Novotek

Pharmaceutical Batch Case Study

Novotek Solutions helped a pharmaceutical manufacturer improve their control systems, end unexplained downtime and improve data collection.

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Batch Execution Case Study

Background

Novotek Solutions were called in to help a manufacturer of over-the-counter health and wellbeing products to improve the performance of their manufacturing control system. The facility mixed, blended and packed an over-the-counter branded indigestion remedy into glass bottles, stick packs and tablets in 6000 litre batches. Unexpected system crashes cost 30-90 minutes every batch and system restarts had to be performed in a strictly regimented way, or entire batches of product could be lost. The system, which was installed by a system integrator six years previously, used GE products in its architecture and it was GE who referred the customers to Novotek, as its longest serving UK Premier Solutions Partner.

"After raw materials were mixed and blended they were transferred to storage tanks, before being sent to the packing lines," said Chris Barlow, Technical Director, Novotek Solutions. Up to seven filling lines can be connected to the storage tanks. "The system had not had a major update since installation. It was slow, unstable, suffered from periods of unscheduled downtime and was not producing reliable data. It was becoming a risk to the profitability of the site." The regular breakdowns were dealt with by giving the initial integrator the authority to call in and restart the system - a 'sticking plaster' solution that had been in place for three years.

"Production had grown beyond the original solution, so demands were also a lot higher," Chris Barlow continued. The time was right to review and upgrade the whole solution. But it had to be achieved without shutting the factory down.

Analysis, prognosis, prescription

The first step was to speak to the operators and gain a clear understanding of how the problems manifested. The Novotek team also ensured the clear identification of the client's objectives and ideals. Unsurprisingly, avoiding breakdowns and minimising downtime topped the list, as they most obviously affected operations, production and revenues.

"We looked at the system's architecture and analysed the log files in order to identify errors in the system," he said. Novotek had to work round the needs of a facility that was still in full production, so that process took around 10 days. Its first proposal was a slight change to the system's physical architecture. The servers were located in a control room and were subject to knocks and kicks, as well as being exposed to dust originating from the production process itself. The recommendation was to relocate them to an on-site Data Centre, safe from accidental damage and atmospheric pollution. The next task was the software architecture.

"The previous integrator had implemented some own bespoke software components, in order to integrate the solution," said Barlow. "In effect, the architecture had been 'bent to fit' and it was not ultimately the best solution."

Solution and implementation

Novotek's team recommended that the client should:

- Upgrade to the latest version of GE's Batch Execution software
- Remove the bespoke applications and configure the GE product to undertake those tasks itself
- Seperate out the relational database and make them standalone, distinct from the Batch Execution software
- Implement Microsoft SQL Server Reporting Services (SSRS) in order to provide the customer with a reporting platform that was scalable, and could be enhanced and updated with additional reports as required

Implementation had to be achieved without interrupting production. Most of the work was undertaken between the hours of 2am and 6am, when the first daily shift arrived to start work. The process of preparation involved configuring all the hardware, then installing the software and checking connectivity.

"We undertook bench testing and a lot of software preparation. When it came to the point of implementation we were pretty confident that it would work first time – and it did. It worked properly right from outset," said Barlow.

Outcomes

Novotek's integration, upgrade and improvement enabled the customer to boost output and reliability. Specifically, it:

- Ended random offline incidents and unexplained crashes
- Improved data collection
- Delivered accurate performance reporting, production analysis and batch reporting
- Extended the reporting platform with Microsoft SQL to other areas of the plant, providing a site-wide database for reporting
- Reduced risk, improved production stability and boosted product quality, consistency and traceability
- Immediately cut maintenance expenditure – the cost of rebooting the system after crashes was more than £50,000 per year

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