

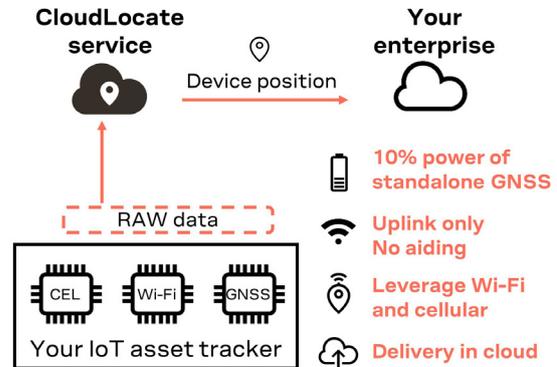
CloudLocate



Positioning in the cloud

Energy autonomy for IoT asset tracking

- Uses 10% power of a stand-alone GNSS fix
- Perfect for low bandwidth connectivity
- Eliminates any “no position scenario”
- Delivery where you need it, the cloud enterprise



The challenges of stand-alone GNSS

Continuous position tracking on IoT devices can be an operationally expensive undertaking. Designers of IoT applications must balance competing objectives of battery life, position accuracy, and update rate with the other considerations of network data cost, bandwidth, and even hardware materials cost.

With stand-alone GNSS, assistance services are typically needed to shorten time to first fix (TTFF) to a few seconds. That means the connectivity network must support a capable downlink and a data package of several kB. And if the device is in an area without network coverage, then the TTFF will always be long and unpredictable.

Energy-constrained IoT applications need large power autonomy of months or even years as well as Internet connectivity to do their job. Lengthy or repeated attempts at data download can quickly drain power and affect operations. For IoT applications such as asset tracking, position accuracy of up to 10 meters with a few location updates per day will suffice, particularly under these constraints. Location attributes are captured on the device, but are not used on the device itself, but rather by a cloud service. It makes sense to offload the measurement calculations to that cloud service where location and assistance information can be reliably delivered and globally available.

CloudLocate service description

CloudLocate uses IoT device measurements to calculate a position and deliver it in the cloud. CloudLocate enables energy autonomy to IoT asset tracking applications, resulting in up to 10 times energy savings compared to the stand-alone GNSS power savings approach. The end-to-end solution works with any hardware and with every connectivity. It is perfect for low bandwidth connectivity, particularly those having no suitable

downlink. CloudLocate eliminates any “no position scenario” by using cellular and Wi-Fi network attributes to increase availability indoors and in poor/no GNSS signal conditions. CloudLocate is ideally suited for IoT asset tracking applications such as high value assets, cattle/livestock tracking, logistics, supply chain, waste management, cold chain management, and smart sensors.



Eliminates any “no position scenario”

One of the key challenges for IoT asset tracking is getting a position in absent or adverse GNSS signal conditions: urban canyons, very limited sky view conditions, or indoors. By leveraging additional network measurements from Wi-Fi and/or visible cellular IDs, it is always possible to identify the position of the asset even in the most complex environments.



Every connectivity. Any hardware.

CloudLocate works with every connectivity technology and any hardware. It's that simple. Use any IoT device that is capable to send the GNSS measurement to the service. There's no integration required. u-blox standard grade GNSS receivers makes an ideal pairing with CloudLocate, as well as all u-blox cellular and short range Wi-Fi connectivity modules.



Delivery where you need it

Knowing the location of your IoT asset is crucial for business. Having that information delivered exactly where you need it saves power, cost, and effort. CloudLocate delivers location where you need it, in the cloud enterprise.

Three service access options provide the flexibility to meet your specific needs.



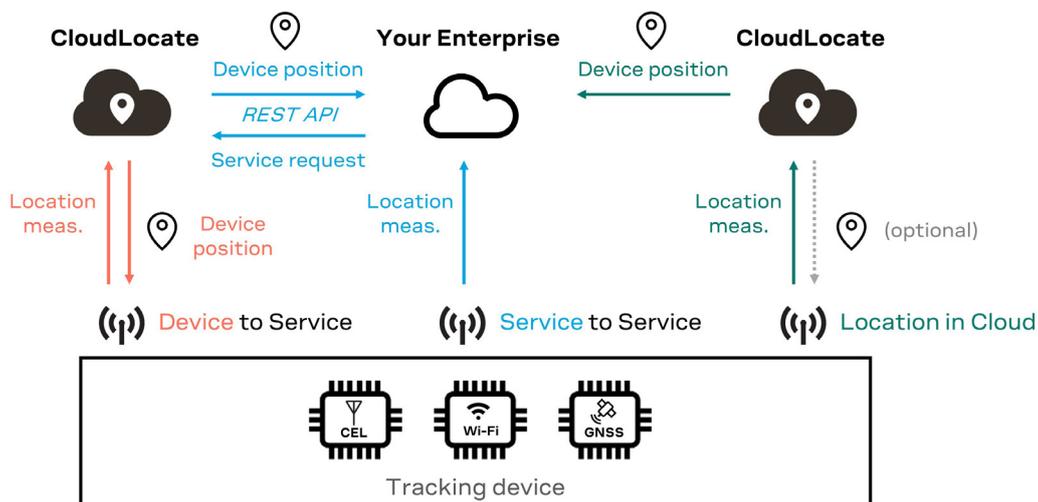
Energy autonomy for IoT asset tracking

CloudLocate offloads power-hungry positioning calculations from the IoT device to the cloud, saving up to 90% of power consumption and acquisition time compared to a standalone GNSS receiver that needs at least 30 s for a cold start. Achieve months or even years of battery life for your IoT asset tracking applications. A more power-autonomous IoT device increases the device lifecycle and lowers operational burdens, allowing you to focus on growing your business, not on charging and changing batteries.



Perfect for low bandwidth connectivity

CloudLocate works with every connectivity and is optimized for high-latency low-bandwidth networks. Only the uplink is needed to send a small measurement data packet from the device to the cloud for processing. Assisted GNSS (A-GNSS) is also not needed. By not requiring A-GNSS, you eliminate the need for a downlink: saving data, cost, and energy. CloudLocate is perfect for constrained radio technologies such as satellite IoT, LTE-M, NB-IoT, SigFox, and, LoRaWAN® (used under license from the LoRa Alliance®).



Further information

For contact information, see www.u-blox.com/contact-u-blox-services.

For more details, see www.u-blox.com/product/cloudlocate.

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