Evaluate performance and power consumption of the WSN using models

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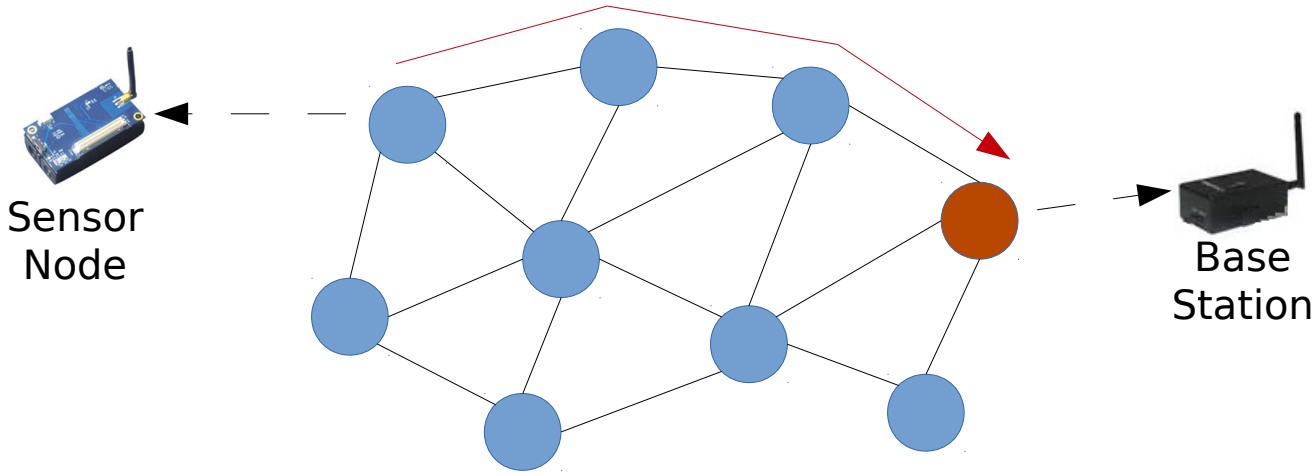
Adiver: Nelson Rosa
Co-adiver: Paulo Maciel

Scripts

- Introduction
- Models
- Tools
- Open Topics
- Conclusion

Introduction



- **Wireless Sensor Network (WSN) is:**

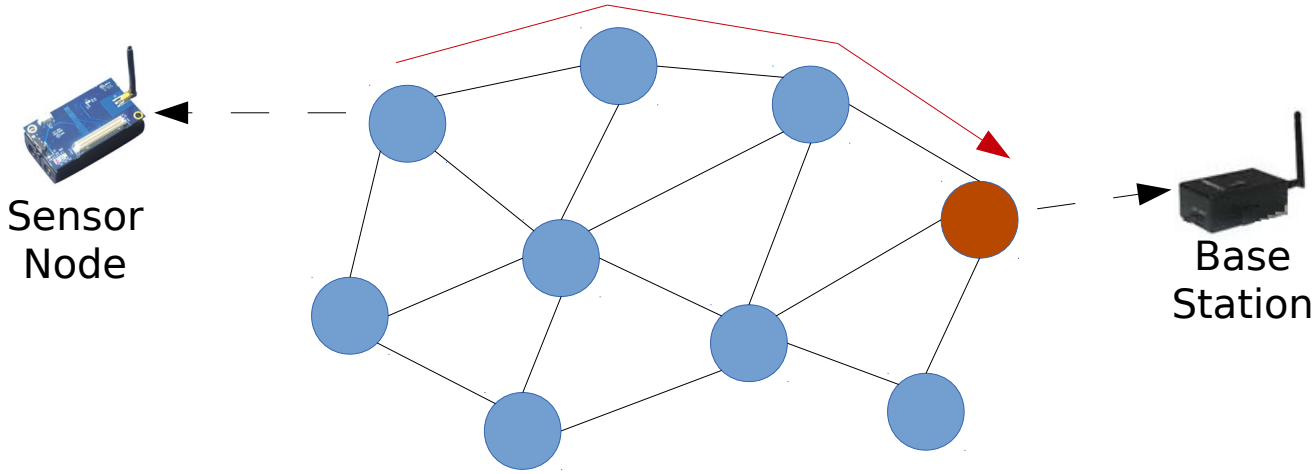
  the *ad hoc* network;

  forming by small sensor with little resource (mainly, of energy);

