

# Technical Sheet

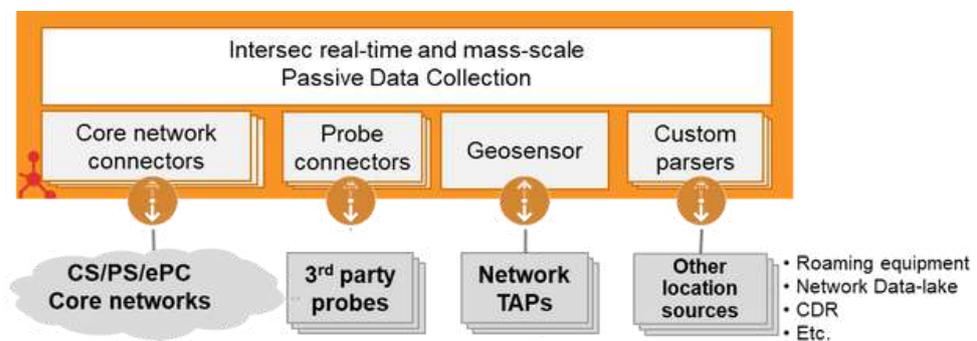
# Active/passive location

Agora, the Intersec Platform, provides comprehensive location technologies in both active and passive paradigms, all capabilities delivered within a mutualized platform.

## PASSIVE GEOLOCATION

Over the past 12 years, Intersec has developed a comprehensive catalog of integration schemes, connecting to both the core network and radio access network depending on whether cell-id-based location or sub-cell location are respectively collected.

This enables Agora to be deployed and integrated with any network configuration. The diagram below presents typical passive geolocation integration schemes:



### Core networks connectors

- Vendor proprietary interfaces
  - CS NEs (2G/3G): MSC/MSS
  - PS NEs (2G/3G): GGSN
  - ePC NEs (4G/NSA 5G): MME, S-GW
  - 5GC NEs: AMF, etc.
- Standard radius formatted sources
  - GGSN NEs (2G/4G)
  - PGW NEs (4G/NSA 5G)
  - AAA NEs (2G/3G/4G/5G)
- Standardized interfaces
  - 5GC NEs: AMF, etc.

### Connectors for 3<sup>rd</sup> party probes

- Indirect sources
- 2G/3G/4G/NSA 5G/5GC
- Probe vendors
  - Astellia
  - Polystar
  - Tektronix
  - Anritsu
  - Tekelec
  - Etc.

### Geosensor (alternative)

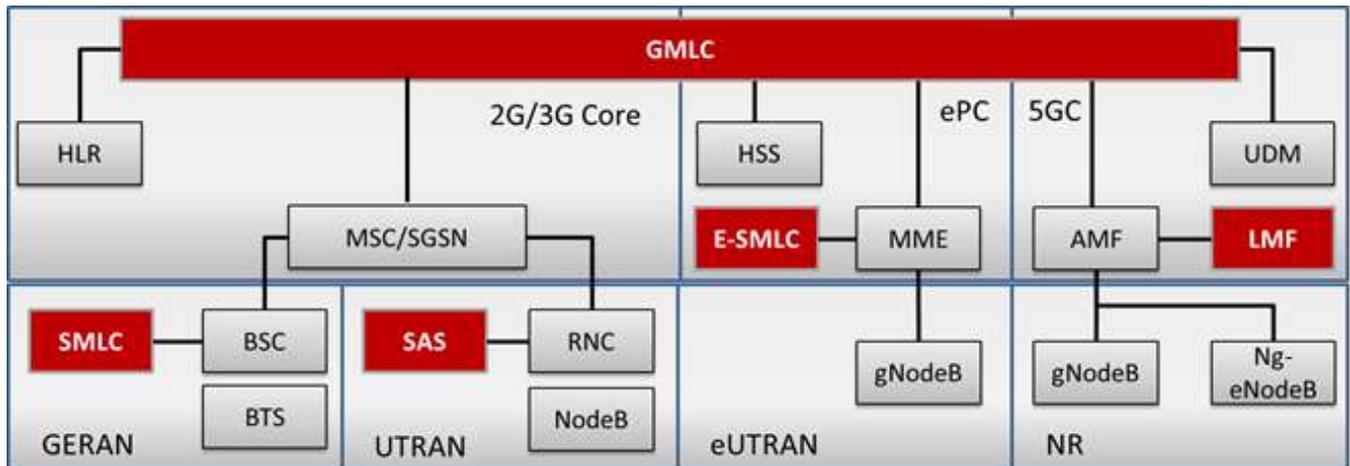
- 2G/3G: A, D, luCS, luPS, Gn, Gr
- 4G/NSA 5G: S1-MME, S3, S6a/S6d, S10, S11, S16, SGs

