TELEMETRY AND TELECONTROL FOR THE INTERNET OF THINGS (IoT)

by M2M CLOUD FACTORY

Agenda

- M2M Cloud Factory
- Architecture
- Use Case: Diesel Generator

M2M Cloud Factory

- Spin off & Start-up
- Product development (<1 year)
- 12 people
  - 3 Business
  - 2 Functional Analysts and UI
  - 2 Technical Analysts
  - 3 developers
  - 2 Systems and processes
- located in Barcelona, Oxford and London

Sensors
Embedded devices
Products
Meters
Cameras

DEVICES

1. Data & events
2. Control
3. Actuate

Micro PC
PLC
Laptop
Modem
Gateway
Server
SIM

ENABLERS

1. Data & events
2. Control
3. Actuate

3G/4G
SMS/MMS
WiFi/Radio
WAN/MAN
Mesh
Cloud

CONNECTIVITY

1. Transport data
2. Devices to app
3. App to devices

Collect data
Send data
Store data
Analyse data
Control devices
Process Alarms

MIIMETIQ

INTEGRATE

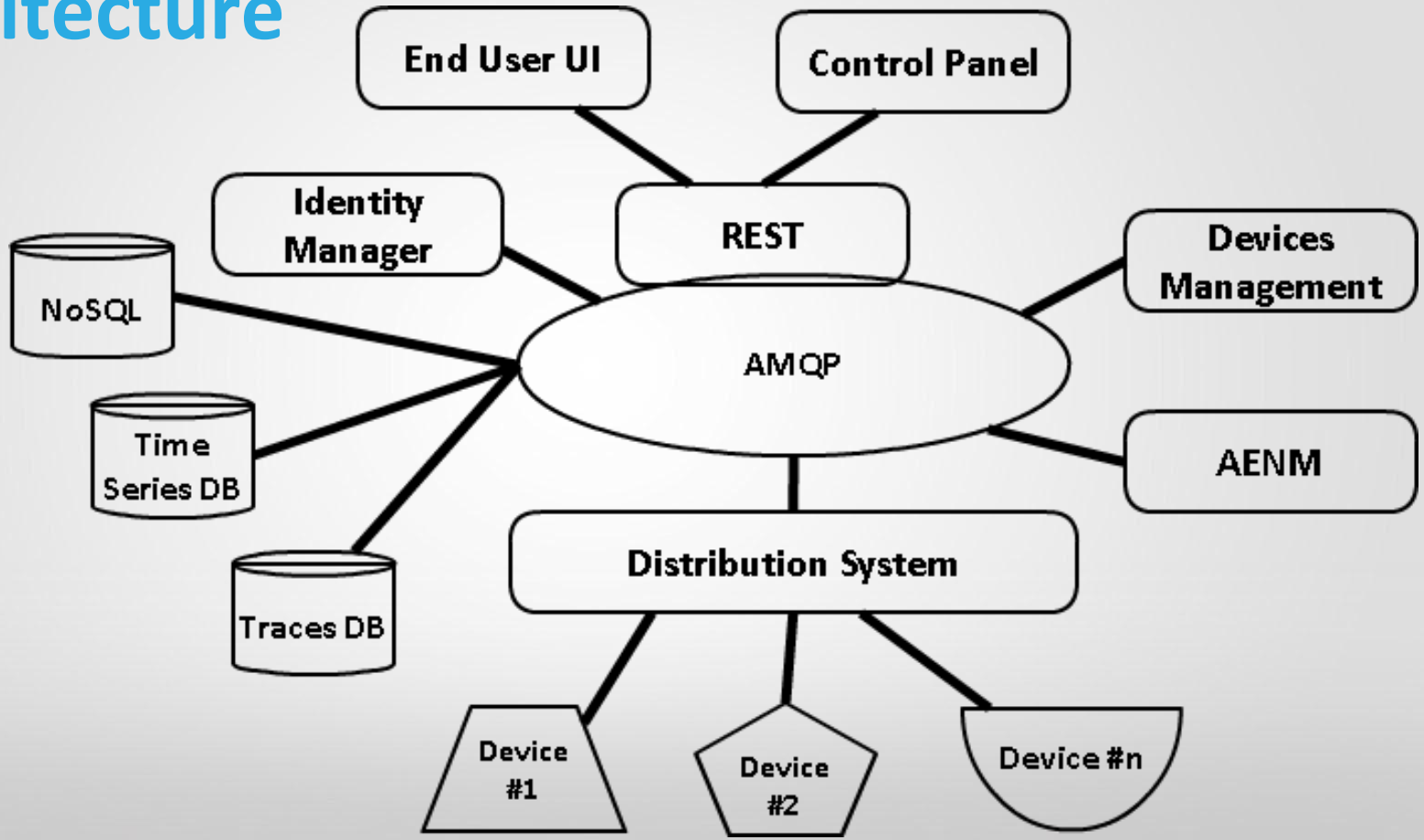
1. Business Services
2. Cloud Services
3. Big Data
4. Business Logic

