

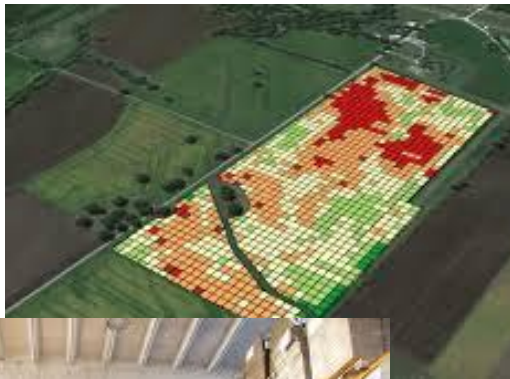
Internet of Things Introduction

Roberto Verdone
www.robertoverdone.org

roberto.verdone@unibo.it
+39 051 20 93817

IoT: Sectors

Smart Agriculture



Connected Cars



Animal Tracking



Smart Spaces

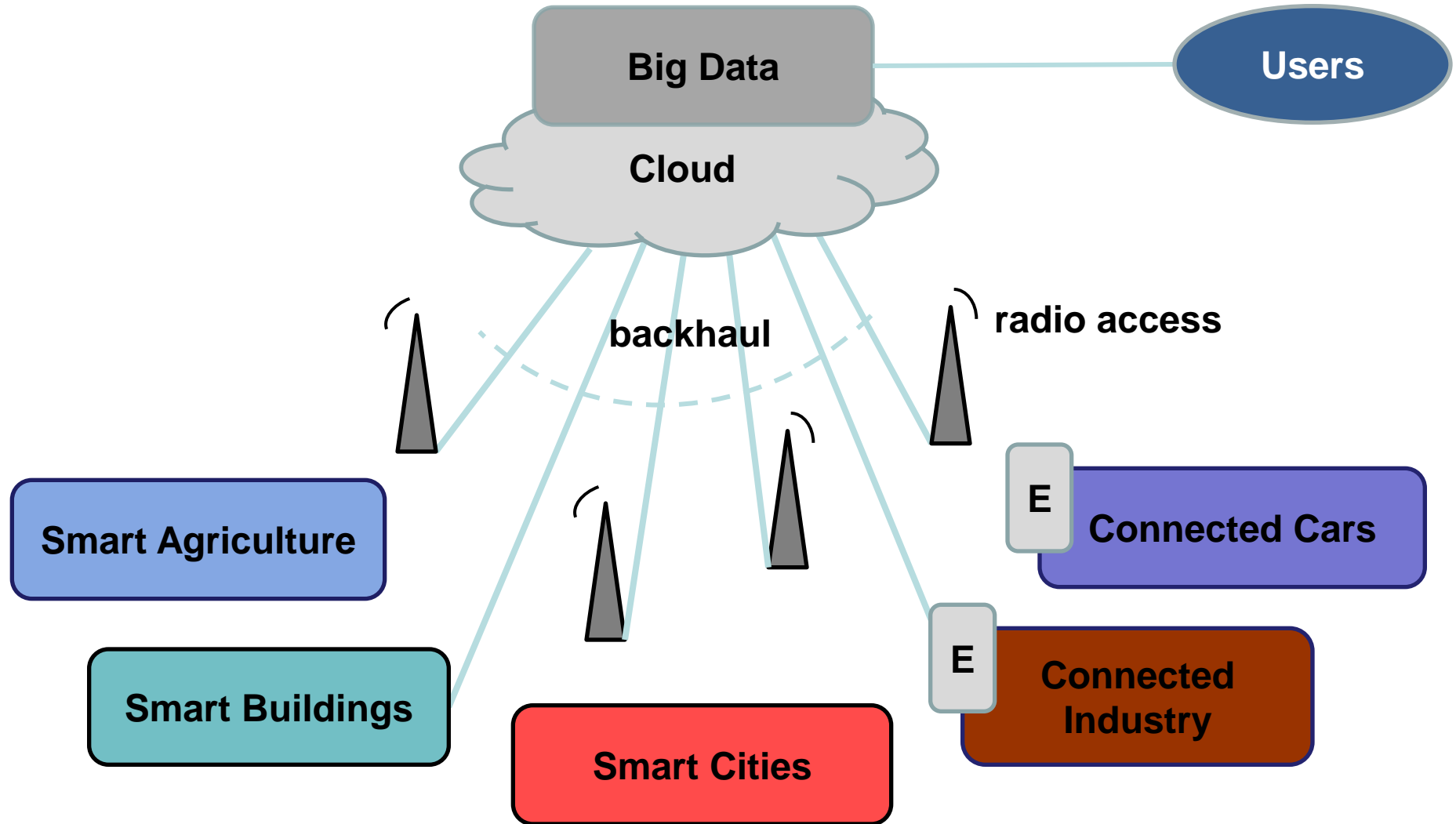


