

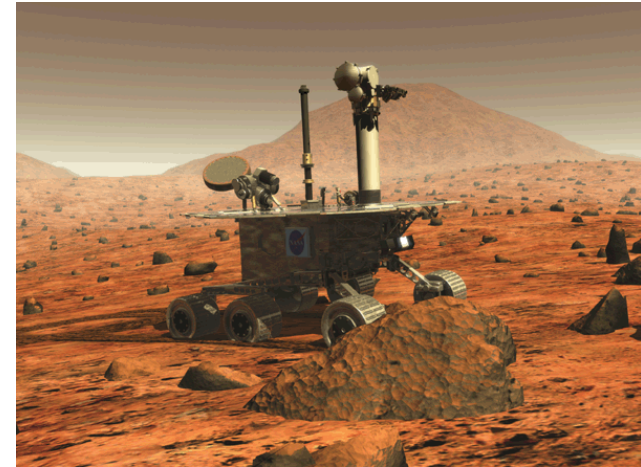
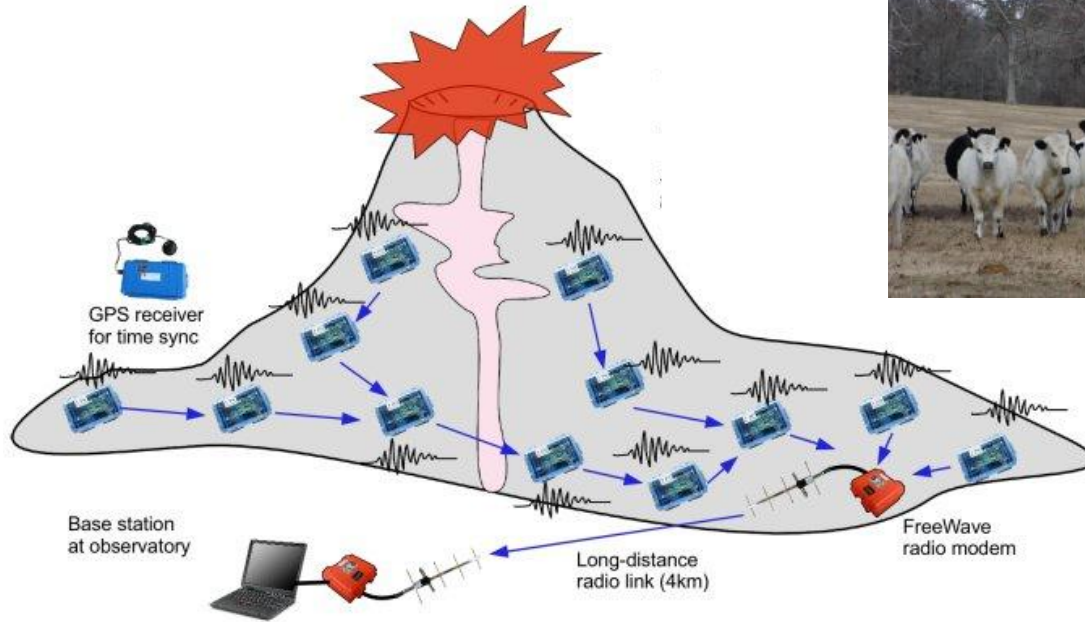


