Plugging the OSG into Syracuse University's Research Computing Strategy

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OSG All Hands Meeting

3/19/2019

Syracuse University

Information Technology Services (ITS)

Research Computing Philosophy @ Syracuse

- Good to advance research, best to transform research (though transformation is not always related to scale)
- Entrepreneurial approach to collaboration and ideas
- Computing resources are only one part of supporting research
- Strive to use computational resources at 100% utilization, 100% of the time
- Computational resources must support multiple academic areas (we are a University wide resource)

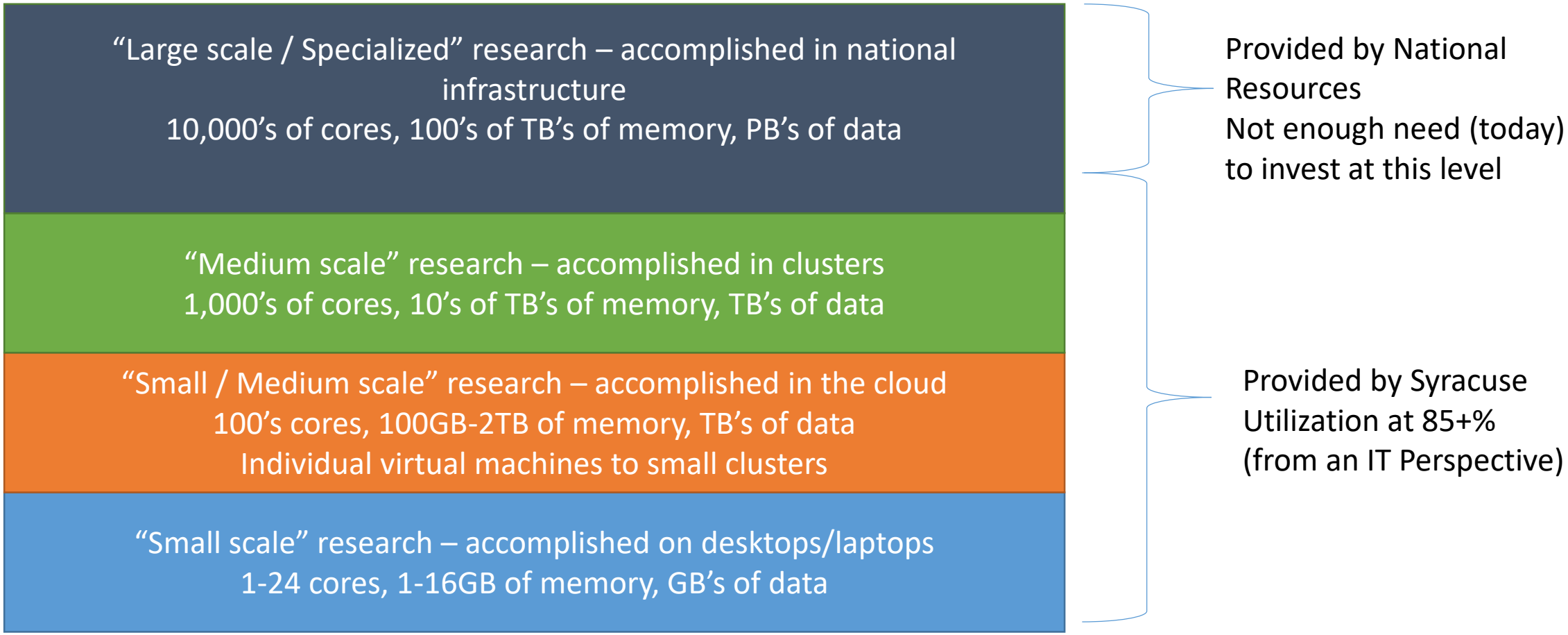
Computational Resources @ Syracuse

- Academic Virtual Hosting Environment (AVHE) - virtual cloud
  - 1000 cores, 30TB of memory
  - Individual VMs (students, faculty, staff), small clusters
  - 2 PB of storage (NFS, SMB, DAS per VM), multiple performance tiers
- OrangeGrid - high throughput computing pool
  - scavenged desktop grid, 16,000 cores, 25TB of memory
- Crush - virtual compute cloud
  - Coupled with the AVHE to provide HPC and HTC environments
  - Made up of heterogeneous hardware, different areas within Crush are focused on different needs (high IO, latency/bandwidth, high memory requirements...)
  - 20,000 cores, 100 TB of memory
- SUrge - virtual GPU compute cloud
  - 270 commodity NVidia GPUs
  - Individual VMs / scheduled within HTCondor / PBS

Why contribute to the OSG?

