

## Cloud Federation from Piloting to Large Scale Deployment:

Draft Speech

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Hall 5

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### SLIDE 1 - Cover

Good morning Ladies and Gentlemen,

I'm really honored to take part in this session.

### SLIDE 2 – Personal Introduction

First, let me quickly **introduce myself**.

I'm the General Director of the IT Directorate of the Italian Ministry of Economy and Finance, and I am also a member of the Italian Digital Agency's Steering Committee.

My **Directorate** covers several **strategic functions**, the main ones include:

- handle **IT solutions** which serve the entire Ministry (such as IT nets, email networks, Document management.); .... and
- provide **services for the Italian Public Administrations, in particular HR services** through the NoiPA digital platform - the largest shared services platform in Europe, representing over 2.1 million civil servants in Italy.

We decided to participate to European Projects focused on research and innovation to find at the forefront of knowledge a way to solve concrete problems of efficiency and/or quality in our activity.

This is the reason why I'm currently the Project Coordinator of the "**POSEIDON**" research project, which is developing a platform based on blockchain technology to strengthen the personal data protection in compliance with the GDPR.

For the same reason, I was also the **coordinator of "SUNFISH"**, a project on Cloud Federation which ended in 2017. And today I am here to **talk about Cloud Federation** thanks to the experience we gained through this engagement



But also I am **here today with my team** to continue this experience: we want to **expand our network** and trying to get **engaged in ICT projects, to develop, for instance**, Blockchain and Artificial Intelligence-based solutions in public services.

### SLIDE 3 – Sunfish: Federation as a Service

So, I will first **introduce SUNFISH**.

In brief, **the SUNFISH project developed a platform** that allows to share securely IT resources and services.

The SUNFISH project has defined the **Federation-as-a-Service (FaaS) concept**: a secure-by-design cloud solution that enables organizations to federate their cloud with a distributed and democratic governance model.

What does it actually mean? It means that **each federated Entity** can participate to the federation **sharing cloud resources**

1. **keeping sovereignty on their data**.... and this is particularly important for **public sector**, where **protection of citizens' information** is crucial;
2. **Distributing** the governance data along all the federation members, which enjoy the same authorities and duties on the others

This was possible using a **blockchain technology solution**, which ensured the development of distributed ledgers featuring strong integrity guarantees.

I am focusing on security and governance because these are key factors for the public sector to adopt cloud solutions and a cloud federation above all

The **SUNFISH platform has been tested** on different **use cases** of three different European Public Administrations, namely:

- i) The Maltese Ministry of Finance, in order to calculate citizens' tax burden, where we tested the federation with a public cloud too;
- ii) The South-East Regional Organised Crime Unit, part of the British local Police Forces, in order to share secret data on investigations, where we used the Secure Multiparty Computation technology;
- iii) And the last use case, which was implemented in our organization, and I will show you what we did with a short video...

**VIDEO**



**Slide 4: Thinking cross-border**

Following the video, let me to underline **one more important aspect of Sunfish**.

Inverting the ordinary approach, SUNFISH has been **conceived FROM and FOR the Public Sector**, taking into account its needs and its constraints, **putting user requirements of the public sector at the forefront**.

The innovation coming from SUNFISH has become the technological **backbone** used in other projects of digital transformation, but also it pushed a cultural change towards innovation.

**Now**, why is SUNFISH still at the **forefront of innovation even after two years**?

Because it responds to public sector challenges that are still true today.

Indeed, as I said, SUNFISH allowed to **federate heterogeneous private** and public clouds in a secure manner.

What's interesting is that it can establish a cloud network of excellence, pooling the infrastructures and lowering the dispersion of data among many data centers. This is **in line with the current digital strategies of several EU countries**, like the Italian one.

Currently, the **Italian** public sector is involved in a complex **digital transition process** moving towards the rationalization of ICT heritage, the rationalization of some 13.000 data centers and the progressive adoption of the "cloud computing" paradigm.

The **Three-Year Strategic Plan for IT in Italy's Public Administration**, in line with the EU Digital Agenda, indicates operational actions aimed to increase the adoption of cloud in the Public Sector, with the **main objective of creating** an efficient and secure public infrastructure by **creating National Strategic Poles of Private / Hybrid Cloud**.

- The **Agency for Digital Italy** is identifying the cloud infrastructures, already available in the public sector, that fulfill the requirements to be "strategic poles".
- **The current result of this census** is that - today -, adequate examples of cloud infrastructure in Italy can be counted on the fingers of my hands.
- This showed a **strong delay in the implementation** of the Italian public sector cloud infrastructure.
- In addition, following European and National guidelines, the demand of cloud services for public administrations is increasing, but the public IT providers are still not ready. Therefore, **cloud private providers** cover the growing demand, fueling a debate on **lock-in** and **on data security**.

And this is **not just an Italian phenomenon**, it also appears across the **European scenario**. Many European countries have been implementing national digital transformation strategies fostering the adoption of Cloud solutions in the Public Administration.



However, **besides some very few exceptions, all countries are late** in the cloud strategy implementation, and we can find **in all countries** the same **fragmentations and bottlenecks**, due - for example - to the quality of cloud infrastructure or to the lack of a cloud security framework.

In this context, **the “Federation-as-a-Service” approach coined by SUNFISH**, is still an **affordable way to face these common challenges** to cloud implementation.

And this is why I think that we should start to **“think cross-border”**.

A **federation of European clouds** between European countries could **overcome the lack of good cloud infrastructure, pooling resources** and contributing to solve the **issues related to data security and lock in**.

Overall, **it would just point toward gathering virtual components**, without any physical territorial barriers.

So, if the results of SUNFISH are so great, **why** after two years is it still one of the very **few similar experiences** in Europe? Why this experience **wasn't replicated or developed** elsewhere?

As it was already **highlighted by OECD's Recommendation** on Digital Government Strategies adopted in 2014, **there are some challenges** to face when innovating the **public sector**.

1. **Resistance to change** is usually the feeling shared within the public organizations.
2. The **public sector often works by silos**. This requires **coherent and strategic planning of policies** for digital technologies use in all areas.

However, **governments remain organized around units**, each with clear responsibilities and processes, as well as problems to integrate their ways of working. This is a **major challenge** for integration of digital innovation into overall public sector reform strategies.

**Moving these considerations to the hypothesis of a cross-national innovation process**, the **real challenge to develop a cloud federation in the EU**, therefore, is to build a **broad political commitment**, able to overcome these issues. A **real, concrete, political support** for the creation of federated cloud systems as an integrated element of overarching public sector reform agendas and initiatives.

**In conclusion:**

Implementing a cloud federation approach within the public sector at the National and at the European level requires huge amount of **collaboration, cooperation** and shared efforts to overcome resistance.

It requires the understanding of the current situation of every single country in the implementation of cloud strategy in public sector, the identification of common standards and the dissemination of best practices related not only to technological - but also organizational - implementation. It requires a concrete, **proactive political commitment** that can help everybody to take a step ahead.



**Slide 5: The orchestra**

Myself, and the organization I represent here today, **look up at the European Commission** to lead this important game.

The **EC should be the conductor of this orchestra**, allowing all musicians with their different instruments – all public organizations of all Member States – to work together towards Cloud Federation. And I would then expect it to continue to wave its hands and beat the time of the music until we create a new symphony.

**Slide 6: Thank you**

*Thank you for your attention, and now I am happy to answer any questions you might have*

