SOLUTIONS:
- **HPC**
- **MANAGEMENT**

VIRTUALLY PERFECT

Virtual testing software specialist chooses Intel Cluster Ready High Performance Cluster from Dell to develop life-saving applications

Virtual modelling was once only available to government agencies with supercomputers. Now everything from the performance of jet engines to the perfect shape for potato crisps can be rendered virtually before production. Organisations working in this field today are under pressure to deliver more sophisticated models, faster, for clients around the world as virtual modelling becomes popular in emerging markets.

ESI GROUP
THE VIRTUAL TRY-OUT SPACE® COMPANY

CUSTOMER PROFILE
COMPANY: ESI Group
INDUSTRY: Technology
COUNTRY: France
FOUNDED: 1973
EMPLOYEES: 700
WEBSITE: www.esi-group.com

CHALLENGE
ESI Group is a specialist in virtual testing software. The company needed to deploy a powerful and scalable high performance cluster quickly, to help develop its PAM-CRASH application – the world's most widely used crash simulation software.

SOLUTION
ESI Group chose a High Performance Solution tested for compatibility with the Intel® Cluster Ready program. The solution included Dell blade servers, the operating system and system management software. The HPC is supported by Dell ProSupport* for IT.

BENEFITS

Get IT Faster
- Cluster built in three days
- Pre-testing by Dell allows for deployment in one day

Run IT Better
- Single point of contact for all support

Grow IT Smarter
- Solution expandable by 200 per cent
- Cluster can be sold as part of a package to clients

DELL

ESI Group knows more than a little about technology. Founded in 1973, the company has worked hard to become a specialist in virtual testing software for the industrial world. Based in Paris, ESI Group's software is used in companies globally from aerospace to biomechanics. It stands out from the competition through its use of advanced material physics, providing 'as good as real' virtual solutions, which help firms bypass lengthy trial and error processes with physical prototypes.

The company made its name with its pioneering product PAM-CRASH – now the world's most widely used crash simulation software. For nine years, ESI Group has used Dell servers with Intel® processors to develop and support PAM-CRASH and its other solutions, as well as using Dell desktops and notebooks throughout the business. When ESI Group needed a powerful new solution to develop PAM-CRASH, Jean-Louis Gregis, IT Manager for the Information Department at ESI Group, naturally turned to his Dell account manager. "We have a close relationship with Dell, and have always been pleased with its technology and services. PAM-CRASH helps our customers to design safer cars, so it was important that we chose a solution provider that we trusted to develop this application", added Mr Vincent Chaillou, President and COO of ESI Group.

Previously, ESI Group used Dell™ PowerEdge™ 1950 rack servers, but Gregis was interested in a new high performance cluster (HPC). Gregis needed a solution that was reliable, fast and easily expandable for more complicated modelling projects when required. With new customers demanding custom-built models every week, Gregis and his team had little spare time to research and construct a new solution, particularly one that was attuned to the existing ESI Group architecture. Gregis explains: "ESI Group is in partnership with Intel, so we're constantly working with Intel technology. Our HPC had to be compatible with this technology."

