



EUCloudEdgeIoT.eu

Building the EUROPEAN CLOUD, EDGE AND IOT CONTINUUM for Business and Research



Why a Cloud, Edge and IoT Continuum?



Cloud and edge computing are essential technologies in a computing continuum to ensure data is managed more efficiently – closer to the originating source rather than transmitting raw data to data centres. As recent studies suggest, data processing is moving closer to the edge. Thus, advancing the IoT can reduce communication and storage costs, energy consumption and produce benefits for citizens and businesses thanks to the integration of AI and Machine Learning. **These trends call for a shift towards the technical and business convergence of the so-far formally separated Cloud, Edge and IoT domains.**

Ongoing research and innovation on the next-generation edge computing and data technologies and infrastructures must be developed, deployed, and adopted by European organisations to enable the European single market for data (such as with the creation of the European Alliance for Industrial Data, Edge, and Cloud, aimed at strengthening the position of the EU industry on such technologies).

However, **the speed of technology change is so fast that industrial stakeholders struggle to adapt to a multi-cloud infrastructure environment and deal with the paradigm change created by a Cloud, Edge and IoT (CEI) scenario.**

The answer is EUCloudEdgeIoT.eu

In this context, the European Cloud, Edge and IoT Continuum (EU-CloudEdgeIoT.eu) aims to realise a pathway for the understanding and development of the CEI Continuum by promoting cooperation between a wide range of research projects, developers and suppliers, business users and potential adopters of this new technological paradigm.

The European Cloud, Edge & IoT Continuum acts as an enabling force, to reach key outcomes:

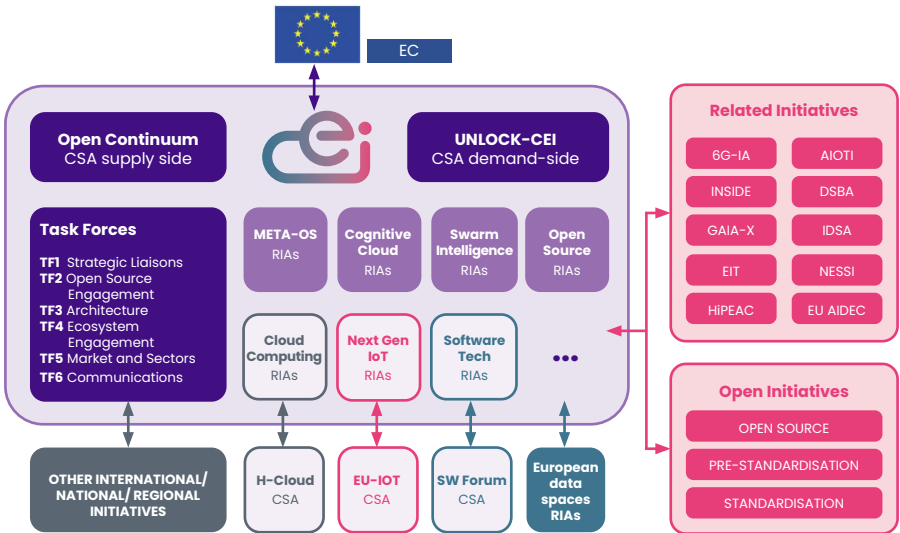
- Support the definition of the large-scale pilots envisaged by the European Commission in line with the EU Data Strategy
- Baseline common open architecture for computing continuum research projects
- Reinforce the collaboration between European public and private initiatives from cloud to edge to IoT
- Increase the awareness of the importance of Open Source and standards for EU digital autonomy

Towards this goal, the EUCloudEdgeIoT.eu contributes to the coordination of a portfolio of research projects in the CEI Computing Continuum funded under:

- **Cloud Computing:** towards a smart cloud computing continuum (ICT-40-2020)
- **Software Technologies** (ICT-50-2020)
- **Next Generation Internet of Things** (ICT-56-2020)
- **Future European platforms for the Edge: Meta Operating Systems** (HORIZON-CL4-2021-DATA-01-05)

- **Cognitive Cloud:** AI-enabled computing continuum from Cloud to Edge (HORIZON-CL4-2022-DATA-01-02)
- **Programming tools for decentralised intelligence and swarms** (HORIZON-CL4-2022- DATA-01-03)
- **Open source for cloud-based services** (HORIZON-CL4-2022-DIG-ITAL-EMERGING-01-26)

These will also benefit from the synergies and legacy of other existing EU projects in the domains of Cloud, Edge, IoT, AI, and connectivity, including, among others, NGIoT, SW Forum and H-Cloud, as well as companies and startups such as Axelera AI.