Smart Cities

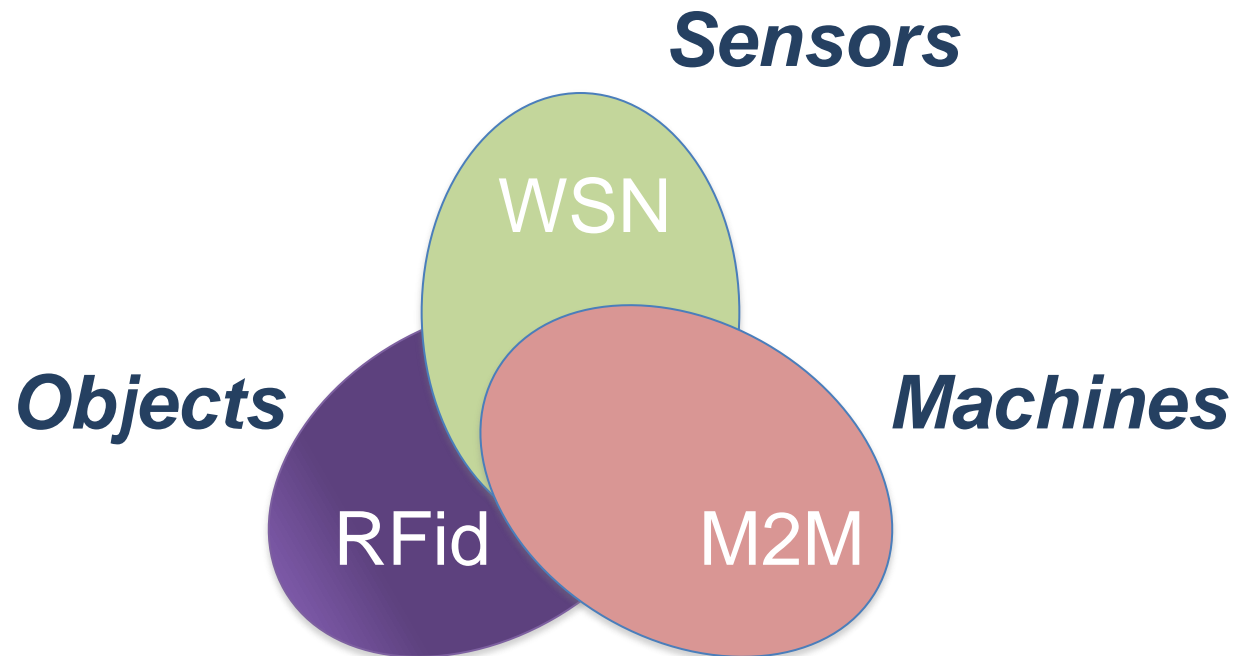


Smart Buildings

IoT: Big Picture



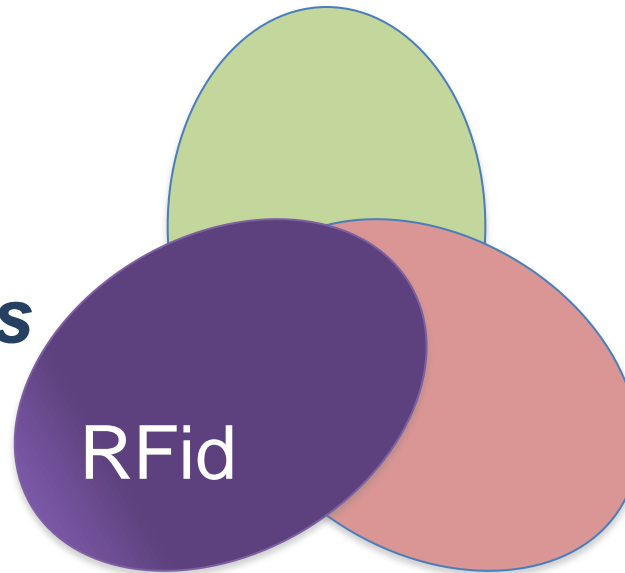
IoT: Things



IoT: Things

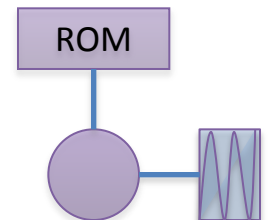


Objects



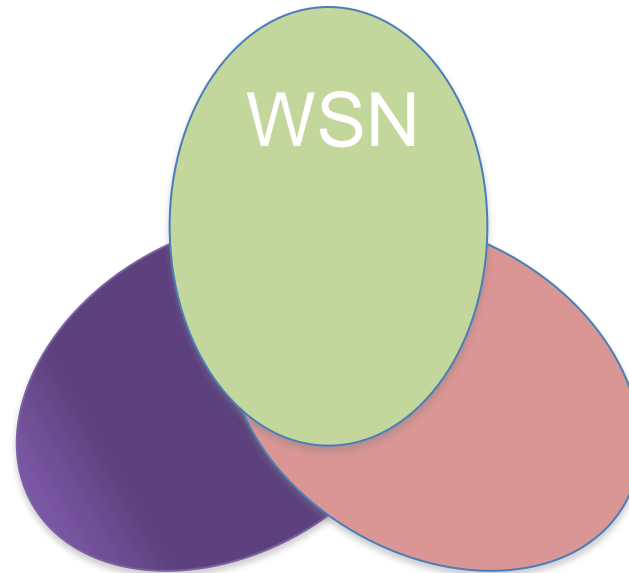
