

OpenNebula

Past, Present, and Future of Open Source Cloud Management

OpenNebula.Systems

Developing & Supporting OpenNebula since 2010

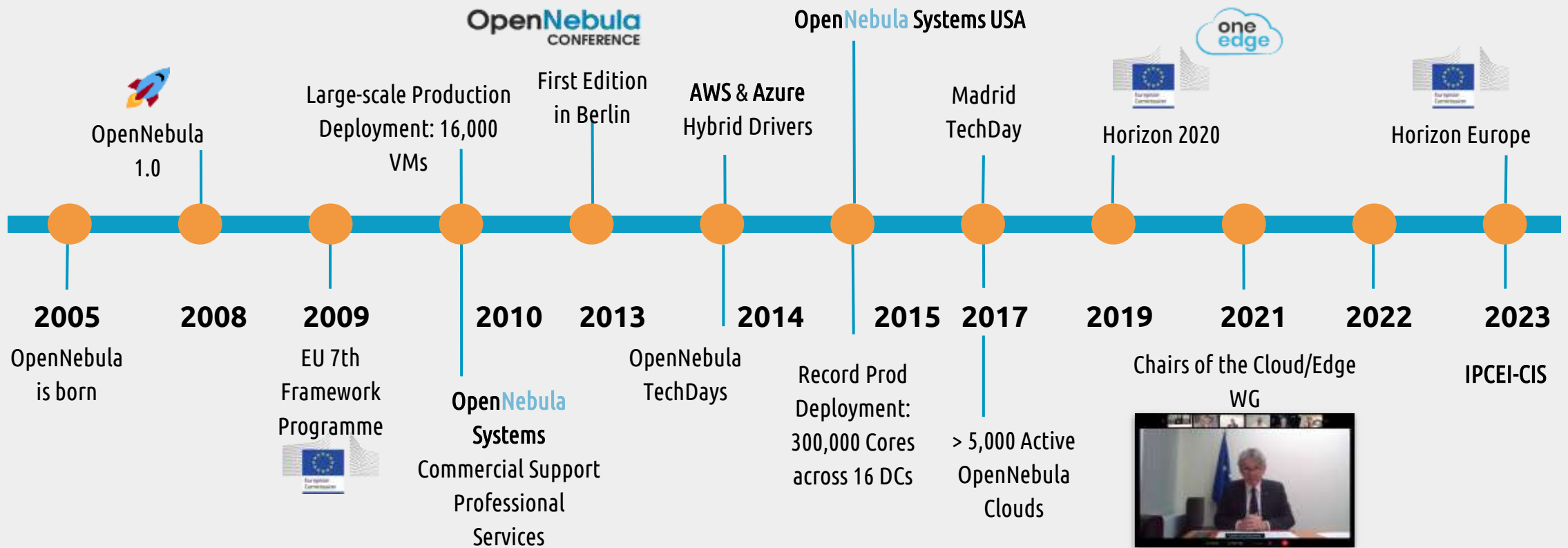


- **European** open source technology.
- HQ in **Madrid** (Spain), with offices in Brussels (BE), Brno (CZ) & USA.
- The only European open source **laaS** solution, born in **2008**.
- A success story emerged from **EU innovation** programs.
- Chairing company of the **IPCEI-CIS** Industry Facilitation Group.
- Chairing the **EU Cloud Alliance**.



OpenNebula Timeline

Leading European Innovation in Cloud & Edge Computing



What is OpenNebula?



The Only European Open Source Cloud & Edge Computing Platform

Building a Vendor-Neutral Abstraction Layer to Ensure Workload Portability and Repatriation

Virtual Machines



Kubernetes Clusters



Virtual Infrastructure Management, Cloud Management Provisioning & Cloud Federation



CORE DATA CENTER



PUBLIC CLOUD



EDGE

- ✓ **Multi-Tenancy**
- ✓ **Self-Service**
- ✓ **High Availability**
- ✓ **Federation**
- ✓ **Multi-Tier Apps**
- ✓ **Elasticity**
- ✓ **Automation**
- ✓ **Multi-Cloud**
- ✓ **VMs + Kubernetes**

What is OpenNebula?

