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

Interactive C++: cling and clang-repl

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Status

- Ioana Ifrim started with us in mid-Feb
- A direct target is to get cling, clad and CUDA work well together
Status

- Progress on llvm patches:
  - Working on https://reviews.llvm.org/D91524
- LLVM9 landed in ROOT
  - We spent a week to stabilize and perhaps one more is needed
  - Will release cling with llvm9 soon after
- Started looking into building the cling plugins by default
  - That would help us expose clad to xeus-cling
Status

- Proposed a very limited version of clang-repl following the design of cling: [D96033]. Comments being addressed — looks like we are converging.
- Slowly advancing in executing C++ function using the CUDA backend in cling
- Preparing for the Google Summer of Code 2021
  - Very good early activity by students but also can be a time consuming task
- Early stage technical specification of the language interoperability layer — here.
  - We have not yet made a second revision based on this discussion. Meanwhile, additional comments are welcome.
Next Month Plans

- Prepare a third blog post
- Second revision of the interoperability spec
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]

- Open projects are tracked in out open projects page.
Next Meetings

- Monthly Meeting — 25th Mar, 1700 CET/0800 PST

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