Collaboration that helps everyone!
NMSU AND OSG

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OSG AHM – September 1, 2020

NM STATE UNIVERSITY

BE BOLD. Shape the Future.

Objectives

- HOW DID WE START?

- RESOURCE SHARING

- COLLABORATION WITH OSG AND FUTURE GOALS

- WHY OSG?

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How did we start?

- NMSU ICT
- Summer of 2015(96 cores)
- Condo-model
- Today(968 cores)
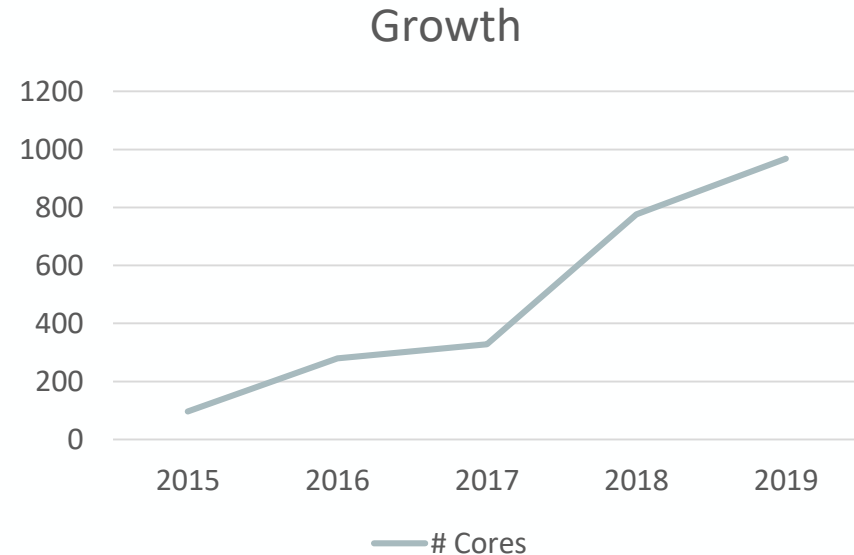- Currently 3 staff members
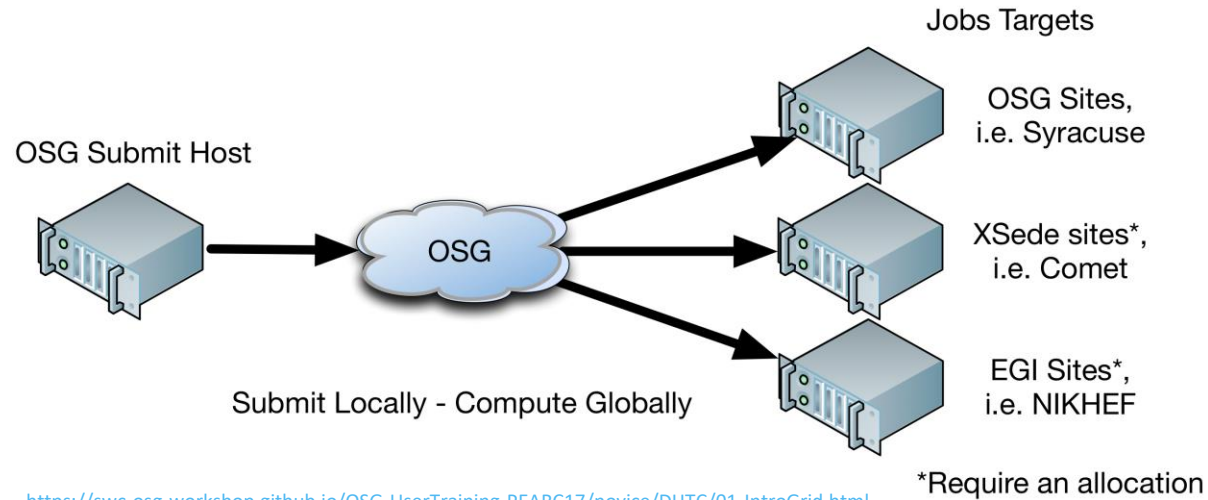- Vision for research computing

Growth

Cores

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Resource sharing

- Why?

