CISERO

Cloud Infrastructure and Services Exploitation Resources Office

IPCEI-CIS and the role of open source

Golboo Pourabdollahian- IDC

23 September 2025

Madrid

CISERO in a Nutshell

CISERO (Cloud Infrastructure and Services Exploitation Resources Office) is a Coordination and Support Action funded by the European Commission, DG Connect

Mission: Permanent Exploitation Office for the IPCEI-CIS initiative to

- Maximise the impact and visibility of 110 + IPCEI-CIS project
- Build a pan-European Cloud-Edge-Continuum community
- Secure long-term governance & sustainability for Europe's cloud-edge-IoT ecosystem

Collaborative Platform
- Cloud IPCEI-CIS Community collaborative space
- Forum to share results, datasets and best practices
- Tailored landscape visualisation tools (Reference Architecture, Interactive Map, etc)

Community Growth
- Elaboration & publication of best practices catalogue
- Capacity-building for upskilling professionals
- Ecosystem building activities (events, webinars, workshops)

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ECOSYSTEM

Roadmap
- Collaborative technology analysis
- Benchmarking and gap analysis
- Analyses of financial viability of solutions
- Strategic suport for sustainable planning

WG & Governance
- Design governance best practices
- Initiation and support of Working Groups
- Facilitate rich interaction and exchange of information in the IPCEI-CIS membership

Get in touch

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Interactive IPCE-CIS Reference Architecture Tool

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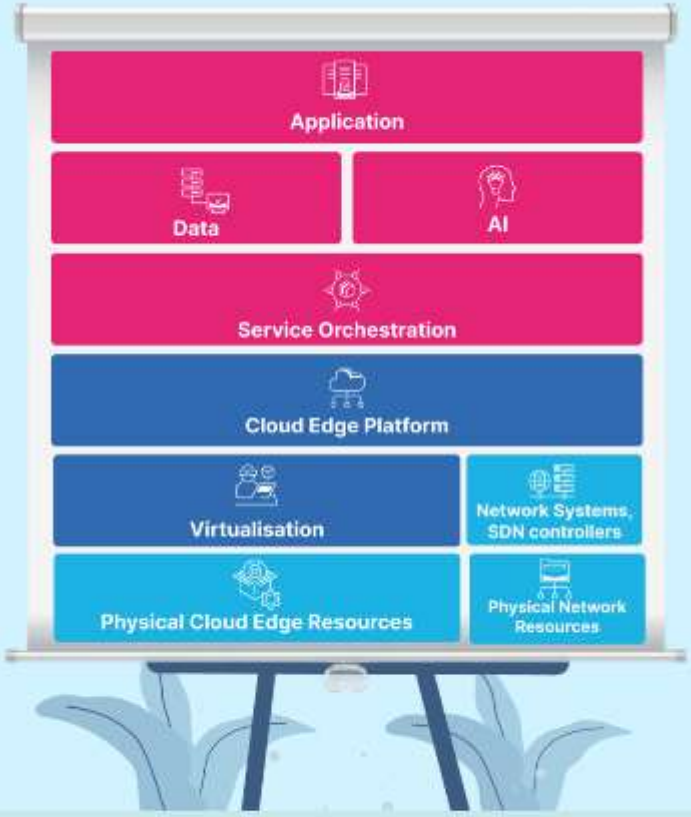
8ra CLOUD-EDGE CONTINUUM

FIRST VERSION OF IPCEI-CIS REFERENCE ARCHITECTURE OFFICIALLY RELEASED BY 8RA

EXPLORE IT THROUGH CISERO'S INTERACTIVE TOOL

DISCOVER NOW



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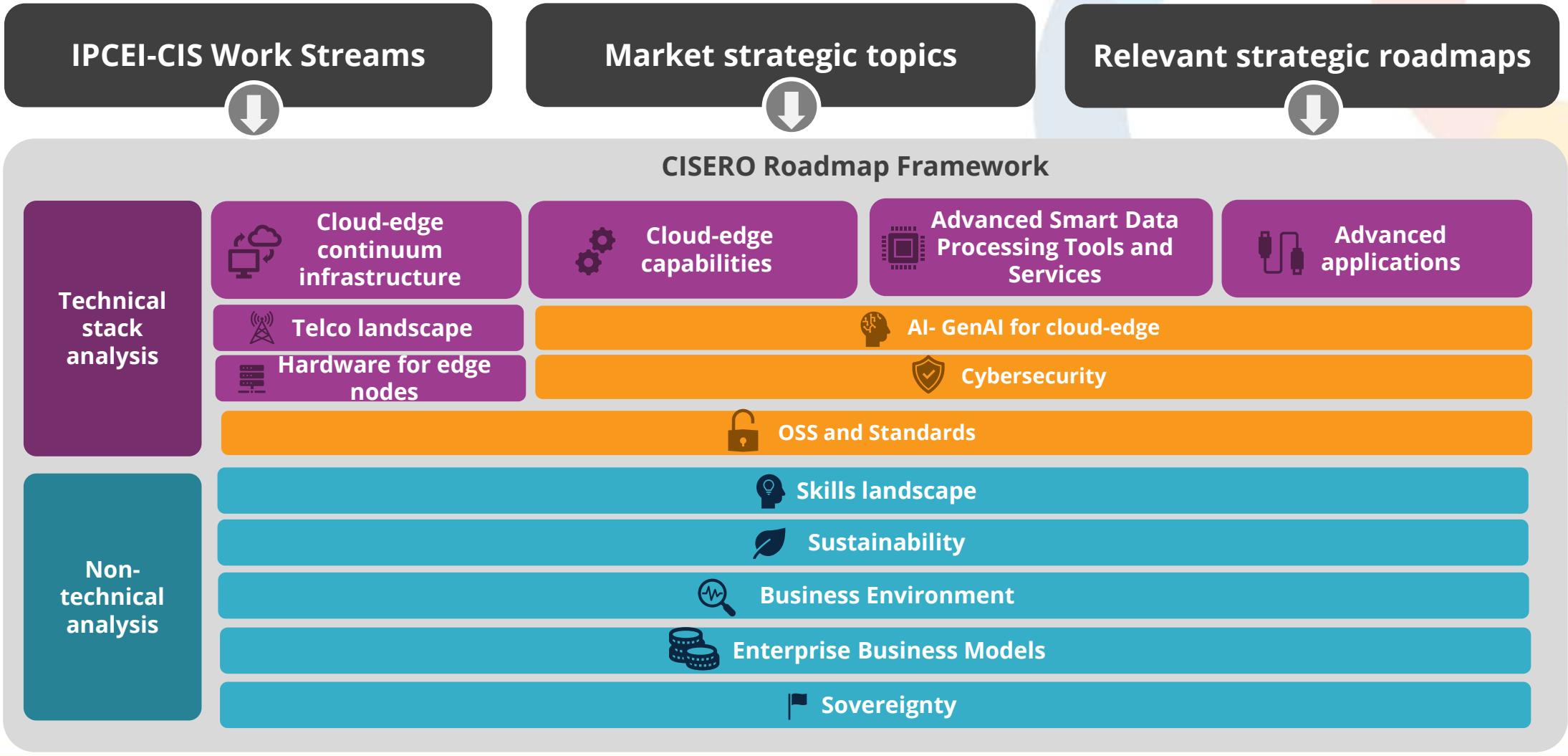
CISERO Roadmap Framework



