QuecLocator for Easy Positioning

QuecLocator is a location-based service that can act as an extra method for Quectel modules to get location information.

QuecLocator- Quectel LBS - Introduction on QuecLocator

Main Advantages

1，Provide positioning service even in remote areas devoid of GNSS signals, and can also serve as an assisted GNSS positioning system.
2，No need extra hardware support.
3，Cloud platform ensures stable and fast service.
4，Scientific algorithm and complete data provide high accurate location information.
5，Data encryption and private customer information filtering guarantee security and stability, and customer does not need to report data initiatively.

Application Scenarios

GNSS positioning cannot work indoors
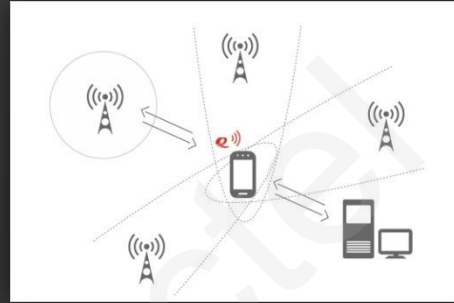GNSS signals blocked
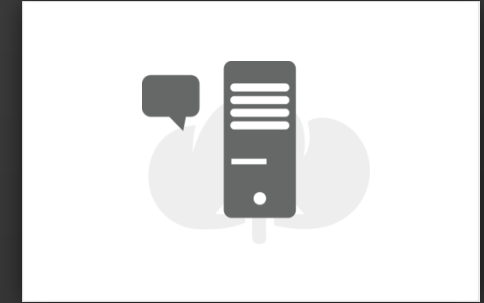Week GNSS signals
Assisted GNSS positioning

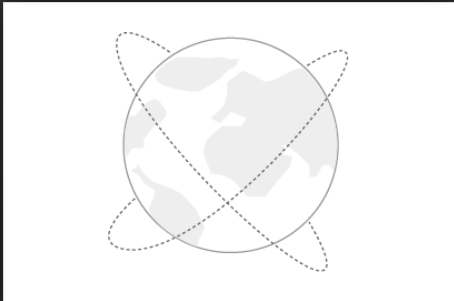# QuecLocator Technology - QuecLocator Key Features

QuecLocator

Quectel's LBS technology based on Cellular location technology can fulfill your demands

