

OpenFIDO

TAC Meeting #6 (April 2021)

EPC 17-043
GLOW

EPC 17-046
HiPAS

EPC 17-047
OpenFIDO

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Project Team

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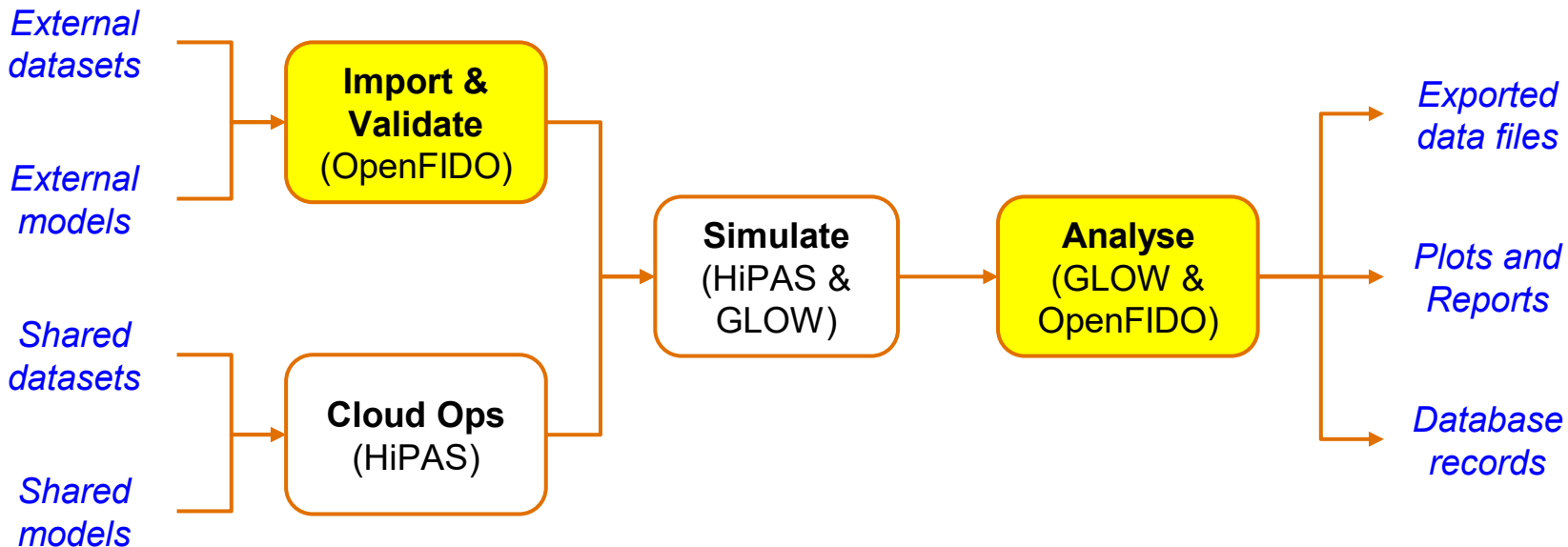
Presence

- Natalie Hansen
- Jason Monberg
- Nick Polkowski
- Kevin Rohling
- Dane Summers
- Peuan Thinsan