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5-6 November 2025
CISERO at Nexus Forum 2025 Summit 2025

19 November 2025
CISERO OPEN SOURCE WEBINAR

Funded by the European Union

Panel Discussion

Axel Stahlhut
Amadeus

Lauresha Toska
ECO(Association of the Internet Industry)

Alfonso Carrillo-Aspiazu
OpenNebula Systems

Funded by the European Union

Thank you!

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amadeus

The RESCUE project

Greek heroes, Rock bands, and more …

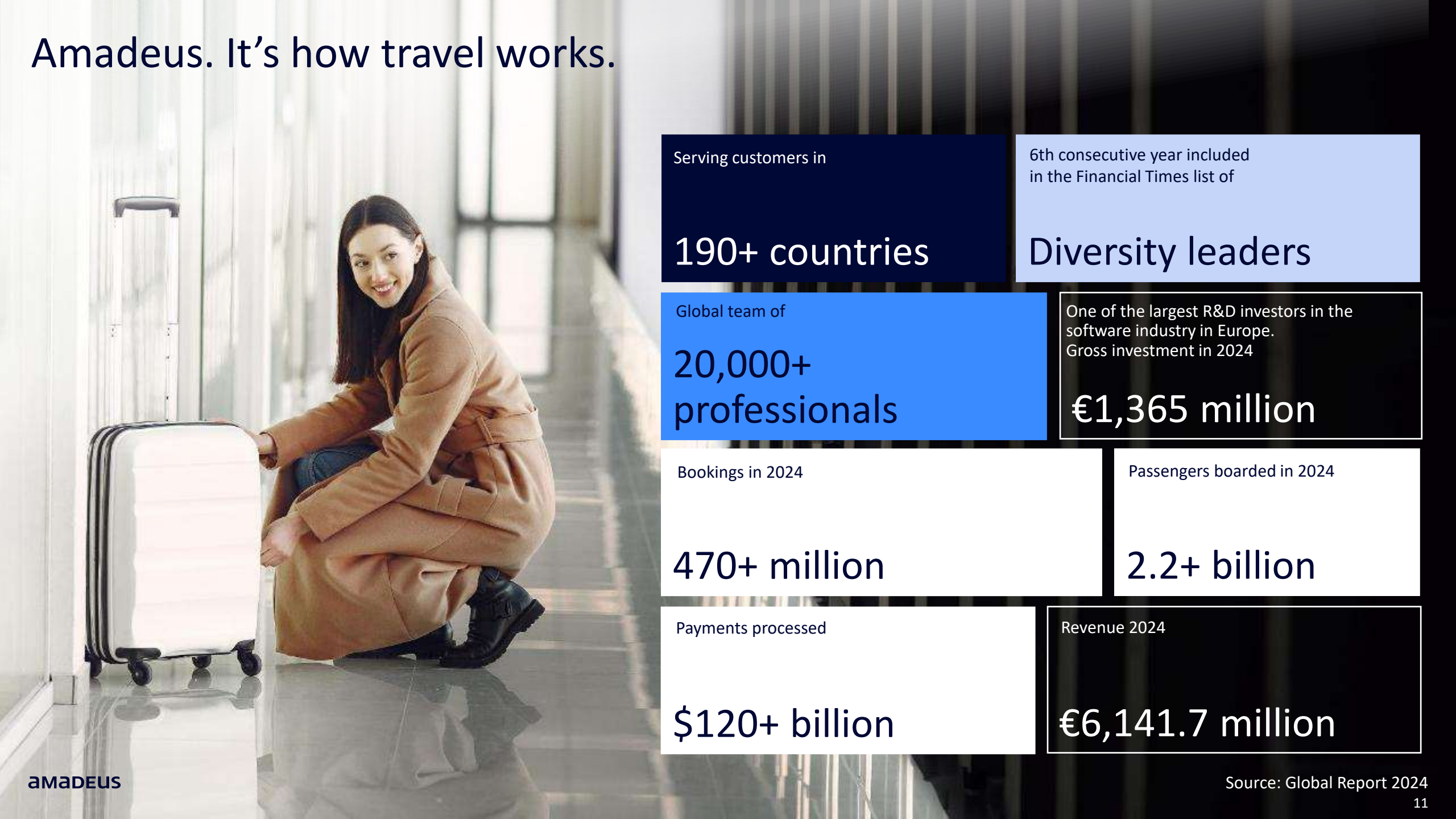
Open-Source software for a European sovereign cloud

Axel Stahlhut
23-Sep-2025

Agenda

1. Amadeus
2. Observability: Perses
3. Connectivity: ACD
4. Security: AFIR and Gaspar

Amadeus. It’s how travel works.



