oneM2M Case Study: oneTRANSPORT

**Overview**

In cities around the globe, people use a variety of transportation methods for different purposes whether commuting to work, travelling to sporting events and concerts, or making a trip into town. With today’s travellers becoming increasingly tech-savvy, as well as being used to having a wealth of information at their fingertips, the demand for ultra-efficient transport information to enhance the travelling experience is growing and with it the need for easy access to transport data and analytics.

This requirement for intelligent transport solutions has started to be recognised by the public-sector, local authorities and their service providers, but the question remains of how to do this cost-effectively, efficiently and in a way which enables interoperability between the different datasets.

The oneTRANSPORT™ initiative in the UK provides an example of just such a system. The public-private partnership between 11 organisations is creating an open marketplace for data and data services and accelerating the promise of a connected society.

Figure Overview of oneTRANSPORT initiative and partner eco-system



**Challenge**

Widespread fragmentation on both a national and local scale was the biggest challenge oneTRANSPORT faced as it looked to implement its solution. This included fragmentation across IT systems, transportation modes, geographic regions, and datasets from different sources – including traffic lights, road sensors, static/manual generators linked to road works and cycle paths. The data also had to be sourced from multiple contractor and stakeholder organisations.

If the oneTRANSPORT initiative was to enable innovative and financially sustainable business models, as well as improved transport services, overcoming this challenge was essential.To do this, all the data needed to be aggregated into a common data platform framework.

**Solution**

oneTRANSPORT turned to the oneM2M global Internet of Things (IoT) standard to overcome the technical complexity of handling data from multiple sources and data locked inside siloed systems. By using oneM2M’s standards, the transport solution made data available in consistent formats via a unified interface.

Leveraging the oneM2M global standard meant that the oneTRANSPORT solution could easily enable basic connectivity between applications and devices, as well as interworking between devices that do not adhere to the oneM2M standard. oneM2M also addressed the critical area of security and enables semantic interoperability, allowing meaningful data exchange for distribution and reuse.

By using the horizontal approach prescribed by the oneM2M standards, the platform used in the oneTRANSPORT initiative makes different data available via a set of common Application Programming Interfaces (APIs). The platform also used the semantic interoperability specification, enabling meta tagged data to be distributed and reused. oneTRANSPORT aggregates data from different regions in the UK which means that the data can be interpreted across a broad area instead of just individual towns and cities, which widens the range and reach of both innovations and the pool of end-users.

Other areas of oneM2M specifications that were particularly useful included structured application entities, federation, and definition of containers and reference points in general. This offered authorities more control over data access and the flexibility to use dedicated or multi-user oneM2M instances.

**Results**

The oneTRANSPORT initiative’s underlying platform is currently integrating more than 200 different data assets. The ultimate goal is for one platform to enable many innovative applications that offer added benefits to travellers going to events, for example. These events may occur in a specific date range, such as the annual Formula 1 race at Silverstone, or be ongoing, as in the case of football matches taking place on weekends or weekdays.

Other independent organisations have now adopted the oneTRANSPORT solution, implementing the oneM2M specifications and creating an interoperable platform that allows the exchange of data. This reflects the benefits of federation and interoperability, which enable the IoT to reach its full potential, while also enhancing the amount of trust between partner organisations.

Buckinghamshire County Council along with Oxfordshire County Council, Hertfordshire County Council and Northamptonshire County Council were the first to deploy the oneTRANSPORT solution, creating an integrated smart-city transportation-data framework. The councils can share, access and amalgamate hundreds of different datasets, enhancing the possibility of commercialising these datasets and allowing application developers to access data in a simplified manner.

Following this initial deployment, the University of Aberdeen, Ayoupa, Birmingham City Council, Caution Your Blast and InterDigital Europe worked together on a second deployment to create a new and more accurate travelling information mobile app for the city of Birmingham. This project - known as SmartRouting - aims to provide a personalised end-to-end real-time journey routing service using the backend system and data management model from the oneTRANSPORT initiative. In turn, it allows local authorities to better understand their users’ transportation patterns and preferences.

*“Utilizing the oneM2M* *standard, an international open standard, is the key to reducing costs of future integrations and operations. The federated and containerised structure of the standard was essential to provide the non-vendor-lock-in solutions and more control over access to their datasets that transport authorities were looking for.*

**Dr. Rafael Cepeda, InterDigital Europe**

\*oneTRANSPORT is a trademark of InterDigital. oneM2M is a trademark of the Partners Type 1 of oneM2M.