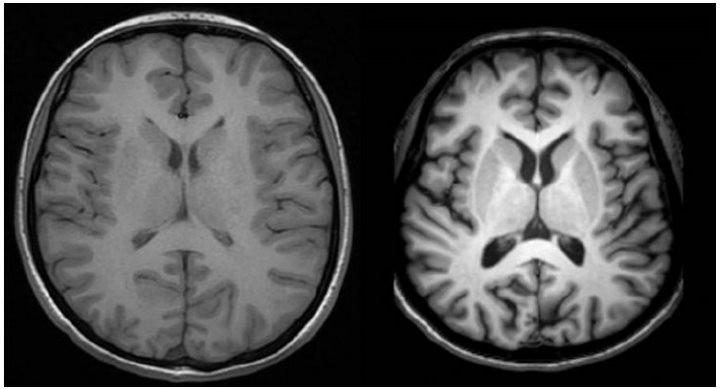
Medical Compute using ChRIS on the MOC PowerPC & x86_64 GPU Usage & Benchmarking

Elizabeth Slade | Shineun Yoon | Bowen Jia | Haoyang Wang | Kefan Zhang

Why ChRIS?

- As technology advances, medical analytics is lagging behind
- MRI (Magnetic Resonance Imaging) machine images
  - Low resolution
- ChRIS is an open source platform for medical analysis
- ChRIS democratizes medical analytics app development
  - For developers and researchers to build medical applications and deploy on cloud



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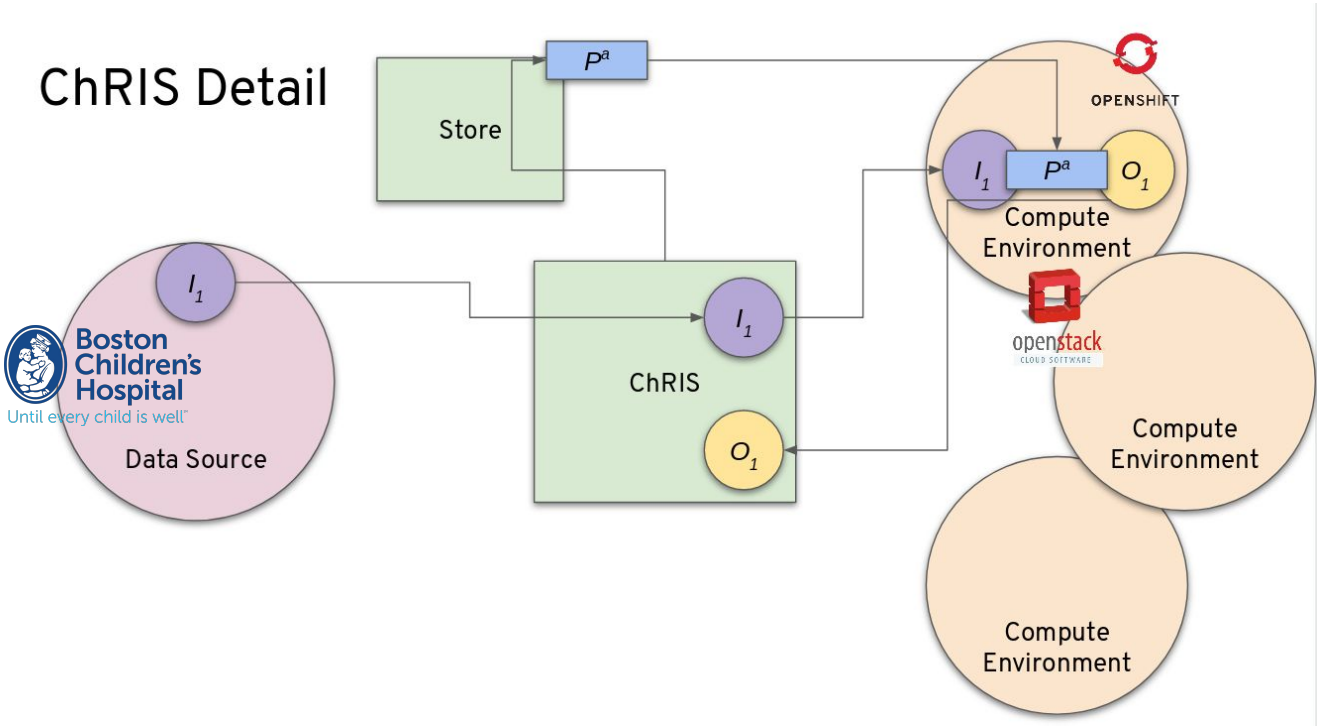
ChRIS Platform?



