

## Digital Systems for Humans

### *Technological Challenges in IoT (DS4H-IoT)*

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# IoT Infrastructures

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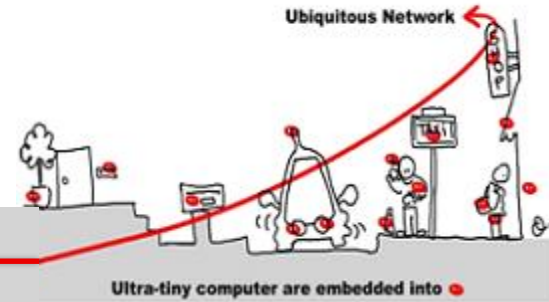
Erasmus+



INTERNET OF THINGS FOR EUROPEAN  
SMALL AND MEDIUM ENTERPRISES

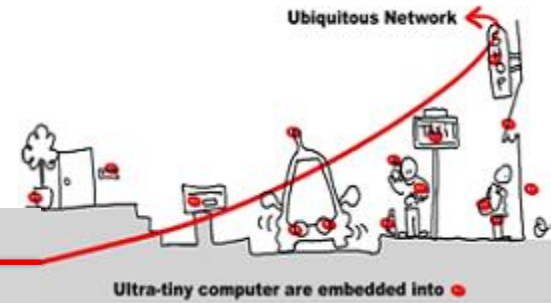


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# Introduction to software Infrastructure for IoT

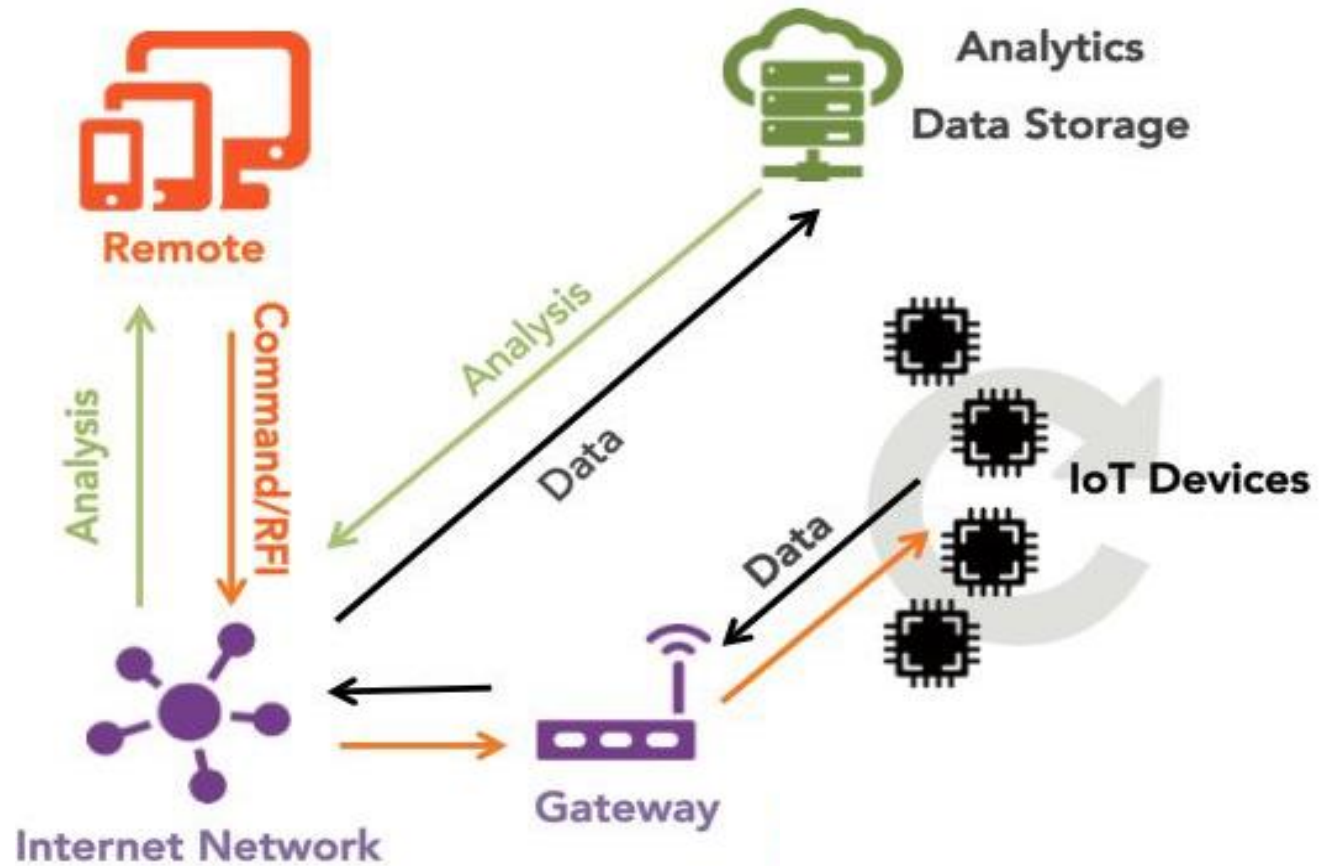
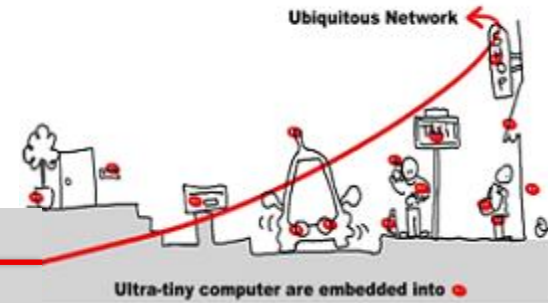
# What is IoT Infrastructure ?



