

# Ultra-low power asset tracking for IoT

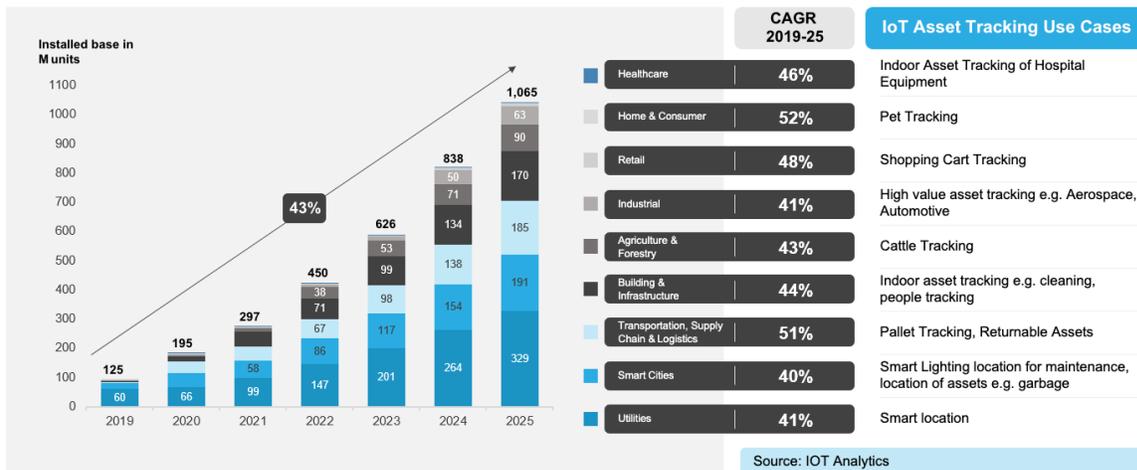


## Challenges

Of the many complexities along the global supply chain and daily logistics operations, asset tracking is arguably the most challenging. Yet, asset tracking is one of the most common use cases across all industry verticals. Whether it's tracking of wheelchairs in a hospital, shopping carts in retail, pallets in supply chain, cattle in agriculture, or pets around your home, asset tracking can be found everywhere. Historically, asset tracking solutions were based on on-chip real-time calculations. Whilst these solutions provided real-time location with high accuracy, the trade-off has been high device power consumption hence short battery life. Most of the IoT use cases do not have workflows and supporting OPEX to frequently recharge or change batteries. As a matter of fact, many of the IoT applications require devices to run on a battery for many months to years.

## LoRa Market Forecast - by vertical

Asset Tracking is largest horizontal use case across all IoT verticals



## The Semtech Solution Cloud service to evaluate the LoRa Edge™ platform

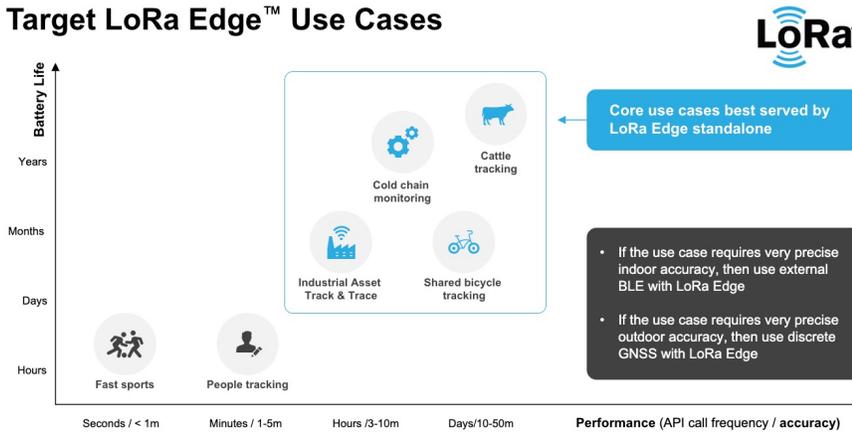
The LoRa Edge™ platform harnesses both the power of the device chip and the cloud to offer unprecedented ultra-low power and low-cost indoor and outdoor geolocation. This cloud-based infrastructure enables more comprehensive and cost-effective tracking capabilities, guaranteed indoor and outdoor coverage, and device battery life of up to 10 years. This all is achieved through the LoRa Edge LR1110 chip and the continuous latitude and longitude scanning of Wi-Fi and GNSS signals.