Wireless sensor networks challenges

Nathalie Mitton

WIRELESS SENSOR NETWORKS

Tens of applications




Challenges




- Deploying and discovering
- Structuring
- Activity scheduling
- Communicating


Discovering

a 

c	1
b	2

~~c~~ 

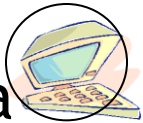
a	c	a	0
a	c	a	
b	a		
b	a		

b 

a	0
c	1

Discovering

a	00
c	2



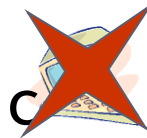
a

b	1
c	2



c

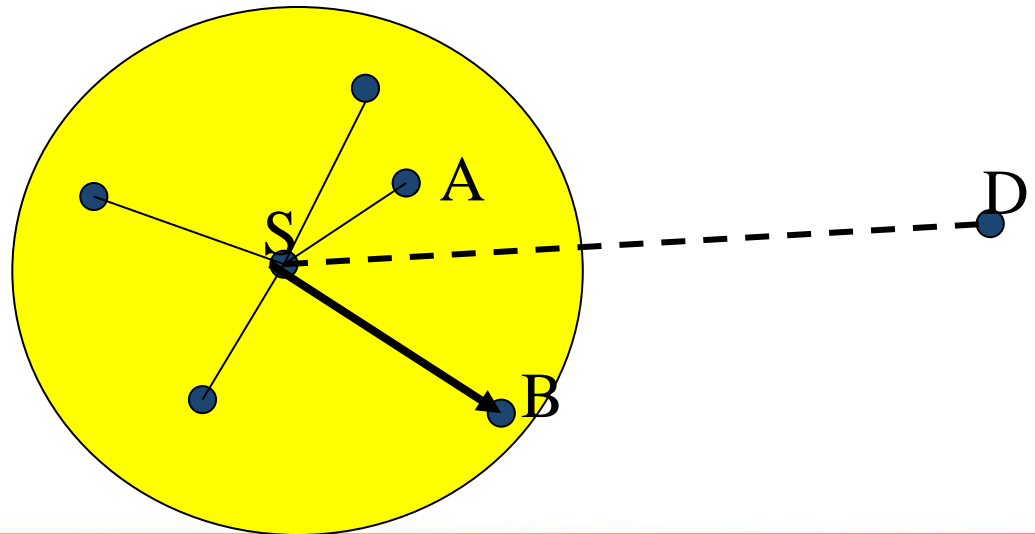
a	0
b	1



c

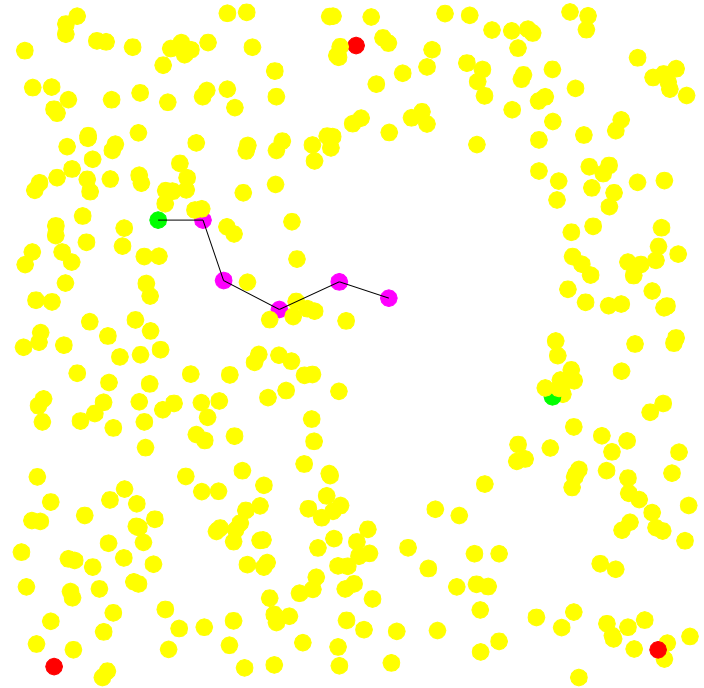
Routing

- Routing data from any sensor to any other one.
- Geographic routing based on node position
 - Memory-less and scalable