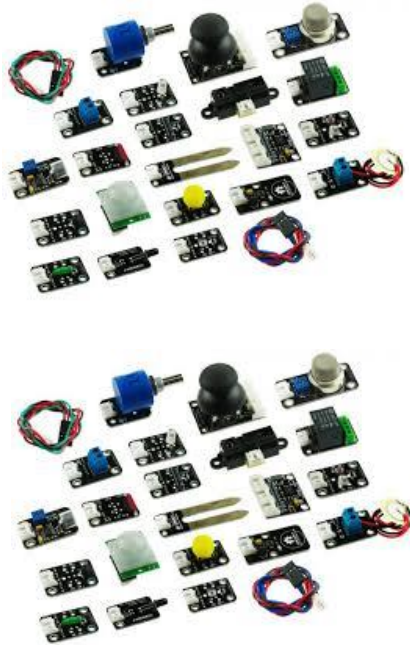
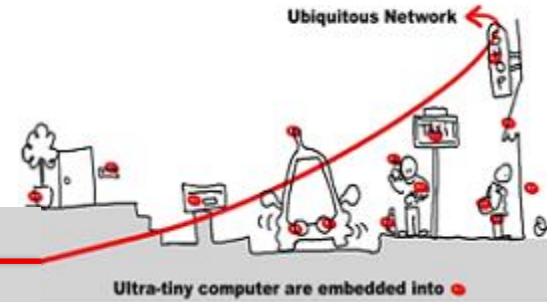
*The interconnection via the Internet of computing devices embedded in everyday objects*

*enabling them to sense (sensors) and act (actuators) in the physical environment, to send and receive data for processing and producing high value information*

