University at Buffalo
Center for Computational Research

Ohio Supercomputer Center

VIRGINIA TECH

OPEN OnDemand

Supercomputing. Seamlessly. Interactive computing with GPUs via Open OnDemand. Everywhere.

Alan Chalker, Ph.D.
Director of Strategic Programs, OSC

Douglas Holt
Solutions Architect, NVIDIA

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GTC Presentation Agenda

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1. **About Open OnDemand**
2. Open OnDemand Walkthrough
3. GPU Specific Developments
4. Live Demo on a DGX Cluster

OPEN OnDemand

Supercomputing. Seamlessly.

Open OnDemand: Open, Interactive HPC Via the Web

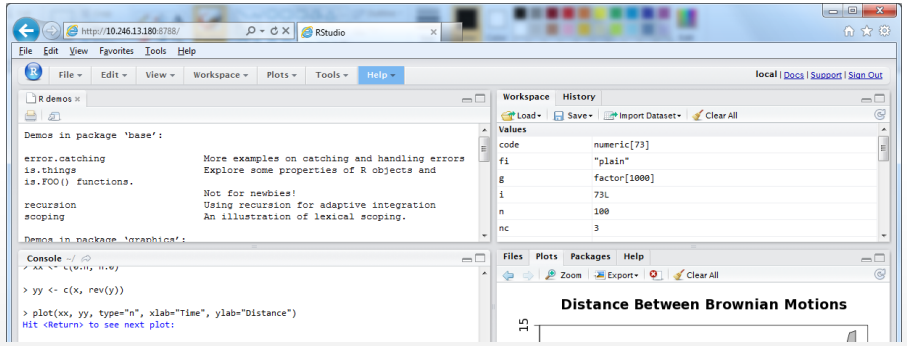
Provides an easy to install and use, web-based access to supercomputers, resulting in intuitive, innovative support for interactive supercomputing.

Features include:

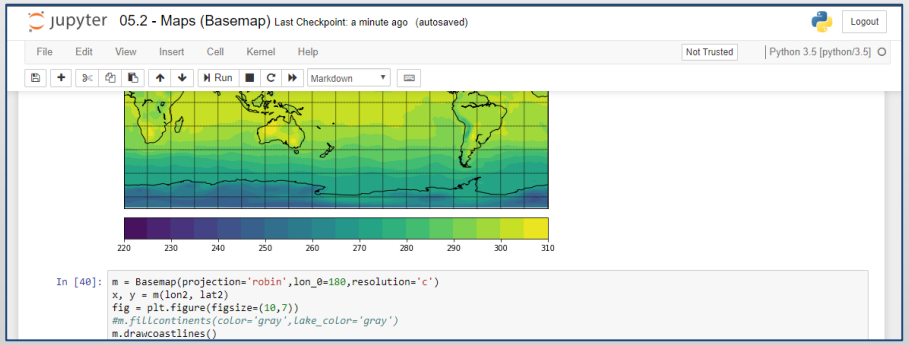
- Fully open-sourced and audited
- Plugin-free web experience
- Easy file management
- Command-line shell access
- Job management and monitoring
- Graphical desktop environments and applications

Interactive Apps & Cluster Access

RStudio Server – R IDE

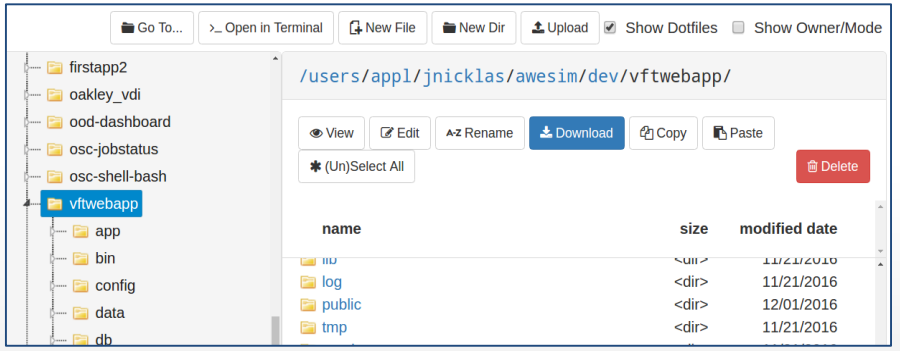


Jupyter Notebook – Python IDE

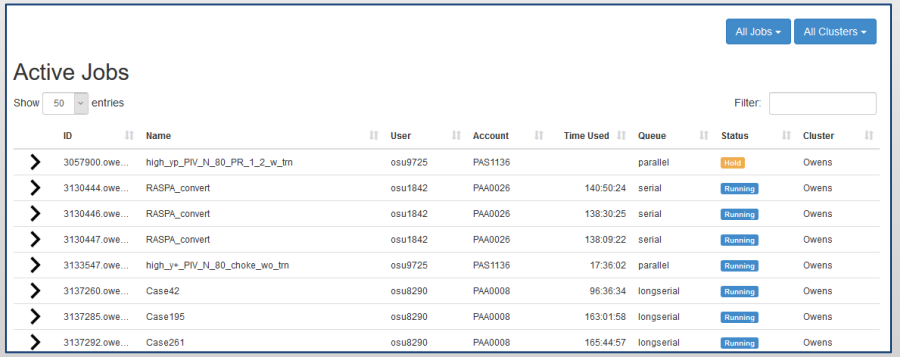


And many more, such as ANSYS Workbench, Abaqus/CAE, MATLAB, Paraview, COMSOL Multiphysics

File Access (browse, edit, etc)

