

## **Pod D**

### **Afternoon Session**

#### Names

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**1) How could we proceed put together a document in the next 6 months summarizing HEP computing challenges in a language that CS people understand and map it to established discipline areas in CS? (useful for developing future synergistic and collaborative projects/relationships with CS faculty?)**

There is a CS language. There has to be a person from each domain working on the plan / document together. Paolo says the CS person has to write it. But then the CS person might not understand the domain problem. Can the HEP reader of the CS written white paper understand it? There is a problem if you have one computer scientist you need different perspectives of different types.

Would like to start from a list of problems together with their priorities. This would help create a mapping between the problem and the domain of CS that is most relevant.

The DevOps community may be more relevant for some problems which are not research topics of interest for CS.

Adding a link to a software engineering workshop for sciences

<http://se4science.org/workshops/se4science17/>

**2) What are the incentives for such collaboration for HEP people? For CS people? For non-CS people? E.g. recognition, funding, publications, students, new problems to solve, new places to apply technologies, new solutions to current problems, pride in working**

**on a global-scale problem. How could an S2I2-HEP institute create the relevant incentives and promote HEP/CS research collaborations?**

HEP can offer an interesting test-bed - for example, in storage systems of 150PB and 2 orders of magnitude increase planned. Could take a fraction of this and do something experimental for CS. Instead of having to be in Google.

A huge benefit is to have connections to institutions that recruit members of one community to work with the other. Small cross disciplinary collaborations can train students that become more of an expert in solving a unique problem that they become more expert in then the original advisors. That student has to do well in both disciplines.

There are some CS people that like contributing to big “cool” science. CS people were not aware that you can be a highly functional experimental HEP practitioner that writes code all day long.

**3) What can an S2I2-HEP institute do to create an environment of increased communication and awareness by individual HEP and CS researchers of each other's problems, expertise and research interests?**

Short term fellowships are an obvious suggestion. One year long sabbaticals for CS profs.  
Curating an overlay journal.

Foster careers for people who do computational (software) science

Edit/continue the Big Data Science Springer journal (HSF)

Increase visibility of “CHEP” - Computing in High Energy Physics conference  
(counter-productive?)

Workshops

Match making institutions like openlab do really work.

In exploring working with open source software project you join a group that the students can grow into and even become leaders of. Then they are employable by the company that sponsors that open source software.

Would the institute fund the project? No it would fund the student.

Is the embedded engineer the right model? This has been successful in the past.

**4) Will HEP have anything interesting to offer in 5-10 years for CS researchers?**

The needs of HEP are different than the needs of industry, and that will be interesting. Namespaces are an example of something HEP knew that it needed a while ago and now industry is realizing it needs them too.

The cloud computing will start to move to addressing HPC problems.

The answer is yes, just the scale is interesting. HEP will probably be in the forefront of using new devices

Will HEP students 5-10 years from now still be coding all of the time?

Some believe we will not, some only in reconstruction, not analysis. Some think this is crazy.

The multi-exabyte data stores will require innovation in storage systems, and potentially in the way we organize our hierarchical data store.

How do we find the interesting work of others that might be interesting to us?

**S2I2-HEP Scope**

**5) The S2I2-HEP will not be trying to solve all problems for HL-LHC or HEP for that matter. Rather, it will be laying out a set of software activities for US Institutions for which the US can play a leading role. What are the areas that the S2I2-HEP should play a leading role in, informed by activities and interests within the US HEP and US CS communities?**

Doesn't the US have leadership in all of HEP computing?

DevOps community has good experience that can give us flexibility.