Audit
Control
Input data
Set alarms
Display alarms

INTERFACE

1. Dashboard
2. Web app
3. Mobile app

Architecture



Architecture

- service oriented and it uses AMQP as a message broker
- Several modules, we define a module as a set of services:
  - **Identity Manager**: manage users, groups, roles and all kind of entities the project needs and its security (AAAA)
  - **Assets Manager**: a data model manager, the integrator creates the business logics and data models here
  - **Distribution System**: this is a set of agnostitc connectivity layers to different types of devices
  - **A E N M**: several time series and other signals flows across the AMQP, this data are events and using rules those events could be converted in alarms and some alarms have to be notified to proper services, systems or people
  - **Control Panel UI**: this is an administration dashboard, in form of a UI to setup and monitor the most common uses of MIIMETIQ

Diesel Generator

USE CASE

Diesel Generator

Customer requirements

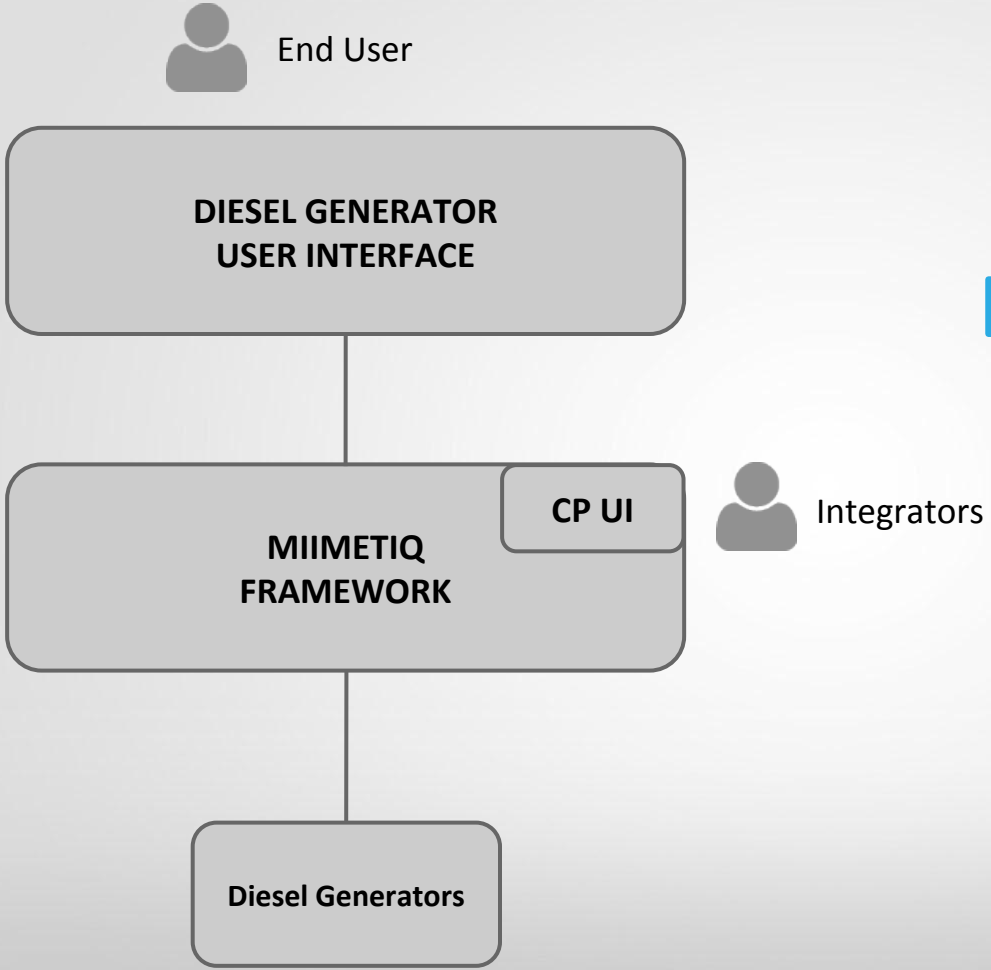
01 Generators geo-localization

02 Generators monitoring

03 Generators remote operation

Diesel Generator

