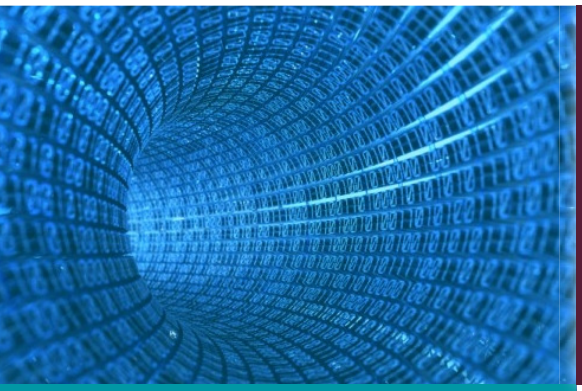
F-Lab

Use case



M2M technologies:

Smart monitoring application

Building on new wireless technogies

The dropping cost of wireless public access networks has fostered the emergence of Machine-to-Machine (M2M) technologies in recent years. This technology is widely deployed today and is used for simple telemetry applications - for example electricity metering, fleet management, and pay-as-you-drive car insurance.

With information and communication technologies now playing a key role in building the next generation of monitoring systems, the emergence of these low-cost and miniaturized Wireless Sensor Networks (WSNs) represents a key enabler to deploy complementary observation means that increase the situation awareness within infrastructures such as critical assets, cities, or public transportation.

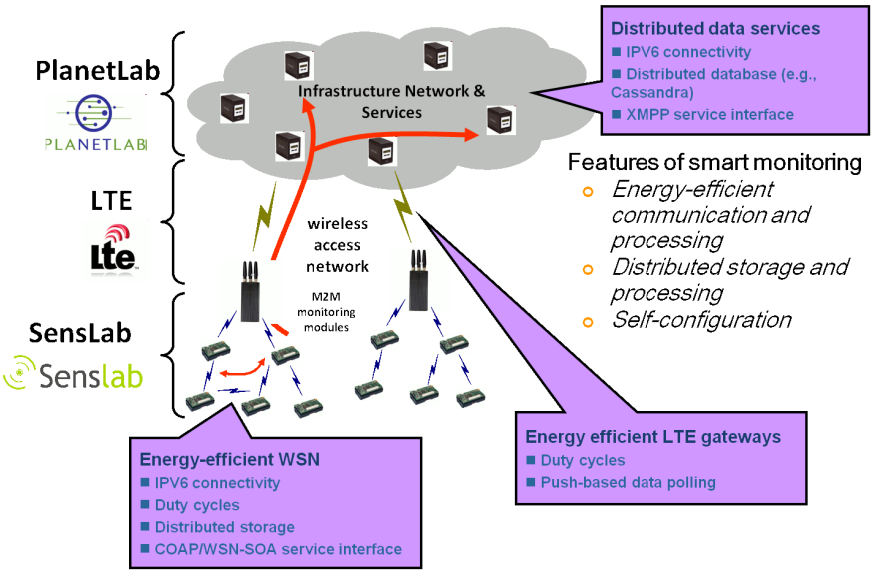


Diagram of a possible smart monitoring scenario for the use case.

The F-Lab project's use case aims to evaluate the operation of a smart monitoring application on SensLab and PlanetLab platforms. The scenario involves 100s of SensLab wireless sensor nodes that collect situational data in an energy-efficient and reliable manner. The storage of acquired data is provided through distributed and redundant means on the SensLab platforms and PlanetLab infrastructure. LTE (Long-Term Evolution) technology is also involved to attach SensLab gateways to the PlanetLab network. Finally, the adoption of a RESTful approach with the use of standard IP-compatible protocols (HTTP, IETF CoAP) enables sensor devices to interwork easily with legacy networks.

Benefits of smart monitoring

The smart monitoring application developed in F-Lab's use case provides unprecedented feedback on large-scale experimentation of WSN protocols for smart monitoring. It also demonstrates the viability of F-Lab's tooling for configuring and running a variety of applications.

Other benefits include:

Energy efficient communications

> The SensLAB nodes used in this use case execute a very low-power Medium Access Control (MAC) tailored for data collection. The operator can modify the system's parameters to improve 'latency vs. lifetime' tradeoff.

Better storage and reliability

> Data storage that is redundant and distributed in-network allows operators to store more data and to be resilient against node failures.

Easy integration and extensibility

> The use case relies on the latest IETF standards such as 6LowPAN, RPL and CoAP, which facilitate interoperability with legacy systems.

Find out more

If your are interested in knowing more about this F-Lab's smart monitoring application, please contact Vincent Gay of Thales Communications & Security, vincent.gay@thalesgroup.com.

About F-Lab

This use case is carried out in the framework of the F-Lab project. Supported by the French National Agency (ANR) in the framework of its Future Networks and Services programme, VERSO, F-Lab works towards enabling an open, general-purpose and sustainable large-scale shared experimental facility that fosters the emergence of the Future Internet.

Project partners include some of France's top academic and industrial research institutions, working together to develop experimental facilities on the Future Internet, and additional funding is is provided by ICT clusters Systematic and SCS.

For more information visit us at www.f-lab.fr.

F-Lab