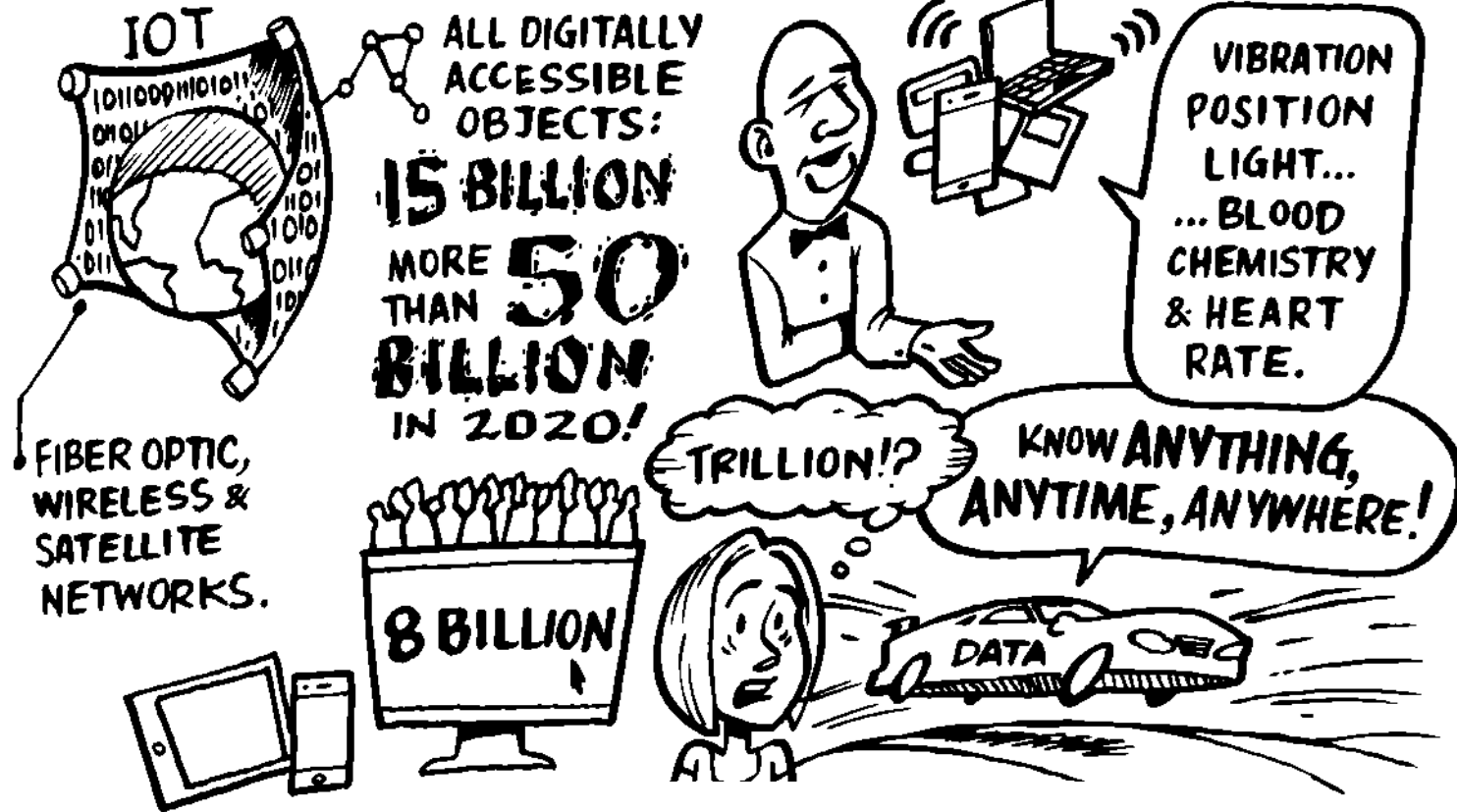




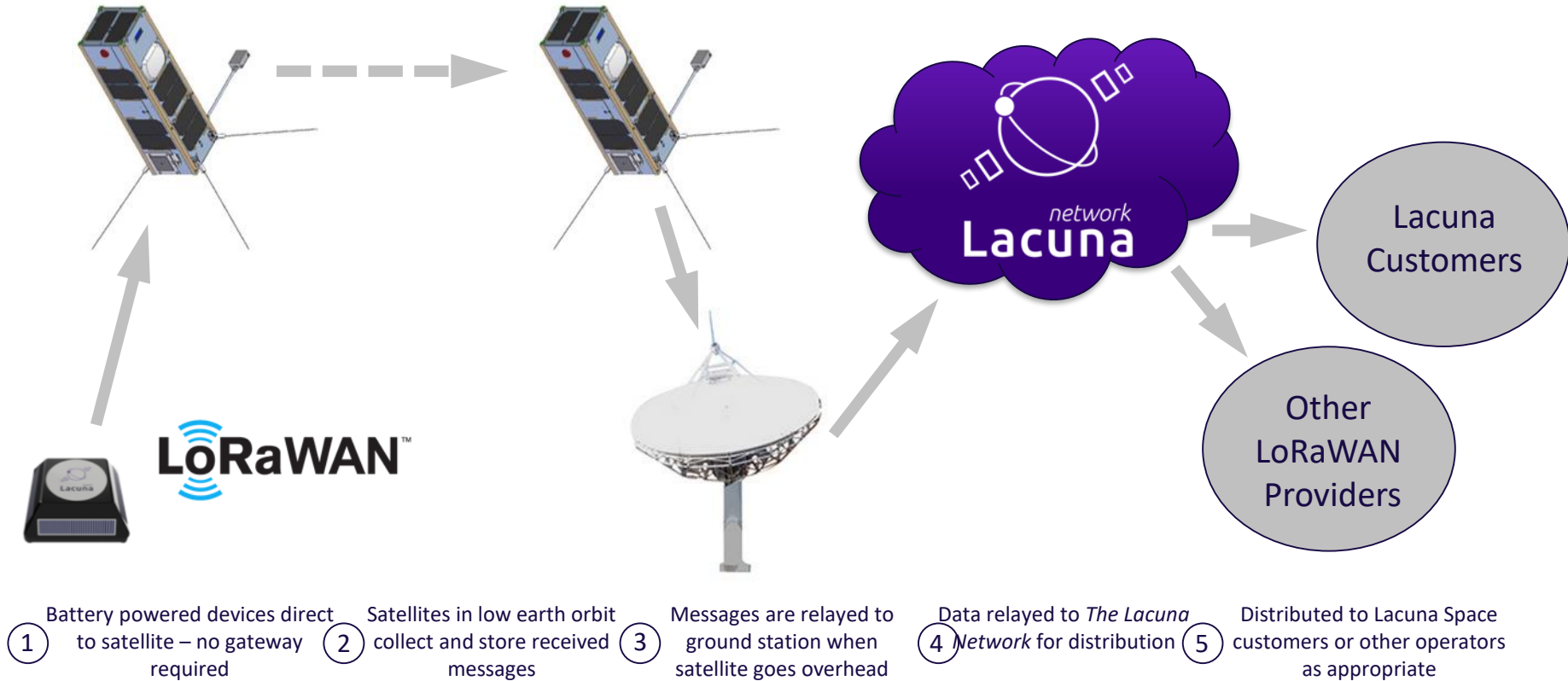
# Revolutionising the world of IoT

Maria Kalama  
maria@lacuna.space

# 'Fourth industrial revolution' ... but how big?