- **The node sensor analyzes the environment, collects data and sends it to base station;**

Introduction

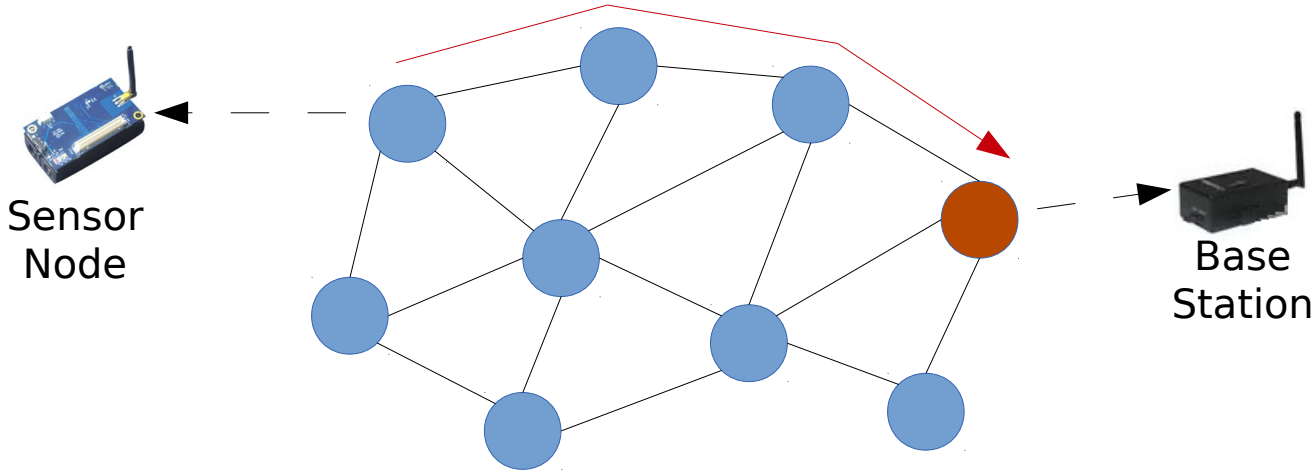
Problem



- **Before deploying a WSN, it is necessary to estimate:**
  - power consumption of the application;
  - impact of the protocol stack;
  - finally, lifetime of the network;

Introduction

Problem

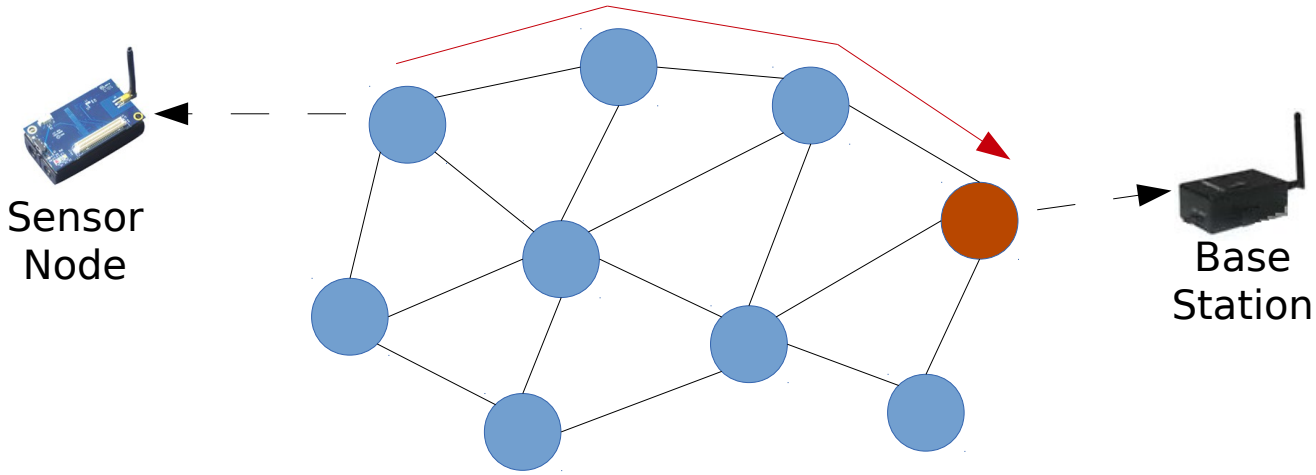


- Before deploying a WSN, it is necessary to estimate:

But how?

