University at Buffalo
Center for Computational Research

Ohio Supercomputer Center

VIRGINIA TECH

OPEN OnDemand

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Supercomputing. Seamlessly.

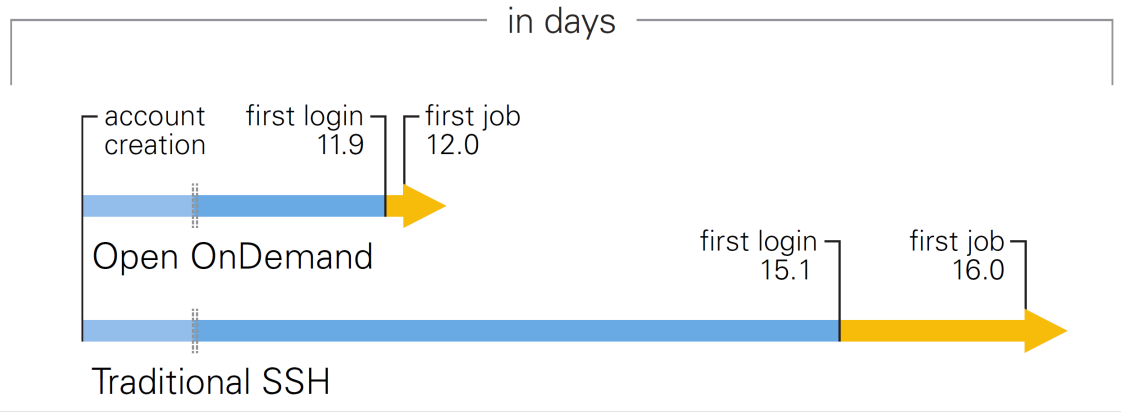
Open OnDemand: Open, Interactive HPC Via the Web

Provides an easy to install and use, web-based access to supercomputers, resulting in intuitive, innovative support for interactive supercomputing.

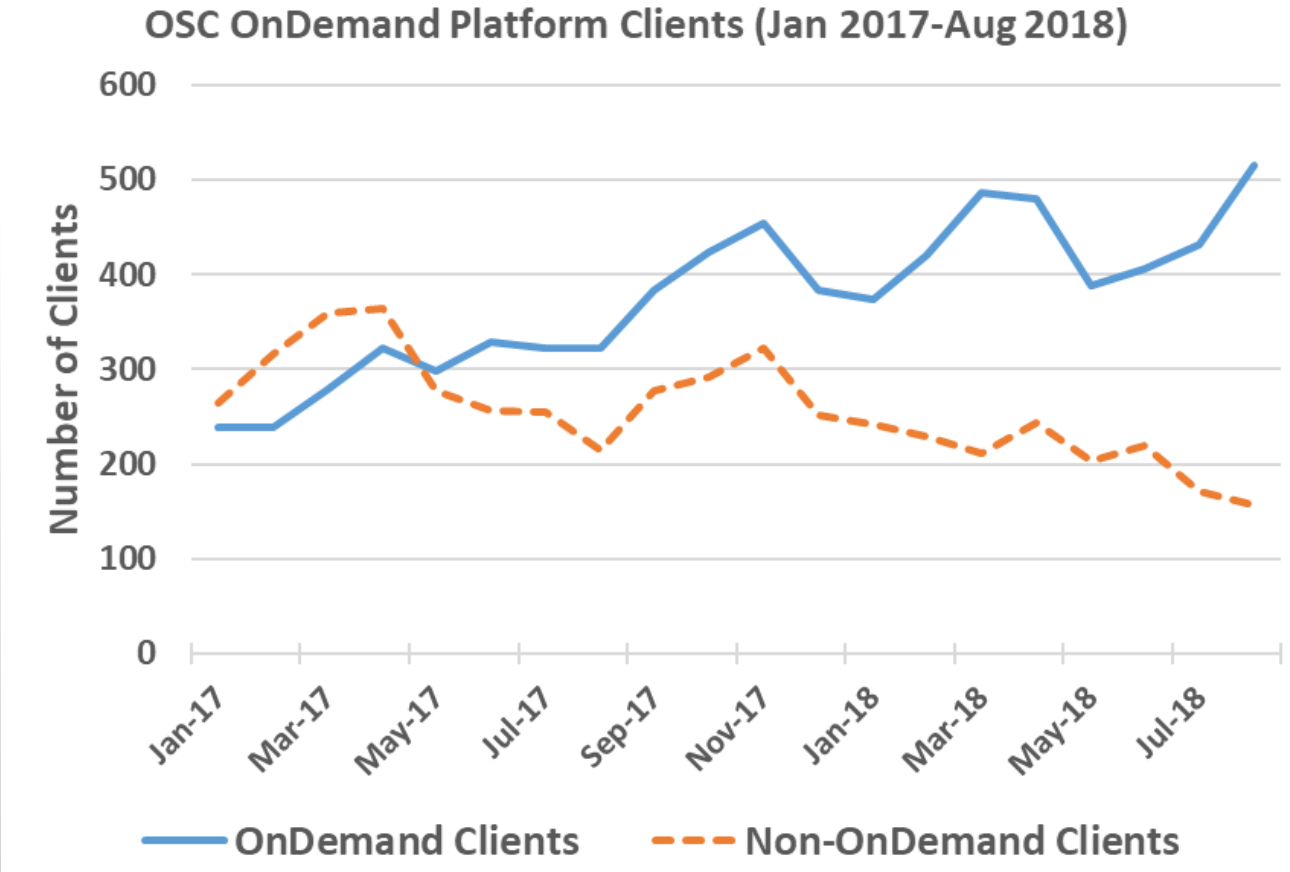
Features include:

