



SWForum.eu

European forum of the software research community

Software models, tools and processes for the continuum



FOCETA
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**Concertation and Consultation on Computing Continuum:
From Cloud to Edge to IoT**

10-11 May 2023
The Claridge - Brussels, Belgium

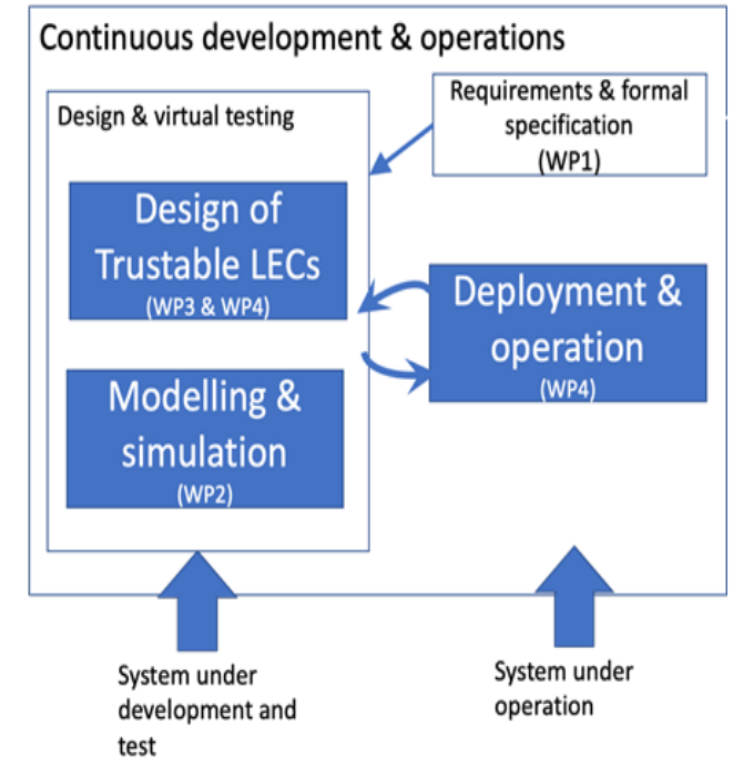
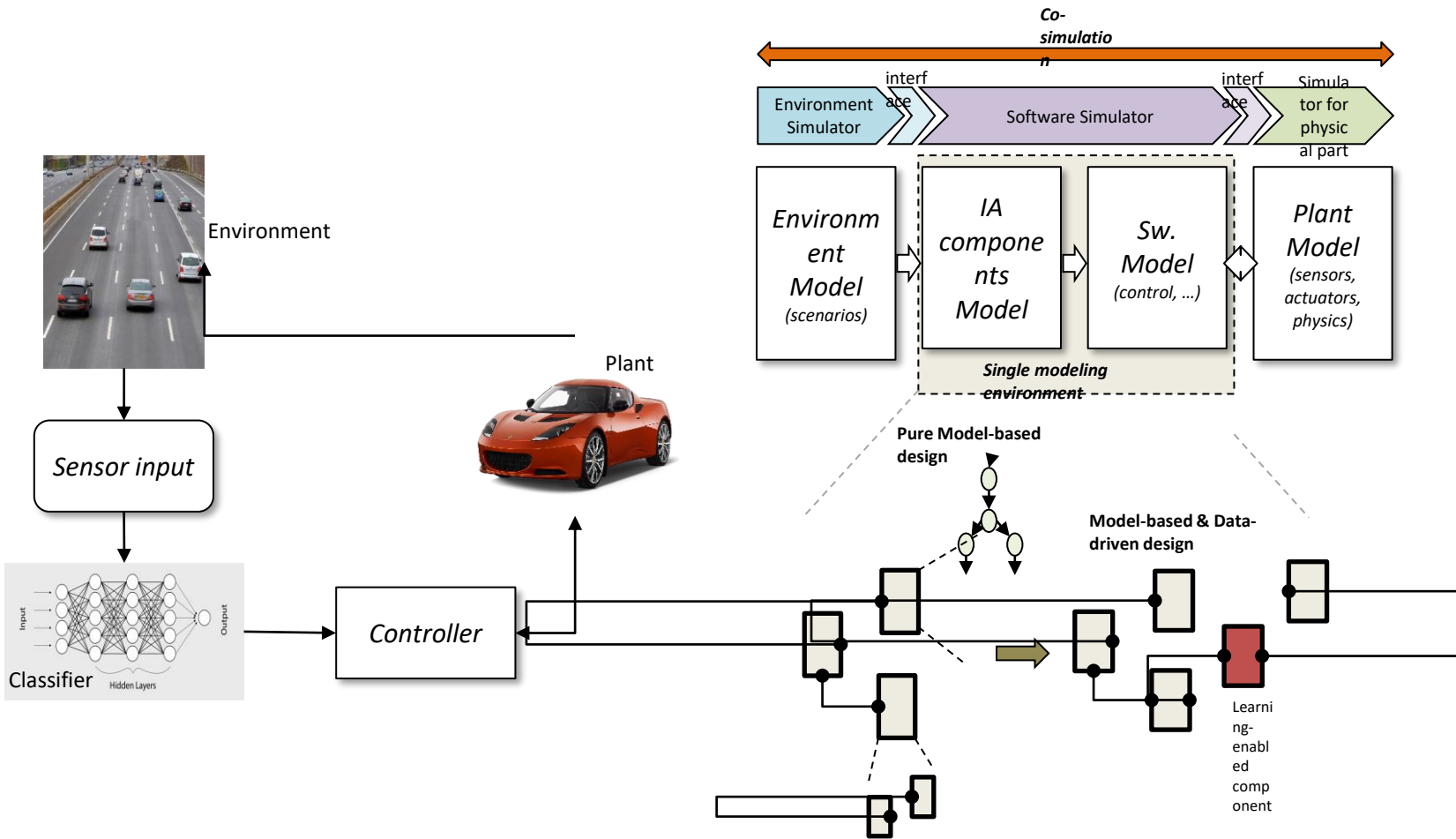
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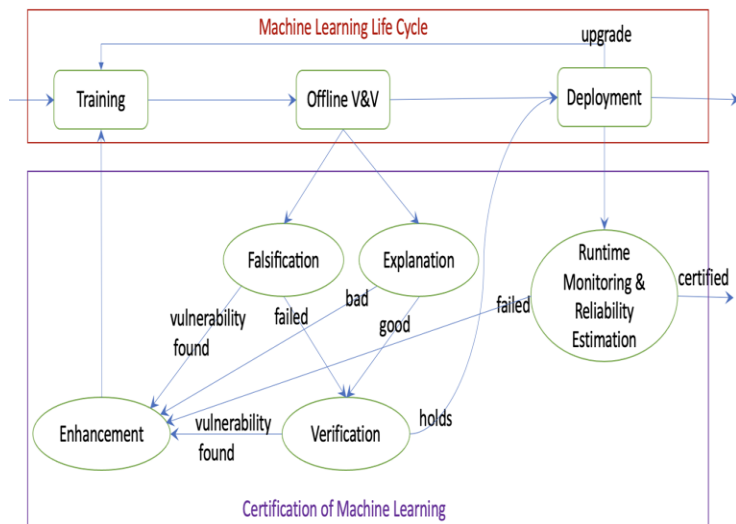
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Continuous development and operations of learning-enabled autonomous systems (I)

