CASE STUDY

Capgemini Smart Metering Programme

Capgemini use UKCloud's secure assured cloud platform to migrate 15.8 million smart meters for UK's Smart Metering Data and Infrastructure Provider

About the Smart Metering Data and Infrastructure Provider

The Client has built and maintains the secure national infrastructure that underpins the roll-out of smart meters across Great Britain. This wireless network connects smart meters to energy suppliers, network operators and other authorised service users. It is maintained to very high security standards, as endorsed by the National Cyber Security Centre.

The Client was granted the licence to build and manage its network in 2013 by the Department for Energy and Climate Change, now part of the Department of Business, Energy and Industrial Strategy (BEIS). The network is mandated to:

- Operate reliably for all consumers regardless of their energy supplier
- Provide smart metering data to network operators to support the digitisation of the energy industry and the development of a smart grid
- Allow authorised third parties to provide consumers with information they have requested, such as how they can reduce their energy usage.

Products and Solutions from UKCloud

UKCloud for VMware – Assured

- Dual DC design for high availability and resilience
- Native backup and recovery solutions to build a dependable DR and BC plan
- UKCloud's Cloud Storage Service

Cloud Enablement Service for colocation

- Utilising key customer hardware to create a hybrid cloud solution tailored to the workloads

Hybrid Connect Leased Line

The Challenge

Enrolment and Adoption of SMETS1 smart meters

The SMETS1 smart meter rollout started as a pilot designed to provide energy suppliers with valuable experience and help consumers save energy and money. Their popularity resulted in around 15.8 million smart meters being deployed across the UK. The challenge was that as soon as customers wanted to switch energy supplier, these units often became dormant as they could not be operated as smart meters by the new supplier. The Client's remit was to solve this problem, ensuring interoperability across all SMETS1 meters allowing for change of supplier without loss of smart functionality. UKCloud's partner, Capgemini, were selected to deliver the encryption hub that enables secure communication between energy suppliers and migrated SMETS1 smart meters.

SMETS1 have a stringent security model – essentially 2 Factor Authentication for smart meters - the Dual Control Organisation (DCO) application that Capgemini and UKCloud host must be available to provide its authentication role at all times, and this led to a 99.999% availability requirement equivalent to Critical National Infrastructure. Without DCO providing its critical role, little communication is possible across the SMETS1 smart meter population.

Impact

The migration of first generation (SMETS1) smart meters onto the Client's secure network is a critical programme. With millions of first generation smart meters in homes and businesses it is crucially important to the industry, Government and the Client that the enrolment and adoption programme continues its success. Enrolling these meters will enable interoperability as consumers switch between energy suppliers, improve security, and save industry many millions of pounds a year, not to mention reducing the carbon impact of replacing units that should have a 15-year lifespan. There are already millions of 'dormant' smart meter units as consumers have moved suppliers and lost their smart functionality.

CASE STUDY

> **"Since 2018, Capgemini and UKCloud have worked in close collaboration with the Client to build and maintain a complex, highly secured, and high availability cloud platform that is at the core of delivering the UK's energy transition to a low carbon economy."**
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> **Greg McDougall,**
> Delivery Director, Capgemini

> **"We needed a provider that had security-cleared personnel, understood the importance of our hosting to what is effectively critical national infrastructure, and was a good fit for Capgemini culturally. Sovereign Assured Cloud was the preferred option for our client and using UKCloud for VMware gave us the ability to address the client's regulatory concerns."**
>
> **Amit Ghosh,**
> Vice President and Cluster Head, Capgemini

Resolution

UKCloud was able to tick all the boxes for Capgemini — hybrid, connectivity, security, sovereignty, scalability — in a cost-effective manner. UKCloud understood and helped Capgemini achieve their goals (availability, resiliency) through a collaborative design approach and were flexible commercially. There was a heavy security focus as the encryption hub secures all traffic between smart meters and energy providers over a private network, meaning that the use of sovereign UK data centers was mandated. This also necessitated the deployment of physical Hardware Security Modules to provide the necessary level of encryption.

UKCloud worked with Capgemini to design a solution that was scalable and incorporated cloud and physical components across two sites for resiliency to meet the high availability target, including secure connections to a private network.

The production environment is hosted across 2 active/ active secure data centres, either of which can host the full service in the event that the other one fails. There is also resiliency within each data centre and within the application. It also has auto-heal capability.

The project began in May 2018 and went live in July 2019. The platform UKCloud delivers has auto-scalability and high availability, designed to flex, and add capacity from UKCloud as it needs it.

Throughout 2020 first-generation smart meters (known as SMETS1) were migrated to the network so consumers can switch without losing smart functionality in their device. Seamless switching is already the case for those consumers who have a second-generation (SMETS2) smart meter installed, as these are automatically enrolled onto the Smart DCC network.

Currently 3.5 million SMETS1 smart meters have been migrated on to the new platform, with dormant units being prioritised. Capgemini have now moved to 'scaled migration' to increase this up to 140,000 meters a day.

The most incredible part of all this is that this is **seamlessly** happening to customers - they are not aware its being migrated, they just see the smart functionality coming back. No need for an engineer and no need for another smart meter to be sent out to the consumer preserving the embedded carbon cost of the SMETS1 meter. Migrations achieved to date have already mitigated over 10,000 Tonnes of Carbon Dioxide through replacement avoidance. In addition to the above benefits, energy consumers are able to switch their supplier to get a better deal without losing smart functionality.

Capgemini

ukcloud