IMPACT project has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 632828

FI-WARE
Open APIs for Open Minds

WEBINAR #2

Technology for IMPACT projects: ecosystem and resources

This Webinar

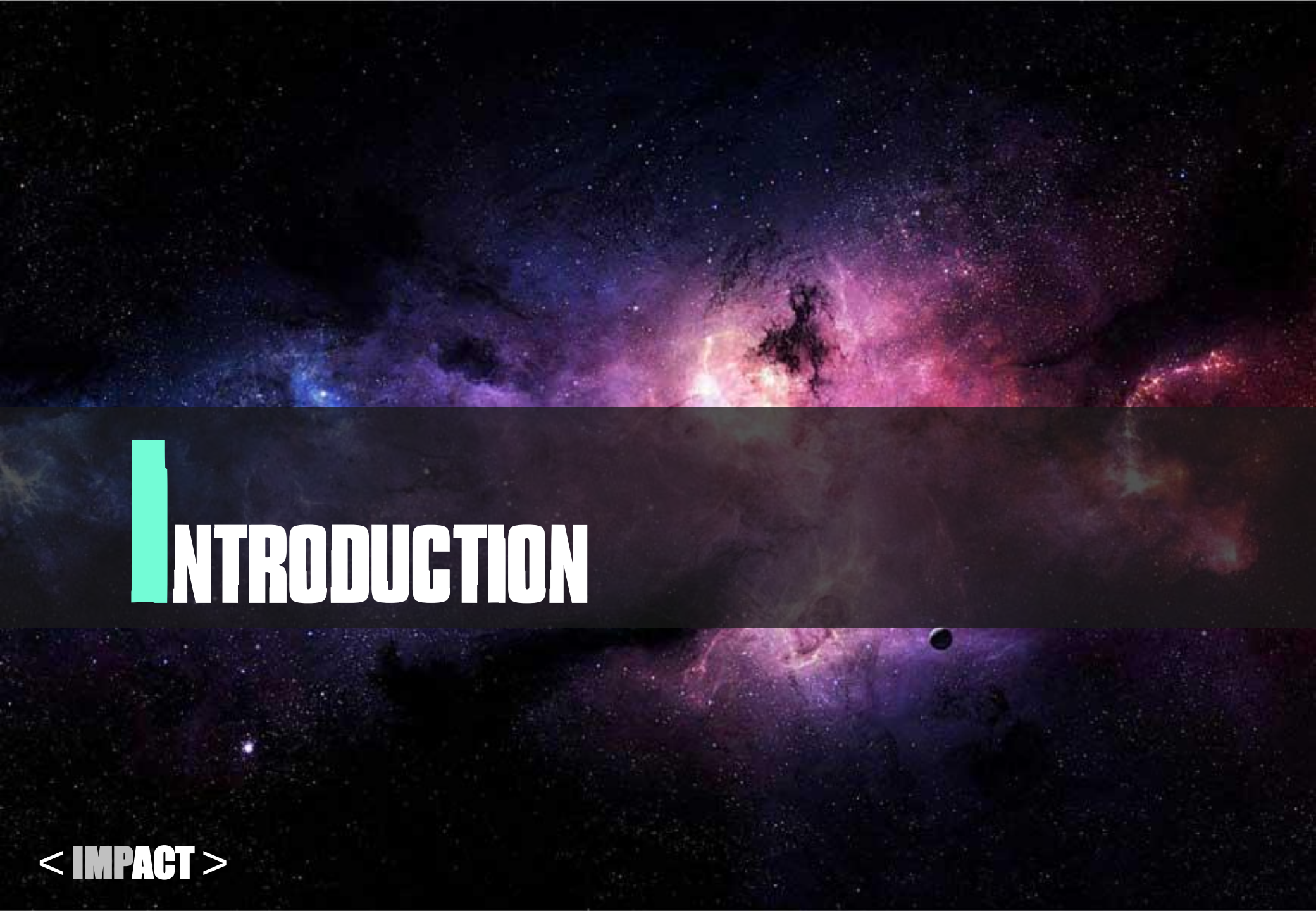
1 Introduction

2 FIWARE Generic Enablers

3 FIWARE School

4 FI-Lab

5 FAQ and Next Steps


INTRODUCTION
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IMPACT First Webinar

