Resources & Data Biosciences working groups breakouts

Work plan

- Transferring the data across PRP tp ABCI
- Kubernetes
- EduGain
- S3

Data transfer PRP-ABCI

- 60Tb, each chunk 30Tb
 - 1 complete experiment after processing is 30 Tb (~ 70k time series)
 - o Ideally to move entire experiment data set
 - Need to parallelize the code for GPU processing
- Why is data not sent ddirectlyfrom Cornell?
 - Preprocessing in SD
 - Talk to Cornell + PRP and what is the right setup.
 - Start at UCSD, figure out the steps and then transport to Cornell
- Work Gerald, Shava, and Nadya, Takano-san
 - What software to use,
 - what is the authentication to use
- On AIST site, there will be a gate node
 - Ssh authentication
 - md5sum on each end
 - Small transfers first
 - Identify what is the optimal environment (VM, container).
 - ABCI services start in Aug
 - Matt knows R

S3

- AIST tried to connect container to s3 storage
 - Can mount s3 bucket outside of the container
 - Inside the container not yet
 - Singularity container. May be related to setUID
- user authentication
 - Currently for testing ssh
 - NCHC Max, AIST Yusuke-san, UCSD Shava and nadya
 - Try to use KeyCloack or ClLogon

Kubernetes

- You want your app to run everywhere
 - o Vm vs container
 - VM = App + bins/libs + Guest OS
 - Contrainer = app + bins/libs (on top of docker engine)
 - Both need server + host OS
- If you have a cluster of phys machines and you want to run containers anywhere on our cluster (orchestration)
 - o K8s
 - Docker swarm
 - Apache Mesos
 - Amazon ECS, Google GCE (commercial)
- K8s
 - Monitors containers
 - Can scale
 - Coordinates what containers run and when across your system
 - Creates networking layer that enables different types of containers
 - Not trivial to setup. Easier with k8s roll
- Are containers good for PRAGMA? yes
 - We need to support both: containers and VMs
 - o Build k8s as a virtual cluster and move anywhere using pragma_boot
 - o Is it possible to couple with IPOP?
 - o Define specific docker images and use registry created with k8s roll
- Sites supporting containers
 - AIST
 - o NCHC
 - HKU

Containers and VMs

- Python virtual environment, python 3
- R container
- SDN controller container can we run it on the RPAGMA testbed (Osaka U, UCSD)
- Extend the GRAPLEr VM with additional functionality (lake expedition, Ken)
- Deploy EDISON platform container on PRAGMA testbed (Ruth, Nadya)
- Possible container/vm using Deep Learning (Ary)
- Tensorflow + cuDnn container /vm

Add support in pragma_boot for containers (Shava, Nadya) Work on Lifemapepr optimization of the job submission (KU – Aimee, CJ, UCSD – Nadya)

EduGain

- If an Institution is a member of EduRoam then can use EduGain
- Can use CILogon as an authentication mediator
- PRAGMA members should become members of EduGain.
 - HKU ready to become a member
 - MIMOS is in a process
- Anyone can become EduGain member
 - Number of requirements
 - Facilitates all logins and authentication
 - Contact with Jim Basney
 - Make a list of steps (logical) and follow up in email and also add to PRAGMA website