Gridworks

- Rehana Aziz
- Deborah Shields
- Hector Tevara
- Matthew Tisdale

Project Focus Area



Provide framework for three utility data/model management use-cases

1. Data/model acquisition - collect from various tools and databases

Include support for GridLAB-D, CYME, OMF, OpenDSS

1. Data/model curation - clean and collate, plot and report

Include plot-viewer and HiPAS-developed post-processing tools

1. Data/model delivery - send back to various tools and databases

All GridLAB-D export converters from HiPAS and NRECA are included

Method: fundamental processing element

- OpenFIDO supported (e.g., numpy, pandas, etc.)
- Custom developed/third-party

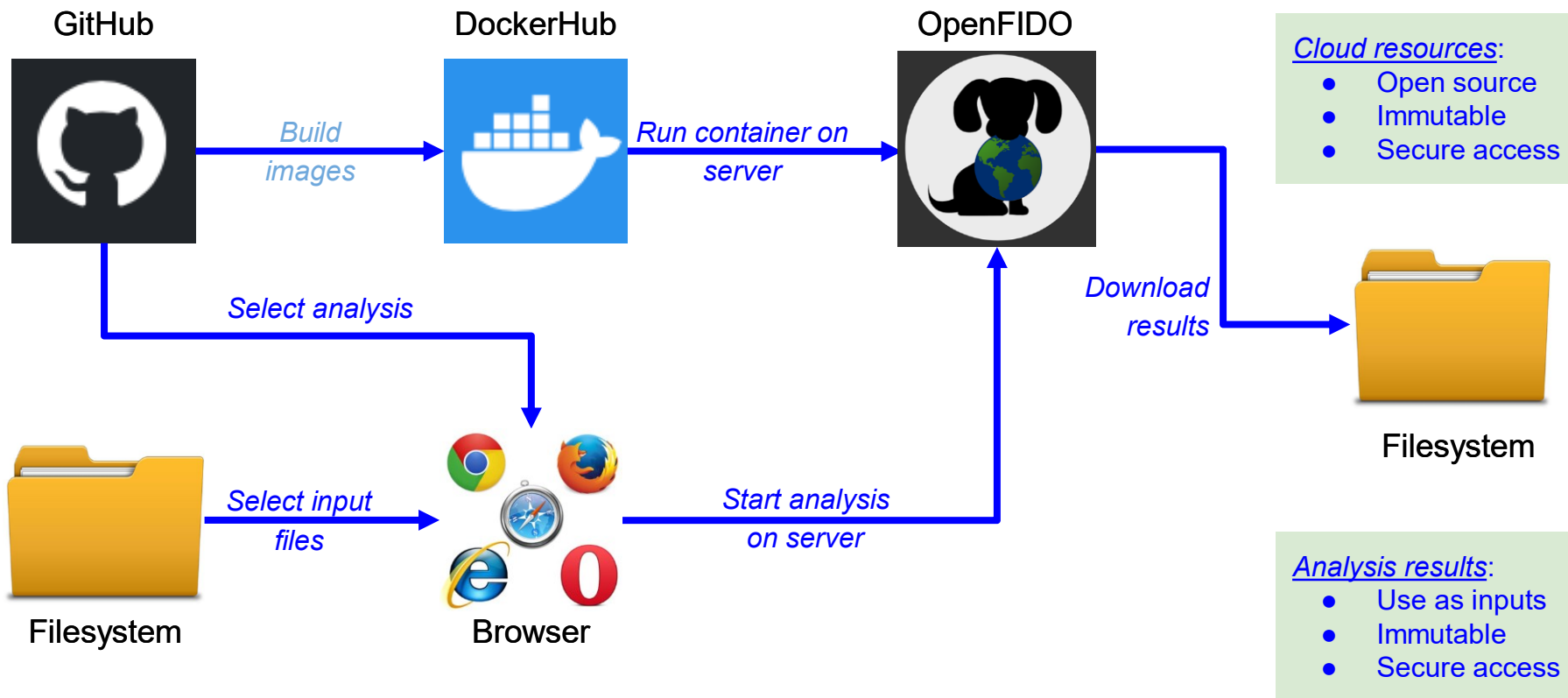
Pipeline: sequence of methods (strictly serial)

- GitHub library (e.g., OpenFIDO, third-party, or private)