- Plugin-free web experience
- Easy file management
- Command-line shell access
- Job management and monitoring
- Graphical desktop environments and applications

Impact at OSC



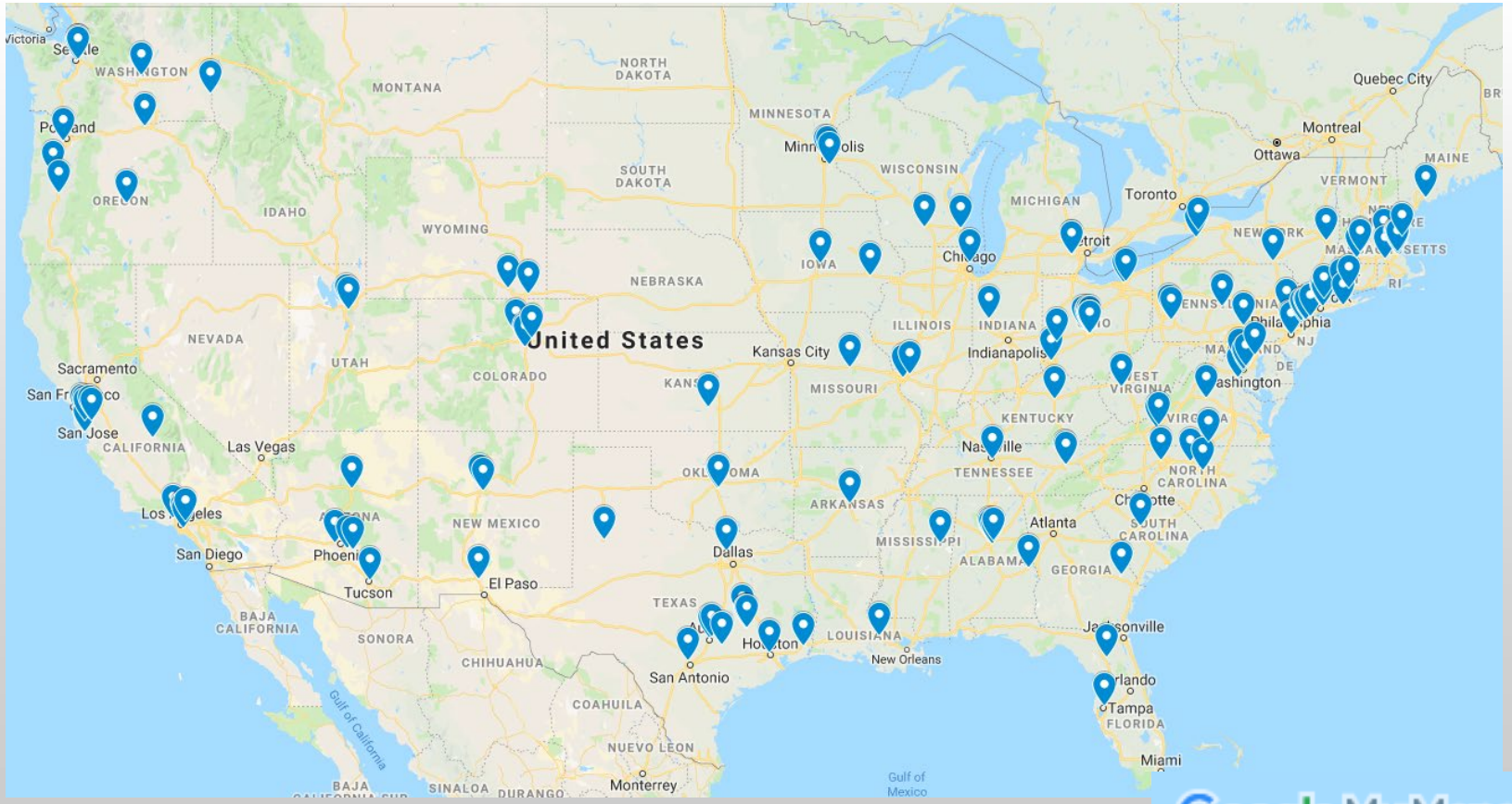
OnDemand users start work faster than traditional users, both in terms of first login and job submission