Serving customers in

190+ countries

6th consecutive year included in the Financial Times list of

Diversity leaders

Global team of

20,000+ professionals

One of the largest R&D investors in the software industry in Europe.
Gross investment in 2024

€1,365 million

Bookings in 2024

470+ million

Passengers boarded in 2024

2.2+ billion

Payments processed

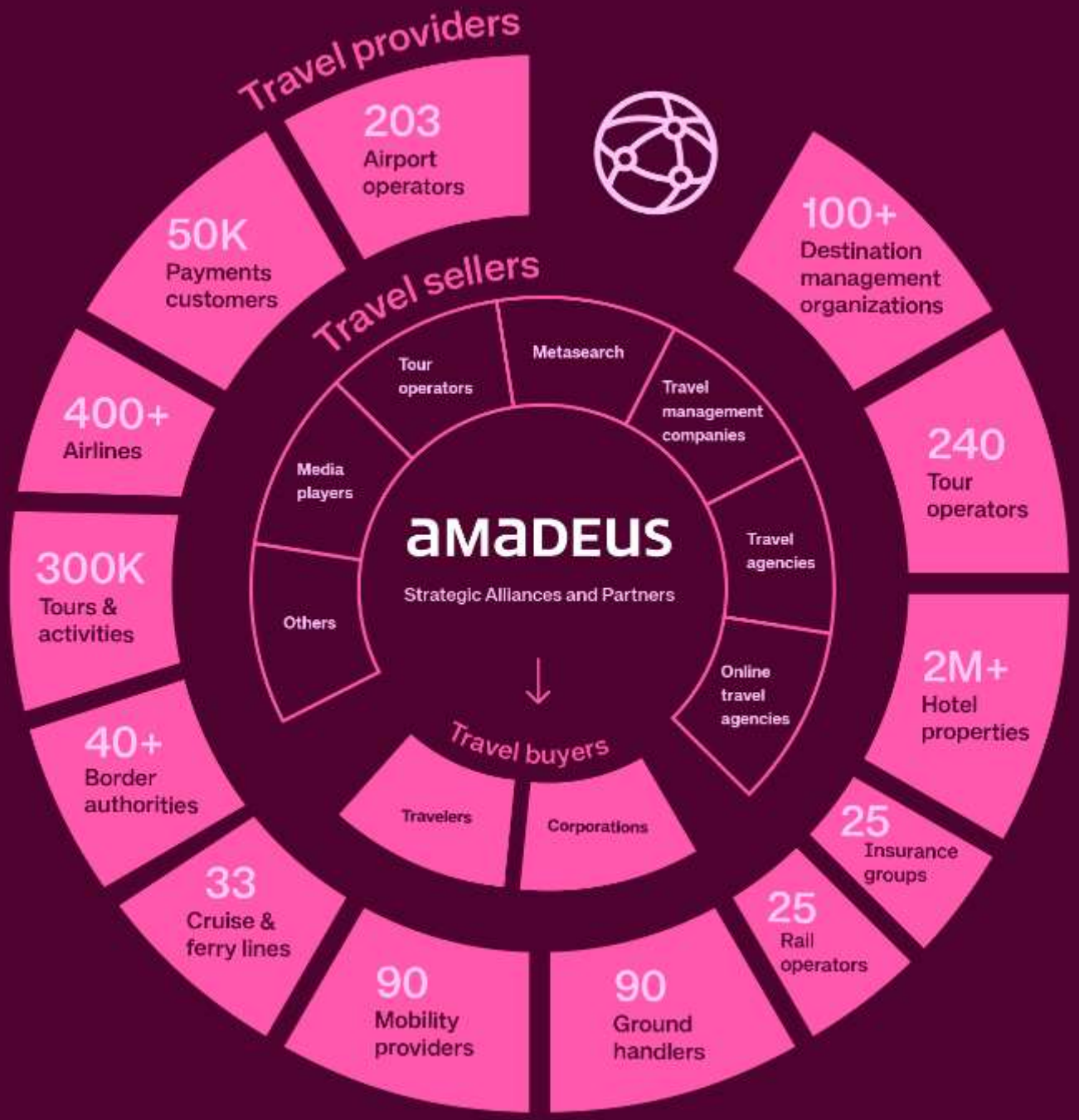
$120+ billion

Revenue 2024

€6,141.7 million

Source: Global Report 2024

We connect the travel ecosystem



Delivering robust global operations

Reliable & secure

Scalable technology built on open systems and a service-oriented architecture

A true defense-in-depth security strategy

Operational excellence focus, across the globe – follow the sun operating model

The breadth & depth of our operations

150,000 transactions processed per second at peak time

15,000 system changes per month

99.95% availability for our customers for some of our services, with up to 99.999% for our internal infrastructure

Perses in RESCUE

Enhancing transparency and control in cloud infrastructures

Perses in the Observability Ecosystem

Unified Observability Interface

Perses unifies metrics, logs, and traces under a single observability dashboard for streamlined IT and Services Health Check.

Open-Source and Licensing

Released under Apache 2.0 license, Perses is more enterprise-friendly compared to AGPLv3 licensed alternatives.

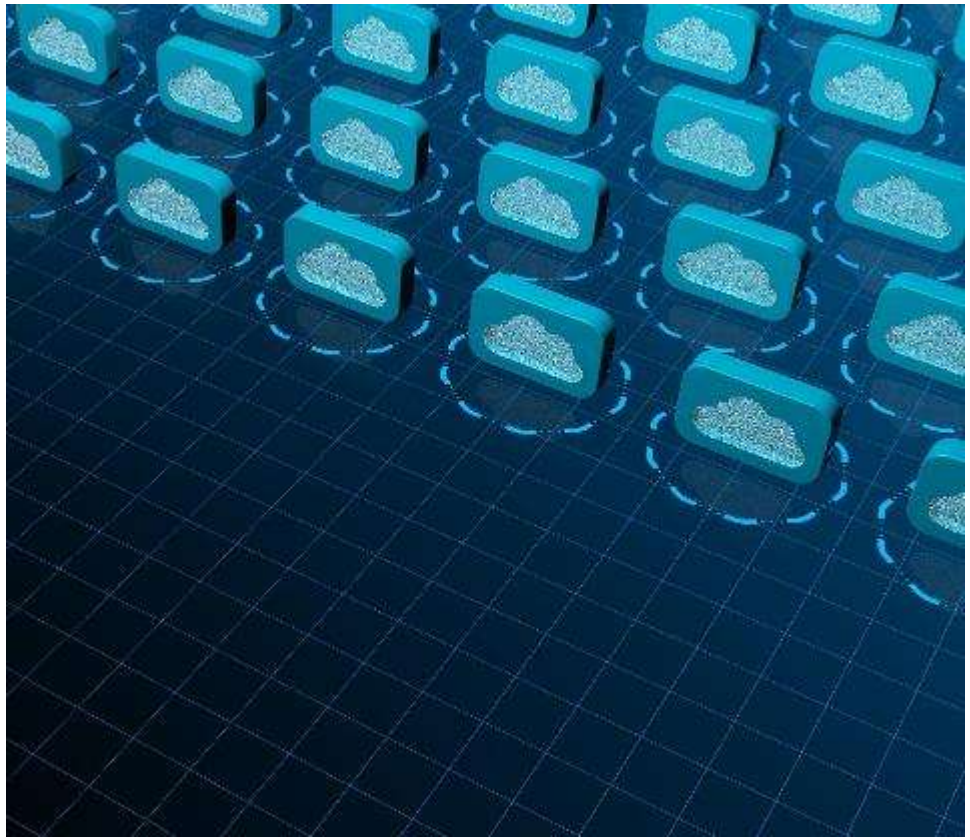
GitOps and Extensibility

Perses supports native GitOps integration and offers an open plugin architecture for extensibility.

