

CASE STUDY

HIGH SPEED, LOW RISK TRANSITION TO PLM IN ONE OF THE WORLD'S LARGEST DEFENCE COMPANIES



INGENIOUS

CSC's Performance Engineering practice used an innovative architectural approach to ensure that the first high availability PLM implementation of its kind in Europe would provide the capacity and performance required.

PURPOSEFUL

CSC was relentless in applying a rigorous performance engineering methodology and using best in class toolsets to identify performance problems and address them successfully before implementation.

PASSIONATE

CSC used the architectural understanding gained in this process to drive a radical new direction for the project, successfully delivering a mission-critical system while making significant cost savings for the client.

"With our existing design system going out of support in the near future, we had the opportunity and incentive to rethink our approach and move to a more comprehensive, lifecycle based system. CSC's Performance Engineering practice played a key part in validating this approach, in identifying potential issues and in making sure that we would receive the high-performing solution we needed."

Graham Malley, BAE Systems
PLM Programme Manager

THE CLIENTS CHALLENGE

BAE Systems had been considering a move away from its existing design management system to Product Lifecycle Management (PLM) for some time. PLM has the ability to manage a product throughout its lifetime, enabling continuous improvement to the value chain, to manufacturing and upgrading and to performance improvements right through to end of life. In late 2006, the need to make a final decision about PLM became urgent, as the existing system was reaching the point where effective support would no longer be available, while the technology platform on which it operated was also out of date.

BAE Systems decided to treat this challenge as an opportunity and make the move to PLM at once. They selected the Siemens Teamcenter PLM solution and partnered with CSC and Siemens to implement the product. CSC was responsible for implementation of the system infrastructure and for proving that it would meet the performance demands of BAE Systems' Engineers.

CSC SOLUTION

Siemens believed that the BAE Systems solution would be one of the most complex and demanding PLM systems ever developed and implemented, and moving from theoretical design to real-world usage was likely to be a major challenge. This is where the CSC Performance Engineering practice was tasked with testing assumptions, validating designs and driving the improvements needed to make the PLM system work effectively in the BAE Systems business environment.

The CSC team used its deep client knowledge, built up during a relationship that has lasted many years, to test the initial designs under genuine operational pressures.

They found that the initial designs did not take into account the real working practices of the users, nor the need to cope with complex application customisation. Using effective performance testing techniques, CSC was able to reveal the scope and significance of these problems, supported by evidence from the enterprise monitoring solution.

Working collaboratively with Siemens and BAE Systems, the Performance Engineering team identified improvements to the proposed technology architecture approach, which depended on a single server instance, requiring the use of very costly top-end servers. This approach proved prohibitively expensive, as were the consequential increased costs of the application server solution. Having demonstrated these issues early, CSC's Performance Engineers worked collaboratively with the Siemens team to find and develop an alternative approach that would deliver the availability required by the client at an appropriate cost.

This involved changing the application server, saving significant cost by doing so, and proving that the PLM solution could be supported by a group of web servers, with load balancing to achieve the scalability required. This radical design change was tested, shown to work and proved decisive in delivering the solution on time and within budget.

The final area of development was network capacity. The CSC team quickly appreciated that the need to move massive 3D visual files between members of virtual teams on different locations would have a negative impact on the network. CSC was able to quantify the precise scale of this potential problem through advanced assessment techniques and propose the action needed to avoid an unacceptable end user experience.

BUSINESS RESULTS

Following this intensive period of collaborative working, the new PLM solution went live within BAE Systems at the very start of 2010. Unusually for a mission-critical system of this scale and complexity, there have been no teething troubles or problems with system response times or stability. In addition, around £1 million of savings have been made on the deployed solution, when compared to the predicted costs for the original architectural design.

This project clearly demonstrated the need to test, challenge, assess and validate all assumptions related to a complex solution and its supporting infrastructure as early in the process as possible. The project was a success because CSC's Performance Engineers were called in from the outset, enabling them to:

- *Understand and influence the architectural design early on.*
- *Validate the sizing metrics and test prototypes for potential issues before these could cause difficulty for the client.*
- *Carry out impact assessments while there was still time to affect the outcome.*
- *Collaborate with the technology partner to ensure that the best possible solution would be provided.*
- *Test assumptions about hardware and be prepared both to make radical changes and delay purchase to secure the latest, most cost-effective technology.*

- *Provide a proactive performance and capacity monitoring service, which will ensure that PLM performs effectively throughout its life.*

CSC's Performance Engineering practice ensured that a necessary change to an improved solution took place smoothly and effectively, delivering the best service to the client and the right result for everyone taking part, including end-users and the technology partner. A combination of rigour, determination to find the best possible options and deep client knowledge have proved critical in making the BAE Systems MAS PLM project a success.



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