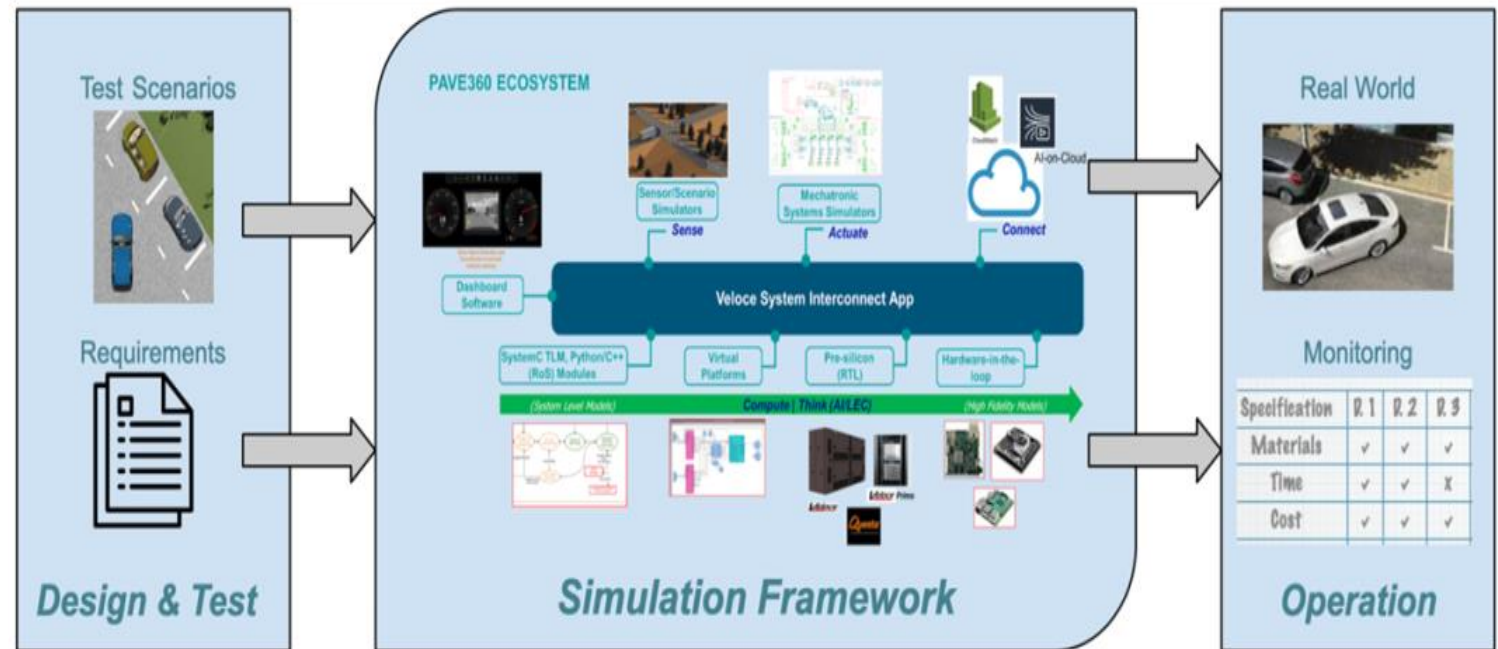


Continuous development and operations of learning-enabled autonomous systems (II)