Scalability and Adoption

Designed for large-scale deployments, Perses efficiently manages thousands of dashboards and is adopted by major enterprises.

Key Capabilities of Perses



Modern Technology Stack

Perses uses ReactJS and TypeScript for frontend, Go and CUE for backend and Frameworks development.

Dashboard as Code

Perses uses YAML or CUE for declarative dashboard definitions, enabling version control and CI/CD integration.

GitOps and Automation

GitOps-friendly features include CLI tools and SDKs for automated dashboard management.

Kubernetes-Native Architecture

Perses manages dashboards as Kubernetes CRDs through its operator, ensuring native cluster integration.

Multi-Source Observability

Supports data sources like Prometheus, Tempo, Jaeger, Thanos, and OpenSearch for comprehensive observability.

Plugin-Based Architecture

Supports extensibility with custom panels, new datasource connectors, and UI enhancements with versioned plugin registry.

Open Schema and Reusable Components

Open dashboard schema and components API promote interoperability and template reuse.

ACD in RESCUE

Intent-based connectivity deployment

Functional Capabilities of ACD

Declarative Connectivity Modeling

ACD open-sources extends the functionality of the Amadeus proprietary AUD framework.

Declarative Connectivity Modeling

ACD will enable defining network topologies, security policies, and routing as code for consistency across environments.

Policy Compliance Enforcement

It will integrate with orchestration engines to enforce security boundaries and governance standards.

Automation

ACD will support customers to build the deployment agents using their favorite tools and frameworks (e.g.; ArgoCD, Kubernetes Operators, etc.).

Core Components

Descriptor Engine Functionality

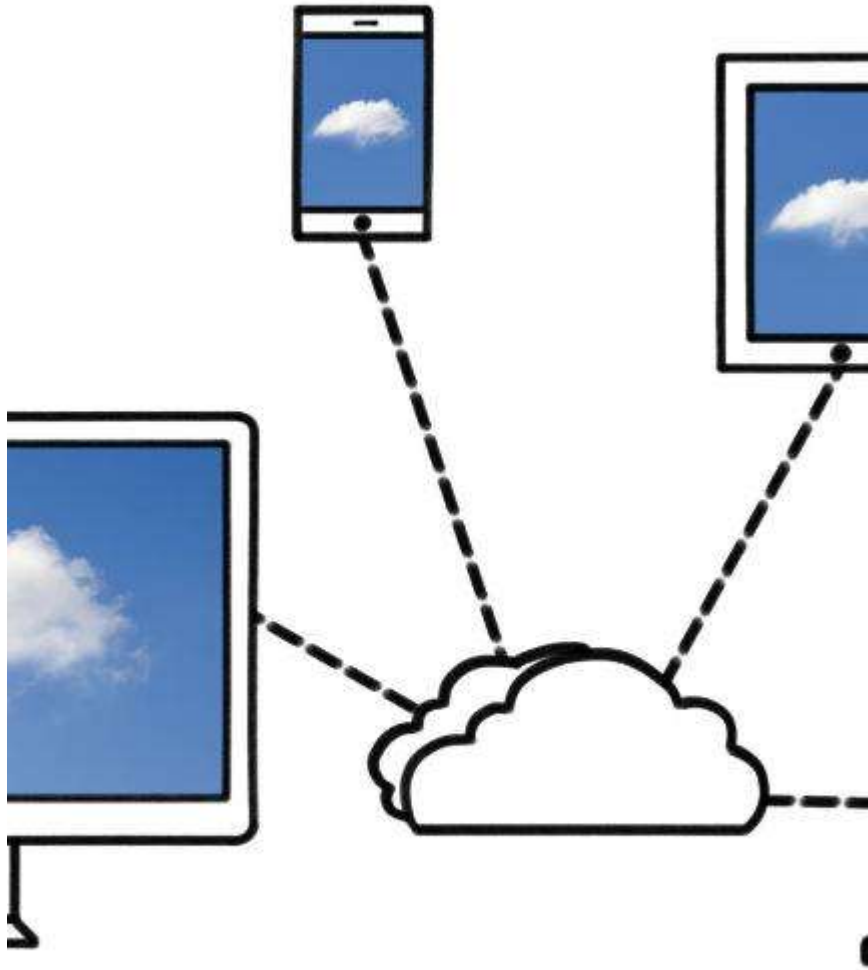
ACD uses a descriptor engine to convert YAML and JSON definitions into platform-specific configurations across various environments.