Cellular location technology

Based on cloud service server
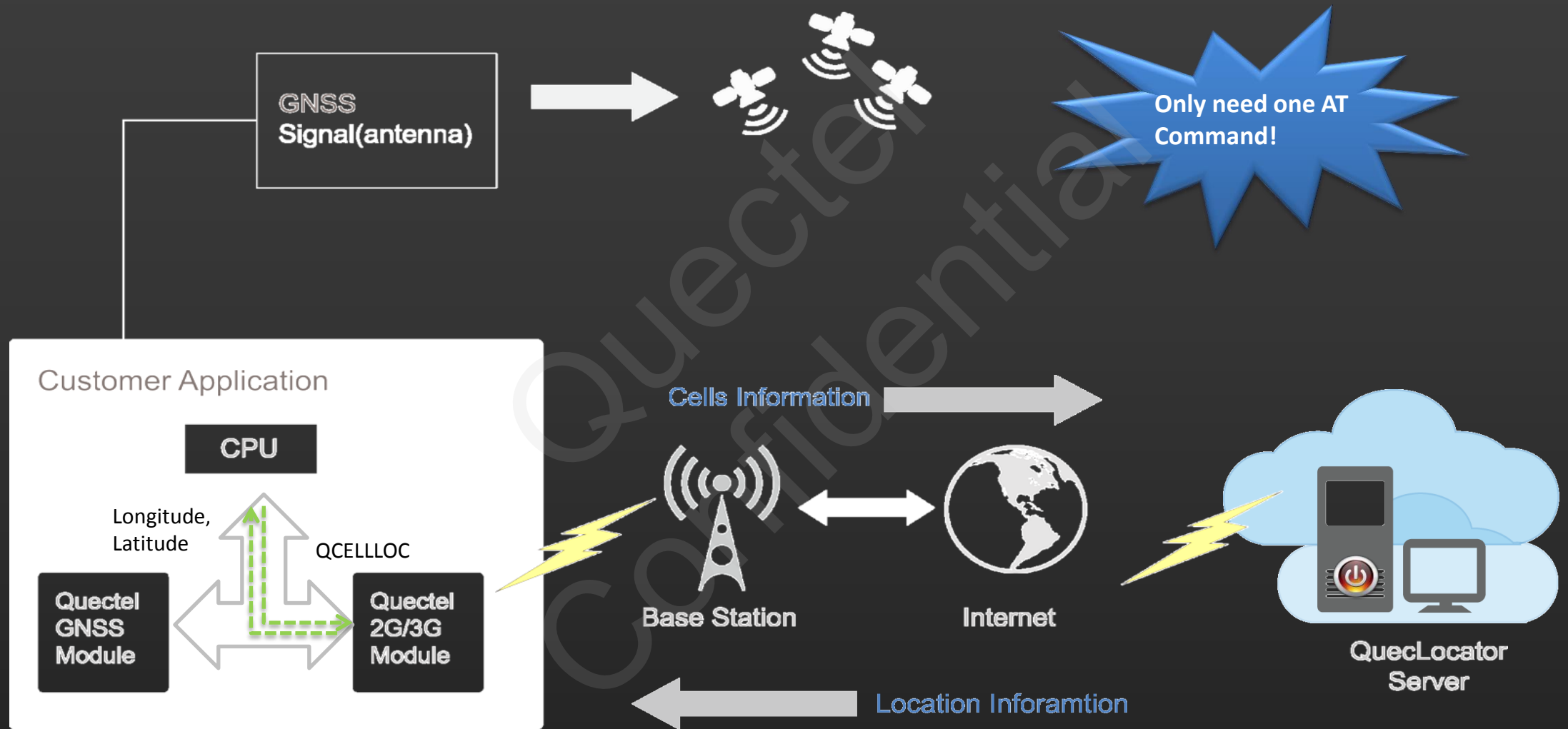

Get location everyday, everywhere

Easy to operate and use

Protect customer's privacy

QuecLocator Technology - Working Process of QuecLocator

QuecLocator Technology - Working Process of QuecLocator

1，The module collects information of all surrounding base stations.
2，The module formats and encrypts all relevant data, and reports data to QuecLocator server via 2G/3G network.
3，The server handles the data, obtains location information and sends it to module after encryption.
4，The module obtains the location information after decryption.

Accuracy Improvement

Based on the data from multiple adjacent base stations, QuecLocator applies triangulation location to improve the accuracy of target location information and reduce errors.

QuecLocator Technology - Accuracy Improvement

1,The module collects multiple adjacent base stations information and reports to server.
2,The server calculates the location with triangulation principle according to the distance between reference points (Base Station A, B and C) of a known location and tested object.

Triangulation location algorithm can reduce the errors caused by self- **diagnosis** in base station positioning and maximize the location accuracy.