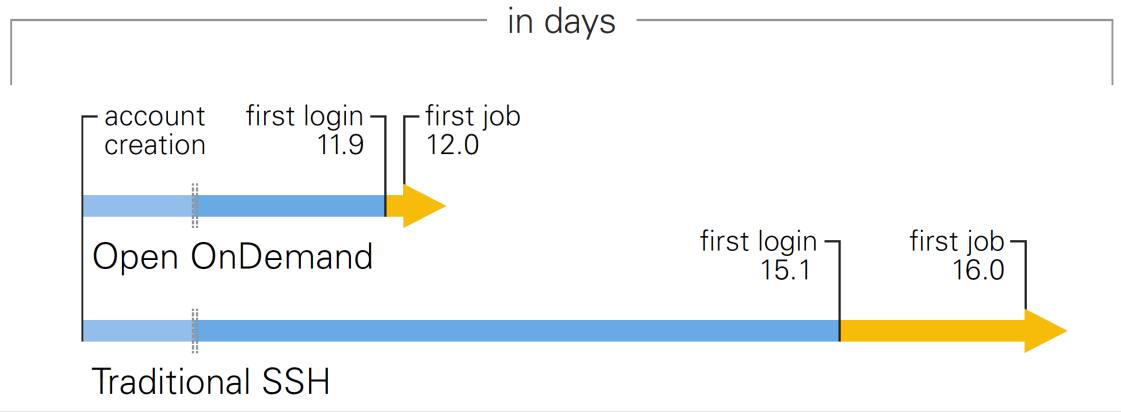


Manage Jobs (view, submit, etc)