Objects equipped with RFid Tags:

- Identification
- Passive
- No computing capabilities
- Very low cost



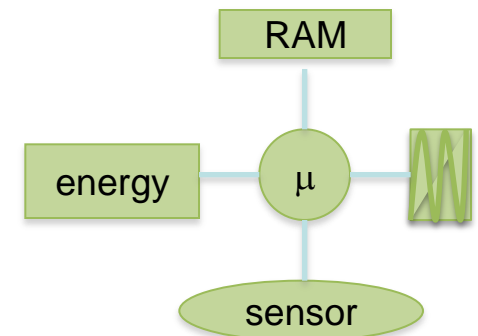
IoT: Things

Sensors

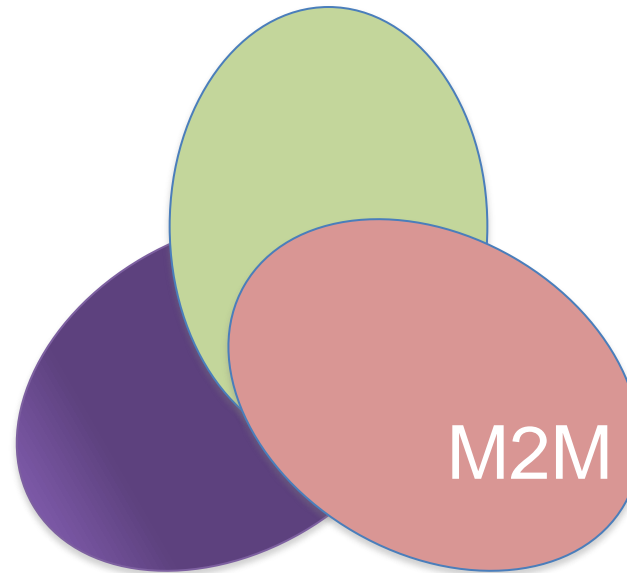


(Embedded) devices equipped with sensors:

