TEAL

Transforming Fleet Management with Advanced eSIM Technology



2024

Seamless Global Connectivity for Telematics Solutions

teal.io

Executive Summary



The demand for always-on connectivity has never been more crucial than in today's transportation and mobility industry. A consistent and reliable communication capabilities play a pivotal role in telematics solutions, which are at the heart of modern fleet management strategies. With the advent of eSIM technology, fleet managers and operators have found a robust tool that significantly elevates the domain of fleet telematics.

This whitepaper examines the profound impacts of eSIM technology and explores why it's fast becoming the backbone of optimized fleet solutions worldwide.

As fleet operators strive to improve operational efficiencies while still delivering high-quality service, the need for advanced and efficient fleet technologies has become increasingly important. With advances in technology allowing for increased automation, data collection and analysis, as well as improved safety on roads and highways; many fleets are now turning to technological solutions that enable them to meet customer requirements quickly and cost-effectively. A fleet operation is much like a jigsaw puzzle, where every piece has to fit into place seamlessly, or the entire business plan falls apart. However, the growing demand for mobility and the use of connected devices have brought significant advantages to the industry over the past few years. This whitepaper will explore various technologies that are helping to streamline fleet operations, including examples of leading fleet solutions that offer exceptional services.

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01

Telematics Overview

Unlocking Greater Efficiency in Fleet Operations with Technology Driven Solutions

Connected technologies can help streamline fleet operations, making it easier to monitor the drivers, their routes, vehicle status, and infrastructure. The telematics market size is expected to grow from *USD 43.71 billion in 2023 to USD 70.55 billion by 2028, at a CAGR of 10.05% during the forecast period (2023-2028) which is driving unforeseen innovation. Telematics, which involves the transmission of data between vehicles and their respective headquarters, can now leverage AI to analyze and interpret these data streams for improved efficiency, risk management, and cost reduction. With advancements in technology, fleet managers can now remotely track their vehicles and stay abreast of important data, including location, driver behavior, vehicle diagnostics, and other essential details. Let's examine the various technologies that can streamline fleet operations and how these solutions are simplifying the lives of fleet operators.

*Source: https://www.mordorintelligence.com/industry-reports/telematics-market

Fleet Tracking
A Must-Have Technology

The implementation of a fleet tracking system is the first step towards streamlining fleet operations. Fleet tracking systems leverage GPS tracking technology to monitor the location, speed, behavior, and route of each vehicle. Fleet tracking solutions enable real-time vehicle monitoring, driver feedback, route optimization, and fuel management, all of which help to improve routing, productivity, and efficiency of the fleet.

One such fleet solution is GEOTAB – a globally recognized telematics provider that provides fleet managers with advanced fleet analytics tools. GEOTAB specializes in features such as engine data analysis, fuel consumption tracking, driver behavior monitoring, vehicle maintenance tracking, and much more.





OVERVIEW

Vehicle Health Status and Maintenance

Vehicles that are well maintained and in good condition help to reduce repair costs and keep fleets running smoothly. Fleet management software that integrates vehicle health status and maintenance provides fleet managers with the information needed to ensure each vehicle is in good working order and performing optimally.

Geotab, Motive, and Samsara are leading fleet management platforms that help fleet operators lower fuel costs, boost efficiency, track equipment, and more. These solutions offer AI safety programs, that streamline real-time visibility into vehicle health and performance. The systems include predictive maintenance capabilities that predict maintenance issues before they occur and use data such as vehicle mileage, driver behavior, and age of the vehicle to determine when maintenance is required. These predictive capabilities enable managers to schedule repairs before they become bigger problems, reducing costs and keeping their fleets on the road.



OVERVIEW

Infotainment for Drivers

Infotainment systems for drivers are becoming increasingly popular as they help keep drivers connected and engaged while on the road. Different infotainment systems include GPS navigation, audio streaming, and hands-free calling. Other features include driver assistance, such as traffic alerts, road conditions, rest areas, and more.

Netradyne provides AI-enabled solutions that help to connect drivers with fleet managers quickly. This technology includes features such as coaching tools, real-time audio alerts, visual dashboards, and built-in cameras that monitor driver behavior. The system empowers the driver to be more responsible and engage in a safer driving experience.

OVERVIEW

Fleet Safety

The implementation of a fleet tracking system is the first step towards streamlining fleet operations. Fleet tracking systems leverage GPS tracking technology to monitor the location, speed, behavior, and route of each vehicle. Fleet tracking solutions enable real-time vehicle monitoring, driver feedback, route optimization, and fuel management, all of which help to improve routing, productivity, and efficiency of the fleet.



