EDGE-TO-CLOUD Continuum

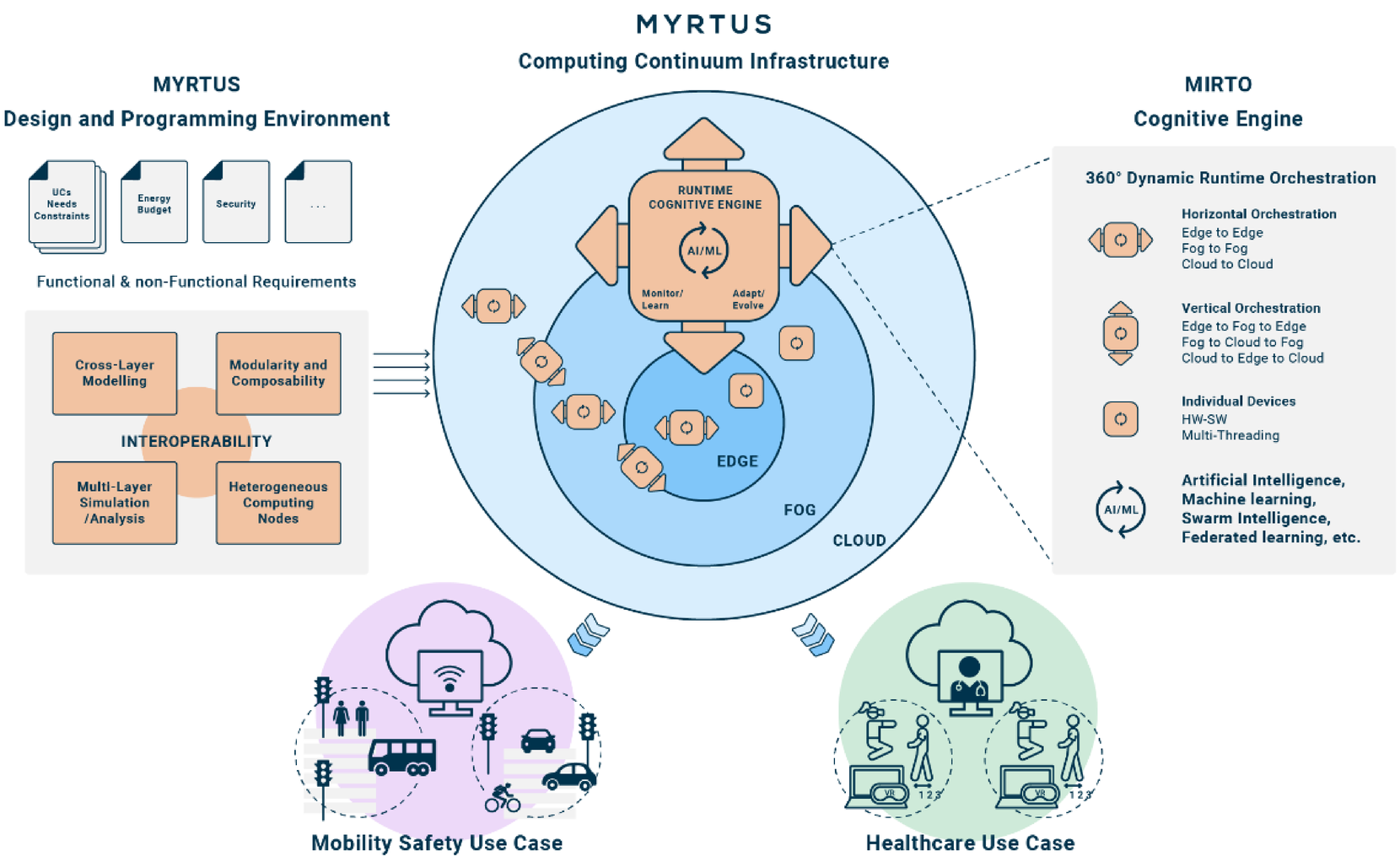
ECS COLLABORATION TOOL

MYRTUS

Multi-layer 360° dYnamic orchestration and interopeRable design environmenT for compute-contInUum Systems

Project Summary

Started on January 2024, the MYRTUS Horizon Europe project aims at unlocking the **new living dimension of Cyber-Physical Systems (CPS)**, embracing the principles of the TransContinuum Initiative, **integrating edge, fog and cloud computing platforms**. **Orchestration mechanisms**, **programming languages**, and **tools** need to be reinvented to master **collaborative distributed and decentralised components**. Additionally, components must be augmented with **interface contracts** covering both functional and non-functional properties. MYRTUS solutions play a crucial role in enabling sustainable computing and trustworthiness in CPS.



- **OBJ1** - MYRTUS defines a **reference infrastructure** where a **diversity of fog-level and edge-level devices converge with the cloud** to form a **computing continuum** capable of addressing the needs of complex and dynamic systems, including CPS with a living dimension.
- **OBJ2** - MYRTUS features a **360° dynamic runtime orchestration scheme**, embodied within the MIRTO **AI-powered cognitive engine**, to guarantee high performance and energy efficiency, preserving security and trust.
- **OBJ3** - MYRTUS provides a reference **design and programming environment** for continuum computing systems, featuring **interoperable support** for **cross-layer modelling, threat analysis, design space exploration, application modelling, components synthesis, and code generation**.

Areas of Research: #*Computer HW and architecture*; #*Design environment*; #*Dynamic orchestration*; #*Computing continuum*; #*Interoperability*; #*AI*.

MYRTUS Synergies - *Let's keep in touch!*

[#Strategy] **Collaboration** is a key driver of innovation and knowledge exchange that can lead to more efficient research outcomes and a better understanding of the broader research landscape. MYRTUS has a strategy to **establish synergies** with other projects and initiatives, including important **associations** (HIPEAC, INSIDE, Gaia-X, etc.), **technology communities**, the **IPCEI initiatives** and the projects that will be funded in the upcoming **Cluster 3 calls**. ***Let's keep in touch!***

[#Scientific] MYRTUS contributes to **create new knowledge** in the computing continuum domain, with methodologies and tools for node execution and processing portability over edge-fog-cloud, including **dynamic and seamless orchestration**.

[#Technological] The goal is to become a **reference in the computing continuum**, offering solutions that overcome the problem related to vendor/platform lock-in, therefore promoting and facilitating the adoption of MYRTUS technologies among startups and SMEs, **reducing their development time and cost**.

[#Societal] MYRTUS embraces the **sustainable and responsible computing paradigm**, promoting **obsolescence avoidance** (supported by MYRTUS principle of openness, interoperability, and portability) and **resource saving and energy efficiency** (supported by HW specialisation and optimization techniques).

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