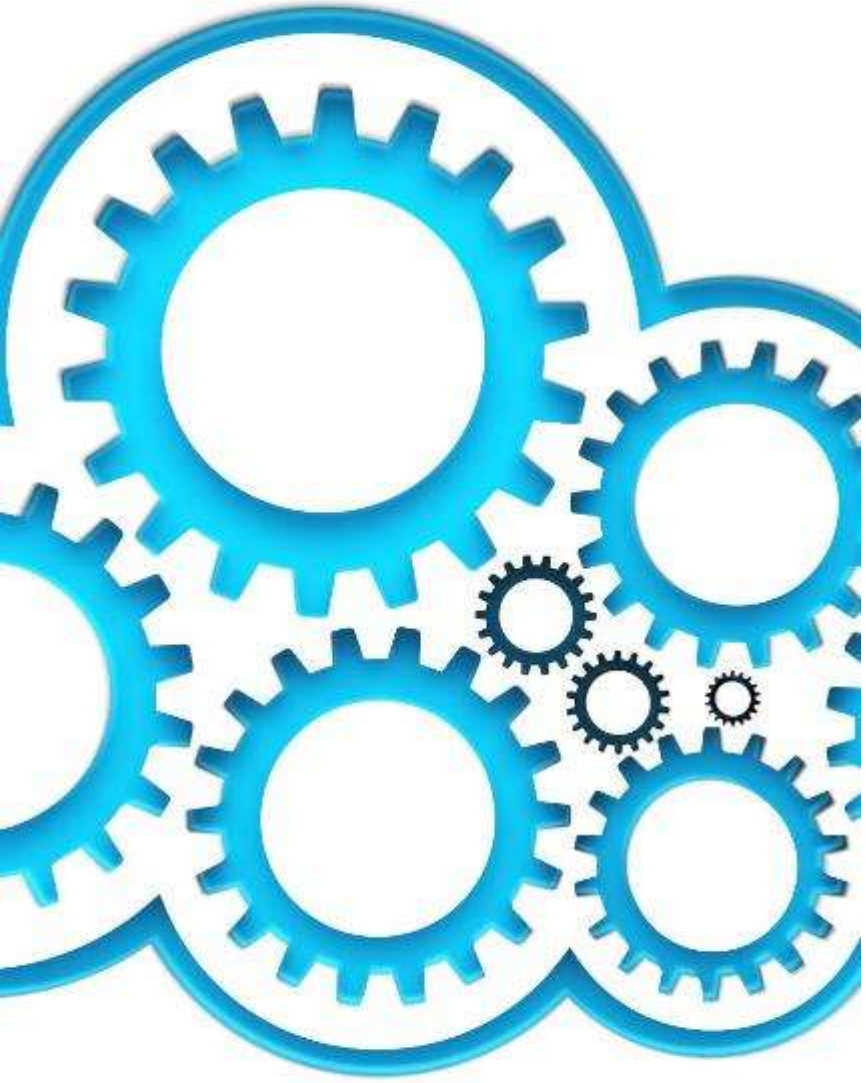
Virtual Topology Graph

ACD builds a virtual topology graph mapping nodes, links, and policies for connectivity simulation and validation before deployment.

Security and Observability

ACD incorporates RBAC, encryption, and monitoring through Prometheus and Grafana for security and observability.





Applications in Real-World Scenarios

Hybrid Cloud Migration

ACD enables smooth workload transitions between on-premises and cloud by abstracting platform-specific network setups.

Multi-Tenant SaaS Connectivity

ACD provides secure, isolated connectivity for tenants while sharing infrastructure for scalability.

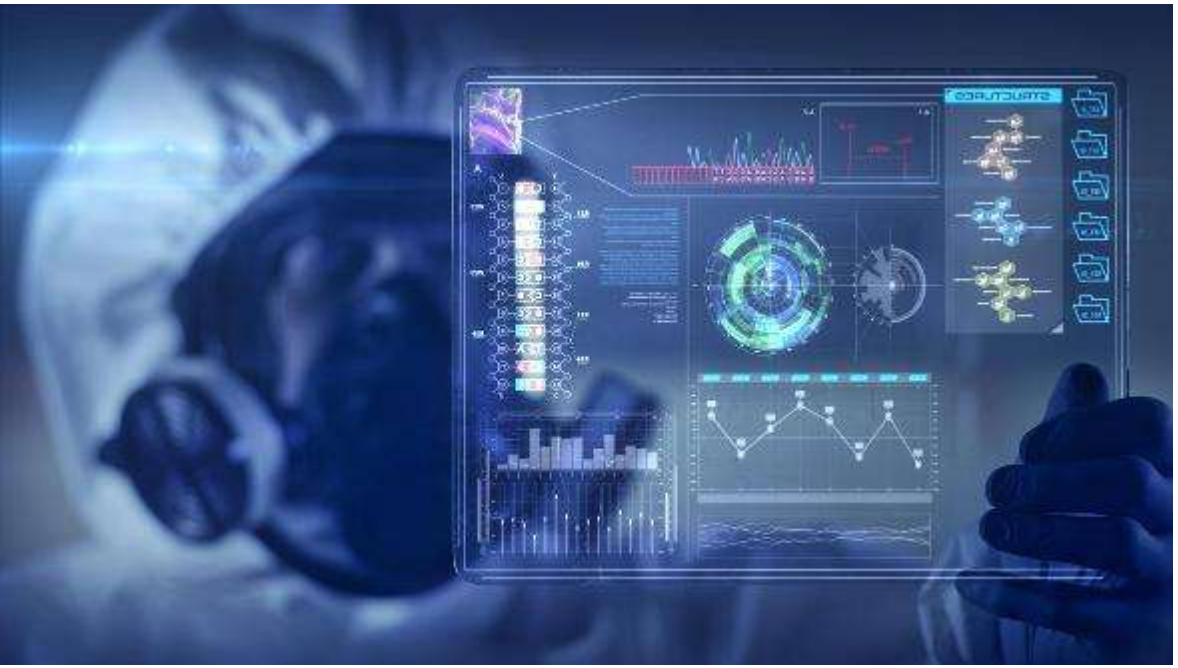
Edge Computing Support

ACD facilitates declarative connectivity for distributed edge nodes, enabling dynamic remote deployments.

AFIR and GASPAR in RESCUE

Security meets Artificial Intelligence

What is AFIR?



Automated Fraud Investigation & Reporting

AFIR is an open-source cybersecurity framework leveraging AI/GenAI and LLMs to automate anomaly detection, investigation and reporting.

LLM-Powered Investigation

Large Language Models enable intelligent parsing and contextual understanding of fraud incidents within investigation workflows. An API is generated, the relevant logs are retrieved and scanned for anomalies.

Real-Time Reporting

AFIR offers automated report generation for immediate threat visibility and consistent documentation.

Continuous Improvement

After review by fraud analysts the reports are fed back into RAG for continuous improvement of the process.

What is GASPAR?

GenAI-powered System for Privacy incident Analysis and Recovery

GASPAR is a solution that detects potentially anomalous data before it is being processed. These anomalies trigger automatic creations and deployments of filters.

Data extraction

Identifies and extracts privacy-related fields from documents to be assessed.

Data modelling

Models data distributions and samples input data based on the extracted fields.

Anomaly detection

Detects anomalous values in batches of sampled data.

Filter creation

Creates code filters to exclude anomalous data and deploy them to quarantine problematic data.

amadeus

Thank you

Amadeus. It’s how travel works better.

