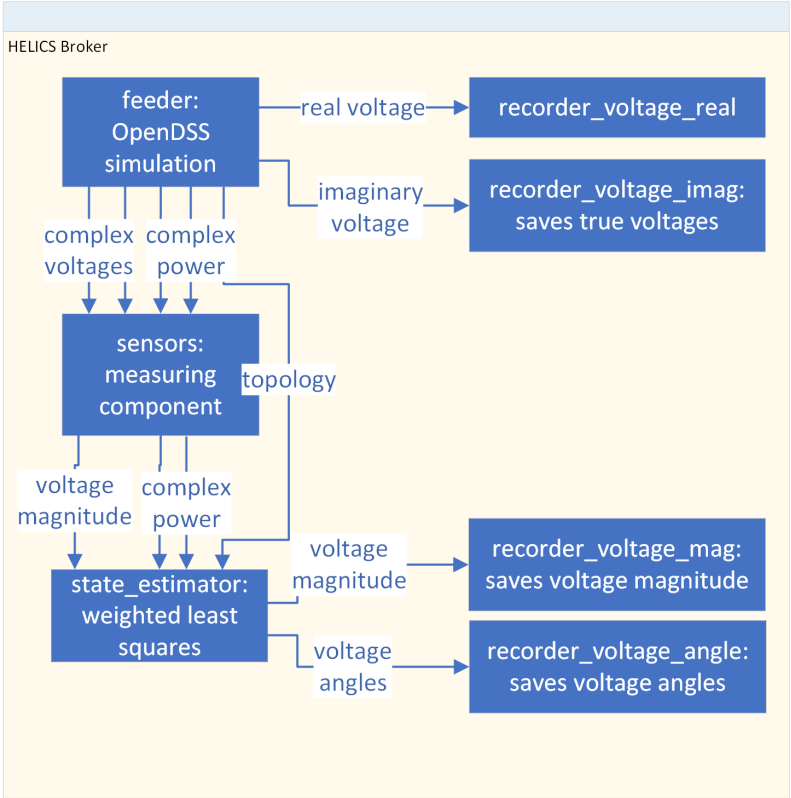
Funded by:
SOLAR ENERGY TECHNOLOGIES OFFICE
U.S. Department Of Energy

DSSE Example

Components

- OpenDSS feeder simulation
- Basic measurement federate
- Recording federates
- Distribution system state estimator
- Plotting script to visualize the results



Funded by:
SOLAR ENERGY TECHNOLOGIES OFFICE
U.S. Department Of Energy

Setting Up Docker Environment

- Docker container
  - Standard unit of software that packages up code and all its dependencies
  - Replicate results of a workflow on different systems without having to load all the different dependencies that each component may require

Install Docker on Ubuntu

To install docker on a linux environment, firstly update the linux package manager and install dependencies to allow the package manager to install them over https:

```
$ sudo apt-get update
$ sudo apt-get install ca-certificates curl gnupg lsb-release
```

Then add docker's GPG keys and set up the repository with the commands:

```
$ sudo mkdir -p /etc/apt/keyrings
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
$ sudo mkdir -p /etc/apt/keyrings
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
```

Finally update the package index and install the latest version of docker:

```
$ sudo apt-get update
$ sudo apt-get install docker-ce docker-ce-cli containerd.io docker-compose-plugin
```

Install Docker Desktop on Windows

- Download the installation .exe https://docs.docker.com/desktop/install/windows-install/
- Run the installer
- Follow the instructions on the installation wizard
- Detailed instructions in the User Guide

Funded by:
SOLAR ENERGY TECHNOLOGIES OFFICE
U.S. Department Of Energy

Running DSSE Docker Container(s)

Using NREL's DSSE container as an example

- Load Docker Image

```
$ docker load < example.tar.gz
```

- Connect Volume
  - Linux

```
$ mkdir outputs_build

$ docker volume create --name gadal_output --opt type=none --opt
device=/path/to/folder/outputs_build --opt o=bind
```

  - Windows

```
$ docker volume create --name gadal_output --opt type=none --opt
device=/c/path/to/folder/outputs_build --opt o=bind
```

- Run the Container

```
$ docker run --rm --mount source=gadal_output,target=/simulation/outputs gadal-
example:0.0.0
```

Please refer to the README in each container for detailed instructions