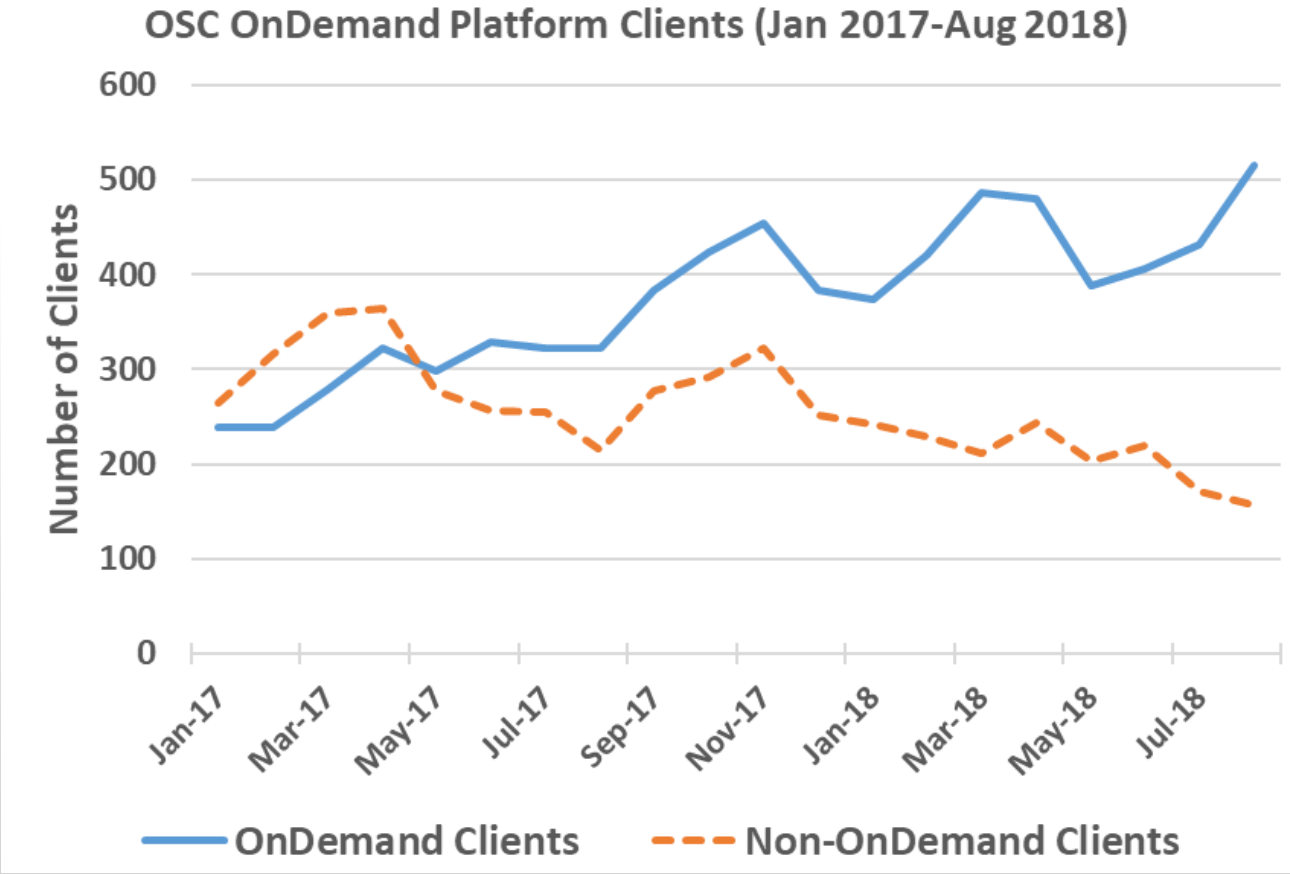


And many more, such as in-browser SSH terminal, job constructors, VNC desktops

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

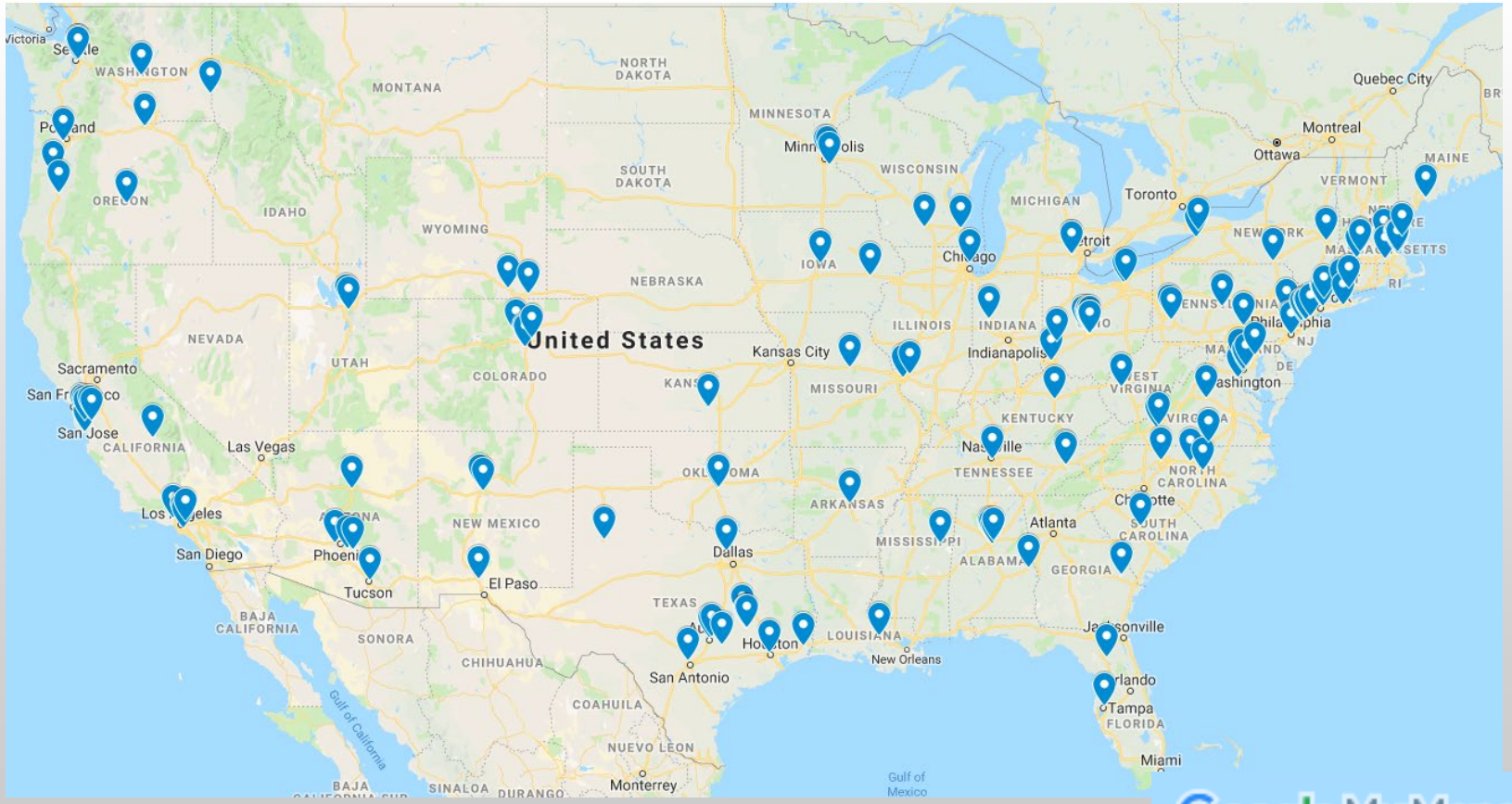
Client Example: HPC aids search for neutrinos

The field of ultra-high energy (UHE) cosmic neutrino experiments has entered an exciting phase of research. They utilize GPUs on OSC systems to analyze large data sets to perform leading searches for UHE neutrinos, run sophisticated simulations to design future experiments with optimal neutrino sensitivity and perform theoretical calculations to interpret the implications of their results.

