My personal summary of the

HEP Software Foundation Workshop at SLAC

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ATLAS S&C Workshop
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HEP Software Foundation (HSF)

- The HSF is being organized to facilitate coordination and common efforts in HEP software and computing internationally
- Objectives of HSF:
  - Sharing expertise
  - Raising awareness of existing software and solutions
  - Catalyzing new common projects
  - Promoting commonality and collaboration in new developments
  - Aiding developers and users in creating, discovering, using and sustaining common software
  - Supporting career development for software and computing specialists
- Web site: http://hepsoftwarefoundation.org/

HSF Workshop at SLAC

- HSF workshop at SLAC, January 20-22
  http://indico.cern.ch/event/357737/overview
- The main goal: to refine the next steps for building HSF
  - Hear from a range of large and small projects expressing their views on how the HSF could be useful for them, and what they can bring to it
  - Hear also from the experiments, science communities, individual users
  - Discuss new project initiatives, which might be launched under the HSF umbrella
  - Hear the views of institutions and funding agencies
  - Come to consensus and conclusions on the next steps in starting up the HSF

Agenda

- 1.5-day marathon of mostly short talks: 44 talks in total, 39 of them in 6'+4' format. Sessions:
  - Status
  - Software collaboration: Learning from others
  - Community news: Sciences & experiments
  - Project views: Learning from experience
  - Community views: Common software needs & opportunities
  - New project initiatives
  - National, agency and institution views
- Followed by the 'Next Steps' session: an interactive writing of the 'Next Steps' document in Google Docs
- Concluded by the iFB (Interim Foundation Board) meeting, which, in reality, turned into an attempt to finalize the 'Next Steps' document

Learning from others: The Apache Foundation

- Exceptional talk: 20 min, 0 slides
- Umbrella for related technologies, membership based.
- 300 projects currently under the umbrella and a few dozen under 'Apache incubator' to bring the projects into the culture
- Avoid the hit-by-a-bus problem, avoid projects being associated too much with an individual
- The board does evaluate projects and pulls the plug sometimes
- Membership is like a guild, people are proud of it, they put it in their resume
- People who perform the work get a greater say in how things go
- ... and more interesting things about the Apache Foundation. Please refer to the “Meeting Notes” document for more info

Learning from others: Building Scientific Software Communities

- Speaker's impression on HSF so far: *far too much planning and too little doing so far.*
- Governance mode: Flat layer of peers forces the community to work together. Merit earned by deeds, not position or reputation. Example: all Apache projects.
- Licensing to build communities: Always license the project. Coders don't want to give away their code
- Make it possible for people to contribute with the least time and effort. Provide “how to contribute” information
- Main challenges: getting people to want to be involved, and using what's there rather than reinventing it
- ... and more (see “Meeting Notes”)

Community views: Sciences & Experiments

- Experiments presented their views of the role of the HSF, their interests in HSF and what they can offer to HSF
  - 10 talks in total. ATLAS represented by Richard Mount
- The role of the HSF:
  - HSF may help the experiments to exploit synergistic effects with each other, to train the developers, to support the careers, ...
- Experiments' interests in HSF:
  - Build, packaging and release management tools. Peer reviews, consultancy. Access to computing resources on different platforms and architectures
- Examples of experiment-developed packages used by other experiment(s): Frontier from CMS, ...
- Examples of possible projects for HSF: GenFit2 from Belle II, ALFA from ALICE, ...

Project views: Learning from experience

- Several projects and and individuals (R. Brun) shared their experience in developing successful common software, managing software stacks and more
  - 11 talks in total
- Projects described their needs in HSF
  - Help in organizing forums between developers and users
  - Help the projects in getting necessary Grid resource
  - Offload code development, testing, bug tracking tools from software projects
- Fermilab presented its vision of the software ecosystem
- Talk by Michael Ernst: “Computing Systems Roadmap and its Impact on Software Development”
- Talk about Gaudi's possible contributions to HSF and how can Gaudi benefit from HSF

Community views: Common Software needs and opportunities

- HPC talk by Tom LeCompte
  - “Certain common patterns are emerging – we shouldn't all rediscover them ourselves”
- “Python ecosystem” talk by Wim. On the possible benefits from HSF
  - Uptake of technological changes as they arrive
  - Timely response to needs of experiments
  - Guarantee to continuity and preservation of expertise
- Concurrency forum should continue under the umbrella of HSF
- Also discussed the importance of teaching software and programming and HSF's possible role in this process

New project initiatives

- FADS – a (Go-based) FAst Detector Simulation toolkit, by Sebastien Binet
  - Familiar name, new project
- Conditions DB for Belle II
  - Discussing development and distribution strategies with ATLAS and CMS
- Fine-grained processing with an Event Service, by Torre
- Building a HEP Software Knowledge Base, by Torre
  - A portal for implementing key HSF goals: sharing expertise, raising awareness of existing software and solutions
- HepSim – a repository with theoretical predictions for HEP community, by Sergei Chekanov

National, agency and institution views

- US DOE
  - Recently established HEP FCE (Forum for Computational Excellence), part of greater emphasis on cross-cutting connections
  - Focus on exploiting new architectures/technologies, foster cross cut computing resources, facilitate cross cut communication for various HEP collaborations – HSF, OSG, G4, ...
- CERN and WLCG
  - Support from CERN management
  - For WLCG: having a software forum to address the common problems is a strategic necessity
- Personal view from KEK/Japan
- Informal comments from INFN and IN2P3

Next Steps

- Structured discussion (+ a collective writing of the document in Google Docs) to reach consensus and agreement on next steps
- Two sessions: Wednesday entire afternoon and Thursday morning
- The latest version of the document consists of 11 pages and has >30 comments
- HSF projects
  - Define software life cycle: incubator/active/featured/archive/retired
  - What possible incubators can we identify already?
- HSF services
  - Project hosting infrastructure (code repository, issue tracker, etc...)
  - Building and testing infrastructure
  - Teams for certification and integration

Next Steps (continued)

- HSF services
  - Package managers
  - Access to computing resources on many platforms and architectures
  - Access to software development tools
  - Support for IP and licensing issues
  - Peer reviews
  - Training
  - ... more
- HSF Fora; HSF Startup, organization, communication; Action list and timeline; A long list of comments to the workshop ...
- An important next step: “break down into small groups/teams to get some things going”

Last slide

- I only scratched the surface a little bit
- For more information:
  - Workshop agenda
  - Meeting notes
  - Next Steps

The next HEP Software Foundation meeting will be held on April 17th afternoon as a BoF (Birds-of-a-feather) session during the CHEP2015.