News

Alexis & Simone

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WP2.4: **Boosting the computational performance of Theoretical and Experimental Physics algorithms** (INFN, INAF, UNIBA, UNIMIB, UNINA, UNIBO, UNIFI, UNICT, UNITS, UNIPD, UNIFE): T4.1 Tools and guidelines for developing and porting heterogenous codes and algorithms on modern architectures; T4.2 Competence and training centre for heterogeneous computing.

2 tasks principali

Main Activities: porting of applications to GPUs and heterogeneous architectures (e.g., scalability of scientific codes and applications on GPU/CPU many-cores clusters, local and remote offloading, mission-critical algorithms on FPGAs, ...). The solutions and tools implemented during the project will be easily extendable to other scientific domains of the Centre and to the industrial partners in the Spoke; moreover, the personnel trained within the Centre will help to spread and boost the application of HPC methodologies to Italian academic and industrial fields, for a comprehensive advancement of the Italian system.

Milestones: M9-M15: report on best practices for heterogeneous computing; M22-M26: first training opportunity; testbeds ready for users (initial handshake); user support in place; M25-36: results from testbed and benchmarking activities; final report on technologies, training and support system; white paper for use cases external to the CN

4 Phases:

The three "technical Work Packages" WP 2.4, 2.5 and 2.6 follow a similar approach:

1. planning and identification: landscape recognition for best solutions for the realization of heterogeneous and portable code (e.g. software frameworks, compilers, programming models, ...), for the integration of services into a data-lake infrastructure; cross domain software and services will be identified if appropriate. Moreover, solutions for handling user support, user fora, and training opportunities will be identified;

2. a realization phase, in which the services and the support systems are put into place, at least in alpha/beta phase. These include the testbeds to be used for benchmarking of scientific and industrial solutions, the user support system, the training opportunities.

3. a validation phase, in which experience on the supported services and codes are reported, to be used as a touch base before the end of the project.

4. a wrap-up phase, in which results are reported for executed activities, and are disseminated via white papers for future and external use cases.

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Prima fase esplorativa

- Raccogliere i progetti delle persone interessate e catalogarli in base alle richieste di software e di hardware.

- Discutere anche come organizzare la parte formativa ed quali siano i tools a disposizione

- Mailing list:
  - https://lists.infn.it/sympa/info/cn1-spoke2-wp4-all
  - https://lists.infn.it/sympa/info/cn1-spoke2-wp4-contacts
  - vi pregherei di contattare tutte le persone interessate chiedendogli di iscriversi alla *wp4-all

- Meeting e forums
  - Dobbiamo anche decidere come scambiarci le informazioni e organizzare al meglio il lavoro
  - Potremmo mettere su un sistema di ticketing (a la Jira) oppure usare direttamente GitHub per gli issues e come repository della documentazione
  - Mattermost potrebbe essere un modo veloce come forum di discussione (molto in uso in CMS al momento)
  - Mantenere meeting regolari (quanto possibile) con cadenza mensile e in un secondo momento bi-settimanale

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Prossimi passi

- Una volta raccolti i progetti dobbiamo scegliere (assieme ai WP leaders corrispondenti:WP-1,2 e 3) quali usare come benchmarks e test-bed.

  - Selezionare quelli che ci sembrano maggiormente rappresentativi come benchmarks

    - Tenendo in considerazione che il PNRR non è solo rivolto al mondo accademico ma anche verso l'industria

  - Capire quanto "nuovo" personpower ci serve e successivamente preparare le call e la formazione del personale

    - Da qui la richiesta di integrare le informazioni che avete già raccolto con qualche dettaglio in più

- Save the date: kick-off meeting del CN1 13-14 Ottobre

  - Agenda: https://agenda.infn.it/event/32786/

  - Ci saranno sessioni parallele per i WP il 13 pomeriggio ed un summary il 14

  - I meeting saranno virtuali su piattaforma Zoom

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