AdaTEST 95

QA SYSTEMS
The Software Quality Company

SECTOR
Aerospace & Defence

Case Study

ASTRIUM
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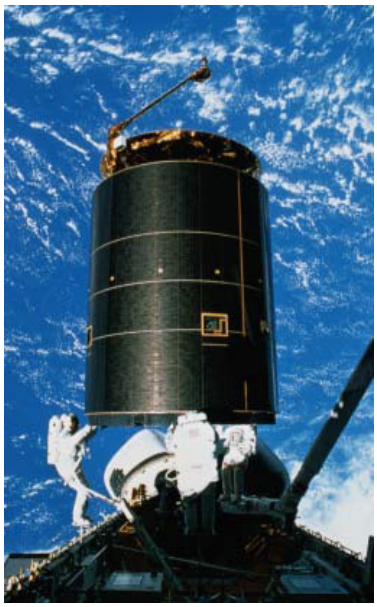
ASTRIUM

Astrium is Europe's major satellite and space vehicles developer. It has operating companies located throughout Europe, and is a successful participant in space work all over the world.

Astrium is committed to producing onboard software to the demanding standards required for deployment in space.



"AdaTEST 95 fitted into place from day one!"

The Business

The European Space Agency selected Astrium to develop the Polar Platform, a general purpose satellite scheduled to be used in two missions - Envisat (environmental monitoring) and Metop (Meteorological monitoring).

Astrium also won the contract to supply several of the Polar Platform subsystems, one of which was the High-Speed Multiplexer. This was designed to collect, compress and transmit data from the many instruments on-board each satellite. The need for multiplexer reliability was obvious: if it didn't work, the whole mission would be rendered useless!

The five-year mission of the Envisat is to provide measurements of the land, ice, ocean and atmosphere

Testing - A Key Issue

The Astrium team, led by Roger Ward, identified 'software testing' as an area where special attention needed to be paid. An evaluation project was therefore initiated to examine the testing process and, in particular, testing tools. Key criteria were established, against which different approaches and tools could be evaluated.

The main criteria were:

› The production of clear tests which could be repeated, reused, and provided as evidence (test coverage) to auditors.

› Any off-the-shelf testing tool must be able to work in the target environment: a Mil-Std 1750 processor, with software developed using a TLD Ada compiler.

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Evaluation

Numerous testing tools were considered during the extended evaluation process. **AdaTEST 95 met all criteria, but had the added benefit of being competitively priced, especially considering the quality support that was also provided.** Pricing was a particularly sensitive issue, because small projects required that tool price was in proportion to the overall value of the contract.

AdaTEST 95 in Use

AdaTEST 95 was chosen for the project. Looking back on the experiences with the tool throughout the project, Ward commented, *"Our main problem of needing to produce maintainable code and tests was solved. In addition,* ***we were able to satisfy our customer as to the quality of our work, against their standards.*** *The task of measuring code coverage used to be manual, which was both very time-consuming and also extremely prone to error."*

Experience

As the team gained experienced, further AdaTEST 95 benefits became apparent. According to Ward, ***"The tool proved flexible, and we found numerous ways to extend it for our particular needs."*** One of the techniques developed by the team involved the production of a generic hardware interface 'stub' to facilitate test data injection.

AdaTEST 95 integrated without any difficulty and without introducing any additional constraints into Astrium's existing standards and procedures.

Ward was initially concerned that the introduction of a tool could disrupt day-to-day practices, or be awkward to integrate with the development environment. He commented that, *"The last thing we could tolerate was having to change the way we worked. AdaTEST 95 fitted into place from day one."*

Conclusion

Ward noted that he was looking forward to exploring AdaTEST 95's plethora of features. He particularly referred to the script generation facilities and pointed out two benefits: **firstly, even greater maintainability of the tests, and secondly, an opportunity to cut down on the volume of material that must be reviewed.**

All case study text has been approved by the customer.
QA Systems acquired the AdaTEST 95 business, taking over all development, support and sales, from IPL in 2012.
AdaTEST 95 is the extension of the AdaTEST tool.

MORE ON AEROSPACE & DEFENCE SECTOR:

Our Sector Briefs provide more information on how AdaTEST 95 was successfully used by other customers in various aerospace & defence projects worldwide.

Sector Briefs can be found on the QA Systems website.

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