

C++ as a service — rapid software development and
dynamic interoperability with Python and beyond

Interactive C++: cling and clang-repl

Vassil Vassilev

22.10.2020

Status of Cling development

- ❖ Currently Cling is being upgraded to LLVM9
 - ❖ Almost complete -- we have 3 failing tests
 - ❖ The relevant branches cling, clang, llvm
 - ❖ Integration in ROOT — ~12 failing tests (likely correlated)
 - ❖ ROOT pull request - PR6385
- ❖ Work on GitHub CI Actions [Pratyush Das]
 - ❖ The idea is to move the travis and appveyor builds to the more robust GitHub actions system

Status

- ❖ Presented two related posters for the [LLVM Dev Meeting in October](#)
 - ❖ Posters well received. Good amount of feedback. Each has a 5 min video.
 - ❖ They will be public soon.
- ❖ Prepared a cling blog post for llvm.org (suggested by Chris Lattner)
 - ❖ The link to the draft can be found [here](#). Suggestions are welcome!

Tentative Plans Until End of The Year

- ❖ Deploy project website.
- ❖ Develop initial version of Clang-Repl
- ❖ Propose a patch against clang for libIncremental (aka clang IncrementalAction)
- ❖ Draft a technical specification of the language interoperability layer. It will focus towards python (and possibly one more language)

CaaS Open Projects

- ❖ Patches against clang.git
 - ❖ [Implement FileManager uncaching](#)
 - ❖ [Adapt the user of invalidateCache to its new signature](#)
 - ❖ [Mark the file entry invalid, until reread](#)
 - ❖ [Propagate cache flags from LookupFile\(\) to FileManager::getFile\(\)](#)
 - ❖ [Pass the OpenFile flag also to DirectoryLookup](#)
 - ❖ [Do not load the source file just to get an irrelevant SourceLoc \(ROOT-7111\)](#)
 - ❖ [Allow interfaces to operate on in-memory buffers with no source location info](#) [Pratyush Das]
- ❖ Infrastructure
 - ❖ GitHub PR Code Coverage — see [this example](#).
 - ❖ Automatically upload nightlies to a special release tag — see [this example](#).
- ❖ Packaging
 - ❖ Improve cpt -- fix deb package creation; use python instead of calls to mv, wget, etc.

Proposed Next Meetings

- ❖ Week of 30th of November — please fill in the doodle poll
- ❖ Week of 11th of Jan

If you want to share your knowledge/experience with interactive C++ we can include presentations at an upcoming next meeting

Thank you!