https://github.com/FNNDSC/CHRIS_docs

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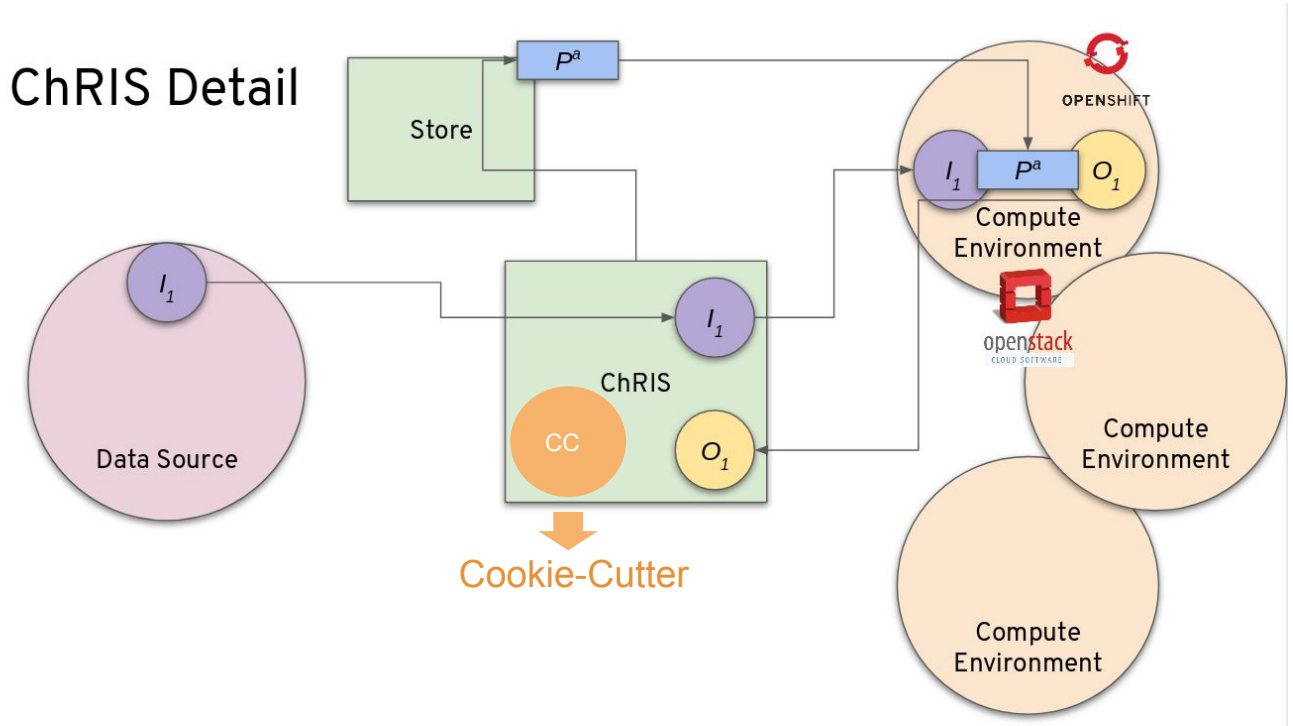

