TRANSPORTATION 4.0: PROVIDING DOOR-TO-DOOR TRAVEL IN A MULTIMODAL SYSTEM

Whether it's keeping up with work while on the move, staying in touch with coworkers and friends, or just looking for some entertainment, travelers want to stay connected. Now, this demand is spreading to the transportation systems.

By **Roch Muraine,** Worldwide Sales Director, Vertical Market - Transportation, **Alcatel-Lucent Enterprise**

Trends in the transportation industry are set to disrupt the way we travel forever, while new technology moves us toward a multimodal transportation system that will create a fully connected experience for passengers.

The technology to create seamless or connected multimodal transportation exists, but the majority of services are still being delivered to the end customer in a disconnected, piecemeal way. For example, a journey from A to B might involve switching from a bus to a train and then a ferry, with tickets purchased for each separate stage from the different operators providing the transportation. In order to improve services and keep up with the *huge growth in numbers of people traveling throughout the world,* we need to look at new ways to streamline services for travelers and simplify the provision of services for operators.

TRANSPORTATION 4.0 EXPLAINED

All things point to a future that lies in multimodal transportation, where different forms of transportation are integrated into a single passenger interaction to arrange complete door-to-door travel. Imagine buying one ticket to get you on a train, to the airport and straight to the hotel – where your luggage will be waiting for you. The aim is to make travel experiences more efficient, safer, greener, with less hassle, while optimizing journey times, and minimizing costs for travelers. We are just now starting to see how this future might develop, and with it, the potential to completely transform travel as we know it.

THE CONNECTED EXPERIENCE – ALREADY ON OUR WAY

The multimodal experience starts at home or on your smartphone. There are already travel planning apps and websites that show different modes of transportation, times and costs to help get passengers from A to B, but even these are done through separate providers and intermodal systems. In the future, we will see services that will enable you to book your whole itinerary through a single app, with one search and one payment.

Smart-ticketing and e-ticketing are essentially already here. From boarding passes on smartphones to contactless card machines on buses, the next step will be to offer one ticket for all forms of travel. While simplifying travel for passengers, these ticketing systems are also useful to transportation operators, as the information gathered by smart systems can be analyzed to offer even better services.

Single token travel is the next development in multimodal travel. It would use a passenger's biometrics and travel data to create a digital record and provide secure authentication. The technology has the potential to create a seamless journey for passengers by reducing the time taken for security checks, check-in and boarding at airports and stations.

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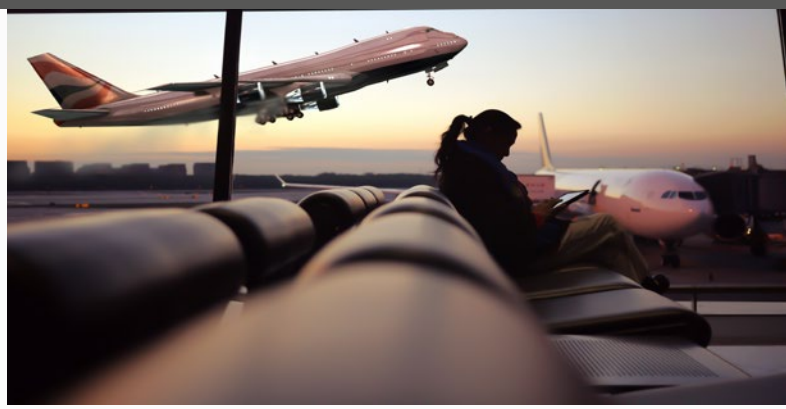

In order to achieve multimodal travel, transportation systems need to be connected both physically and operationally. This means having the right infrastructure supported by high-quality, real-time information systems for connecting routes, schedules and fares.

KEEPING PASSENGERS CONNECTED

Communication is an important factor in the passenger journey. Keeping passengers connected and informed improves their experience. Smartphones, laptops and tablet devices are ubiquitous for travelers now, as is public Wi-Fi. The same needs to be true for real-time data and communications for transportation operators. In addition, there are applications that provide guidance and wayfinding to help find retail outlets, departure gates or even locating a car, but this is not enough. The ability to request assistance in real-time will be a game changer for the passenger experience.

Collaboration services embedded in applications through a Communications Platform as a Service (CPaaS) model allow transportation authorities to provide real-time communications, such as messaging, voice and video, to provide scheduling updates, travel information, real-time interaction with staff and passengers, as well as emergency notifications. All of this can be delivered through a single app, simplifying and enhancing the traveler experience.

LAYING THE GROUNDWORK WITH OPEN DATA AND APIs

Mass data is gathered every second from traffic management systems, CCTV cameras, vehicle detectors and many more devices, such as IoT. This will only increase in the future as transportation gets smarter. But collecting data is just one challenge. The real value comes from sharing data and developing operational processes to create truly connected transportation systems.

Infrastructure based on open data and APIs will be important to drive forward future transportation innovations and mobility solutions into the future. Multimodal transportation involves different operators coming together to provide better travel, which they can't do without knowing what's going on around them. London Gatwick Airport, for example, has already reaped the rewards of closer collaboration with low-cost airlines, by sharing live data to provide real-time updates and instructions for passengers on the airline's mobile app.

SAFEGUARDING THE NETWORK

Despite these benefits, security remains a challenge. The growth in the Internet of Things (IoT) and the increase in connected devices used by transportation operators in expanding networks will only increase the number of vulnerable points for unauthorized access – unless properly secured on the network. Cyber-attacks and data breaches are a top concern for IT departments right now, and it will be of vital importance that operators secure this data or risk losing passenger trust and the benefits of streamlined travel.

One solution to this problem is IoT containment, as part of an overall layered security approach. By 'containing' connected IoT-devices into separate virtualized environments on the same network, businesses can greatly decrease the chances of a broad network breach, as the threat is confined and cannot spread to wider business operations. Using this segmented approach allows IoT devices to be managed and operated only by the authorized personnel that use them, simplifying IoT management.

Another security approach focuses on mission-critical communications, which has an important role to play in passenger security and operational safety. A consistent cyber security strategy is key to keep the communication platform safe from cyber-attacks and ensure service continuity, supported by embedded protection in the system and smart best practices rules.

A GLIMPSE INTO THE FUTURE

Multimodal transportation will completely transform the way we travel. The technology is already here, enabled by open APIs that offer a single mobile application providing "Mobility as a Service" rather than having to purchase tickets across different modes of transportation. Indoor location-based applications are being deployed that collect intelligence on user behaviors giving way to a new level of precise contextual awareness to enable personalized services. And finally, modern multimedia communication, that mix bots with people can match the richness of passenger needs and maintain the much needed personal touch. But the groundwork of network and systems that connect it all together must be installed now if we are to take full advantage of seamless travel. This means having a secure and reliable network that keeps passengers and operators connected no matter what mode of transportation they choose. ■

ABOUT ROCH MURAINE

Roch Muraine leads the ALE global transportation business practice responsible for sales across transport. He has more than 20 years' global operational experience in IT, network and telecom marketing and holds an engineering degree in Computer Science and a Masters in Telecommunication.

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