Routing

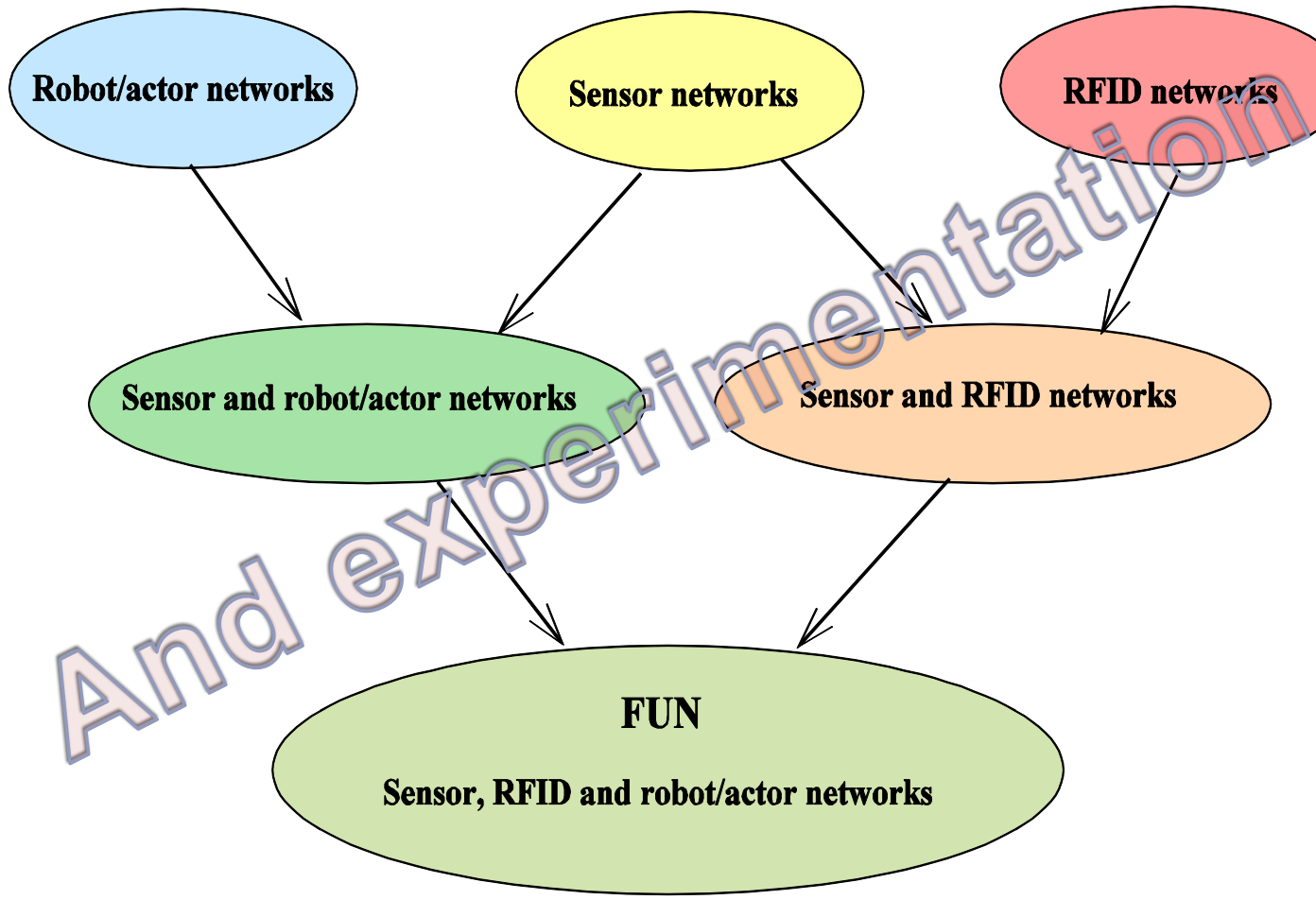
- Delivery ?



Other challenges

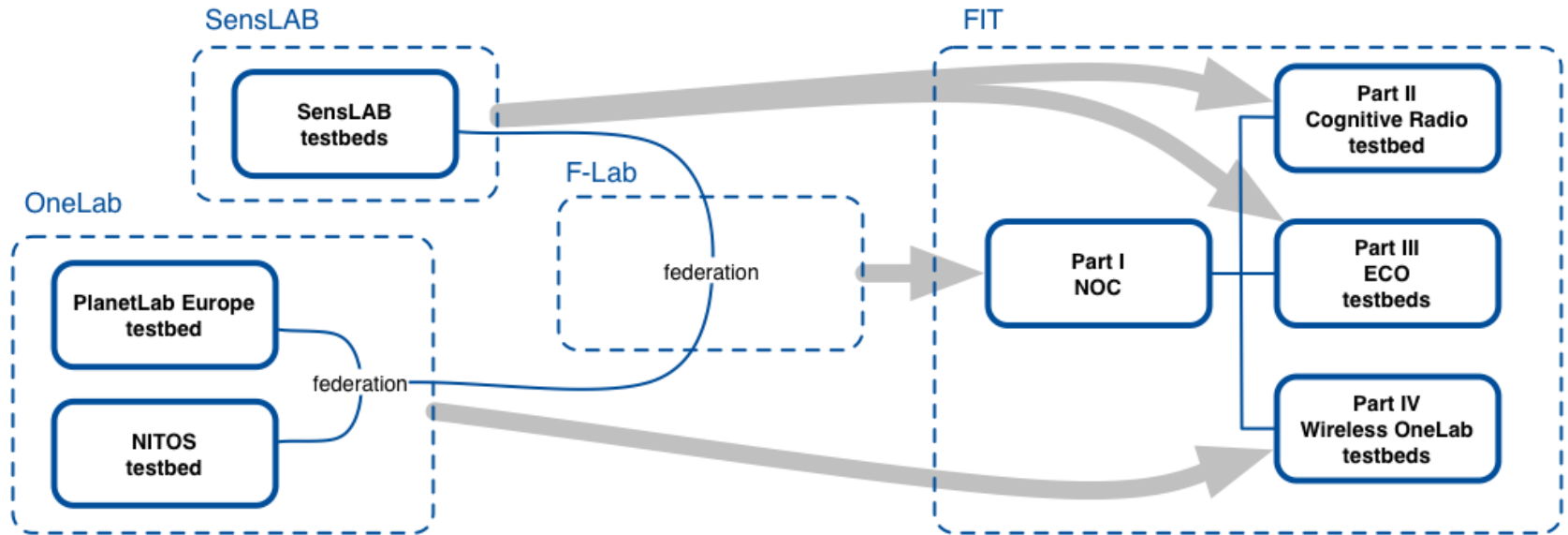
- Clustering
- Topology control
- Area coverage
- Activity scheduling

