JENA WP1 kick-off meeting

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April 22nd 2024







Live notes

We will use a shared google document to take live notes and to share comments

https://docs.google.com/document/d/1ei5XMzLsuWO4WlKr_c1XCKMsIaQorkgOXAZUucS APm4/edit?usp=sharing

Please add your name there as attendant to the meeting today

Background

At the JENA Symposium in May 2022 in Madrid (<u>https://indico.cern.ch/event/1040535/</u>) both the plenary presentations and the closed session of funding agency representatives revealed that there is an increased need for discussions on the strategy and implementation of European federated computing at future large-scale research facilities.

A JENA workshop on the strategy of computing was celebrated in Bologna in June 2023 (<u>https://agenda.infn.it/event/34738</u>) aimed to define what are the computing requirements in the next decade and to try and find synergies both in facilities and software.

Main conclusion at the Bologna-Workshop was the creation of five working groups in order to coordinate a white paper as input for the next JENA Symposium in 2025:

- WG1: HTC, WLCG and HPC (HPC)
- WG2: Software and Heterogeneous Architectures (Software)
- WG3: Federate Data Management, Virtual Research Environments and FAIR/Open Data (Data)
- WG4: Machine Learning and Artificial Intelligence (AI)
- WG5: Training, Dissemination, Education (TDE)

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HPC Working Group - scope

Increase the relationship of the WLCG system with HPC centres and the integration of HPC resources with our current computing infrastructures.

For Europe, there is a need to engage at a higher level with EuroHPC.

Contrary to the past, there is an opportunity to shape the evolution and policies of HPC facilities towards the ECFA-NuPECC-APPEC (ENA) sciences' needs with the goal of both augmenting the computing capacity available for this community and facilitating the federation with existing data facilities.

JENA Computing Workshop:

Executive summary and next steps

Joint ECFA-NuPECC-APPEC computing meeting took place on 12-14 June 2023. Agenda:

https://agenda.infn.it/event/34738/timetable/

There was a European focus, however, with worldwide implications. Many experts from the 3 research fields including several European WLCG members and Frank Wuerthwein from OSG were present (invitation only).

Motivation: at the Joint ECFA-NuFECC-APEE (JENA) Seminar in May 2022 in Madrid (https://india.com.ch/wwart11040535) both the plenary presentations and the closed session of funding agency representatives revealed that there is an increased need for discussions on the strategy and implementation of European federated computing at future large-scale research facilities. In particular, syneagies between the three areas should be identified.

Main goals: identify the computing requirements in the next decade and identify synergies that can benefit all the three communities (Particle Physics, Nuclear Physics and Astroparticle Physics) as well as neighbouring research fields like Astrophysics or Cosmology.

Conclusions at the Bologna-Workshop:

Five major areas for follow-up discussions were identified:

- HTC, WLCG and HPC (HPC): The relationship of the WLCG system with HPC centes and the integration of HPC resources with our current computing infrastrutures. For Europe, there is a need to engage at a higher level with EuroHPC. Contrary to the past, there is an opportunity to shape the evolution and policies of HPC facilities towards the ECFA-NUEPCC-APPC (ENA) solences and both augmenting the computing capacity available for this community and facilitating the federation with visiting data facilities.
- 2. Software and Heterogeneous Architectures (Software): There is a large spread of software and its TeN, from very generic to holy specific. One of the main challenges into the future is the fact that available computing will increasingly appear with heterogeneous architectures (as well as ARM, we have GPUs, perhaps FPGAs) in order to make effective use of these processors and increase the efficiency of our code by factors we will need Research Software Engineers and domain experts who optimise the current code and also who engage in exploratory software RAD activities, the sufficient contents the software Engineers of the efficience of the software Engineers of the software Engineers of the software RAD activities, but substantial overtap in skills and techniques. It is important to convey the message to funding ageneits that is cardinal to invest in training people with this profile. This is also seen as one of the main opportunities to address sustainability.

HPC Working Group - scope

The overall goal is to try and have a coordinated voice from the three JENA communities towards EuroHPC, the organisation that plans, runs and manages the funding for the large HPC machines in Europe.

Concrete goals:

- 1. Try to get some "priority/strategic" long-term allocation in EuroHPC so that ENA experiments could access a number of CPU/GPU hours/year without the need to submit proposals quarterly.
- 2. Have a voice in the planning process for the large HPC in Europe, both at the design level (e.g. ask for more or less CPU vs GPU or certain network requirements) as well as the operations level (e.g. ask for consistent backfill mechanisms in all the EuroHPC machines so that idle cpu-hours could be used by opportunistic workloads).

Timescale, vision and mandate

The ECFA, NuPECC and APPEC chairs have tasked WGs with a clear <u>mandate</u> to produce a report summarizing our findings by the **end of November** this year.

- 10 page report + 1 page executive summary for F.A.s

The review and recommendations should target having an impact in the upcoming 3-5 years (standard funding cycle for many projects/facilities).

	February, 12, 202	
	ENA Computing Initiative – Mandate to the Working Groups	
The first Joint ECFA-NUPECC-APPEC computing workshop took pla attained and gande size: <u>thttps://geodofinit/icent/174231</u>) workshop was that a more competensive identification of compu- necessary, with particular attention to synergic that can been potentially even neighbouring research fields such as attapping to the working rougo tac condinates a with poper as a contribution on spring 2025, in which representatives of European funding organi The thematic working groups are organised as follows (details can b). HPC and HF_URD	One of the conclusions of th ting needs for the next decade i : all three ENA communities an cosmology. We have thus forme the next general JENA Symposiur sations will also participate.	
Infr. and HIC (IIKS) Software and Heterogeneous Architectures (<u>Software</u>) Data Management, Virtual Research Environments and FAIR Machine Learning and Artificial Intelligence (AI) Training, Dissemination, Education (IDE)	/Open Data (<u>Data)</u>	
The mandate of the working group Chain is as follows: to form a group of expans to the relevant topics from the th organism meetings of this group. To compile an overwise of existing ratagies throughout the or anticipating the expected evolution of requirements and direct programmers and the second evolution of the second evolution for the second evolution of the second evolution of the findings and recommendations and should be targeting all three executive summary of the full while paper, interded for the program.	suntries and communities in ENA lons in the three scientific areas, group, as a basis for a joint "IEN sper will contain all working group scientific communities. A shorte unding agencies, should also be	
Yours sincerely, I.I. K. Buliyour	1	
Andreas Haungs Paris Sphicas	Marek Lewitowicz	

Working Group Members

With the people that expressed interest in WP1 via indico plus a few additions, we have now up to 40 members in the Working Group:

Gergely Gábor Barnaföldi Tommaso Boccali Concezio Bozzi Andrea Chierici Sabine Crépé-Renaudin Luca dell'Agnello Guenter Duckeck Laurent Duflot Josep Flix Molina Henryk Giemza Manuel Giffels Andreas Haungs Håvard Helstrup Fabio Hernandez Jose Hernandez Abdeslam Hoummada Balazs Kacskovics Gabriele-Elisabeth Koerner Clemens Lange Mario Lassnig Zach Marshall Bryan McKinnons Johan Messchendorp Antonio Perez-Calero Yzquierdo Andreas Petzold Ádám Pintér Eva Santos Kilian Schwarz Oxana Smirnova Daniele Spiga Gabriel Stoicea Nadia Tonello Wojciech Wiślicki Andrej Filipcic Dmytro Kresan Stefano Piano Fabio Affinito Hans-Christian Maria Girone Simone Campana