FUTURE INTERNET SMART UTILITY SERVICES

FINESCE

FINESCE API

European Utility Week 2014

SEVENTH FRAMEWORK PROGRAMME

FUTURE INTERNET PPP

Outline

- Problem presentation
- FINESCE as a solution provider
- The way of the API
- Full listing of offered API categories
- The FINESCE API Mediator
- The offer of FINESCE to the Utilities

The Problem

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- Smart Grids need (real time) monitoring and (low latency) actuation
  - Existing technologies usually support updates every 15 minutes
- Utilities have their own, proprietary software to power their Smart Energy Systems.
  - Third parties are very difficult to integrate, increasing cost
  - Added value services hard to implement, decreasing sustainability and flexibility
- Access to third-party historical data and user consumption profiles is limited

FINESCE as a solution provider (1/2)

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FINESCE comprises seven (7) trials, exhibiting the capabilities of Future Internet in a multitude of applications interesting to Utilities, including among others:

- Near-real time (only 5 minutes of delay) **Grid Status Monitoring**
  - Energy consumption/production per customer or sector
  - Power demand/supply per customer or sector
  - External events affecting Grid status
- Fine-grained **Smart Buildings monitoring**
  - Energy consumption per socket
  - Power demand
  - Miscellaneous (e.g. indoor temperature, heat pump flow/temperature etc)

FINESCE as a solution provider (2/2)

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- **Electric Vehicles Monitoring**
  - Vehicle position tracking
  - Battery status
  - Charging points monitoring
- **Smart Factories Monitoring**
  - Energy consumption
  - Machinery status
- **Weather Information affecting RES efficacy**
  - Temperature, CloudCover, Wind speed/direction, Humidity etc.

The way of the API

FINESCE API provides easy to use programmable web interfaces to:

- Access FINESCE trial infrastructure
  - Get your hands on valuable historical data gathered over way more than a year (more than two after the project end) from more than five different EU countries
  - Get a glimpse on what leading Utilities in other EU countries are doing!
- Facilitate prototyping upon a well-defined set of programmable resources
- Allow for seamless integration of the FI-PPP Phase III energy-related projects

Full listing of the offered API categories* (1/3)

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- Authentication
- Building monitoring and control
- Grid energy consumption/production
- Grid power demand/supply
- Customer profiling
- Customer contract management
- External events affecting grid status

* Not all of the are available right now, but will be by the end of Q4 2014

Full listing of the offered API categories* (2/3)

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- Metering infrastructure presentation
- Pricing
- Regional information
- Simulations
- Smart Factories
- Weather forecast

* Not all of the are available right now, but will be by the end of Q4 2014

Full listing of the offered API categories (3/3)

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- Over 40 distinct APIs are available in terms of specification
  - Expected over 60 until the end of the year
- Over 20 have been already configured and are directly linked to the FINESCE trial infrastructures.
  - Expected to have over 60 until the end of the year

We are moving fast, to get along with **your** Smart Energy Grid

FINESCE API Mediator (1/4)

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- FINESCE has consolidated the existing API functionality into a web server (mediator) acting as a **single entrance gateway to all** FINESCE trial infrastructures.
  - One should call the FINESCE API Mediator (FAM) and the mediator securely invokes the trial infrastructures

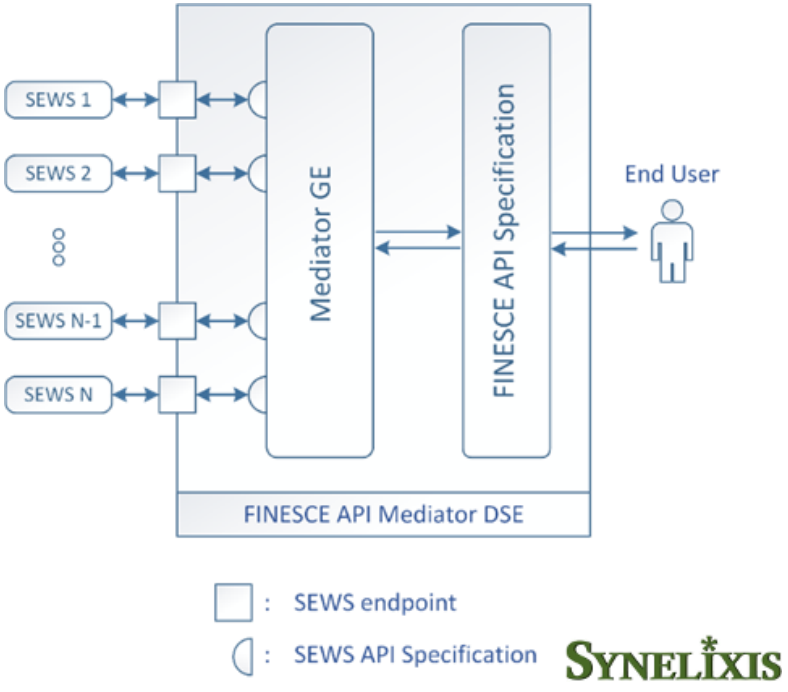
- API deployment with examples and indicative code generation available at http://docs.fam.apiary.io/ (work in progress)