How Safe Fleet Is Keeping Buses Safe with TEAL's eSIM

Safe Fleet has unified an unrivaled portfolio of best-of-breed smart solutions for fleets of every type. From equipping school buses with onboard video systems to protecting first responders with innovative fire-fighting equipment, to reducing back strain with ergonomically-designed ladder-racks, the Safe Fleet mission is to ensure that drivers, passengers, first responders, in-the-field workers, and pedestrians arrive home safely.

Safety is at the core of every Safe Fleet innovation with the goal of helping customers reduce preventable accidents across their fleets. Safe Fleet product lines include advanced technology, mobile video surveillance, fleet management and advanced collision avoidance systems. Together, these products form an integrated platform to help predict and prevent accidents, create better drivers, smarter vehicles and safer fleets.



Case Study: Safe Fleet



Safe Fleet's Challenges

- Safe Fleet needed a solution that would allow their cellular solutions to be carrier agnostic.
- Safe Fleet Transit, Rail, and School Bus markets required access to specific MNO connections to support coverage in various locations throughout the U.S.

How eSIM from TEAL is Helping Safe Fleet

TEAL is the right solution for the right application. With TEAL's eSIM, Safe Fleet is now carrier agnostic. Here are two major wins for Safe Fleet as a result of implementing Teal.

1.Safe Fleet no longer has to have multiple MNO contracts. No need to juggle various SIM cards and mobile platforms. No more truck rolls. Having one programmable eSIM saves time and money.

2.Safe Fleet no longer needs to worry about pairing the right SIM with the right hardware/modem gateway. Teal offers flexibility and support with prompt replies and a 24/7 NOC team.

TEAL gives Safe Fleet the flexibility to choose which carrier credentials best support their business needs. Safe Fleet doesn't have to be concerned with pairing a Mobile Network Operator's SIM with the correct modem to support that specific carrier. They can deploy the Teal eSIM which will support the carrier LTE bands that their modems support.

The Results

- Over 11,000 shipped eSIMs
- Current install base of over 1500 buses that are active
- Adding eSIMs to over 600 buses
- Safer school buses!

The Future of Telematics: How AI is Transforming Fleet Management



THE FUTURE

How AI is Transforming Fleet Management

As technology advances, so does the world of fleet management. The use of artificial intelligence (AI) in the field of telematics is revolutionizing the way fleet managers approach their daily operations. The telematics market size is expected to grow from USD 43.71 billion in 2023 to USD 70.55 billion by 2028, at a CAGR of 10.05% during the forecast period (2023-2028) which is driving unforeseen innovation. Telematics, which involves the transmission of data between vehicles and their respective headquarters, can now leverage AI to analyze and interpret these data streams for improved efficiency, risk management, and cost reduction. Let's explore how telematics powered by AI is changing fleet management, as well as showcasing some of the top players utilizing this technology to drive results.

Real-Time Fleet Monitoring and Asset Tracking
With AI-driven telematics systems, fleet managers can receive real-time updates on vehicle status such as location, speed, and fuel consumption. This allows them to make informed decisions and quickly respond to situations that arise. AI is making it easy to track inventory and equipment movement, ensuring they reach their destination as scheduled.

Driver Safety and Behavior Monitoring
Telematics combined with AI can analyze driving behavior and identify potentially risky behaviors such as speeding, harsh braking, distracted driving and aggressive driving. It can also monitor driver fatigue, helping to reduce accidents and improve overall safety.

Predictive Maintenance
By monitoring the health of vehicle parts in real-time, AI-powered telematics can predict when maintenance is needed and trigger alerts for maintenance teams. This helps to prevent unexpected breakdowns and prolong the lifespan of vehicle parts. This in turn results in a dramatic decrease in maintenance costs for fleet operators.

Fuel Management
AI-driven telematics solutions can optimize routes and offer real-time traffic updates, which helps drivers avoid traffic and reduce fuel consumption. Additionally, it can monitor fuel usage on an individual vehicle basis, detecting potential problems with leaks or unauthorized refueling.

THE FUTURE

How AI is Transforming Fleet Management

Route Optimization
Telematics combined with AI can provide real-time routing feedback, based on traffic conditions, weather forecasts, and other factors, significantly reducing delivery time and improving efficiency.

Improved Customer Service
With real-time updates on delivery status, telematics solutions leveraging AI can provide customers with accurate and up-to-date information on when their shipment will arrive.