- Sensing
- Battery or energy grid
- Some computing capabilities
- Low cost



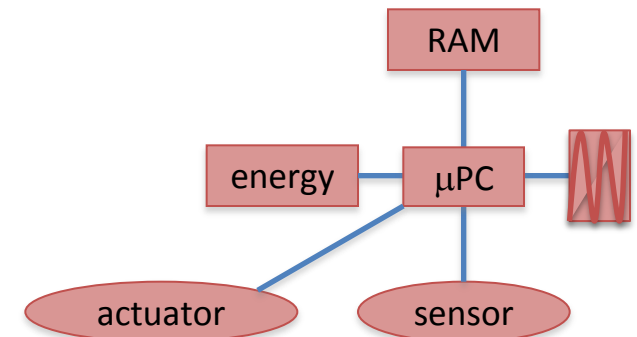
IoT: Things



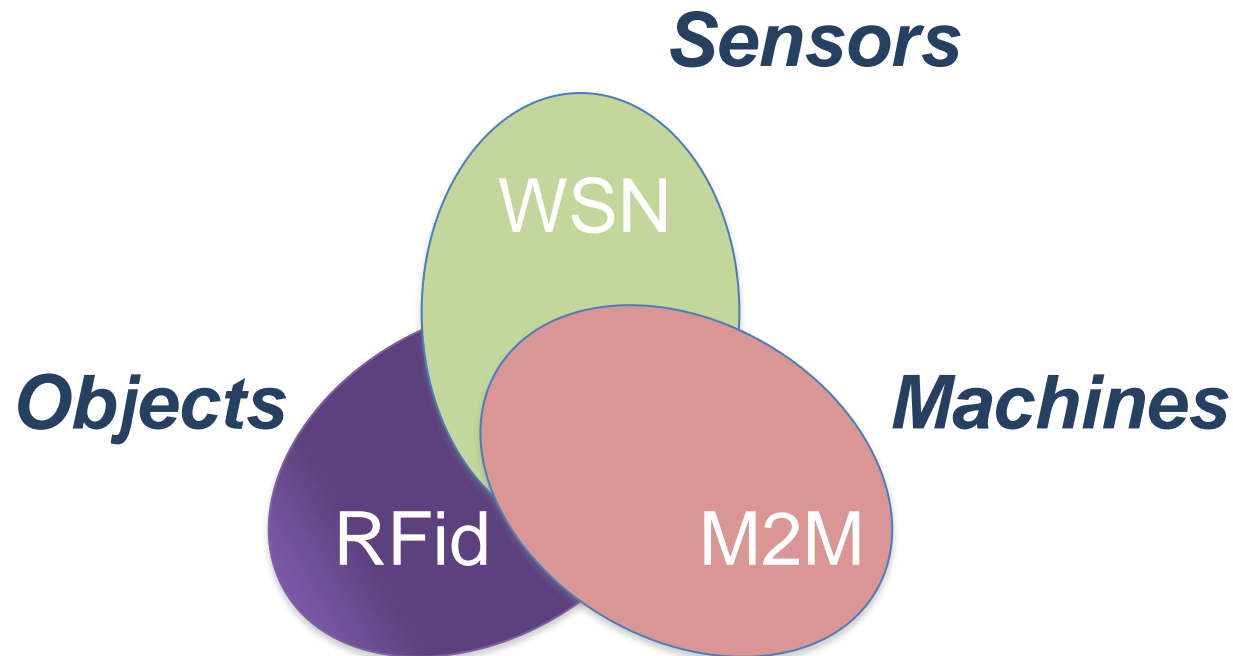
Machines

Machines equipped with sensors / actuators:

- Sensing & Actuation
- Industrial Control
- High computing capabilities
- High cost



IoT: Things



The IoT intends to connect to the Internet, wirelessly, *unmanned* devices of very different nature, complexity and capabilities.

IoT Network Architectures

Cellular
(4G/NB-IOT)

Long Range
(LoRa)

Short Range
(Zigbee)

Tag/Reader
(Rfid)

