Microsoft, and Unisys performed scalability tests to prove the Unisys ES7000 running Microsoft Windows 2000 Datacenter Server and SQL Server 2000 Enterprise Edition™ is easily capable of supporting a real-world workload of 3,000 concurrent SAP users. The tests measured the performance and scalability of a 1.2 terabyte SAP database on a 32-processor Unisys ES7000 "straight out of the box" without any tuning. Accenture, Microsoft, and Unisys are confident that the ES7000 has the capacity to support the largest SAP installations worldwide while also providing performance and cost saving benefits that exceed competing UNIX/RISC-based solutions.

Accenture

Accenture, one of the world's leading SAP implementation experts, manages many of the most complicated SAP installations in the world. With more than 4,500 trained SAP consultants, the company is at the top of SAP's preferred integrators list and has industry experience and technical expertise unrivaled in the world. In an effort to evaluate for its clients the most effective platform architecture for SAP, Accenture collaborated with Unisys to validate the ability of Unisys servers running Microsoft Windows 2000 Datacenter Server and SQL Server 2000 Enterprise Edition to support a massive client workload while dramatically lowering operational costs.

Authentic client workload

Accenture used live company data from one of its largest, most complex SAP client installations to simulate an authentic user's workload during the test. The test client, a large electronics firm, currently runs SAP R/3 4.0B on a Sun E10000 platform with an Oracle database and supports 1,700 concurrent users. Using live client data provided an accurate measurement of the ES7000 server's ability to produce scalability, performance, and cost benefits in a real world business setting. The test workload consisted of batch jobs in addition to various transaction types including standard SAP database data and user transactions, which simulated a realistic customer environment. Batch jobs made up 60 percent of the database server's workload.

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*-Gordon Mangione, vice president
for SQL Server at Microsoft.*

Initial test: current workload

For the first series of tests, Accenture leveraged its testing facility in Cincinnati to migrate its client's production SAP R/3 environment from a 34-processor Sun E10000 server and a 1.2TB Oracle database to Intel-based servers running Microsoft Windows 2000 and a SQL Server 2000 database.

The testing environment was recreated to mirror the client production environment as closely as possible; therefore, no performance tuning was done to the 28-processor Unisys ES7000, the Microsoft Windows operating system, the SQL Server 2000 database, the SAP application, or the ten 4-processor application servers.

Initial test results

Measurements were taken as the administrators incrementally grew the user base to 1,740 concurrent users. The ES7000 environment ultimately registered an average user response time of 497 milliseconds, when compared to the UNIX environment's average response time of 700 ms. The Unisys ES7000 generated 378,099 transaction dialogs per hour compared to the 250,000 dialogs per hour recorded by the client's production environment.

Processor utilization measurements revealed that only 41 percent of the database server's resources on the ES7000 were

used, leaving sizeable headroom to handle even larger workloads.

The results from this initial test led Accenture to conclude that the ES7000 solution provided at least the same, if

not superior, response times as compared to the client's production UNIX solution. Accenture also analyzed the acquisition and management cost of the Unisys ES7000 solution and determined that it could be deployed for about one-third the cost of a similar UNIX solution. Accenture also performed this same test on an 8-way Compaq Proliant and Microsoft platform, which also supported the client's environment of 1,700 concurrent users.

Scalability test: massive workload

The encouraging results and remaining headroom from the initial test led Unisys to propose a second test to demonstrate the ES7000 server's ability to handle an even larger number of concurrent users. Once again, testing was performed using a single-instance workload of real data from the same client's production SAP operation - only this test was performed at the Unisys Mission Viejo Application Solution Center. This test measured the performance and scalability of 3,000 concurrent users running 40 batch jobs simultaneously. The goal of supporting 3,000 concurrent users for this test was significant because, according to Accenture, it demonstrates the unique capacity of the Unisys ES7000 to support the largest SAP installations worldwide. Clients looking to support large numbers of SAP users concurrently require the scalability and processing capabilities only available with the Unisys ES7000.