Launched Sep. 2016, % users has steadily increased since launch

Approx Number of Institutions based on RPM logs

- 136 unique US locations
- 70 unique international locations



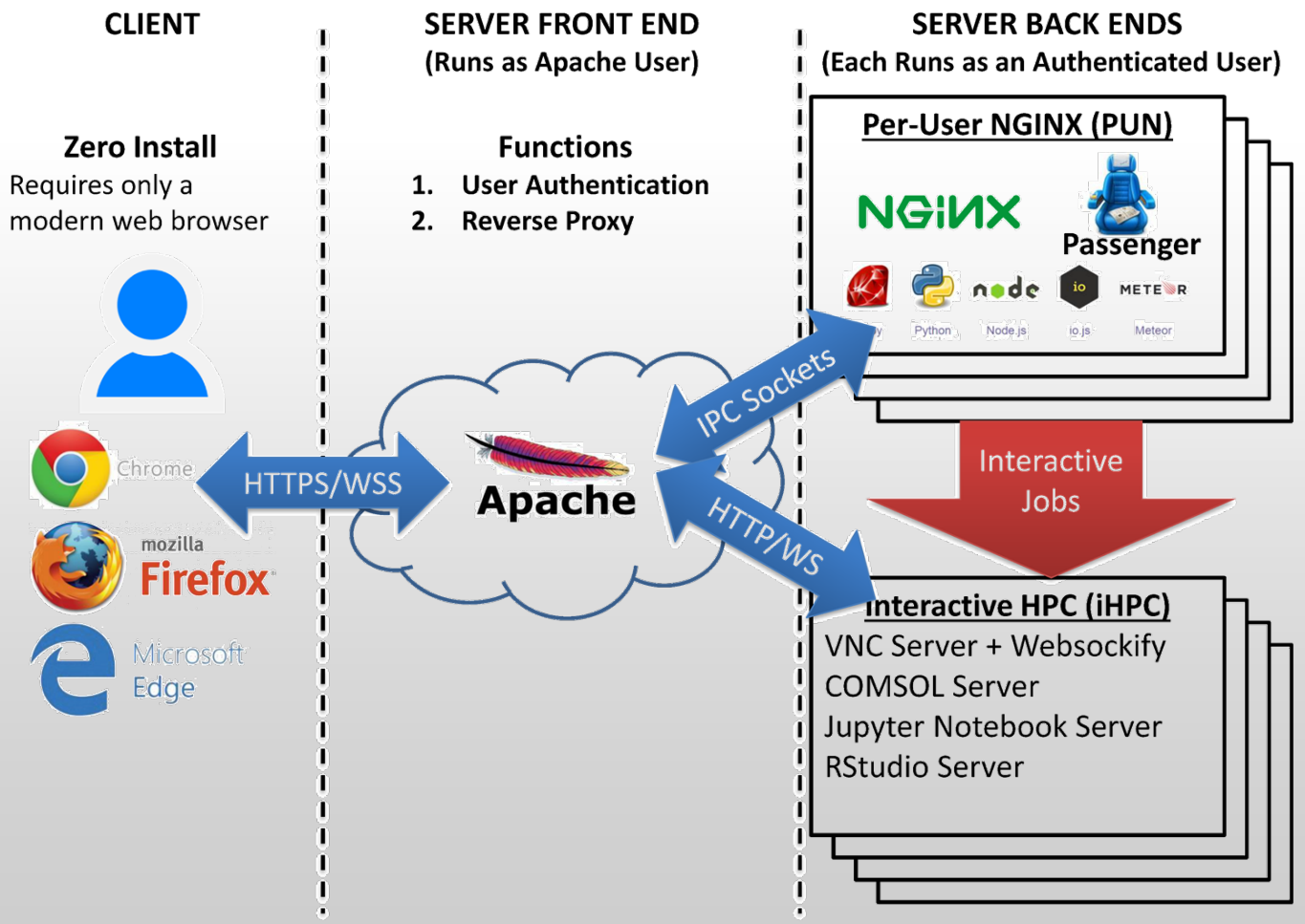
- Map data @2019 Google, INEGI, ORION-ME