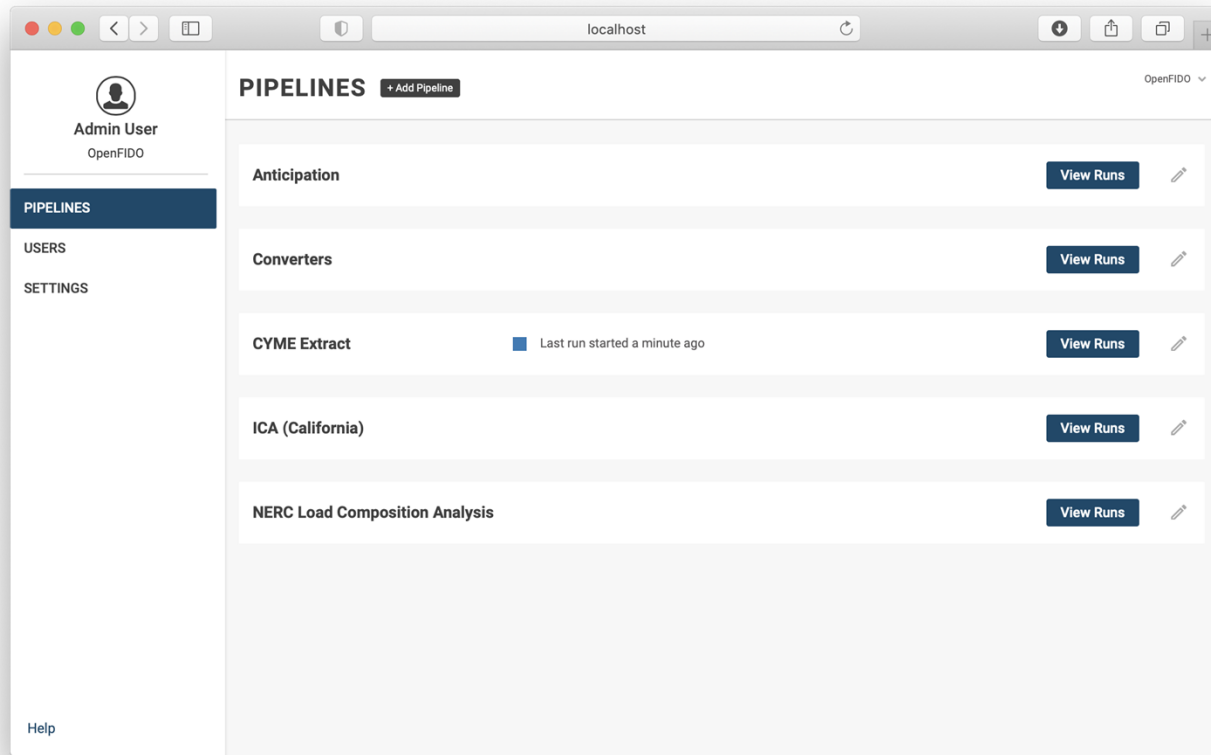
Workflow: sequence of pipelines (may be parallel)

- Custom defined only (e.g., OpenFIDO API)
- Still in development

OpenFIDO Concept of Operations



OpenFIDO: Main Page



The screenshot shows a web browser window at localhost displaying the OpenFIDO main page. The page has a sidebar on the left with navigation links: **Admin User** (OpenFIDO), **PIPELINES** (selected), **USERS**, and **SETTINGS**. The main content area is titled **PIPELINES** and includes an **+ Add Pipeline** button. It lists five pipeline entries, each with a **View Runs** button and an edit icon:

- Anticipation**
- Converters**
- CYME Extract** (Last run started a minute ago)
- ICA (California)**
- NERC Load Composition Analysis**

A **Help** link is located at the bottom left of the sidebar.

OpenFIDO: Pipelines

The screenshot shows a web browser window at localhost displaying the OpenFIDO Pipelines management interface. The interface is divided into a left sidebar and a main content area. The sidebar contains a user profile for 'Admin User' and navigation links for 'PIPELINES', 'USERS', and 'SETTINGS'. The main content area is titled 'PIPELINES' and shows an 'Edit Pipeline' form for a pipeline named 'CYME Extract'. The form includes fields for Pipeline Name, Description, DockerHub Repository (ubuntu:20.04), Git Clone URL (https://github.com/openfido/cyme-extract.git), Repository Branch (master), and Entrypoint Script (.sh) (openfido.sh). At the bottom of the form are 'Update Pipeline' and 'Cancel' buttons, and a 'Help' link is located in the bottom left corner of the main content area.

Admin User
OpenFIDO

PIPELINES

USERS

SETTINGS

PIPELINES OpenFIDO ▾

Edit Pipeline Delete Pipeline 🗑️

Pipeline Name
CYME Extract

Description

DockerHub Repository
ubuntu:20.04

Git Clone URL (https)
https://github.com/openfido/cyme-extract.git

Repository Branch
master

Entrypoint Script (.sh)
openfido.sh

Help Update Pipeline Cancel

OpenFIDO: Running a pipeline

The screenshot shows the OpenFIDO web interface. The browser address bar shows 'localhost'. The page title is 'PIPELINE RUNS: CYME EXTRACT'. On the left, there is a sidebar with a user profile for 'Admin User' and a navigation menu with 'PIPELINES', 'USERS', and 'SETTINGS'. The main content area shows a list of pipeline runs. The first run, 'Run #1', is highlighted in green and marked as 'Succeeded'. It started on 3/26/21 at 9:00:16am and completed at 9:01:47am, with a duration of 2 minutes. Below the run details, there are two columns: 'Input Files' and 'Artifacts', each with a list of files and their sizes. The 'Input Files' list includes settings.csv, config.csv, config.glm, modify.csv, and IEEE13.mdb. The 'Artifacts' list includes Download_all.zip, network_graph.png, IEEE13_650.glm, version.csv, config.csv, modify.csv, IEEE13.zip, and confia.dlm.

