HPC Integration Updates @ TACC

Lincoln Bryant, Doug Benjamin
7/22/2020
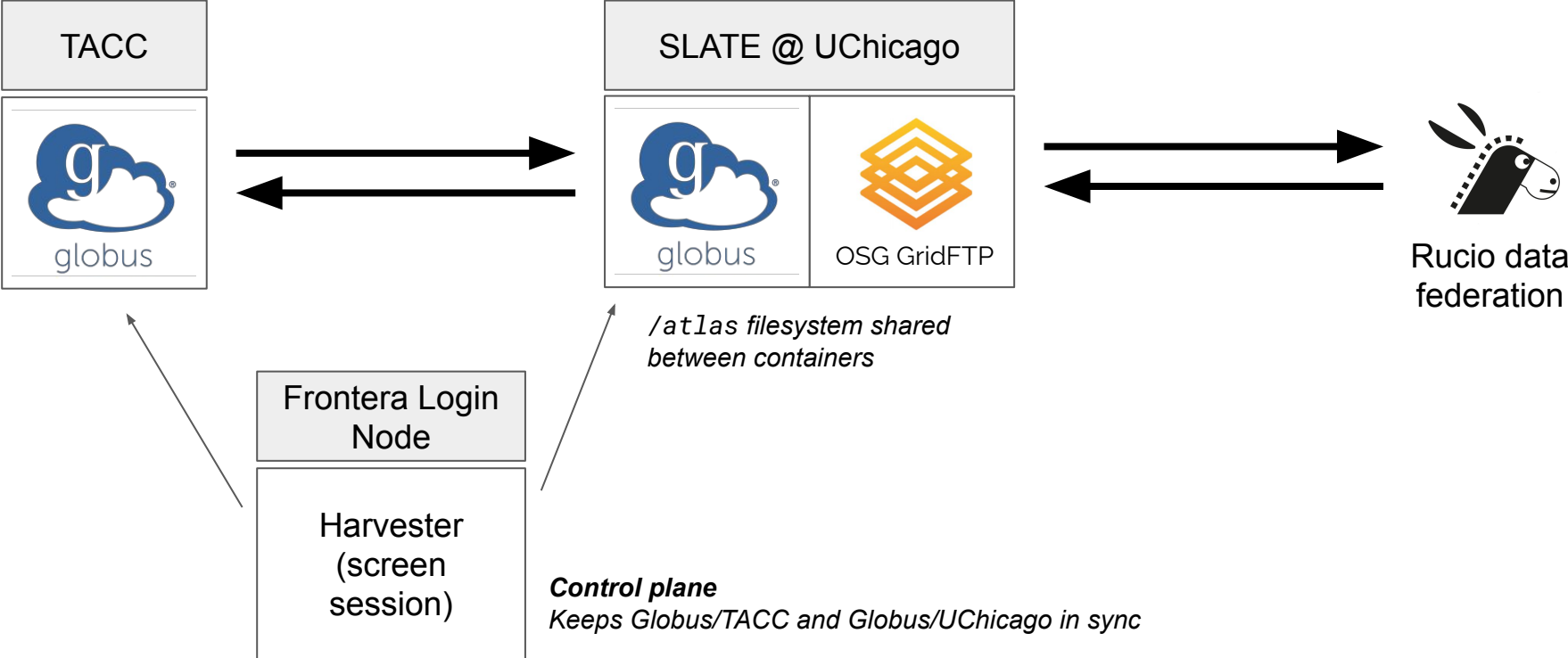
Current Status

