



SEANERGY
ENERGY EFFICIENT EXASCALE



The SEANERGY Project

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EuroHPC JU Booth, Presentation Corner

June 11, 2025

CONNECTING THE DOTS



ISC

High Performance

JUNE 10 – 13, 2025 | HAMBURG, GERMANY

Who we are ...

EuroHPC JU R&D project

- Submitted to HORIZON-EUROHPC-JU-2023-ENERGY-04-01 call

Funding

- Total grant requested ~ 33 M€ (EuroHPC JU funding ~ 16.5 M€)
- National co-funding from Czech Republic, France, Germany, Greece, Italy

Project term

- June 1, 2025 – May 31, 2029



National Technical University of Athens



ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA





What we are setting out to achieve ...

Reduce energy waste & operating costs while maximising the scientific and industrial benefits for Europe's investments in HPC and AI infrastructures

Design a production-quality SW suite for energy-efficient operation of European HPC systems

- Create a holistic monitoring infrastructure and common data repository for operational HPC/AI data
- Develop an advanced AI-based data analytics framework for HPC operational data
- Implement a dynamic resource management system to optimise use of resources and energy efficiency in heterogeneous HPC/AI systems and to enable dynamicity

Validate the SEANERGY SW suite in operational environments and make it available under permissive licenses

How we will achieve this ...

Interaction of three main modules

Monitoring

- Scalable system/facility/environment sensor data capture
- Inclusion of non-structured data
- Establishment of a system data plane

AI-based data analytics

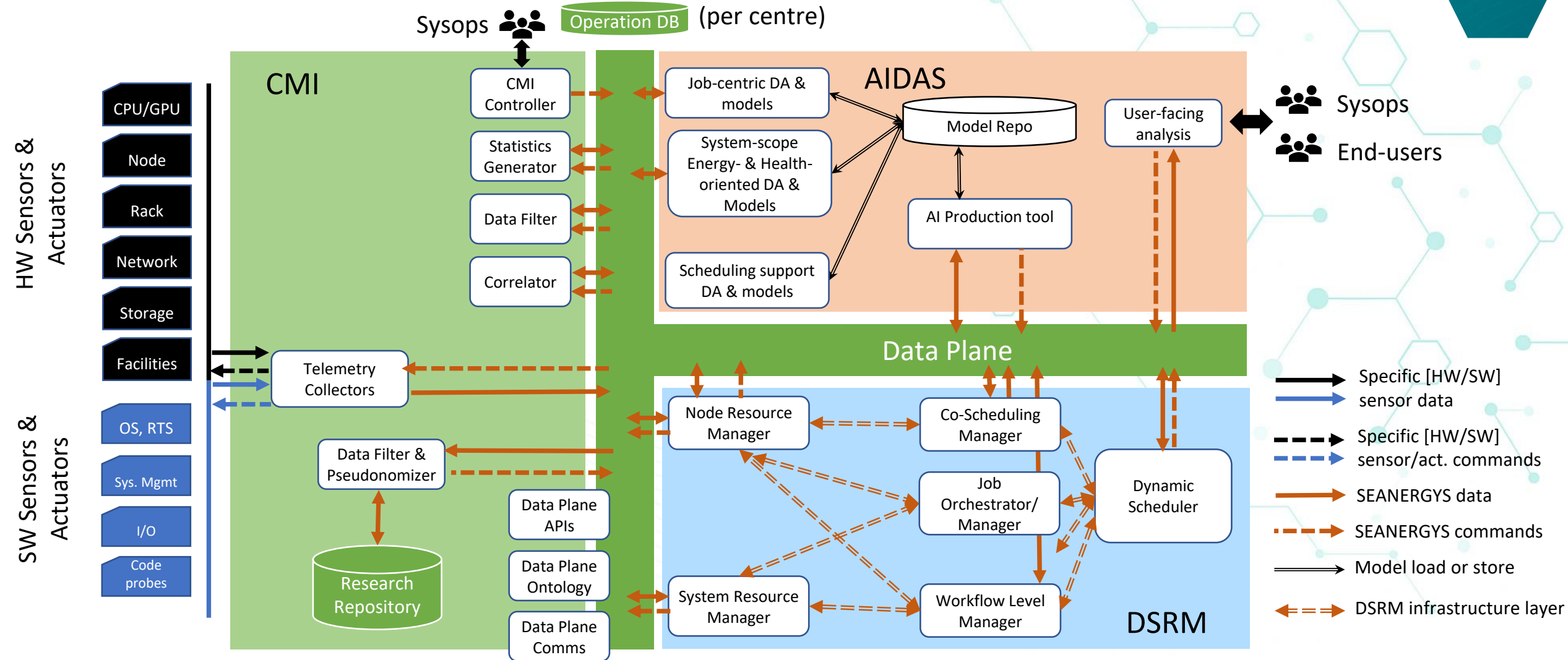
- Automatic workload characterisation and prediction
- Directing scheduling & resource mgmt. decisions
- Actionable feedback to application developers and users