Introduction

Problem



- Before deploying a WSN, it is necessary to estimate:

But how?

Simple, using energy models.

Models Proposed

- **Application Model**

  The focus is more on application (with little interference of the network)

- **Network Model**

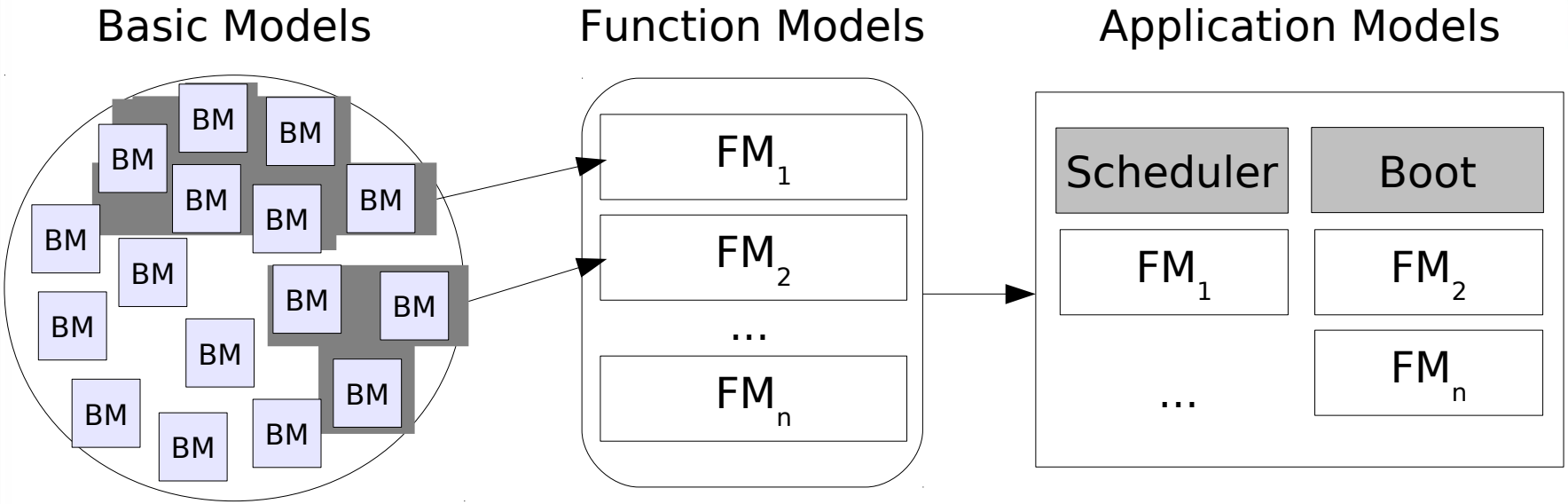
  The focus is more on network (without application model)

