HEP Software Foundation SLAC Workshop Summary

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HSF Goals

- **Facilitate coordination and common efforts in HEP software and computing**
  - HEP software must evolve to meet the challenges posed by new experiments
  - We need to exploit all the expertise available in our community, and outside it, to meet the challenges and the affordable way to do that is to do it collaboratively
- See previous presentations at GDB
  - April 2014: https://indico.cern.ch/event/272620/
  - November 2014: https://indico.cern.ch/event/272779/

SLAC Workshop

- Important milestone: 1st workshop of HSF
  - Validate ideas elaborated by the startup team after the kickoff workshop (April) and the White Papers
  - Assess if enough people/projects were interested to implement them
- Good attendance: ~100 people (80 local + 20 remote)
  - Lower attendance than April workshop
  - Suffered the late announcement but a high quality participation
  - Good non-European participation: mainly US but also Asia
  - Many non “pure HEP” experiments: Dayabay, LSST, Photon science…

Workshop Topics

- Agenda: http://indico.cern.ch/event/357737/other-view?view=standard
  - 2 + 1 days
  - Designed to allow a lot of interactions: worked well
  - 41 Short presentations (6')
- Workshop main sessions
  - "Learning from others: 3 "long" presentations from "similar" projects
  - Views on HSF by experiments, projects, individuals
  - New projects that could benefit from HSF (7 presented)
  - Discussion on concrete next steps: ~1 day
    - ½ day with the full attendance
    - ½ day after the workshop (iFB) to digest/refine workshop discussion
  - Meeting with LSST, GEANT4 and LCLS/Photon science

Learning from Others...

- Very interesting and useful session
- Apache Software Foundation
  - Goal similarity with us: umbrella for related projects, no central management of projects, they remain autonomous
  - Difference: ASF started before projects, invented the model when developing
  - Do-cracy: no long-term planning, active people have their say
  - Darwinian approach: ASF provides an infrastructure for projects, users decide the projects that will survive by their adoption
  - ASF focuses on providing an incubator for new project and on ensuring the project sustainability
    - Avoid projects bound to 1 individual (hit-by-the-bus problem!)
  - Transparency is essential: a pillar of ASF culture

… Learning from Others

- D. Katz on Building Scientific Software communities: a very nice summary on lessons learnt from successful and failed projects
  - Avoid too much planning, try-and-fail is the most productive approach
  - Governance: flat layer of peers generally better than benevolent dictator to create a community: forces to work together
    - Make easy for people to contribute, with little time and effort
  - Give credit for every work done, motivate people
  - Get people involved rather than having them reinventing the wheel
- Software Sustainability Institute (UK) - Neil Chue Hong
  - Helps SW projects to address sustainability, great focus on training
  - Same message as D. Katz, insistence on not designing the perfect HSF
  - Lobbying/communication about career path for Research SW Engineers

Community and Project Views

- Every community and project mentioned that HSF could help in some ways
- No real conflicting view but different focus
  - Experiments: SW knowledge base to increase SW reuse, consultancy for new projects, SWAT teams, consistent build/packaging tools across projects, build/test infrastructures, teaching, licensing
  - Projects: technical forums, help in organizing technical discussions with other projects, help in organizing meetings with users, build/test infrastructure for smaller projects, licensing
  - Common SW or expertise: avoid to reinvent the wheel (example with HPC), help with convergence and sustainability (pyroot/rootpy)

New Project Initiatives

- Examples of innovative projects that could benefit from HSF
  - FADS: Go-based detector simulation toolkit (1 individual)
  - Condition DB for Belle2: discussions started with CMS and ATLAS
  - Find grained event processing with an event service, based on ATLAS experience
  - Acceleration simulation/modelling framework (BNL)
  - HEP SW Knowledge Base based on existing prototype
  - HepSim: repository of theoretical predictions for HEP

Non Topic: Governance

- Big difference with kickoff workshop in April
  - Probably everybody convinced it was the thing to avoid…
- Large consensus established in the last 6 months that HSF should be a light structure without a too formal management
  - Apache model seen as a good reference
  - Continue with the existing Interim Foundation Board + Startup Team
    - iFB: misnamed, in fact a “general assembly” of all people interested by HSF, meeting once a month with Startup Team
    - Startup Team: ~12 volunteers to propose ideas and help with their implementations
  - Encourage volunteers to take responsibilities in the different activities promoted by HSF: already several raised their hands at SLAC!
- Be transparent and open to other communities

Next Steps: Guinea Pig Projects

- Experiment the incubator idea with a few projects
  - What services to support projects (what they would benefit from HSF)
  - What they can bring to the community
  - Which criteria to move out of the incubator: avoid too high thresholds, remain pragmatic
- Experiment with the inter-project relationships under HSF umbrella
- What kind of membership for projects
  - One or different types?
  - Clarify that project membership doesn’t mean a recommended project
- A few projects declared their interest: rootpy, Gaudi, Vac, FADS, GenFit2 (Belle2), xrootd

Next Steps: Technical Forum

- General agreement that some sort of technical forum is needed
  - Open space for discussion: exact technology still in discussion, probably stay with Google groups to start
    - Issue: need to register to each Google group
  - No WG per topic to start: favor wide discussion, split to specific discussions when really needed
  - Publish technical notes on various topics relevant to the community: not necessarily recommendations, can be sharing of expertise
    - Open question about a “RFC-like process”
- An already existing, successful “prototype”: the concurrency forum
  - Propose to continue as part of the HSF Technical Forum, with the specific focus on parallelism and concurrency

Next Steps: Training

- Consensus that it should be one of the initial HSF focus
  - Several volunteers… and several existing initiatives being leveraged in the HSF context
  - Should cover different kind of training from “traditional schools” to virtual seminars or webinars
- Learn from Software Carpentry very successful experience
  - Launched by Sustainable Software Institute
- A working group created to make proposals: volunteers welcome to join
  - hep-sf-training-wg@google.com

Next Steps: Services

- Software Knowledge Base
  - A prototype already exists at http://hepsoftwarefoundation.org: may migrate to a new platform in the future but data will be migrated
  - About all the software developed and used in the community: not a blessing of SW, no formal review but the ability to comment and cross-reference the usage by experiments
  - **Everybody encouraged to register its favorite software**
- Build/Testing/Continuous Integration
  - A clear need mentioned by several projects
  - Already some experience at several (big) sites
  - Try to come up with more concrete proposal in the next months
- **Will not do project hosting**: use GitHub if needing one

Many Open Questions

- Licensing
  - An open-source license is mandatory to participate to HSF
  - Should HSF recommend one type of open-source license?
  - Need to start with what exists…
- Consultancy, SWAT teams, peer reviews…
  - Ready to start some activities on these but waiting for a concrete request to refine how to do it
- Access to scientific journals
  - Not a priority for the short term, concentrate on technical notes
  - Springer expressed some interest for HSF and providing some “space” for it

Conclusions

- Very useful and productive meeting
  - Attended by motivated people
  - Helped a lot to refine HSF idea and first steps
  - A summary planned soon: a lot of notes taken by Torre (~35 pages!)
- Concrete actions are still ahead of us… but several “doable” areas identified
  - Already some volunteers, more welcome!
- Next milestone: CHEP face-to-face meeting (Friday afternoon)
  - Report on first concrete actions
- Engage with more projects and more communities
  - First target for communities: nuclear physics and astroparticles
- **Encourage people to join!** (see web site)