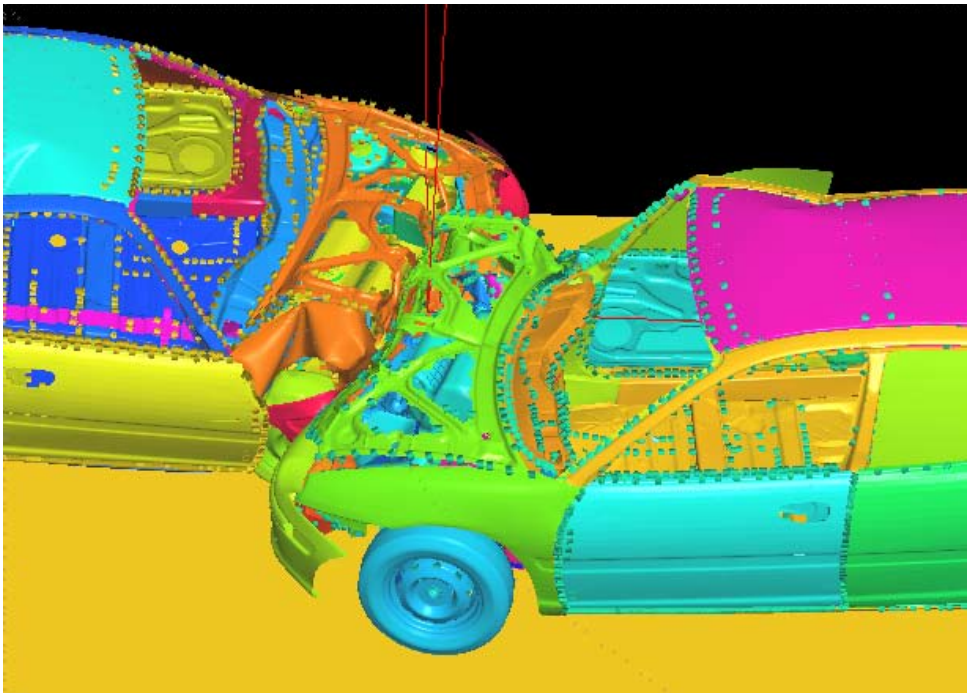

Image courtesy of ESI GROUP

"WE HAVE A CLOSE RELATIONSHIP WITH DELL, AND HAVE ALWAYS BEEN PLEASED WITH ITS TECHNOLOGY AND SERVICES."

Vincent Chaillou, President and COO, ESI Group

HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ M1000e modular blade enclosure
- Dell PowerEdge M600 servers
- Dell PowerEdge 1950 server

SOFTWARE

- Red Hat operating system
- Open Cluster Stack (OCS) 5 management software
- Intel® Cluster Checker

SERVICES

- Implementation
- Dell ProSupport* for IT
  - Mission Critical

Dell provided ESI Group with an Intel® Cluster Ready HPC – a turnkey solution, but one specifically tailored to its needs. An Intel® Cluster Ready Solution is designed to simplify the purchase, management and deployment of HPC clusters, because each element is rigorously tested and verified for component interoperability. ESI Group knew it would work in the ESI Group infrastructure because Dell gave the IT team the opportunity to test and benchmark a smaller HPC before they bought one of their own. In the end, Dell created a solution consisting of four Dell PowerEdge M600 blade servers with Intel Core™ 2 Duo processors, which sit inside a Dell PowerEdge M1000e blade chassis. Each blade comes with 16 gigabytes of RAM. The chassis is connected to a Dell PowerEdge 1950 server, which acts as the master node for the cluster.

Dell's M600 blade servers are some of the most energy efficient blade products on the market. Because they have 60 per cent greater density than traditional 1U servers, M600s deliver a lot performance without taking up a lot of space.

* Availability and terms of Dell Services vary by region. For more information, visit www.dell.com/servicedescriptions

"DELL BUILT AND DEPLOYED OUR INTEL CLUSTER READY HPC IN JUST FOUR DAYS – A PROCESS THAT WOULD HAVE TAKEN US TWO MONTHS."

