

Real-Time ERP Integration Optimizes Production of Surgical Instruments

Verastream helps Olympus control just-in-time manufacturing processes



Olympus Winter & Ibe GmbH (a division of the Olympus Medical Group) is the technology leader in the field of minimally invasive surgery. Main application areas include urology, gynaecology, general surgery, ear, nose, and throat medicine, and arthroscopy.

For these areas, the company develops and produces diagnostic and therapeutic instruments, fibrescopes as well as rod lens and video endoscopes. Olympus is redefining the industry standard through reduction of chip diameter and improvement of image quality, especially of its video endoscopes to full HDTV standard.

Help for Just-in-Time Strategy

Olympus needed to streamline its kanban just-in-time method for manufacturing endoscopic systems. But they couldn't do that without simplifying access to host-based data and optimising production-level processes.

"Our business is fast-moving and we operate on a global basis so we need to ensure that applications can be rolled out rapidly to new factories in locations like the Czech Republic," explains Uwe Schnittert, the head of application development at Olympus. "Our IT needs to support and enable our expansion. By the same token, our applications must enable us to adopt new manufacturing philosophies and production strategies."

IT Support for the 'Pull' Principle

Olympus had already restructured production processes according to the kanban lean-manufacturing model. (kanban is a method of manufacturing based on the "pull" principle, which determines production based on actual customer demand.) When on-site employees generate orders, that in turn triggers fabrication, warehouse, or transfer orders. Discrete closed-control loops on the workflow level make up the core of this production-control philosophy.

Olympus uses an IT-supported E-kanban system. All control loops, sources and sinks, as well as buffer inventories, can be graphically illustrated at any time to detect problems. The heart of the manufacturing operation is an Enterprise Resource Planning (ERP) system from Baan (now operating as Infor) running on Hewlett Packard UNIX hardware (HP e3000).

Previously, employees generated orders from their workplaces using a production data acquisition (PDA) system developed in-house with .NET. These orders were then transferred to the Baan system. "By definition, this had to be a simple process for employees, requiring no more than one keystroke, because the staff on the shop floor are not IT specialists," Schnittert explains.

QUICK VIEW

Problem

- Needed to eliminate bottlenecks in production and lags in flow of materials.

Solution

- Used Verastream to enable kanban just-in-time model by simplifying access to host-based data and optimising production-level processes.

Results

- Ability to implement kanban strategy in real time.
- Synchronisation of updates on the back end and generation of orders in production.
- Automation of processes for pricing, label printing, and warehouse transfer postings.
- Ability to roll out new applications for factories across the globe.
- A flexible integration tool in place to support company expansion and ongoing transition to SOA.

Eliminating the Bottlenecks

Generating production, warehousing, and transfer orders in Baan is complex, as a series of plausibility checks has to be executed concurrently. In this process, proposals for materials-requirement planning (MRP) are generated from the PDA system orders and simultaneously entered in the Baan system, which had been processing them asynchronously as a time-controlled batch job.

In addition to the time-consuming development of the PDA application, the .NET programs had to be modified for every update of the back-end system. This created a bottleneck that was irreconcilable with the kanban control approach.

"The time window for data transfer and processing of the jobs was too short," explains Schnittert. "Once the order was generated by the employee at the production level, it took, at best, several minutes until resupply was completed. This process resulted in waiting times for production and standstills in the materials flow."

Two options were available to the team: "We could either realize the necessary real-time control in Baan and replicate the logic in the ERP system, or control the Baan system more or less remotely," recalls Schnittert. "Implementing

the solution with Baan tools would have been extremely time-consuming. What's more, we would have created just another proprietary local solution."

The goal was to find an approach that could be implemented rapidly and would keep the organisation open for future expansion. Olympus is moving towards a service-oriented architecture (SOA), and any new tool would have to support this transition. At the same time, Olympus did not want to tie itself to any one programming language. This is where Attachmate® Verastream® Host Integrator came in.

Selecting the Solution

Attachmate was already an established name at Olympus as they have been using Attachmate® Reflection® for UNIX and OpenVMS for several years. This tool enables Windows users to access graphical and character-based applications on UNIX, Linux, OpenVMS and Unisys systems. "At Olympus, Reflection for UNIX & OpenVMS is used for emulation, so that users with Windows PCs can work with the Baan-UNIX system," explains Philippe Hoppe, territory manager at Attachmate.

Building on the organisation's positive experience with Reflection, the Attachmate sales and consulting team did a proof of concept with Verastream to show how Olympus could meet their integration requirements.

Verastream Host Integrator encapsulates mainframe data and logic via the application interface. It transforms the full range of enterprise host and UNIX applications into SOA assets by exposing business processes as web services, XML, Java, or .NET components. In addition to screen data, the products in the Verastream family also integrate data on the transaction and database levels.

"The best thing about Verastream is that the host applications don't need to be modified," says Schnittert. "In just a short time the consultants had built a solution that we could use in our production processes. And thanks to Verastream, we can now adopt new IT processes and architectures." For example, processes modeled on Verastream that read data from and write data to the Baan system at Olympus can now be transferred to new architectures with a minimum of effort.

Making the Transition

The switch to Verastream in production went off "without a hitch," as Schnittert explains: "The operational departments were not aware of any changes. The most significant changes were those experienced by the IT team – and these were all for the better."

Because Verastream tools are so simple to use, they accelerated the replication of host functionality for Olympus. As part of the first step in this process, interface adaptors are configured to access the host data. The data sources are tapped via the Verastream server; the engine handles the load balancing and is capable of automatic failover in the event of a crash.

Features to Meet a Range of Needs

Verastream offers advanced functionality to ensure complete transparency. For example, an Olympus IT staff member manually goes through a business process such as "initiate transfer order" in the Baan system with all its plausibility checks, responses, error codes, and security checks. Using the Verastream design tool (with intelligent recording), the process is recorded step-by-step. And staff can subsequently edit the process—simply but comprehensively—whenever necessary.

At a Glance

Verastream Host Integrator Advantages

- Choice between simple and expanded screen redesign and full integration.
- Design tool with intelligent support for screen navigation and table evaluation.
- Execution of event handlers for individual processing of host data.
- Fault-finding in new components using comprehensive debugging tools.
- No unnecessary navigation steps, and performance gains through session pooling.
- Complete, end-to-end security with SSL support for client and host communication.
- Remote administration of services and runtime servers via browser-based consoles.

For added ease of use, developers can document the process as a database table, a procedure, or a service. "The recorded workflow can be represented graphically, so we can discuss and refine the process with the operational department," says Schnittert.

A further Verastream advantage is that generated modules can be edited in a development tool like Eclipse or Visual Studio .NET and linked with other applications to create composite applications. "By using Verastream, we can implement our kanban strategy in real time," says Schnittert. In addition to order generation in production, Olympus have also created new processes for warehouse transfer postings, production-label printing, and pricing.

A Solution With Ongoing Potential

After several months of live operation, IT manager Schnittert and his team are already working on follow-up projects. "Deploying Verastream pays off wherever we need information in real time and the processes in Baan are complex," he explains.

Today, his team can easily execute processes from the host system in a new technological environment. "The overall benefit is that we can do a lot more with fewer people, and can ensure a high level of transparency and precision," says Schnittert. "We had an excellent level of support from Attachmate at all phases of the project, from pre-sales to implementation, and we are confident that we can continue to depend on them at all times."



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