Example Current Engagements and Deployments

Production Deployments

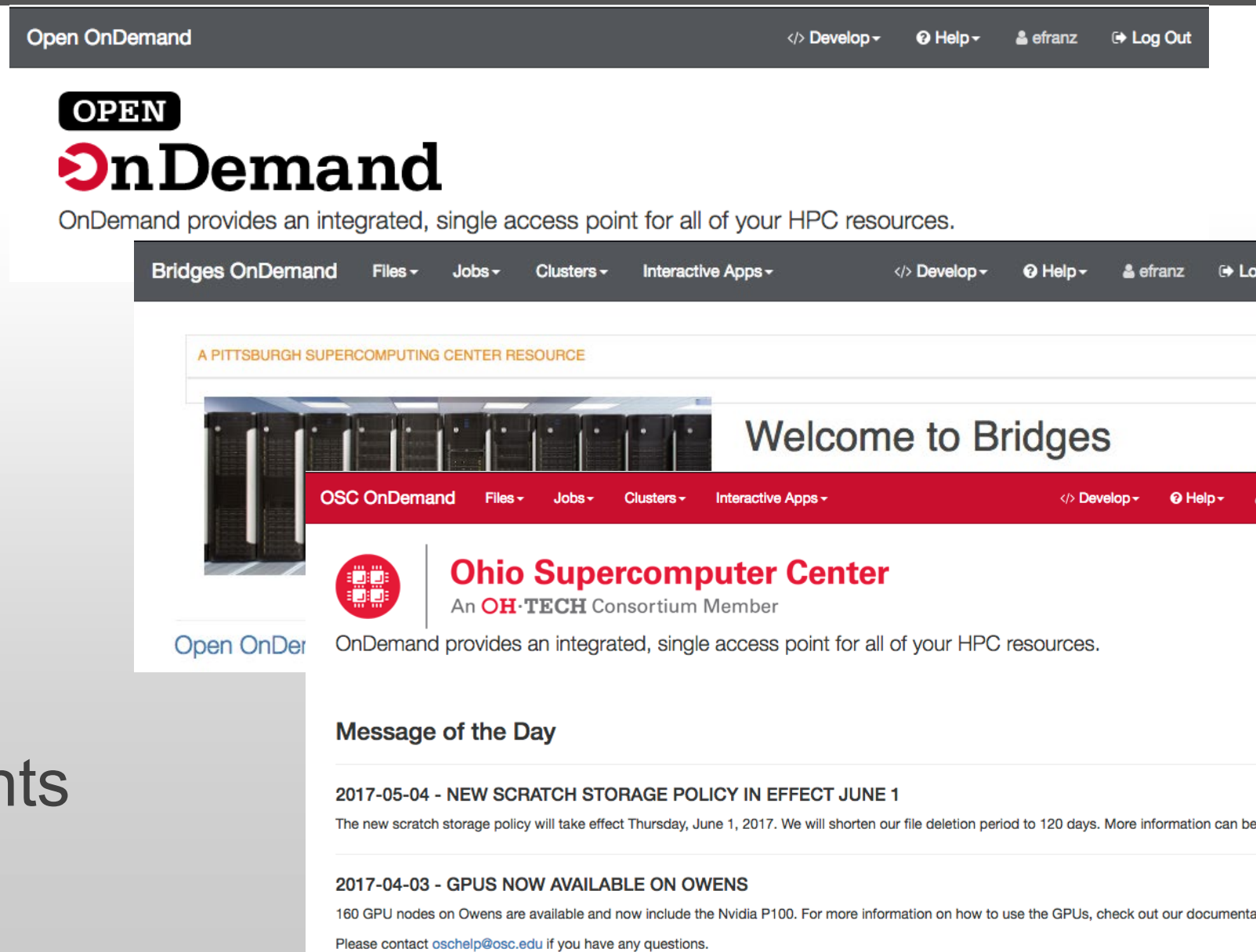
In Process of Installing

Architecture



Customizing OnDemand: Branding

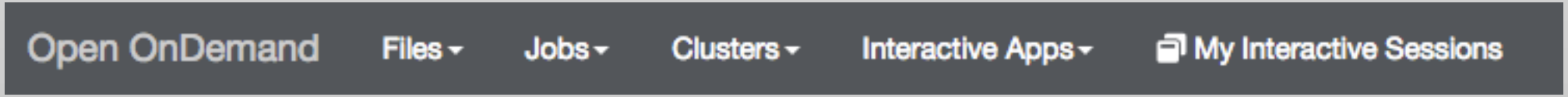
- Institution logo
- Navbar color
- Portal name
- Display MOTD
- Display announcements



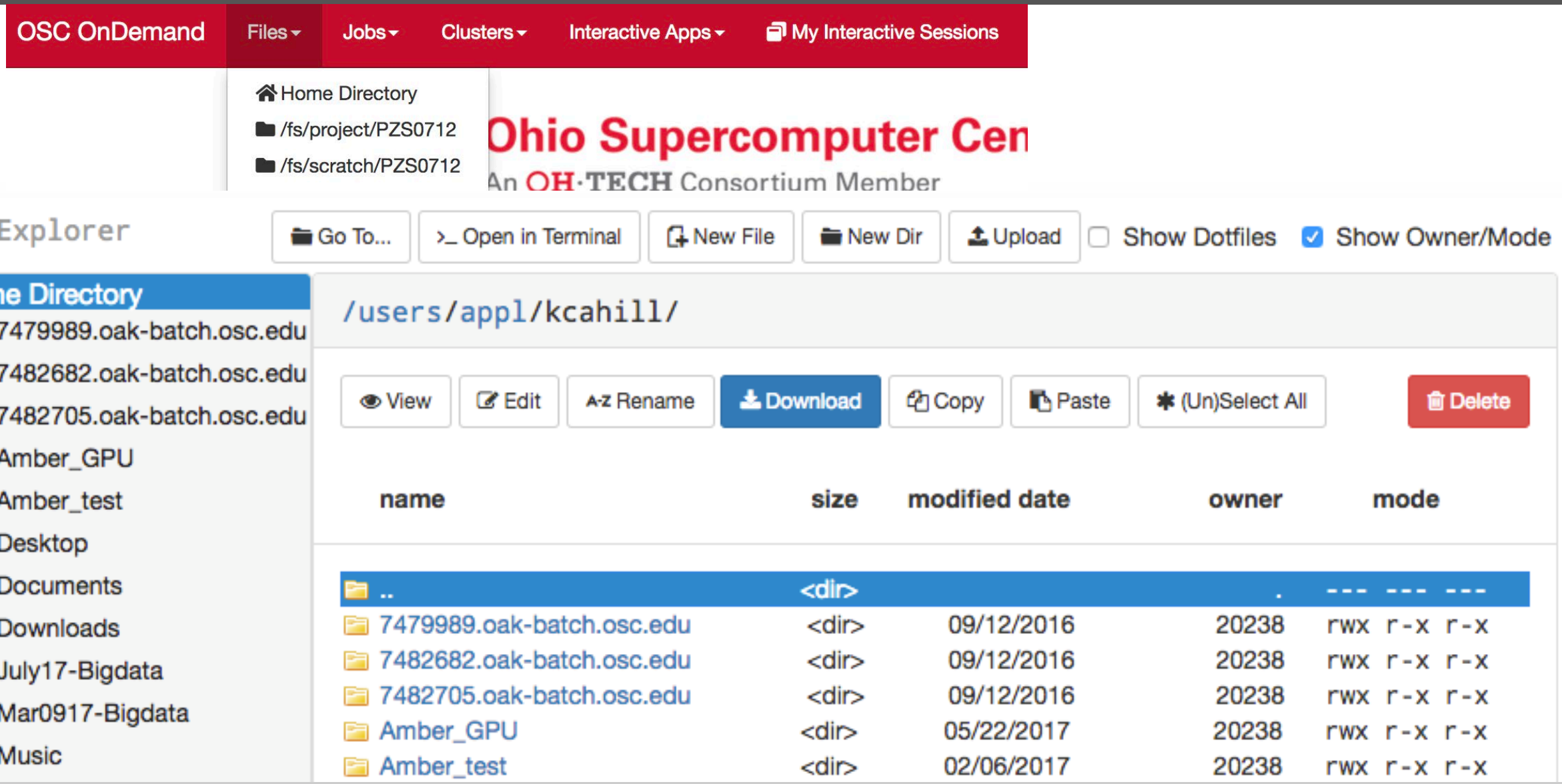
Walkthrough

Review Features:

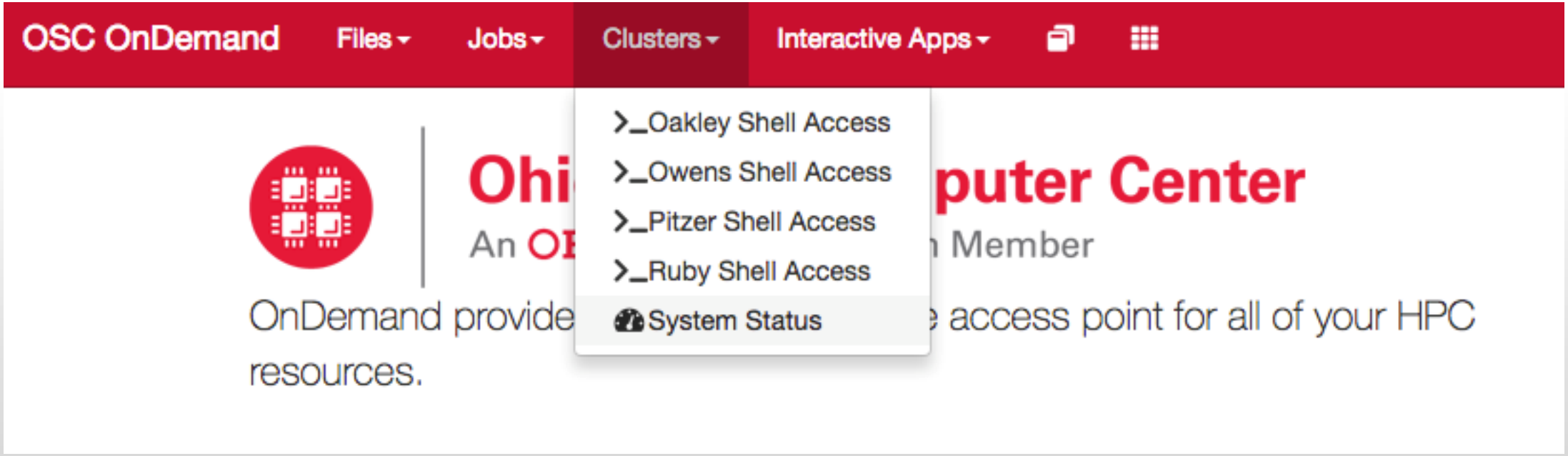
- File Explorer – transfer, edit, copy & paste
- Cluster – shell access & system status
- Apps – GUIs, VDI, and interactive jobs (show the difference)
- Jobs – Composer: submit from template, create own template &
  Active Jobs: queues



