

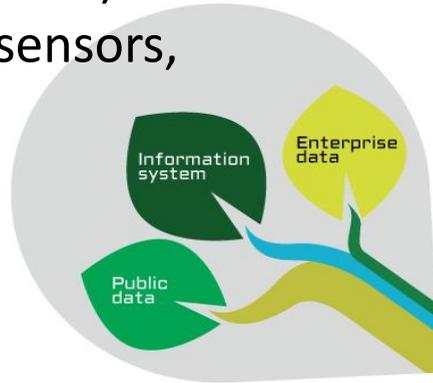
Yucca

SMART DATA PLATFORM



Context and State of play

Collects data from different ICT networks (smart data): things, applications, sensors, mobile, people...

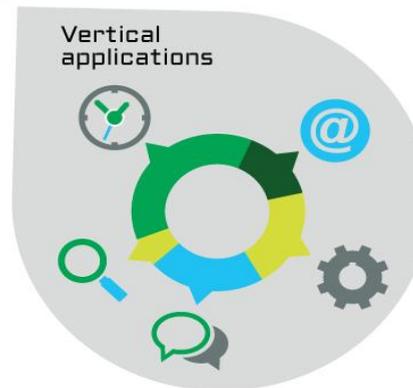
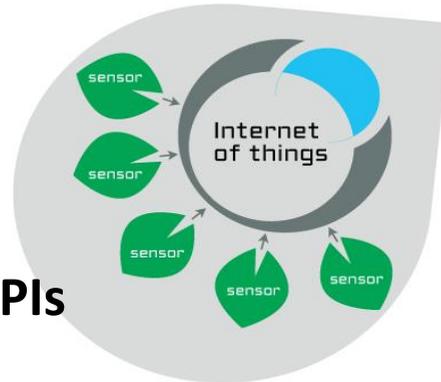


Has functionalities to **discover, analyse** and **data mash** tools to create new knowledge



YUCCA smartdataplatform

Is a **big data** store to data can be stored, found, accessed and integrated through **APIs** (PaaS)



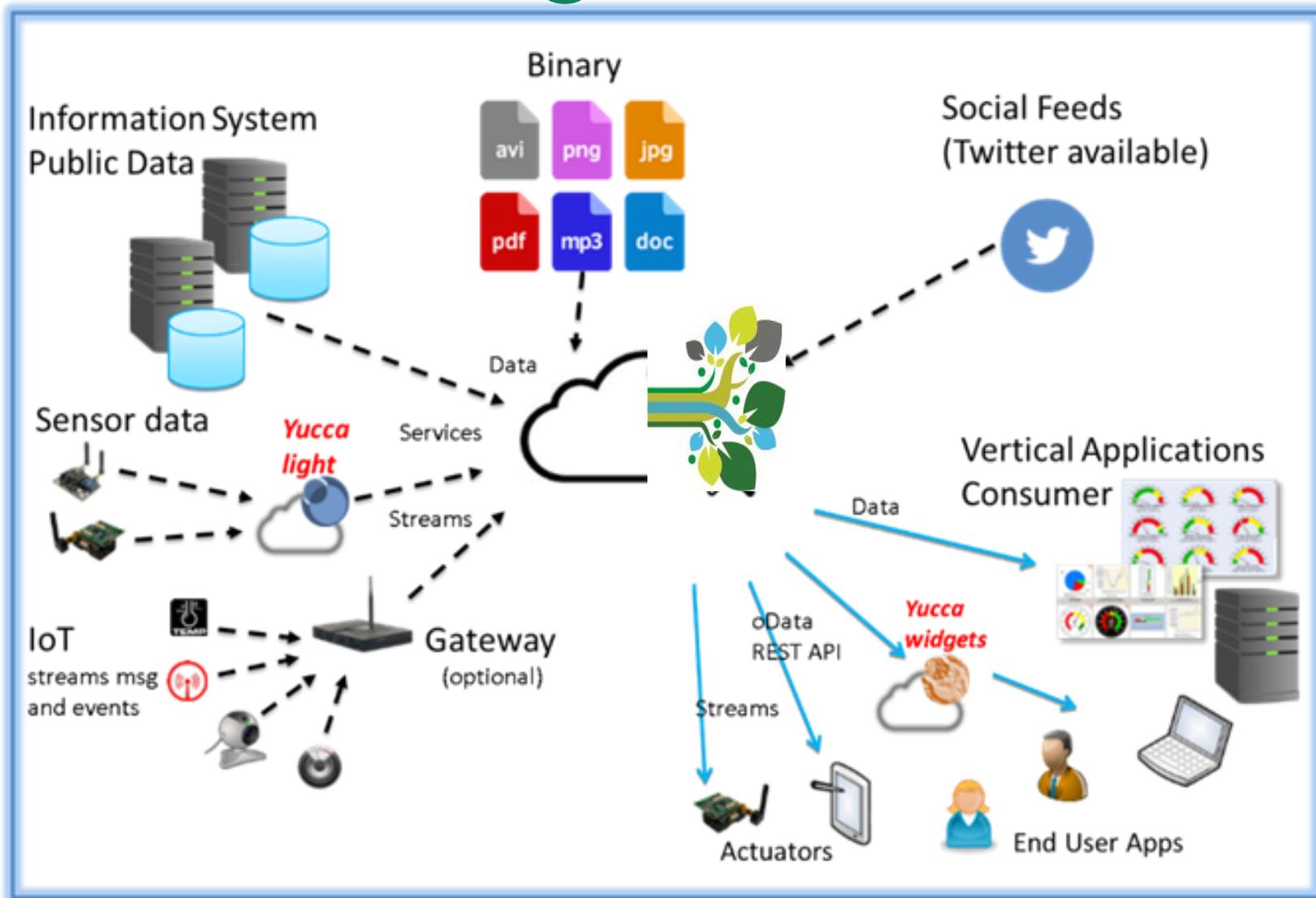
Is an easily, scalable and replicable platform