Admin User
OpenFIDO

PIPELINES
USERS
SETTINGS

Help

PIPELINE RUNS: CYME EXTRACT

OpenFIDO

All Runs: + Start a run

Run #1
Started At: 3/26/21
Duration: 2 minutes

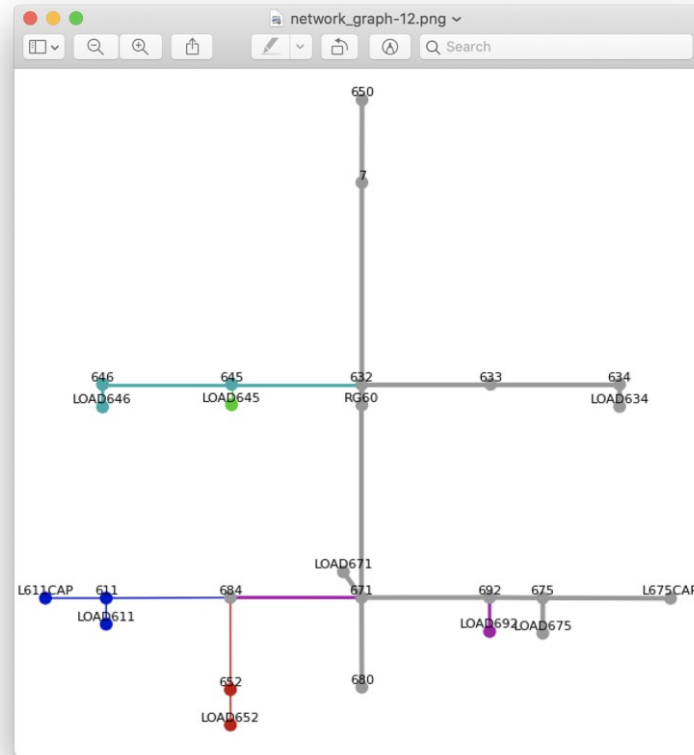
Succeeded

Run #1
Started At: 3/26/21 9:00:16am
Completed At: 3/26/21 9:01:47am
Duration: 2 minutes

Overview | Data Visualization | Console Output

Input Files	Size	Artifacts	Size
settings.csv		_Download_all.zip	
config.csv		network_graph.png	
config.glm		IEEE13_650.glm	
modify.csv		version.csv	
IEEE13.mdb		config.csv	
		modify.csv	
		IEEE13.zip	
		confia.dlm	

OpenFIDO: Viewing results



OpenFIDO Coding and Validation Status

Methods

- Python "numpy" (unlabeled data) CLI methods validation in progress
- Python "pandas" (labeled data) CLI in development
- CIM method implementation on hold pending resolution of issues
- CYME method coded for CYME 5, coding in progress for CYME 8 and 9

Pipelines

- GRIP validation by DOE GRIP project with SCE
- Converters and ICA validation by HiPAS project with Hitachi
- Composite load model validation by DOE ALM project BPA & NERC

Note: Workflows on hold for next version of OpenFIDO

- **Pipeline provenance determines how validation is done, i.e.,**
 - Already validated (external source)
 - Needs validation (developed by OpenFIDO)
 - Validated in HiPAS (developed by HiPAS)

OpenFIDO Final Activities

Final Deliverables:

- Commercialization plan/delivery platform in progress
- GitHub, AWS, and Docker infrastructure transfer to commercial partner
- Online documentation, training, support, and developer matter
- Final report publication (draft submitted 3/31/2021)

1. **General feedback and questions?**
2. **Testing data and models?**
3. **Testing staff and projects?**
4. **New or emerging use-cases?**

Thank You

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