In the first webinar we introduced FIWARE technology and its architecture

FIWARE Architecture

FIWARE is an **infrastructure** for the creation and deployment of Internet services and applications. It is based on a cloud computing structure and its goal is to become an open alternative for developers

FIWARE has a traditional cloud computing structure, so the **Generic Enablers** which make up its building blocks are organized in three main layers:

- Infrastructure (IaaS)
- Platform (PaaS)
- Software (SaaS)

Specific Enablers, most of them in the SaaS layer, will be the goal of IMPACT webinars in the near future

FIWARE Tools

There are a **number of tools** that are available to you in the process of implementing FIWARE technology into your project

To begin implementing your application you need to know about all the Generic Enablers that are available to you. They are exposed and organized in the FIWARE website in the form of a **catalogue**, offering:

- Purpose of the GEs
- Practical information
- Terms of use

The first thing to do is browse this catalogue

FIWARE Tools

Through the catalogue, you can **selectively** use the GEs to fit your project's needs and build an architecture that relies on them or just makes use of a few of them

Your path to the FIWARE implementation continues with the FIWARE School, the second tool we present:

- Make the development easier
- Composed of webinars and e-learning materials
- Available for each GE

Finally, you have a working instance of FIWARE that you can use as a sandbox for your project's developments. It's called FI-Lab, and it's free!


FIWARE GENERIC ENABLERS
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Enablers Categories

Generic Enablers are organized in traditional **cloud computing layers**. They are organized in six Technical Chapters –or categories- in the FIWARE website:

- Cloud Hosting
- Data/Context Management
- Architecture of Applications
- Internet of Things Services Enablement
- Interface to Networks and Devices
- Security

The Generic Enablers are published in what's called the FIWARE catalogue

Cloud Hosting Enablers

This is the **fundamental layer** which provides the computation, storage and network resources in which services are provisioned and managed. To date, we can find five GEs in the Catalogue

The Cloud Chapter offers **Generic Enablers** that comprise the foundation for designing a modern cloud hosting infrastructure that can be used to develop, deploy and manage Future Internet applications and services

It's important to bear in mind the planned roadmap of cloud hosting in every aspect of its components. You can find it in the **FIWARE forge**, in this specific chapter

Data/Context Management Enablers

This layer includes the facilities for accessing, processing, and analyzing **massive volumes of data** and transforming it into valuable knowledge for applications. To date, we can find four GEs in the Catalogue

It provides GEs that ease the development of applications that require management, processing and exploitation of context information as well as **data streams** in real-time and at massive scale

Combined with GEs coming from the Applications and Services Delivery Framework Chapters, you can build innovative business models and applications

Architecture of Applications Enablers

This category offers the services to create, publish, manage and **consume services**, addressing all technical aspects. To date, we can find four GEs in the Catalogue

These Generic Enablers together support the creation of a **ecosystem of applications** and services. For example, you can find Ges like the Application Mashup – Wirecloud GE, which allows to create and run a composite web application front-end as a mashup built from external widgets

This is particularly important in the case of GEs managing services in a business framework across the whole service lifecycle

Internet of Things Enablers

This category of GEs constitutes the bridge where FI services interface the heterogeneous devices in the Internet of Things. To date, we can find six GEs in the Catalogue

FIWARE IoT design aims to **expose the "things"** abstraction to services developers, cope with different vertical m2m applications and provide a uniform access to otherwise heterogeneous m2m hardware and protocols

*Note: m2m stands for "**machine-to-machine**" and is the center point of IoT development*

Interface Enablers

In this group you will find open **interfaces to networks and devices**, providing the connectivity needs of services delivered across the platform. To date, only one GE has been developed and can be found in the Catalogue

I2ND defines an enabler space for providing GEs to run an open and standardized network infrastructure

This will be implemented by **physical network nodes**, which typically are under direct control of an operator

Security Enablers

One of the most important groups, these GEs provide the mechanisms which ensure that the delivery and usage of services is trustworthy and **meets security and privacy requirements**. To date, we can find three GEs in the Catalogue

The high-level security architecture of FIWARE is formed by **four main modules**:

- Security monitoring
- Generic Security Services: Identity Management, Privacy, and Data Handling
- Context-Based Security and Compliance
- Optional Generic Security Services like Secure Storage Service, Morphus antivirus, and DB Anonymiser

FIWARE Tools

FIWARE ALSO offers other **tools for developing applications**, that include things like Eclipse plug-ins, software testing suites or guidelines and best practices

