

# On Solid Ground

**Working with Oracle, the Fujitsu Group and its PRIMEPOWER and PRIMERGY servers are giving companies the powerful technology base needed to support Oracle9i Real Application Clusters and keep the business up and running**

The cost of system downtime varies from company to company, and depends on the system and business operations involved. But even without doing specific calculations, it's clear to IT managers that it's expensive. "The cost of downtime for critical systems can easily be several thousand dollars a minute, and it goes up from there," says Richard McCormack, vice president of Product and Solutions Marketing at Fujitsu Technology Solutions, Inc. "And beyond that, you have to consider everything from missed business opportunities to frustrated customers and damaged company reputation. So it adds up."

Faced with that reality, companies are looking for higher levels of availability from their systems—and for cost-effective ways to get that availability. Many have found it with Oracle9i™ Real Application Clusters (RAC), which enables a database to run on clusters of servers acting as a single server, thereby providing not only availability but also enhanced manageability and scalability.

Oracle9i RAC is a valuable tool in the

fight against downtime—but it's just part of a larger picture. "To provide end users with high levels of data availability—which is what really matters in business—both the underlying hardware platform and the database software have to deliver high availability and performance," says McCormack. "With this clearly in mind, the Fujitsu Group has been working on a number of fronts to give Oracle users that kind of platform and database combination."

"We've drawn on our long relationship with Oracle and our deep experience in host systems and high availability—in virtually all aspects of Business Critical Computing—to provide platforms that help companies get the most out of Oracle9i RAC," says Shu Hiraki, group executive vice president of Business Strategy and Planning, Platform Products, Fujitsu Limited. "Oracle9i RAC and Fujitsu™ servers are both designed for Business Critical Computing, which is all about delivering extremely reliable and secure computing infrastructures, guaranteeing

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scalable and available solutions, and ultimately helping companies protect their investment in technology.”

#### **THE RIGHT FIT FOR ORACLE9i RAC**

The Fujitsu Group offers a number of server platforms that are optimized to work with Oracle9i RAC, including systems from the SPARC™64-based PRIMEPOWER™ family of enterprise servers and the Intel-based PRIMERGY™ family of servers. Together, these Fujitsu Group systems support a variety of operating systems, including the Solaris™ Operating Environment, Windows, and Linux. “The Fujitsu Group delivers a wide choice of powerful server options,” says Doug Kennedy, vice president of Platform Alliances in the System Platforms Division at Oracle Corporation. “That makes it easier for more companies to use the industry-leading Oracle9i RAC software in more areas of the organization to create cost-effective, highly available infrastructures.”

The Fujitsu Group and Oracle have been working together in a strategic alliance for more than 12 years to help

Oracle users take advantage of such systems. As a result, Oracle® technology is a key component in the Fujitsu PRIMEPOWER and PRIMERGY family of solutions. Today, a wide variety of organizations use the combination of Oracle and Fujitsu Group technology to support a diverse range of systems that achieve solid, real-world results. For example:

- **The German Police Force of North Rhine-Westphalia** is using a three-node cluster of Fujitsu Siemens Computers PRIMERGY servers running Linux and Oracle9i RAC for a system that supports the organization’s entire range of business operations, including budgeting, warehousing, procurement, inventory and stock management, controlling, and cost and service accounting. The police force turned to the clustered, centralized database to keep maintenance personnel expenses to a minimum, and to Intel-based hardware to reduce hardware costs. An internal analysis showed that the organization will achieve significant yearly savings while ensuring the scalability it needs for the future.

## Building the Infrastructure

**The Fujitsu Group** has a number of offerings that can help companies create and implement high-availability technology platforms:

- **Industry-standard Intel-based PRIMERGY servers and SPARC64-based PRIMEPOWER servers.** Reliability is built into these servers at the hardware level, with redundancy in many components to eliminate single

points of failure. In terms of scalability, PRIMERGY systems support up to eight processors, while PRIMEPOWER servers scale to 128 processors in a single system. And for enhanced flexibility, Fujitsu offers a capacity-on-demand environment that allows companies to have additional resources preinstalled in a server, and then purchase and activate those resources permanently to match growing workloads, or temporarily to meet unexpected peaks.

- **PRIMECLUSTER technology**, which provides a powerful, cost-effective way to link servers together to maximize the availability and scalability of the IT infrastructure. The PRIMECLUSTER product suite offers sophisticated cluster failover management, support for parallel databases, and dynamic load balancing.

- **Extended Partitioning (XPAR) technology**, available on several PRIMEPOWER servers. XPAR enables IT departments to create multiple oper-

ating environments by splitting system boards into a number of partitions—providing flexibility similar to software partitioning and the stability inherent in hardware partitioning. Up to 15 partitions can be created on a server, with a given partition consisting of as few as one or two CPUs, depending on the model. Companies running Oracle9i Real Application Clusters can reallocate resources instantaneously, without rebooting, as the work volumes change. This allows them to make the best use of resources, minimize total cost of ownership, and handle changing business needs.

