



Altair and AC&E Provide a Standard Workload Management Solution to TRW

A Standard Solution for European Design Centres

Engineering analysis and Linux clustering specialist, AC&E has worked with TRW Automotive (UK) to optimise PBS Professional performance and reduce analysis times as part of a pan-European roll-out of PBS Professional.

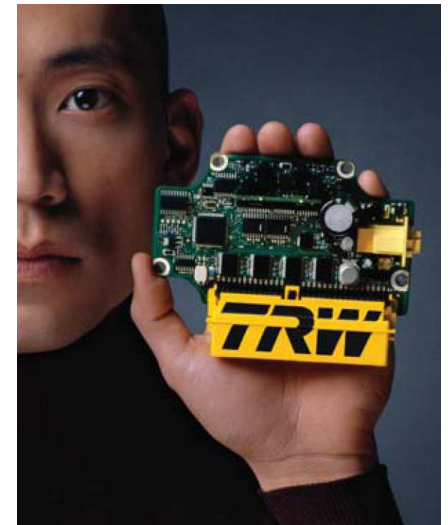
As a global technology company, TRW Automotive touches most of us in ways we're unaware of. When we drive, it is practically certain that a TRW system with brakes, airbags, seat belts, or steering is part of the experience. A Tier One automotive industry supplier with a focus on safety products, TRW Automotive works with most of the major car and truck makers worldwide.

In Europe, safety systems are designed at several TRW Automotive engineering centres. In 2005, the Chassis group took a hard look at the company's European CAE requirements and its existing compute platforms. Its CAE engineers work exclusively on desktop workstations. The group wanted more compute power and a smoother workflow.

"We wanted a flexible and standardized solution," says European CAE Manager Steering & Suspension, Dirk Vieker of TRW Tech Centre Düsseldorf. "The European sites work closely together and we were looking for a better way to collaborate. We wanted our CAE engineers to be able to concentrate on their work and let the computing environment decide which hardware resource to use for the most efficient processing. Above all, we expected that the money we were spending would be used in the most efficient and intelligent way. PBS Professional workload management software has helped to assure us that the new solution meets our requirements."

A Common CAE Environment

The Chassis group preferred not to commit its limited internal IT resources to the development of a new CAE computing infrastructure. Instead, they asked AC&E (Applied Computing & Engineering) and GNS systems, systems integrators recommended by Altair Engineering, to develop a standard CAE



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solution for their UK site and four engineering sites. GNS was commissioned with providing the complete solution, including design, purchasing, installation, implementation, and ongoing postinstallation support in mainland Europe, and AC&E for the UK operation. With ease of use of processors and ROI in mind, the group looked at three workload management systems for potential use on its new HPC clusters: LSF, Sun GridEngine, and PBS Professional.

“We looked at everything – prices, pros and cons,” says Vieker. “In the end we saw that PBS Professional gave us the best functionality and capabilities and a very good price. It also gave us access to the code, so we can configure it the way we want. We already have a good relationship with Altair, and in fact we have a global software contract with them. It's important to us to work with a partner we know we can trust. AC&E and GNS also gave us very good feedback about PBS Professional support.”

By the end of 2005, GNS Systems and AC&E had installed Linux-based, Intel-driven PC clusters within several engineering sites and configured PBS Professional on all systems. The same technology will soon be installed in one Eastern European Site. Standardization will save TRW administration costs and simplify purchases, changes, upgrades and collaboration between engineering sites.

Altair in Partnership with AC&E

“Working with AC&E has enabled TRW to implement a Linux cluster based solution with multiples of compute power greater than the similarly priced RISC alternative. Working together we have entered a new era of CAE opportunities facilitated by the solution supported by AC&E. As product design is increasingly led by CAE, the AC&E solution has given us the compute resources to investigate technology previously too complex for CAE and helped deliver the low cost robust solutions demanded by our customers, maintaining the business's competitive advantage in the market,” said Dr. David Ward, CAE Team Leader - Steering & Suspension (UK), TRW Automotive.

The Benefits: Transparency for TRW Engineers

For the group's engineers, the leap in processing power from a desktop workstation to a HPC cluster represents a huge improvement in CAE turnaround time compared to desktop workstations. PBS Professional is the oil that keeps the clusters running efficiently and ensure maximum utilization.

“My impression after the first six weeks of operation is that PBS Professional is clearly running very well indeed,” says Dirk Vieker. “I've been getting very good feedback about the functionality of this software from our CAE engineers here at Düsseldorf and at other sites. We just put a job in the PBS Professional queue, and it manages the job totally – which nodes it's sent to, and which queue it will run in most efficiently.”

“We have about 20 users at the various sites, and they all use the major CAE codes. Some of them were a little suspicious about handing control of their jobs to PBS Professional, but they're all happy with it

now. They simply go to a web interface, bring up their inputs, select the code they want, and click submit the job to PBS Professional. At that point they are totally decoupled from all the old administration stuff, the shell script work in UNIX, and additional file handling. It's very effective for us.”

“And when I look at the situation of the hardware, I see that it's very balanced. I don't see one node highly loaded and people waiting for their jobs. PBS workload management is working very, very well.”

For more details of AC&E and to find out how we can help you optimise the performance of your Linux Clusters contact :

Applied Computing & Engineering Ltd on 01925 830085

Or visit www.acel.co.uk

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