HOW TO ACHIEVE EFFICIENT IoT TRANSPORTATION OPERATIONS

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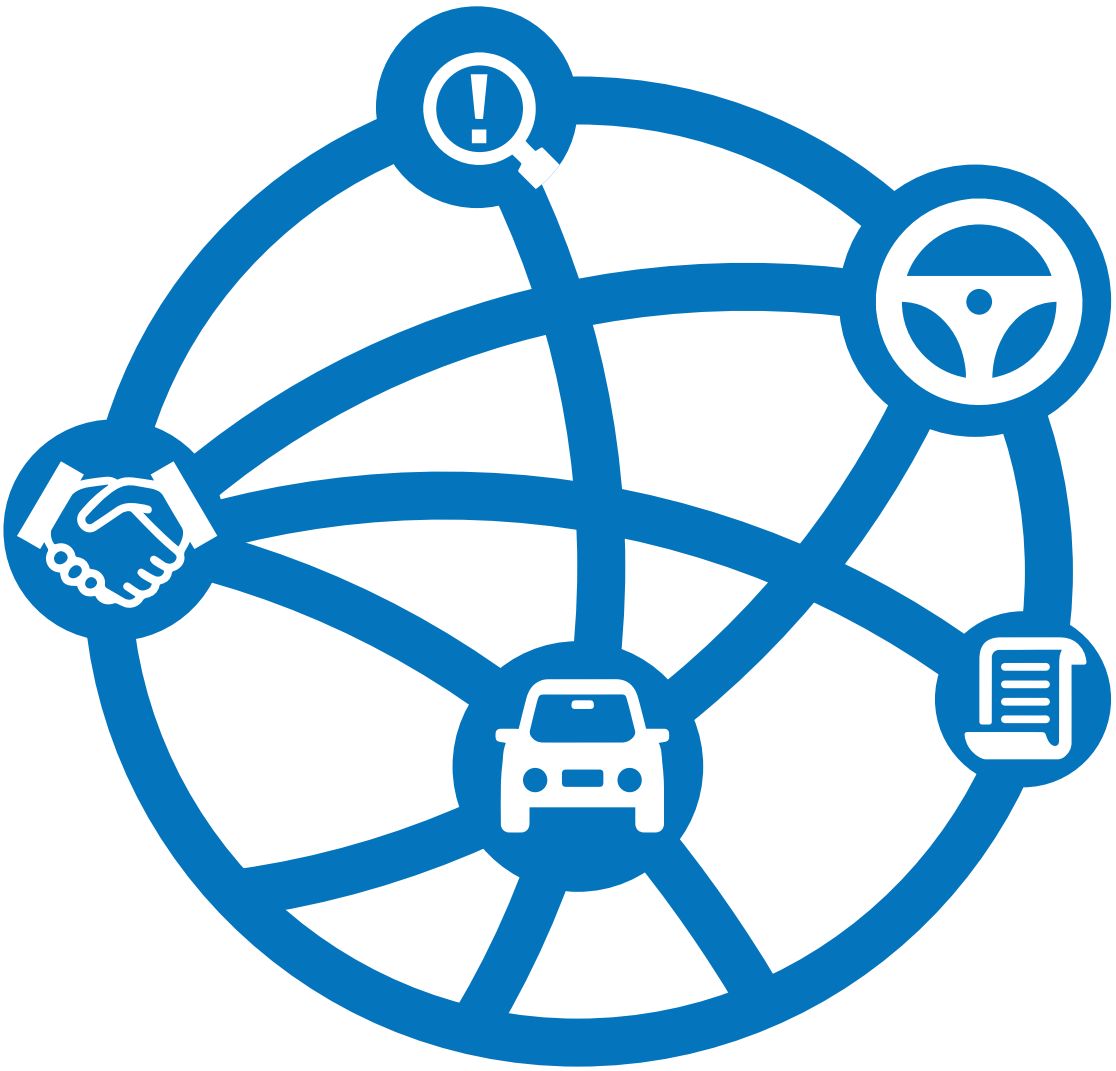


INTRODUCTION

Smart transportation is one of the areas in which Internet of Things (IoT) deployments can achieve measurable impacts on consumers' lives and enable cost savings and operational efficiencies to be achieved by fleet operators. These benefits, of course, feed down across all forms of commerce as transport is made more efficient, and environmental impacts are reduced, thanks to optimised journeys and minimised fuel consumption.