- **Integration Model**

  Application Model and Network Model together

Models Proposed

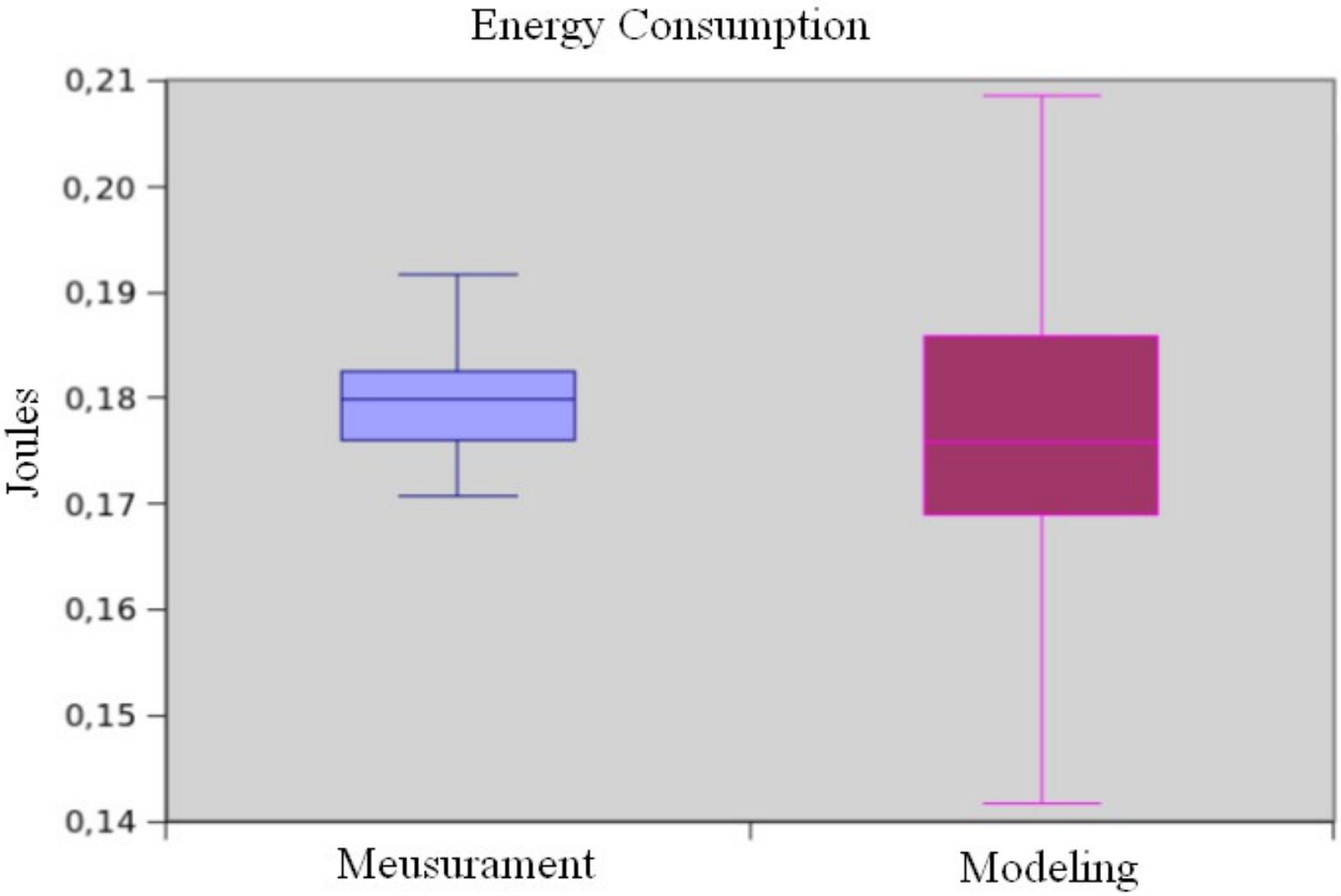
Application Model



* The application model is based on application code;