Compliance and Risk Management
Telematics solutions utilizing AI can help fleet managers keep track of regulations and standards by providing compliance notifications in real-time. AI can monitor driver behavior and alert managers to any incidents or behaviors that may put the driver or vehicle at risk. It can also integrate with insurance providers to help lower premiums and improve overall risk management.

Business Operations and Cost Reduction
Telematics powered by AI provides valuable data that fleet managers can leverage to make informed decisions, such as route optimization, scheduling and routing vehicles, and resource allocation. By optimizing routes, detecting unauthorized fueling, and providing predictive maintenance alerts, AI can significantly reduce operating costs.

*Source: https://www.mordorintelligence.com/industry-reports/telematics-market



How eSIM is Keeping Fleet Management Solutions Connected Worldwide



Ensuring that a device is always-on is especially important for the transportation and mobility industry. Important data around a device's location, telematics, infotainment, and emergency services are essential in a connected world. By leveraging technology, logistics companies can improve their operations' efficiency, lower costs, and enhance their customers' experience. The examples of leading fleet solutions discussed in this whitepaper provide excellent services that enable operators to optimize driver safety, vehicle performance, and real-time insights. Teal gives fleet operators the flexibility to choose which carrier credentials best support their business needs. With eSIM technology, your fleet solutions can be carrier and technology agnostic, supporting the carrier LTE bands that your modems utilize. TEAL offers redundancy that no other connectivity provider can and our patented, eSIM platform allows your fleet customers to dynamically switch between carriers on demand. Let's explore the benefits of eSIM for fleet management in more detail.

Why MVNO Solutions Aren't Ideal for Fleet Management Solutions

An MVNO is a network provider that rents airtime (radio network) from the MNOs but adds a virtual data network for the actual throughput. Connections to this network first go through an MNO tower, then an MVNO datacenter. Many MVNOs claim that they are connectivity platforms or that they provide a global SIM, but because they are renting their platform, it means that you're stuck with a static, limited solution and any changes are reliant on a 3rd party. With Teal's patented and wholly-owned eSIM platform, IoT companies can develop features and functionality without 3rd party reliance, which translates into faster go-to-market capabilities.

An MVNO still operates a virtual network. They still operate datacenters and provide a rough copy of the data architecture of the original MNO network. At first, they look easy to join and may even seem cost effective, but then they fall short when roaming agreements are suddenly blocked or when they experience higher latency due to reduced datacenter capacity.

MVNOs will assert that they offer carrier-switching, but the reality is that they only switch you between towers while datacenters remain the same. In many cases, the identity stays the same as well. Why is this bad for IoT companies? Mainly because MVNOs don't offer redundancy and remain a single point of failure.

Telematics solutions that are connected onto away networks are not prioritized. This means that in some cases you may experience great performance, but in many other instances, performance will be degraded, and latency will be high. This unreliability in network speeds and availability is not ideal for most mission critical high-data applications such as, telematics solutions. So, while it might seem like you are getting great global coverage at competitive rates, the reality is that your mission critical devices are put at risk and will likely experience less than advertised performance.

Contrarily, native core connectivity provided by eSIM technology is purpose-built for IoT and M2M devices, ensuring consistent, high-quality service and response, irrespective of location. The costs associated with core connectivity are also more predictable, given the absence of unexpected roaming charges, which can be detrimental to the financial health of a business. Overall, the return on investment with native core networks stands out due to the performance gains and the ability to maintain better control over connectivity infrastructure.

eSIM: The Only Connectivity Choice for Fleet Management Solutions

In an age where rapid data transfer is more than a commodity, the way we connect mission critical devices is more important than ever. Among the plethora of connectivity solutions, eSIM has emerged as the preferred choice for industries that rely on high data throughput and low latency for mission critical use cases.
In this comprehensive breakdown, we'll explore why eSIM technology is becoming the quintessential link for data-heavy applications such as telematics.



