COMPUTING FOR USERS

Heidi Schellman, Oregon State University

2/21/19

It's time to leave the nest

- Everyone is now analyzing data.

- FNAL has dunegpvm01-10 each with 4 cores and 10GB of memory.

- + both local and worldwide grid access

- CERN has a horde of lxplus machines

  + access to many tier-0 grid slots

Recently many people have piled on to single machines, fired up N larsoft processes and brought down both their own work and everyone elses.

Use batch or your own machine if you are going to do more than a couple big jobs interactively

2/21/19

Oregon State University

DUNE

TUTORIAL

- https://wiki.dunescience.org/wiki/DUNE_Computing/Getting_Started_Tutorial

- (need to use the docdb user/password or FNAL account to access).

- We ran this tutorial at CERN in January and people on lxplus were able to participate.

- We are actively working to have documentation work

2/21/19

Oregon State University

CODE

Our code resides in cvmfs.

Once you have cvmfs installed on your machine you can do this once/session:

setup the dunetpc environment source

source /cvmfs/dune.opensciencegrid.org/products/dune/setup_dune.sh

#wait a bit as it takes a while to populate and then

setup -B dunetpc v08_07_00 -q e17:prof

Oregon State University

Getting cvmfs

- https://wiki.dunescience.org/wiki/DUNE_Computing/Access_files_in_CVMFS#Installing_CVMFS_on_your_computer.28s.29 describes how to install cvmfs on a linux machine.

- I've done it!

- (I needed to also install oasis.opensciencegrid.org to get some grid tools that were not part of my SLF6 install.)

- Once you have cvmfs installed, you can run DUNE code.

Oregon State University

Accessing data

You don't need to have data locally.

You don't even need to copy it locally.

You just need to get an appropriate grid proxy and know your filename and then do

```
samweb get-file-access-url <filename> --
schema=root
```

It will show you where that file is.

You can then choose a location and just run larsoft with that location

```
lar -c FCL.fcl -n 10 <file-location>
```

See the tutorial for appropriate voms voodoo instructions. You probably need either a Fermilab or CERN grid certificate.

2/21/19

Oregon State University

DUNE

Sample setup at FNAL

```
# get proxies and roleskx509
export EXPERIMENT=dune
export ROLE=Analysis
voms-proxy-init -rfc -noregen -voms dune:/dune/Role=$ROLE -valid 24:00


# set up dune code and some utilities

source /cvmfs/dune.opensciencegrid.org/products/dune/setup_dune.sh

# set up dunetpc

setup -B dunetpc v08_07_00 -q e17:prof

setup jobsub_client

setup fife_utils -t
```

Oregon State University

DU/\E

Sample setup at CERN

```
# get proxies and roles

export EXPERIMENT=dune

export ROLE=Analysis

voms-proxy-init

# set up dune code and some utilities

source
/cvmfs/dune.opensciencegrid.org/products/
dune/setup_dune.s


setup -B dunetpc v08_07_00 -q e17:prof
```

Oregon State University

Sample setup on my machine running SLF6

```
kinit —f schellma@FNAL.GOV

# get proxies and roles

export  EXPERIMENT=dune
export ROLE=Analysis

source /cvmfs/oasis.opensciencegrid.org/mis/osg-wn-
client/3.4/current/el6-x86_64/setup.sh

# set up dune code and some utilities

source /cvmfs/dune.opensciencegrid.org/products/dune/setup_dune.sh

# set up dunetpc

setup -B dunetpc v08_07_00 -q e17:prof

setup fife_utils -t

setup_fnal_security
```

Oregon State University

Comparison using xrootd.

On my machine across the campus network – 2 events

- TimeReport ---------- Time Summary ---[sec]----

- TimeReport CPU = 848.701978 Real = 860.816461

On dunegpvm01

- TimeReport ---------- Time Summary ---[sec]----

- TimeReport CPU = 720.613451 Real = 750.848711

- My machine is slower CPU but the lag on dunegpvm01 was actually higher.

Oregon State
University

Summary

- Cvmfs and xrootd allow you to run where you want.

- Not discussed but the tutorial has batch examples

  - FNAL – there

  - CERN – coming soon

- Don't hog the gpvm's !!!

- Use batch or local computing when you can.

2/21/19

Oregon State University