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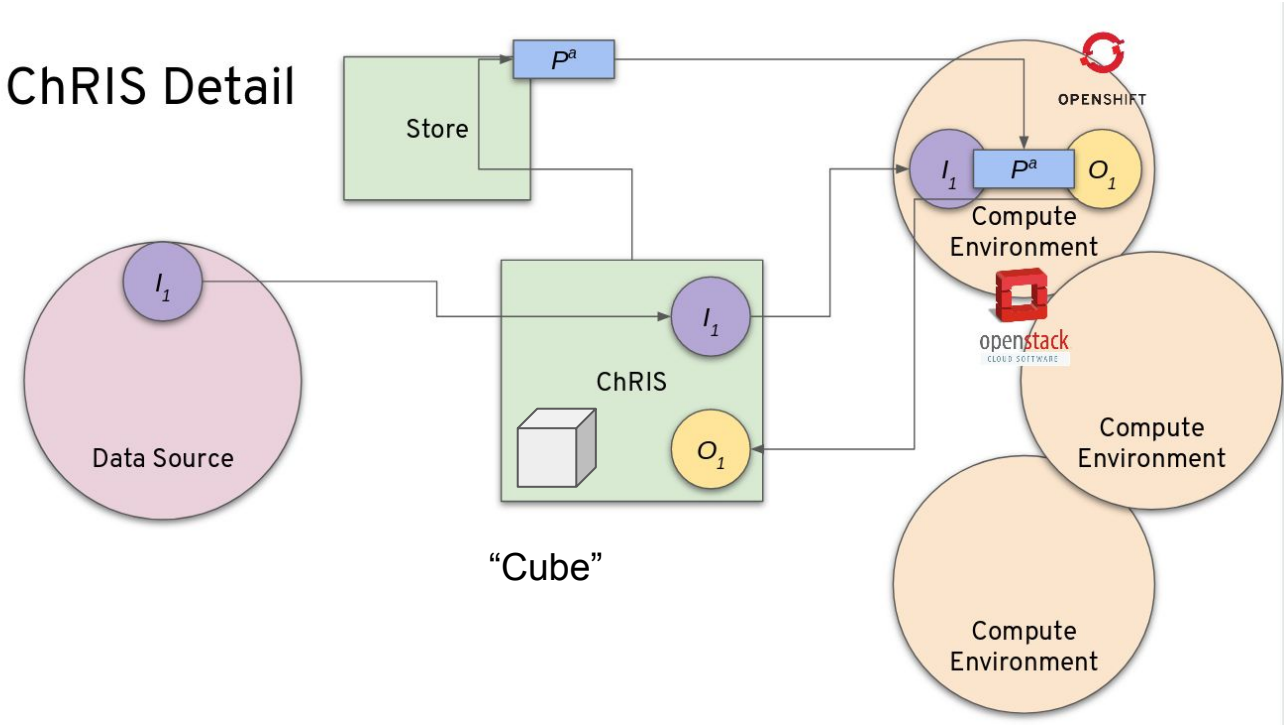