The greater visibility into traffic flows and cargo demand patterns enabled by IoT allows organisations that are involved in transportation to plan more effectively and deliver transport capacity to handle peaks in demand, while also ensuring excess capacity isn't provisioned, thereby saving money.

Much of technological considerations have been addressed and current technologies are enabling organisations to support their initiatives with relative ease. However, further innovations, such as artificial intelligence (AI), are in the pipeline and will be integrated to add greater value to future iterations. These will be vital as device deployments scale up from the thousands to the millions and management of multiplicity of terminals, locations, vehicles, packages, and containers becomes an infinitely more complex web.

Transportation and telematics have been among the oldest established areas of the machine-to-machine (M2M) and Internet of Things (IoT) markets. Routine applications extend from basic vehicle and cargo tracking to encompass driver behaviour, routing and tracking, and monitoring the condition of the cargo itself. Each of these applications has the potential to enable transport operators to run their operations more efficiently, thereby saving money, or enabling additional avenues of revenues by enabling companies to provide additional, value-added services.

Tracking a vehicle via telematics has huge benefits for an organisation in terms of knowing where its vehicles are and whether they are available to collect cargo or perform a service. That enables the productive time of a vehicle to be maximised, with savings in operational cost optimised. In addition, knowing the location of a vehicle enables the most efficient route to be chosen so fuel consumption and driver hours are minimised. Such efficiency helps meet regulatory requirements for environmental protection, which are demanded by customers who want to work with companies that demonstrate good environmental credentials. This is increasingly important for their marketing, branding and corporate social responsibility.

Yet, complexity is increasing. The positive outcomes of earlier telematics projects, which now have track records that can be measured in decades, have seen the innovation curve enable more and more transport items to be connected with more and more data being available and analysed in real time. However, the existence of vast data presents challenges of its own for organisations that are looking to cost effectively extract value from it. In addition, the challenges of security for the data and devices out in the field, as well as at a wide variety of locations, needs to be continually addressed to ensure operations are not hacked and that information is secure.

These challenges have been discussed in a recent interview between Mohsen Mohseninia, the vice president of market development for Europe at Aeris, Rickard Andersson, a senior analyst at Berg Insight.
The interview can be read here

Mohsen Mohseninia: Security risks can be recognised and understood, detected and resolved, managed and controlled, but never completely eliminated

IoT ANALYTICS NEEDS SPEED TO PROCESS DATA AS BUSINESSES MOVE FROM SELLING UNCONNECTED PRODUCTS TO SELLING CONNECTED SERVICES

Mohsen Mohseninia is vice president of market development, Europe, at Aeris, the IoT pioneer which is both a technology provider and a cellular network operator delivering comprehensive IoT/M2M services to leading brands around the world. Here, Rickard Andersson, an analyst at research firm Berg insight, interviews Mohseninia to learn more about the company and its future direction

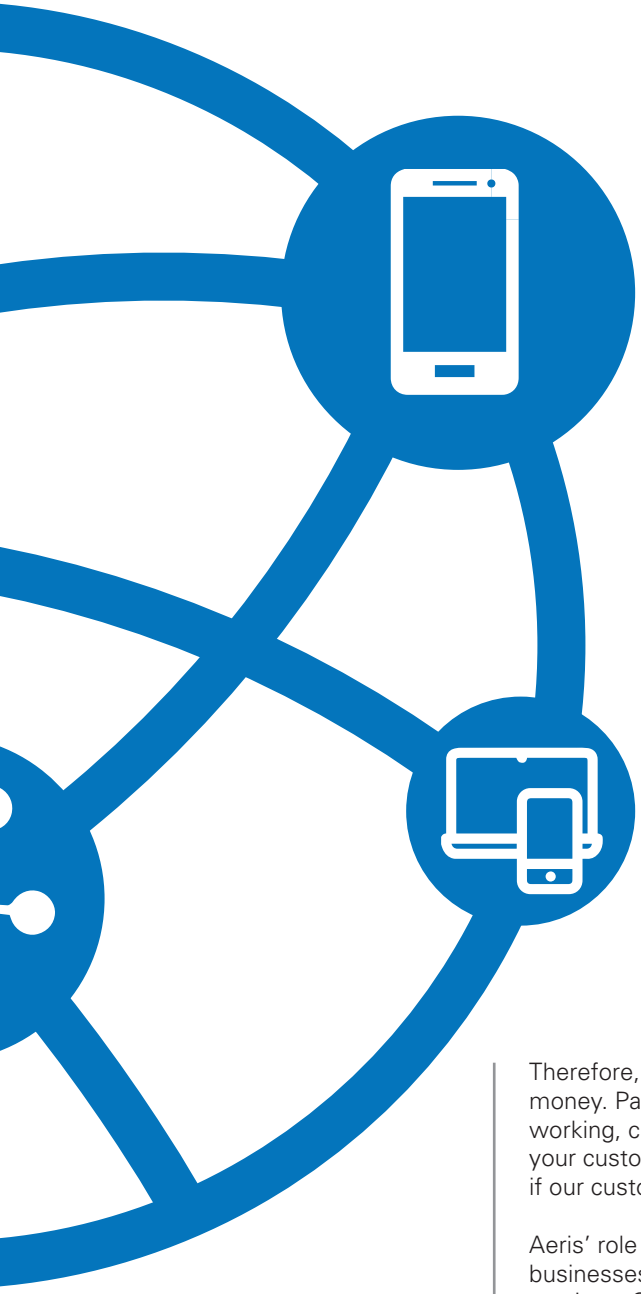
Rickard Andersson: As a pioneer in the IoT market, how can Aeris help in regards to real-time data analysis?

