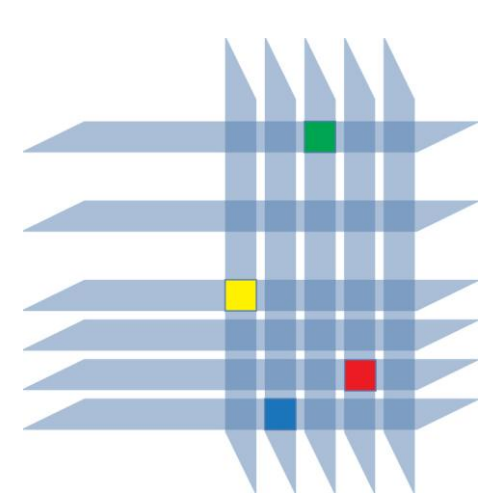


Colloque : Télécommunications - réseaux du futur et services

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F-Lab <http://www.f-lab.fr/>

Federating Computing Resources

UPMC Sorbonne Universités

INRIA

Alcatel-Lucent Bell Labs France

Thales Communications

Start date: November 2010

Coordinator: Timur FRIEDMAN (timur.friedman@upmc.fr)

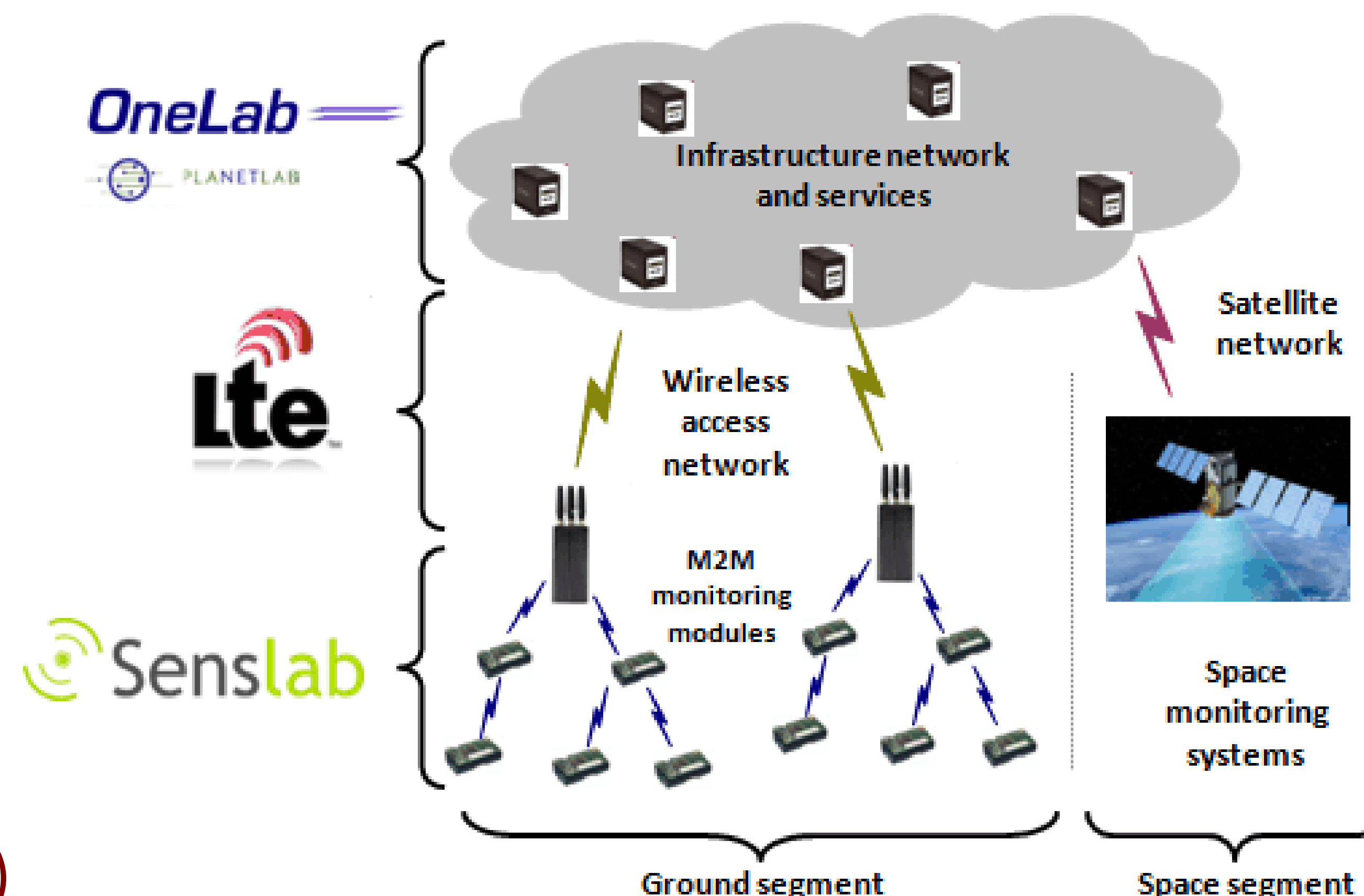


Figure: Using F-Lab for Smart Metering

Background

- From 2007: major initiatives launched in Europe, the United States and Asia (**FIRE, GENI, AsiaFI**)
 - From 2008: **G-Lab**, key European national initiative, started in Germany
- F-Lab builds on:
- **OneLab**: flagship FIRE facility; pioneer in testbed federation
 - **SensLAB**: world-class sensor networking testbed
 - **LTE**: advanced cellular networking technology

The F-Lab partnership

Each F-Lab partner brings a specific expertise to the project:

- **UPMC**: Operates PlanetLab Europe within the OneLab facility, with over 200 member institutions across Europe.
- **INRIA Planète**: jointly leads, with Princeton University, development of the core PlanetLab operating system
- **INRIA D-NET** and **INRIA POPS**: develop and operate world-class sensor networking testbed SensLAB, offering over 1000 wireless sensor nodes located in four major facilities around France
- **Alcatel-Lucent Bell Labs France**: brings a long experience of developing next-generation cellular networking technologies to the development of LTE testbed facilities
- **Thales Communications**: provides a use case for remote earth sensing, deployable on F-Lab's federated testbed

Innovation

F-Lab will tackle the difficult problem of **federating heterogeneous testbeds**. The project will:

- Innovate at both the **control plane** and the **experimental plane**
- Develop **interfaces** and **standards** that strike the right balance between uniformisation and flexibility
- Allow researchers to carry out experiments across a **variety of testbeds** and study questions at a **scale** never before possible
- Promote further innovation through **federation**

Expected results

- The F-Lab project will result in a **federated open platform** for researchers in France and worldwide
- It will allow experimentation on **combined wireless and wired**, access and core **networking technologies**
- Experimenters will gain **seamless access** to:
 - OneLab's PlanetLab Europe testbed
 - An LTE testbed
 - SensLAB
- Using a **single experiment control interface**, the user will be able to pilot his or her experiment and also retrieve measurements from across the three testbeds, thanks to **uniform monitoring standards**

Market opportunities

Market opportunities stemming from F-Lab are twofold. Not only will the project provide **open hardware architectures** that can be re-used by industry to create **in-house federated testbeds**, but there is also the potential for the offering of federated testbeds as a **commercial service**.