



CASE STUDY

Centrica

Centrica supplies energy and energy-related services to around 28 million customer accounts mainly in the UK, Ireland and North America through brands such as British Gas, Direct Energy and Bord Gáis Energy, supported by around 12,000 engineers and technicians. With revenues of £28 billion, Centrica is a FTSE 50 company based in Windsor, UK and is concentrating its growth efforts in five key areas – Energy Supply, Services, the Connected Home, Distributed Energy & Power and Energy Marketing & Trading. It has 39,000 employees worldwide.

Prompted by the increased focus on the use of data and customer satisfaction, Centrica evaluated its mission critical infrastructure with a view to improve business processes and completely re-think how energy services were delivered to customers. Its overall objectives included reducing costs, improving data accuracy with smart metering, changing the way its engineers operated and interacted with customers daily and overall, putting every customer at the heart of the business.

RENOVATING THE OLD TO ENERGISE THE NEW

The establishment of a consolidated IT infrastructure, which led to the creation of a data lake, started at the end of 2013. The developer team was faced with the challenge of innovating the current infrastructure in order to help drive the change Centrica knew was needed to best serve the business and its customers. To begin with, every member of the team was provided with a Raspberry Pi, which was used to experiment and build the very first Apache Hadoop cluster.

KEY HIGHLIGHTS

- Now draws correlations across millions of customer records
- 10 node POC expanded to 250 nodes
- Became a data-driven business

The team realised the potential Hadoop could offer very quickly and decided to grow the cluster to a 10 node proof of concept (POC) with disused laptops. The POC proved two points which formed the basis of Centrica's initial business case for Hortonworks Data Platform:

- Existing processing of telephony data ran much quicker and more efficiently on the cluster
- Investing in new sets of skills would be cheaper and more beneficial than maintaining expensive legacy infrastructures in place

Since then, the way IT and data science departments operate within Centrica has been revolutionised. Today, Centrica's data lake is supported by 250 nodes, mostly 16-core machines and can offer storage capacity up to 4 petabytes of useable storage.

By decommissioning its legacy data warehouses and databases, the company has been able to gain an unprecedented level of insight into energy consumption via smart metering, billing, but also customer service experience and the way engineers can work in a smarter and more efficient way. Centrica has also been able to create several mobile applications that harness the value of the company's datasets, in order to provide a personalised customer service, increase safety in the workplace and a smarter way of calculating insurance policies. Big data technologies have had a tremendous impact on the way Centrica is handling both internal and external processes. Specifically, the introduction of Hortonworks Data Platform (HDP®) and Hortonworks DataFlow (HDF™) have reshaped the way datasets are analysed in order to gain valuable insights which has paved the way for new products and services based on data analysis.

INNOVATING WITH A DATA-DRIVEN BUSINESS

The most interesting application spun out of Centrica's brand new data analysis infrastructure is the Customer Information App. The data lake has enabled British Gas (a Centrica owned company) to draw various correlations between millions of customer records, in the form of complaints, enquiries, billing, equipment installed and even the number of times the equipment was flagged as faulty. The app works as an interface to access data insights analysed in the lake and can be used in the field to provide a better service to customers.

The app has reshaped the way customer service is handled across millions of homes throughout the country by drawing a profile for every single customer, which can be extremely useful for the engineer to see before providing the service.

In practical terms, engineers can quickly consult the app to understand, the boiler model and how long it has been operational, age and demographic profile of the customer, and various other details (whether they have ever complained about the service, for example – a really useful application which has been key in helping us reduce complaints). This information has helped British Gas engineers adopt the best customer service behaviours to best tailor each offering to the specific customer.

The app also allows engineers to interact with the database and flag any potential inaccuracies or issues, such as capturing feedback on wrong equipment. This has completely changed the way British Gas engineers are interacting with customers while allowing a two-way communication stream tracking general satisfaction and aiding data accuracy.

RESHAPING THE CUSTOMER EXPERIENCE

Hortonworks Connected Data Platform with HDP and HDF has enabled Centrica to address key data quality issues, such as incorrect billing and energy consumption levels. Centrica has deployed 2.9 million smart meters allowing household consumption to be monitored in real time, as well as giving the opportunity for customers to tailor services to their needs. This has given Centrica visibility into usage patterns and the status of installs from a geographical point of view.

By aggregating the data and analysing it, the team has been able to provide very accurate smart energy reports. As a result, customers have been able to gain a better understanding of their energy usage, by looking at consumption peaks and time of the day, with an accurate representation of how their money is spent. Considering the energy industry has always relied on estimates to operate, the introduction of smart metering based on data analysis has reshaped the way Centrica has been able to monitor energy usage and issue accurate bills, rather than rely on estimates. Data can be easily collected, sorted and analysed every 30 minutes for the most reliable and accurate reporting.

Furthermore, Centrica has created additional sets of applications based on data analytics in order to improve the way engineers work and interact with their day-to-day activities. Advancements have been achieved in health and safety, insurance and quality control.

By being able to draw a profile of each single customer and analyse vast quantities of data, the Centrica team has been able to better monitor customer satisfaction and the way complaints are handled. By using Hortonworks' analytics capability the team has been able to develop, identify and rectify issues before customers were aware of them.

Looking Ahead To The Future

As far as future developments are concerned, Hortonworks Connected Data Platforms will allow Centrica to develop additional sets of applications based on data analytics, with a view to improving the accuracy through which services are delivered. Centrica has already made significant strides in data discovery through its 4 million home visits per year, revolutionising how its marketing team is communicating to customers about their next best course of action. This approach goes against the grain of more traditional approaches to communications, such as mass mailers.

From a technology point of view, the team is looking to the Cloud to help further reduce Centrica's datacentre footprint by stretching and offloading processes to help manage costs better. Furthermore, it will serve new business processes better suited to that environment.

About Hortonworks

Hortonworks is an industry leading innovator that creates, distributes and supports enterprise-ready open and Connected Data Platforms and Modern Data Applications that deliver actionable intelligence from all data: data-in-motion and data-at-rest. Hortonworks is focused on driving innovation in open source communities such as Apache Hadoop, Apache NiFi and Apache Spark. Along with its 1,800+ partners, Hortonworks provides the expertise, training and services that allow customers to unlock transformational value for their organizations across any line of business.

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