

A leading Automotive OEM turns to Beam Connectivity for specialised research on cost optimisation strategies of connected car data

Industry: Automotive OEM

Date: 2023



Industry Background:

Over the course of ten years, more than 55% of the expenses for a connected vehicle system are incurred through cellular data fees, eclipsing initial BoM (Bill of Material) and cloud storage costs. This makes the minimisation of data transfer over cellular networks a key focus when trying to optimise connected vehicle running costs.

Our Expertise:

Beam Connectivity has deep experience in managing network connectivity, working with Mobile Network Operators, (MNOs) on commercial terms and with engineering teams to implement strategies to minimise data usage. Beam Connectivity's innovative Connected Vehicle as a Service, (CVaaS) platform incorporates edge processing running on the vehicle to ensure that only high value data is sent to the cloud – all signal, no noise. Beam Connectivity understand the trade-offs associated with highly efficient data encoding and compression algorithms.



The Client's Challenges:

- There is limited flexibility in the dataset collected – all vehicles have the same, fixed data release policy from the moment they leave the factory.
- Cellular data cost for connected vehicles is already significant and will continue to rise as fleet size increases and data requirements expand.
- All telematics data transmissions rely on the cellular network, which is expensive and over-subscribed.
- The delivery of regular Over-The-Air (OTA) software updates will be costly if only downloaded over cellular.

Our Solution:

- Personalised, per vehicle data release policies to collect variable data items across the fleet.
- Edge processing rules running on the TCU to reduce the data sent off-vehicle.
- Efficient data encoding schemes using JSON, Protobuf and CBOR.
- Optimised compression algorithms to balance CPU performance impact and output payload size.
- TCU firmware that can steer data uploads/downloads between Wi-Fi and cellular connectivity depending on the time criticality of data.

The End Result:



Technology Whitepaper discussing strategies to **reduce network usage and costs.**



Delivery of a **hardware-in-loop test tool to model costs** when applying a **variety of optimisation strategies.**



Future roadmap for TCU features that can **save the OEM up to 15%.**

About Us

We build best-in-class connected vehicle systems, supporting our customers to focus on and interpret the value of their vehicle data. Founded in January 2020, we are a truly multi-disciplinary team with decades of experience in user-centric design and delivery of connected consumer products. Understanding the need for an agile delivery of software-centric systems, our robust end-to-end IoT solution offers superior performance thanks to our deep understanding and drive for innovation.

To schedule in a demo, please contact:

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