Amy Connolly, Ph.D.
The Ohio State University

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

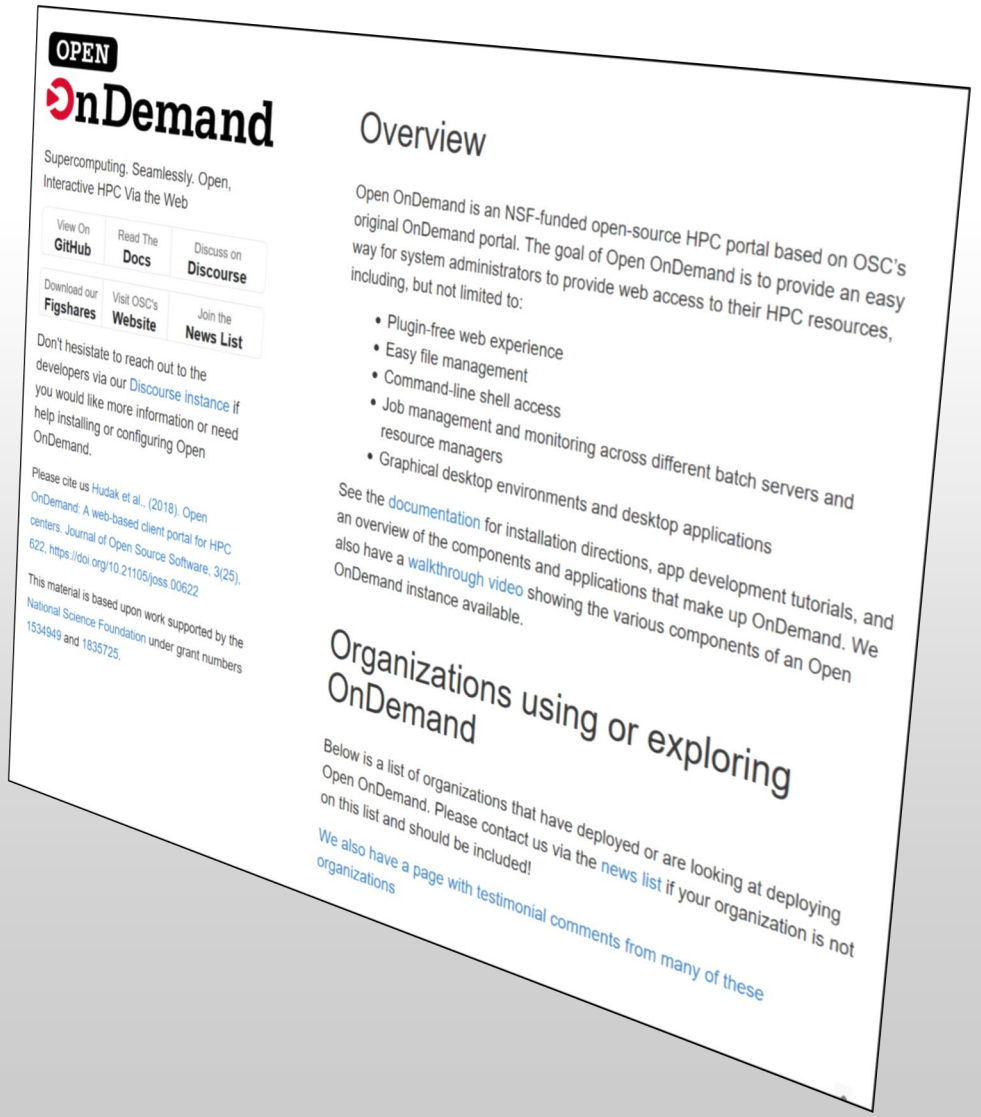
Production Deployments

In Process of Installing

Find Out More!

openondemand.org