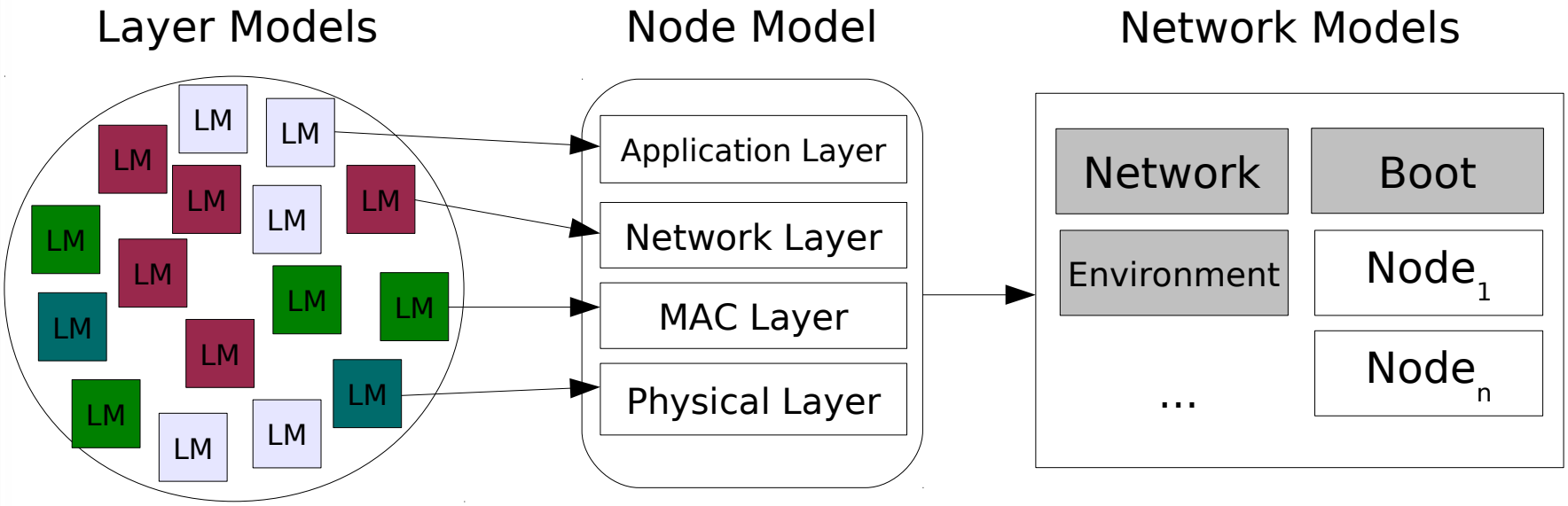
Models Proposed

Application Model (result)