The tools provide support in the deployment, monitoring, and testing phases of your application development process. They can be used across different phases of the applications lifecycle: both at design time and runtime. Also, they support both functional and non-functional testing (i.e., performance)

To date, we can find eight GEs in the Catalogue

FIWARE Tools: An Example

As an example of what can be accomplished through the use of FIWARE Tools, we will browse one of the tools included in the catalogue: the Unit Functional Testing Framework

The Unit Functional Testing framework (UFT framework) is a java project that contains a set of libraries and a package structure to ease and drive the **implementation of tests** to validate the functional behavior of an application that exposes RESTful web services

FIWARE WStore

An **important GE** is the WStore GE

One key component of the technology provided by FIWARE is a Store for selling services to both consumers and developers and for end-to-end managing of sales

A store is owned by a store owner who has full control over a specific service/app portfolio and offerings. The final business transaction (buying) is done at the store and the whole back office process (end-to-end managing of offerings and sales) is also handled by the store


FIWARE SCHOOL
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FIWARE e-Learning Platform

There are many **online resources** that can help you with the development of your FIWARE-based application

Other resources **will be added** in the next months, during the development of the IMPACT project and the rest of accelerator programs

One of the most important and powerful resources available is the FIWARE e-Learning platform. You will find courses related to all the FIWARE GEs available, organized using the same categories the GEs use

FIWARE e-Learning Platform

The **content of the different courses** available may vary depending on its nature, maturity and other factors

Courses may include e-Learning materials in **several formats** and forms:

- Scorm format courses
- Videos and recorded sessions
- Screencasts
- Downloadable presentations and documentation

You can also find information on **webinars** and other related events

Other Online Resources

There are **many more sources of knowledge** regarding FIWARE available on the web:

- **FIWARE Webinars**. These are webinars on the most popular Generic Enablers in FIWARE. You can find them here
- **FIWARE FAQ**. This is a set of general questions –and their answers- regarding FIWARE technology and its use. It's part of the FIWARE Forge, and you can find it here
- **FI-Lab tutorials**. We're going to talk about these tutorials with more detail in the next chapter. There are a few of them, covering all the features of FI-Lab, and you can find them here


FI LAB
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FI-Lab Basics

A working instance named FI-Lab is publicly accessible

The FI-Lab environment is not only where you can put FIWARE at work, it also supports and nurtures a **community**, stimulating the share of experiences and needs within the community

But the most important feature for you is the **cloud hosting basic service**. This infrastructure service (IaaS) is offered in a very familiar flavor, with the usual structure, methods, features and terminology which almost all cloud hosting services offer

FI-Lab Components

The FI-Lab infrastructure can be accessed here. There are **four core components** of the FI-Lab infrastructure:

- **Cloud**. The basic component of FI-Lab
- **Store**. Where you offer your own services
- **Mashup**. A very interesting and differentiating offering
- **Account**. This is where you manage your project's data

In the next steps we will review each of these components in detail

You can create your FI-Lab account and return to the webinar at this point

Cloud Component

This is the **central and basic component** of the FI-Lab infrastructure, where you can create your server instances to install your application and test it. It's divided in three different spaces:

- **Instances**. This is the place where you create virtual servers for your applications in FIWARE
- **Blueprints**. Blueprint Templates let you quickly create a template from which to build your application
- **Object Storage**. The FIWARE Object Storage facility is where you can store large static files

You can find **tutorials** on how to use all options of this component in the FI-Lab help section

Store Component

This component is closely related to the FIWARE **WStore Generic Enabler**, as it's lace where the transactions take place

You can use the Store to **publish** your service offerings including Mashup resources, Account applications or external services, or to **obtain** those offerings of your interest. The Store allows you to manage your offerings through their entire life cycle

You can find **tutorials** on how to use all options of this component in the FI-Lab help section

Mashup Component

You can use the Mashup portal to create your own **web application mashups** from existing widgets and operators, sometimes without programming

You can **enrich the existing catalogue** with your own catalogue of widgets and operators, and publish them through the Store. Also, Wirecloud GE offers you a rich set of connectors to other FIWARE GEs that ease the task

You can find **tutorials** on how to use all options of this component in the FI-Lab help section

