

Low Power Wide Area Networks for the Internet of Things

Framework, Performance Evaluation, and Challenges of
LoRaWAN and NB-IoT

Samer Lahoud Melhem El Helou

ESIB, Saint Joseph University of Beirut, Lebanon

ICT 2018, Saint-Malo, France



Outline

- 1 General Framework
- 2 Design Rationale
- 3 Technical Specification
- 4 Performance Evaluation
- 5 Research Challenges



Outline

- 1 General Framework
- 2 Design Rationale
- 3 Technical Specification
- 4 Performance Evaluation
- 5 Research Challenges



Outline

- 1 General Framework
- 2 Design Rationale
- 3 Technical Specification**
- 4 Performance Evaluation
- 5 Research Challenges



Outline

- 1 General Framework
- 2 Design Rationale
- 3 Technical Specification
- 4 Performance Evaluation**
- 5 Research Challenges



Outline

- 1 General Framework
- 2 Design Rationale
- 3 Technical Specification
- 4 Performance Evaluation
- 5 Research Challenges**



Definition of the Internet of Things

Internet of Things

The Internet of Things (IoT) generally refers to scenarios where network connectivity and computing capability extends to devices, sensors, and everyday items (ISOC IoT Overview, October 2015).

- IoT devices are also called smart objects or connected objects
 - Physical world interface
 - Computing capability
 - Communication interface
- IoT is referred to as Smart Object Networking (IETF)