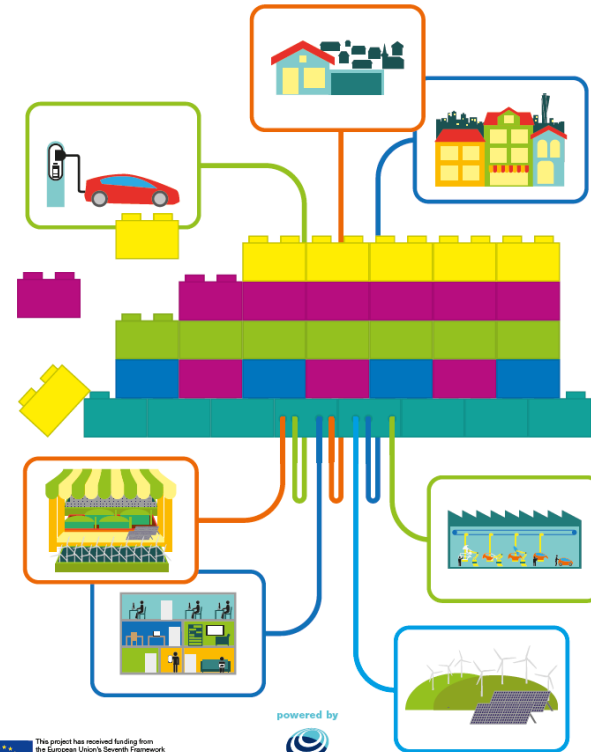


Utility 4.0

Prof. Antonello Monti
FINESCE Final Event
2015-09-15



What is for you

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EU

#energyunion

GEs

DSEs

Maros Sefkovic – vice President of EC for Energy Union

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We need affordable energy for our citizens



© European Union

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www.ec.europa.eu

Miguel Arias Cañete - Member of the EC in charge of Climate Action and Energy

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We need a:

- Strong
 - Sustainable
 - Climate Friendly
- economy that will drive Jobs Creation



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Günther H. Oettinger – Commissioner for Digital Economy & Society

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We need a:
Digital
Single
Market



www.ec.europa.eu

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the times they are a-changin'....

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e-on

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New corporate strategy: E.ON to focus on renewables, distributi
generation, global energy trading, and exploration and productio

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- Fixed divider

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Enel cambia pelle: lascia le centrali per le reti intelligenti, il baricentro va all'estero

dal nostro inviato LUCA PAGNI

Lo leggo dopo

19 marzo 2015

Articoli Correlati

Enel paga le svalutazioni: l'utile scende, ma sale il

12

Consiglia

Condividi

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LONDRA - Dimenticatevi l'equazione a cui siamo abituati dagli anni Sessanta, in seguito alla privatizzazione del settore elettrico: Enel uguale centrali e fornitura di energia. E soprattutto scordatevi che sia una azienda "italiana". Il nuovo piano industriale presentato a Londra, certifica definitivamente il cambiamento della società: sempre meno produzione da

LE INCHIESTE | L'Espresso | Network

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STRUMENTI

MARKET OVERVIEW

Lista completa

| Marchi | Materie prime | Titoli di stato | |
|--------------|---------------|-----------------|--------|
| FTSE MIB | | 22.717,26 | +0,67% |
| FTSE 100 | | 6.952,09 | +0,10% |
| DAX 30 | | 11.856,00 | -0,56% |
| CAC 40 | | 5.016,08 | -0,34% |
| SWISS MARKET | | 9.292,65 | +0,39% |
| DOW JONES | | 17.960,50 | -0,64% |
| NASDAQ | | 4.987,30 | +0,09% |
| HANG SENG | | 24.468,89 | +1,45% |