FINESCE API Mediator (2/4)

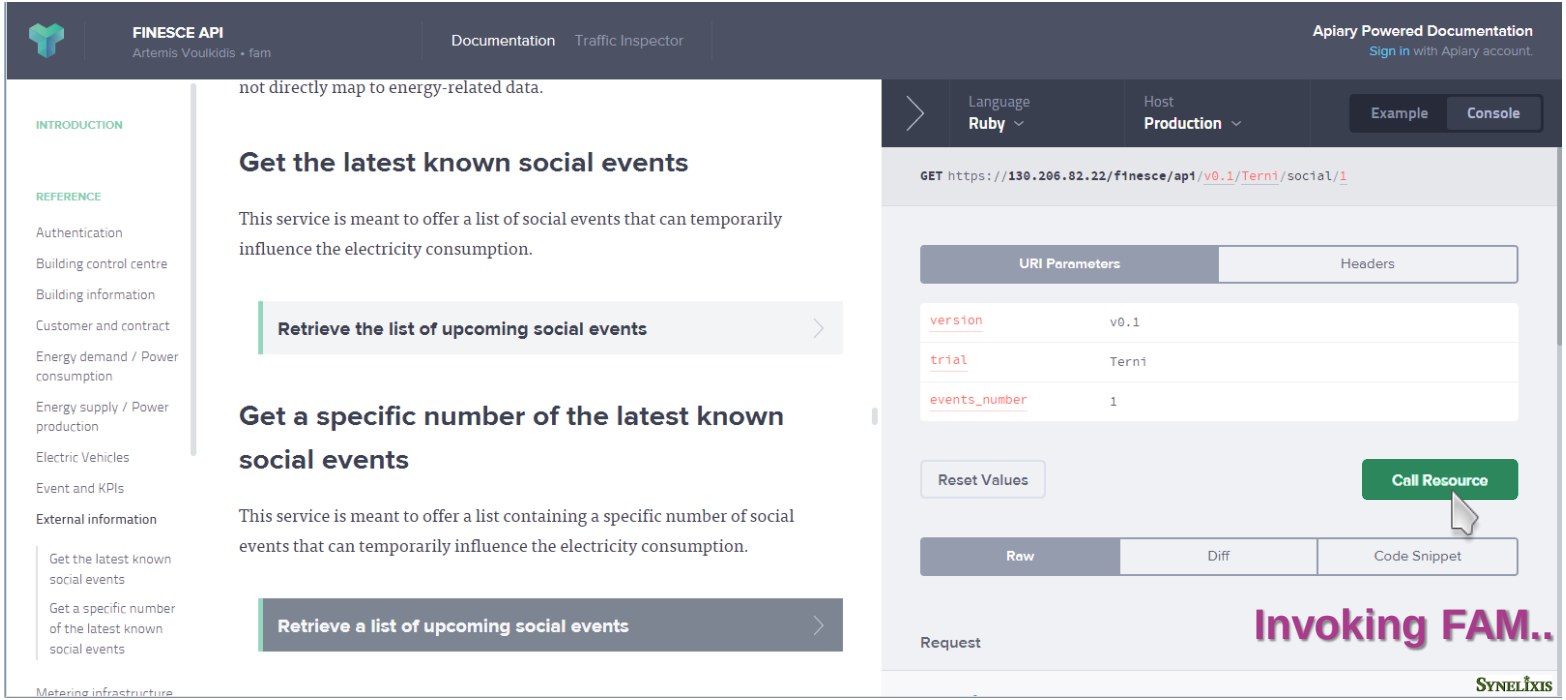
Simple, three step approach

1. Connect your Smart Energy Web Service (SEWS) to the FINESCE API Mediator
2. When a user wants to use this SEWS using the FINESCE API specification, the request is handled by FAM
3. FAM translates the response of the SEWS to the corresponding of FINESCE API.

