INCREASING FIRST TIME FIX RATE

Situation
Over 10,000 field engineers in the UK providing heating and plumbing maintenance and installations. With a first-time fix rate hovering around 70%, almost one in three call outs required a further visit, with impacts on

- customer experience, often when people have taken time off work and are without hot water or heating.
- operating efficiency as these re-bookings needs to be accommodated within the existing booking schedule, meaning engineers often end up working early and/or late to get jobs finished.

This has a knock-on effect in terms of overtime payments.

The most common root cause identified for failure to solve on first visit is lack of the right part(s) and/or tool(s), estimated to cost around £20m per annum.

Task
To investigate provision of real-time visibility of the field workforce 'personal stock' in order to:

- Establish accountability for assets allocated to staff i.e. knowing exactly what has been allocated to an engineer and what assets are used for each job.
- Provide a real-time view of the assets in vehicles and provide an 'app' to allow an engineer to search 'local' stock from co-worker vehicles and reserve items for collection. The aim being to reducing the need to re-book an appointment.
- Reduce loss through 'shrinkage' i.e. employees using company stock for their own purposes
- Improve scheduling of engineers to allocate the engineer with the right skills and parts to a job, not just the engineer that is closest to the customer.
- Build a better intelligence model on the cause and effect between the customer's problem, heating system (model, architecture, previous call outs etc.) and likely resolution.

The overriding objective was to increase the likelihood that an engineer with the right skills, tools and parts arrives as soon as possible to solve the problem the first time.

Action
A physical van, similar to that used by the field engineers was equipped with scanning technology, an Edge-based IoT server, GPS and an advanced mobile communication link to maximise the connection back to a central cloud service, where the analytics and cloud-native application were hosted.

Parts were individually tagged and the software was able to send business events back to the central cloud service and on to a database of vehicle location, current part inventory and used parts.

The Edge server kept network traffic to a minimum by sending ‘delta’ changes in near-real time i.e. what had been removed/added since last full scan, and the mobile communication link bonded all the major mobile network providers to provide a robust, high volume connection with automatic failover to the strongest network.

A prototype mobile application was developed to allow a field engineer to search for parts from their co-workers’ vehicles, reserve them and arrange for collection, with a prototype central ‘management’ application for oversight of asset location and use.

Results

After the success of creating a real, operational vehicle, the customer is putting together a business case for the co-creation of a 50-vehicle pilot to test the technology and integration to existing field service management and inventory applications.