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Un conto corrente

Consulente dedicato

Accesso al Premier Club

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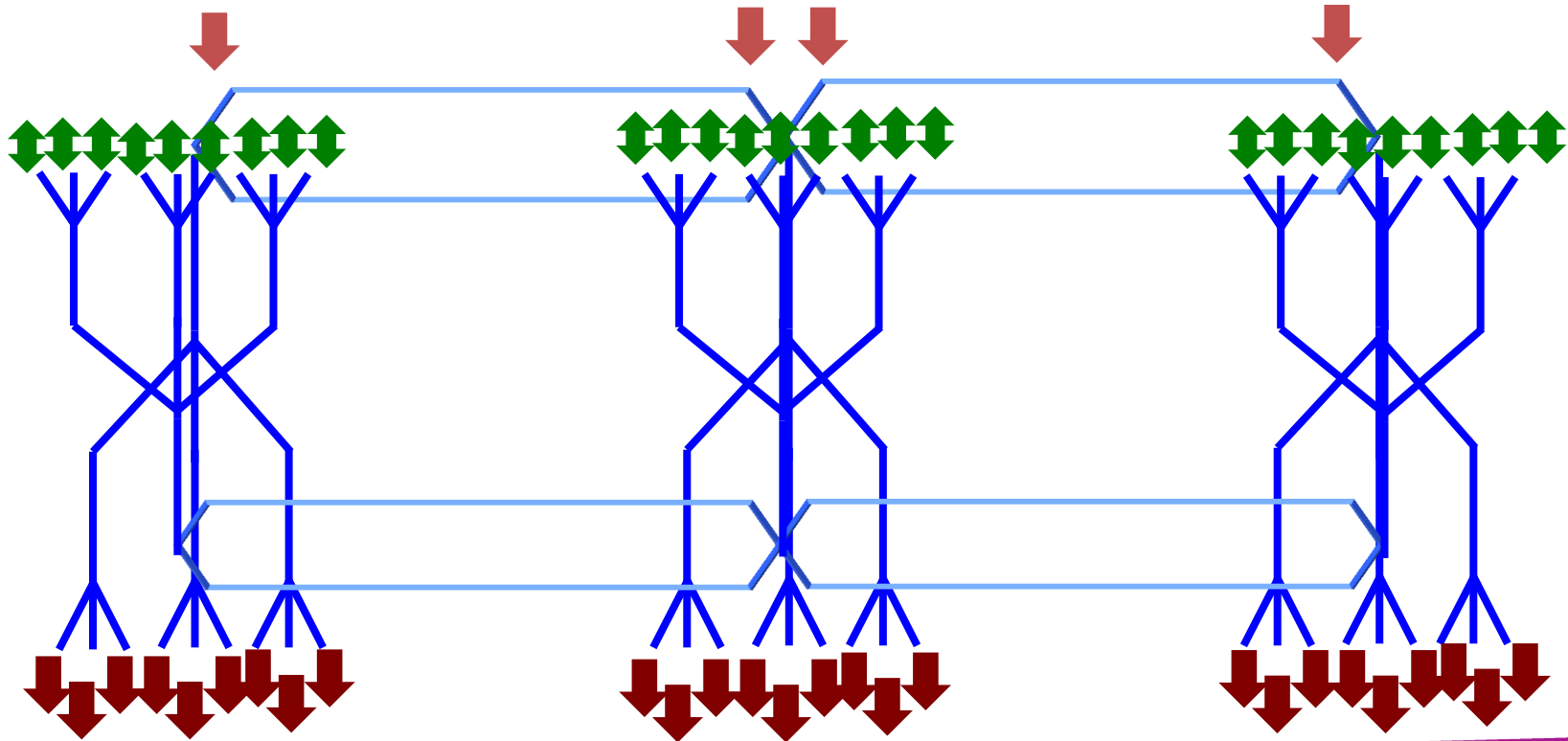


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The grid (r)evolution

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What the experts have to say



Everybody is looking at the next component.
Nobody is trying to understand **how the system will work.**

If this does not change, we are going nowhere

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Marcelo Masera

Head of the Energy Security Unit in the Institute for Energy and Transport of the European Commission's Joint Research Centre (JRC).