# How does the satellite technology work?



# Semtech Collaboration

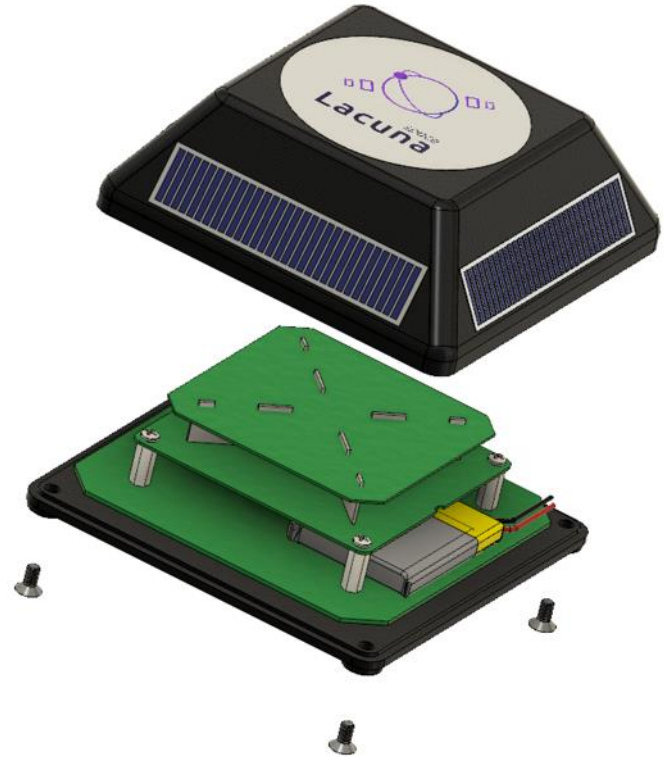


## Semtech and Lacuna Receiving Messages from Space

*Lacuna Space extends LoRaWAN network global coverage with satellite connectivity*

