



Overview

The need

With intelligent sensors capturing data on every aspect of life, how can businesses process and understand all this data to unlock new insights, exceed customer expectations, and gain competitive edge?

The solution

The Hildebrand Smart platform – built on IBM® Informix® and using Hildebrand's unique machine learning extensions – captures, processes and analyzes big data in real time for actionable insights.

The benefit

Insight at the speed-of-thought across all data sources unlocks the potential to transform every aspect of daily life, and supports fast development of innovative data-driven web and mobile applications.

Hildebrand

Harnessing data captured from the Internet of Things to deliver revolutionary new services

Headquartered in London, UK, Hildebrand creates and operates complex products that make it easy for solution providers to deploy and scale their applications with high-performance database and machine learning technology. The company's flagship offering is its "Smart" platform to capture, collate and unlock the potential of big data to provide business-changing insight across multiple industries and in everyday life.

Game-changing potential

Huge advances in mobile technology and reductions in the size and cost of sensors are making it possible to instrument practically every aspect of life, bringing the physical and digital worlds ever closer together. For companies that can cope with the huge influx of data, the emerging Internet of Things (IoT) creates opportunities for growth and new revenue streams across a huge range of industries including logistics, manufacturing, energy, transportation, security, retail, healthcare, and more.

Businesses that create, distribute, transport, re-sell or service physical products can benefit from sensor-sourced data that follows the movement of goods through the entire value chain, from manufacture to usage. For service industries, the opportunity is to blend environmental data with customer data to create innovative offerings.

Hildebrand is helping a new wave of clients who have tried – and failed – to tackle the big data challenge of sensor data using traditional relational databases. "Informix differs from conventional technology, meaning that we don't have to queue up large backlogs for analysis, and we can run ad-hoc analysis without reprocessing all the data," says Josh Cooper, CEO.



Solution components

Software

- IBM® Informix®

Services

- IBM Information Management Software
Lab Services
-

Josh Cooper, CEO of Hildebrand, explains: “We believe that the IoT will encompass some 26 billion connected devices globally by 2020. If organizations can find a way to harness all of the data collected, there is a huge range of exciting possibilities to make business and everyday life more efficient, productive and pleasant. As a simple example, generating detailed insight into how consumers use energy can help them use resources wisely and reduce costs, as well as lower demand on the electrical grid.”

Gaining insight in an increasingly instrumented world depends on the ability to gather and process huge volumes of time-series data – that is, ‘pulses’ of data arriving at regular intervals. Traditional databases struggle to handle high-velocity time-series data in an efficient manner.

“Gathering more data points per second is not just about getting faster and better insight,” says Cooper. “The higher the velocity of data you can handle, the more opportunity you have to manage outcomes. For example, energy customers who receive monthly bills have limited opportunities to understand and change their behavior to lower costs. By contrast, details of daily or hourly consumption provide much greater insight and many more opportunities to change energy-usage patterns. Of course, the more readings you capture per unit of time, the greater the challenge from the technology perspective – and it was this challenge that we set out to address with our Smart platform. Effectively, this is a hybrid database with embedded device capabilities that creates intelligence in real time, at the local level.”

Tackling big data

Working with the IBM Hursley Laboratories, Hildebrand deployed IBM Informix database, which is designed to deliver extremely high levels of performance and availability. Typical relational databases record each new ‘pulse’ of data as a new entry, resulting in huge numbers of entries that increase storage costs and degrade query response time. Informix is unique as a relational database that also has a native ability to manage all time-stamped data for each ‘pulse’ in a single row, in chronological order, making much it much faster and easier to load, store, extract and analyze the data. This chronological data analysis helps organizations derive game-changing insight into trends and changing patterns in real-world data – for example energy usage, movements of people, patients’ vital signs, and more.

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— Josh Cooper, CEO, Hildebrand

Cooper remarks: “Informix has a built-in capability to handle massive amounts of time-stamped data and allows us to build our own intellectual property on top without having to spend time and money writing complicated code. Given the volume and velocity of the data we process, and taking into account the cost of computing power and disk space, we estimate that using Informix works out at around a tenth of the cost of a traditional relational database, and the time saved enables us to cut our time-to-market for new services.”