Dynamic scheduling & resource management

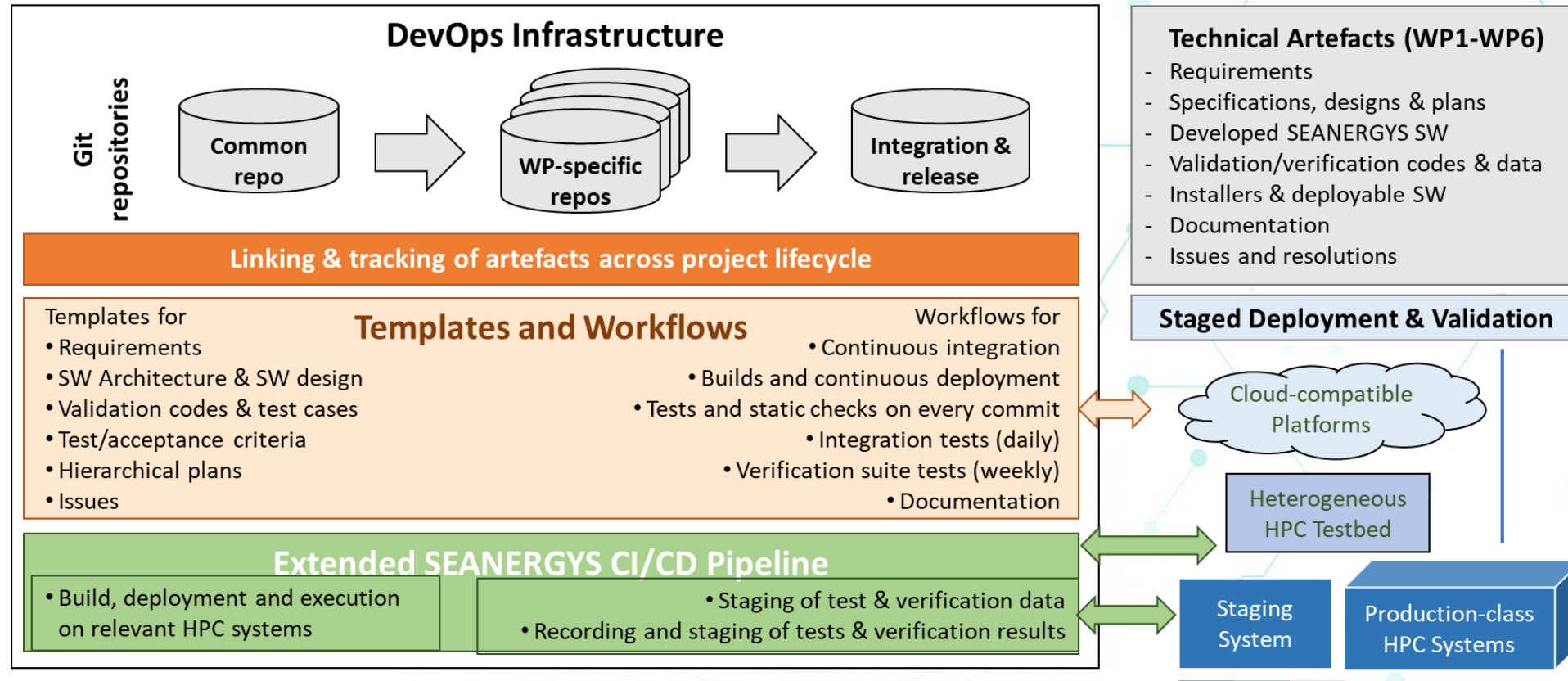
- Dynamic control of system & facility operating points
- Exploit dynamicity/malleability
- Right-size moldable workload resource requirements



SEANERGY Architecture – first glimpse



SEANERGY SW Development Approach



More information

SEANERGYS Website at <https://seanergys-project.eu>

– Under construction at the moment

SEANERGYS Webpage at

<https://www.fz-juelich.de/en/ias/jsc/projects/seanergys>