Consequences

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System turned bottom-up from top-down

- Same path expected for intelligence
- Bottom-up is fit to handle complexity (like in Software Engineering in the 90s)

Distribution Networks are at the Center of this revolution

- They are expected to play a completely new role
- Rules still to be defined

Customers are the newcomers in this picture

- How do we get them involved?
- Customers does not mean only household



Questions

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Will the list of actors stay the same?

- Very likely Not
 - New Services = New Companies = New Players

Where is the main value in the running system?

- Data, Data and still Data

What is the main challenge related to such value?

- How to acquire the data
- Smart data processing

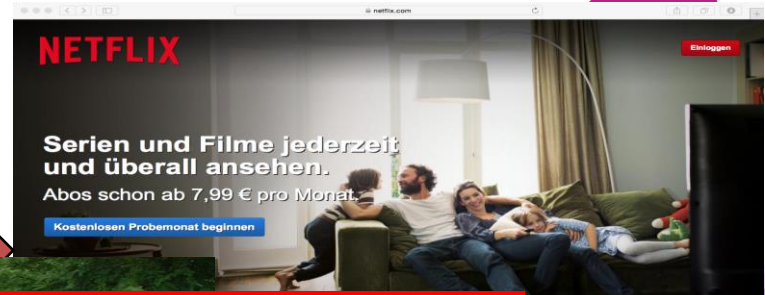
What is the most valuable resource in this system?

- Flexibility

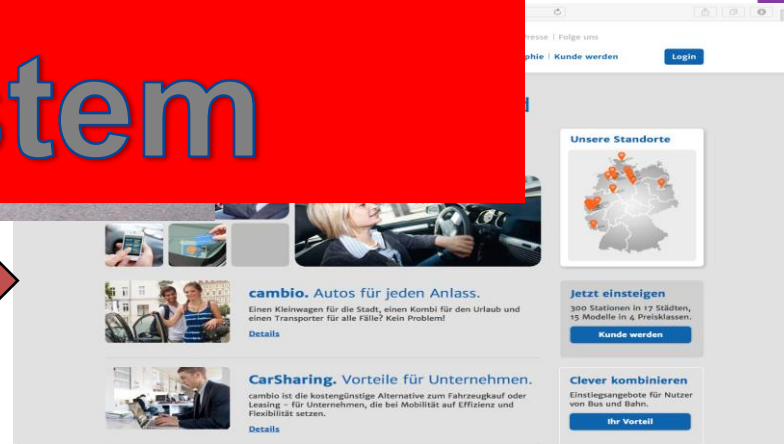
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X as a Service



Products need an ecosystem



Utility 4.0

A new model of utility is emerging
This new model of utility has to be
closer to customers

We need to integrate data and
components for “smart processing”

Such a vision is line with “Internet
of Things”

Utilities are looking for a concept of
“platform” to focus on what they
better understand: energy

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Platform - The window of opportunity

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Creation can not be done by one utility alone

Consensus and support to be built by all stakeholders

The competitive advantage given by the services on top

Critical to keep “a door open” to fast developing solutions such as the ones SMEs can provide

Critical to merge Smart Energy in the Smart City scenario



GEs

DSEs

FINESCE Aspiration

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- We aim at exploiting the FINESCE project creating a European-level open-source platform for Energy Services
- We aim at creating a broad consensus among stakeholders in the energy domain so to have wide user base
- We want to unlock a SINGLE DIGITAL MARKET OF ENERGY based on FIWARE technology

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Towards the concept of a standard platform

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The FINESCE Platform:

