

Oracle Real Application Clusters (RAC) running Toyota Motorsport SAP applications on Linux

Customer Profile

Toyota Motorsport GmbH

Industries

Automobile industry / Motorsport industry

Oracle Products & Services:

- Oracle Database
- Oracle Real Application Clusters (RAC)
- Oracle OCFS
- Oracle Support

Key Benefits

- Fast response
- More fail-safe/high availability environment
- Improved/more flexible scalability
- Higher cost-efficiency

"We place a lot of emphasis on fail-safe IT use with high availability aspects, meaning we're dead right about our SAP application on Linux with Oracle9i RAC. With Oracle database clustering technology we're also benefiting from a means enabling flexible, cost-effective scalability."

– Elmar Hübner, IT Infrastructure and HPCC IT Department Manager, Toyota Motorsport GmbH

Top rating on the fail-safe environment and scalability scale

For a long time now, the Formula 1 has been driven by refined high-performance IT systems. These days informatics play a crucial role in the struggle for points and tenths of a second in the motor sports champions league. Keeping this in mind, Toyota is rigorously pushing for IT use in all areas. With their application of SAP's ERP solution over a Linux platform on Intel-based hardware, Toyota Motorsport has turned the innovation wheel a bit farther and benefited twice with their implementation of Oracle Real Application Clusters: an even higher availability and flexible cost-effective system scalability. Toyota is extremely satisfied about this and believes they're at the cutting edge with this innovative solution.

But first things first. Toyota Motorsport GmbH's entry into the Formula 1 over three years ago brought big changes for the Toyota subsidiary (headquartered in Cologne), which was up until then almost exclusively involved in rallies. Now they're not only responsible for developing and building the Toyota Formula 1 car, but also for all other Formula 1 racing team activities: from the purchase of all goods, tools and services directly related to the race car, as well as the organization of such; from logistics management and production to shipping/delivery of containers with all the Formula 1 equipment, spare parts, tools, etc. for a race somewhere in the world.

Actually, Toyota Motorsport is like an independent (batch production) carmaker, with all the necessary business units including resources. The Toyota subsidiary has a workforce of more than 650 employees – and a broad and up-to-date IT environment effectively assists and supports the most varied processes.

Searching for an intelligent, sustainable solution

This includes an SAP mid-market automotive sector solution based on SAP R/3 4.6C (4.7 Kernel), which has been running since the autumn of 2004 over a Linux operating system together with Oracle9i RAC on Intel-based Dell hardware. As Elmar Hübner, IT Infrastructure and HPCC IT Department Manager at Toyota Motorsport reports, "We absolutely cannot afford an ERP system failure and therefore started searching right after production started mid 2004 for an intelligent, sustainable solution that meets our expectations."

Securing the SAP system on Linux – including the Oracle database server – occurs at production startup over a “conventional” active/passive high availability concept with data archiving hardware.

The ERP pivot to SAP took place because the previous environment wasn’t able to keep up with new requirements. Linux was selected as OS platform “especially because we had already organized our setup based on Unix know-how – AIX in particular. We were anxious to put an innovative platform into use in the future. And for us that was Linux,” reveals Hübner.

During a review meeting held towards the end of the summer, Toyota, a hardware supplier and Oracle put their heads together about fail-safe and high availability environments. And moments later it was clear: “The Oracle9i Real Application Clusters solution satisfied all our expectations and opened up new opportunities. Oracle database clustering technology ideally distributes data over multiple servers so that in the event of a failure one cluster node can take over for another, ensuring system operations. Other than that, there was the prospect of benefiting from the scalability,” explained Hübner, Toyota Motorsport IT Manager.

After the decision was made, everything proceeded very quickly. The cluster environment was created, individual components were aligned and the new system was tested in a trial project, keeping in mind that the conversion was to take only one weekend. SAP R/3 4.6C, Oracle 9.2.0.5 (RAC), Oracle OCFS 1.0.12 (for highly available cluster file systems), Red Hat IA-32 Enterprise Linux 3.0, EMC Symmetrix (DMX) storage systems and 6 Dell servers (2 for RAC, 2 for Red Hat Cluster 3.0, 2 for SAP applications, linked over a high-speed fiber channel) was to form the new clustering environment – incidentally the first Oracle9i RAC/SAP/Linux environment worldwide.

Multiple values with Oracle9i RAC Database Clustering

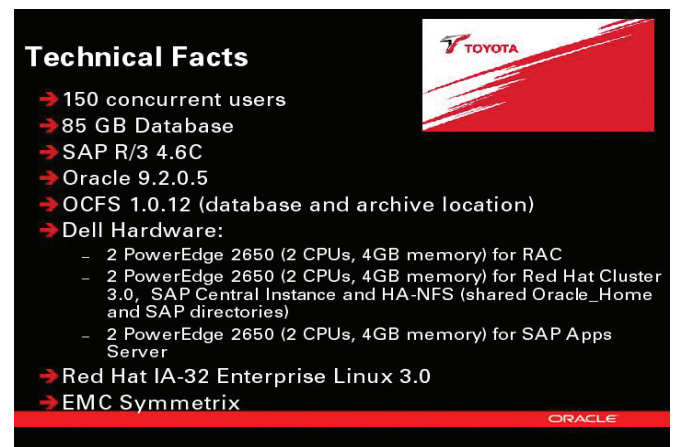
“We started the database clustering conversion on a Saturday morning, we were finished by noon. Originally we scheduled two days for it,” admitted Hübner. Trial runs showed no problems: every imaginable failure was simulated, for instance a cluster node failure, a server failure, SAP failure, disk unavailability, etc.

According to Hübner, “Anyway you look at it, implementing Oracle9i RAC was worthwhile. We now have an ERP system with a database (250 GB) that is even more fail-safe. For example, in the event that a node fails, the whole SAP instance will keep running. In addition we can use an SAP replicated enqueue server, which copies single points of failure SAP enqueue services to a redundant host making it readily available.” At Toyota Motorsport it will never come to unavailable freight papers for an overseas delivery, for instance, or that purchase orders can’t be carried out, due to an ERP system failure. And we don’t keep “empty hardware” in case of failure and/or for high availability purposes. “Those types of expensive and inflexible active/passive solutions are just not up-to-date anymore,” opines Hübner.

Not only that, Toyota Motorsport benefits with Oracle9i RAC in system scalability. When it’s time to expand the SAP system, an additional node or server is simply integrated into the cluster. And namely at lower operational costs, as is usually the case.

Toyota Motorsport’s positive conclusion:

“Many factors come together in the struggle for a top position in the Formula 1. Without doubt, IT plays a key role these days. For us Oracle9i RAC clearly represents another stepping stone on the path to even more success.”



Technical Facts

- 150 concurrent users
- 85 GB Database
- SAP R/3 4.6C
- Oracle 9.2.0.5
- OCFS 1.0.12 (database and archive location)
- Dell Hardware:
 - 2 PowerEdge 2650 (2 CPUs, 4GB memory) for RAC
 - 2 PowerEdge 2650 (2 CPUs, 4GB memory) for Red Hat Cluster 3.0, SAP Central Instance and HA-NFS (shared Oracle_Home and SAP directories)
 - 2 PowerEdge 2650 (2 CPUs, 4GB memory) for SAP Apps Server
- Red Hat IA-32 Enterprise Linux 3.0
- EMC Symmetrix

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