eSIM: Streamlining Fleet Management Operations

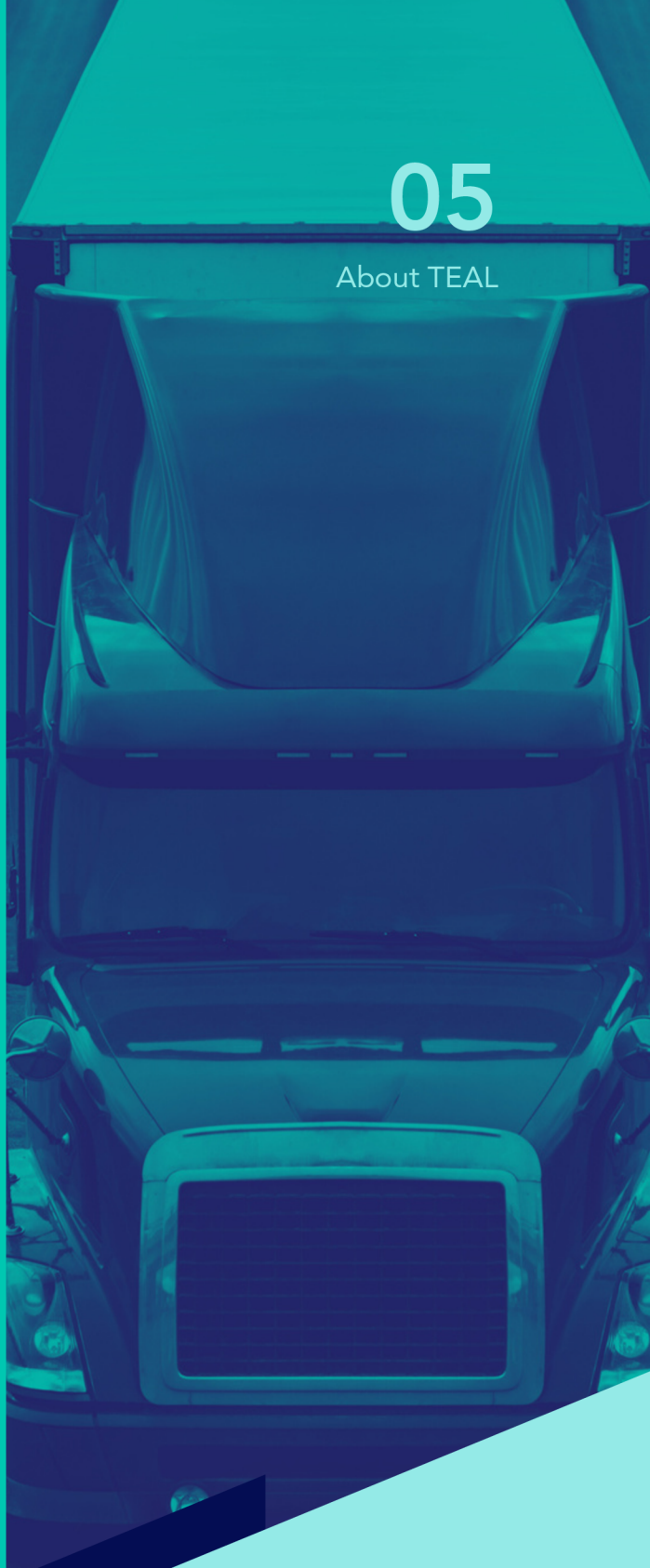


Fleet management and telematics are synonymous with the need for constant, high-volume data exchange. TEAL's eSIM technology has found its sweet spot in revolutionizing how fleet operators manage their assets on a global scale, freeing them from the shackles of single-carrier alternatives and the false promises of roaming solutions.

- **Real-Time Data Demands:** The need for vehicles to communicate critical information in real time is paramount. TEAL's eSIM technology ensures that telematics solutions are always connected to the best networks available, without the latency and throughput hiccups of traditional roaming services.
- **Multi-Network Flexibility:** To cope with the geographic diversity of fleet operations, Teal's eSIM allows dynamic switching between different networks, ensuring a seamless and uninterrupted data flow.
- **Native Core Connectivity:** Teal's eSIM is the only connectivity solution that can provide native core connectivity onto America's three tier-1 carrier as well as providing core connectivity onto networks in Canada, Mexico and the EU.

The convenience of a single eSIM SKU granting access to multiple networks (especially native core network access) simplifies fleet connectivity management, reduces operational complexities and helps to cut down on costs significantly. No longer are organizations locked into contracts with connectivity vendors, nor do they need to manage contracts will multiple providers. Connected by TEAL, these advanced solutions form an integrated platform to help predict and prevent accidents, create better drivers, smarter vehicles and safer fleets. Find out how eSIM can help your organization by emailing us at: **info@tealcom.io**

TEAL



TEAL's patented, GSMA certified, eSIM technology connects any device onto any data network worldwide. With more integrated network operator agreements than any other connectivity provider, TEAL gives businesses everywhere the flexibility and control to remotely switch between networks, ensuring the highest level of reliability and performance for any internet of things (IoT) deployment. TEAL supports applications across many industries including, mobility, robotics, drones, industrial IoT, healthcare, smart cities, and manufacturing.

Contact us today to find out how eSIM from TEAL can help your business!

Email us at: info@tealcom.io

Visit us online at: Teal.io