ONEnextgen

An Introduction to OpenNebula in the IPCEI-CIS

Agenda

1.

Introduction

2.

IPCEI-CIS projects

3.

Wrap-up

Introduction

What is OpenNebula Systems?

The Leader in Open Cloud & Edge Computing

- First open source **IaaS** solution, created **16 years ago**, with a **vibrant user community.**
- **Enterprise infrastructure software** company with **14 years of experience.**
- HQs in **Madrid** (Spain, EU) and **Burlington** (MA, US), and offices in Brussels (BE, EU) and Brno (CZ, EU).
- More than **5,000 clouds** worldwide, largest with 1**6 DCs and 300K cores.**

LINUX FOUNDATION SILVER MEMBER

CLOUD NATIVE COMPUTING FOUNDATION SILVER MEMBER

LF EDGE GENERAL MEMBER

What is OpenNebula?

The Open Cloud & Edge Computing Platform

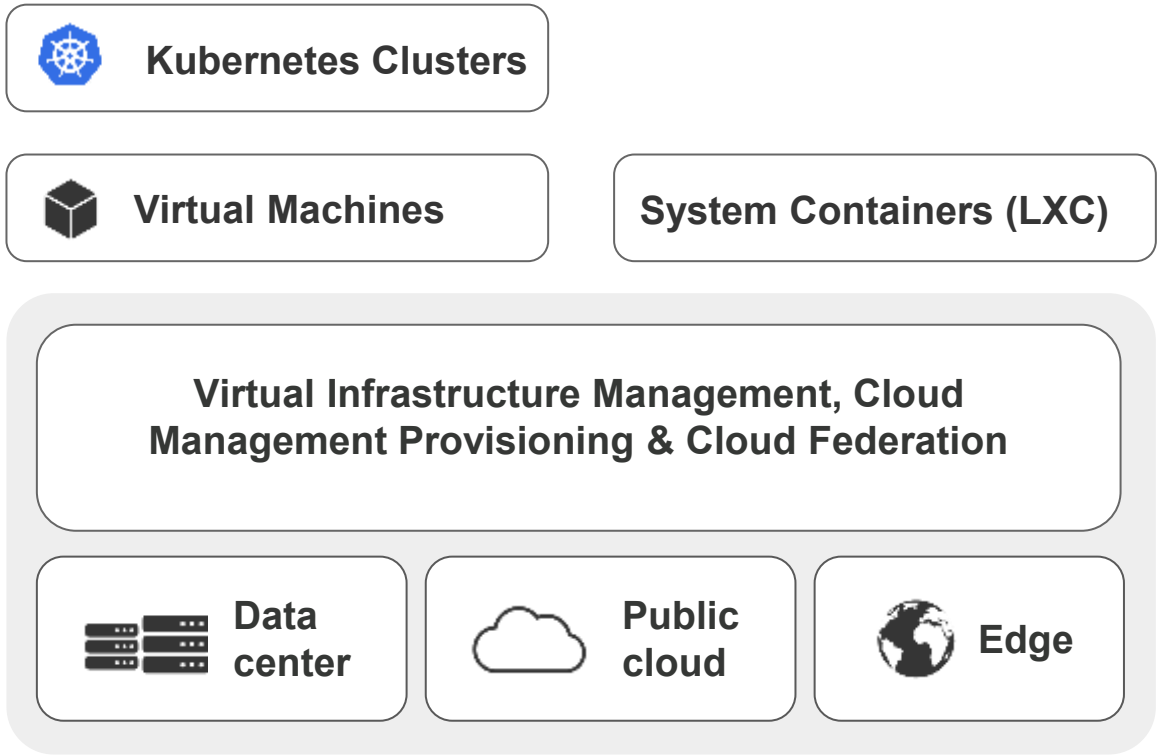
VIM Functionality

- Simplicity and light profile
- Extensible architecture
- Multi-tenancy & Multi-VM
- DevOps friendly

OneKE (Kubernetes)

- Virtual appliances KaaS
- Different “add-ons”

Cloud-Edge Continuum Apps



Why OpenNebula?

Enabling cost-effective, sovereign, and flexible cloud and edge environments

Power of Simplicity

A single control panel that unifies management across the hybrid multi-cloud continuum.

Lightweight and Easy to Maintain

Single enterprise-ready product, with small footprint, and a one-stop long-term commercial support.

Elastic and Fully Automated

Automated operations with deployment of clusters on-prem and on-cloud.

Vendor Neutral Flexibility

Infrastructure agnostic to build an enterprise cloud that meets your needs on-prem and on-cloud.

Proven and Scalable

Many large-scale production deployments with thousands of distributed nodes.

Cost-effective

In 10-node cloud, reduce TCO by up to 75% compared to VMware, Nutanix and Red Hat OpenStack.

Who is using OpenNebula?