Our focus

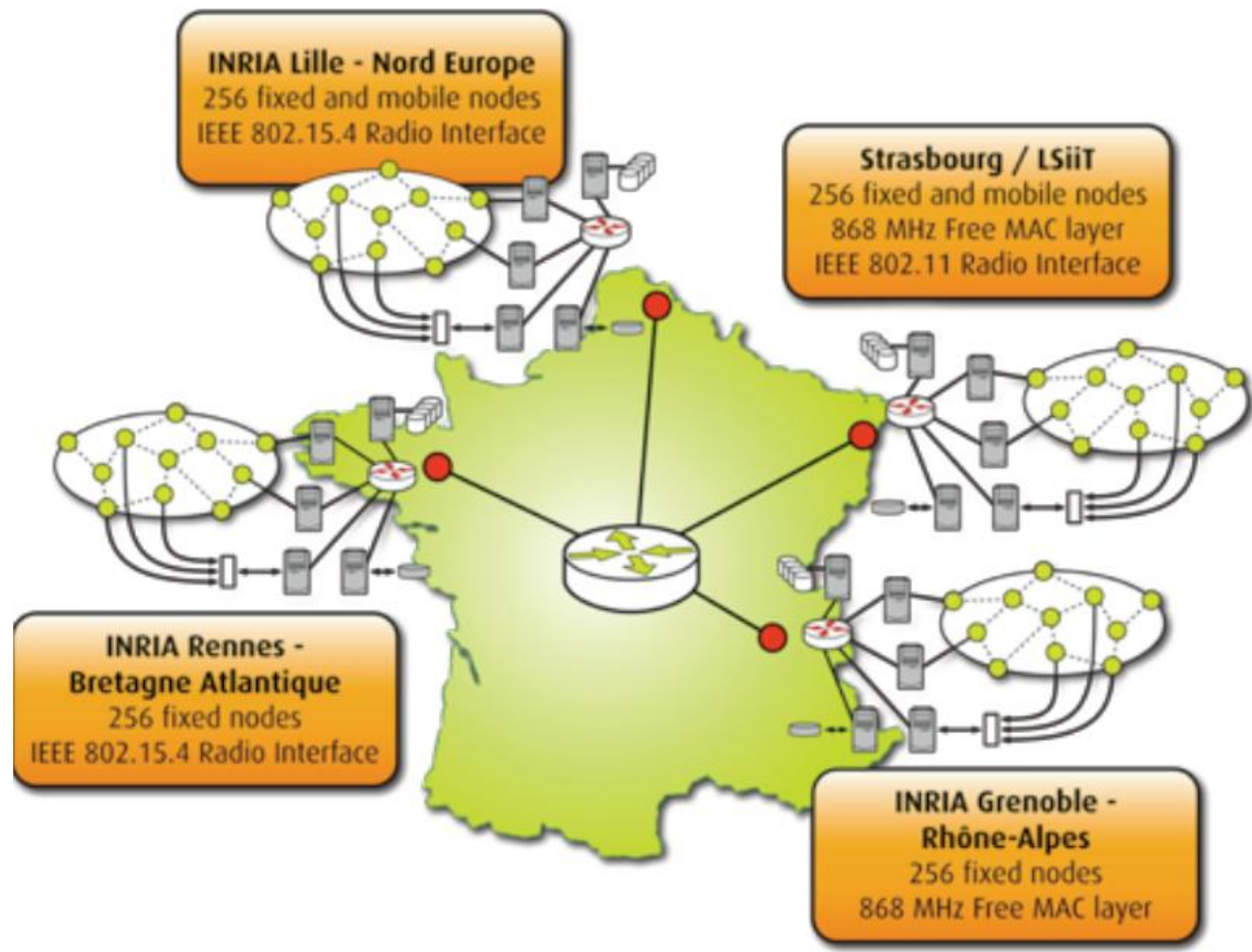


OUR TOOLS

FIT



SensLAB



FIT à Lille

- 2 platforms
- - 200 m² : 256 sensors + 64 robots



- - 64 sensor nodes on a vertical accessible place

Tools