- Science questions are becoming more difficult to answer with resources provided within a single site
- For large workflows we hybridize campus and OSG resources providing increased capacity for needs that exceed our capacity
- Ebb and a flow of research work leads to periods of time with idle resources (even with oversubscription of resources)
- OSG provides an excellent opportunity for the researchers to experience the use of large scale computational resources
- Connection with larger research community provides opportunities to collaborate

Where does the OSG fit into the strategy?

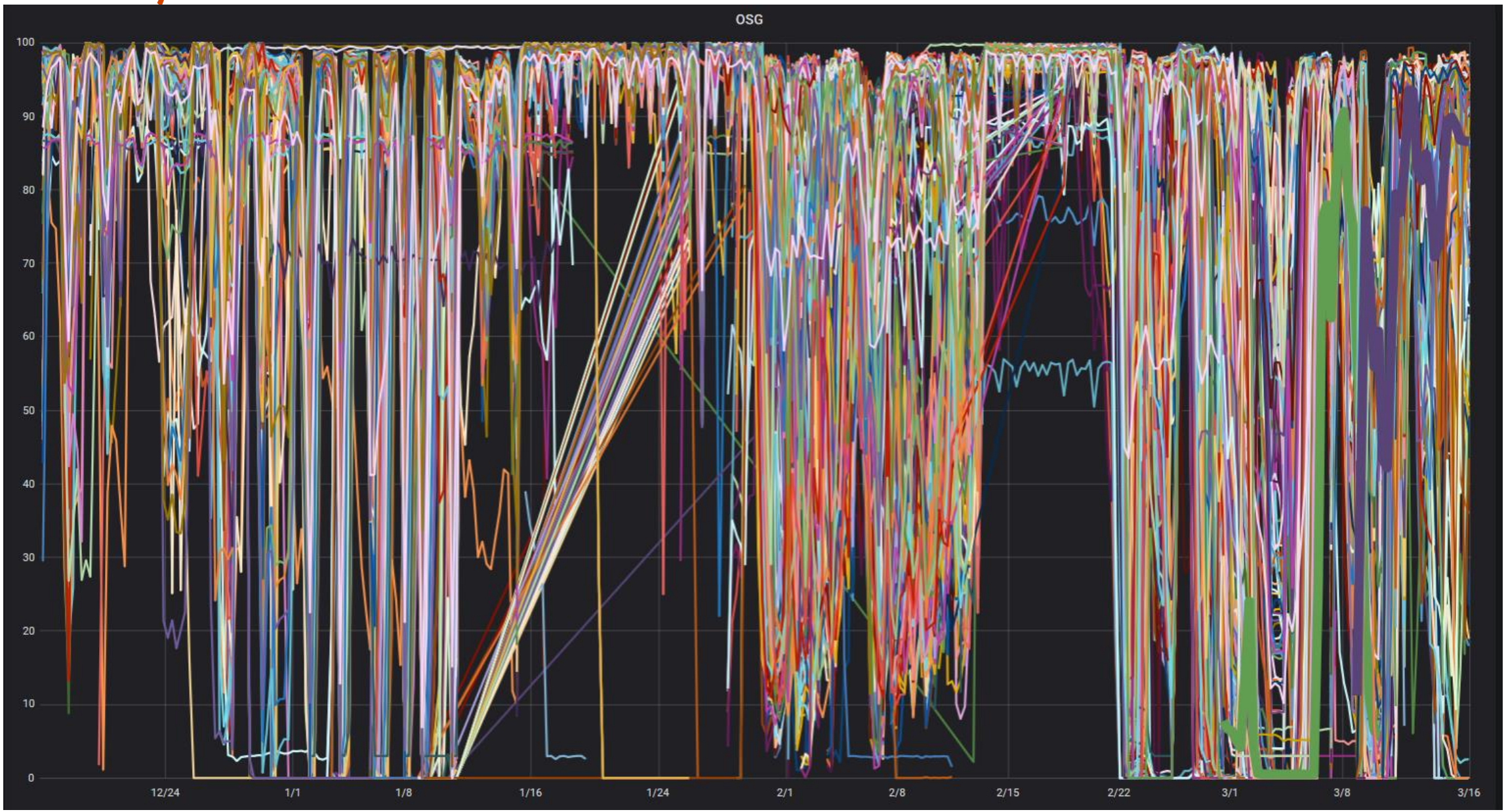


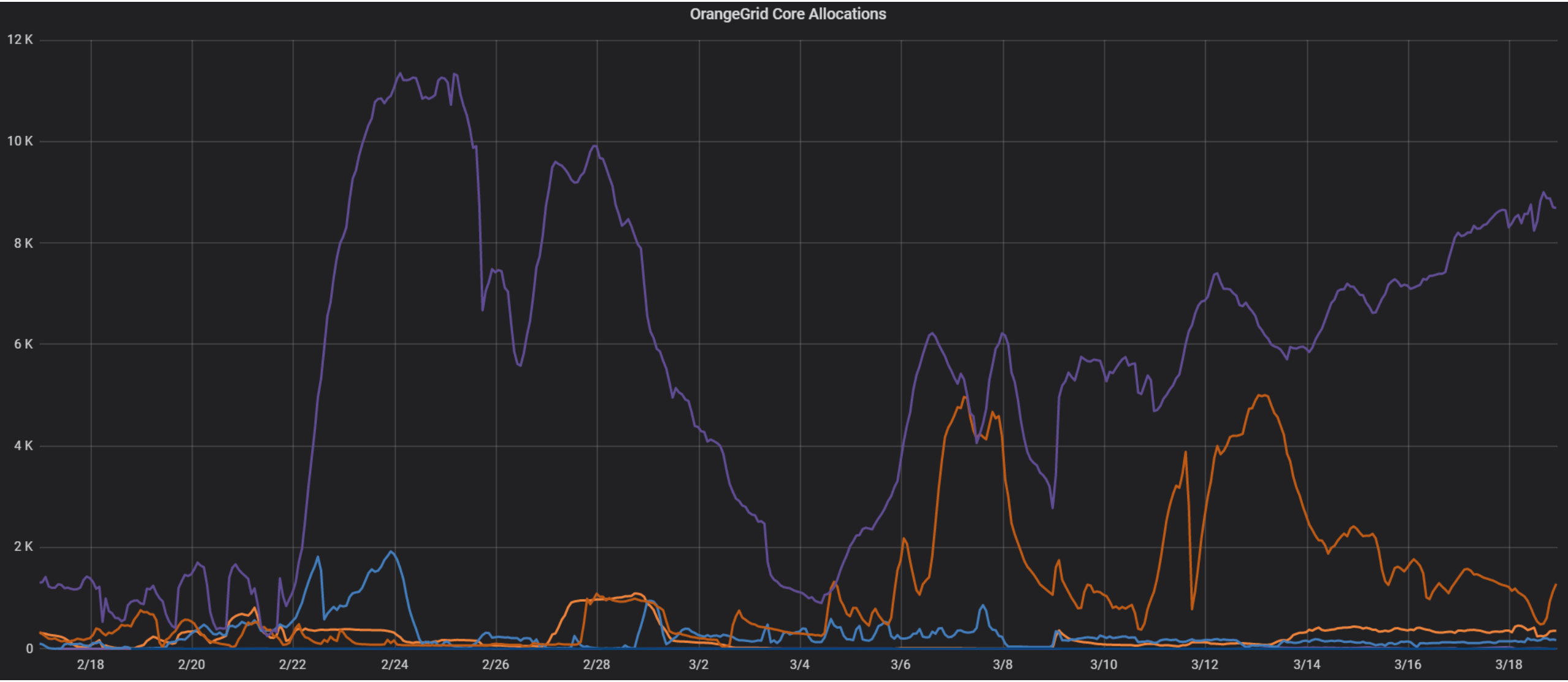
Interacting with the OSG

- I've found excellent, helpful, dedicated people within the OSG community

- Not quite sure whom I should be ask when there are issues
- There are a lot of moving parts… trying to find issues can involve searching through many layers of the technology stack, not always sure how many and where to look
- Is work getting done?

A dynamic environment…




OrangeGrid Core Allocations
12 K
10 K
8 K
6 K
4 K
2 K
0
2/18
2/20
2/22
2/24
2/26
2/28
3/2
3/4
3/6
3/8
3/10
3/12
3/14
3/16
3/18

Other things…

- Containerized OSG node?
- Researchers need to be on the advanced end of the technical spectrum to engage OSG resources
- Which OS Version should nodes be? (RHEL/CentOS/SL 6/7)
  - Each individual VO seems to have a preference
  - Maintaining versions requires time/effort (not a lot, VM's typically run unchanged for months)