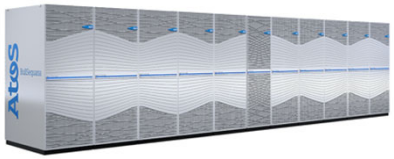
FocusCoE & the HPC CoEs

The European Centres of Excellence in High Performance Computing

Guy Lonsdale, scapos AG

Centres of Excellence



Infrastructure: Acquire leadership-class computers

Develop a thriving European HPC ecosystem

Technology: Develop technology to secure European HPC sovereignty

European Processor Initiative

Applications: Ensure excellence in HPC applications, widen use of HPC, maximize scientific and societal impact

bioexcel
Centre of Excellence for Computational Biomolecular Research

Computational Biomolecular Research

ChEESE
Center of Excellence for Exascale in Solid Earth

Exascale in Solid Earth

CompBioMed

Computational Methods for Biomedical pplications

Center of Excellence in Combustion

Combustion

cam

HPC in Industry & Academia

E-CoE

Towards Exascale for energy

esiwace
CENTRE OF EXCELLENCE IN SIMULATION OF WEATHER AND CLIMATE IN EUROPE

Weather & Climate

HiDALGO

Global Challenges

MAX

Materials Design

NOMAD
NOVEL MATERIALS DISCOVERY

Per Med CoE

Personalized Medicine

EXCELLERAT

Engineering Applications

FocusCoE

POP

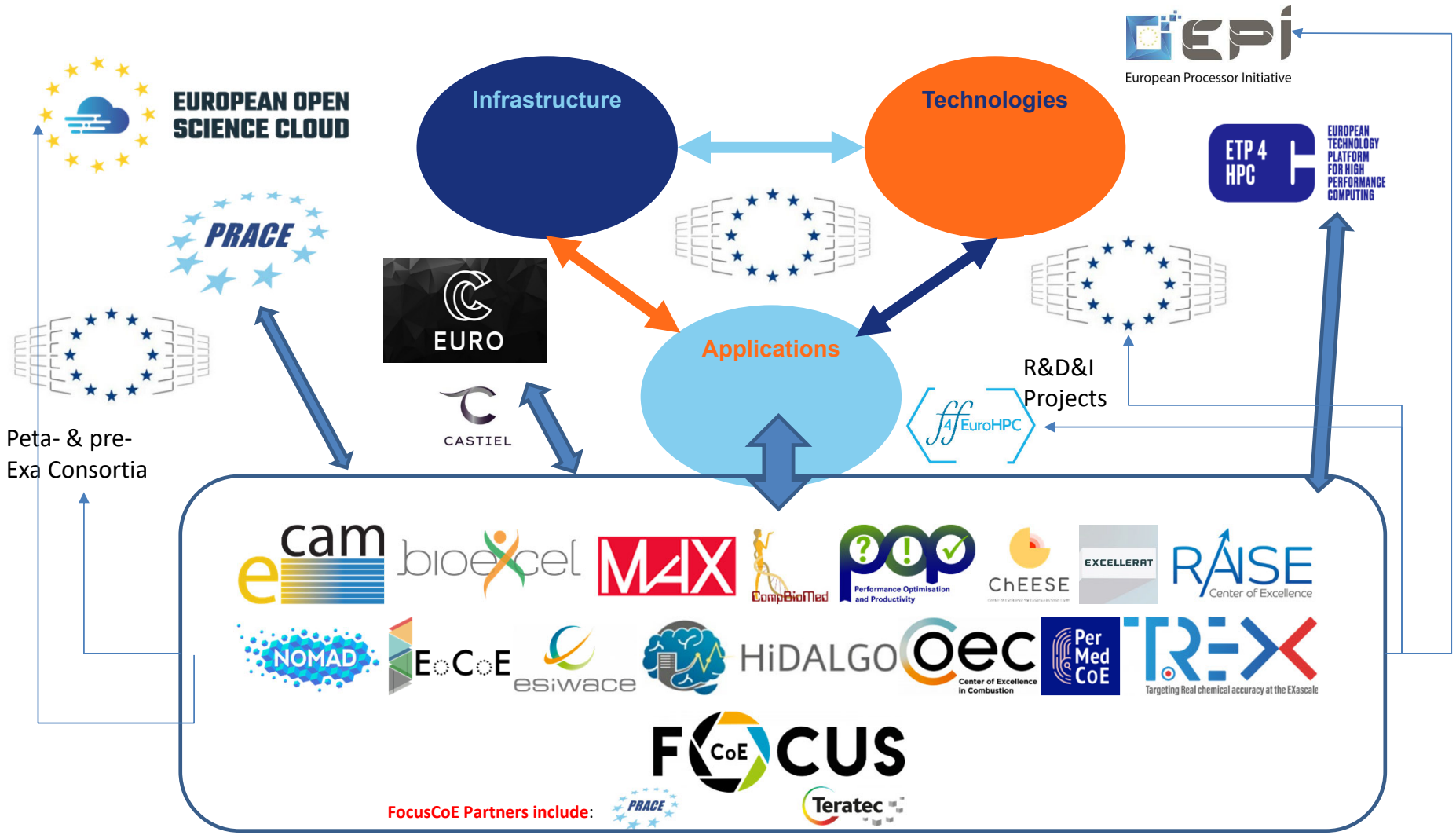
Performance Optimisation & Productivity

RAISE
Center of Excellence

AI methods towards Exascale

TREX
Targeting Real chemical accuracy at the EXascale

Chemistry


EUROPEAN OPEN SCIENCE CLOUD
Infrastructure
Technologies
EPI
European Processor Initiative
ETP 4 HPC
EUROPEAN TECHNOLOGY PLATFORM FOR HIGH PERFORMANCE COMPUTING
PRACE
EURO
CASTIEL
Applications
EuroHPC
R&D&I Projects
Peta- & pre-Exa Consortia
cam
bioexcel
MAX
CompBioMed
Performance Optimisation and Productivity
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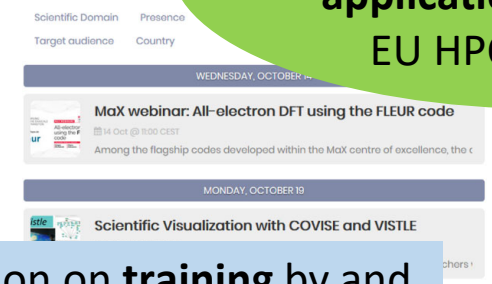
Center of Excellence in Combustion
Per Med CoE
TREX
Targeting Real chemical accuracy at the EXascale
FOCUS
CoE
FocusCoE Partners include:
PRACE
Teratec

FocusCoE and HPC^3

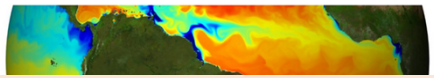
Support HPC CoEs in interaction **with industry**

Support **HPC CoEs** to strengthen the **application pillar** of the EU HPC ecosystem



Action on **training** by and for HPC CoEs

Create CoE platform – EU HPC CoE Council (**HPC3)**



Create & promote **EU HPC CoE brand**

- Define **joint CoE** overall **strategy & activities**
- **Strengthen** role of **applications** in HPC Ecosystem
- **Coordination** of activities & **service offerings** of all CoEs
- Expand the **interaction** with the **HPC ecosystem**
- Enhance **HPC3 promotion** and **scope of activities**

FOCUS CoE

EU HPC CoE Council (**HPC3)**

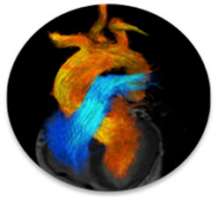
