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 sourced from multiple stakeholders

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Newsletter Issue 3 | July 2024

We are excited to announce the third newsletter issue of the AC3 HEU Project! The scope of our newsletter is to keep you updated with the lates activities of the project.
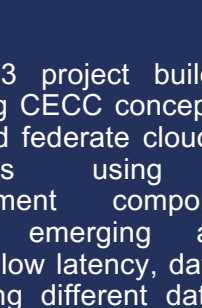
Through our newsletter you will be introduced to our project's latest advancements and you can follow us on the latest news and events of the AC3 project.

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 website

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 and relevant 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 solutions, 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 organisations, 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.
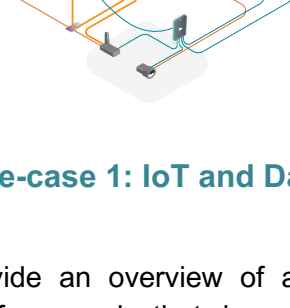
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Objectives

- 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
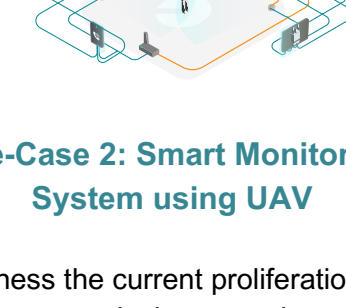- Towards end-to-end CECC network programmability

Learn more
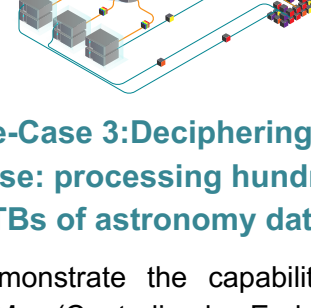

Use-Cases Objectives

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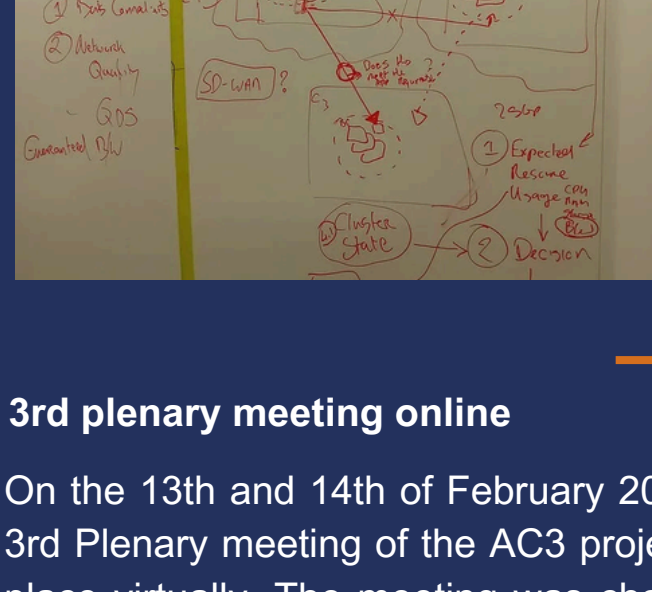
Use-Case 3: Deciphering the universe: processing hundreds of TBs of astronomy data

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 News & Events

AC3 Project is mentioned in Medium
2 February 2023

An insightful article was presented in Medium by Ben Capper (Associate Software Engineer at Red Hat) presenting their work with Ray Carrol (Senior Principal Engineer at Red Hat) on AC3's WP4, where Red Hat leads the network programmability task. The article then goes on in explaining the AC3 project by using Spotify as an example of how an application could take advantage of the infrastructure to automate every aspect of an applications life-cycle.
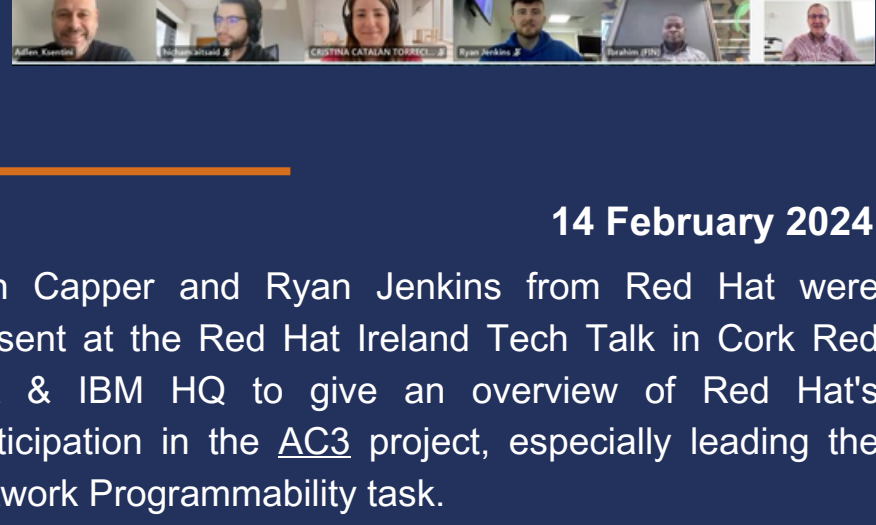
Learn more

