EESI: European Exascale Software Initiative - 2010/2011

Description

The use of High Performance Computing (HPC) is commonly recognized as a key strategic element in improving understanding of complex phenomena, in both research and industry. The constant growth of generated data - Big Data - and the computing capabilities of extreme systems are leading to a new generation of computers composed of millions of heterogeneous cores which will deliver exaflop performance by 2020.

Such hardware architectures make outstanding technological breakthrough possibilities in computation possible, but they also create software challenges. To respond to this challenge, the international community has launched various programmes and organizations. In the US, this has been done through funding programmes such as the Ubiquitous High Performance Computing program and the co-design centre call. The International Exascale Software Project (IESP) aimed to build a US and international roadmap. In Europe, the PRACE project is preparing the tier-0 level of the European HPC ecosystem.

The first European Exascale Software Initiative (EESI1) successfully federated the European community, built a preliminary European cartography, vision and roadmap and represented the European voice at international level. However, it was decided that it would necessary to go one step further towards implementation. EESI2 was therefore launched to provide a structure which would bring the European community, by providing periodically cartography and roadmaps and dynamic synthesis and recommendations in (i) defining and following up concrete impacts of R&D projects, (ii) identifying disruptive technologies (iii) addressing cross-cutting issues in numerical processing and software engineering, (iiii) developing gap-analysis methodology towards exascale roadmap implementation. Overall, to achieve exascale targets, EESI2 aimed to explore possibilities for international collaboration and to implement a more dynamic structure.

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