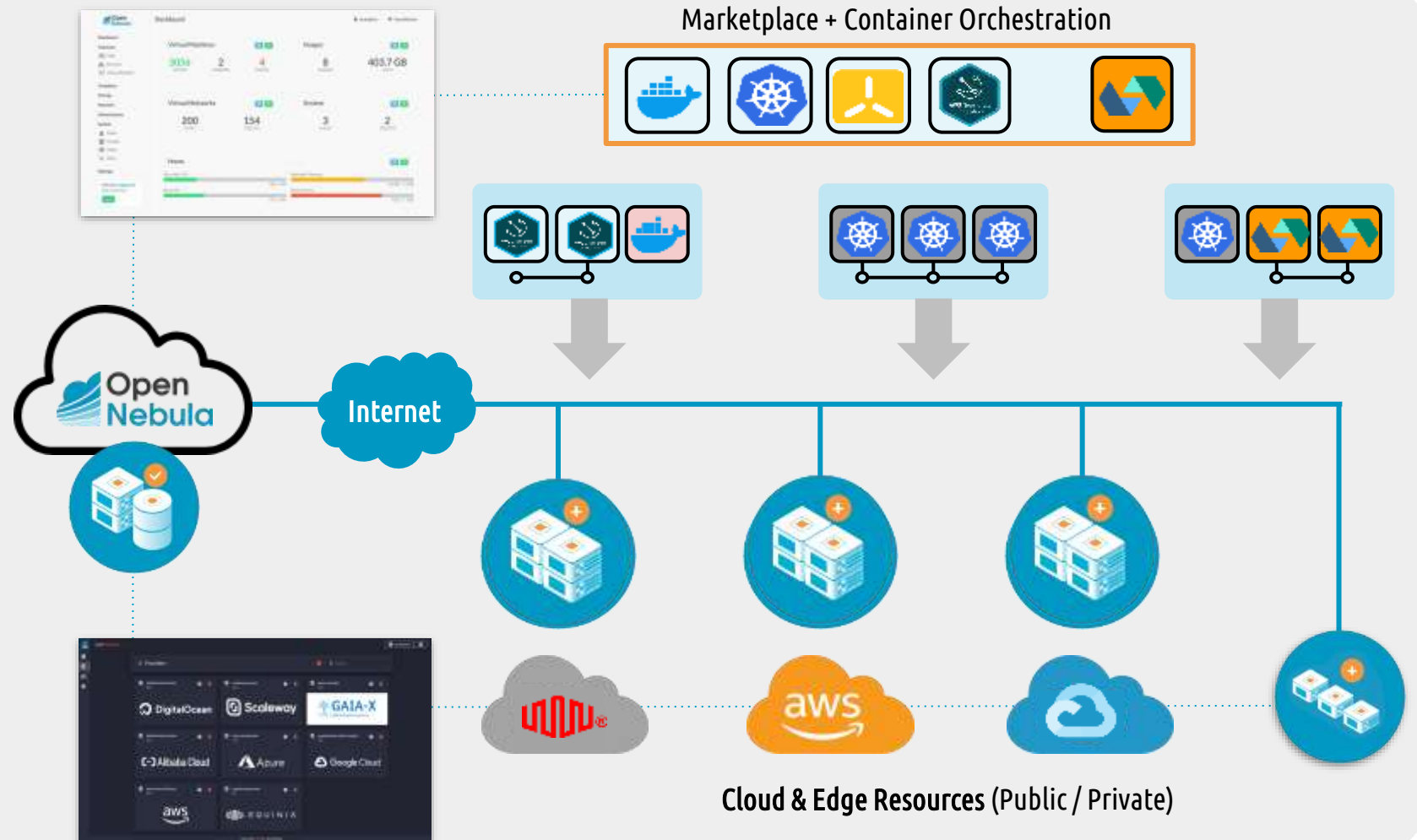


The Only European Open Source Cloud & Edge Computing Platform

3 Any Application
VMs, multi-VM services, containers, and K8s clusters on a shared environment

2 Uniform Management
Homogeneous layer for user and workload management and operation

1 Any Infrastructure
Automatic provision of resources from cloud & edge providers





IPCEI Cloud

Introducing the IPCEI-CIS

- ✓ Enable the **Multi-Provider Cloud-Edge Continuum**
- ✓ Strengthening the **EU Digital Industry**
- ✓ Development of **European Open Source Technologies**
- ✓ €1.2B in State Aid + €1.4B in private co-investment
- ✓ 120+ European companies from **12 Member States**