3rd plenary meeting online
13-14 February 2023

On the 13th and 14th of February 2024, the 3rd Plenary meeting of the AC3 project took place virtually. The meeting was chaired by the PC Prof. Christos Verikoukis. The WP leaders, alongside the Task leaders, presented the work and progress made across the project. Focus was put on the various technical aspects of the project.

Learn more

AX3 presented at Red Hat Ireland Tech Talk
14 February 2024

Ben Capper and Ryan Jenkins from Red Hat were present at the Red Hat Ireland Tech Talk in Cork Red Hat & IBM HQ to give an overview of Red Hat's participation in the AC3 project, especially leading the Network Programmability task.

Learn more

AC3 booth at MCW 2024
26 – 29 February 2024

AC3 Project Coordinator Prof. Christos Verikoukis and Head of Arsys Lab Arsys, Sara Madariaga were present at the MWC24 in Barcelona to further present the AC3 innovations in terms of CognitiveCloud and an agile framework to manage data in the cloud-edge computing continuum. We would like to also thank IQL team for hosting AC3 in their booth under Generalitat de Catalunya Stand.

Learn more

AC3 at the Red Hat's Lunch N'Learn
20 March 2024

At the Red Hat's Lunch N'Learn - Ben Capper & Ryan Jenkins from the Red Hat Waterford Horizon Research Team presented the key innovations of the ACCC AC3 project and the contributions of Red Hat in terms of Network Programmability.

Learn more

AC3 at Beyond Expo
25 - 27 April 2024

The Industrial Systems Institute (ISI), participated in the latest edition of the Beyond Expo that took place in April, 2024. This event offered a valuable platform for ISI to showcase the significant progress and innovative advancements of the AC3 project. By engaging with industry leaders, policymakers, and potential collaborators at the expo, ISI not only highlighted the project's contributions to cutting-edge technology and innovation but also facilitated important discussions that could lead to future partnerships and opportunities.

Learn more

AC3 presented to the International Data Spaces Association (IDSA)
29 April 2024

On the 29th of April 2024, Ali Nikoukar from IONOS presented the AC3 project to the International Data Spaces Association (IDSA) members. He emphasized the alignment of the AC3 reference architecture with the IDSA Reference Architecture.
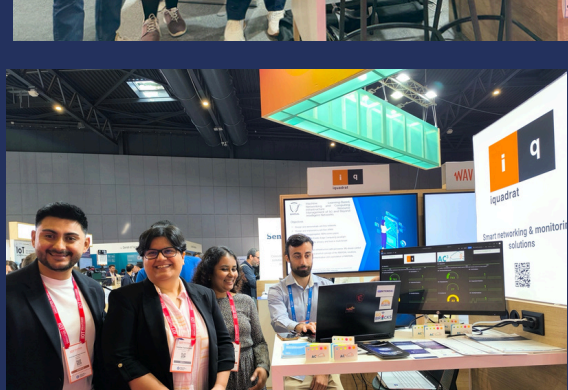
Learn more

AC3 at the IOT Solutions World Congress
21 - 24 May 2024

From 21 to 23 May 2024, at Fira Gran Via in Barcelona, we extend our gratitude to the Iquadrat team for hosting AC3 at their booth under the Ajuntament de Barcelona Stand. We had a fantastic time at IOT 2024 and look forward to presenting more next year.

Iquadrat & Spark Works lead the ACCC AC3 Use-Case 1 called "IoT and Data" that was Showcase at the IOT Solutions World Congress.

Our compelling demonstration focused on the capabilities of the AC3 project's Cloud-Edge Computing Continued (CECC) manager. This innovative manager enables the deployment and execution of microservices directly at the edge of the monitored infrastructure.

Learn more

AC3 RP1 Review Successfully Completed
16 June 2024

AC3 has successfully completed its first interim review. The partners presented to the PO and experts the most updated architectural design (final AC3 system architecture), the key initial developments and the plan for the gradual completion of the module developments, their interfaces and their integration.

Learn more

AC3 at the EUCEI Open Continuum Conferenc
18 June 2024

ACCC AC3 Architecture Work Package Leader (IONOS) contributed at the EU_Cloud_Edge_IoT EUCEI Open Continuum Conference (EUCloudEdgeIoT) on 18th June 2024 in Brussels.

Learn more

Consortium

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