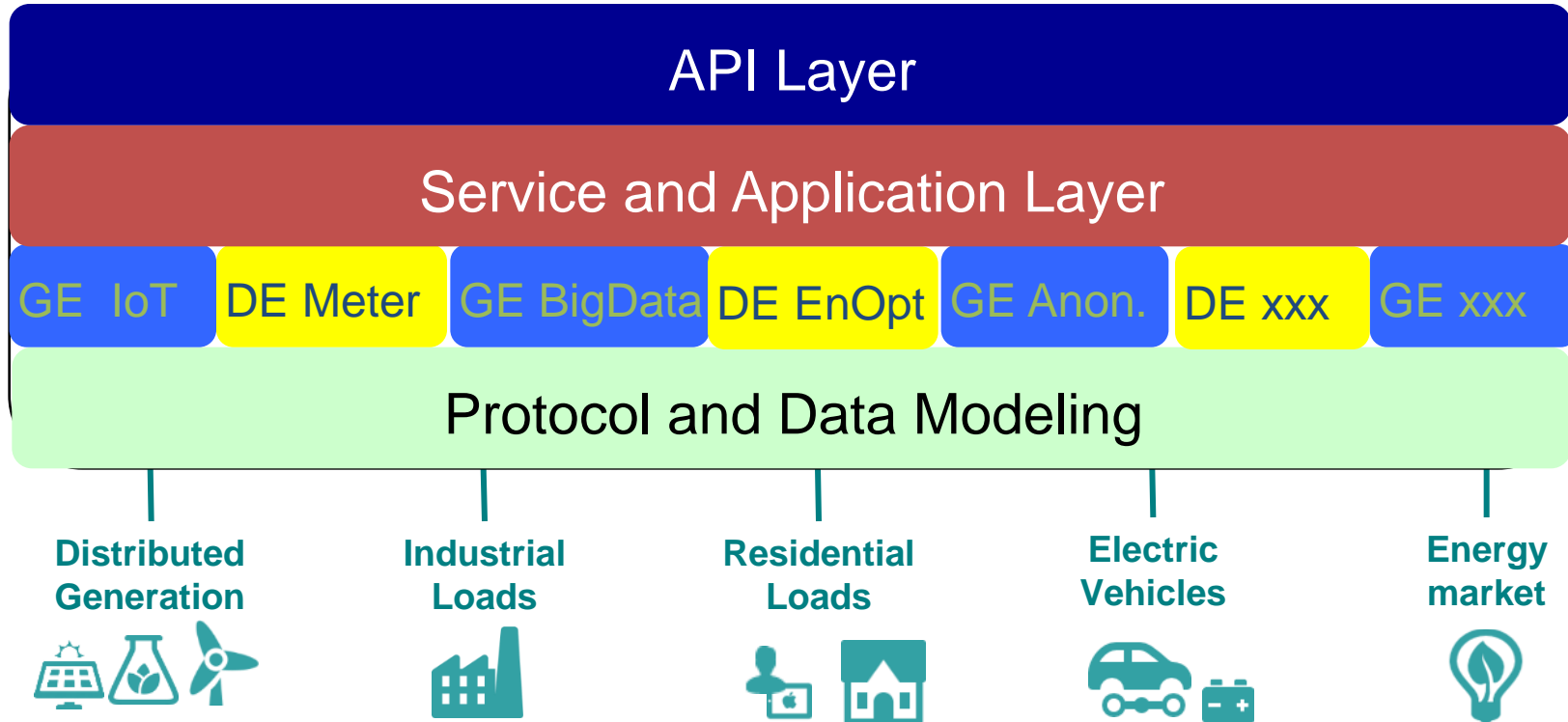
- ICT Platform for Energy Services implementation
- Based on the FIWARE concept developed and supported by the European Commission
- Basic ideas: minimize development costs, use standard SW building blocks, standardize interfaces and API, ready for Smart City



FINESCE Platform: vision

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It is all about open interfaces ...