- **A full range of IT services.** The Fujitsu Group has the world’s third-largest IT services organization, which covers everything from large-scale systems construction to IT and Web integration, strategic planning, system design, operation, maintenance, and support.



## ABOUT THE FUJITSU GROUP

**The Fujitsu Group provides leading-edge** IT and communications solutions designed to help customers unleash the infinite possibilities of broadband Internet for their business success. The group's technologies cover a wide range of personal and enterprise computing needs, with everything from handhelds, notebooks, and PCs to workstations, servers, mainframes, and storage solutions, as well as a full range of IT services.

The Fujitsu Group serves customers in most regions worldwide: Fujitsu Limited and its subsidiaries cover Japan and Asia Pacific; Fujitsu Siemens Computers focuses on markets in Europe, the Middle East, and Africa; Fujitsu Technology Solutions, Inc., operates mainly in North America. For information about other regions, please visit [www.fujitsu.com](http://www.fujitsu.com).

### For more information:

- **Fujitsu Limited** [www.fujitsu.com](http://www.fujitsu.com)
- **Fujitsu Siemens Computers** [www.fujitsu-siemens.com](http://www.fujitsu-siemens.com)
- **Fujitsu Technology Solutions, Inc.** [www.fts.fujitsu.com](http://www.fts.fujitsu.com)

• **Southwest Airlines** moved the database of its award-winning Rapid Rewards frequent-flyer program and its travel Web site, [southwest.com](http://southwest.com), to Fujitsu PRIMEPOWER servers running the Solaris Operating Environment and Oracle9i RAC. Those programs are critical to Southwest's business, and the technology that supports them has to be powerful, and running virtually all the time. "We needed the most reliable systems possible to run our Rapid Rewards customer database," says Kerry Schwab, director of Interactive Marketing at Southwest Airlines. "Since we moved to PRIMEPOWER servers, we've seen a substantial performance boost, faster response time, and our backups are quicker."

• **NIFTY Corporation**, the largest Internet service provider in Japan, is going to use three PRIMEPOWER servers, ETERNUS storage technology, and Oracle9i RAC as a platform for its customer-management system. The company, which has more than 5 million members, is consolidating a number of dispersed customer databases onto the clustered platform. "We chose Fujitsu's system because of the performance, reliability, and flexibility of PRIMEPOWER servers, ETERNUS storage, and Oracle9i RAC," says Takeo Kenmotsu, general manager of the Basic Systems Development Department at NIFTY Corporation. "In order to respond to increasing speed of business and our continuous growth in membership, we decided to reconstruct our customer management system based on a robust and highly stable system infrastructure."

• **Deutsche Post AG**, Europe's leading logistics company, is using Oracle9i RAC and two Fujitsu Siemens Computers PRIMEPOWER servers to support the management of its German fleet of some 60,000 vehicles, which range from mopeds to 40-ton trucks. "Recording vehicle data centrally within a single database allows the group's fleet managers throughout Germany access to the same data, which is always up-to-date,"



notes a company press release. Management of the vehicle fleet is, of course, a critical part of the logistics business, and the clustered platform "guarantees a very high level of reliability" and "leads to good performance," the company reports.

### CONTINUED COLLABORATION

Oracle and the Fujitsu Group are continuing to explore ways to help companies implement and take advantage of Oracle9i RAC and other Oracle technologies in conjunction with Fujitsu platforms. For example, in Europe, Oracle and Fujitsu Siemens Computers are working to integrate and deliver the new Oracle Collaboration Suite on Fujitsu's PRIMERGY and PRIMEPOWER servers. The suite, which can take advantage of Oracle9i RAC for high availability, enables companies to consolidate and integrate e-mail, fax, voice mail, telephony, files, and calendaring into one universally accessible system. "The unique combination of our PRIMERGY and PRIMEPOWER server series for Business Critical Computing provides the ideal hardware platform for the Oracle Collaboration Suite," says Joseph Reger, chief technology officer

at Fujitsu Siemens Computers. "Companies typically have to accommodate a variety of technologies in their infrastructure, and the Fujitsu companies lead the competition by providing the Oracle Collaboration

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System Platforms Division,  
Oracle Corporation

**“It’s clear that the need to keep systems running and costs and complexity low is critical to business success—and the joint efforts of Oracle and Fujitsu are helping to meet that need.”**

**Shu Hiraki**

group executive vice president of Business Strategy and Planning, Platform Products, Fujitsu Limited

Suite on the Linux, Windows, and Solaris operating systems across both the Intel and SPARC platforms.”

The Fujitsu Group and Oracle also maintain a number of jointly staffed competency centers that carry out support activities such as sizing, benchmarking, troubleshooting, tuning, certification, and integration. The most recent addition to the list is the Fujitsu RAC Integration Center in Tokyo, where the two companies are focusing on ways to accelerate Oracle9i RAC and Fujitsu implementations using PRIMEPOWER servers, ETERNUS storage, and PRIMECLUSTER™ software. At the center, experts work on establishing benchmarks and testing Oracle9i RAC and Fujitsu configurations, and companies can try out equipment, attend seminars, and take advantage of design, installation, and backup and recovery consulting services.