QuecLocator Technology - Abnormal Data Update Algorithm

1. The module collects the base station information and obtains abnormal data after screening.

2. The module reports abnormal data to QuecLocator server.

3. The server compares and verifies the obtained data with the raw data to judge whether the data is abnormal or not.

4. The server sends the abnormal data to database server for update.

5. Updating abnormal data can guarantee the data validity in the database and reduce the errors caused by abnormal data.
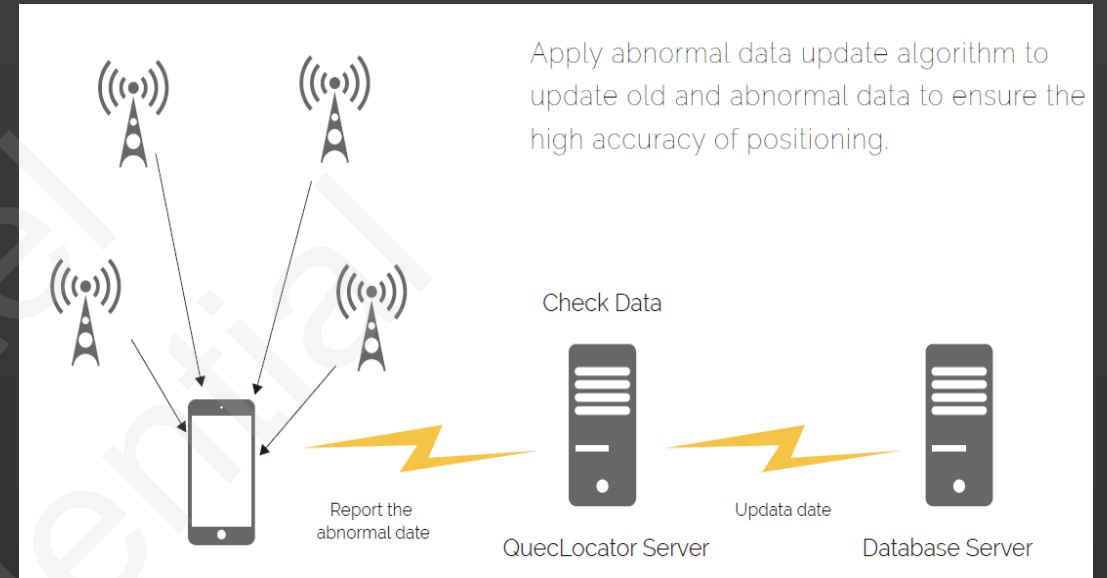
AT Commands

AT+QCELLLOC Get Current Location	
Test Command AT+QCELLLOC=?	**Response** +QCELLLOC: 1 OK
Write Command AT+QCELLLOC=<locMethod>	**Response** +QCELLLOC: <longitude>,<latitude> OK else response ERROR

<locMethod>: Location method.

     1   get current location by the cell's information.

<longitude> : The longitude of the location information. This value should be accurate to six digit after the decimal point, and the range is <-180.000000 to 180.000000>.

<latitude> : The latitude of the location information. This value should be accurate to six digit after the decimal point, and the range is <-90.000000 to 90.000000>.

Powerful Database of QuecLocator

Performance depends on the density of network cells.
The more data the module can acquire from the database of the server,
the more accurate the location information will be.

238 Countries   **>13,000,000** GSM Base Stations   **>27,000,000** WCDMA Base Stations

Country	GSM	WCDMA
China	3,725,471	1,939,314
Russia	703,257	1,304,058
United Kingdom	324,602	1,549,879
Germany	416,931	1,175,544
USA	416,685	1,298,035
France	295,534	873,286
South Africa	84,134	219,138

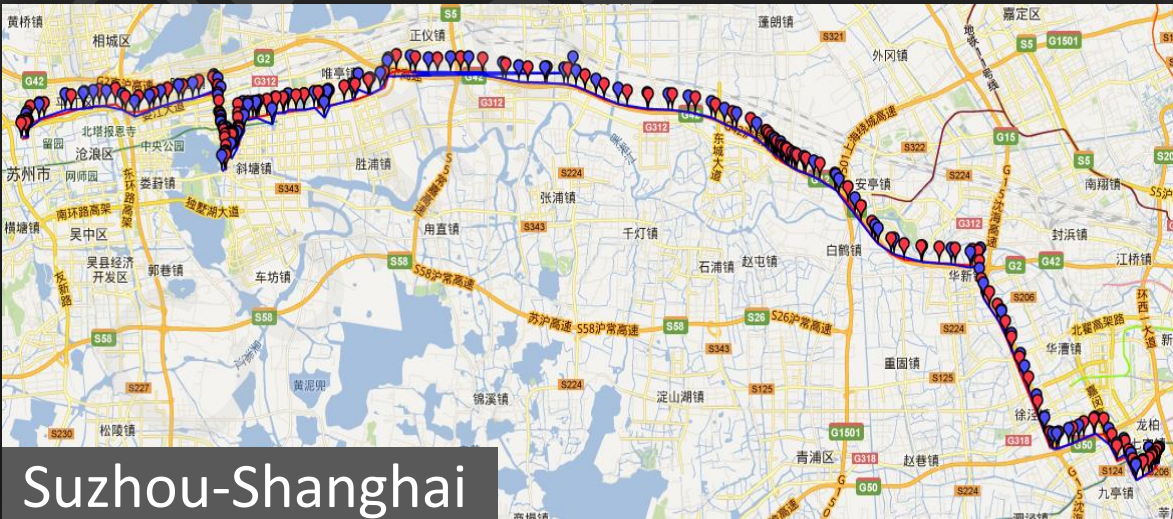238 Countries, totally more than **13 million** GSM base stations and **27 million** WCDMA base stations.