Models Proposed

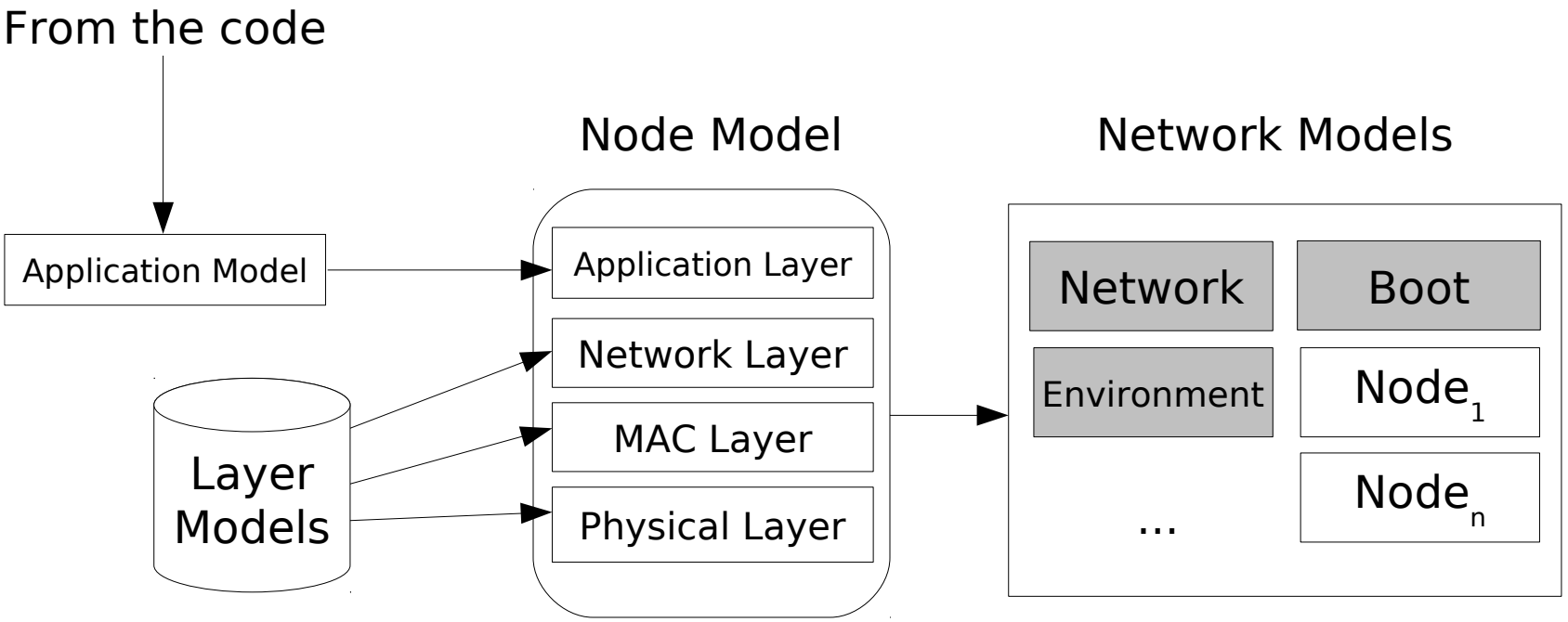
Network Model



Experiments are in progress...