“It’s clear that the need to keep systems running and costs and complexity low is critical to business success—and the joint efforts of Oracle and Fujitsu are helping to meet that need,” says Hiraki. “The combination of our two technologies—and the cooperation between our two companies—is delivering clustered solutions that ensure high availability while reducing the cost

## RESOURCES

### Oracle and Fujitsu

- [www.fujitsu-siemens.com/oracle](http://www.fujitsu-siemens.com/oracle)
- [www.oracle.com/fujitsusiemens](http://www.oracle.com/fujitsusiemens)

### Oracle9i Real Application Clusters

- [www.oracle.com/clusters](http://www.oracle.com/clusters)

### Fujitsu Cluster Services

- <http://primepower.fujitsu.com/en/primecluster/html>
- [www.fujitsu-siemens.com/rl/products/unixserv/clustertechnology\\_ux.html](http://www.fujitsu-siemens.com/rl/products/unixserv/clustertechnology_ux.html)
- [www.fts.fujitsu.com/services/solutions/project/high\\_availability/mm003075.pdf](http://www.fts.fujitsu.com/services/solutions/project/high_availability/mm003075.pdf)

### Fujitsu PRIMEPOWER Servers

- <http://primepower.fujitsu.com/en/>
- [www.fujitsu-siemens.com/primepower](http://www.fujitsu-siemens.com/primepower)
- [www.fts.fujitsu.com/primepower](http://www.fts.fujitsu.com/primepower)

### Fujitsu PRIMERGY Servers

- <http://primergy.fujitsu.com/en/>
- [www.fujitsu-siemens.com/primergy](http://www.fujitsu-siemens.com/primergy)
- [www.fts.fujitsu.com/services/products/primergy/index.html](http://www.fts.fujitsu.com/services/products/primergy/index.html)

and risk of implementation and operation. It’s a formula for helping IT departments see a clear, rapid return on their technology investment while ensuring that the business has the data it needs to succeed.” ■

# Power for the Oracle World



**In a number of benchmark tests,** Fujitsu Group servers have demonstrated high levels of performance—an important factor in supporting Oracle9i Real Application Clusters and other Oracle technologies. For example:

- In the Oracle Applications Standard benchmark, Fujitsu servers turned in the top performance (as of December 2002) for eight-CPU systems with a SPARC-based PRIMEPOWER 850 eight-processor database server running the Solaris Operating Environment, four PRIMEPOWER 400N four-processor application servers, and Oracle Applications 11.5.6. The system supported 6,272 users with an average response time of 1.07 seconds.<sup>1</sup>
- Fujitsu holds the top-performing position in the SAP Sales & Distribution (SAP SD) two-tier Standard Application Benchmark

(as of December 2002). In that test, a PRIMEPOWER 2000 128-processor server (based on the Solaris Operating Environment and SPARC architecture) combined with ETERNUS GR storage and Oracle9i Database achieved a score of 7,800 SAP SD benchmark users.<sup>2,4</sup>

- PRIMEPOWER outperformed competitors by supporting 34,260 assembly orders per hour in the SAP Assemble-To-Order two-tier Standard Application benchmark, using the Oracle8 Release 8.1.7 Database.<sup>3,4</sup>

1. [www.oracle.com/apps\\_benchmark/html/index.html?0245A\\_Report1.html](http://www.oracle.com/apps_benchmark/html/index.html?0245A_Report1.html).

2. SD two-tier, certified on January 24, 2002, No. 2002005, 7,800 SD Benchmark Users, 781,670 order line items/h, 1.98 sec resp. time, PRIMEPOWER 2000, 128-processors SMP, SPARC64 675 MHz, 8 MB L2 cache, 128 GB main memory, SAP R/3 4.6C, Solaris 8, Oracle9i.

3. ATO two-tier, certified on May 29, 2001, No. 2001018, 34,260 assembly orders/h, PRIMEPOWER 2000, 128-processors SMP, SPARC64 560 MHz, 8 MB L2 cache, 128 GB main memory, SAP R/3 4.6B, Solaris 8, Oracle8 Release 8.1.7.

4. These SAP benchmarks fully comply with the SAP Standard Application Benchmark Council's issued benchmark regulations, and have been audited and certified by SAP. For more information, see [www.sap.com/benchmark](http://www.sap.com/benchmark), [www.ideasinternational.com/benchmark/sap/sap2tcsr4.html](http://www.ideasinternational.com/benchmark/sap/sap2tcsr4.html), [www.ideasinternational.com/benchmark/sap/sap2tcsr4.html](http://www.ideasinternational.com/benchmark/sap/sap2tcsr4.html), [www.ideasinternational.com/benchmark/sap/ato2tier.html](http://www.ideasinternational.com/benchmark/sap/ato2tier.html), and [www.ideasinternational.com/benchmark/sap/ato2tier.html](http://www.ideasinternational.com/benchmark/sap/ato2tier.html).