

SWForum Panel Definition

Panel Title: “Software models, tools and processes for the continuum”

Format: 30 minutes, four panelists. Brief introduction to the topic of the panel by the moderator, followed immediately by individual, personalized questions to each of the panelists, on different aspects of their respective projects related to the topic of the panel. Each is expected to respond within five minutes, so that no more than twenty minutes are taken up with the individual responses. Each project can use two slides to support its answer (one slide with the project name, logo, and mission, a second slide with graphics /icons/ schema to support the answer to the question). The use of slides is not mandatory but if the project would like to use them, these need to be provided in advance to the SWForum team.

“Introduction to the topic: As stressed in several research agendas (public and private ones) ICT and in particular software technologies, are more and more pervasive. Software is affecting human life, but also business, manufacturing, agriculture, health, in a way that could have never even imagined a century ago. Moreover, current and future key emerging technologies, such as quantum computing, augmented human, advanced AI, sensing and mobility, etc. are held by the software technologies glue that holds them together. Software is encompassing a tremendous amount of diverse application areas, it is running on top of a large variety of digital infrastructures and it opens significant challenges in terms of security and privacy, trustworthiness, self-adaptation, optimization of behavior and the like. Today in this panel we will learn and discuss on the upcoming challenges envisioned by 3 of our projects from their different specific perspectives”

As time permits, a follow-up question will be provided, which all panelists will be invited to respond to. The panelists and their respective individual questions appear below in the order in which they are expected to be questioned.

FOCETA: Foundations for Continuous Engineering of Trustworthy Autonomy

Panelist: Saddek Bensalem (Project Coordinator, male)

Panel question: “Your work has a strong focus on use cases, such as intelligent autonomous systems (like valet parking), which inhabit various parts of the continuum, particularly at or near the edge, even ‘edge-native’. You are introducing many new software engineering techniques and processes to deal with this, such as integrating model-based and data-based approaches, ‘continuous engineering’, alongside traditional techniques like component-based development. Can you tell us something about how you see these new approaches for software engineering in the continuum?”

PIACERE: Programming trustworthy Infrastructure As Code in a Secure Framework

Panelist: Matija Cankar (Technical Coordinator, male)

Panel question: “As important as new approaches are for software development in the continuum, many people seem to underestimate the importance of new approaches for the management of the enormous and complex infrastructures that support the continuum. The concept of Infrastructure as code seems to capture that idea. Can you tell us something about the new tools you are developing for this and the challenges you are particularly emphasizing?”

Vitamin-V: Virtual Environment and Tool-boxing for Trustworthy Development of RISC-V based cloud services

Panelist: Ramon Canal (Coordinator, male)

Panel question: “One of the important aspects of Vitamin V is open-source. Although both FOCETA and PIACERE are producing open-source software, of course, it is a declared strategic objective in VITAMIN V sharply focused on the challenge of integrating the new open-source hardware designs into the cloud continuum. This seems to be demanding a whole new set of tools, environments, and processes to support this integration. Can you tell us something about this?”

OpenCUBE: Open-Source Cloud-Based Services on EPI (European Processor Initiative) Systems

Panelist: Ivy Bo Peng (Project Coordinator, female)

Panel question: “With OpenCUBE, two important topics enter into the discussion. The first is open source. Although both FOCETA and PIACERE are producing open-source software, of course, it is a declared strategic objective in OpenCUBE to build an entirely open-sourced European cloud environment. Which leads to the second topic: open-source hardware. Not only to you have to ensure an open software environment but also interface it to open hardware to create the full stack. What are the challenges in a software process for this kind of development? Standards? Interfaces? New kinds of architectural considerations?”

Follow-up question as time permits – for all panelists

“From your perspective, what do you see as the main challenge in creating a discipline of ‘continuum-native software and systems engineering’? Will it be security? Validation and Verification? Something else?”

This question is general enough that all panelists will be able to respond, and the discussion can be easily extended to fill the 30-minute time slot available if necessary.