

For GNSS Services



Tracking of dangerous or high-value goods

Secure monitoring of persons

Location-based billing

- Road Tolls
- Insurance schemes

LBS smartphone applications



To avoid threats



Jamming: intentional interference to prevent receivers from tracking GNSS signals

Spoofing: broadcast of fake GNSS-like signals

Meaconing: reception, delay and re-broadcast of GNSS signals

Dishonest users: intentional modification of localisation data

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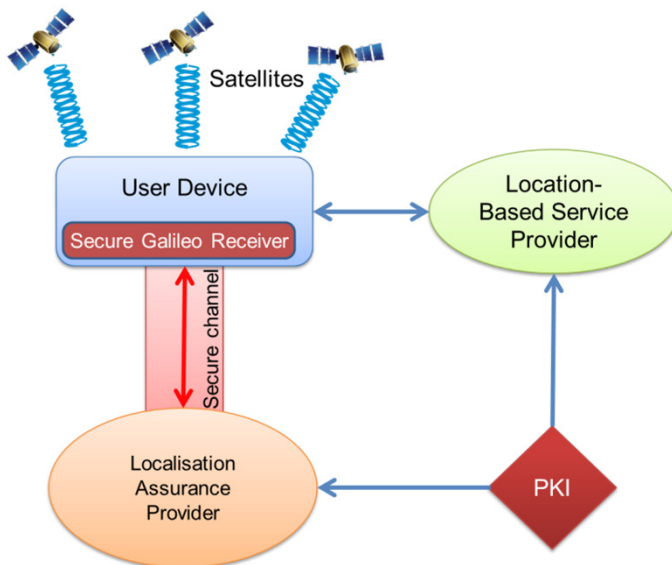
LASP project objectives

Specify and implement a **prototype of a localisation authority** based on:

- **Security checks** before delivering location certificate
- **Secure communication** protocol between LAP and user device

Consider **security and privacy issues** (like anonymity for privacy-enhanced services)

Service demonstration



LAP

Localisation Assurance Provider

1. **Collects** time-stamped positions and other data from User Device
2. **Performs** security checks i.e. algorithms to verify the signals' integrity:
 - **Local:** one shot observation
 - **Central:** continuous or multi-receivers observations
3. **Delivers** a location assurance certificate (i.e. an XML file containing user ID, location, time and assurance level signed by the LAP)

Privacy

Transmitted accuracy of a certified localisation can be under the user's control

Major achievement

Detection of meaconing attacks with a delay of 80 ns

Demonstrator

Several **security checks** (Doppler, power, clock, navigation data, plausibility...)

Communication client/server

Light version for **Android** platform

Tests performed at ESA labs



Next steps

- Prepare project targeting large scale exploitation
- itrust consulting aims to be a Trusted Third Party operating/licensing the LAP