- HPC cluster - Discovery

- HTC cluster - Aggie-grid

Resource sharing

https://swc-osg-workshop.github.io/OSG-UserTraining-PEARC17/novice/DHTC/01-IntroGrid.html

Discovery

- 25 compute, 11 GPU(K40's, P100's, V100's) and 2 high memory nodes(3TB RAM)

- Total of 968 cores

- 1.2PB of storage

- FDR InfiniBand Network

- CentOS7

- Slurm scheduler

OSG partition

- Includes all of our nodes(25 compute, 11 GPU and 2 high memory)

- Lowest priority with requeue mechanism

- 200 OSG jobs at the same time

Covid19 Partition

- Contributing to COVID19 research through OSG

COVID19_Stanford_Das
COVID19_Harvard_Bitran
COVID19_FoldingAtHome
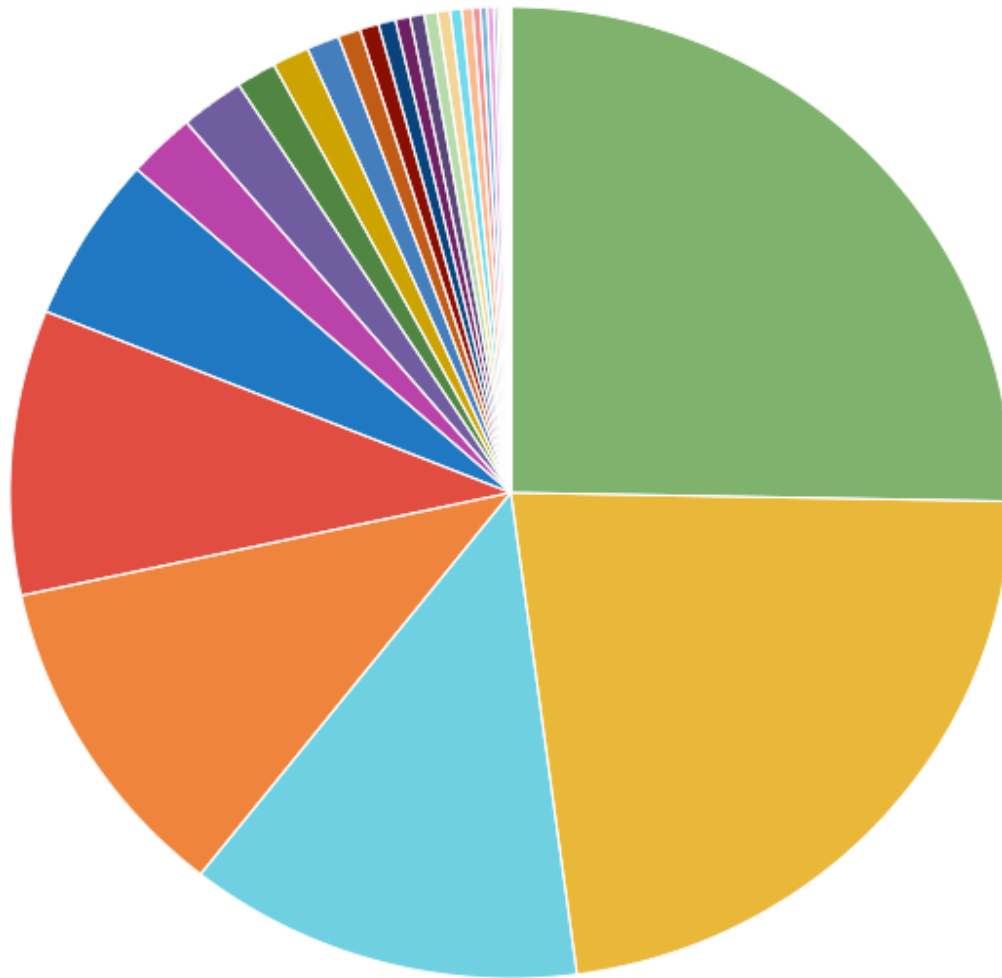COVID19_LSUHSC_Chapple
COVID19_RepertoireTCell

https://gracc.opensciencegrid.org/d/000000037/payload-jobs-summary?orgId=1&var-ReportableVOName=All&var-Project=COVID19_FoldingAtHome&var-Project=COVID19_Harvard_Bitran&var-Project=COVID19_LSUHSC_Chapple&var-Project=COVID19_Stanford_Das&var-Project=COVID1