Semtech gives customers the possibility to test and evaluate these low-power and high-accuracy capabilities through a new service; LoRa Cloud™ Locator. By creating a LoRa Cloud Locator account, purchasing and configuring a LoRa Edge-enabled tracker, any type of customer can visualize the location of their tracker on a map in LoRa Cloud Locator's application. By testing the LoRa Edge Platform through the use of LoRa Cloud Locator, a customer can evaluate whether LoRa Edge is suited for their own tracking use case.

# Ultra-low power asset tracking for IoT

## Benefits

### Target LoRa Edge™ Use Cases



#### Ultra-low power geolocation

Significantly reduced power consumption via cloud-based solvers extends device battery life up to 10 years.



#### Full-service flexibility and ecosystem support

Tracking your devices and building your own custom application is made incredibly easy thanks to Semtech's trusted ecosystem of hardware vendors, systems integrators and cloud service providers.



#### Complete connectivity and coverage — everywhere

Combining indoor Wi-Fi scanning with GNSS outdoor scanning guarantees continuous tracking of your devices throughout warehouses, stores, office buildings, and anywhere in between.



#### Ease of use

In just a few minutes, any customer can use LoRa Cloud Locator. It only requires purchasing and configuring a LoRa Edge enabled tracker and setting it up in LoRa Cloud Locator – then users can visualize the tracker location on a map

## Semtech on AWS

LoRa Cloud Locator is built entirely on AWS Serverless technology. Some of the key services used by the service include AWS IoT Core for LoRaWAN®, AWS Lambda, AWS CloudFront, Amazon Location, and Amazon DynamoDB. LoRa Cloud Locator provides customers a very quick and easy application test on various trackers with LoRa Edge™.

### Features



#### Wi-Fi and GNSS signals for Indoor & Outdoor tracking

When customers test the capabilities of Semtech's LoRa Edge™ platform on LoRa Cloud™ Locator, they'll see both Wi-Fi (for indoor) and GNSS (for outdoor) scans to track their asset anytime and anywhere. This highly accurate way of asset tracking is valuable for any use case that requires continuous updating of the location of assets.



#### Ultra-Low Power

LoRa Cloud Locator runs on LoRa Edge technology. Compared to classic asset tracking solutions, the LoRa Edge platform significantly reduces power consumption by solving the location of the asset in a Cloud-based solver instead of on the device itself. Additional power is saved by removing all downlinks to the device. Consequently, the device's battery life can reach up to 10 years. Customers will notice this remarkable ultra-low power feature of LoRa Edge when testing their tracker on LoRa Cloud Locator.



#### Customer: Galileo RTLS

**Reference:** LoRa Cloud™ Locator is the most efficient, fun and fast way to evaluate the LoRa Edge™ platform. It allows you to measure the performance of the technology and differentiate when a device is tracked by GNSS or Wi-Fi. The Wi-Fi location feature is amazing. It took us five years to find a location technology that would allow us to receive GNSS signals without paying for the prohibitive power consumption of traditional GNSS technologies. But now we've have found it! LoRa Edge is a technology that allows us to locate assets around the world with unprecedented years of battery life.

#### Challenges

Galileo RTLS had been struggling for five years to find a geolocation technology that would allow it to benefit from GNSS tracking while keeping power consumption to a minimum. It found that standard GNSS functionalities simply make it impossible to create a tracker solution with years of battery life.