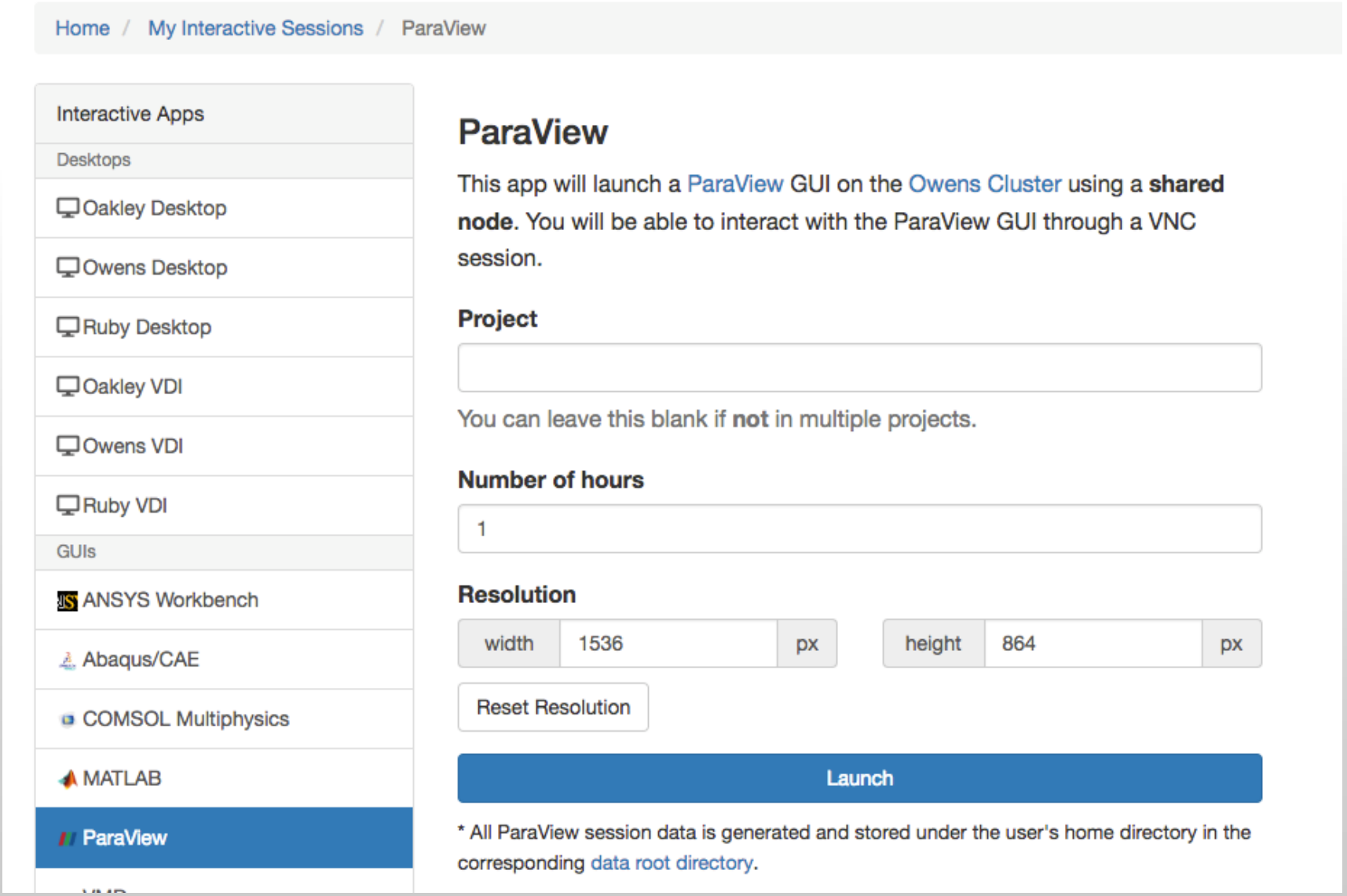
Walkthrough – File Explorer



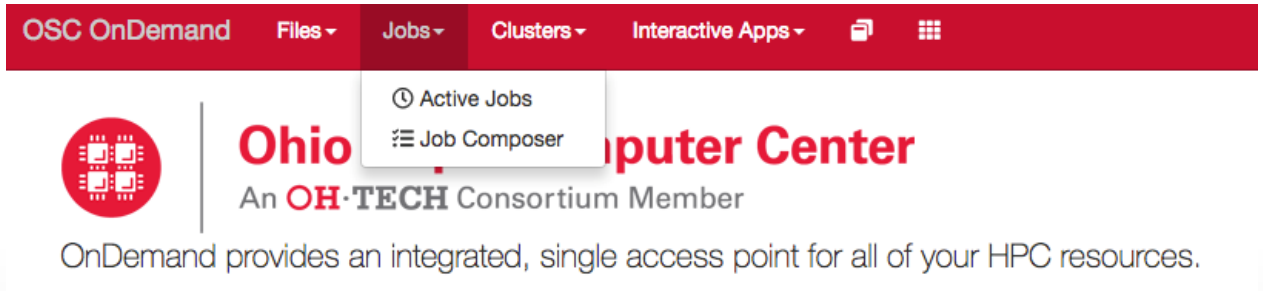
Walkthrough – Clusters

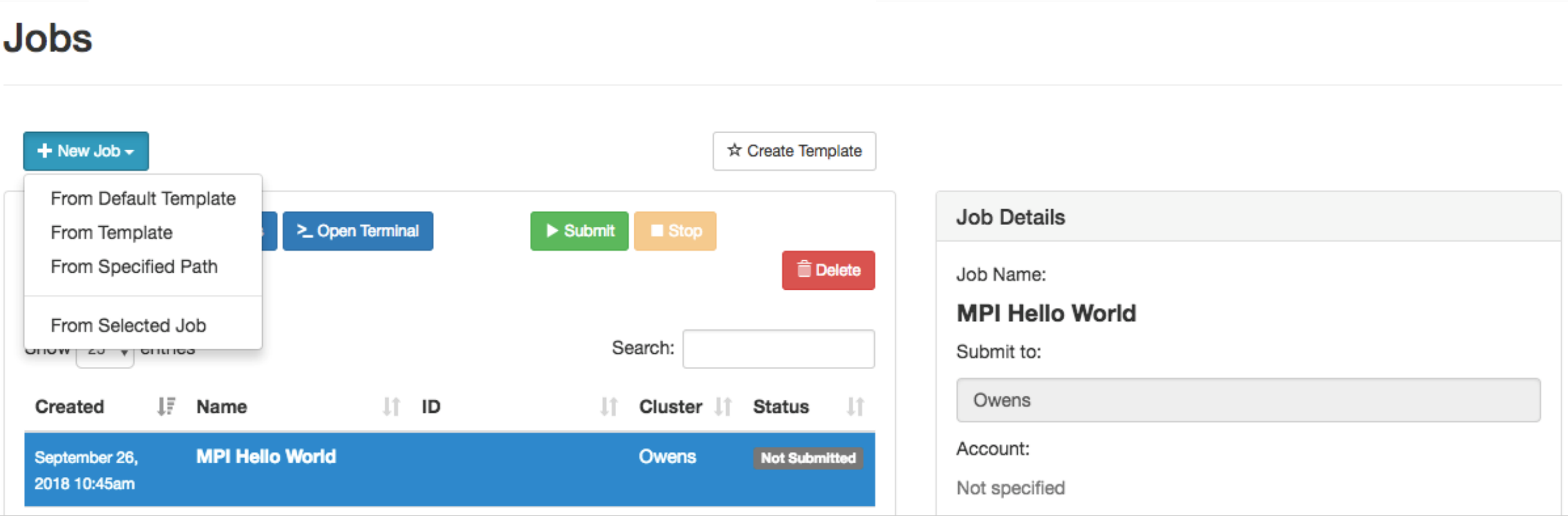


Walkthrough – Apps



Walkthrough – Jobs





Open OnDemand 2.0 Project Overview

- Previous three year NSF SI2 award (#1534949) to develop OnDemand 1.x
- Awarded followon NSF CSSI award (#1835725) to develop OnDemand 2.x
  - Project runs from Jan 2019 to Dec 2023
  - Collaborators include SUNY Buffalo and Virginia Tech
- Four areas
  - **Visibility:** Enhancing resource utilization visibility by integrating the existing Open XDMoD platform
  - **Scalability:** support more types of computing resources and software
  - **Accessibility:** appeal to more scientists in more fields of science
  - **Engagement:** establish community of departmental, campus and national HPC users and administrators

Open XDMoD

- XDMoD: XD Metrics on Demand
- On demand access to job accounting & performance data
- Optimize resource utilization & performance
  - Utilization metrics
  - Measure infrastructure QoS
  - Job and Cloud level performance data
- 200+ academic & industrial installations worldwide
- **http://open.xdmod.org/**