Resource Providers

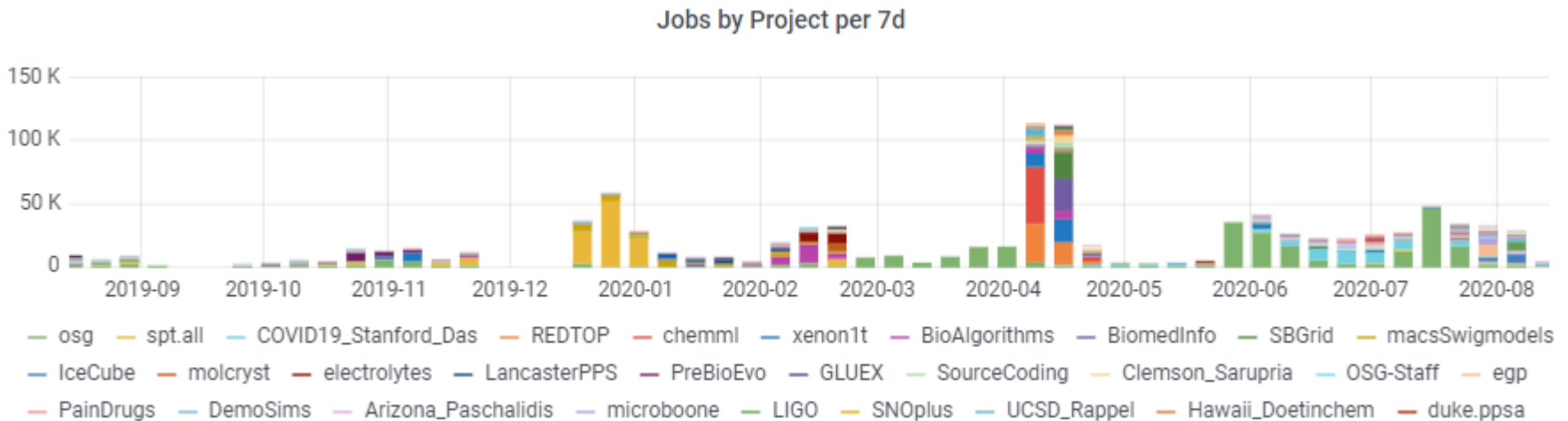|	total ▼
▬ Brookhaven National Laboratory	18.50 Mil
▬ Syracuse University	16.54 Mil
▬ Fermi National Accelerator Laboratory	9.32 Mil
▬ University of Chicago	8.03 Mil
▬ Massachusetts Institute of Technology	6.94 Mil
▬ University of Nebraska	4.03 Mil
▬ University of California San Diego	1.61 Mil
▬ University of Texas Arlington	1.51 Mil
▬ Vanderbilt University	948.21 K
▬ University of Michigan	874.72 K
▬ American Museum of Natural History	770.85 K
▬ Rutgers University	532.18 K
▬ University of Wisconsin	447.10 K
▬ University of Colorado	405.87 K
▬ New Mexico State University	346.13 K
▬ University of Wisconsin Milwaukee	334.40 K
▬ Universidade Estadual Paulista	314.53 K
▬ Universidade do Estado do Rio de Janeiro	299.62 K
▬ University of Utah	269.73 K
▬ University of Mississippi	254.09 K
▬ University of Southern California	181.50 K
▬ California Institute of Technology	157.18 K
▬ University of Illinois at Urbana Champaign	154.57 K
▬ Clarkson University	85.71 K
▬ University of Puerto Rico - Mayaguez	60.81 K
▬ University of Notre Dame	55.32 K
▬ Cybera	37.58 K
▬ Southern Illinois University Edwardsville	29.34 K
▬ University of Connecticut	27.45 K

https://gracc.opensciencegrid.org/d/000000133/covid-19-research?orgId=1&from=now-6M&to=now