Ecosystem and participants



- **Public and private actors** collaborate sharing applications, devices and data
- **Networks of objects** (sensors, gateway, systems) and **people** who produce and transmit data making them available to the whole Ecosystem
- **A set of applications and services** developed by businesses and research centres that use functionalities, events and data from the platform, while running in independent environment on topics such as energy, environment, smart communities, health
- **Yucca** - open and free regional **Smart Data Platform** granting access to public data and offering functionalities to rapidly connect objects, people and systems sharing frameworks, libraries, and use cases

Solution design



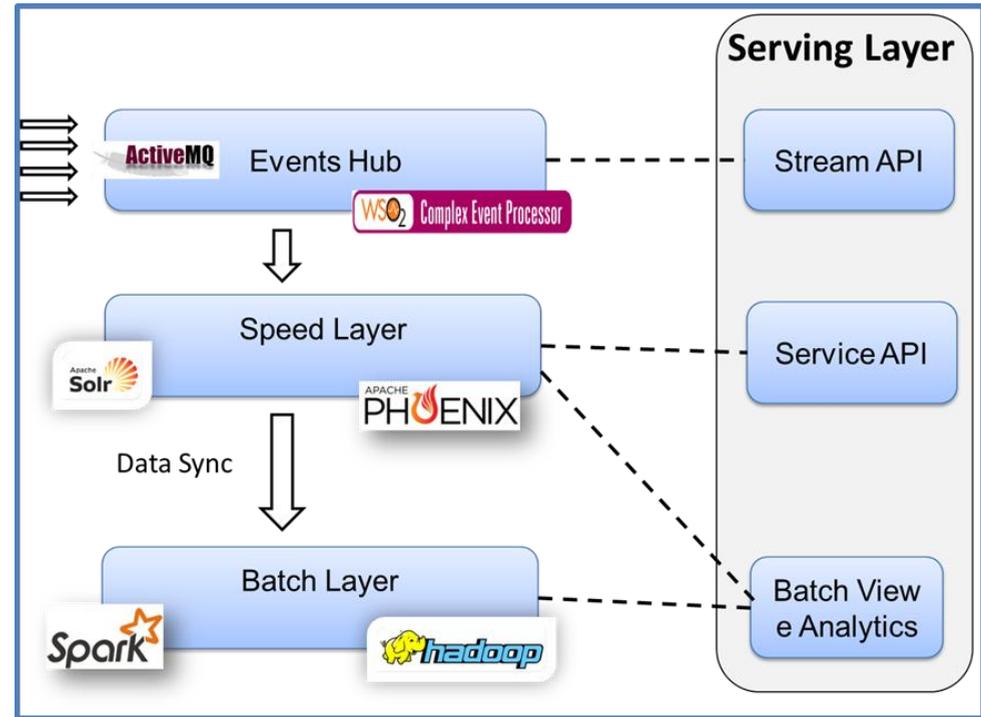
Solution design

YUCCA consists of a series of subsystems divided by responsibility and consistency. The subsystems are decoupled from each other and integrated through the use of APIs.

YUCCA is inspired by the concept of LAMBDA ARCHITECTURE. For these reasons it directs a layer to process and store stream/event (EVENT-HUB) for online access (SPEED-LAYER) and a layer that works to process large amounts of data in offline mode (BATCH-LAYER).

YUCCA is based on a data management component that acts as a repository of data for the entire ecosystem.

