

Berendsen plc and eBECS leverage the Microsoft IoT platform to gain Operational Efficiencies

Business needs

Publicly-quoted Berendsen plc provides textile services across 16 European countries, renting and laundering textile items such as workwear and hotel linen to a diverse and demanding range of customers.

Volumes—and the scale of the operation—are impressive. The UK hotel and hospital linen services business, for instance, operates out of 30 factories spread across the country, each equipped with a fleet of vehicles collecting used linen and delivering freshly-cleaned replacements.

The problem? Keeping tabs on what linen is where, in order to optimise asset utilisation, and—more importantly—maintaining a regular flow of laundry-fresh towels, sheets and pillow cases, available as and when customers want them.

Challenge

Clearly, from a purely data capture point of view, one obvious challenge was the sheer number of items in circulation. Each day, for instance, Berendsen handles close to 1million pieces of hotel linen. Yet the underlying challenge was a more subtle one, explains Berendsen's IT director Duncan Macmillan—and one that tended to rule out conventional approaches such as barcoding.

“At root, these are low-value, low volume items, which significantly impacts the cost-benefit equation,” he points out. “The cost of manually barcode-scanning bag after bag of incoming and outgoing linen was simply prohibitive.”

Until early 2014, that is—at which point Berendsen executives began to mull the cost-effectiveness of low-cost passive UHF RFID technology, in the form of tags

sewn onto higher value items such as sheets and bath towels.

And technical trials, explains Macmillan, quickly showed not only that RFID technology was indeed a cost-effective proposition, but also a practical one as well.

“In a rollcage pallet containing maybe a thousand tagged items, we could reliably get a first-pass read rate of 995 items or so—that's a 99.5% success rate,” he explains. “For our purposes, that was more than adequate: the goal was more information, not total information.”

Which left only one problem to resolve. How best to store, analyse and extract value from what was quickly going to become a deluge of RFID data? For even rough estimates of the data streams involved took the proposed project firmly into Big Data territory: four million RFID tags, with on average four tags being read each second of the day.

A discussion with Microsoft led Macmillan to approach two prospective Microsoft partners deemed to have the skill sets to take on the task. But very quickly, Berendsen settled upon eBECS as the preferred choice.

Why eBECS?

“I’ve worked in IT for a long, long time,” explains Macmillan. “It didn’t take long for eBECS to convince me that they had the technical capabilities that we required. In the case of the other potential provider, I was never quite sure.”

And at root, he believes, that is down to an important distinction as to how to approach the acquisition of complex and innovative hi-tech solutions.

“It’s a personal preference, but I don’t like to be sold to by salespeople,” he explains. “I’d rather be sold to by technologists, who can clearly describe how they will help me, and what the solution will actually look like. And with eBECS, I very quickly got to talk to technically-expert people who could do this, and who could answer all my questions.”

Solution

And the solution in question is the Microsoft Azure platform’s cloud-based bundled instance of the open source Apache Hadoop data processing and analytics engine, a technology purpose-designed to scalably handle Big Data volumes at speed.

Termed HDInsight, it can be deployed under Windows or Linux, can process unstructured, semi-structured, or structured data, and readily scales to petabytes on demand—and yet is fully-integrated with familiar Microsoft analysis and visualisation tools such as Excel and Power BI.

So how exactly does it work? XML messages are received by Berendsen from the despatch, processing and return RFID scanning points at each factory, explains Macmillan, and are then automatically sent to the Microsoft Azure Event Hub for processing.

Approximately 20 files are received every minute, he adds, with each containing multiple transactions, equating to over 4 transactions per second. Once processed into HDInsight, the XML messages are transferred to Microsoft Azure Blob Storage.

Two forms of analytics then take place.

First, real time insights are provided by Microsoft Azure Stream Analytics, with information presented in Power BI, allowing managers to access dashboards on mobile devices.

And second, to deliver a long-term analytics perspective, the processed XML messages retained in Microsoft Azure Blob Storage are further processed and then stored in Microsoft Azure SQL Database—a cloud-based relational database as a service. Again, Power BI is used to provide insights in the form of dashboards.

Benefits

Clearly, says Macmillan, the project is an investment with a definite financial return. Operational efficiencies will improve; asset utilisation will increase; and asset losses will decrease. But more importantly, he insists, the great operational control that Berendsen will achieve over its linen assets will enable the business to deliver a better service to its customers.

“For hoteliers and hospitals, a daily supply of fresh linen simply isn’t front-of-mind,” he sums up. “They view that as our job—and our investment in RFID and Microsoft Azure HDInsight allows us to perform that job to a higher standard, through better understanding how our customers are using our product, which in turn enables us to better provide them with the linen that they require, when they require it.”