- 500,000SU allocation on Frontera
  - (1 SU = 56 physical Xeon Platinum cores * 1 hr)
- Jobs execute without CVMFS, running `athena:21.0.15_31.8.1-noAtlasSetup` container
- ALRB setup and maintained via Cron on the login nodes
- Have been working to understand best job "shape" for optimal throughput
- Testing number of parallel nodes (1, 5, 10, 20, 50, 100) and varying number of events (250, 500, 1000)
- **Overall: TACC is working, slowly ramping up utilization & consulting with TACC support as we go.**
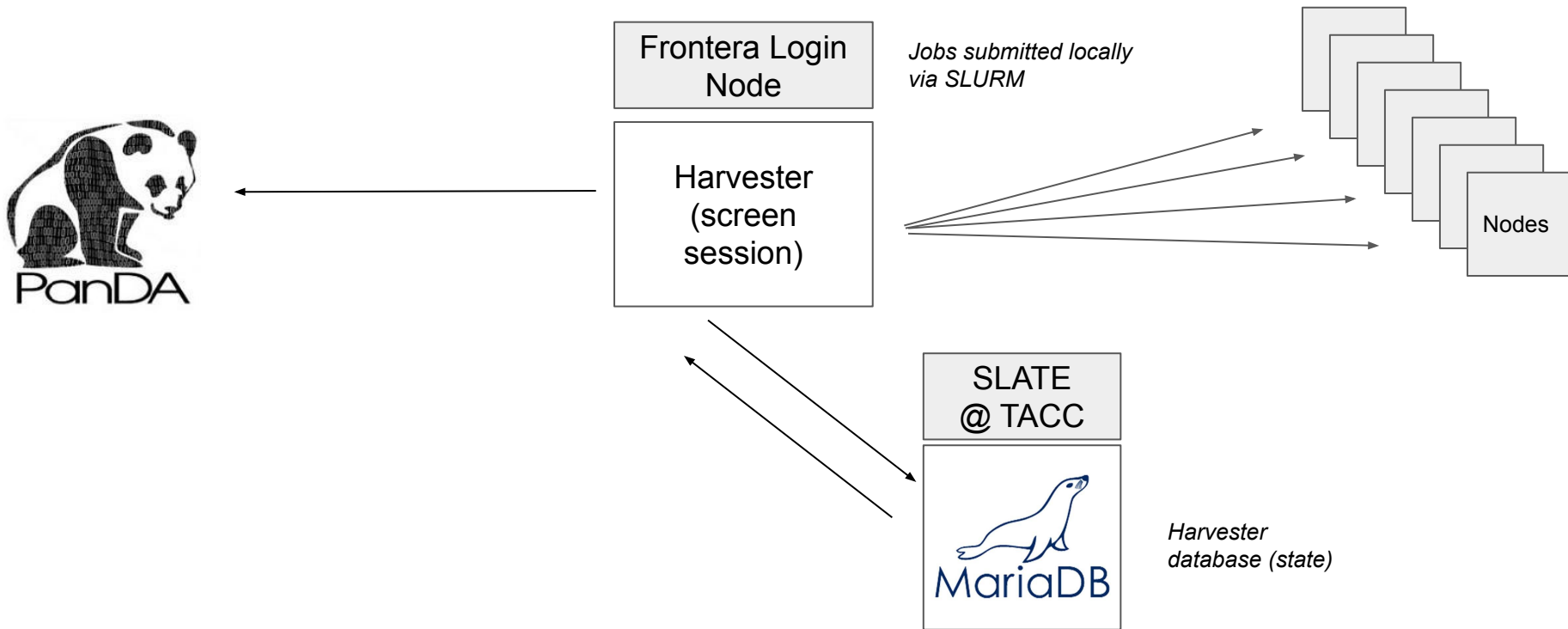
PanDA ID Attempt# of maxAttempts#	Owner Group	Request Task ID	Transformation	Status	Created	Time to start d:h:m:s	Duration d:h:m:s	Mod	Cloud Site	Priority	N input events (N input files)
4793142253 Attempt 1 of 1	bdouglas AP_VALI	15259 21950602	Sim_tf.py	finished	2020-07-20 22:22:28	0:9:12:59	0:1:02:31	2020-07-21 10:49:24	WORLD TACC-FRONTERA-UCORE brokeroff Bring online	320	1000 (2)
	Job name: valid1.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.simul.e5441_s3126.4793142253 #1										
	Datasets: In: mc15_13TeV:mc15_13TeV.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.evgen.EVNT.e5441_tid09739954_00 || Rucio link Out: valid1.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.simul.log.e5441_s3126_tid21950602_00										
4793142251 Attempt 1 of 1	bdouglas AP_VALI	15259 21950602	Sim_tf.py	finished	2020-07-20 22:22:28	0:9:12:59	0:1:02:31	2020-07-21 10:49:01	WORLD TACC-FRONTERA-UCORE brokeroff Bring online	320	1000 (2)
	Job name: valid1.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.simul.e5441_s3126.4793142251 #1										
	Datasets: In: mc15_13TeV:mc15_13TeV.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.evgen.EVNT.e5441_tid09739954_00 || Rucio link Out: valid1.424108.Pythia8B_A14_CTEQ6L1_Jpsimu6.simul.log.e5441_s3126_tid21950602_00										
4793142250	bdouglas AP_VALI	15259 21950602	Sim_tf.py	finished	2020-07-20 22:22:28	0:9:12:59	0:1:02:31	2020-07-21 10:50:25	WORLD TACC-FRONTERA-UCORE brokeroff Bring online	320	1000 (2)

Data Flow

TACC

SLATE @ UChicago

OSG GridFTP

Rucio data federation

/atlas filesystem shared between containers

Frontera Login Node

Harvester (screen session)

Control plane
Keeps Globus/TACC and Globus/UChicago in sync

4

Job Flow (today)

Frontera Login Node

Jobs submitted locally via SLURM

Harvester (screen session)

Nodes

SLATE @ TACC

MariaDB

Harvester database (state)

Job Flow (planned)

SLATE @ TACC

Harvester Container

MariaDB

Potential Future Applications (e.g. XCache)

Frontera Login Node

Nodes

Easy to update, automatic restart. doesn't need to be revived after TACC maintenance/outages, etc