# Typical IoT System



# Typical IoT Infrastructure



IoT Devices

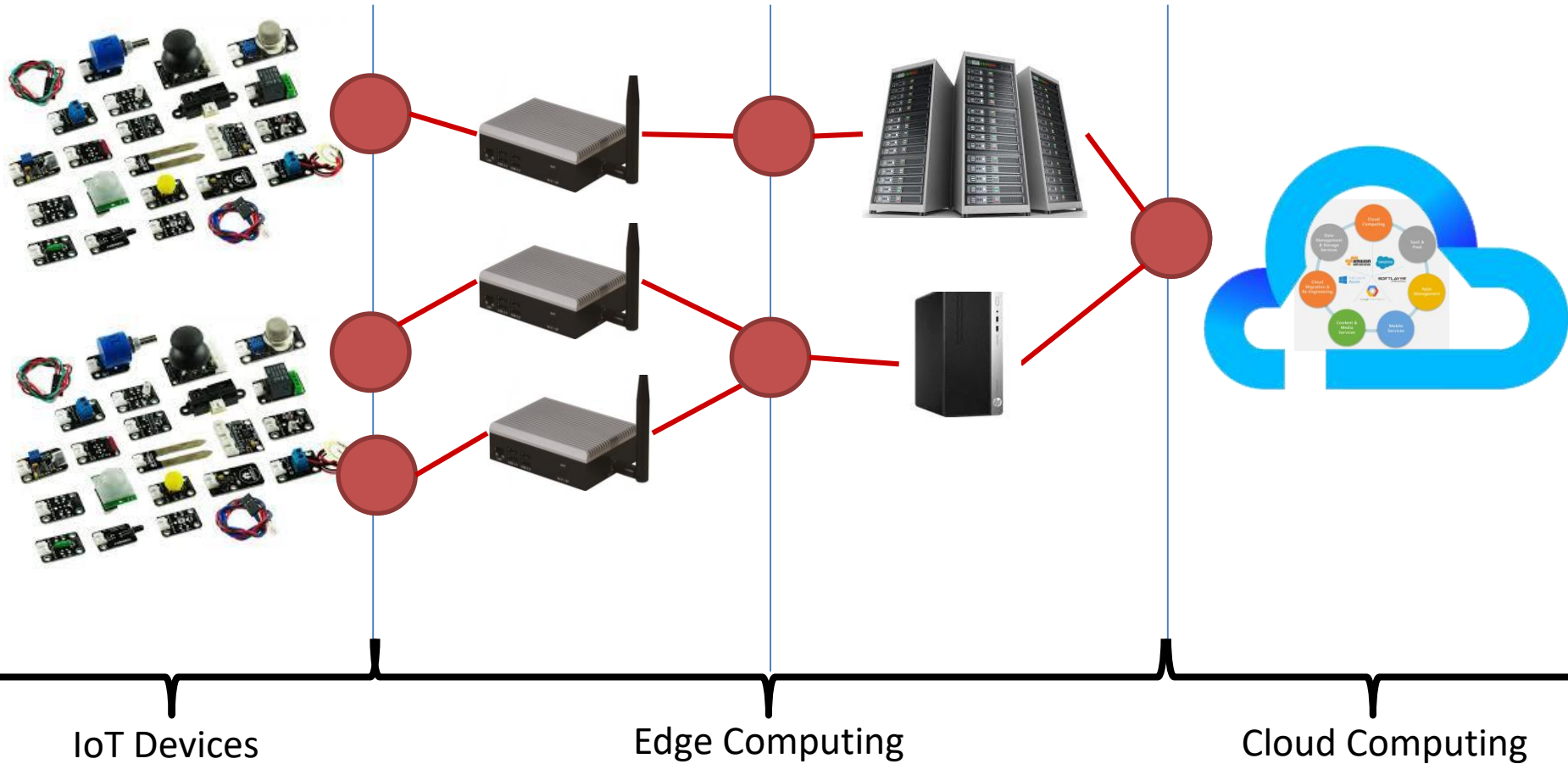
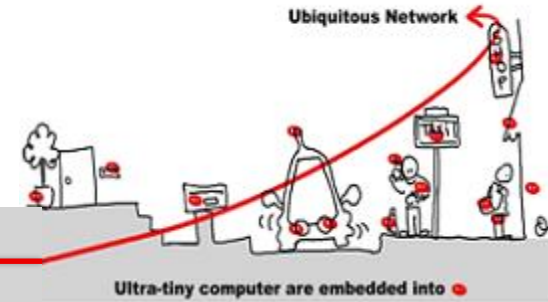