Mohsen Mohseninia: Unlike traditional analytics, the challenge with IoT and analytics is speed. What I mean by this is the speed at which large volumes of data is provided; terabytes of data from hundreds of sensors; and the business needs to be able to digest the data, analyse the data and come up with actionable outcomes. At Aeris, we are very familiar with this challenge and have helped customers to effectively address it by utilising our elastic cloud-based data ingestion and storage platform and, subsequently, applying our IoT analytics tools to gain the necessary insight.

For example, an aircraft manufacturer uses our platform to download very large volumes of data every time a plane lands. This data is processed so work orders can be generated for ground staff and so that the plane can be maintained and made ready to fly again. Using this solution has reduced the amount of time the planes are on the tarmac and, hence, improved the efficiency of their product – the plane. This has resulted in increased flying hours for the planes, which is a key differentiator for the brand and its products, as well as an obvious benefit for airline customers.

RA: How does Aeris help manage connectivity costs?

MM: It is vital for the charges to be transparent. The transformation that IoT brings is a move from capex to opex, with everything as a service. If an enterprise is operating in that paradigm, having a fixed cost that is not generating revenue from that model would be fatal. For example, Aeris has customers in the combine harvester market. These customers only operate from April to October, so while Aeris could say that is their problem and charge an annual fee for using the services, we instead understand their model is seasonal.



Therefore, we have built our billing model so we charge them only when they make money. Parked combine harvesters do not make money so, when they are not working, customers are not being charged. It is fundamental to be able to support your customers' business model fully, not just in words. The only way we succeed is if our customers succeed. That is fundamental to the opex model.

Aeris' role is to act as a partner that can help enterprises on the journey from being businesses that provide unconnected products to businesses that provide connected services. Our technology fundamentally transforms business models and the customer experiences delivered.