Hildebrand offers its Smart analytics platform, powered by Informix, as a service to clients, making it simple for companies to tap into sensor-based data and applications.

Retail insight

Hildebrand has recently used its Smart platform to launch a retail “footfall” tracking solution that uses anonymized data from mobile devices to measure the approximate location of shoppers over time. Across 25 UK shopping malls, the solution is currently collecting 250 million data points a day, delivering unprecedented insight to the mall operators.

“We capture each shopper’s location every second, and we typically track 300,000 unique visitors daily,” says Cooper. “Using the information delivered through an intuitive, graphical web portal, mall operators can see the average time spent in the center, the number of unique visitors, and heat-maps by location and by time. The collected shopper traffic information can be used by the mall operators to demonstrate to their clients – the owners of the retail stores within each center – that they are bringing in the right number and type of visitors. Uniquely, we can provide data points on average dwell time and frequency of return visits.”

By correlating heat-maps on shopper visits with the physical layout of each mall, operators and retailers can better understand the optimal mix of stores and their optimal location within the mall. Opportunities are growing to enrich the information with demographic details, potentially allowing retailers to change their offers in real time depending on the types of shoppers known to be in the mall. Looking ahead, brands might want to track purchases from the store to their point of usage in the consumer’s home to provide insight into product design enhancements and to identify opportunities for cross-selling.

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— Josh Cooper, CEO, Hildebrand

Driving smarter transportation networks

Hildebrand is also embarking on projects to help clients design better transport systems, based on data captured in the real world.

“Understanding how and when people travel helps our clients identify opportunities to better join up different modes of public transport or to develop successful car-sharing schemes,” explains Cooper. “And as electric vehicles become more popular, we are working on ways to help consumers identify their nearest vacant charging point.”

Making better use of resources

Hildebrand continues to play a leading role in the domain of energy usage, working with global government organizations to study real-world data on consumer use of electricity. In an ongoing two-year project for a major national energy supplier, the Hildebrand Smart platform is capturing 7,500 meter readings per second, while its UK consumer retail site – Energyhive.com – captures around 1,500 per second and has stored more than two billion readings to date.

“Consumers are using Energyhive.com to see how their electricity usage varies over time, based on real-time data, and to make smart decisions that reduce their bills,” says Cooper. “In the future, there will be opportunities to correlate meter readings with personal location and household appliance data, so that consumers can build up an incredibly detailed picture of who is using what, when, and where in the household. The opportunities are really limited only by how far people want to go.”

Naturally, adding more data points from a larger number and variety of sources will significantly increase the technology challenge, but Hildebrand is confident that its Smart platform can accommodate the expected growth. “Working with IBM, we have stress-tested our Informix-based solution to 300,000 data points per second,” says Cooper. “There aren’t many systems that could cope with those data volumes and perform real-time analytics.”

While consumers use Hildebrand’s technology to adapt their energy usage patterns and save money, utility companies are rolling up the usage data to improve demand forecasting and help develop more responsive smart grids for the future.

“With support from IBM technologies, Hildebrand is right on the cutting-edge, working with clients to unlock all of these benefits.”

— Josh Cooper, CEO, Hildebrand

A smarter world

Retail, transportation and energy are just the tip of the iceberg for Hildebrand: in any scenario where sensors are able to provide high-resolution data over time, the company can deliver insight based on real-time analytics.

“We are looking at a large number of potential applications across dozens of industries,” says Cooper. “In healthcare, that might mean gathering real-time information on heart rate, blood pressure and blood-sugar levels, and correlating it with data on diet and exercise to build a complete picture of a person’s health. That kind of information would be extremely valuable to healthcare providers and insurers.”

He concludes: “Once you overcome the significant challenges of volume and velocity – as we have with our Smart platform – you can access a whole world of opportunities to gain more insight efficiently and intelligently. The potential for businesses to cut costs and increase revenues is enormous, while consumers stand to benefit from better products, enhanced services, improved health and lower living costs. With support from IBM technologies, Hildebrand is right on the cutting-edge, working with clients to unlock all of these benefits.”

For more information

To learn more about IBM solutions, contact your IBM representative or IBM Business Partner, or visit the following website:

ibm.com/informix

For more information about Hildebrand, visit:

<http://www.hildebrand.co.uk/>



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