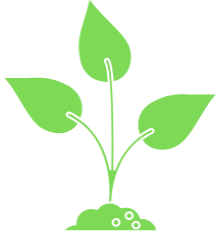
**CAMARILLO, Calif., Feb. 15, 2018** – **Semtech Corporation** (Nasdaq: SMTC), a leading supplier of high performance analog and mixed-signal semiconductors and advanced algorithms, and **Lacuna Space** announced its collaboration with key industry leaders, including the European Space Agency (ESA) and Parametric GmbH, to extend a LoRaWAN™ network by providing satellite connectivity to fill voids between the terrestrial gateways out of cellular reach and give continuous global coverage.

# Lacuna battery powered satellite relay



# Connected sensors for maritime

Update from London International Shipping Week, September 2019



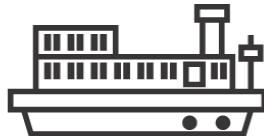
Monitoring Carbon Footprint



Better Asset tracking



Predictive Maintenance



Autonomous Ships

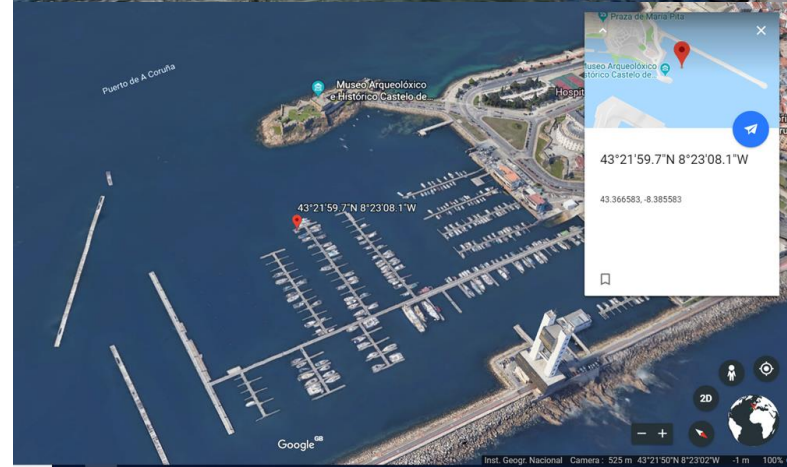


New applications



# Use case demonstration: vessel tracking

- Device with GPS installed and tracking sailing boat
- Travelling across the Atlantic from The Netherlands via Falmouth, Spain, Portugal and Canary Islands.
- Device works seamlessly with local LoRa networks in harbours (via *The Things Network*)
- Telemetry received in LoRa messages from the boat:
  - Device telemetry: tri-axis accelerometer, latitude, longitude, altitude, ambient pressure, temperature, humidity
  - Radio data: time, data rate, coding rate, RSSI, SNR, frequency, air time, etc.



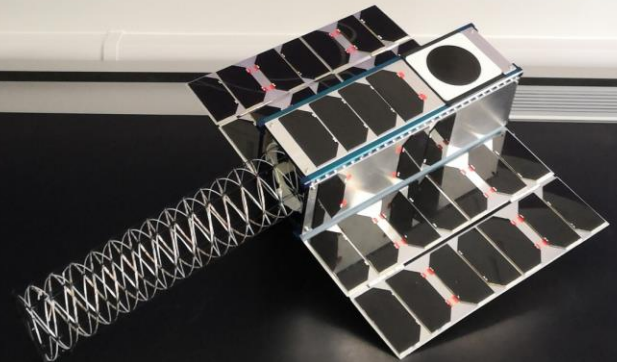


# Timeline

- Proof of concept extremely successful
- Use case demos underway
- Additional three sats before end 2019
- Early 2020: customer demos planned
- By end 2020 will deploy two further clusters totaling 24 satellites
- Complete constellation will be 240 satellites serving 50 million sensors



*space*  
**Lacuna**





Lacuna