



**THE BEST OF BOTH
WORLDS WITH DUAL-MODE
SATELLITE-CELLULAR
TRACKING**

Abstract

Fleet managers turn to GPS-enabled tracking equipment to reduce operating costs, optimize fleet resources, ensure cargo security, enhance driver safety and monitor vehicle information. While many rely on tracking devices that communicate solely over cellular networks, choosing devices that have a low-cost satellite-backup option provides many benefits. This paper discusses the reasons why regional and international fleet managers should opt for dual-mode satellite- cellular tracking devices for fleet management.

Introduction

Reducing operating costs and increasing productivity is a necessity for fleet owners looking to survive in a tough competitive landscape. Equipping the fleet with telematics devices is a way to track the location of vehicles, reduce fuel costs, optimize travel routes, increase trailer and container utilization, minimize idle times and ensure cargo and driver security.

While some individuals opt for tracking devices that communicate solely over cellular networks, many are choosing dual-mode satellite-cellular devices because they offer a service guarantee that is not attainable with cellular-only devices: the ability to communicate over both cellular and special satellite networks for tracking and monitoring applications.

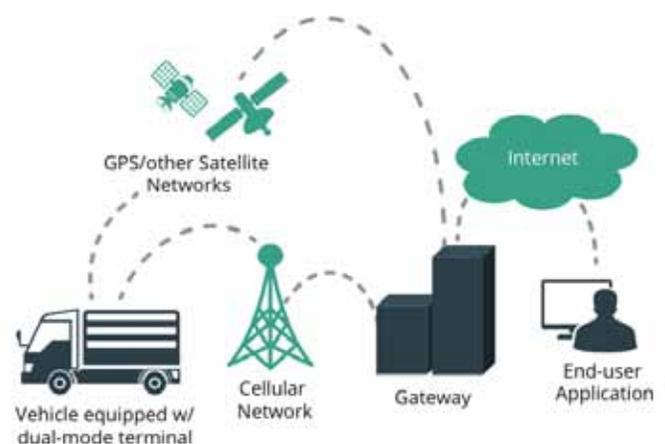
When the vehicle is in cellular coverage, dual-mode satellite-cellular devices use the cellular network to send data like GPS position, sensor and vehicle alerts, text messages and more. When cellular coverage is weak or unavailable, the device automatically switches to satellite and ensures that fleet managers and dispatchers can still know the exact location and status of vehicles at all times.

WHY CHOOSE DUAL-MODE SATELLITE- CELLULAR?

When dual-mode satellite-cellular devices were first released, the main reasons fleet managers adopted this technology was because cellular service was predominantly available in urban areas and there were not many roaming agreements between telecom carriers. Choosing a cellular-only tracking device meant that fleet managers and dispatchers had no way of tracking vehicles that moved between urban centers. They were also very vulnerable to high roaming costs if the assets travelled outside of the telecom carrier's coverage area.

Now that cellular services are more widely available and there are more roaming agreements between carriers, it is easy to assume that a cellular-only service is sufficient. However, this is not the case.

Cellular service is not uniformly available everywhere. Telecom carriers still allocate the larger part of their resources to ensure that cellular service is reliable in urban areas where the bulk of their customers are located. Outside





of urban areas, geographical barriers and costs to install infrastructure can create “dark-spots” where there is no coverage by any cellular carrier. In the event that a mobile asset is in an area serviced by a cellular carrier other than the one that provided the SIM card, there is no guarantee that reasonable roaming rates have been established. Business owners operating on competing cellular networks can find themselves with high and unexpected bills.

Aside from the monetary considerations of roaming, there is also a technology consideration. If a CDMA-only tracking device moves into an area with only GSM coverage, or the cellular tracking device does not use the same frequency as the network, roaming may not be possible and effectively creates “dark-spots” where there is no way to communicate with the asset.

NETWORK CONGESTION AND BAD WEATHER

Congestion is another issue with cellular networks. As telecom carriers sell more subscriptions, offer more high- bandwidth services and transition between technologies, getting a cellular connection reliably can sometimes be problematic.

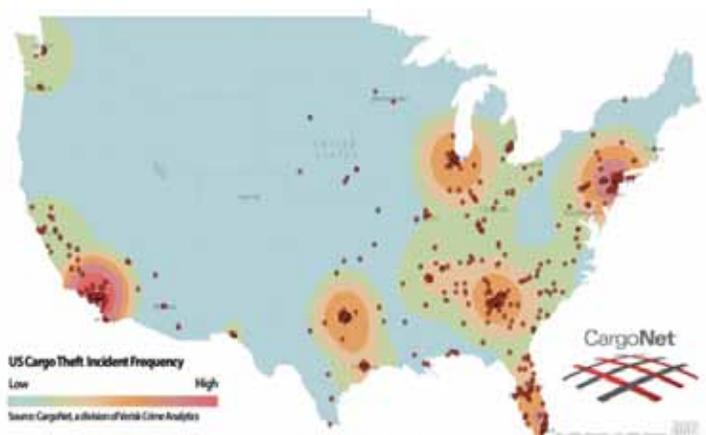
Weather can also detrimentally affect the availability of cellular services. When Hurricane Sandy hit the eastern U.S. in 2012, 25% of all cellular towers in 10 states were knocked out, leaving thousands without communications. In those cases, fleet managers could not track the location of their vehicles or communicate with their drivers.

Since satellite service for tracking applications is uniformly available and not susceptible to the same network congestion, technology change

or weather issues, it is an excellent backup communication option for when cellular service is not available. It allows fleet managers who value control of their assets to have complete visibility of their fleet and their operations at all times.

SATELLITE-CELLULAR: PROTECTING AGAINST CARGO THEFT

Cargo theft remains a real issue for shippers and carriers. According to CargoNet, nearly \$90 million USD in cargo was stolen across the U.S. in 2014. Nearly half of that was high-value electronics, which averaged \$549,539 in stolen goods per theft incident.



Source: CargoNet, a division of Verisk Crime Analytics

A monitoring solution that includes satellite provides an additional layer of assurance for companies that experience cargo theft. Unlike cellular-only solutions, satellite-enabled solutions provide more uniform communication coverage, especially in areas with weak or no cellular coverage.

Conclusion

Cellular-based tracking equipment enables the transfer of large amounts of data but its operation can be limited depending on the quality of the cellular networks. Satellite-based tracking equipment is ideal for remote tracking, cargo security, and driver safety applications since it offers broader coverage and more reliability. Selecting a tracking device with dual-mode satellite-cellular capabilities affords fleet managers the ability to send and receive large amounts of data in urban areas and continuous monitoring of the location and status of their assets – no matter where their assets travel.

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