Edge Computing

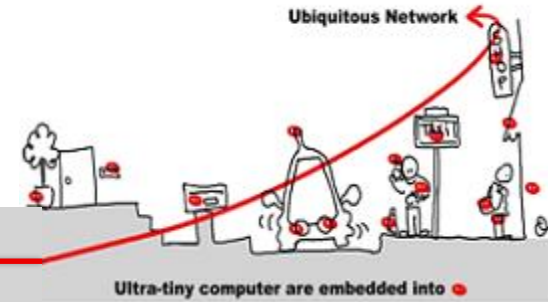


Cloud Computing

# Communication is Key



# Communication Technologies

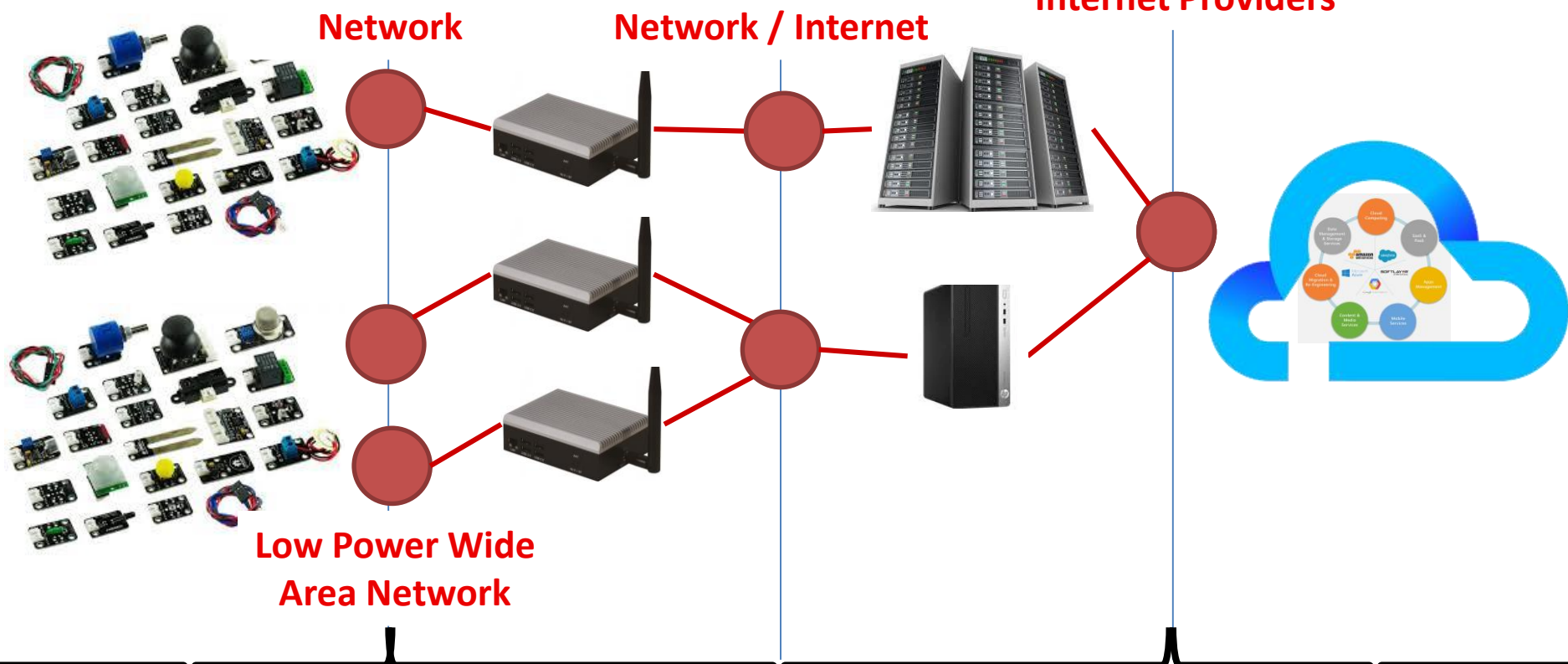