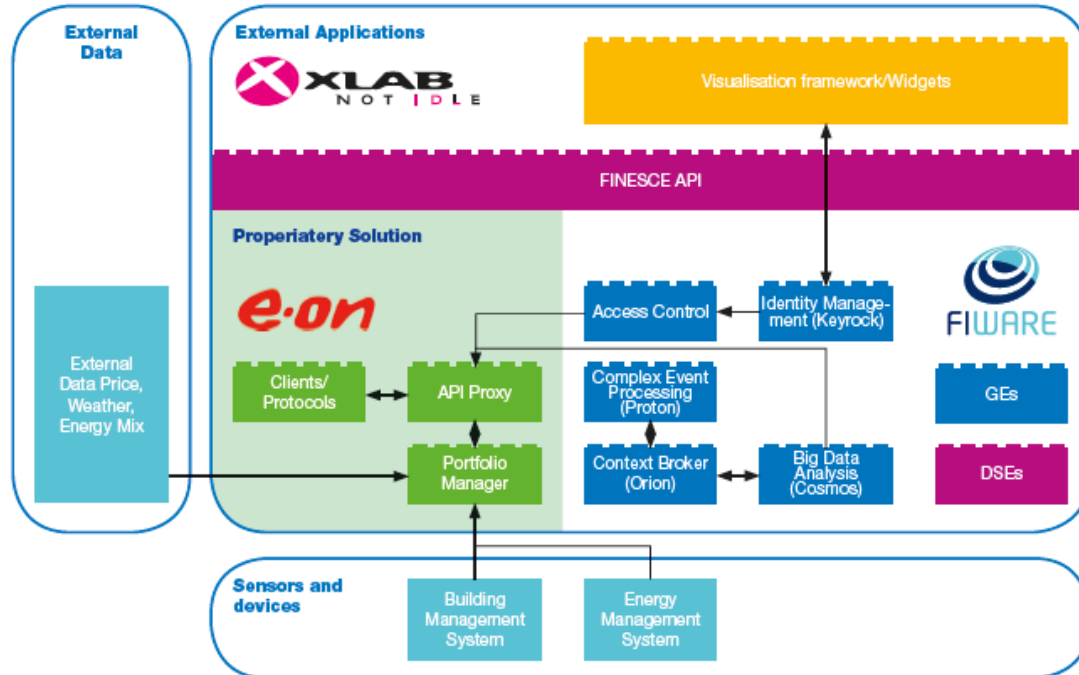
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Good practice: utility (E.ON)

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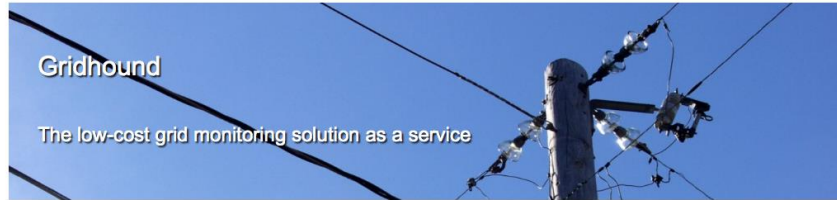
Good practice: SME (GridHound)

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Gridhound UG (haftungsbeschränkt)



Our solution provides a cloud-based data-driven monitoring service for power distribution systems. Using a new monitoring idea that we have developed and is in the process of being filed as a patent, we can perform this monitoring task with very few measurements, no need for system model, and with very low computational cost.

