HPC CoE: The position of FRANCE
Requirements & Scope
1.1

Place computational science at the centre of scientific discovery and industrial competitiveness

Scientific domains:
- Meteorology and climatology, CFD, combustion (CERFACS-Toulouse).
- Astrophysics and cosmology (MdS-Saclay).
- Ab initio Chemistry / Biochemistry.
- New materials, carbon nanostructure, silicon (ab initio physics).
- Hardware/system/software co-design.

Training programs:
- Based on existing PATC centres.
- Create a sustainable “Computational science” training system & network.
Requirements & Scope II

1.2

Software repositories:
- Communities around a code (SpecFEM…).
- Quality assurance: validation, verification, reproducibility.

Co-design:
- Not limited to “hardware + application software”.
- Include system software, compilers, run-time, profilers.
- Energy efficient codes (J/Flop).
- Memory hierarchy.
Organisation & Sustainability
Must be under PRACE’s control:

- To ensure European coherence.
- Not to disperse funding of additional structures.

Financed by hosting country with EC support for:

- Post-doc positions.
- Grand challenges.
- Specialized workshops.

Act as a vector for industrial involvement

*cf.* GENCI’s HPC-PME program.
Catalyse competence networking

“Virtual CoE’s” based on existing local centres and national networks (GDR Calcul, AMIES, mesocentres).

Encourage commercial software developers to parallelize their codes within the framework of a CoE

- Applications software.
- System software, compilers, DSL’s.
- Examples: CAPS, ESI-Group, SysFera, etc.