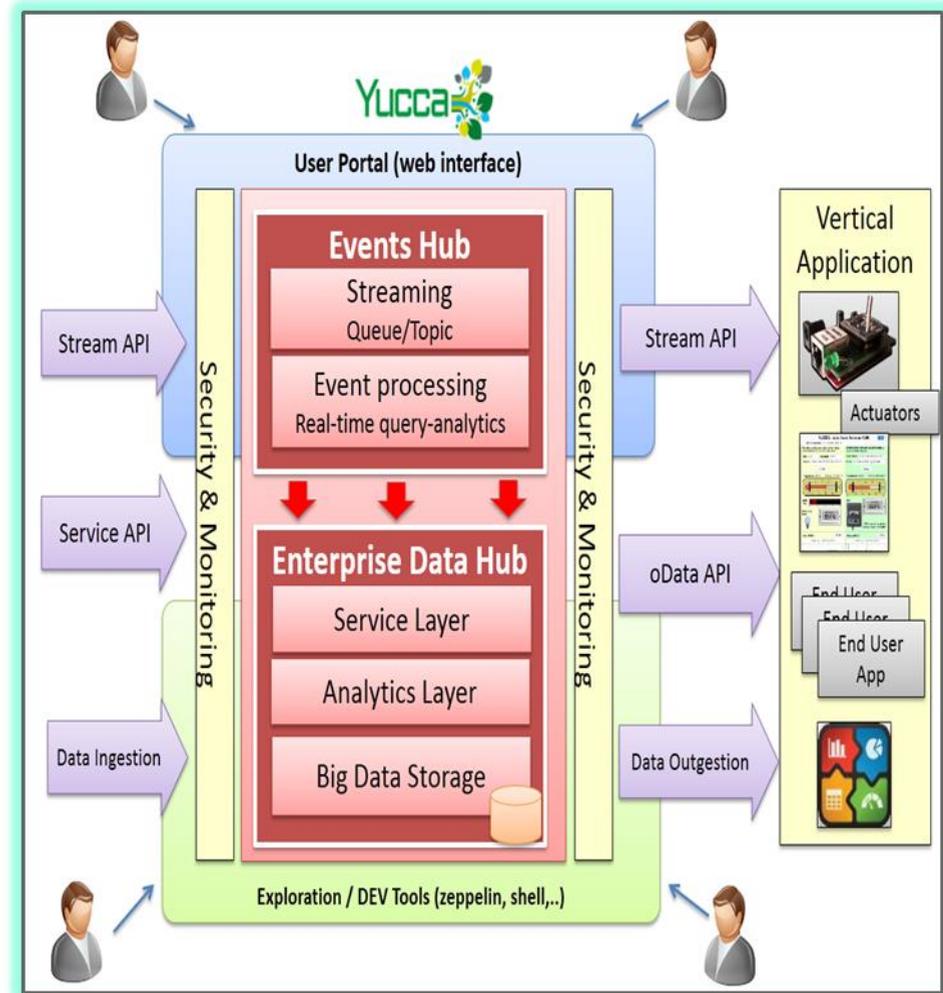
The implementation of the Enterprise Data Hub is based on Apache HADOOP technology