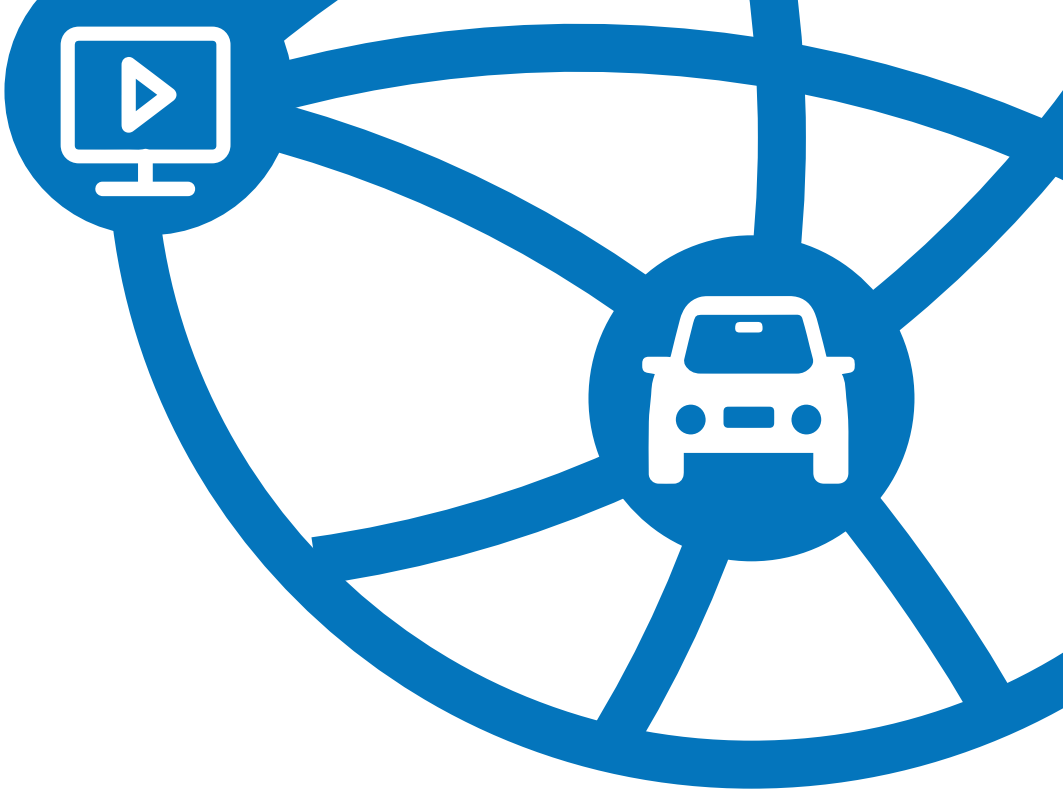
RA: How can players such as Aeris ensure security for their customers?

MM: It is important to note that security risks can be recognised and understood, detected and resolved, managed and controlled, but never completely eliminated. To mitigate risk, one of the first steps that every manufacturer of an IoT-enabled device must take is to consider the potential impact that a data breach would have. For IoT devices that have the potential to cause human fatality or a dramatic financial loss, the manufacturer must implement the most stringent levels of security.

For example, a medical firm developing a healthcare device or a manufacturer of an autonomous vehicle must deploy the highest levels of protection. It is vital to ensure that the only people who are able to change IoT device configurations are those authorised to do so. Your connectivity provider also should have the ability to limit the services to those that are actually required by the device.

If the device is intended to receive messages, and not send them, then your provider needs to have a method of blocking messages sent by the device or voice calls. This is important not only from a security perspective but from a cost perspective as well. The SIM also should be configured so it can receive over-the-air updates to keep up with new and emerging threats. In the context of customer security, it is worth highlighting that the Aeris network is a closed network.

What that means is no device on the network can be contacted directly by any other device outside of the network. The only communication the device is allowed to make is with the application that requires that data. The devices cannot be spoofed or spammed, thereby protecting them from malicious access, which provides the users with a further degree of protection.



USE CASES FOR IoT IN TRANSPORTATION

Beyond the challenges associated with big data analytics, security and the sheer scale of the IoT transportation market, organisations also are looking to address the need to integrate new innovations into the telematics market. Innovation has moved the game from simple tracking of packages and vehicles or relatively simple data, such as vehicle fuel consumption. Use cases now include driver activity and usage-based insurance. These require far more granular data to be collected from a widening number of sensors.

Aeris has been working with In-car Cleverness to provide the end-to-end telemetry solutions specialist with a range of services to enable efficient IoT transportation services.
View the case study here

IN-CAR CLEVERNESS

Powered by Aeris IoT services, In-Car Cleverness provides innovative end-to-end telemetry solutions

Fleet telematics has evolved. Automotive personnel realize that the focus now is on understanding what the car can tell you. The issues have moved beyond simple tracking and fuel consumption data offered by most telematics providers. Today's systems can accurately, cost-effectively, and remotely extract and present data from the engine management systems of a vehicle in an intuitive format. It then can process and analyse that data to deliver tangible operational and, more importantly, financial benefits to its customers.

Case in Point: In-car Cleverness
In-car Cleverness provides vehicle telemetry services for fleet management, car rental companies, and dealership groups. The company delivers an innovative end-to-end solution that enables companies to enhance customer engagement and improve profitability by continually analysing data from the car.