- Use our Discourse instance for help
- Join our mailing list for updates
- Our webinars are roughly quarterly



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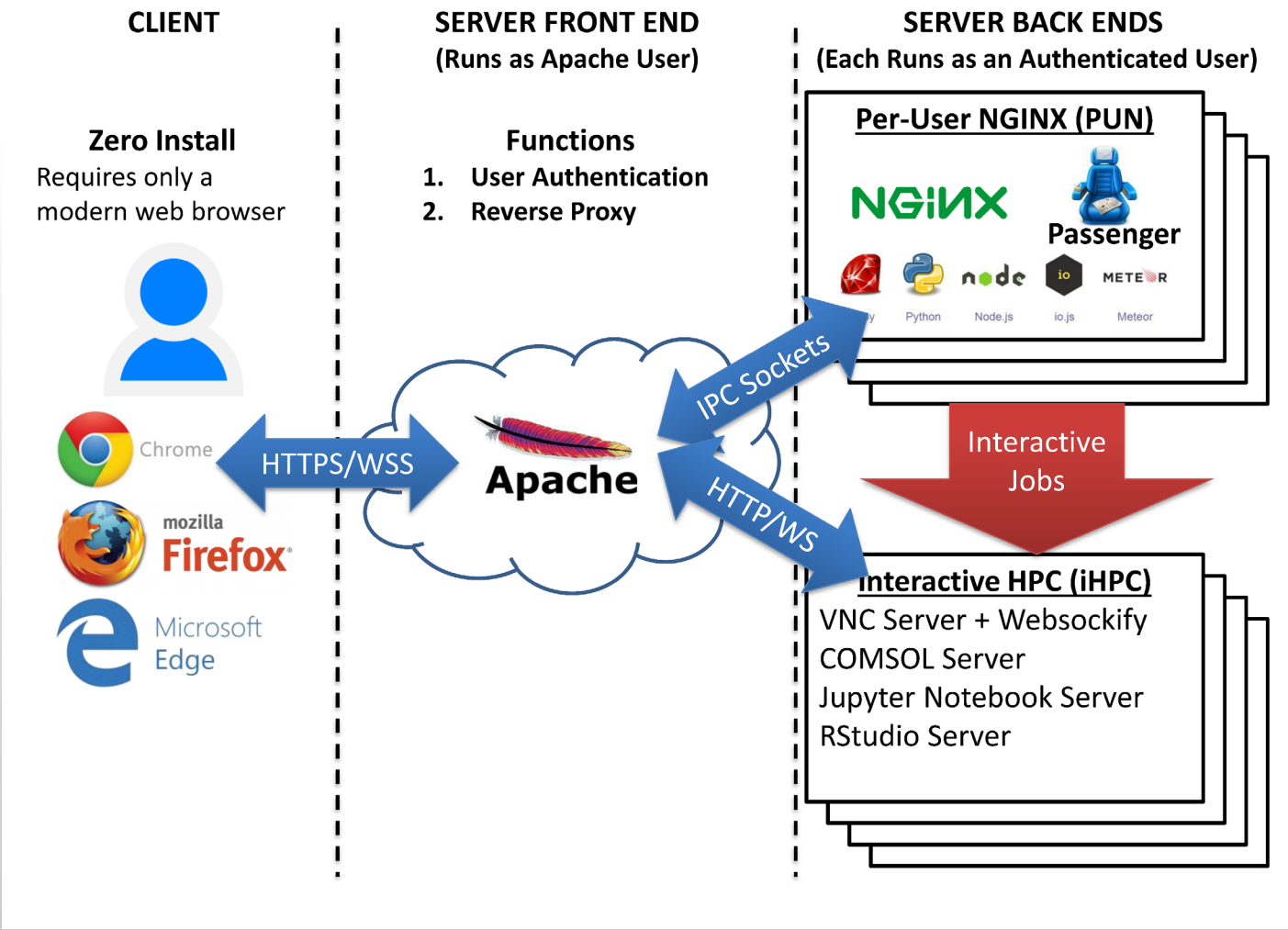
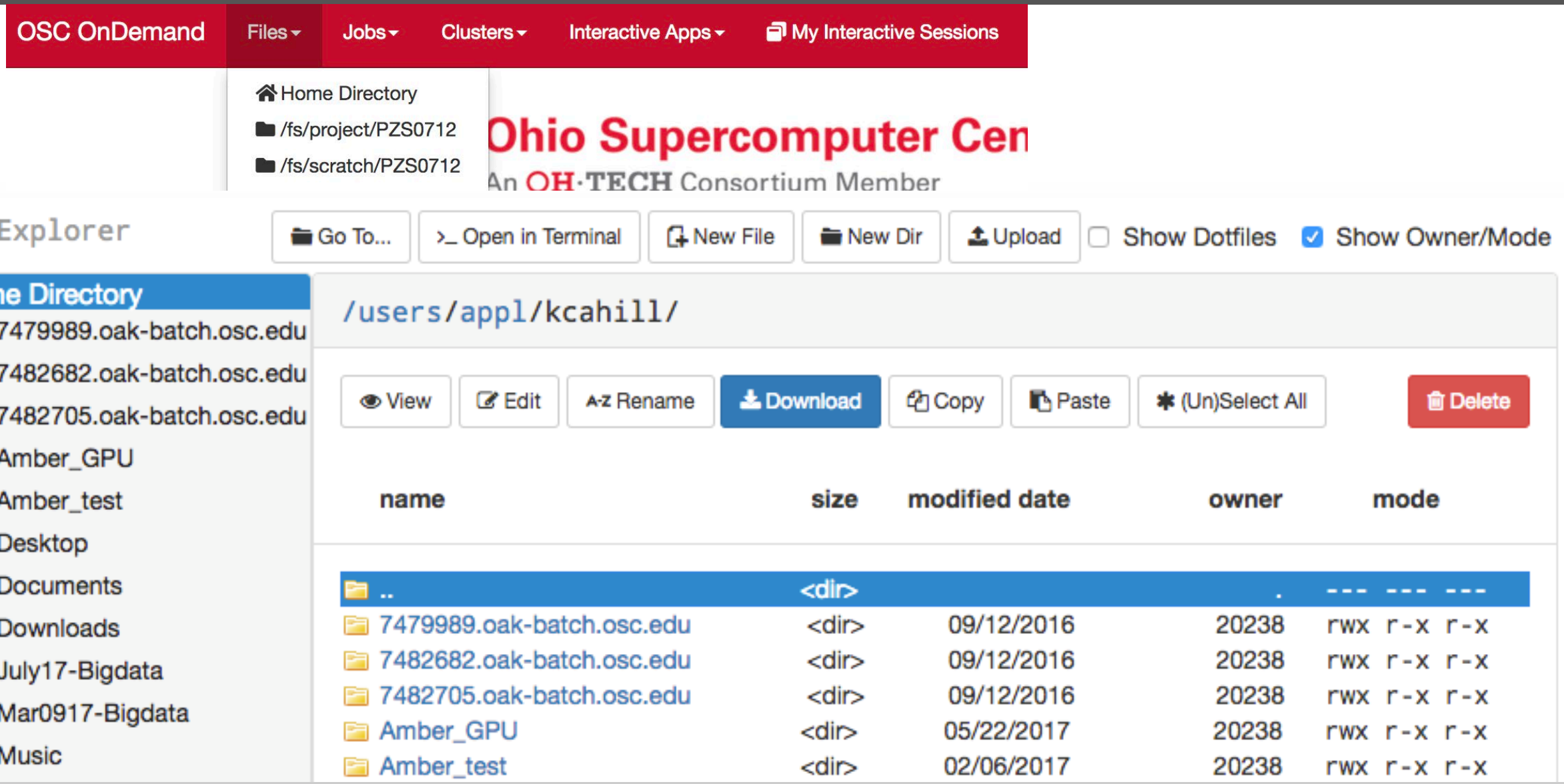
OPEN OnDemand

