



The Best Of Both Worlds With Dual-Mode Satellite- Cellular Tracking

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.



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 not attainable with cellular-only devices: the ability to communicate over both cellular and 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

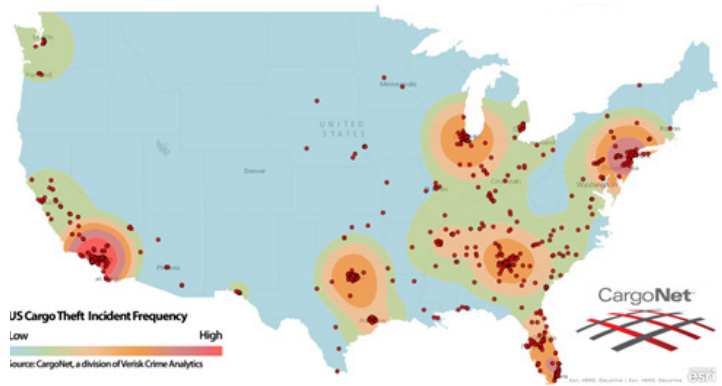
Congestion is another issue with cellular networks. As telecom carriers sell more subscriptions, offer more high-bandwidth services and transition between technologies, getting a cellular connection reliably can sometimes be problematic.

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's an excellent backup communication option for when cellular service isn't available. It allows fleet managers who value control of their assets to have complete visibility of their fleet and their operations at all times.

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.

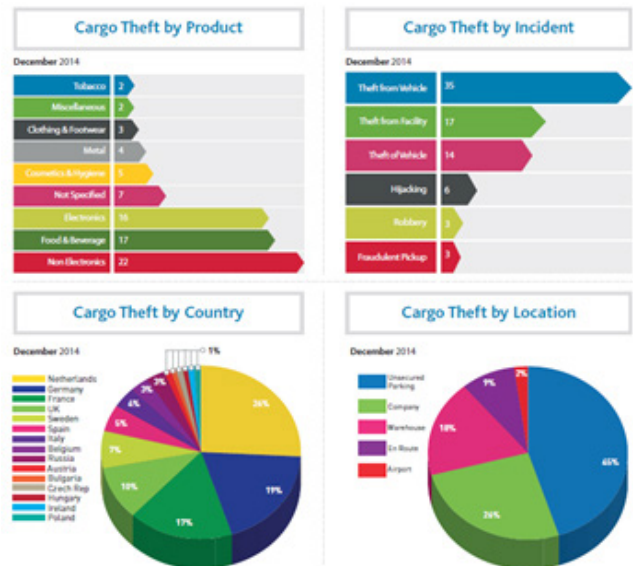


Source: CargoNet, a division of Verisk Crime Analytics

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.

Vehicle theft and theft from vehicles are among the top incidents of theft in Europe, according to TAPA EMEA. Dual-mode satellite-cellular telematics devices can provide the necessary monitoring of the trailer and cargo if the vehicle finds itself in an area with no cellular coverage.

CARGO CRIME MONITOR



For high risk areas, dual-mode satellite-cellular tracking devices also provide an alternate communication method when cellular jammers are used. Jammers are illegal

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devices used to block or overwhelm the cellular signal and prevent cell-based tracking devices from sending information and theft alerts. Cellular jammers also prevent drivers from using their cell phones. Thieves can quickly and easily hijack the cargo and endanger drivers with little risk of traceability if a cell-only device is jammed. Dual satellite-cellular tracking devices can send a message via satellite that a signal jammer has been detected.

Selecting And Investing In Dual-Mode Solutions

Satellite service is no longer only affordable to large companies and government agencies. Driven by competition, improvements in technology, and increased adoption, satellite-enabled devices and airtime costs have become very competitive. In some cases, a few extra dollars per month buy fleet owners a reliable secondary communication source for their asset tracking solution.

When selecting a dual-mode satellite-cellular product, consider the following:

- Alerts: can customized alerts be sent to the people who can act on the information?
- Geofences: how many geofences can be programmed into the device? Is it easy to add, remove and change them? Can the user tailor the behavior of the device within and outside geofences?
- Reports: does the user have access to reports by vehicles, customer and fleet? Are the reports customizable? Can those be sent via email and text message to the people who can act on the information?
- Interfaces: what needs to be monitored for effective vehicle operation? Can the device be connected to any external sensors? Can it extract vehicle engine and diagnostic information?
- Power: how is the tracking device powered? Is it self-powered or connected to the vehicle power?
- Installation: does the device form factor meet the requirements of the application? Can the device be hidden if required for security reasons?
- Ease of Use: is the device configurable or programmable to the needs of the owner?
- Integration: can the data be integrated with other business software like dispatch systems?

- Costs: what are the costs to purchase and install the tracking equipment? Are there any integration costs? What are the monthly costs to operate the device and use the tracking application?
- Reliability and security of data: how is data sent to the tracking application? What is the reliability of the tracking device? is it designed for extreme conditions?

Dual-Mode Devices From Orbcomm

ORBCOMM's product portfolio includes the following dual-mode satellite-cellular devices:

The IDP-782 is an integrated, dual-mode communications device that delivers connectivity to assets using cellular networks and the IsatData Pro satellite service. It is feature-rich and fully programmable to support the development of custom applications for specific customer requirements. It is equipped with various interfaces including 1-Wire, CANbus, and digital/analog/serial sensor ports. It also has an onboard accelerometer and dual-SIM ports and can be equipped with a backup battery.



For more information, visit www.orbcomm.com/IDP-782.



The GT 1100 is a configurable, weather-proof, self-powered, solar recharging GPS trailer/container tracking and monitoring telematics device. It offers low power consumption, long service life and efficient messaging via cellular communications and the ORBCOMM satellite network. Its small form factor makes it easy to install on trailers or in the groove of intermodal containers to enable greater asset visibility and utilization.

For more information, visit www.orbcomm.com/GT1100.

Dual-mode: the best of both worlds

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.

To learn more about ORBCOMM dual-mode solutions, contact us at sales@orbcomm.com or visit www.orbcomm.com.



ORBCOMM Inc. (Nasdaq: ORBC) is a leading global provider of Machine-to-Machine (M2M) communication solutions and the only commercial satellite network dedicated to M2M. ORBCOMM's unique combination of global satellite, cellular and dual-mode network connectivity, hardware, web reporting applications and software is the M2M industry's most complete service offering. Our solutions are designed to remotely track, monitor, and control fixed and mobile assets in core vertical markets including transportation & distribution, heavy equipment, industrial fixed assets, oil & gas, maritime and government.

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