	UNIX & Oracle	Microsoft & Unisys ES7000 (Test #1)	Microsoft & Unisys ES7000 (Test #2)
Average concurrent Users	1,700	1,740	3,000
Average response time (milliseconds)	700 ms	497 ms	369 ms
Average DB server utilization	40%	41%	50%
Average dialogs/hr	250,000	378,099	759,231

Unisys built the test environment including a 32-processor Unisys ES7000 and fourteen 8-processor SAP application servers. The storage infrastructure for this test included an EMC Symmetrix 8830, PowerPath software designed for fail-over and load balancing, EMC Control Center storage management, and EMC Workload Analyzer to optimize performance. Accenture provided and administered the test workload, which was created by recording and capturing a sample of the client's transaction mix, user information, and batch jobs. This workload data and transaction mix represented a large, real world SAP environment - one that could provide reproducible results.

Scalability test results

Overall the results of this second test were even better than the initial test of 1,740 concurrent users. The average database server CPU utilization rose only slightly higher to 50 percent, which

is far below the SAP recommended value of 65 percent. Additionally, the SAP dialogs per hour reached 759,231 as compared to the 250,000 dialogs per hour recorded by the client's production environment.



Conclusion

The Accenture test results articulate the performance benefits of a Unisys ES7000 and the Microsoft platform supporting a large-scale SAP environment. The results show that a Unisys ES7000, Intel, and Microsoft solution provides at least the same, if not superior results, as compared to similar UNIX solutions. The findings also demonstrate that the Unisys/Microsoft platform adds no incremental risk to SAP projects and can yield a significantly lower total cost of operations than similar UNIX-based solutions.

“These test results confirm that the Unisys ES7000 provides a highly scalable environment that can support large, complex client production ERP workloads while running Microsoft Windows 2000 Datacenter Server and SQL Server 2000 Enterprise Edition,” says Timothy J. Donahue, Accenture.

World-record SAP benchmarks

Unisys has set six world records using the SAP-certified, industry-standard SD (Sales and Distribution) benchmark methodology since February 2001. These high water benchmarks prove the stability of a Unisys ES7000 running Microsoft's Windows 2000 Datacenter Server and SQL Server 2000 database in a large SAP environment while under stress. The most recent benchmark from March 4, 2002, showcased the ES7000 server's ability to support 26,000 concurrent users in an SAP environment - surpassing the results of the closest competing UNIX system. Each SAP-certified benchmark has generated conclusive evidence that a properly tuned and optimized Unisys ES7000 and Microsoft Windows 2000 Datacenter Server platform can provide substantial scalability and performance benefits.

"With this real-world benchmark, Microsoft and Unisys put to rest any performance justification for the price penalties imposed by UNIX-based systems," said Gordon Mangione, vice president for SQL Server at Microsoft. "It shows the momentum Microsoft-based enterprise computing has achieved in delivering the highest value combination of performance, stability, and cost of ownership."

Unisys Corporation

Unisys is an e-business solutions company that helps customers in 100 countries apply information technology to seize opportunities and overcome business challenges. Drawing from more than five decades of mainframe engineering experience, Unisys built the Unisys ES7000 - the only Microsoft-on-Intel server capable of scaling beyond 8 processors.

As an SAP technology partner, Unisys has developed a portfolio of sophisticated technology and services to benefit the SAP global community. Unisys has a worldwide network of Competency Centers, including a

specialized SAP engineering facility in Mission Viejo, California, where clients can work with SAP-certified Unisys staff to understand and manage large-scale SAP operations. The Unisys Competency Centers provide scaling and sizing services for clients' SAP platforms to ensure they are tuned for optimal performance. This high level of technical support for SAP projects is unmatched within the industry.

Microsoft Corporation

Founded in 1975, Microsoft (Nasdaq "MSFT") is the worldwide leader in software, services and Internet technologies for personal and business computing. The company offers a wide range of products and services designed to empower people through great software — any time, any place and on any device. Microsoft is the leading platform for SAP installations with over 55% of new customers choosing Microsoft Windows 2000 for their SAP systems. Over 15,000 installations of SAP R/3 run on Microsoft Windows today. Microsoft SQL Server 2000 is the strategic development database for SAP AG's Windows-based development efforts. In calendar year 2001, SQL Server 2000 was the majority Windows database for SAP installations in the United States and SAP's fastest growing database worldwide.

For more information about the ES7000 and how it can improve your SAP environment, visit: www.unisys.com/sap

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