Jean-Louis Gregis, IT manager, ESI Group

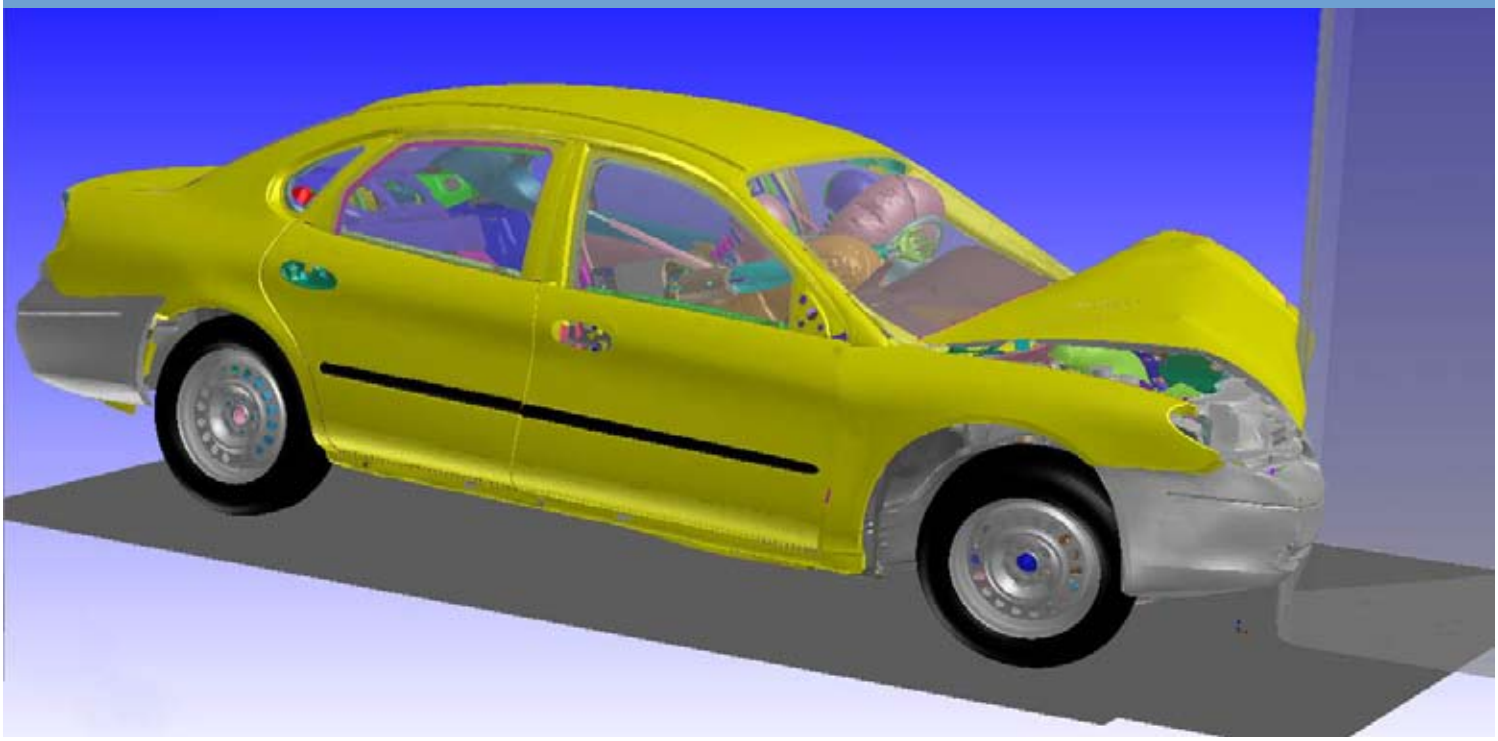

Image courtesy of ESI GROUP

Additionally, the M600 blades use up to 19 per cent less power than competing systems so the team at ESI Group have an energy efficient system as well as a powerful one.

The advantage of the 1950 server is its extensive redundancy. "The PowerEdge 1950 is ideal for the HPC. It's powerful and expandable but also comes with a redundant power supply, fan and multiple internet cards. We know this is a server on which we can rely," says Gregis.

The cluster runs on the Red Hat operating system and is managed with Open Cluster Stack (OCS) 5 management software. Every component of the HPC is covered by Dell ProSupport* for IT, which gives the team at ESI Group peace of mind when the solution is used for critical projects. Crucially, Dell tested all the components in combination against the Intel Cluster Ready program before deployment with the Intel® Cluster Checker tool included in the Dell Solution. This management tool ensures that system components work together before deployment and over the lifetime of the cluster. Dell built the solution in just three days and deployed it at ESI Group's datacentre in Rungis in a day. Gregis realised the benefits of this turnkey solution for ESI Group. "Our jobs are much simpler when Dell does the hard work for us. The Intel Cluster Ready HPC is a great example of how Dell makes life easy for IT teams."

