AC3
AGILE AND COGNITIVE CLOUD EDGE CONTINUUM MANAGEMENT

Seamlessly handling application life-cycles and underpinning IT and networking resources

On top of a federated infrastructure that includes Cloud, Edge, far edge, and data sources from multiple stakeholders

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Newsletter Issue 1 | June 2023

We are excited to announce the first newsletter issue of the AC3 HEU Project! The scope of our newsletter is to keep you updated with the lates activities of the project.

Through our newsletter you will be introduced to our project's latest advancements and you can follow up on the latest news and events of the AC3 project.

To always stay up to date and discover more about us, you can visit our website or follow us on Twitter and LinkedIn

Visit our webiste

AC3 in a Nutshell

The AC3 Concept

The AC3 project builds on the emerging CECC concept aiming to unify and federate cloud and edge resources using common management components to support emerging applications needing low latency, data-intensive and using different data sources. The AC3 project innovates in the following key areas: (1) revisit the application definition and LCM, (2) zero-touch configuration and management of the CECC infrastructure including data, (3) and resource federation. These key areas consider AI/ML, security, energy, semantics and ontology, and trust as the key enablers.

Learn more

Meet our Team

The AC3 consortium comprises 15 partners that have extensive experience and expertise in Cloud and Edge computing, Data management, IoT, Cyber Security, trust management and AI/ML algorithms and tools, which form a complete group uniting the necessary interdisciplinary knowledge, expertise, skills, and resources capable of achieving the demanding project goals. The consortium is multidisciplinary, encompassing 7 major large industrial companies, 4 innovative SMEs, along with complementary skills obtained from 2 research institutes, and 3 universities to help achieve the ambitious goals of the AC3 project.

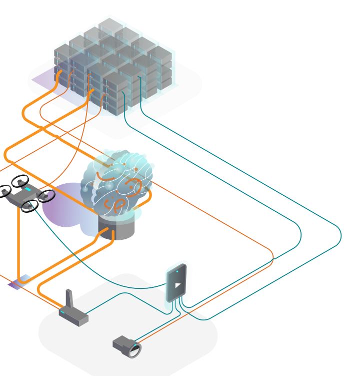
Learn more

Objectives

- A novel architecture for Cloud Edge Continuum including the far edge
- A new enablers for microservice-based applications deployment in CECC
- New federation model as well as trust and security enablers to accelerate resource sharing in CECC
- Integrate data management as a PaaS in CECCM
- Zero-touch management and configuration of application LCM
- Green-oriented zero-touch configuration and management of the CECC infrastructure
- Towards end-to-end CECC network programmability

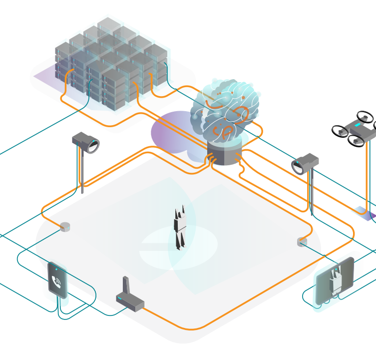
Learn more

Use-Cases Objectives



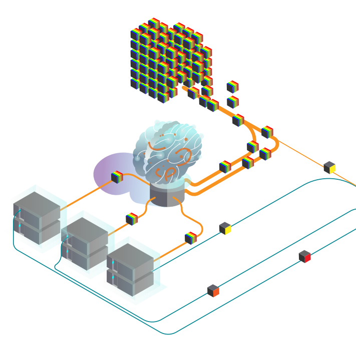
Use-case 1: IoT and Data

1. To provide an overview of an IoT-based framework that incorporates edge AI provided by CECC infrastructure.
2. To highlight the purpose of the framework, which is to enhance performance and reliability of infrastructures through automation, smart sensing, and monitoring.
3. To emphasize the integration of the physical and digital worlds, leading to increased data processing for decision-making and triggering responses to sensed conditions.
4. To showcase the capabilities of the CECCM in deploying and running microservices at the edges of the monitored infrastructure.
5. To underline the benefits of leveraging CECC infrastructure, including lower latency in data processing, improved data security and privacy, and accelerated development and distribution of applications across the cloud-edge continuum.



Use-Case 2: Smart Monitoring System using UAV

1. To harness the current proliferation of video surveillance devices using enabling technologies and techniques such as UAVs (Unmanned Aerial Vehicles), far edge computing, AI (Artificial Intelligence), and ML (Machine Learning).
2. To demonstrate the flexibility offered by CECM (Centralized End-to-End Control and Management) to easily and seamlessly change the behavior of the application.
3. To showcase the ability of the application to adapt its behavior through a simple SOTL (Service-Oriented Technology Layer) based request. This includes variations in object tracking, movement detection, prediction, human activity surveillance, and unusual activity detection.
4. To demonstrate the capabilities of CECM in deploying and running micro-services on the far edge, such as UAVs.
5. To showcase the ability of the system to anticipate drone unavailability and migrate the micro-service from one drone to another or to the infrastructure edge, ensuring uninterrupted monitoring functionality.



Use-Case 3:Deciphering the universe: processing hundreds of TBs of astronomy data

1. To demonstrate the capabilities of CECCM (Centralized End-to-End Control and Configuration Management) in deploying and running astronomical software.
2. To enable the processing of large volumes of data cubes, potentially reaching hundreds of terabytes, utilizing the CECC infrastructure.
3. To integrate scientific applications within hybrid cloud-native infrastructures, optimizing the computation process through the use of smart AI algorithms.
4. To facilitate the analysis of novel data gathered from newer and additional instruments and data sources, such as the James Webb Space Telescope (JWST).
5. To provide an opportunity for the astronomy community, scientific teams, and research groups to accelerate their analysis of astronomical data, improving the efficiency and speed of their research activities.

Learn more

Latest Events

AC3 Kick Off Meeting

The Project's Kick Off Meeting took place online on the 9th of February, 2023. All project partners participated via Teams.

Learn more

Concertation and Consultation Meeting on Computing Continuum: Uniting the European ICT community for a digital future

The Project Coordinator, Prof. Christos Verikoukis presented the AC3 project in the Cognitive Cloud session. [Slides]

Learn more

Consortium

ISI Industrial Systems Institute
ATHENA Research & Innovation Information Technologies

EURECOM Sophia Antipolis

IBM

citrix

arsys

IONOS

Red Hat

spark works

UBITECH ubiquitous solutions

FINGLETEK Smart Solutions

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