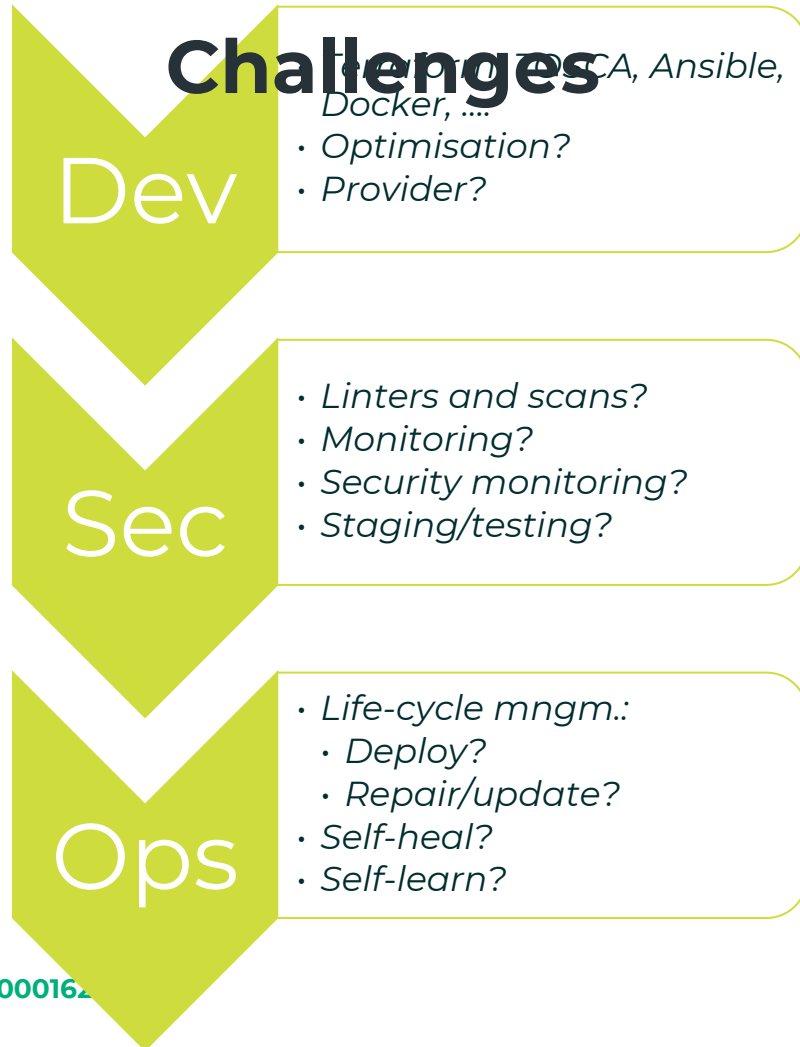
Design Flow for Trustable Learning Components



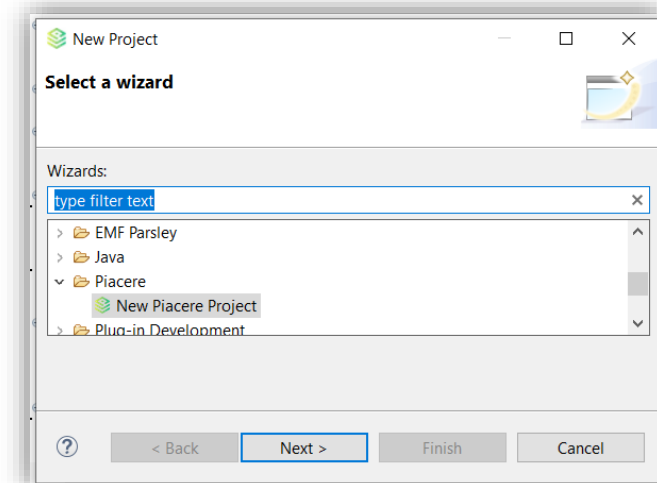
Co-simulation Framework



PIACERE – DevSecOps IDE



- **Design time** – IaC development and verification
- **Runtime** – Deployment /life-cycle management and monitoring dashboards