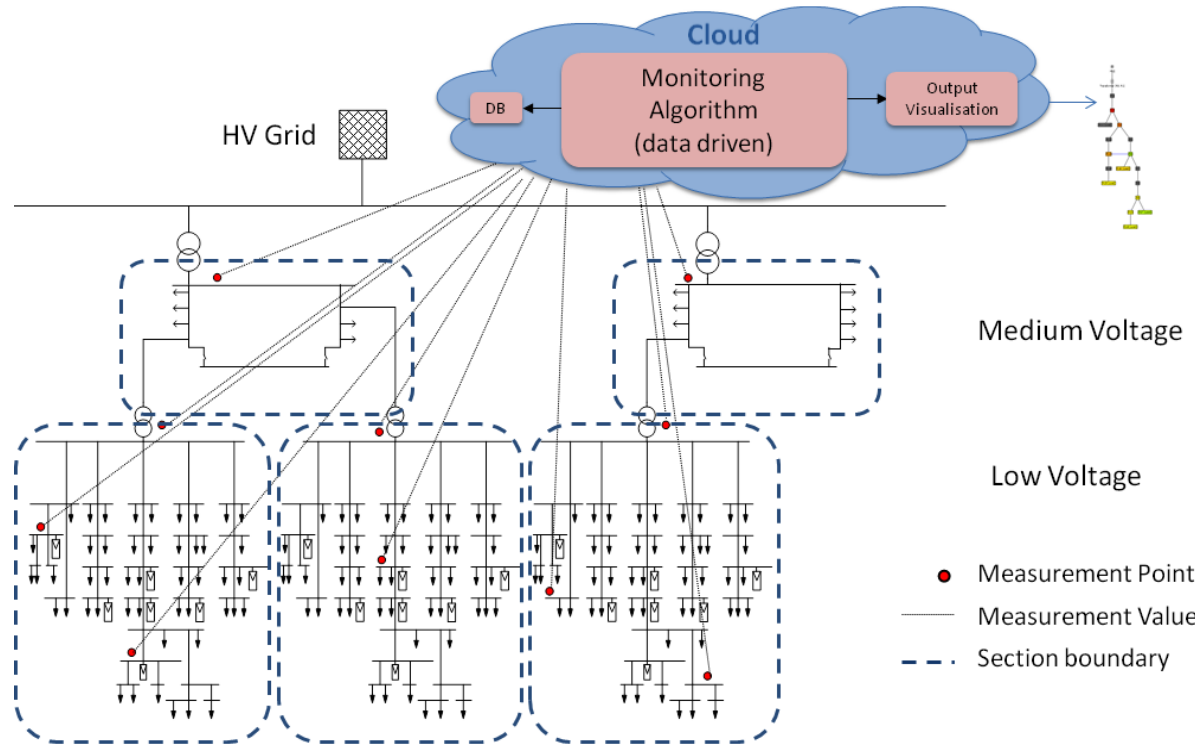
Using such a monitoring service, any power distribution system operators (DSOs) can obtain an understanding of the ongoing situation in their networks (compared to the actual situation in which there is almost no data in real-time). This allows the violation detection of system operating limits in real-time and therefore, enables a much safer and more efficient system operation. Considering the impacts of the ever-increasing penetration of distributed generation units such as photovoltaic units on distribution systems, our service would be highly valuable in order to integrate higher volumes of renewable generation at the distribution level and also make better decision about the required upgrades in the systems.

More information will come soon.

