

Persistent HPC Integration

Discussion

This is intended as a discussion

Hopefully we keep notes in the google doc of conclusions and good ideas

Purpose of this session is to discuss what is needed to develop persistent collaborations between HEP and HPC

- How do we move beyond individual site connections?
- Timeline and schedule assessment from convergence discussion
- What do we need to maintain persistent long term collaboration?
- How do we establish a common R&D programs and keep them coherent?



Why Was WLCG Successful?

WLCG is a combination of hundreds of sites, many of which also support other sciences, who have worked together for 2 decades

- Common scientific mission
- Defined set of common interfaces
- Strong central ops and defined service levels
- Expectation of persistent collaboration
- Common hardware and software environment
- Development had strong support from the funding agencies, sites and the community
-?

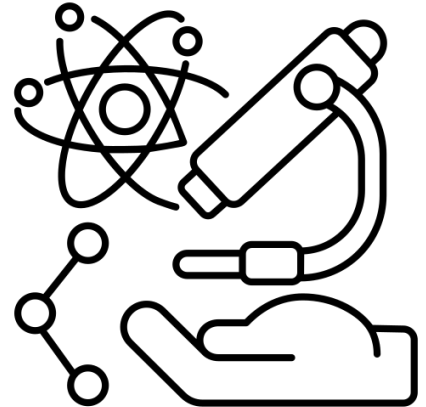


Common Scientific Mission

We do not have a single domain science motivation that binds us

However, we are all committed to science exploration

- Europe has the concept of Strategic Sciences that have privileged access to resources over long time scales
- In the US the largest computers are operated by the DOE Office of Science

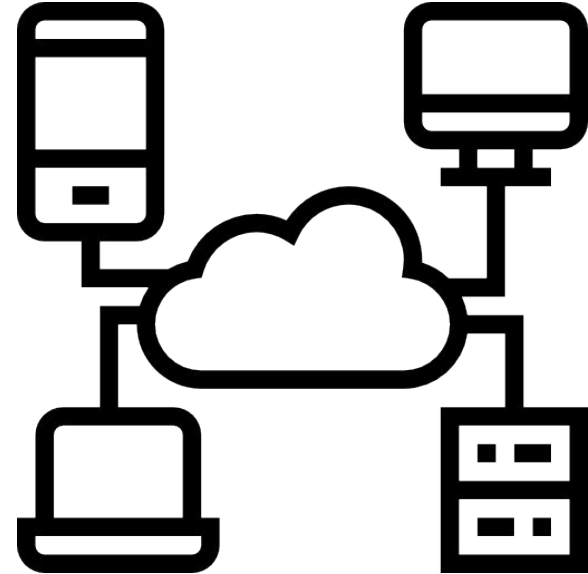


Defined set of common interfaces

If every WLCG site had to be custom connected, it would not have scaled

Common protocols and interfaces would allow including more sites with less operations effort

- How do we achieve this?
- IRI and the EuroHPC Federation Platform could be the foundation for this

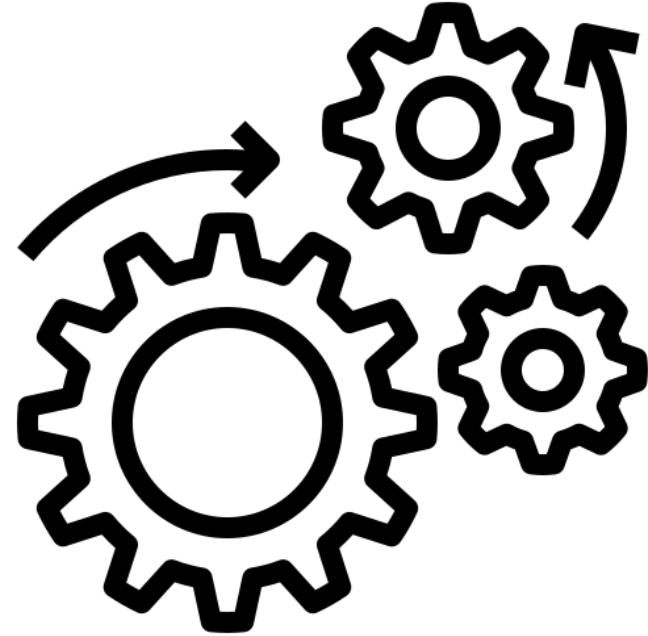


Strong central ops and defined service levels

This seems like one of the easiest to achieve

Existing infrastructure could be extended

Service level could be negotiated depending on work



Expectation of Persistent Collaboration

Historically

- HEP agreements are open ended and expected to last the live of an experiment (decades)
- HPC usage is proposal driven for projects and submitted annually

Perhaps we can explore something in between for HPC

- Even planning on the time scale of an LHC run (3 years) would make collaboration easier
- Also experiment computing models could evolve to better accommodate burst allocations



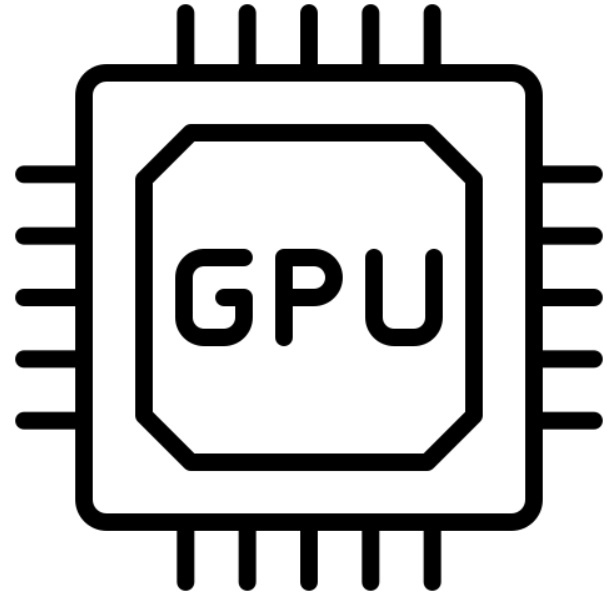
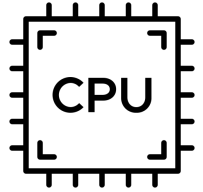
Common Hardware and Software Environment

WLCG was founded at exactly the right time

- The 2005 end of Dennard scaling resulted in hardware that increased number of consistent cores
 - Very consistent and completely compatible
 - We were even able to globally control the OS

HPC sites benefit from accelerators and have much more diversity in the environment

- Our software and workflows will need to be more flexible, which requires effort and funding for people
 - Timescale?



Support

WLCG development was supported by a number of grid projects

- A big investment by international funding agencies

Are there things we can do to make the activity interesting to funders