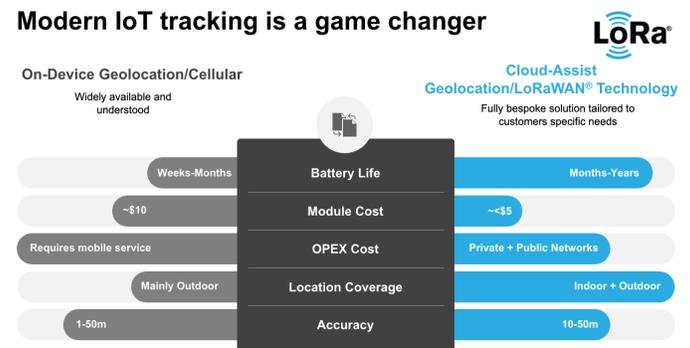
#### Solution

LoRa Cloud™ Locator proved to be the most efficient way to evaluate the capabilities of the LoRa Edge™ platform. Galileo claims the service allowed it to measure the performance of the technology instantly and to easily differentiate whether a device is found by a GNSS or a Wi-Fi signal. Galileo liked the Wi-Fi location feature in particular, saying "It's like having Google's fuzzy location service but on an integrated device without the need for a smartphone!"

#### Results

Galileo has found in LoRa Cloud Locator and the LoRa Edge platform the perfect solution to locate assets around the world with unprecedented years of battery life. And the LoRa Cloud Locator service makes the technology's evaluation fun and fast.

#### Modern IoT tracking is a game changer



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### Customer: Vermont-rep



**Reference:** LoRa Cloud™ Locator proved to be an excellent tool to evaluate the capabilities of the LoRa Edge™ platform to our customers in Brazil. Registering my tracker on the service was incredibly easy, and I was able to retrieve the location of my unit all the time as well as follow the track on the map right from the beginning. The user experience is very smooth which allows anyone to focus on what is really important. This was decisive to help our customers perceive the benefits of Wi-Fi and GNSS scanning for both indoor and outdoor tracking. With LoRa Cloud Locator you can also check the accuracy and power consumption of LoRa Edge devices and determine if the platform is suitable for each use case.

### Challenges

Vermont-rep is Semtech's sales channel in Brazil. Vermont-rep were struggling to quickly show customers the benefits of Semtech's LoRa Edge chip-to-cloud solution since it required building a full application first.

### Solution

To solve the customer's problem and demonstrate the capabilities of LoRa Edge, Vermont-rep created a LoRa Cloud Locator account and configured a Yabby Edge tracker in the application. Thanks to a very easy set-up, the team was able to retrieve the location of customer's units at all times on a map which visualized both Wi-Fi and GNSS signals. It also allowed to follow the track on the map right from the beginning.

### Results

The LoRa Cloud Locator user experience is built around ease of use. This was crucial in helping Vermont-rep's customers quickly perceive the benefits of Wi-Fi and GNSS scanning for both indoor and outdoor tracking. With LoRa Cloud Locator, Vermont-rep is able to demonstrate to the customer the accuracy and power consumption of LoRa Edge enabled devices.

### Customer: InfiSense



**Reference:** We at InfiSense tested the LoRa Cloud™ Locator service with a LoRaWAN® tracker. The service was very straightforward; quick and easy to set up, enabling us to efficiently test the accuracy and responsiveness of the service in a variety of environments. The results of our tests further confirmed the broad portfolio of use cases that will directly benefit from the precision geolocation and ultra-low power capabilities of the LoRa Edge platform. We believe that this high-resolution tracking combined with very long battery life is a game changer for our cold chain monitoring and supply chain projects.

### Challenges

InfiSense wanted to understand if Semtech's LoRa Edge™ platform could enhance the performance and accuracy of asset tracking solutions.

### Solution

InfiSense tested LoRa Cloud Locator with a LoRaWAN® tracker initially. The service was very straightforward; quick and easy to set up, enabling the team to efficiently test the accuracy and responsiveness of the service in a variety of environments.

### Results

The results of InfiSense's tests further confirmed the broad portfolio of use cases that will directly benefit from the precision geolocation and ultra-low power capabilities of the LoRa Edge platform. InfiSense believes that this high-resolution tracking combined with very long battery life is a game changer for cold chain monitoring and supply chain projects.

Get started with Semtech's solutions on AWS