DOML – domain specific language

Model checker

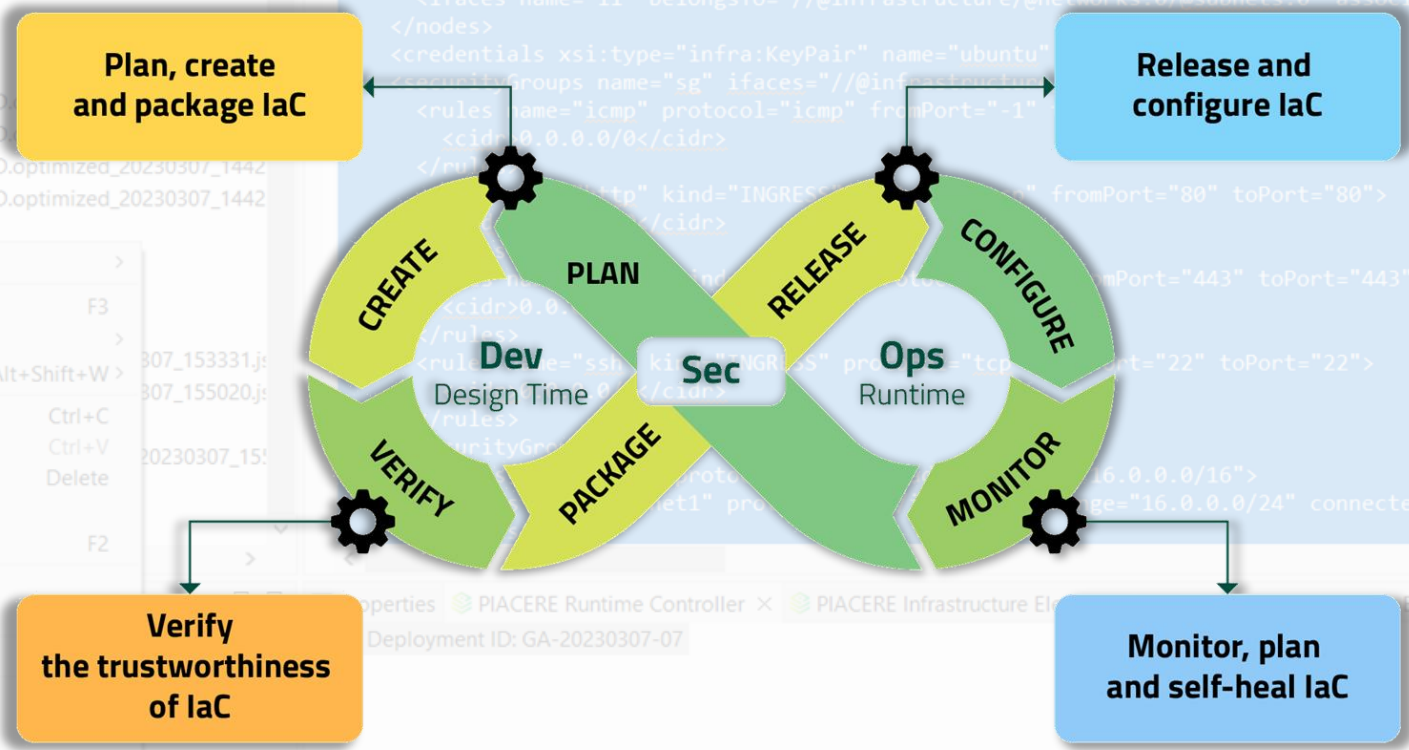
laC Optim. Platform + catalogue

laC Code Generator (Terraform, Ansible, ...)

PIACERE runtime controller

Canary sandbox environment

laC Execution manager



- laC security inspector
- Component security inspector

- (Security) monitoring
- Self-learning
- Self-healing

Demand a whole new set of tools, environments, and processes to support new open-source hardware designs into the cloud continuum

- Hardware will be as good as the software that runs on top of it.
- Embracing RISC-V and Open-Source:
 - **Collaborative effort** beyond the timespan of the project
 - **Comparable to standardization**
 - **Higher-impact** of project's results
- **Computing continuum**
 - Cloud (Vitamin-V), HPC (EPI, EUPILOT, other), Automotive (SELENE, KDT JU calls)
 - Heterogeneous IoT-Edge-Cloud continuum convergence.

Demand a whole new set of tools, environments, and processes to support new open-source hardware designs into the cloud continuum

Vitamin-V aims to develop further RISC-V ...

1) Open-source virtual environments

QEMU, Gem5, cloud-FPGA

2) Open software validation suites

Software bugs, Malicious code

3) Open-source cloud hardware-software stacks

Compiler and tool-chain: LLVM, JVM, Python, ...

VMMs and container suites: VOSySmonitor, KVM, QEMU, Docker,
RustVMM and Kata containers

Cloud management middleware: OpenStack, Kubernetes

AI & BigData applications: Apache Spark and Google Tensorflow.



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