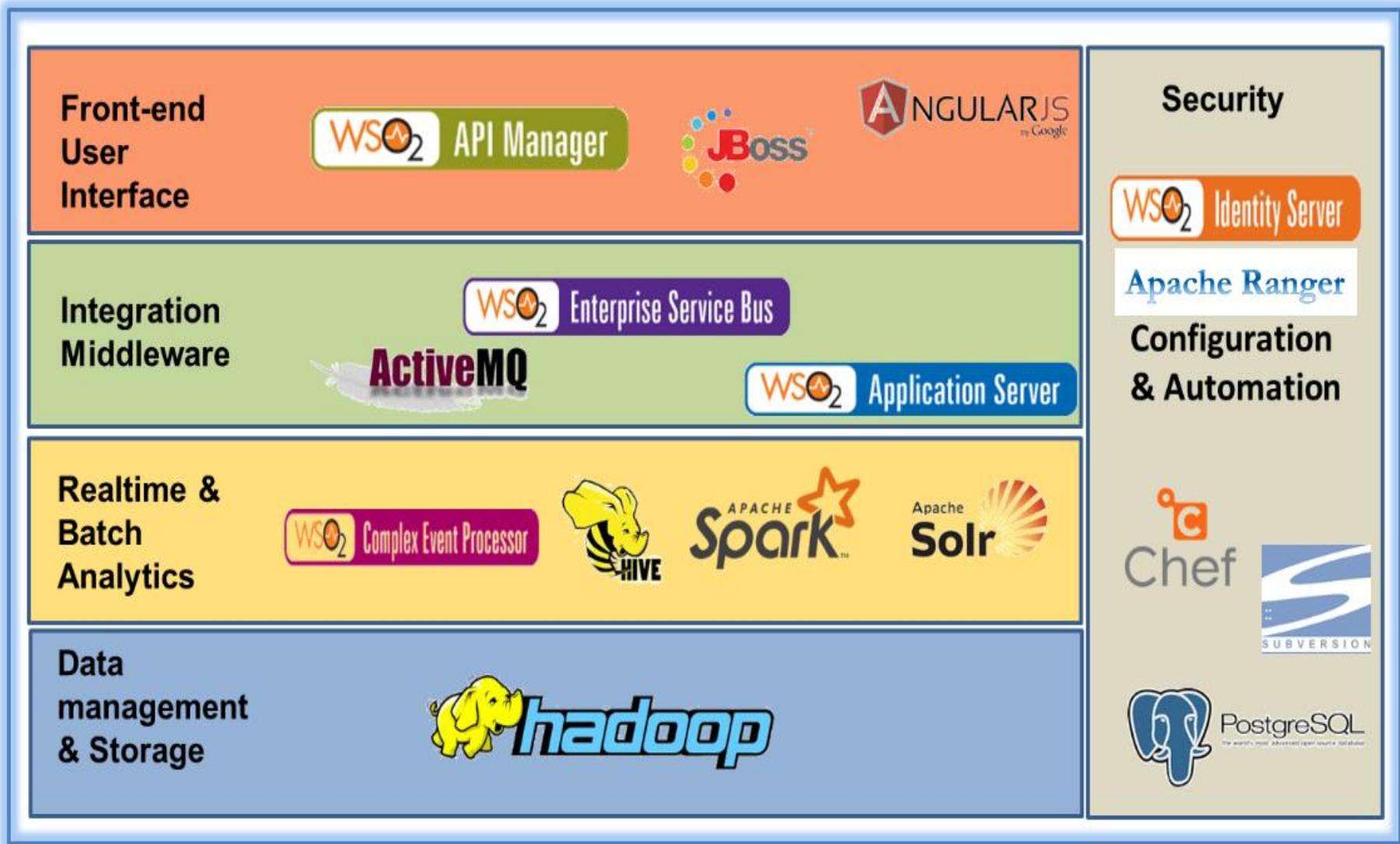
Solution design

Yucca was conceived, designed and offered in adherence to the reference models in open source communities

Yucca intends to pursue the dual objective of making integration into an Enterprise system simpler, safer and more widespread, and to reduce the risk of infrastructure and technology lock-in; this is why it adopts open standards and / or de-facto international standard protocols with shared and non-proprietary specifications.



Open Source Technologies



Governance

Piedmont Region owns the YUCCA platform and guarantees, through CSI Piemonte, its technological evolution, maintenance and data population.

Region promotes periodic meetings with the institutions on the territory to present the its operations and collect needs.

As far as the use of the platform to create new services to support the regional decision-making process, a transversal control group has been created. It meets periodically to discuss the projects relating to YUCCA.

With regard to the use of the platform by enterprises/universities/research centres, specific support initiatives for its use are promoted when necessary.

CSI Piemonte, as technology developer and as consortium of Piedmont public stakeholders, has the following roles: analysing the market to understand what technological initiatives are to be introduced in the platform to satisfy the needs of the users and to foresee the eventual future necessities

Impact and results

At present the YUCCA platform is used by:

- PIEDMONT REGION
- MUNICIPALITY OF TORINO
- METROPOLITAN CITY OF TORINO
- Municipality of Biella
- Municipality of Vercelli
- Municipality of Alessandria
- Municipality of Chieri
- ARPA PIEMONTE (Environment Agency)
- Enterprises
- EU funded projects baseon the platform:
 - BIG IoT- www.big-iot.eu
 - THE4BEES- www.alpine-space.eu/projects/thefourbees/en/home



Innovative aspects

YUCCA, the **open and precompetitive cloud platform** is available for public administrations, citizen and companies

In the rest of the world, the enabling platforms that bring together IoT and Open Data are private in nature, only Piedmont has built a public platform capable of allowing private access in a regulated manner and the registration of a legal entity other than an administration .

For this potential, Yucca platform is also included in the mapping of the Regional Plan for Research Infrastructures.



Sustainability of your solution

YUCCA is owned by the Piedmont Region that allows its use to other public and private institutions for data enhancement projects, following a **Pay per use** model.

The cost of use is calculated with respect to:

- **Data Management:** in each work area associated with a project, the data management service is measured in relation to data space segments.
- **IoT management:** in any work area associated with a project, if management is envisaged through the realtime system of smart objects and relative streams, the use is measured with respect to the number of objects (smart objects and streams).
- **API integrations:** in each work area associated with a project, if the data are to be displayed using APIs, the use is measured with respect to the number of monthly calls.

Envisaged next steps

- population of the regional Data lake
- enhancement of the technological platform: integration of new open support components for the development of new services
- creation of new observer decision-making services and multi-source and multi-field dashboards.

www.smartdatanet.it

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