HSF Packaging Group: Introduction

Graeme Stewart and Ben Morgan
Follow on from micro-architectures discussion

- Ben put together some very useful links discussing micro-architecture builds and fat binaries
  - [https://github.com/HSF/packaging/blob/master/istools/README.md](https://github.com/HSF/packaging/blob/master/istools/README.md)
  - Please comment and make PRs for adding and improving the material
- The HSF proposal for naming build platforms is ‘promoted’ to a consultation document
  - See [http://hepsoftwarefoundation.org/technical_notes.html](http://hepsoftwarefoundation.org/technical_notes.html)
  - This means that we’re asking people to really take a look now, with the intention to finalise this note soon
  - There are a few missing things
    - The micro-architecture description piece (e.g., x86_86+avx2)
    - Compiler release numbering has evolved since the document was written (e.g., for gcc only the major release number matters now)
Guix Report*

*Cronounced ‘gix’

- **CERN Computing Seminar** on **GNU Guix** on May 3
  - Unfortunately there are no slides, but you can [watch the recording](#) of the presentation

- **In a nutshell....**
  - Guix is very similar in architecture to nix
    - Each package is built and identified by a hash of its source files, built options and dependencies
      - Recursive with dependencies, change libfoo and all clients of libfoo change their hash too
      - Aim for extremely high reproducibility
    - Nix style runtime environment, including versioning of each modification to a user’s environment
      - Multiple flavours of environment supported
    - All builds live in the same filesystem path, /guix, has to be writable
      - User builds supported - daemon takes care of doing this
      - Can use binary build caches
Guix

- Main users seem to be on HPCs
  - Big shared filesystem, all users “close”

- Selling points
  - Reproducibility
    - Of builds and runtime
  - Delegation of control to users
  - Composability (build on top of something that’s there, or any piece of it)

- Main technical difference with Nix is the language used for describing the builds
  - Guix uses scheme (or should (I say (scheme)))
  - cf., Nix that has it’s own functional DSL
    - Guix developers claim this as an advantage as it’s easier to write extensions and integrate with other scheme code, e.g., their dependency visualisation code
Interesting...?

• It’s another point in packaging space, so in principle, yes
  ○ But one that lives very close to Nix
  ○ Given our limited resources probably not something to prioritize (unless someone has a burning desire)
  ○ Might be more interesting if we were to decide that (guln)ix was the right space to be in
    ■ Then the question of scheme vs. Nix DSL would be more relevant
    ■ IMO, neither of these languages are very good fits to our community’s skill set
      ● Python and shell match better what we do

• Observations
  ○ Smaller package base than Nix
  ○ No OS X distribution (build from source)
CHEP

- CHEP talk from the group will be followed by two talks on Spack

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<thead>
<tr>
<th>Title</th>
<th>Speaker</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td>Beautiful, simple and remote ROOT graphics and GUI</td>
<td>Serguei Linev</td>
<td>Sofia, Bulgaria</td>
<td>11:30 - 11:45</td>
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<tr>
<td>Exploring server/web-client event display for CMS</td>
<td>Alja Mrak Tadel</td>
<td>Sofia, Bulgaria</td>
<td>11:45 - 12:00</td>
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<tr>
<td>Software Packaging and Deployment in HEP</td>
<td>Benjamin Morgan</td>
<td>Sofia, Bulgaria</td>
<td>12:00 - 12:15</td>
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<td>Spack-Based Packaging and Development for HEP Experiments</td>
<td>Dr Christopher Green</td>
<td>Sofia, Bulgaria</td>
<td>12:15 - 12:30</td>
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<tr>
<td>IceCube CVMFS Software and Spack</td>
<td>David Schultz</td>
<td>Sofia, Bulgaria</td>
<td>12:30 - 12:45</td>
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<td>dCache as open-source project showcase for education</td>
<td>Mr Tigran Mkrtchyan</td>
<td>Sofia, Bulgaria</td>
<td>12:45 - 13:00</td>
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Today’s Meeting

1. Introduction
2. Test drive round table

- As ever, further contributions and updates are very welcome - just ask Ben and me for a slot
- In two weeks time there is the CERN SFT LIM workshop, so we’ll skip that meeting
  - Meet again on 13 June