



Benchmark

Demonstrating Oracle9i Real Application Clusters (RAC)
on the Egenera® BladeFrame® System:
The Calling Circle Problem

Introduction

To demonstrate the capabilities of Oracle 9i RAC and the Egenera BladeFrame, Egenera has conducted benchmark tests using Oracle-supplied problems. The results demonstrate how the BladeFrame and Oracle9i RAC are an unbeatable combination.

Problem Setup

The Calling Circle application represents a self-service OLTP application developed to test the capabilities of Oracle9i RAC. The application was developed in SQL, PL/SQL and Java by Michael Hallas and Dominic Giles of the Oracle9i Solutions Group. The application models the customers of a telecommunications company registering, updating and inquiring on a calling circle of their most frequently called numbers in order to receive discounted call pricing. The Calling Circle application generates a heavy database workload and allows demonstration of failover/failback and load balancing capabilities.

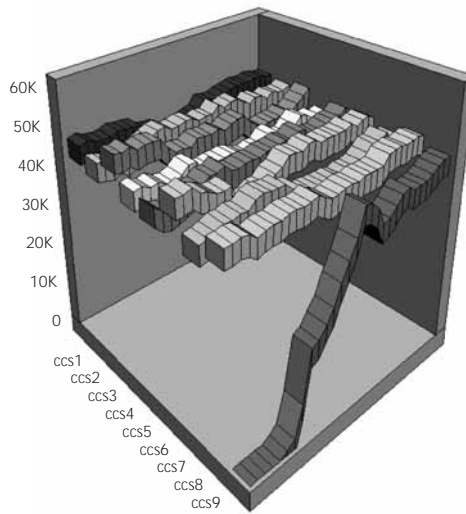
The Calling Circle application was originally developed to include aspects known to cause scalability challenges with Oracle Parallel Server. For example, the database features several keys generated from sequence numbers, resulting in contention for right growing indexes. The application also maintains activity counters and a history of changes to each Calling Circle, further increasing the proportion of insert and update statements.

The Calling Circle application simulates a randomized workload of customer transactions and measures transaction throughput and response times. The test workload is specifically designed to perform a high proportion of database changes to reveal any contention issues. In fact approximately 97 percent of the customer transactions cause at least one database update, with well over 75 percent performing two or more updates.

Results

The Calling Circle problem validated the unbeatable combination of Oracle9i RAC and the Egenera BladeFrame. The application was run on two to nine four-way, 1.6 Ghz, Intel-based Egenera Processing Blade™ resources running Red Hat Advanced Server.

Performance

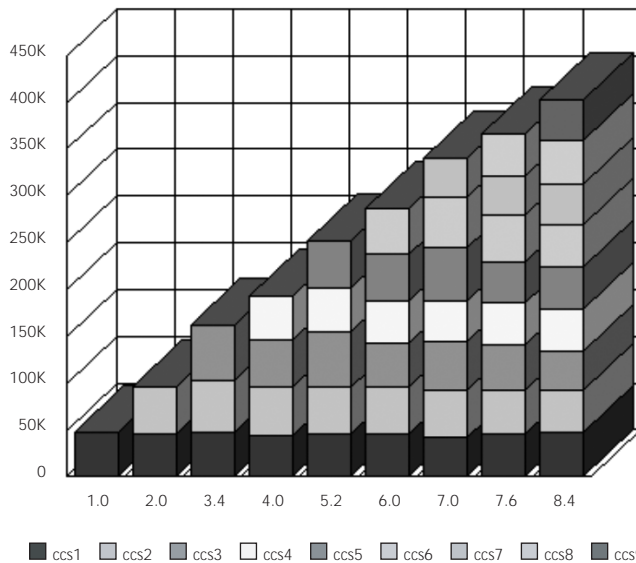


Transactions Per Minute (TPM)
Total Transactions Per Minute: 406895

Operating on nine nodes, the Calling Circle results were 414K transactions/minute.

Scalability

The application was 93 percent scalable at nine nodes. More importantly, using Egenera's virtualization services, the node count was increased and decreased on the fly, all through software. By repurposing the Processing Blades as needed, the application was supplied with the right amount of processing power at the right time.



Node Scalability

Manageability

Compared to traditional Oracle9i RAC implementations, the nine-node BladeFrame implementation represents an 80 percent reduction in time to manage the configuration.

Flexibility

The Calling Circle problem was run on four-way blades, SAN connected, with completely redundant interconnects, data, power and network connections. Egenera supplies the only bladed form factor system capable of meeting these configuration specifications.

Availability

To demonstrate the high availability of the BladeFrame, nodes were deliberately failed by removing the Processing Blades. The BladeFrame's virtualization services restarted the failed node of RAC on a different server by transferring the virtual network and storage configurations to the new node.

For more information on Egenera and Oracle9i RAC, see Egenera's Product Brief "Oracle9i RAC on the Egenera BladeFrame."



Corporate Headquarters
Egenera, Inc.
165 Forest Street
Marlboro, MA 01752
U.S.A.
Phone: 508-858-2600
Fax: 508-481-3114
www.egenera.com

European Headquarters
Egenera Ltd.
Venture House
Arlington Square
Bracknell, Berkshire RG12 1WA
United Kingdom
Phone: +44 (0)1344 475237
Fax: +44 (0)8703 305946
www.egenera.com

Asia Pacific Headquarters
Egenera K.K.
Shinjuku NS Bldg. 6F,
2-4-1 Nishishinjuku,
Shinjuku-ku
Tokyo 163-0806 Japan
Phone: +81-3-5321-7157
Fax: +81-3-5321-7158
www.egenera.com