**Personnal Area Network**

**Local Area Network / Internet**

**Internet Providers**

**Low Power Wide Area Network**

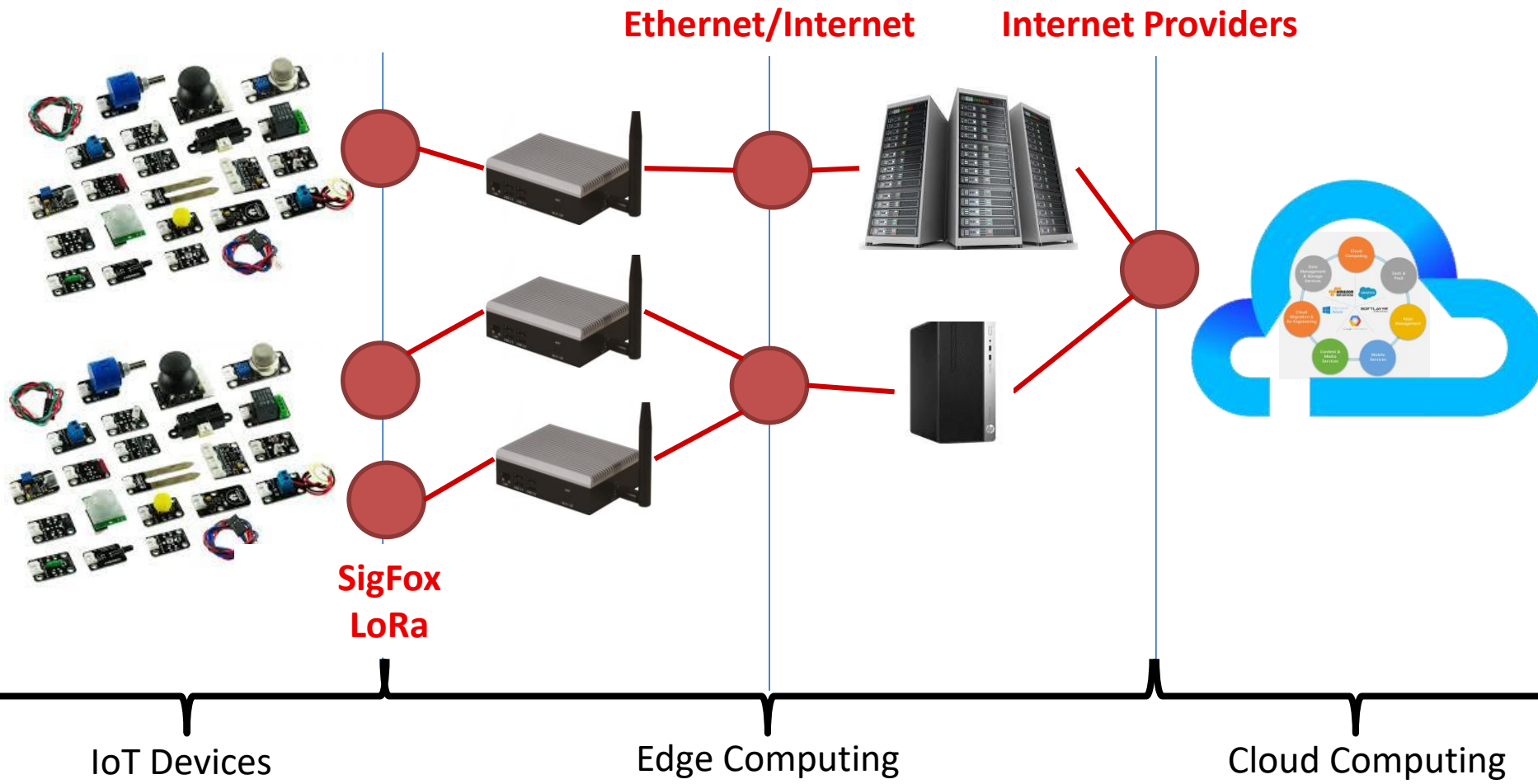
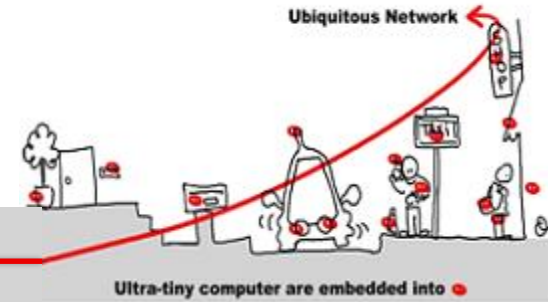