### Other sources/custom parsers

- 2G/3G/4G/5G
- Flat file based
- Kafka based

## ACTIVE GEOLOCATION

On active location, Agora equally provides a comprehensive set of location technologies on every network generation as listed in the diagram below:



2G SMLC	3G SAS	4G E-SMLC	5G LMF
<ul style="list-style-type: none"> <li>• CID</li> <li>• eCID TA</li> <li>• TDOA</li> <li>• RF Fingerprint</li> <li>• SUPL</li> <li>• AGNSS</li> </ul>	<ul style="list-style-type: none"> <li>• CID</li> <li>• eCID RTT</li> <li>• eCID RSCP</li> <li>• OTDOA</li> <li>• RF Fingerprint</li> <li>• SUPL</li> <li>• AGNSS</li> </ul>	<ul style="list-style-type: none"> <li>• CID</li> <li>• eCID RSRP/RSRQ</li> <li>• eCID TA</li> <li>• OTDOA</li> <li>• RF Fingerprint</li> <li>• SUPL</li> <li>• AGNSS</li> </ul>	<ul style="list-style-type: none"> <li>• CID</li> <li>• eCID TA</li> <li>• eCID RSRP/RSRQ</li> <li>• Multi-RTT</li> <li>• AGNSS + DL-TDOA hybrid</li> <li>• RF Fingerprint</li> <li>• SUPL</li> </ul>

### Supported procedures:

- MT-LR Mobile Terminated Location Request
- NI-LR Network Induced Location Request

## COMBINING ACTIVE AND PASSIVE LOCATION

Leveraging on its technology which supports both active and passive network location, Intersec has developed even further advanced features which unleash all benefits coming from their mutual enrichment. According to the use-case and the context, the Agora platform chooses the most appropriate mechanism or combines them to benefit from their respective advantages.

This patented Intersec Technology enables:

- Increasing location spatial and temporal accuracy
- Optimizing network load
- Unlocking new use cases such as inbound roamer precise location

## THE INTERSEC GEOLOCATION PLATFORM



1- Collection of terabytes of anonymized mobility and activity datasets through a combination of location technologies



- Active location: SMLC, GMLC, SAS, E-SMLC, LMF
- Passive location: Cell and subcell accuracy at scale
- RF Fingerprinting: Highest accuracy

2- Mobility and activity data are processed and turned into actionable location insights



Equipment vendor-agnostic platform



Anonymized datasets



5G geofencing accuracy

3- A comprehensive set of mission-critical and high value-added applications for any use cases



### About Intersec

Founded in 2004, Intersec is a global leader in activity and mobility data solutions. Intersec offers innovative and disruptive software enabling fast data analytics, mass communication, and AI-based decisions. Its industry-focused products enable private and public organizations to turn geodata into actionable insights in the fields of public safety, contextual marketing, geolocated advertising, smart cities, and the management of connected object fleets (IoT). With more than 100 clients in 80 countries, Intersec currently enables its customers to leverage the location of nearly one billion humans and connected objects. Learn more at [intersec.com](https://intersec.com).