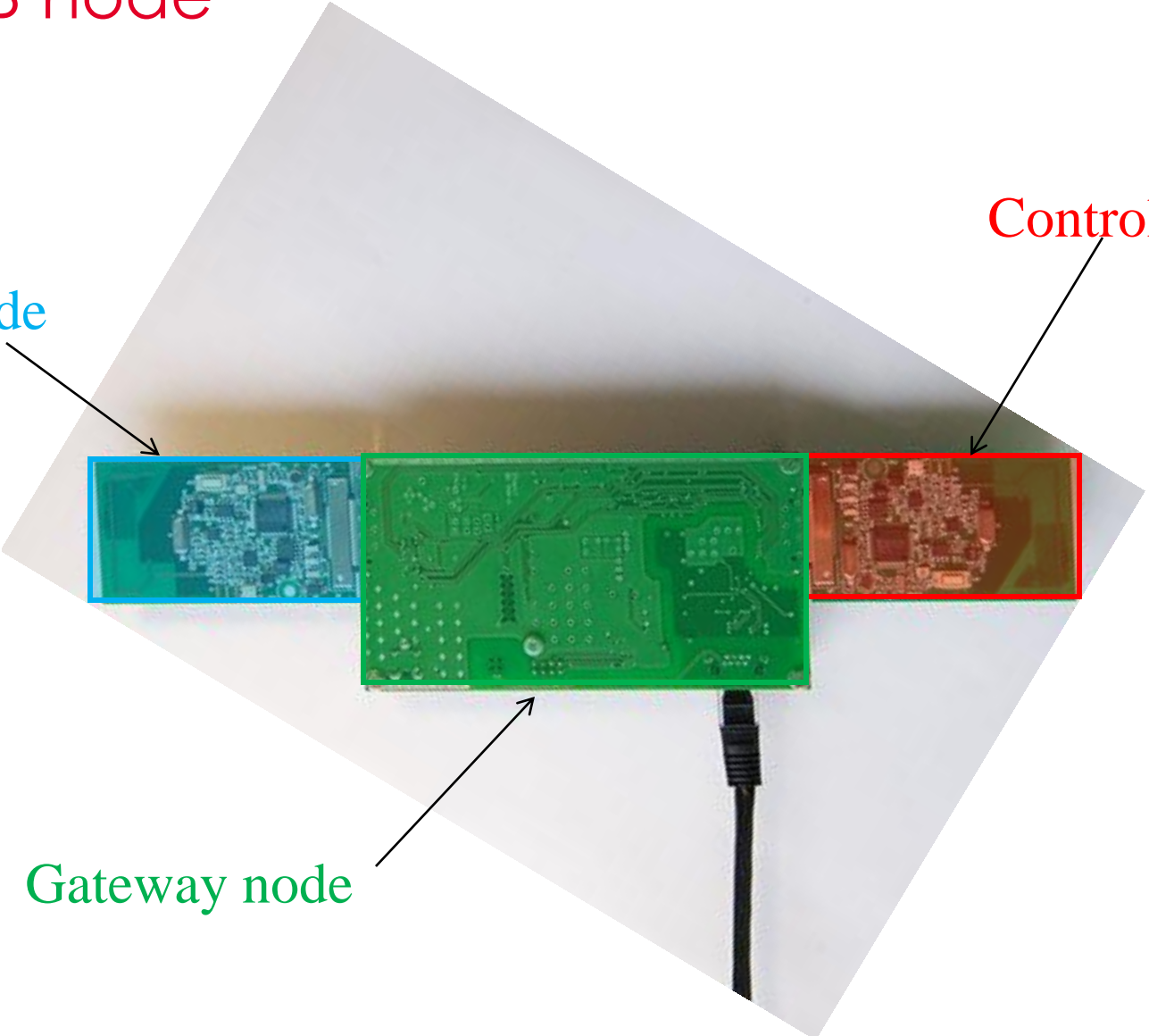
- Remote access
- Automatic code loading
- Monitoring tools:
 - energy
 - sensors
 - Radio activity
- Debugging and result analysis tools

SensLAB node

Open node

Control node

Gateway node



THANK YOU