We have more than **5 million** base stations in China.
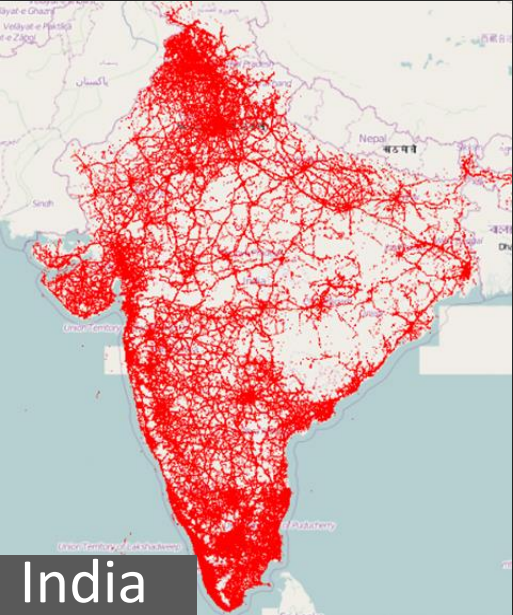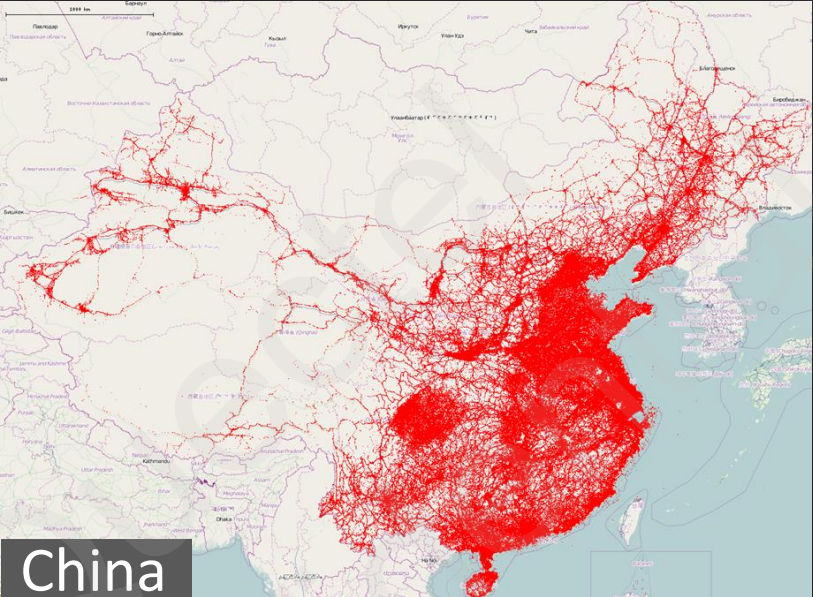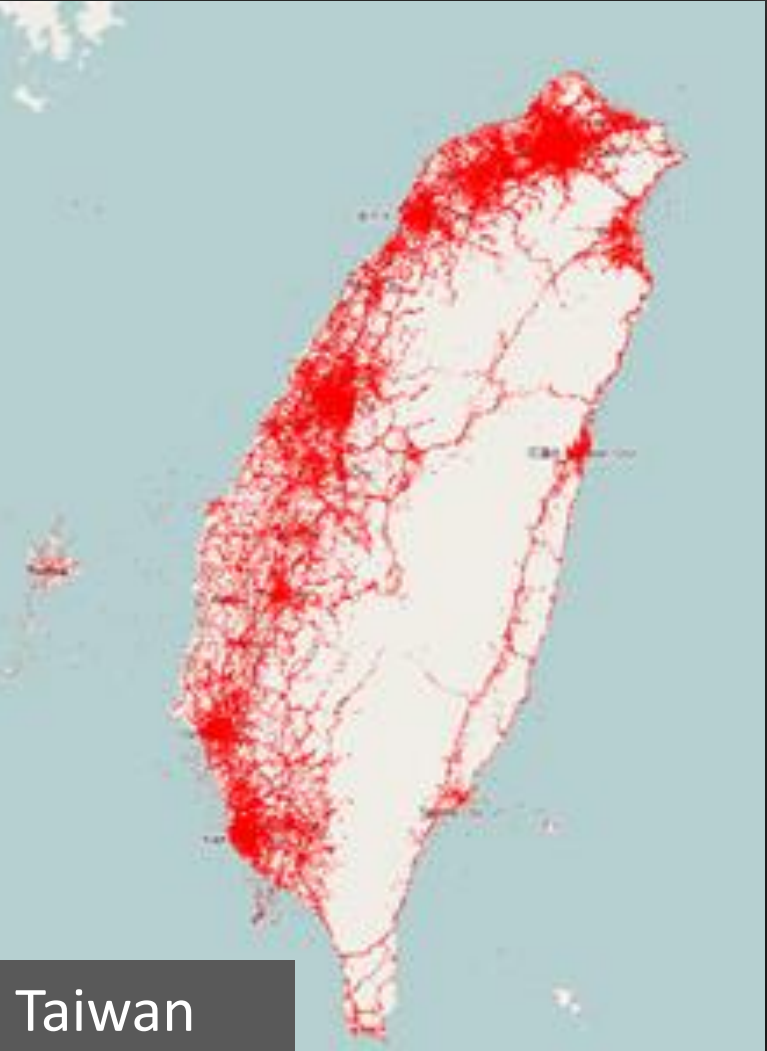
Field Test in China Compared with GNSS

