

Community White Paper Editorial Board Meeting

Introduction

2017-11-21

Second Draft Status

- The second CWP draft was released on Friday 17, 9 pm CET
- Probably already a few tens of readers, based on the people seen connected to the doc
 - Most comments so far are related to typos, a few minor ones on the content: hopefully we converged on something pretty final
 - Typo fixes are accepted immediately on the Google Docs but not on the PDF
- Email to join the ghost writers: hsf-cwp-ghost-writers@googlegroups.com

Second Draft Advertisement

- Announcement sent to HSF Forum (318), CWP (255) and HEP SW&C (350) lists
 - A significant overlap
 - Also sent to GDB, HEPiX and some national or experiment lists (CMS, Belle II, etc.)
- **We count on EB to help disseminate the announcement everywhere in HEP**
- Announcement tracked into a Google Doc: please update it
 - <https://docs.google.com/document/d/16P2WHJ7WMstzOdi7jSu7tPXJEuY7mD5HecmnfVhly4w/edit#>
 - Should be writable by EB but may require adding your Google ID to EB list (done when we see an access request to the document, send an email to Ghost Writers otherwise)
- Presentation yesterday at LHCb Computing Workshop by A. Valassi
 - Went well, a few questions in particular regarding link to S2I2 and what's next

Signatories

- Number of signatories increasing steadily
 - 65 people have now signed up: +9 after draft 2 announcement, in particular WG conveners
 - Still very much LHC-centric, see ...
- We should now have a second push, based on the Draft 2
 - **Another important role for the EB, connected to most HEP experiments**

https://docs.google.com/document/d/1tBXwlNnQsxxZA3gVS1_KSpa8wRXGyk250ElJwJ2T34/edit#heading=h.xct4uxhh0gia

Cross-references of CWP (WP) papers

- Probably best to have cross-refs among the various papers
 - Go with the simplest approach possible, yet one that is flexible and “freezes” refs from the onset
- For a start, attribute each paper a report number of type HSF-CWP-2017-XX
 - Extra benefit: makes it clear that all CWP papers are a community endeavour coord’ted via HSF
 - HSF-CWP-2017-01 for CWP
 - HSF-CWP-2017-02 to HSF-CWP-2017-14 for the 13 WG papers
 - This can be done *now*, whatever the status/timescale of each paper is
- Such a report number serves as a unique ID in arXiv and basically anywhere, just as for experimental TRDs, exp. notes, etc.
- In the “worst-case scenario”, the non-finalised papers will be cross-ref’ced as A. Me and N. Other et al. HSF-CWP-2017-XX, in preparation, when the CWP goes to arXiv
- Once everything is ready the final versions get uploaded to arXiv as updates, with final citations (the journal refs prevent any loss of cross-links)

Towards the CWP Roadmap Final Version

- **We definitely want to hold to our timeline, finalise* by 15 December**
 - Most of the content is already polished and we don't expect comments requiring major changes
- TODO list for final draft started (Google Doc!)
 - <https://docs.google.com/document/d/1etopM5P8frhumnbzeiTncAR2GgqnSHzliUAcJB2ipl4/edit>
 - EB has the right to comment
- Our intention remains to move to LaTeX for the final version
 - Handling efficiently comments and suggestions is the challenging part of the work: Google Docs is really unbeatable for this.
 - Goal: finalize the content as much as possible with Google Docs
 - A conversion attempt made by Graeme on Monday: looks very promising and rather easy... May allow to postpone the move to LaTeX until one week before the final release date
- May be able to keep the comments open for one more week, when starting to work on the final draft