Well Established with Big Names in Several Industries, Worldwide

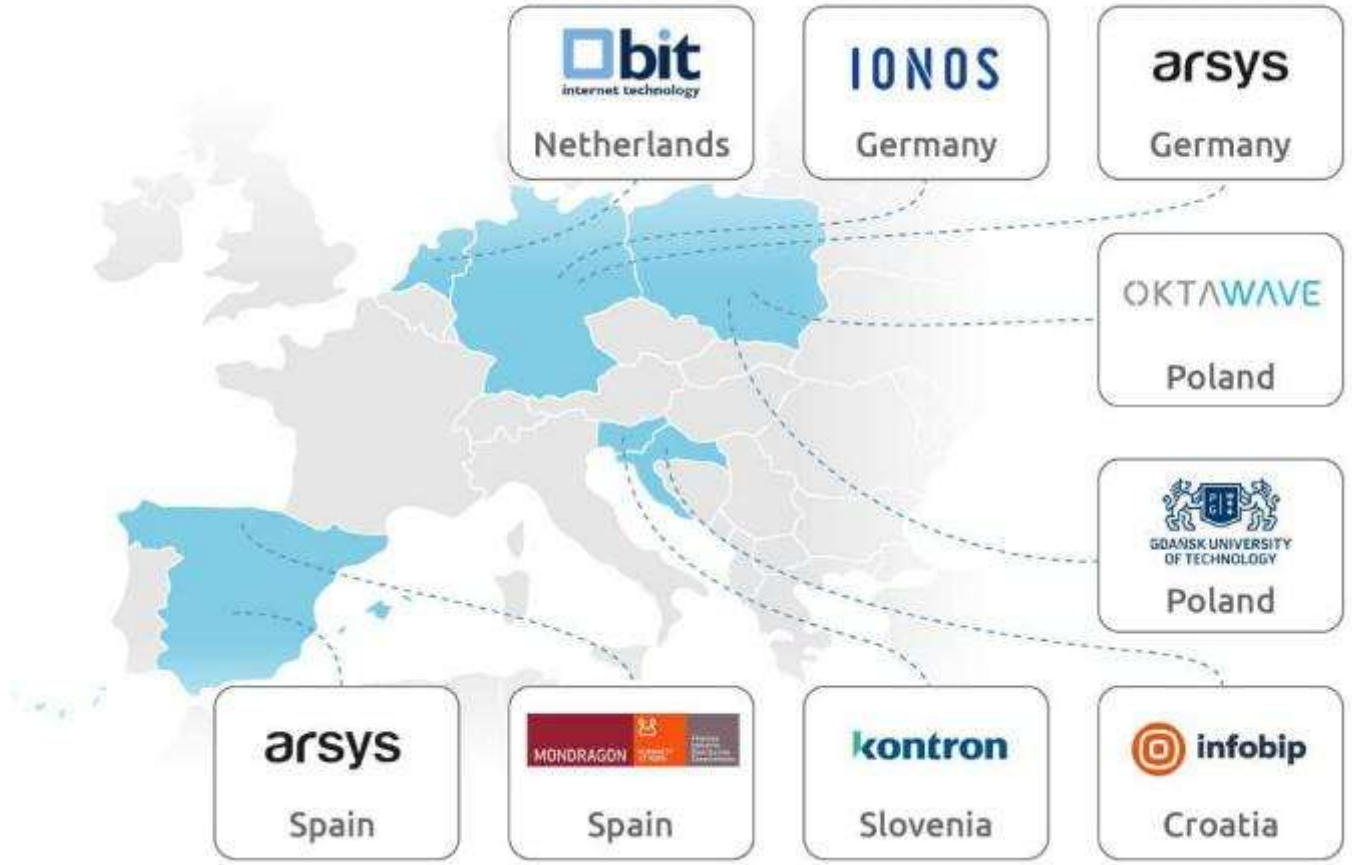
2K evaluations per month | **>5K active clouds** | **16 DCs with 300K cores**

Vendor | Telco | IT Services | Gaming | Fintech | SaaS | Public | Academia

OpenNebula in the IPCEI-CIS

About Virt8ra

The virt8ra initiative—coordinated also by OpenNebula Systems—is the main deliverable of the **IPCEI-CIS Integration Cluster on Virtualization**.



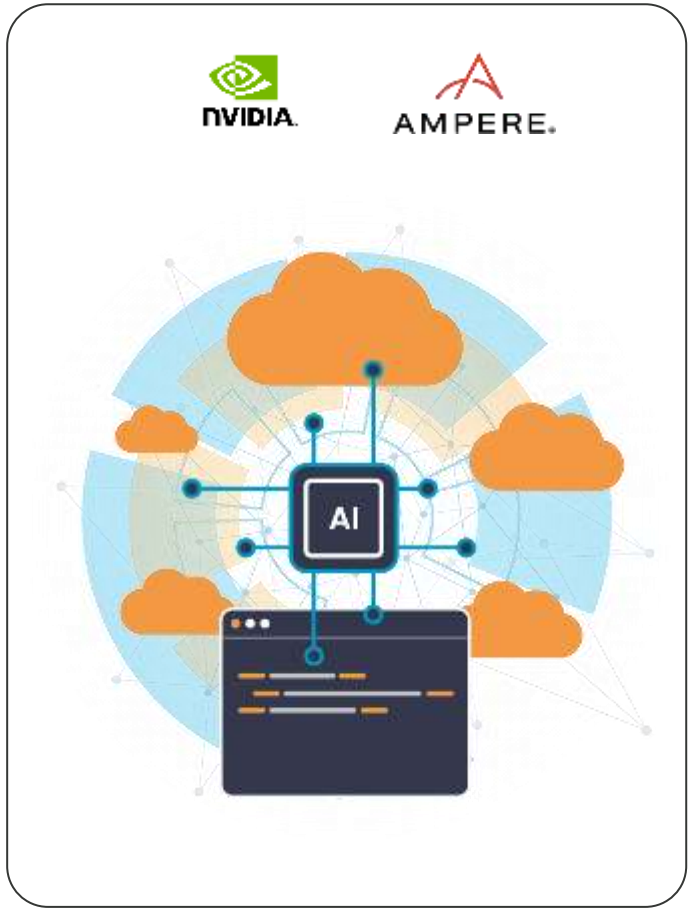
PHASE 1 – Virt8ra Testbed ✓
a cloud-edge infrastructure testbed combining bare-metal resources from **8 IPCEI-CIS partners across 6 EU Member States**.

PHASE 2 – Virt8ra Labs
Currently, Virt8ra Labs are deployed in **Croatia, Germany, the Netherlands, Poland, Slovenia, and Spain**.

More Info: https://opennebula.io/innovation/virt8ra

Multi-tenant Platform for AI-Ready Clouds

Virtualization Platform on NVIDIA Cloud Partner (NCP) Reference Architecture for AI Cloud Providers



Reduced Operational Costs

Sovereign and cost-effective alternative to proprietary solutions like VMware, Nutanix or Red Hat or public cloud providers.

5G, DPU, GPUs & ARM Support

Support for GPU & ARM virtualization, DPU (NVIDIA BF-3), InfiniBand, 5G integration dynamic allocation and passthrough, ensuring optimal performance.

Robust Multi-Tenancy

Users and Groups, Quotas and accounting, and VDC (virtual data-centers).