CoE European Excellence in HPC Applications

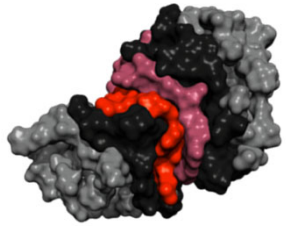
Current CoE Objectives – Part 1

CoEs support key applications which enable transformational science breakthroughs in their fields

CoEs are user-driven, needs from scientific communities in academia and industry are central

- Restructure and optimize community flagship European codes for the EuroHPC pre-Exascale and Exascale supercomputers
- Design and develop cutting-edge computational methods and production-ready HPC software for Exascale computing levels
- Manage the data generated at Exascale
- Leverage synergies between HPC, data analytics and AI
- Perform effective co-design with technology projects
- Promote best practices in HPC in their communities



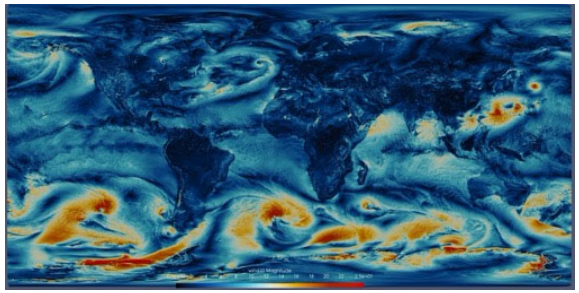


CoE European Excellence in HPC Applications

Current CoE Objectives – Part 2

Drive knowledge and technology transfer to academia and industry

- Promote CoE-developed tools, expertise and software
- Promote best practices and HPC usage
- Help bridge the skill gap, especially between academic research and industrial practice



CoE European Excellence in HPC Applications

CoE Training and Services

CoEs provide a wide range of training and services for academic and industrial users

- Deliver advanced training to a wide community of end-users
  - Hundreds of workshops, hackathons, … several thousands people trained
  - Hundreds of online tutorial, courses, seminars, … several tens of thousands of views
  - Creation of a European network to support less developed entities
  - Take-up of HPC, HPDA, specific families of methods, domain specific software and HPC tools
  - Tailored training, consultancy and expertise

- Provide expertise and high-end tools
  - Code optimization, profiling, refactoring
  - Software repositories for applications, libraries & high-end tools
  - Industry workshops and pilot projects
  - Tailored numerical tools
  - Saas portal

Find out what's happening at:
https://www.hpccoe.eu/
and
https://hpc-portal.eu/

CoE European Excellence in HPC Applications

Concluding Remarks

- FocusCoE completes its activities at the end of March 2022 – the next EuroHPC workprogramme is expected to include a CSA to support both the national HPC Competence Centres and the CoEs.
- The current EuroHPC Work Programme includes a call for the next wave of CoEs
- A large number of the current CoEs will terminate during 2022, but HPC3 will continue to operate in the interim.
- **Find out more and get in touch via: https://www.hpccoe.eu/**
- **Work-in-progress… the new CoE Brochure →**