Next Steps and Research Agenda
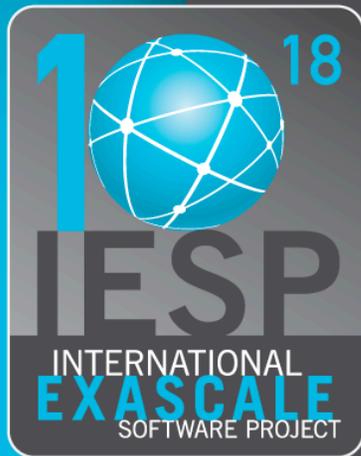
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Goals of this meeting

We will focus on actively developing a draft IESP roadmap and will be breaking into working groups for that purpose.

Objectives:
- Provide a framework for organizing the software research community
- Encourage and facilitate collaboration in education and training
- Engage and coordinate vendor community in crosscutting efforts
- Develop a common, high quality computational environment for peta/exascale systems

Deliverables:
- Initiate development of a coordinated software roadmap
- Begin creation of a thorough assessment of needs, issues and strategies
- Create a strategy for catalyzing, coordinating, and sustaining the effort of the international open source software community to create that environment as quickly as possible

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What we have achieved

- Break out groups for software, applications, vendors (industrial collaborators), and funders
  - Have identified key components for roadmap
  - Have identified some frameworks for going forward
  - Have identified authors to take roadmap components forward (need volunteers)
  - Need to ensure have covered the cross cutting issues (possible gap)

Findings and actions

- Roadmap is essential for funding agencies to plan their programs, to define potential major initiatives
  - Funding agencies are motivated to work together
- Steps towards developing a roadmap
  - Software groups have developed a highly detailed set of issues
  - Tying research to platforms available over next ~10 years
  - Categorizing software topics as to whether
    - completely new approach needed
    - Need stopgap solution
    - Implementation issue
  - Exascale software integration methodology and strategy need to be developed
- Industry partners plan to draft a white paper in two weeks
- Societal benefits (science & engineering case) case for exascale needs continuing development

Next Steps

- Note that the subgroups have taken slightly different approaches with different individual timelines.
- Need to complete collection of information where required.
- We need to get input into the subgroup topics from broader group.
- Some roadmaps have dependencies on others

- Before the next meeting
  - Review the slides/documents that capture the information to date (send comments to subgroup leaders by end of July)
  - Subgroup leaders to collate and input to drafting
  - Identified authors to write up a draft for that section (by end August)
  - Others to input to draft
  - Overall editor (Jack?) will identify overlap between groups and will provide a final form of draft by end of September

Applications

- Establish roadmap, articulate software status
- Have developed a methodology including interviewing experts
- Identified key applications
- Identified experts (still some work to be done)
- Providing info on 2012, 2015, 2020 (?)
- Provided an example (Code_Saturne) and Airbus France...
- Consult with experts by mid-September

Industrial collaborators

- Have developed outline of whitepaper with writers identified.
- Plan to have draft in two weeks time
- Learning from previous large-scale projects, considering market size/type and implications and the collaboration approaches
- Providing overview of the various models of collaborations
- What are the impact and implications for open source approaches – vertical vs horizontal process
- Need to consider energy efficiencies
- Roadmap doesn't exist but is under development

Funders

- Need to complete collection of the existing funding across the international partners
- Believe there is a motivation for a new programme for exascale to leverage petascale
- Identified need for focussed curriculum for training to produce 100s in EU and US
- Need to enable mobility to provide cohesion to approach of the international collaboration
- Possible framework would be international clearing house to communicate what is funded where..
- Need to create roadmap in response to other groups
- Need more stable long-term framework for funding agency collaborations (building on existing bilateral agreements)
- Suggest that we need clear definitions of responsibilities
- Suggest meeting in September to evaluate interim IESP plans
- Draft plans by April 2010

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Software

- Have identified the key intra and inter issues.

- Draft roadmaps have been identified

- May be gaps on the cross cutting

- Individuals tasked with writing for each of the identified sections

Plan for Tokyo meeting

- Goal will be to refine the roadmap
- Suggest meeting is ½ day longer