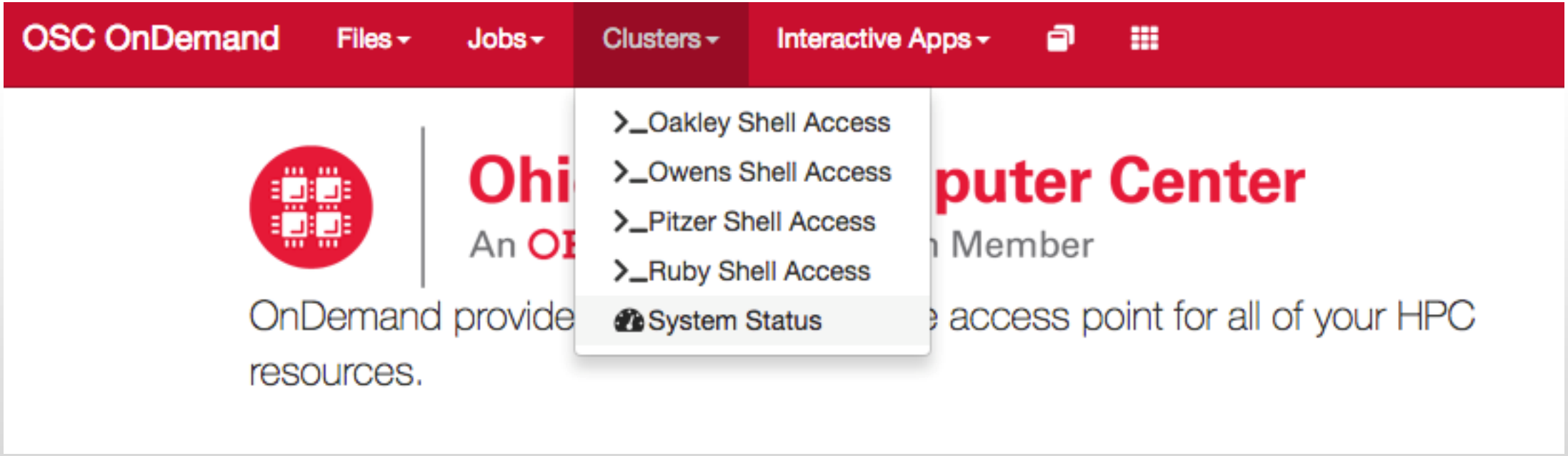
Architecture



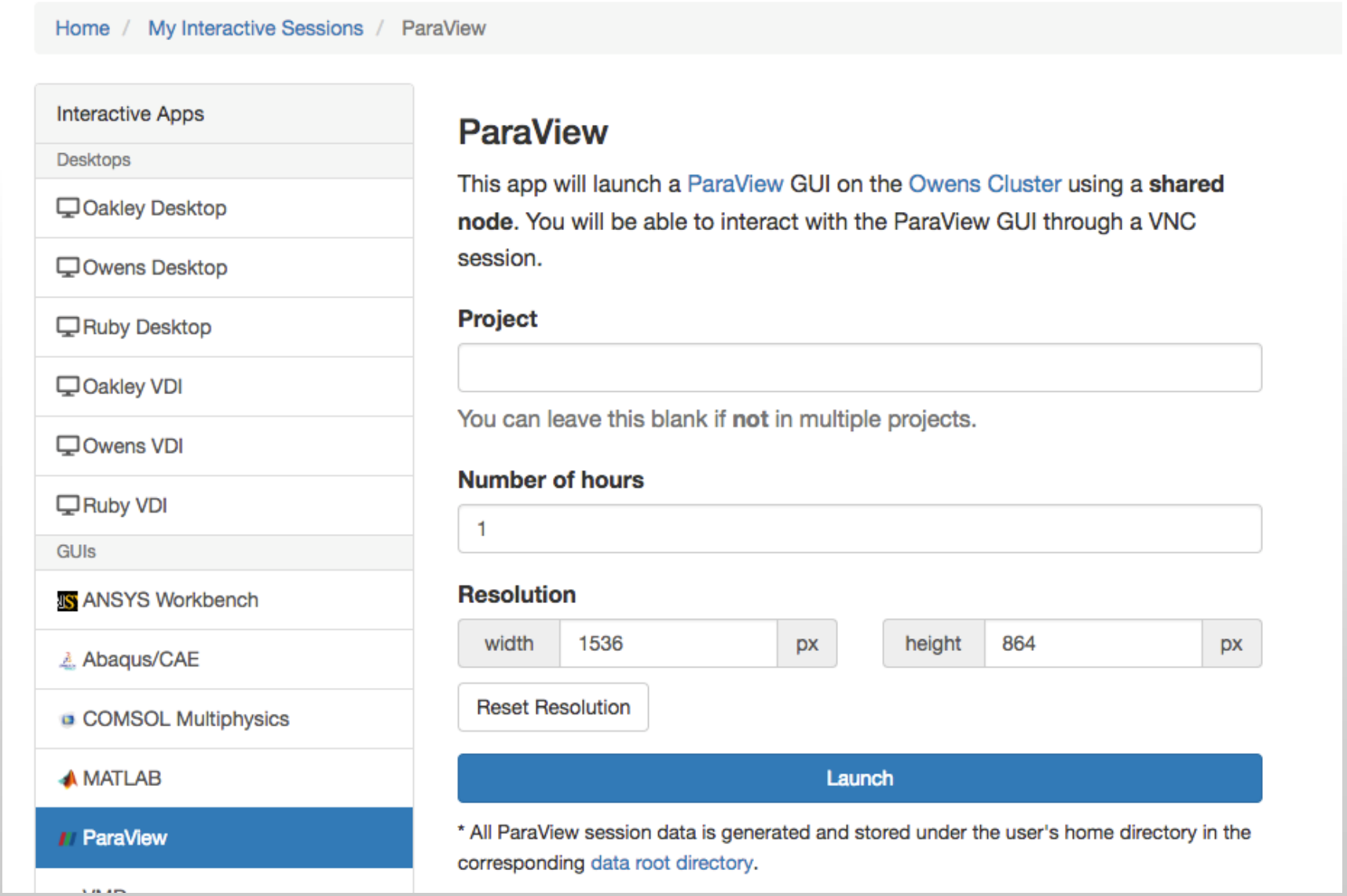
Walkthrough – File Explorer



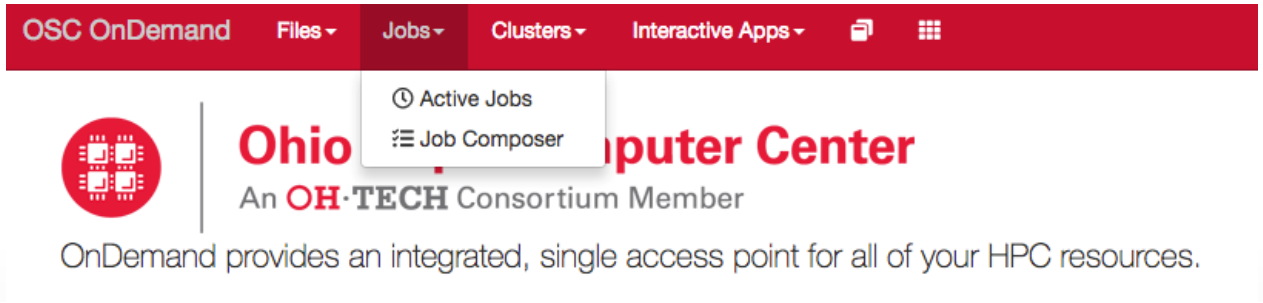
Walkthrough – Clusters

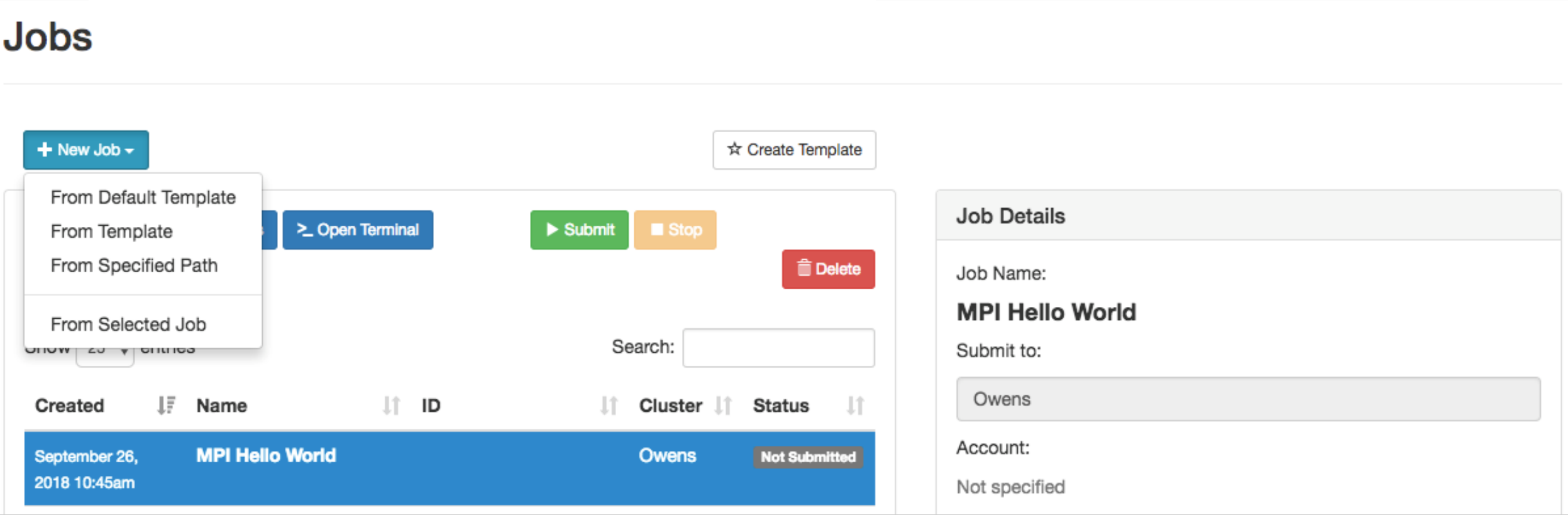