Account Component

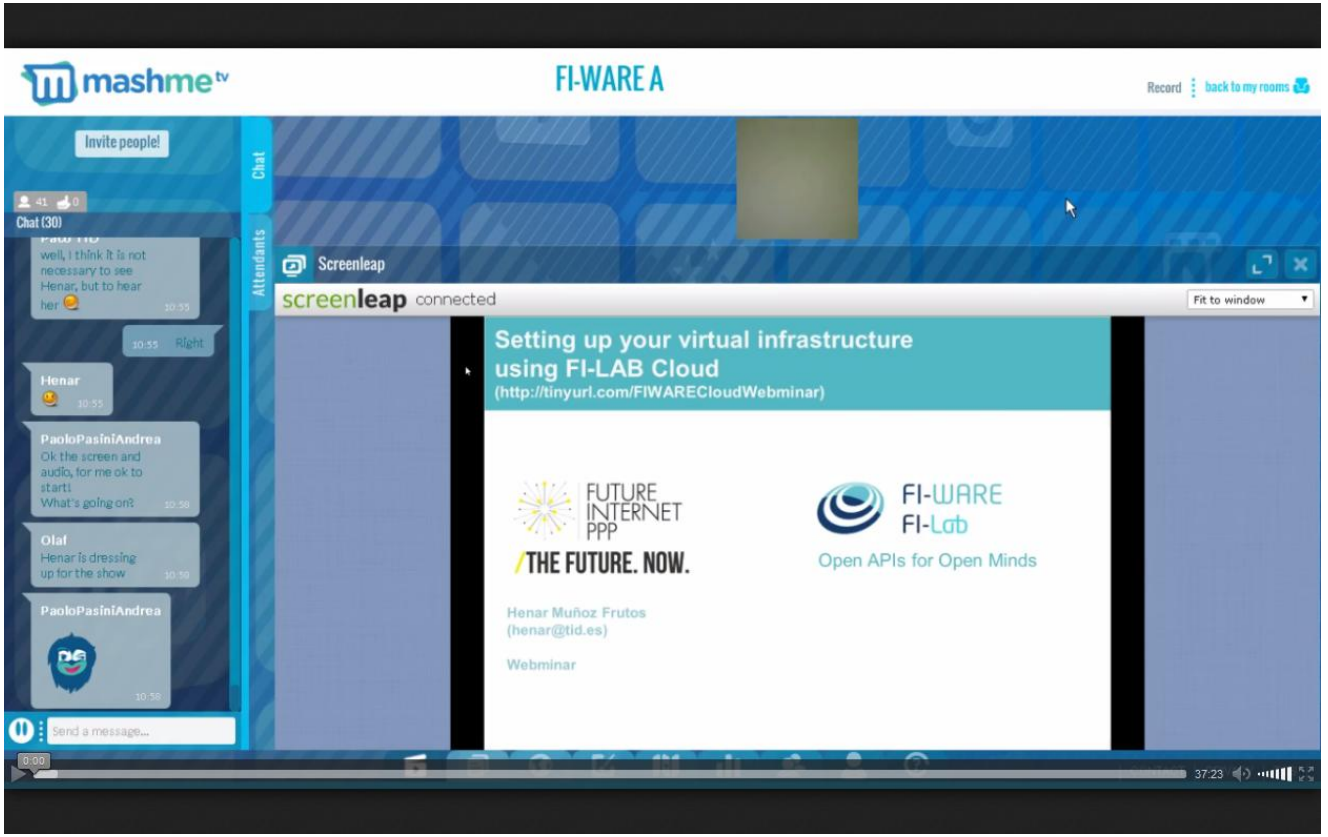
This is the basic **authentication and identification** component of the FI-Lab infrastructure. You will be using the Account section to register your new applications in FIWARE, while also associating the corresponding roles and permissions

You can also use the Account Component to set up your users and organizations, and add their data in an easy to use user interface

You can find **tutorials** on how to use all options of this component in the FI-Lab help section