The European Cloud-Edge-IoT Continuum Landscape

A wide set of key players and associations will also support the initiative and act as multipliers across the cloud, edge and IoT communities, such as HiPEAC, Gaia-X, Cloud Alliance, NESSI, AIOTI.

“The successful deployment of Cloud-Edge-IoT across Europe will require collaboration between multiple stakeholders. More than in any other technological shift, the needs of different end-users, from health to manufacturing, will shape which technologies are used and how devices, data and people are connected”.

Tanya Suarez, Board Member AIOTI






Underpinning Use Cases

Increased density of edge and cloud facilities allowing ubiquitous connectivity will enable a wide range of innovative use cases based on ultra low latency infrastructure.

The use cases underpinning the European Cloud, Edge & IoT Continuum initiative tackle key societal challenges, including:

- healthcare,
- carbon emissions,
- safety,
- privacy,
- resource optimisation in storage,
- network and computing centres,
- synchronisation and Digital Twins,
- energy,
- and environmental footprint.

Some application areas include:

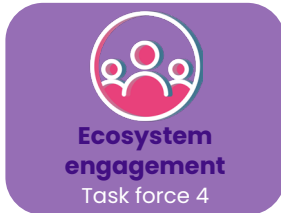
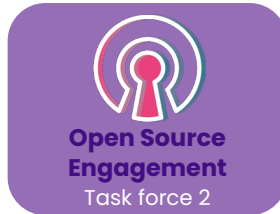
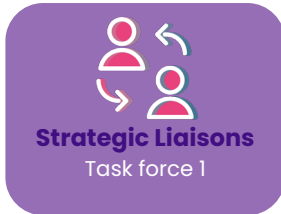
 <p>Agriculture</p> <p>Automated machinery.</p> <p>Smart farming solutions according to specific needs.</p> <p>Farmers' data sovereignty.</p> <p>Access to weather data, field management and yield forecasts.</p>	 <p>Energy & Utilities</p> <p>Real-time data analysis increasing efficiency and costs.</p> <p>Local energy trading systems.</p> <p>Real-time dynamic regulation of power supply.</p> <p>Increased consumer participation in energy system operations.</p>	 <p>Healthcare</p> <p>Smart medical devices with embedded intelligence.</p> <p>Local processing of patient data on edge devices.</p> <p>Real-time information processing for decision assistance.</p>	 <p>Manufacturing</p> <p>Industry 4.0.</p> <p>Improved data informative value.</p> <p>Real-time applications for quality data control.</p> <p>Strategic and intelligent operations (e.g. planning, deep data analytics and AI applications).</p>	 <p>Mobility & Logistics</p> <p>Data processing for latency and energy efficiency.</p> <p>Strategic and intelligent data analysis and planning for maintenance.</p> <p>New transportation services (e.g. shared transport platforms and automated vehicles).</p>
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Particular attention will be paid to the impact of CEI across various sectors, with benefits including energy efficiency, flexibility, and security.

Read more about use cases from the MetaOS Portfolio in our dedicated booklet

The EuCloudEdgeIoT.eu Cooperation Mechanisms

The EUCloudEdgeIoT.eu initiative offers a set of cooperation mechanisms in the form of **six individual task forces**.



The goal is to assist in the coordination and dissemination with stakeholders from the OpenSource, Cloud, MetaOS, Swarm, IoT and Edge ecosystems, such as research projects, coordination projects, the European Commission, and other organisations.

EUCloudEdgeIoT.eu task forces avoid overlap of work between projects, enable project amplification, and allow the identification of potential areas of collaboration and conflict.