Walkthrough – Apps



Walkthrough – Jobs





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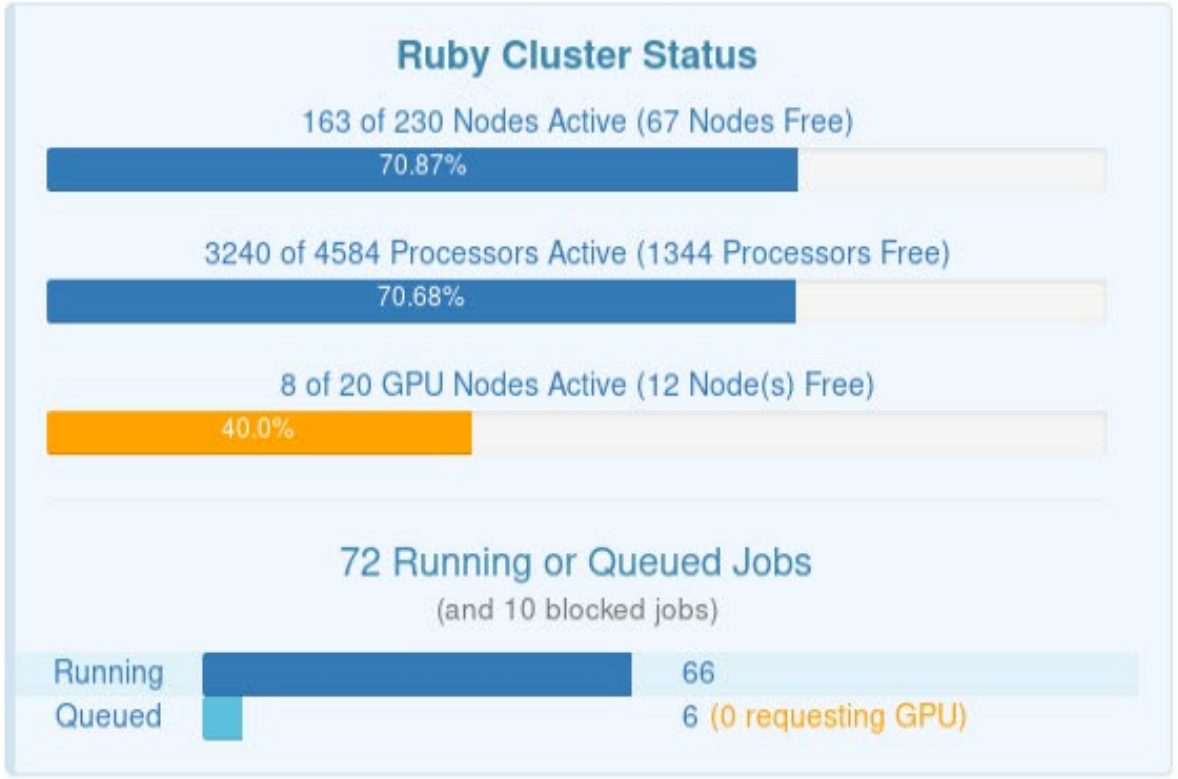
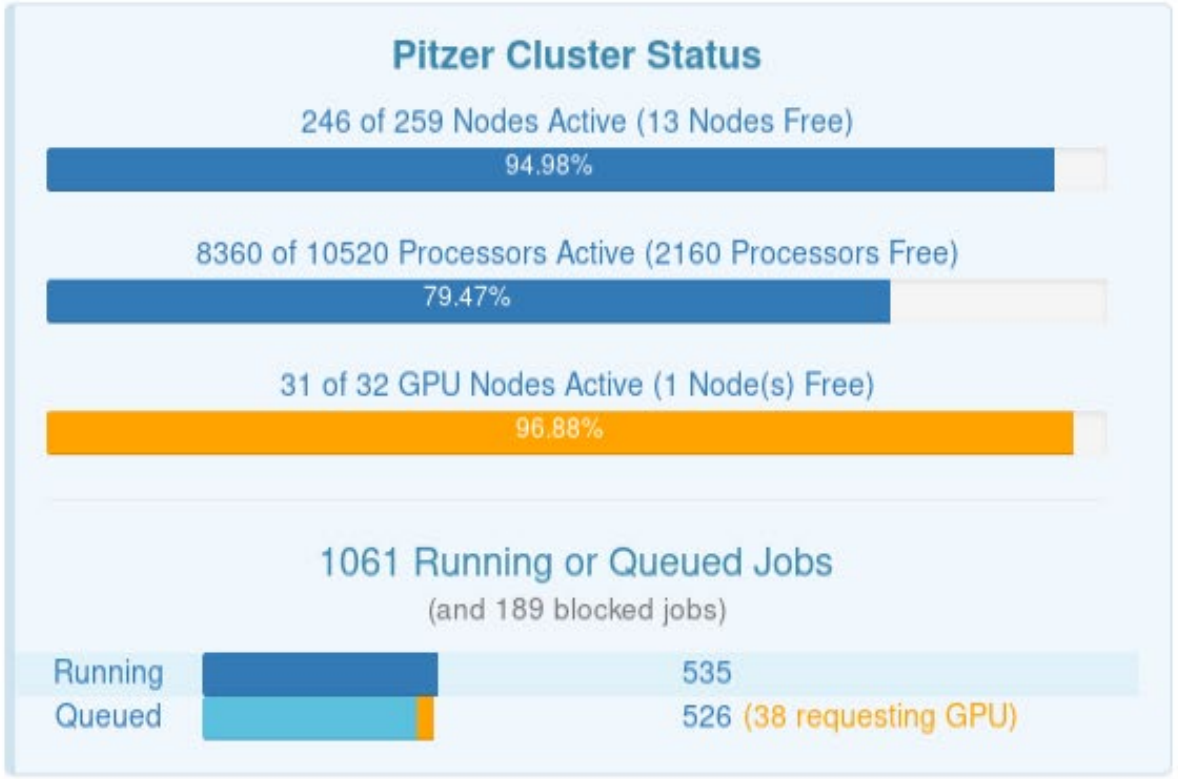
OPEN OnDemand