Introducing the IPCEI-CIS

Industry Facilitation Group

Chair



Vice-Chair



Supervisory Board
(MS + EC)



SIEMENS

WS4



WS3



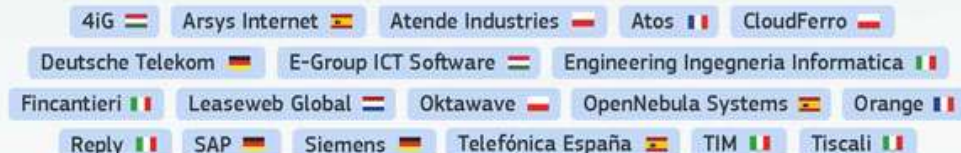
WS2



WS1

Wider IPCEI CIS Ecosystem

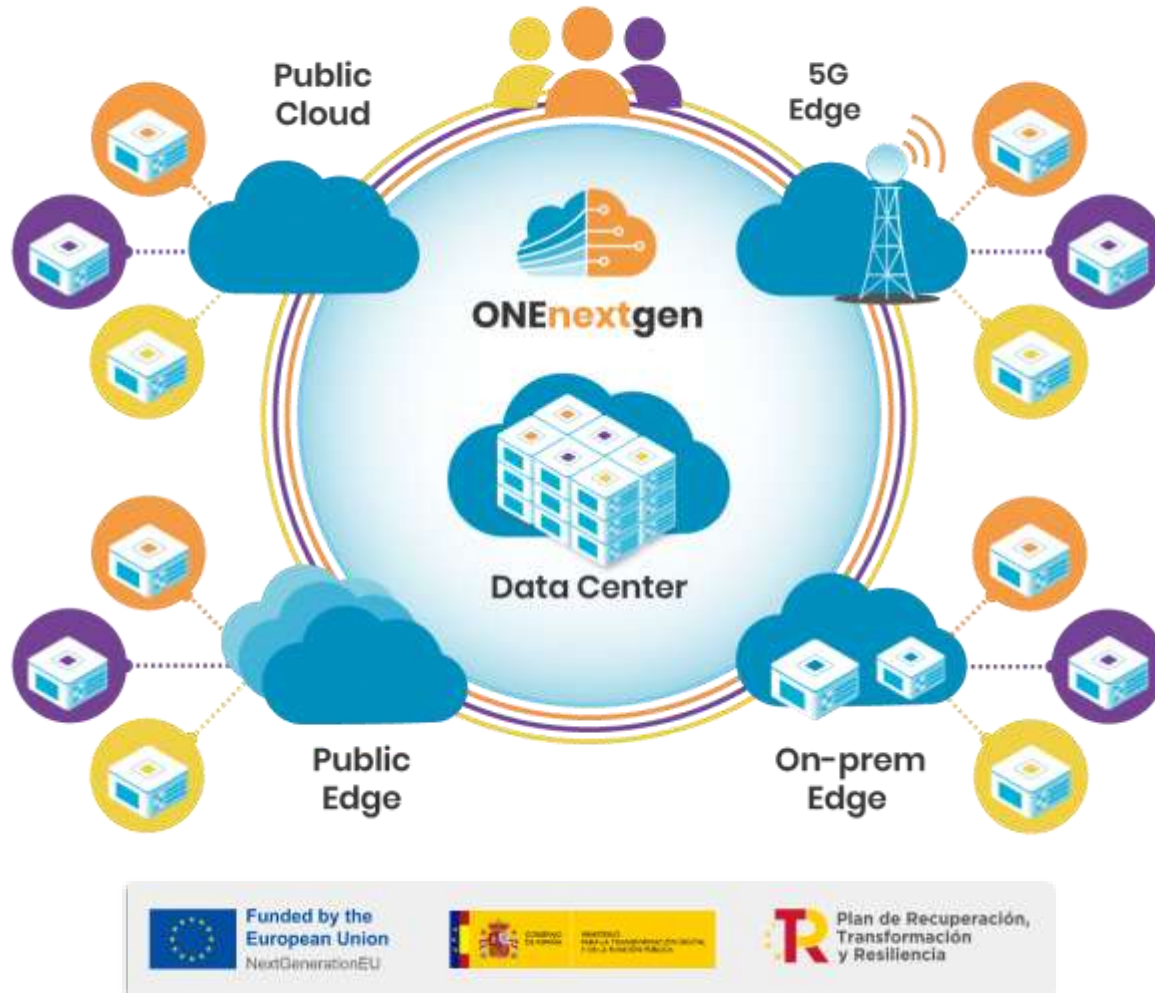
Direct Participants



Indirect Partners



IPCEI Cloud – Example of Individual Project: **ONEnextgen**



MAIN GEO-STRATEGIC CHALLENGES:

Coordination Failure



Lack of **coordination** to deliver a **suitable edge** computing offering

Concentrated Market Power



Market structure dominated by a few **non-EU providers**



Vendor **lock-in** practices



High barriers to entry for new cloud and edge providers

Negative Externality



Excessive **energy consumption** and **pollution** from rapidly-expanding cloud infrastructure

IPCEI Virtualization Stack

OpenNebula at its core



(WS4) Use Cases



(WS3) Smart Advanced Data Processing



(WS2) Cloud-Edge Capabilities



(WS1) Cloud-Edge Infrastructure



2.6. Cross Cutting Security

2.7. Cross Cutting Sustainability

What is MCP? (Model Context Protocol)



MCP as a universal protocol that connects **AI to tools**

1 A Protocol for AI

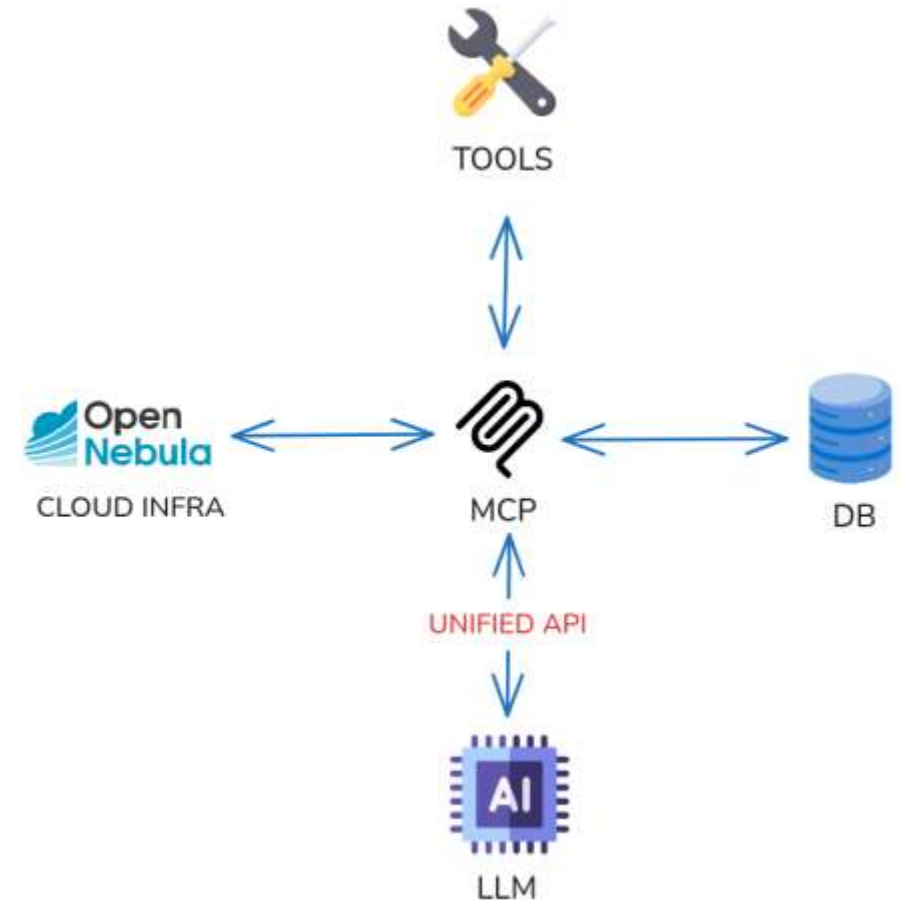
MCP provides a universal protocol for AI, creating a standard communication bridge between the LLM and any external tool or API.

2 Safe & Secure by Design

Enables AI to safely discover and operate tools within a controlled environment, preventing unauthorized actions and ensuring user trust.

3 From Conversation to Action

Transforms the AI from a passive chatbot into a proactive agent, capable of independently executing complex, multi-step tasks for you.





IPCEI-CIS

Next-Generation European Platform for the Datacenter-Cloud-Edge Continuum

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