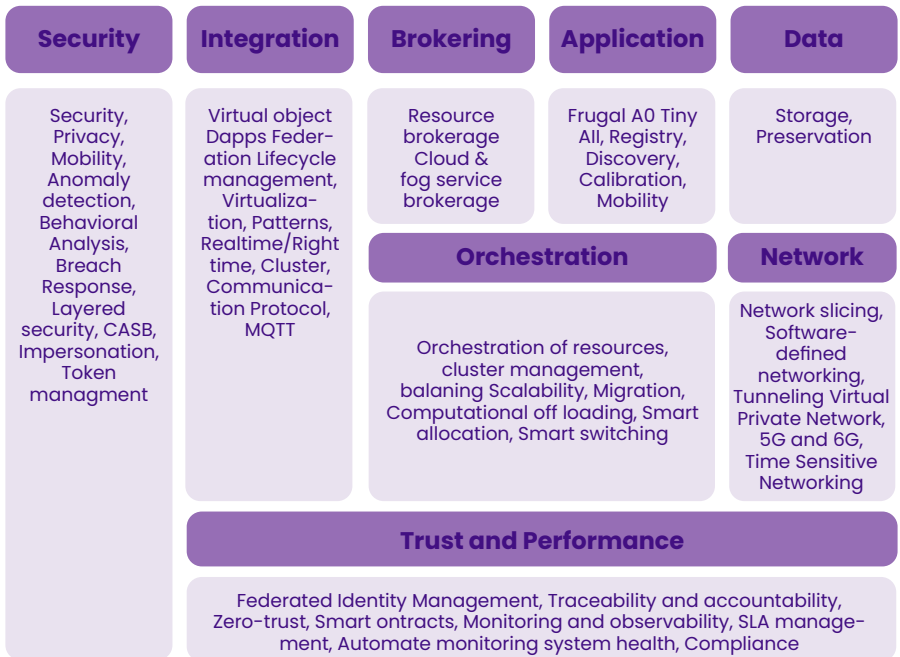
Acting as a multiplier, the goal of EUCloudEdgeIoT.eu task forces is also to create common strategies, approaches and methodologies to areas of interest within the CEI Ecosystem, and to increase the visibility of the Cloud, Edge and IoT continuum towards the development of the community.

Want to be part of a task force?
Contact us at info@eucloudedgeiot.eu

Towards a taxonomy at the edge

Having a common language when talking about the Continuum is a must-have as many categories of stakeholders are involved in this Cloud-Edge-IoT activities. With this objective in mind, the EU-CloudEdgeIoT.eu initiative is working, with the contribution of Open Source, Cloud, MetaOS, Swarm, IoT and Edge projects, in the definition of a common taxonomy homogenising the terminology used allowing different stakeholders to talk a common language facilitating the interaction between them.

The ongoing taxonomy is being developed in a faceted way, rather than following an hierarchical approach, taking into account that some of the terms refers to functionalities common to Cloud-Edge-IoT topics. In this way, it also allows further iterations to enrich it.



This initial representation of the taxonomy presents 8 faces with common terms for Cloud-Edge-IoT topics, that will be further extended to include all related terms to any of them. This representation will be also used as the basis for the projects' landscaping and architecture development.

Get funded

Are you working on Cloud-Edge-IoT topics? The EUCloudEdgeIoT.eu initiative offers a set of **Open Calls** to which diverse entities (ranging from Universities, SMEs, RTOs and individuals to large entities) can apply for. In this regard, innovative developments and validation of the technologies and architectures coming from RIAs will be requested.

[Read more about the open calls.](#)

The Coordination and Support Actions

The European Cloud, Edge & IoT Continuum is supported by the effort of two Coordination and Support Actions (CSAs), namely **Open Continuum** and **UNLOCK-CEI**, which will cooperate focussing respectively on the supply and demand sides of the CEI Continuum. These will also benefit from the synergies and legacy of other existing EU projects in the domains of Cloud, Edge, IoT, AI, and connectivity.

OpenContinuum

OpenContinuum supports the cloud-edge-IoT domain by focusing on the supply side of the computing continuum landscape. Its goal is to foster European strategic autonomy and interoperability through an open ecosystem for the computing continuum, with open source and open standards as two key enablers to be supported and leveraged throughout the community. Such an ecosystem will contain R&I projects in the cloud-edge-IoT portfolio to be coordinated, the diverse community evolved from the current cloud and IoT ones, with the addition of actors, initiatives, and significant alliances. The supply-side nature of OpenContinuum's agenda will orient the themes and focus of project activities but will not limit the scope of community building. The project's active landscaping and engagement work will bring the cloud and IoT communities together and express all points of view with a common understanding. It will then provide guidance to European actors to contribute to and lead open-source projects and standardisation efforts.

Consortium: Martel Innovate, Atos, Eclipse Foundation, Trialog, Inside

Unlock-CEI

Unlock-CEI's ambition is to unlock the potential for accelerating the deployment of the cloud-edge-IoT (CEI) computing continuum in Europe by focusing on demand-side drivers and challenges to identify technology driven innovation and business opportunities driving demand value chains. The project represents the cloudedge-IoT demand constituency, provides insights and guidance to Horizon Europe R&I projects, and contributes to a proactive dialogue with suppliers to encourage the development of an open European cloud-edge-IoT ecosystem. It focuses on emerging value chains where investment is needed to foster the deployment of the cloud-edge-IoT continuum through forthcoming large-scale pilots, which will ultimately foster European autonomy in the digital economy.

Consortium: BluSpecs, COMMpla, EGI, IDC, Trust-IT Services, VDI|VDE|IT

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