As Scalable As Possible

Foundation of Large Scale Dynamic Distributed Systems

- Leader: **Anne-Marie Kermarrec**
- INRIA project from 2004
- Bi-localized team between Rennes and Paris
- Team
  - 6 Permanent Faculties
  - 9 Ph.D. Students
  - 4 Post-Docs
  - 3 Engineers
  - 1 Internship

Research Topics

Fundamental researches

- **Models and abstractions** *(Shaman)*
  - Distributed algorithms
- **Peer to Peer** *(P2PImages)*
  - Epidemic protocols, resources management, self-organizing networks, ...

Applicative researches

- **Social Network** *(Gossple)*
  - Exploit social network in decentralized systems
- **Sensor Network** *(Senslab - Senstools)*
  - Benefit from p2p algorithms for sensor networks

Sensor Network researches

- Opportunistic routing and data dissemination
- Data and structure organization
  - Self-structuring
  - Virtual coordinate
  - Network distribution
  - Mobile environment
- Resource and zone coverage management
- Opportunistic forwarding in Cognitive Radio Networks
- Network coding for data dissemination
- Stock management

Projects / Collaborations

- **European Projects**
  - Gossple *(Social network)*

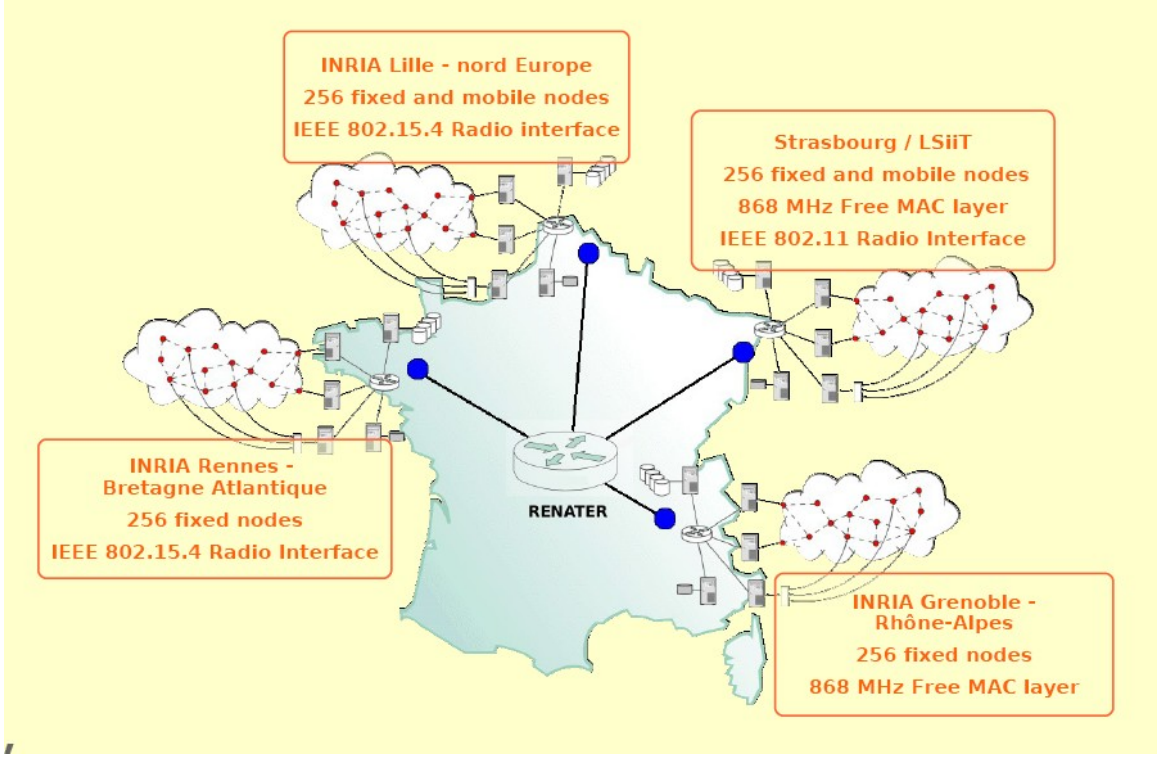
- **French Projects**
  - Senslab *(Wireless Sensor Network)*
  - Senstools *(Wireless Sensor Network)*
  - Shaman *(Algorithms for dynamic platforms)*

- **Regional Project**
  - P2PImages *(Video distribution in p2p)*

Senslab

Very large scale open wireless sensor network testbed

- **Senslab = Open and distributed testbed**

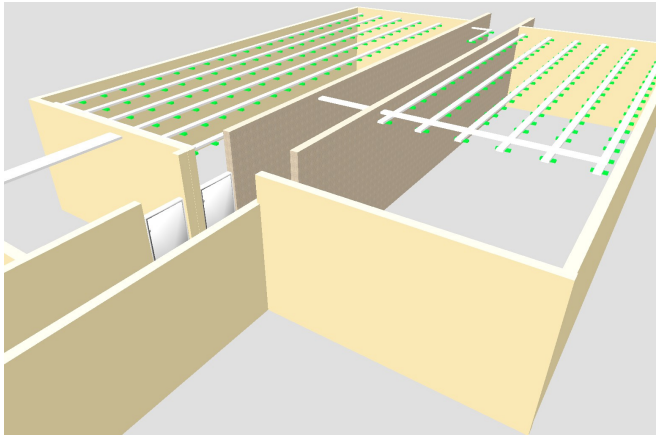


- **Senslab Node = Control node + Gateway + Open node**

Senslab

Very large scale open wireless sensor network testbed

- **Rennes testbed**
  - 256 fixed nodes, IEEE 802.15.4 Radio Interface
  - Ready to use: January 2010



Senstools

Wireless sensor network toolbox

Support to Senslab testbed

- **Hardware**
  - Additional features for Senslab nodes (prototyping, amplifier, audio, motion capture board, ...)
- **Software**
  - Drivers, OS (FreeRTOS, TinyOS, Contiki)
- **Tools**
  - Toolchain, simulator (wsim, wsnet)

6th RECAP Workshop

Tutorial on the Senslab platform

Interaction Pucecom / Senslab

- **Senslab = Open testbed**
  - Facilities for Pucecom partners
- **Interaction PERECAP / Senslab**
  - Mobile modules to communicate with Senslab nodes

- **Advantages**
  - Increase the number of node for the experiments
  - Integrate mobility facilities at Rennes testbed
  - Increase visibility (events, partners, ...)