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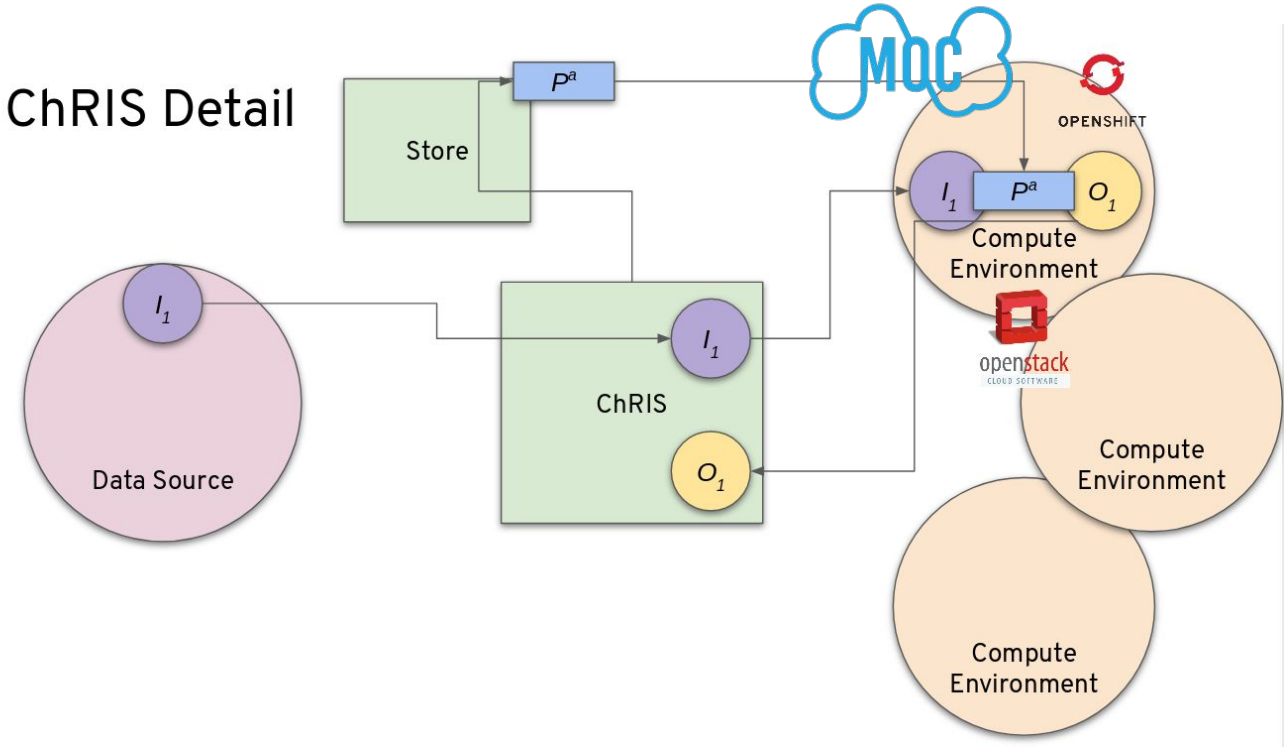

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Our Project

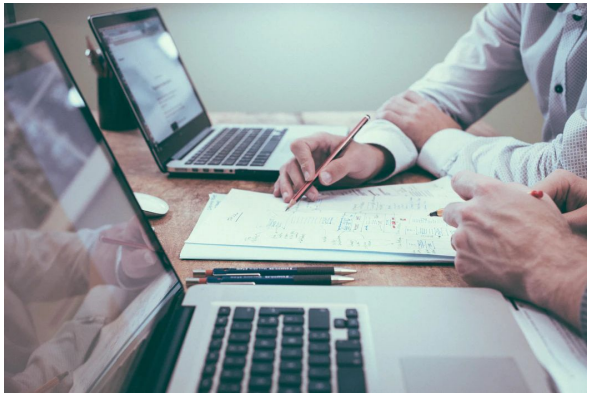
- Develop a plugin for the ChRIS platform
  - So developers and administrators are able to do benchmarking on different architectures like x86 and PowerPC.
- Our benchmarking plug-in will be the first ChRIS plugin that can test performance of the ChRIS platform.

User Stories

As a ChRIS developer / administrator, I would like to have a way to test how my plugin performs on different architectures such as x86_64 vs PowerPC therefore I want a ChRIS plugin that performs benchmarking tests on these architectures.

Scope & Features

1. provide a series of tools to test the performance of the system
2. represent real workloads that may be deployed on the system
3. test functions will run fast and estimate the time that may be spent on running real computing tasks



Demo: Matrix Multiplication

Acceptance Criteria

“Correctly develop a runnable **ChRIS plugin** that presents the performance differences between **different platform architectures such as x86 vs PowerPC**”