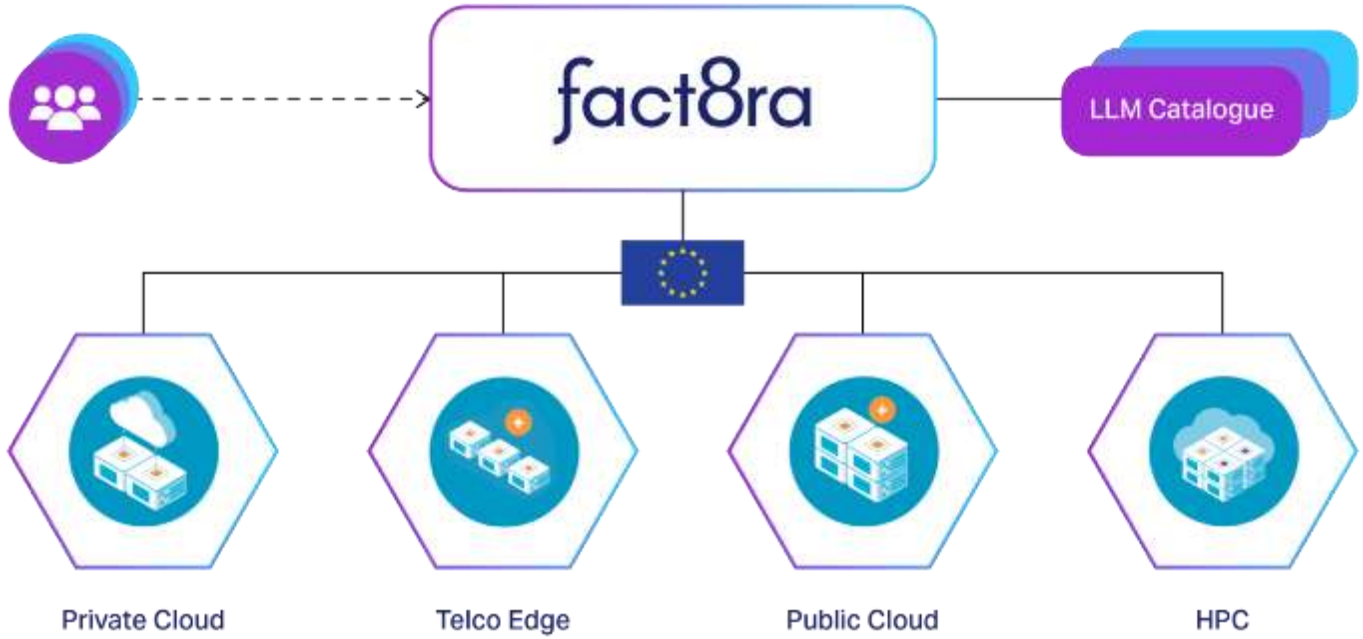
Deploy Hugging Face LLMs

Integrate validated LLMs for GenAI directly from Hugging Face to run on your VMs with Ray, vLLM and NVIDIA Dynamo.

More Info: https://opennebula.io/enterprise-ai/

About Fact8ra

multi-tenant AI-as-a-Service platform



Phase 1 - Inference ✓
Deploy your AI models across the HPC-Cloud-Telco Continuum.

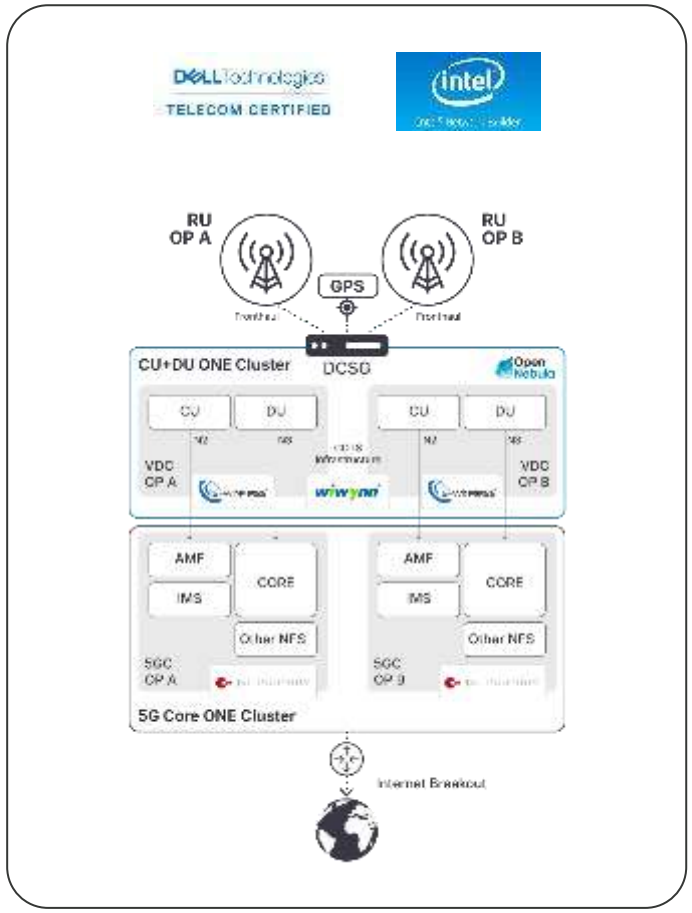
Phase 2 - Fine-tuning
Customize an AI model using public datasets or your own data.

Phase 3 - Training
Use a distributed Edge Cloud Infrastructure to train your AI model.

More Info: https://fact8ra.ai

Network Virtualization for Telco Clouds and 5G

A Carrier-grade Cloud Platform that Supports both Virtual and Cloud-native Network Functions



Sylva Project

Open source standard infrastructure for telco cloud to enable interoperability

5G Neutral Host

Enabling multiple wireless service providers to operate within the same 5G cell tower infrastructure

Distributed NFV

Deployment of Virtual Network Functions across a distributed cloud-edge infrastructure

Virtualized RAN

Cloud-based approach to deploying radio network functions (RNFs)

AI/RAN

Accelerated 5G vRAN and AI inference infrastructure with multitenancy for each customer

Prepare for 6G

Experiment with future 6G networks and innovative applications

More Info: https://opennebula.io/edge-cloud/

ONEnextgen

IPCEI-CIS

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

Initiative supported by the Spanish Ministry for Digital Transformation and Civil Service through the **ONEnextgen Project: Next-Generation European Platform for the Datacenter-Cloud-Edge Continuum** (UNICO IPCEI-2023-003) and co-funded by the European Union's NextGenerationEU instrument through the Recovery and Resilience Facility (RRF).

Financiado por la Unión Europea NextGenerationEU

Plan de Recuperación, Transformación y Resiliencia

GOBIERNO DE ESPAÑA MINISTERIO PARA LA TRANSFORMACIÓN DIGITAL Y DE LA FUNCIÓN PÚBLICA

UNICO IPCEI

OpenNebula.io/IPCEI-CIS

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Thank you!

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