This data then can provide a range of different solutions depending on the customers' needs. For instance, In-car Cleverness can offer insights into a person's driving habits and this information can be used to help manage fuel consumption and lower the impact of wear and tear. Alternatively, it can send an alert as soon as a person is involved in a crash. It also can be used to rapidly send data to rental operators or other commercial fleets following a crash, enabling the pinpointing of probable cause and extent of any damage.

The company offers its customers, which are made up of businesses in the UK, Ireland, and the rest of Europe, a reliable solution that provides seamless feedback, full visibility, and consistent coverage, no matter where in the world the cars are being driven. In-car Cleverness provides low cost, adaptable, and device-agnostic

solutions to all markets. But to accomplish this, the company needed reliable global GSM and CDMA connectivity, without the burden of data roaming charges. Additionally, as its solutions expanded globally, customers required a flexible and reliable data network solution, wherever they might be, and for whatever systems they might use.

Aeris IoT solution:
In-car Cleverness found that Aeris could provide a reliable mobile network optimized to meet the demands of worldwide fleet management systems. The Aeris IoT Services platform allowed In-car Cleverness customers to roam across Europe, or indeed the world, without additional charges, and with continuously consistent connectivity.

Aeris' global support of major cellular technology standards, such as GSM, CDMA, and LTE, enabled In-car Cleverness to offer its customers flexibility and the potential for worldwide growth. In addition, Aeris' flexible pricing models and minimal upfront commitment meant that In-car Cleverness could move to Aeris without the burden of a large, initial financial outlay.

Powered by the Aeris IoT Service platform, In-car Cleverness now can provide a solution, regardless of location, for telematics and fleet management customers that want to lower data costs and improve operational efficiencies with data analytics. The fact that the instances of data transfer delays are reduced given the in-country roaming capabilities of the Aeris SIM, coupled with the peace of mind that vehicles can roam across Europe without incurring additional charges, will have a significant impact in terms of client perception and In-Car Cleverness' return on investment.

Benefits:
- **Lower data costs**
- **Improved operational efficiencies** with data analytics
- Global GSM and CDMA connectivity
- **Flexible pricing models and minimal upfront commitment**
- **Carrier agnostic** with GSM, CDMA connectivity, including 2G, 3G, and 4G LTE

ABOUT IN-CAR CLEVERNESS

As part of the Automotive and Insurance Solutions Group, In-car Cleverness benefits from many years of experience regarding the needs of the UK motor industry. Having been an early adopter of vehicle telematics with a 100% coverage policy since 2003, the Group has developed an in-depth understanding of how to interpret and maximize the use of vehicle telemetry. This has enabled In-car Cleverness to enter the market with a bold, informed, and non-traditional view of the uses and benefits it could offer its clients, including revenue stream opportunities and enhanced CRASH technology. Visit us at: http://www.incarcleverness.co.uk

CONCLUSION

Although one of the earliest and most successful industrial areas in which IoT technology and services have been deployed, telematics is now moving into a new phase of its existence in which challenges surrounding data management, device management, security and pricing are growing. The proven success of telematics makes transportation an area in which organisations already are convinced as to the attractive return on investment IoT can deliver so it is therefore a vibrant area for innovation to bring to market.

The biggest issues will be containing costs as deployments scale up and the data from the larger number of sensors in deployment threatens to swamp both network connectivity and computing resources. The good news is that the technologies now exists to handle both these surges in volume. Additionally, the technologies can be allied to operational processes that enable richer, more valuable services within a viable business case.

MARKET DATA

ABI Research has confirmed the growing role of big data in IoT/M2M, estimating that the market for integrating, storing, analysing, and presenting IoT data had reached **$5.7 billion** in 2015.

The installed base of fleet management systems in Europe is set to reach **8.9 million by 2019**, says **Berg Insight**.

Telematics is set to power more than **73 million commercial vehicles by 2020** amidst cutthroat competition, reports **ABI Research**.

Frost & Sullivan reports that overall, the commercial vehicle telematics space will be **dominated by the aftermarket segment**, in which vehicle original equipment manufacturers are expected to contribute approximately **23% of total telematics penetration**. As the European and North American markets become less fragmented due to continued consolidation among vendors, competition in the telematics aftermarket will decrease in these regions.

ABI Research estimates that the market for goods tracking technologies, which was worth $3.6 billion in 2016, will swell to $5.6 billion by 2021.

The installed base of active cargo tracking units will reach **5.8 million by 2019**, reports **Berg Insight**.