Open XDMoD and OnDemand Integration

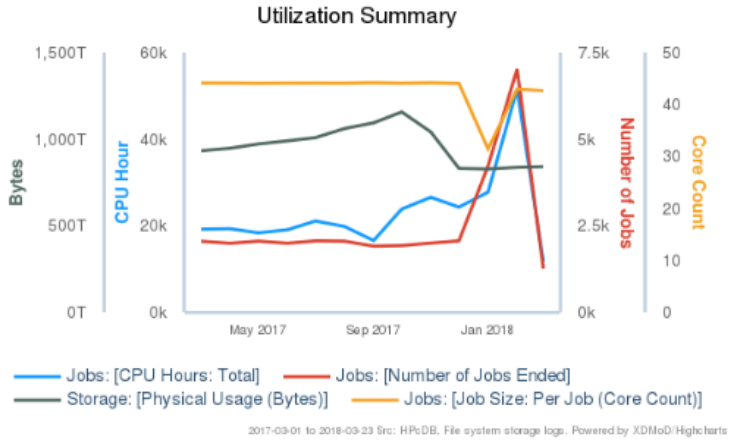
CCR OnDemand BETA | Files | Jobs | Clusters | Interactive Apps | Help | Logged in as smgallo | Log Out

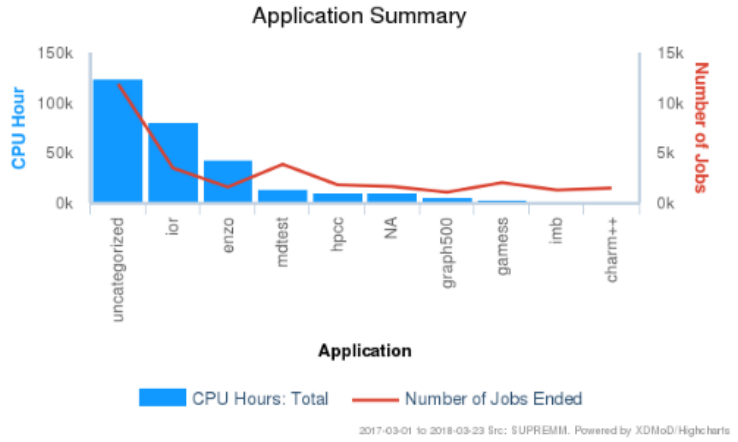
OnDemand provides an integrated, single access point for CCR's HPC resources

Users can transfer files, access a shell environment on the cluster front-end login server, launch interactive and remote visualization jobs, and monitor jobs all without installing any client software or web plug-ins. Access these features using the menus at the top of this page. Note that many of the apps will launch in a new tab or new browser window but the dashboard will remain open in the original window.

Utilization Summary

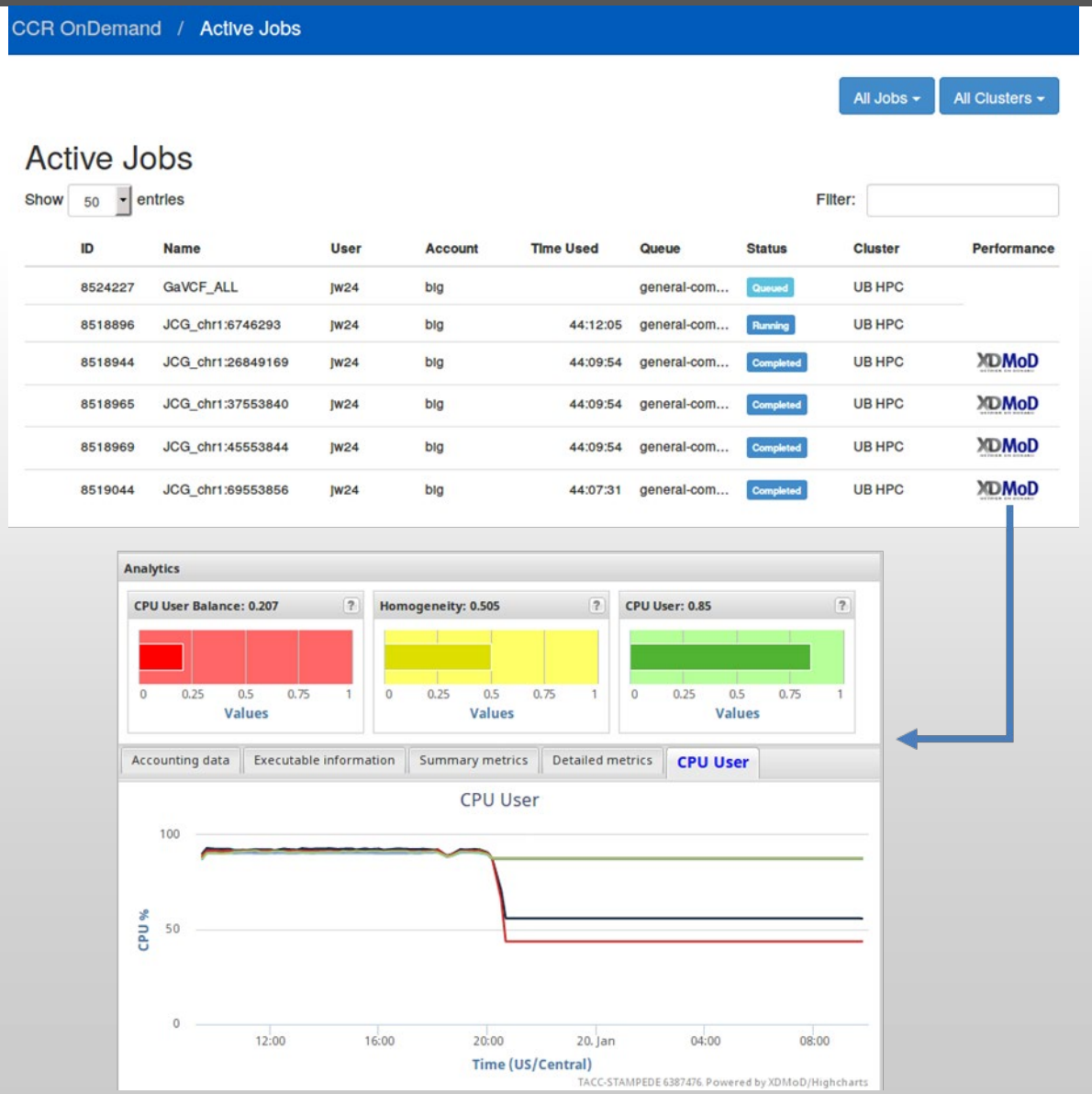
	Previous Month	Previous Quarter	Year To Date
Total CPU Hours	51,541	74,617	298,725
Number of Jobs	7,017	5,973	32,551
Average Job Size (Cores)	42.1	43.9	44.1
Storage (GB)	834	1,008	964,150





