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World Leaders in Product Data Exchange



THEOREM STREAMLINES COLLABORATIVE WORKING ON SPACE PROGRAMMES

CADverter Implementation Provides Seamless CATIA to VisView Data Translation at EADS Astrium

Telecommunications satellites are all about the exchange of data and information flow. And that applies just as much during their design, development and construction phases as to their in-service operation.

High capability, heavyweight CAD systems are invariably required to design these complex products. Yet the manufacture of individual components and sub-assemblies demands more streamlined access to product information and attributes. To meet this fundamental need, satellite systems specialist, EADS Astrium has implemented Theorem CADverter translators to ensure its project teams have fast and consistent access to up-to-the-moment design data.



With UK sites at Stevenage, Portsmouth and Poynton in Cheshire, EADS Astrium is a wholly-owned subsidiary of EADS Space, a 2.4 billion Euro turnover group dedicated to providing civil and defence space systems. It is a world leader in the design and manufacture of satellites, payloads and infrastructure, with activities covering everything from complete civil and military telecommunications and earth observation systems, to science and navigation programmes, avionics and ground support.

The company's 1200 strong workforce at Stevenage is currently engaged on seven projects, including: Hotbird 8 broadcast satellites, Arabsat telecommunications satellites and Aeolus, a global observation spacecraft for measuring winds across the Earth's surface.

Most of the design work for its space vehicles is carried out using CATIA V4. "However, many other activities require day-to-day access to component and sub-assembly design information. Yet, these simply do not demand the capabilities - and complexity - of such a high end system," notes CAE system Manager, Mel Cator. "As a result, we have implemented UGS VisView on site as the medium to promote collaborative working throughout the project groups."

VisView enables users to easily interact with digital product data and view the latest drawings, 3D models, and documents from a single environment. They can access specific product information by clicking on a drawing, 3D model, or product structure. Alternatively, they can simply enter a part number to start sharing, copying, redlining and marking up product information at any stage in the design to manufacturing process.

According to Cator, EADS Astrium has developed its data sharing systems around Theorem translators, with its engineers accessing the latest versions of their project team's CATIA models via VisView.

There are two principal aspects to the company's procedures. The first involves the overnight translation of latest CATIA component and assembly files into VisView, in order to give a daily update ready for the start of the next day's operations.

"Through close collaboration with Theorem, who undertook some additional development at our request, the

basic translation process has been streamlined to effectively reduce conversion times from around two hours to just 10 minutes on some complex assemblies,” says Cator.

This overnight batch translation goes a long way towards eliminating bottlenecks. However, users within the project teams can also use a dedicated terminal to request translations of updated product data on demand.

As part of its operation, EADS Astrium also employs work package exchange as a decision support tool to resolve the integration of additional design data into the CATIA environment. As with VisView data, CATIA models held in VPM are incrementally updated every night.

When a user requests a further live update in VPM, article links apply the most recent changes to the ‘already translated’ VPM data, ensuring a fast and streamlined service. Indeed, Cator maintains that by using this method, the company is capable of running a VPM update of a complete craft in around five minutes if need be.

All or Nothing

From EADS Astrium’s perspective, data translation is virtually an ‘all or nothing’ exercise.

“98% accuracy is just not good enough in our business,” says Cator. “So, the fact that we evaluated a number of alternatives before selecting Theorem gives a clear indication of CADverter’s capabilities straight out of the box.”

Since installation at the Stevenage site two years ago, the Theorem system has undertaken around 4,000 component and assembly translations on demand, as well as its regular overnight runs. In addition, EADS Astrium has instigated a smart queuing system to minimise delays and maximise data exchange throughput.

Commenting on the Theorem’s product support, Cator continues: “The company works hard to fix any specific issues that may arise from time to time. It also ensures that the development of its translators keeps pace with the latest releases of all major product design systems.”

This is borne out by the capabilities of Theorem’s recently-announced Revision 8 series of CADverter products. In common with several other design systems, CATIA V4 defines objects such as cabling, tubing and wiring harnesses in a completely different manner to other geometric shapes, which require them to be translated separately, as non-standard entities. Theorem’s translators incorporate functionality to overcome the limitations of other translators in dealing with such routed systems. Equally, the company’s latest CATIA CADverters feature a new, ‘two in one’ capability, which matches the CAD system’s ability to allow the native CATIA V4 parts to be included within V5 assembly structures.



“We are currently evaluating a move to CATIA V5,” says Cator, “ So it is reassuring to know that any migration would be accompanied by seamless upgrading of our translation processes.

“VisView was introduced as part of EADS Astrium’s drive towards a paperless environment. Since implementation, Theorem’s translators have not only fully supported this initiative, but also established themselves as an integral part of our design to manufacturing processes.”

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