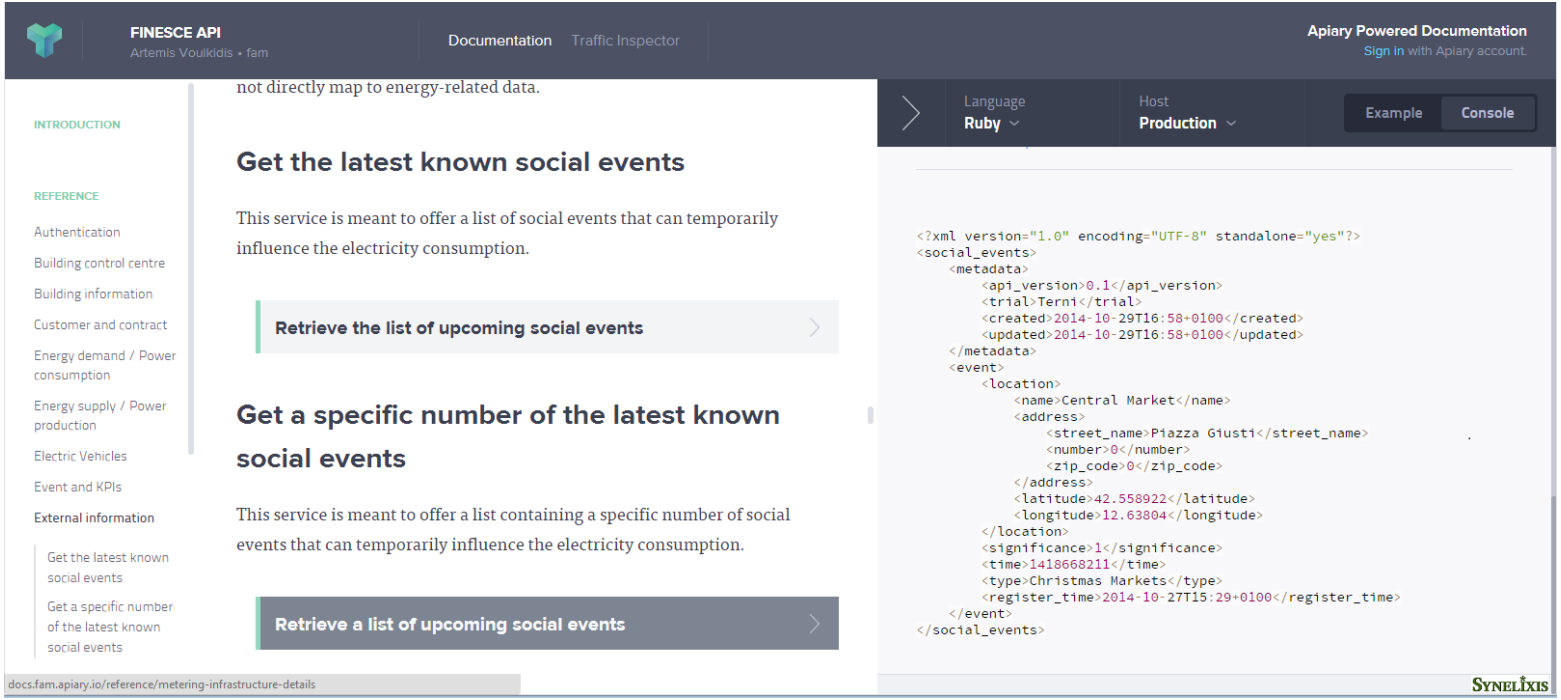
No need to re-implement your software. Just provide FAM with an API translation!



FINESCE API Mediator (3/4)



FINESCE API Mediator (4/4)



The offer of FINESCE to the Utilities

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- Live, cost- and risk-free experimentation with the FINESCE trials and the FINESCE API

- A comprehensive Java Software Development Kit (SDK) to start developing your own added value services for your infrastructure.
- Client SDKs in 8 programming languages (Java, Scala, Flash, Obj. C, PHP, Python, Python3 and Ruby) to start interacting immediately with FINESCE API-compatible resources.

- Inherent compatibility with FI-PPP Phase III energy-related projects.

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Thank you for your attention!

Questions?