IoT Devices

Edge Computing

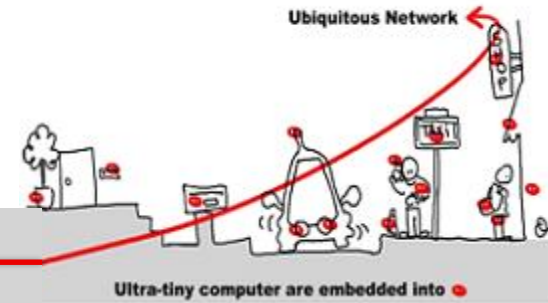
Cloud Computing

# Examples





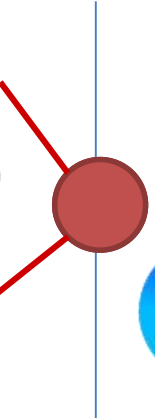
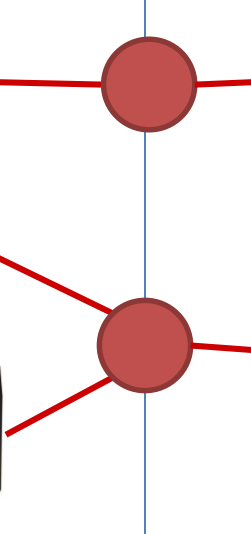
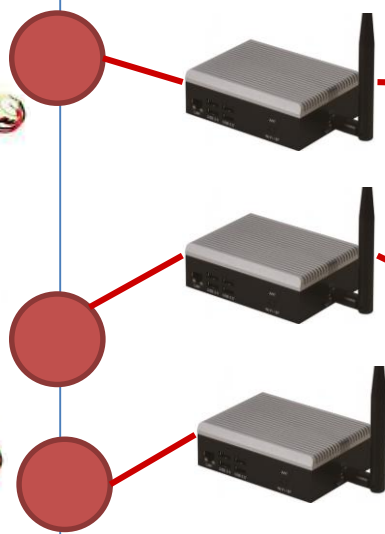
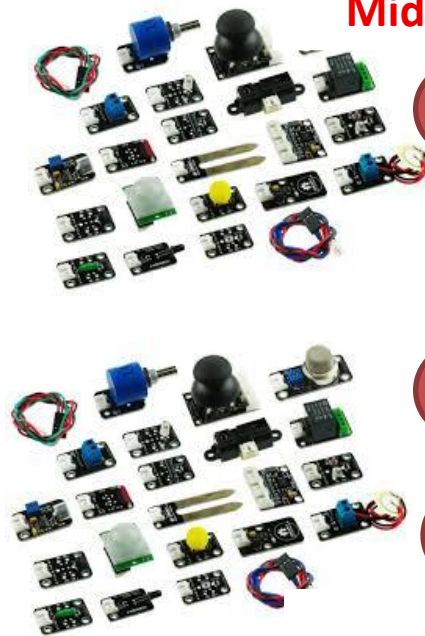
# Software to manage communications : Middleware



