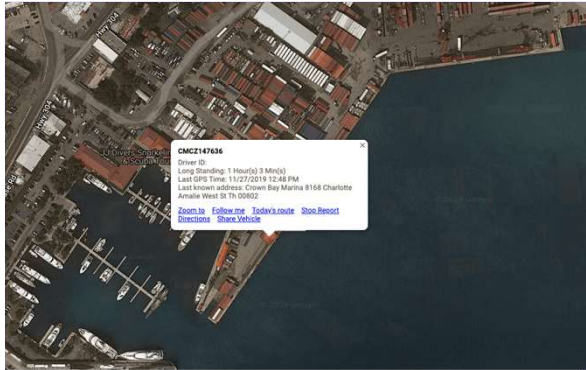


# Accurate GNSS positioning for low-power & low-cost devices

**APOLLO**  
initiative

Thierry Torlotin





# NEED Location

- ▶Discrete acquisition
- ▶Low-power
- ▶High-precision

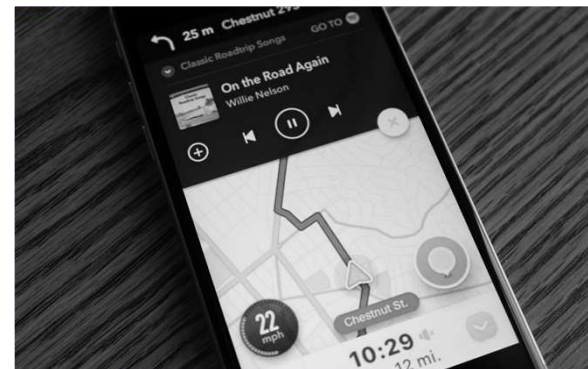
Needs a new hardware  
and software approach

GNSS is 90 % of power budget

# NOT!

# Navigation

- ▶Continuous acquisition
  - ▶High-precision
- for Regular GPS Chipset



# The APOLLO

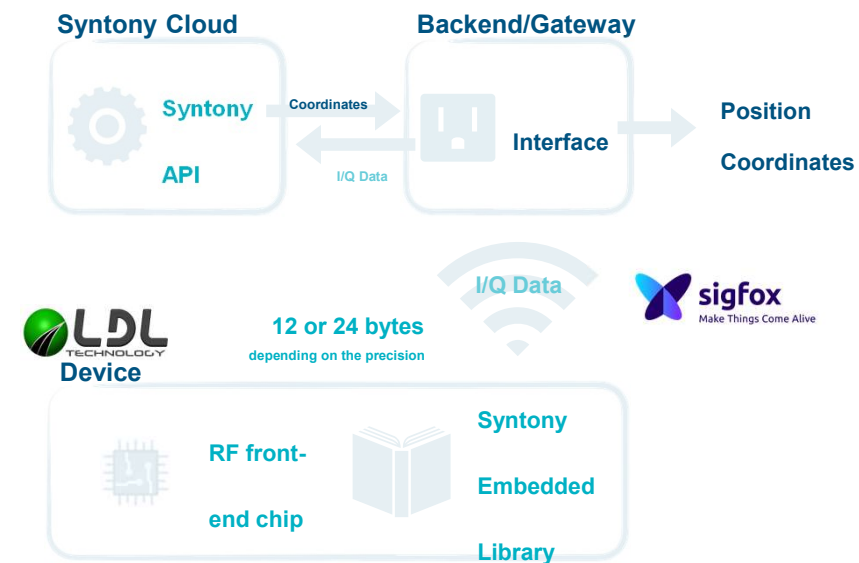
## innovation

Leveraging a brand new architecture

- ▶ No GNSS Chipset
- ▶ Only a “RF Front-end”
- ▶ Software-defined Radio

Goal

- ▶ 10 to 20 times more energy efficient
- ▶ 3x cheaper than a GPS Chipset



# APOLLO

Tests on Reference Design v1 and results of the simulation for v2

KPI	Chipset	Apollo v1	Apollo v2
TTF	> 30 sec	7,5 sec	5 sec
RAM	-	128 kB	64 kB
Energy/pos	1,5 mWh	0,17mWh	< 0,15 mWh
Accuracy	15 m	30m	20 m
GNSS	GPS & GALILEO	GPS	GALILEO & GPS

**Benefits:**

**Energy Efficiency x9 (v1), x10 (v2)  
Savings on chipset x3 to x5**



# Thank you

**APOLLO**  
initiative

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Syntony GNSS