Release Planning

Sprint 2: February 26, 2020

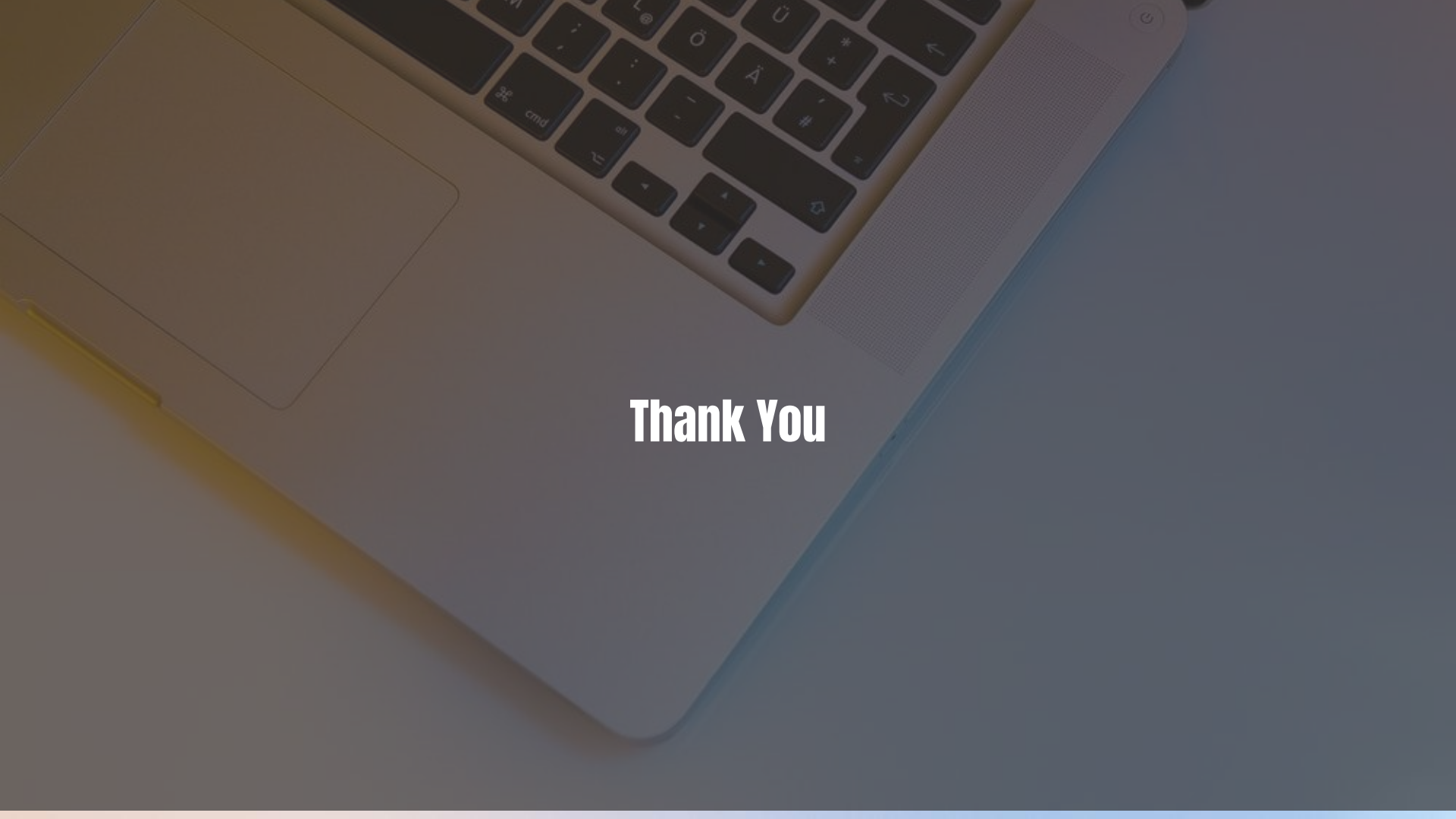
- Research on a more complex benchmarking program, e.g. 'Real-Time Object Detection on GPU'.
- Be able to run operations on the MOC computers
- Be able to run plugins from the local ChRIS instance

Sprint 3: March 7, 2020

- Be able to run a pre-existent plugin via ChRIS on the MOC GPUs.
- Develop benchmarking metrics to analyze plugin processes.

Sprint 4: March 20, 2020

- Integrate our plugin into the ChRIS platform.
- Get more granular with benchmarking metrics


Thank You