Open XDMoD and OnDemand Integration

- Active Jobs App links directly to Open XDMoD Job Viewer
- Detailed performance data
  - Per core CPU utilization
  - Network performance
  - Storage reads/writes



Items ‘Coming Soon’

System Stuff

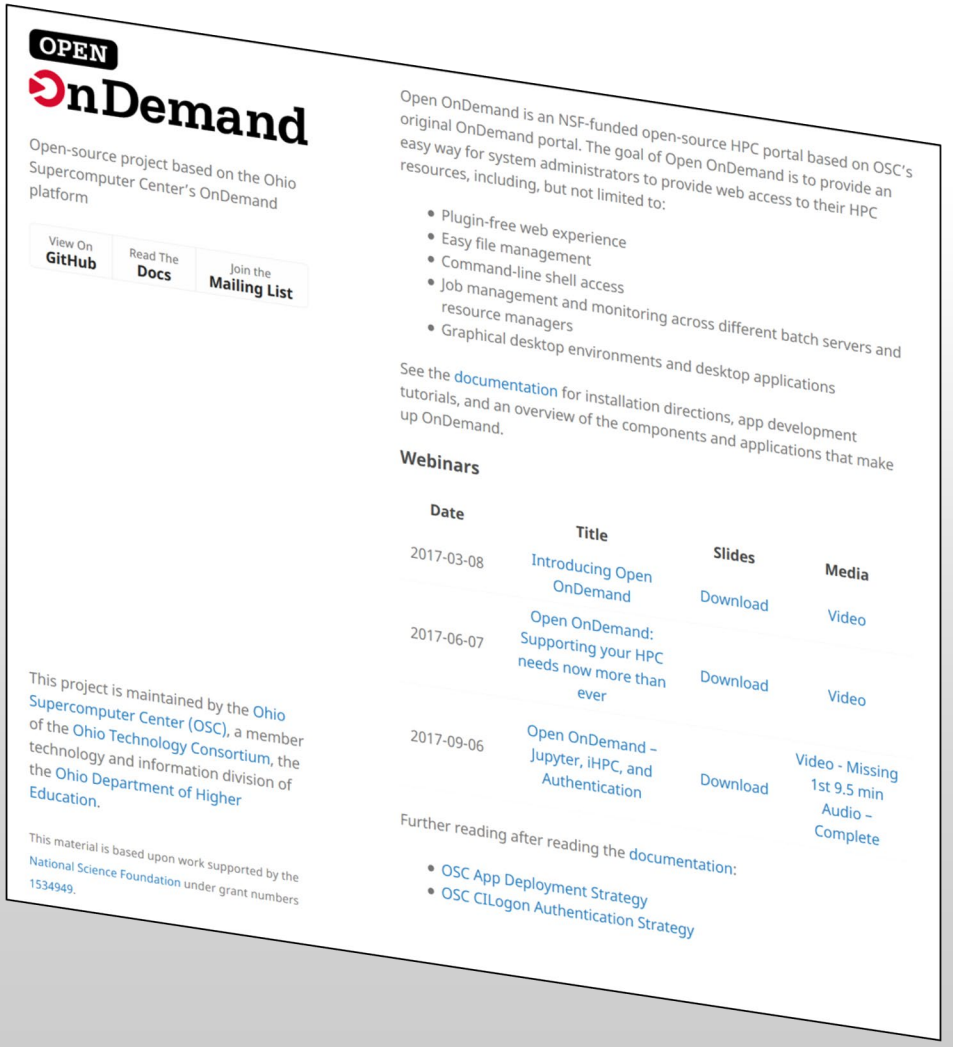
1. Linux host adapter
2. Dashboard with XDMoD
3. Keycloak identity brokering
4. Kubernetes adapter
5. Custom classroom deployment
6. System status with GPUs
7. Globus integration
8. OpenHPC integration
9. Ansible role
10. OpenStack

Apps

11. Stata app
12. Tensorboard app
13. QGIS app
14. Job composer with XDMoD
15. Completed jobs app with XDMoD
16. Render app
17. Galaxy app
18. Shell reconnect
19. Visual Studio Code Server
20. New Files app

Staying in Touch

- Visit our website
  - http://openondemand.org
- Use our Discourse
  - https://discourse.osc.edu/c/open-ondemand
- Join our mailing list
  - https://lists.osu.edu/mailman/listinfo/ood-users
- Our webinars are planned roughly quarterly
  - Let us know what you'd like to learn about next



Thank you! Any questions?

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