Other Training Resources

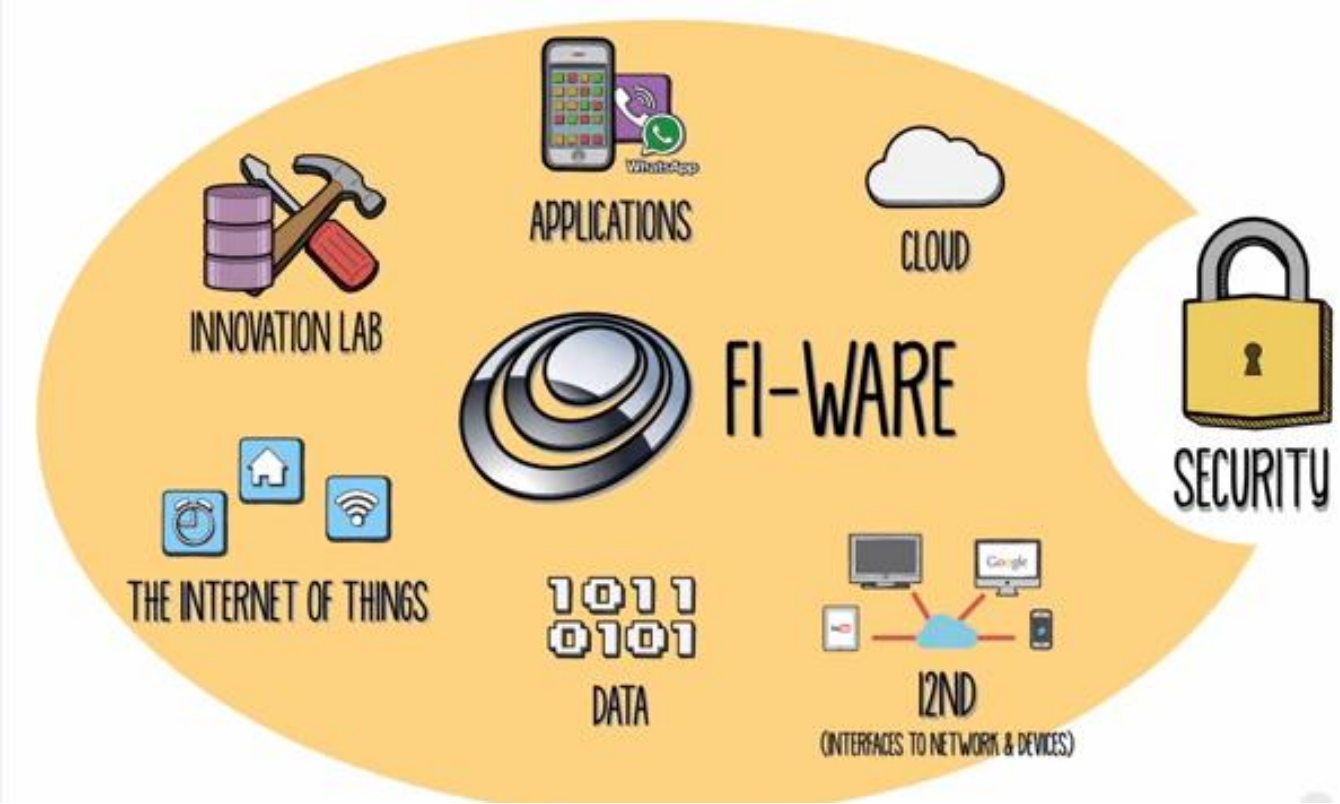
This FIWARE webinar can be very useful to better understand FI-Lab use and its possibilities



FAQ AND NEXT STEPS

Let's Sum Things Up

FIWARE architecture includes everything you would expect from a cloud computing service



Let's Sum Things Up

The details of **FIWARE technology** shall now be clear:

- The core of FIWARE consists of a **set of Generic Enablers** organized in traditional cloud computing layers
- Using the **catalogue**, you can selectively use the GEs to fit your project's needs and build your architecture
- There are many sources of information in the web to help you get started with FIWARE, **FIWARE School** being the most important
- You have a working instance of FIWARE that you can use as a sandbox for your project's developments: **FI-Lab**
- FIWARE is the core of this ecosystem, but there are many more projects around that **add value** to it

In the coming weeks we'll be following up with you on FIWARE Technology

Where Do I Go From Here?

Next steps for you to follow are:

1. Check **all the online information** about FIWARE at reach. You can find all the links in this webinar
2. **Select the GEs** that are handy for your application and fit its architecture and include them in your designs
3. Use the **FIWARE School** and other online resources available to learn how to use these GEs, how to implement them in your project, and so on
4. **Setup an account at FI-Lab** and start testing your developments in a live environment
5. Stay tuned for our **next webinars**, where we'll give you more information and tips about FIWARE and the European technology ecosystem

THANKS

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