Field Test Result

📍 GPS signal records 📍 GSM signal records

Area	GSM Vs. GPS(average drift)
Suzhou to Shanghai	387m
Changzhou	345m
Hefei	392m

Hefei

Suzhou-Shanghai

Changzhou

Network Coverage Map 1

Taiwan

China

India

Country	GSM	WCDMA
China	3,725,471	1,939,314
Taiwan	100,008	727,509
India	998,078	442,248

Network Coverage Map 2

Germany

France

Italy

Country	GSM	WCDMA
Germany	416,931	1,175,544
France	295,534	873,286
Italy	163,919	613,951

Network Coverage Map 3

Poland
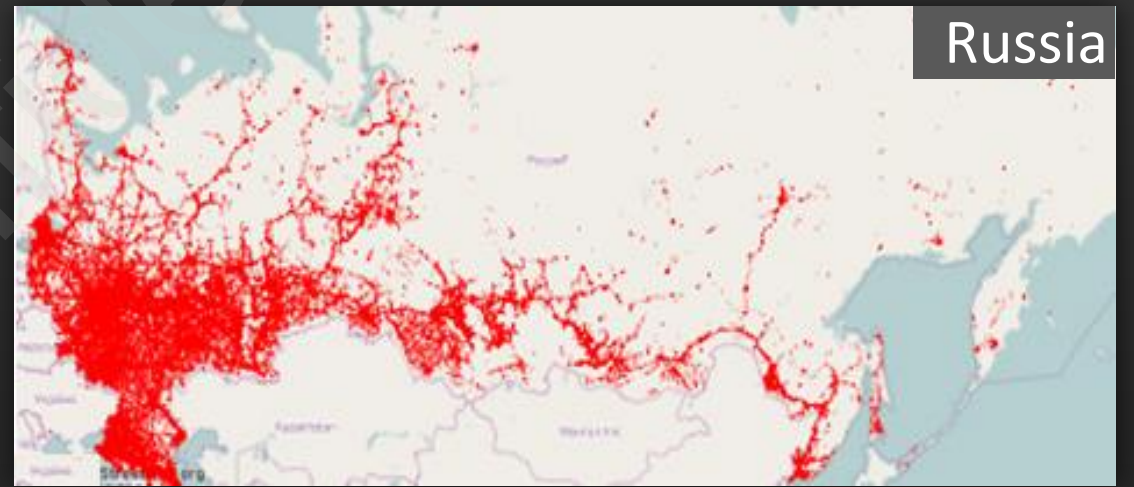
Turkey

Russia

Country	GSM	WCDMA
Poland	215,765	583,408
Russia	703,257	1,304,058
Turkey	198,879	340,693

Network Coverage Map 4

Brazil

South Africa

Country	GSM	WCDMA
South Africa	84,134	219,138
Brazil	275,521	351,162