## Various Middleware

## Event Based Middleware

## Service oriented Middleware

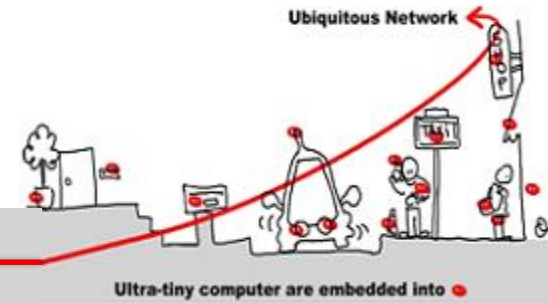


IoT Devices

Edge Computing

Cloud Computing

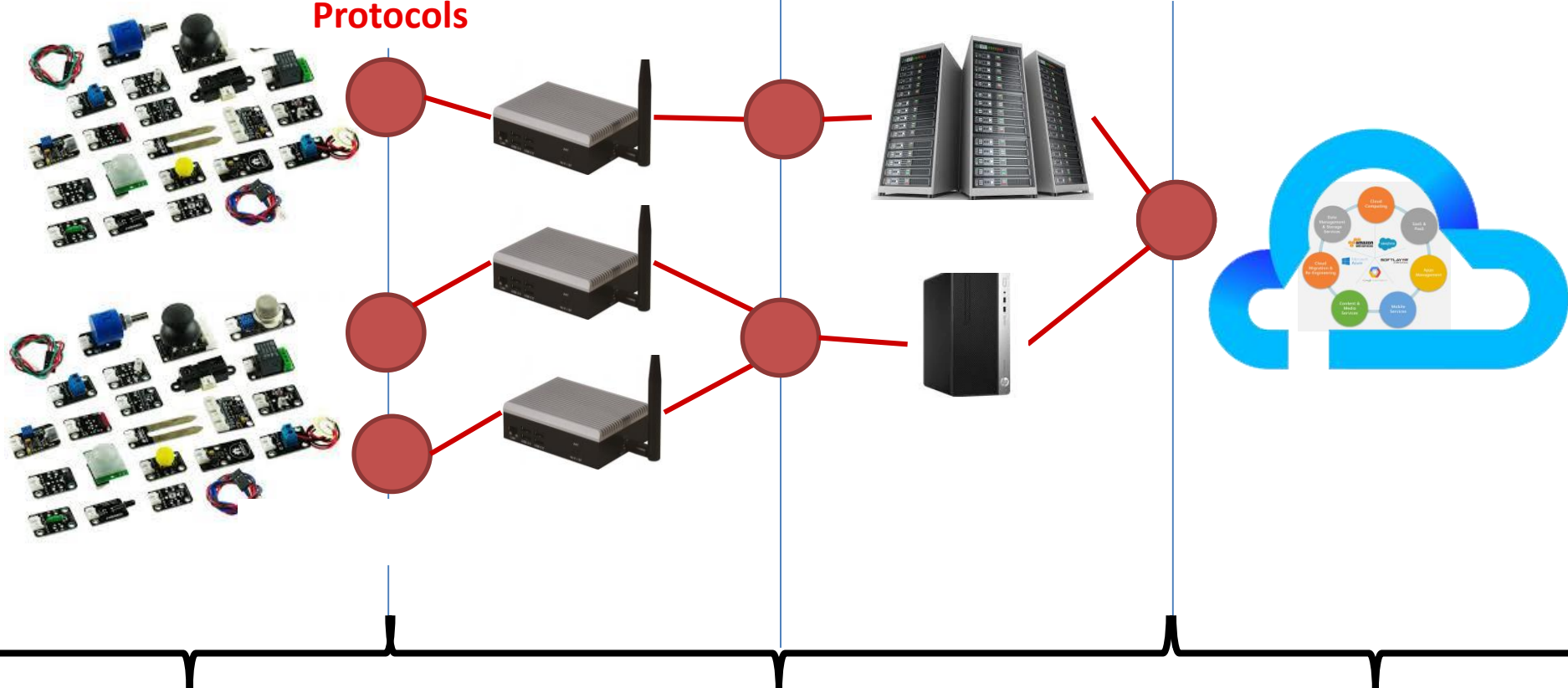
# Example



**Different  
Protocols**

**Internet/MQTT**

**Web/Web Services**

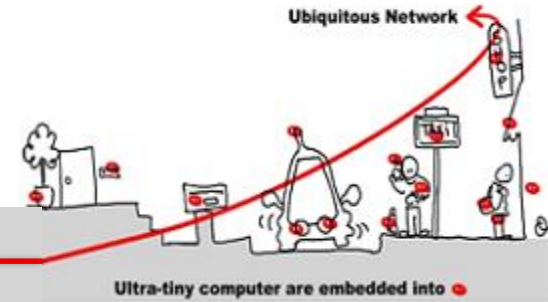


IoT Devices

Edge Computing

Cloud Computing

# YoloT : Your own IoT Infrastructure for tutorial



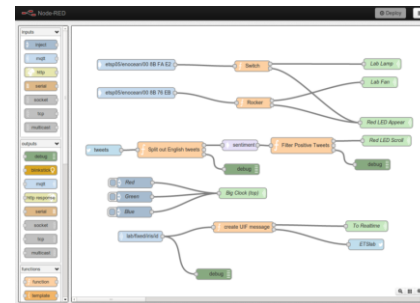
## Zwave - EnOcean



## Home I/O



IoT Devices



Edge Computing



Cloud Computing