Use Case Architecture



Building the Diesel Generator Solution

Diesel Generator data schema

Defining generator schema

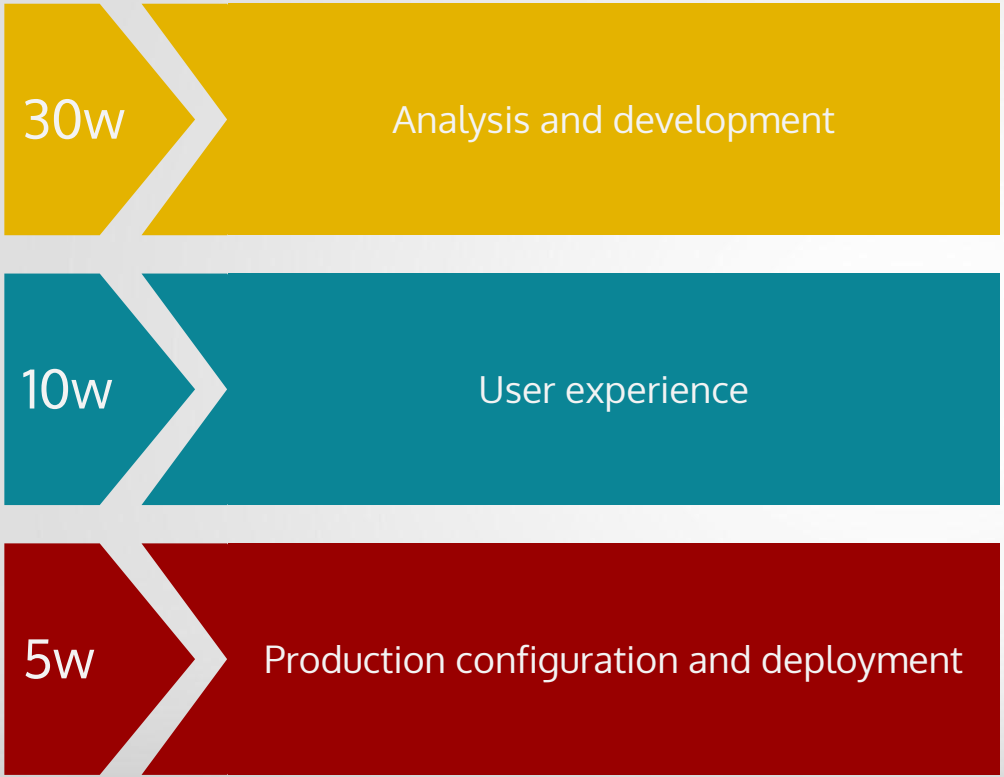
```
{
    "schema" : "miimetiq.types.device",
    "__name__": "DG2014-1P", ##### default property
    "lat" : {"type" : "float", "required" : true},  ##### customer req. properties
    "lon" : {"type" : "float", "required" : true},
    "engine" : {  #### the instrument
        "schema" : "miimetiq.types.instrument",
        "engine_temp" : { ##### sensor
            "schema" : "miimetiq.types.reader.metrics"
        },
        …
    },
    "generator" : {
        "schema" : "miimetiq.types.instrument",
        "power" : { ##### actuator
            "schema" : "miimetiq.types.writer.boolean"
        },
…
```

DEMO

- Setting parameters in MIIMETIQ
- Creating the UX

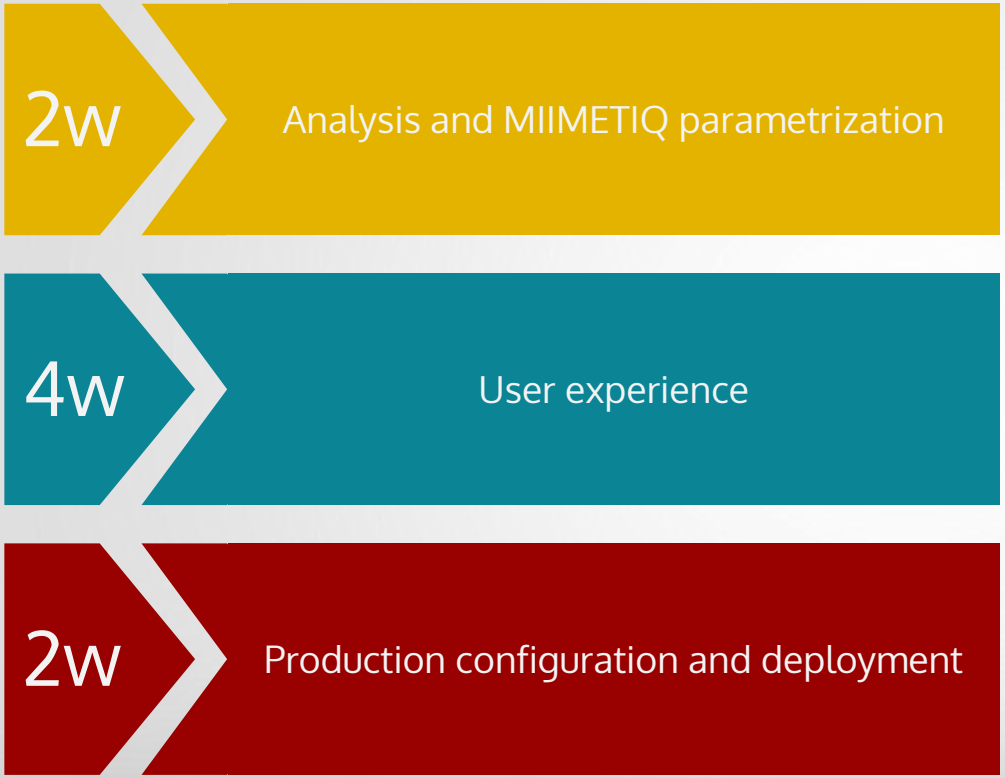
Diesel Generator

User Experience



Diesel Generator

Development timings from SCRATCH



Diesel Generator

Development timings

MIIMETIQ

From 45 to 8 weeks

Diesel Generator

Development timings

MIMETIQ

Thank you!!!

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