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Last years numbers

- 3.528 Mil – Total Core Hours

- 2.815 Mil – Total CPU Hours

- 1.032 Mil – Total Jobs

Jobs by Project per 7d

Legend: osg — spt.all — COVID19_Stanford_Das — REDTOP — chemml — xenon1t — BioAlgorithms — BiomedInfo — SBGrid — macsSwigmodels — IceCube — molcryst — electrolytes — LancasterPPS — PreBioEvo — GLUEX — SourceCoding — Clemson_Sarupria — OSG-Staff — egp — PainDrugs — DemoSims — Arizona_Paschalidis — microboone — LIGO — SNOplus — UCSD_Rappel — Hawaii_Doetinchem — duke.ppsa

https://gracc.opensciencegrid.org/d/000000079/site-summary?orgId=1&from=now-1y&to=now&var-interval=$__auto_interval_interval&var-site=New%20Mexico%20State%20Discovery&var-type=All

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Aggie-grid

- HTC cluster made of student lab machines

- VMs with HTCondor running

- Currently low number of nodes in the pool

Total Core Hours	Total CPU Hours	Total Jobs
422 K	173 K	236 K

https://gracc.opensciencegrid.org/d/000000079/site-summary?orgId=1&from=now-1y&to=now&var-interval=$__auto_interval_interval&var-site=New%20Mexico%20State%20AggieGrid&var-type=All
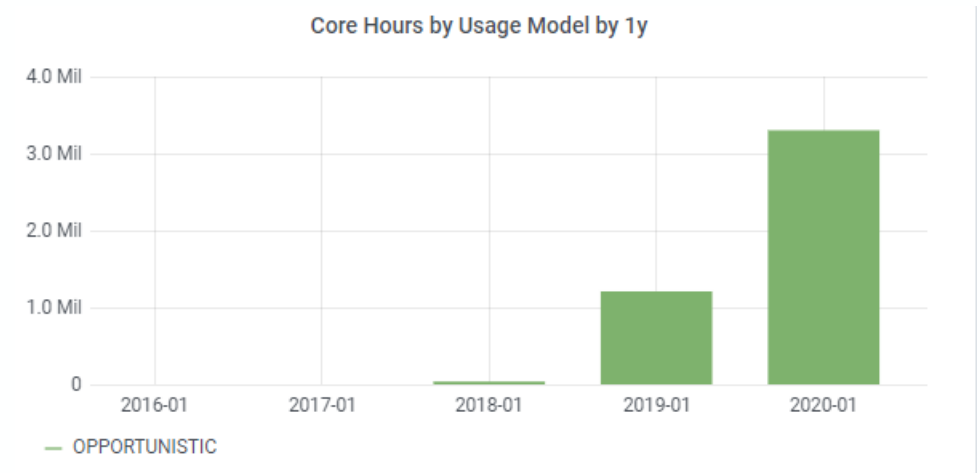
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Collaboration with OSG

- Started 2016/2017

- First contributed CPU hour in 2018

- Had 12 participants to OSG School since 2011

- OSG staff support

Core Hours by Usage Model by 1y

— OPPORTUNISTIC

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Future goals

- CC* grant

- More NMSU users leverage OSG

CC* grant

- HPC expansion

- Supporting learning environments in the classroom and research labs

- Train researchers and pass on knowledge

- Increase contribution to OSG

More NMSU users leverage OSG

- Few NMSU researchers using OSG

- One extensive user(8.1 millions of jobs)

- Reaching out to departments and researchers

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Why OSG?

- Contribution to everyone

- Easy to join and use

- Amazing and caring staff

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