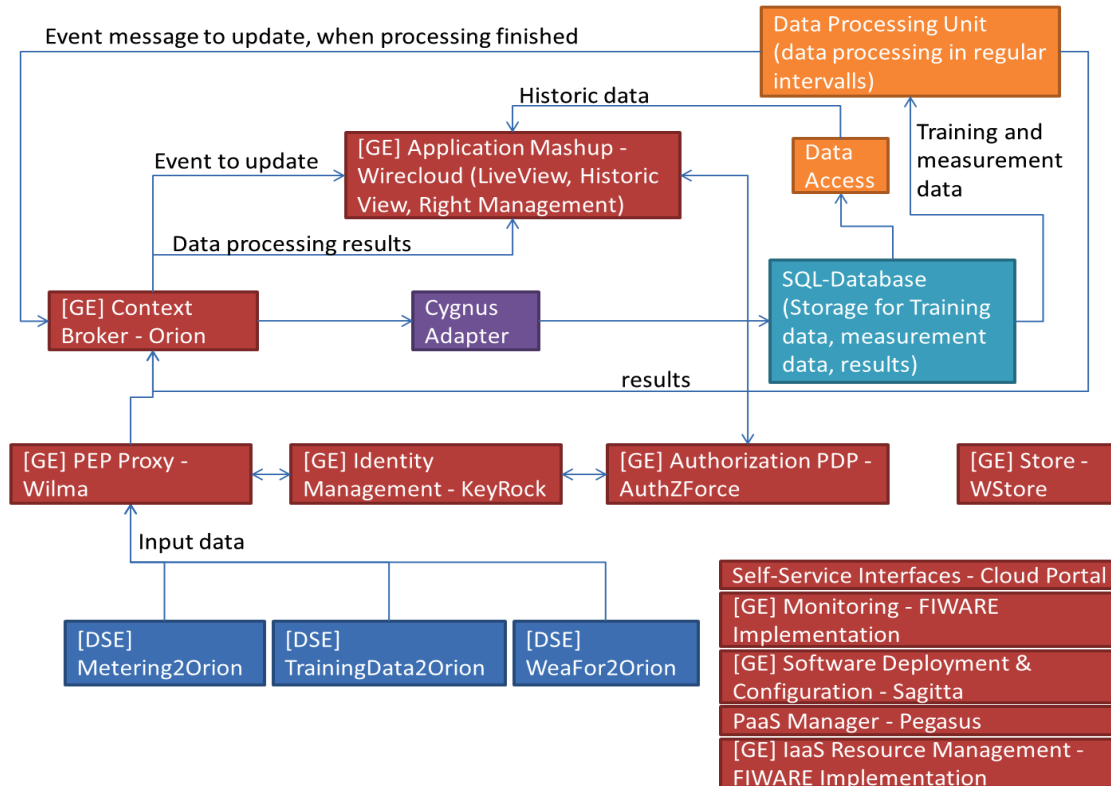
Gridhound UG (haftungsbeschränkt) - in Gründung - info[at]gridhound.de - Schleckheimer Str. 201 - D-52076 Aachen
Gesellschafter: Prof. Dr. Andrea Benigni - Artur Löwen - M.Sc. Mohsen Ferdowsi - M.Sc. Padraic McKeever - Prof. Dr. Antonello Monti
Geschäftsführer: Artur Löwen - M.Sc. Mohsen Ferdowsi - M.Sc. Padraic McKeever

Monitoring as a service

Cloud-based Monitoring



... built on FIWARE



The concept of an open platform

- Creating a consortium of Industry interested in developing and supporting the platform
- Creating a forum where the needs for future developments are discussed
- Exploiting university resources to have the needed support
- Sharing the results in an open source version
- Allowing partners to develop supported versions (similar to the Linux concept)

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We are getting there: “Forschungscampus”

Flexible Electrical Networks

New model of research collaboration proposed by the Ministry of Education and Research (BMBF)
Long term partnership (15 years) with a University in a research area with the goal to attract industry to invest in Campus.

As result a new company was created in Aachen: FEN GmbH

This company operates in the RWTH Campus but it is completely industry driven

FEN GmbH will be used as legal instrument to organize the future work on the platform after the end of the project

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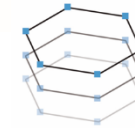
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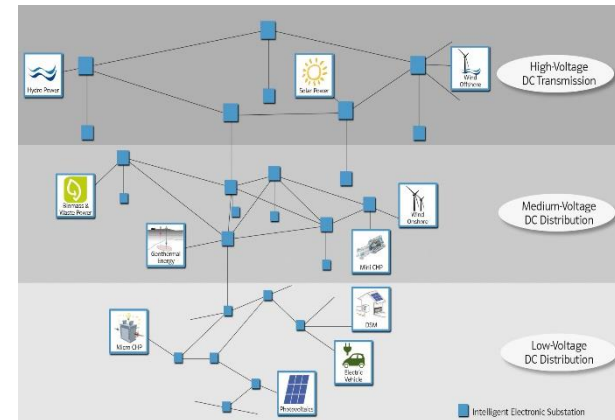
GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung



Flexible
Electrical
Networks



Thanks for your
attention!!!