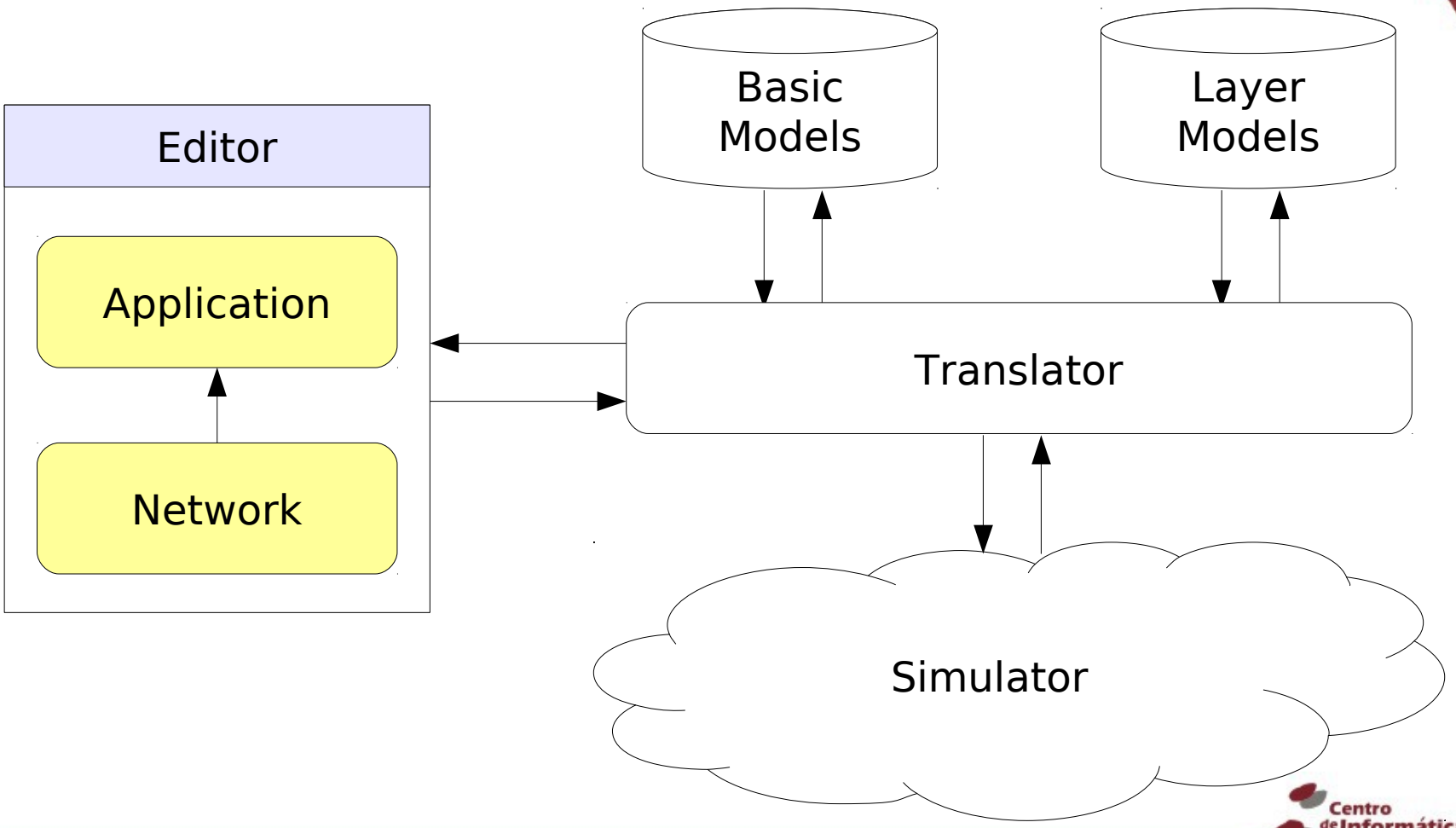
Models Proposed

Integration Model

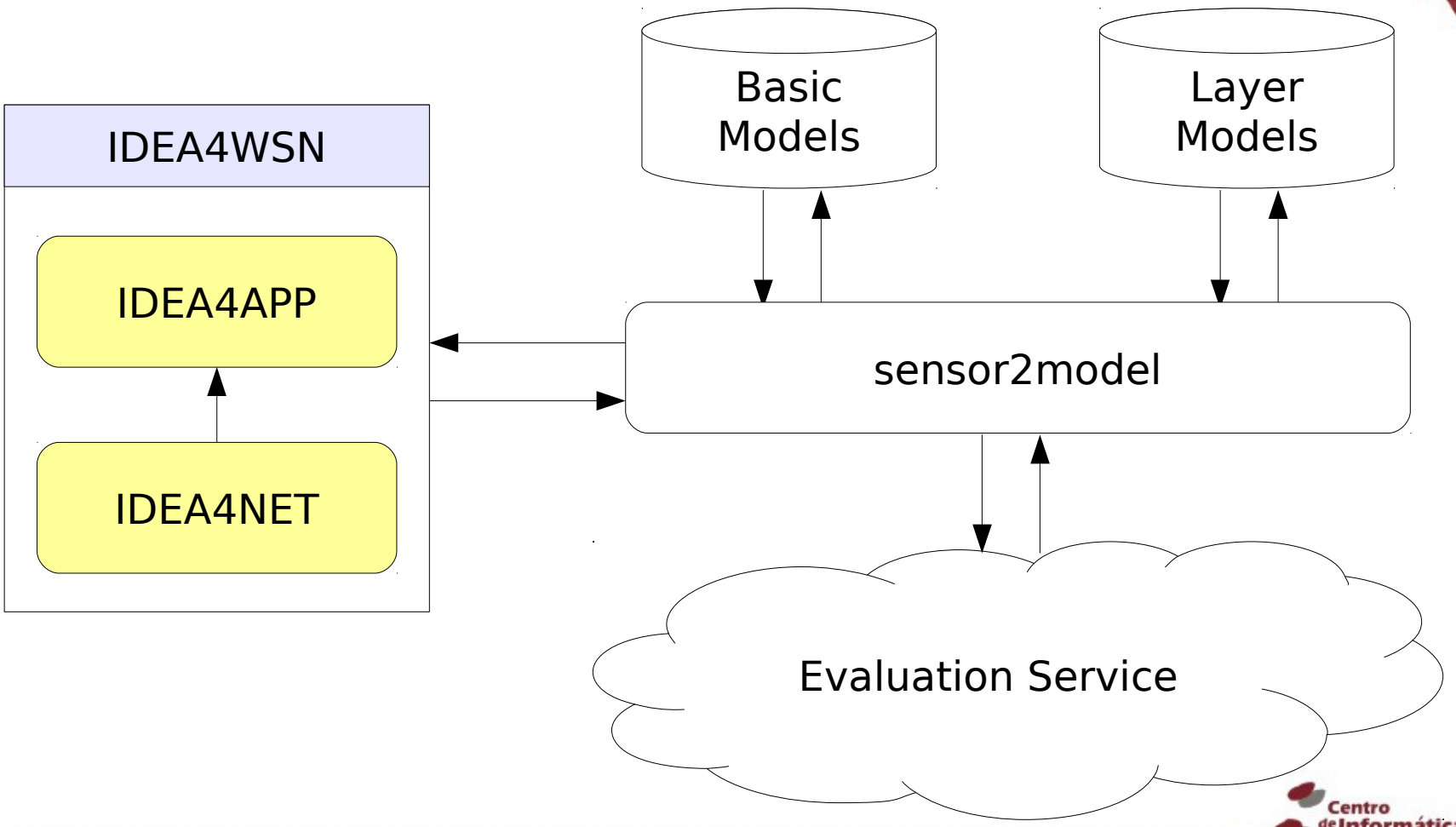


The first version was created;