TWO MONTHS OF IT TEAM'S TIME SAVED

When Gregis considers how long it would have taken ESI Group to put together and deploy this HPC using internal resources, the value of Dell's turnkey solution becomes clear. "Dell built and deployed our Intel Cluster Ready HPC in just four days – a process that would have taken us two months." Dell took the hassle out of deploying a HPC by sourcing the servers, chassis, operating system and software for ESI Group. All the components were pre-tested against Intel's Cluster Ready program in one day, which was critical to Gregis. "Testing the new cluster was the most time consuming aspect of the project. Dell tested it before it arrived on site and the cluster was running in our datacentre on the day it was delivered."

SYSTEM MANAGEMENT SIMPLIFIES DAY-TO-DAY MAINTENANCE

While Gregis knew that the new HPC would be fast and scalable, he was surprised at how simple it is to manage and support on an ongoing basis. Day-to-day management is simple with the HPCs integrated OCS 5 management application and is used daily by the team. "This is a very easy system to use," says Gregis: "The Open Cluster Stack 5 management software was new to me, but now I find it a really simple way to manage a very powerful cluster." With the Intel® Cluster Checker management tool, ESI Group can cut the time spent troubleshooting everyday problems and minimise the need for specialised support skills. The IT team can run Intel® Cluster Checker regularly for optimal performance and to ensure that downtime is kept to a minimum.

"TESTING THE NEW CLUSTER IS THE MOST TIME CONSUMING ASPECT OF THE PROJECT. DELL DID THIS FOR US AND WE SAW THE CLUSTER WORKING IN OUR DATA CENTRE ON THE DAY DELL DELIVERED IT."

Jean-Louis Gregis, IT manager, ESI Group

Additionally, with Dell ProSupport* for IT with four hour mission critical response, ESI Group now have just one point of contact rather than three for any issues that occur with the hardware, operating system or the management software. "Dell ProSupport* for IT is very simple – it covers everything. We've had no problems so far, but everyone knows that if anything goes wrong – just call Dell," says Gregis.

SNAP-IN SCALABILITY SUPPORTS GROWTH

Although ESI Group already sees impressive performance from this HPC, there is space in the Dell PowerEdge M1000e modular blade enclosure for 12 more Dell PowerEdge M600 blades, which simply snap in when needed. If ESI Group needs additional storage for the cluster, ESI Group can quickly connect a storage area network to the Dell PowerEdge 1950 master node, or add more internal storage to the server. The system connects to ESI Group's local area network through Ethernet, but the IT team plans to switch to InfiniBand in the coming months to create a faster, more versatile solution. Additionally, ESI Group has the option to upgrade the blades in three years' time while keeping the overall structure of the HPC in place. New blades added to the system are still supported by Dell under ESI Group's ProSupport* service. This versatility was one of the key advantages that ESI Group wanted in its new system. "The pace of progress is very fast in our industry, we need a solution that will grow with us and adapt to the demands of our clients. That's just what the Intel Ready HPC from Dell has given us."

BUILDING A BETTER SOLUTION FOR CLIENTS

ESI Group knows that applications such as PAM-CRASH help its customers to design safer and more reliable products. The It Team recognise the role played by this Intel Cluster Ready HPC from Dell in making these applications the best they can be. Gregis explains: "This Intel Cluster Ready HPC from Dell helps us develop life-saving applications. There's no more valuable application of technology in the world."

For more information on this case study or to read additional case studies, go to www.dell.com/casestudies and www.dell.fr

This case study is for informational purposes only. DELL MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS CASE STUDY.

ESI GROUP
THE VIRTUAL TRY-OUT SPACE® COMPANY

intel

SIMPLIFY YOUR TOTAL SOLUTION AT DELL.COM/Simplify

DELL

Reference number: 10007195