Part 2: Impact Assessment

Open Point : Impact of Roadmap Items

- Mike Sokoloff did send some suggestions about a way to prioritize work items in the CWP via impact statements
 - In essence, this is to generalise what has been done for the S2I2 proposal
 - <http://s2i2-hep.org/downloads/20171108-s2i2-hep-strategic-plan.pdf>
 - Each of the work areas has ~0.5 page statement on how they match the impact criteria for S2I2
 - N.B.: for the CWP we would only consider the Physics, Resources and Sustainability criteria
 - Note that each section gets its own impact statement, there is no direct comparison between sections or discussion of individual pieces of the work plan
 - With the preparations for Draft 2 being so intense we did not have time to consider this properly before we released that Draft
 - It would be a *late* and *significant* addition to the document to do this now

Example Proposal - Reconstruction and Trigger

1152 7.3.4 Impact and Relevance for S^2I^2

1153 Reconstruction algorithms are projected to be the biggest CPU consumer at HL-LHC. Code mod-
1154 ernization or new approaches are needed given large increases in pileup (4x) and trigger output rate
1155 (5-10x) and drive the estimates of resource needs the HL-LHC beyond what would be achievable
1156 with a flat budget. Trigger/Reco algorithm enhancements (and new approaches) enable extended
1157 physics reach even in more challenging detection environments (e.g., pileup). Moreover, Trig-
1158 ger/Reco algorithm development is needed to take full advantage of enhanced detector capabilities
1159 (e.g., timing detectors, high-granularity calorimeters). ‘Real time analysis’ ideas hope to effectively
1160 increase achievable trigger rates (for fixed budget) through making reduced size, analysis-ready
1161 output from online trigger(-less) system.

1162 **Physics Impact:** Pileup mitigation will be the fundamental technical issue of HL-LHC physics,
1163 and improvements to the reconstruction algorithms designed for modern architectures will be im-
1164 portant for realizing the physics potential of the detectors.

1165 **Resources Impact:** There are significant computing resources at HPC centers that could be made
1166 available to HL-LHC experiments at little cost, but many optimizations of existing code will be
1167 required to fully take advantage of them.

1168 **Sustainability Impact:** University groups are already making progress in the use of chipsets such
1169 as GPUs for specific HEP applications, such as track pattern recognition and fitting. New detector
1170 elements that are expected for HL-LHC upgrade could especially benefit from pattern recognition
1171 on new architectures, and groups that are building these detectors will likely get involved.

N.B. US centric -
very contentious
point in UK, FR



Another Example

Software Development

Sustainability Impact: Adopting standard tools for HEP software development allows developers to benefit from advances outside our field and to more easily transfer between experiments, making development more efficient. Industry standards in design, testing, documentation and code review help ensure high quality software that can be maintained over the lifetime of the experiments.

- This was pretty quick and easy to add

Impact: Pros and Cons (at least the Ghost Writers' view)

- Pros
 - Draws the attention of the reader to some key points
 - Could help with funding proposals drawing support from the CWP
- Cons
 - Adds little over what is in the document already, where the challenges and roadmap are generally quite clear
 - Conclusions section matches our three criteria to important areas of work
 - We have little time and convergence could take a long time and be quite controversial
 - Jeopardises both timeline and consensus
 - Impact statements work better for specific funding proposals (hence, good for S2I2)
 - Would lengthen the document by another ~6-7 pages (it's already long)

From our CWP readers so far there is no sense that this is something important that's missing from the Roadmap.

Backup

Impact Statements: How we could proceed without destroying the timeline or exhausting the community...

- Having another full round of comments on the draft is not acceptable
 - It's a great deal of work and 3 rounds is just too much, interest will flag
- We could manage this as a v2.1 of the draft instead
 - The inclusion of the impact statements would be the *sole additions* to the current draft
 - So they could be easily read post-facto by someone who has already read the v2.0 draft
 - We might consider extending the comment period by some margin (<= 1 week)
- However, we would need to write these impact statements **very quickly** to avoid drawing out the process too much
 - The *end of this week* would still allow us to conclude this year, but...
 - Hampered by US Thanksgiving holiday
 - Waning interest from the WG convenors
 - It would probably have to fall to the Ghost Writers to draft these statements in the next few days
 - Once in the document they are part of the comment process, from the WGs as well