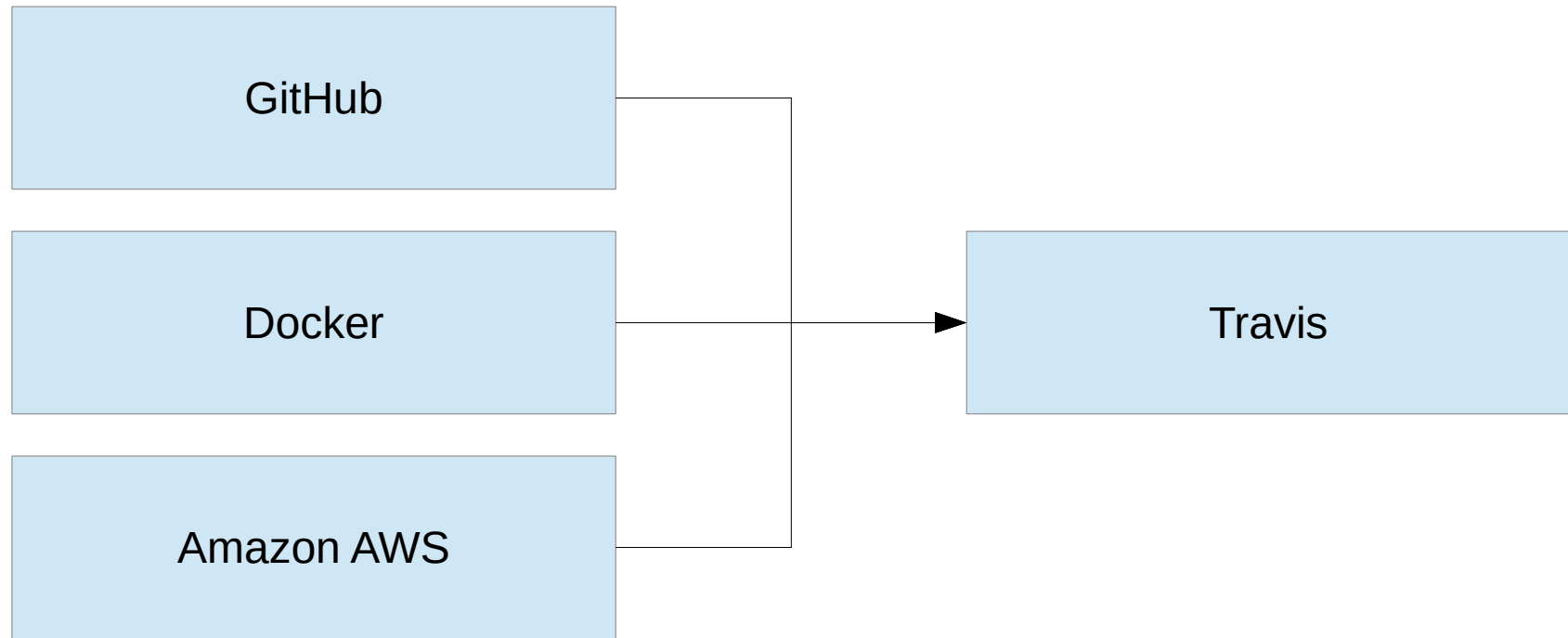


# Automated pytest with Travis

# Brief overview



# Brief overview

- When a pull request happens travis detects this and starts a new test run
- The repository is cloned, and the travis.yaml script is run
- A docker image and any additional data are downloaded

# Set up

- There must be pytest tests!
- Travis.yml must be present in root of github repository
- Travis must be configured to listen for pull requests from the repository, and have a master build triggered manually (See Sung)
- Travis clones the repository being tested into
  - /home/travis/build/ucgmsim/

# Travis.yml

- Must contain:

```
language: python
python:
  - "3.6"
services:
  - docker
```

- Sections:
  - before\_install
  - Install
  - script

# before\_install/install

- No real difference between them
- Used for setting up the environment
- Currently before\_install is used for downloading data/dependancies/docker images, while install is used to extract or install them
- Use indented '-' at the start of each line, followed by bash commands

# Example before\_install/install

- before\_install:
  - - docker pull sungeunbae/qcore-ubuntu-minimal
  - - cd /home/travis/build/ucgmsim/
  - - git clone https://github.com/ucgmsim/qcore.git
  - - mkdir /home/travis/build/ucgmsim/IM\_calculation/sample0
  - - cd /home/travis/build/ucgmsim/IM\_calculation/sample0
  - - wget "http://ec2-54-206-55-199.ap-southeast-2.compute.amazonaws.com/static/public/testing/PangopangoF29\_HYP01-10\_S1244.zip"
- install:
  - - unzip PangopangoF29\_HYP01-10\_S1244.zip
  - - cd /home/travis/build/ucgmsim/IM\_calculation
  - - pip install -r requirements.txt

# script

- Where the testing actually happens!
- If any command here gives a non zero exit code the tests are considered to have failed.
- If testing for black use:
  - `Pytest --black --ignore=testing`
- Call the docker image here.
- “->” means you can make a multi line command that will be executed



# Example script section

script:

- >

```
docker run -it
-v $BUILDDIR/ucgmsim:/home/root/git
-v $BUILDDIR/bins:/home/root/bins
-v $BUILDDIR/usr_lib/python3.6:/usr/local/lib/python3.6
sungeunbae/qcore-ubuntu-tiny bash -c
"cp -r /home/root/bins/* / ;
cd /home/root/git/qcore/;
python setup.py install;
cd /home/root/git/slurm_gm_workflow;
export PYTHONPATH=$PYTHONPATH:/home/root/git/slurm_gm_workflow;
pytest -vs --ignore testing/test_manual_install;"
```

# Docker overview

- Docker provides containers in which an operating system runs, but more lightweight than a virtual machine
- We use docker as some of our repositories require binaries which must be compiled for the system they will be used with and we have no control over the system Travis provides
- Tiny – Too small to run on its own, must have libs provided
- Minimal – Smallest Ubuntu build possible
- Dev – Contains everything needed to build binaries etc.

# Data storage

- Amazon AWS cloud storage
- Contains pickled test data, python libraries, related binaries
- Test data must be updated every time a tested function has a signature change
- Python libraries and binaries must be provided for all repositories that need them

# Python libraries and binaries

- Python libraries are mounted over the directory in minimal, replacing them
- Binaries are copied from the directory to root, adding to what is already present in minimal
- Allows for smaller docker image and additional data size, meaning that testing will run faster for repositories with fewer dependancies