Tools

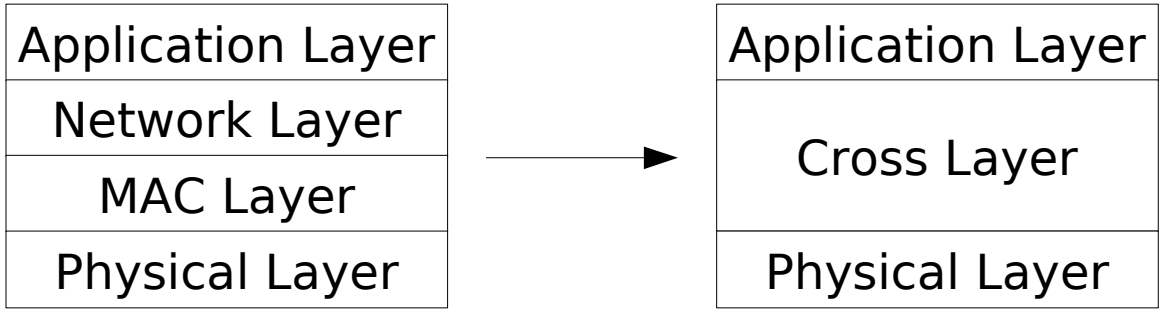

Basic Models
Layer Models
Editor
Application
Network
Translator
Simulator

Tools

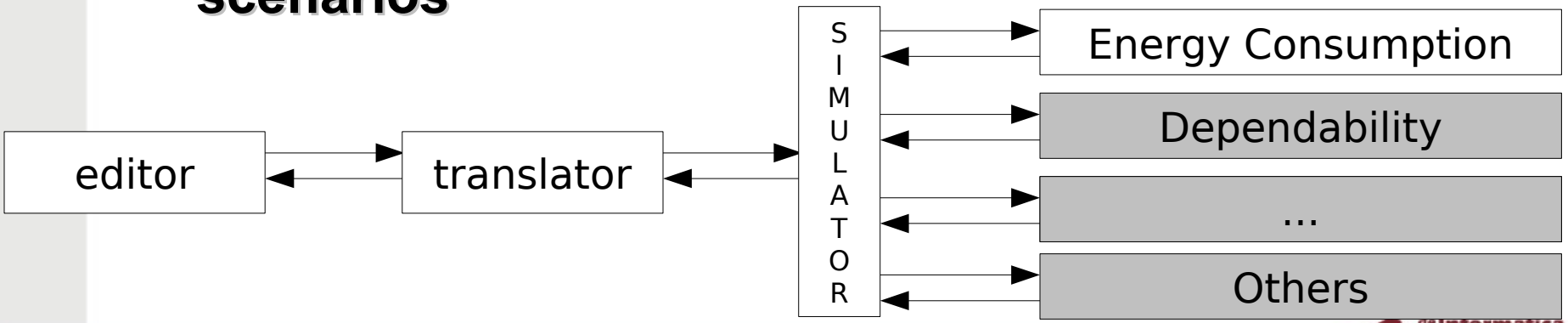

Basic Models
Layer Models
IDEA4WSN
IDEA4APP
IDEA4NET
sensor2model
Evaluation Service

Open Topics

- **Evaluate protocol that is Cross Layer**



- **Create specific models to evaluate specific scenarios**



Conclusion

- We present three models for evaluate a sensor node in different aspects;
- The results show that the application model returns values as realible as the measurement;
- The next step is to validate the network model;
- This project is open source and the code is avaliable at: https://github.com/sensor2model-group/

Questions?

Evaluate the power consumption of the WSN application using models

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