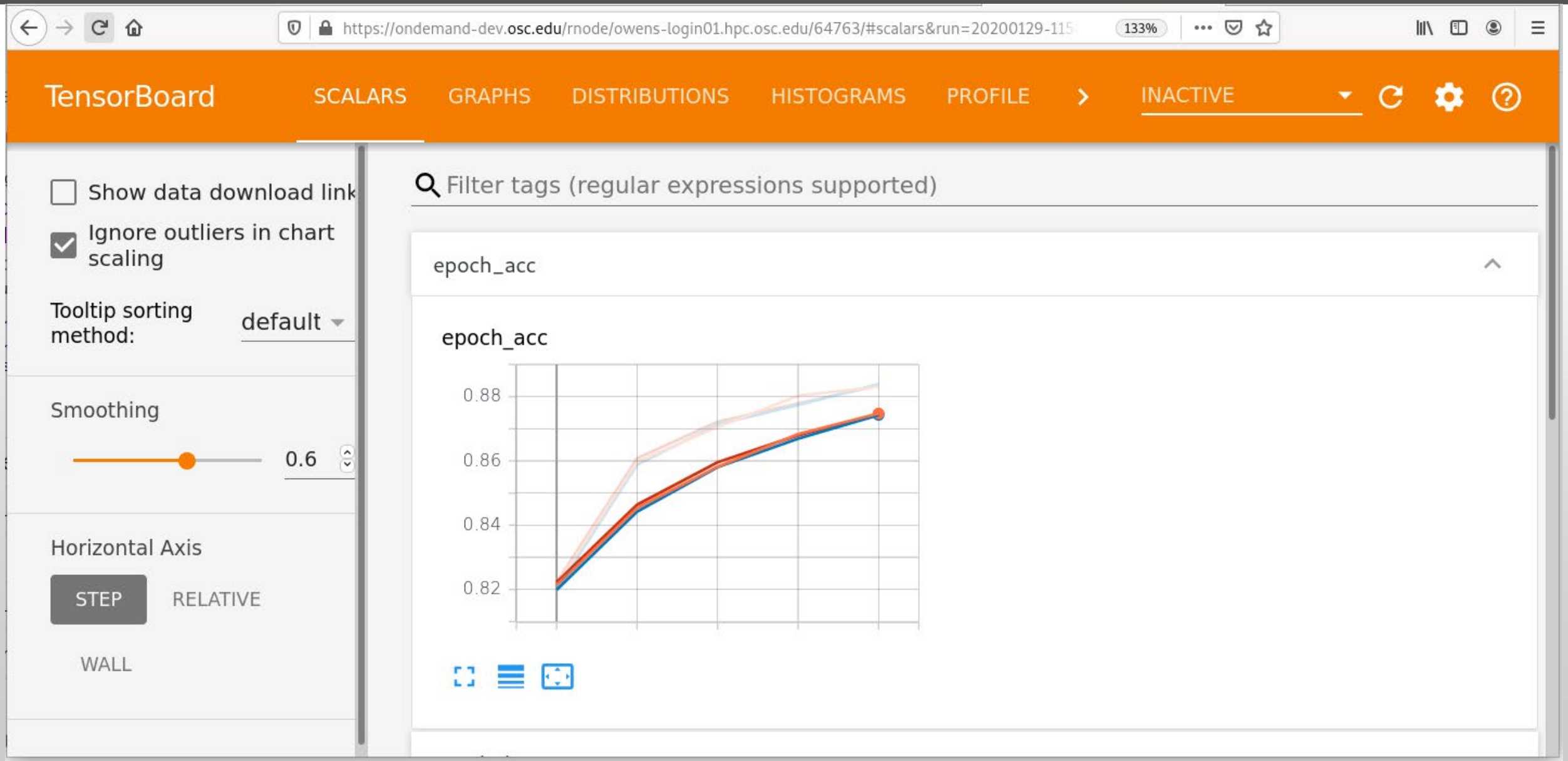
System Status with GPUs



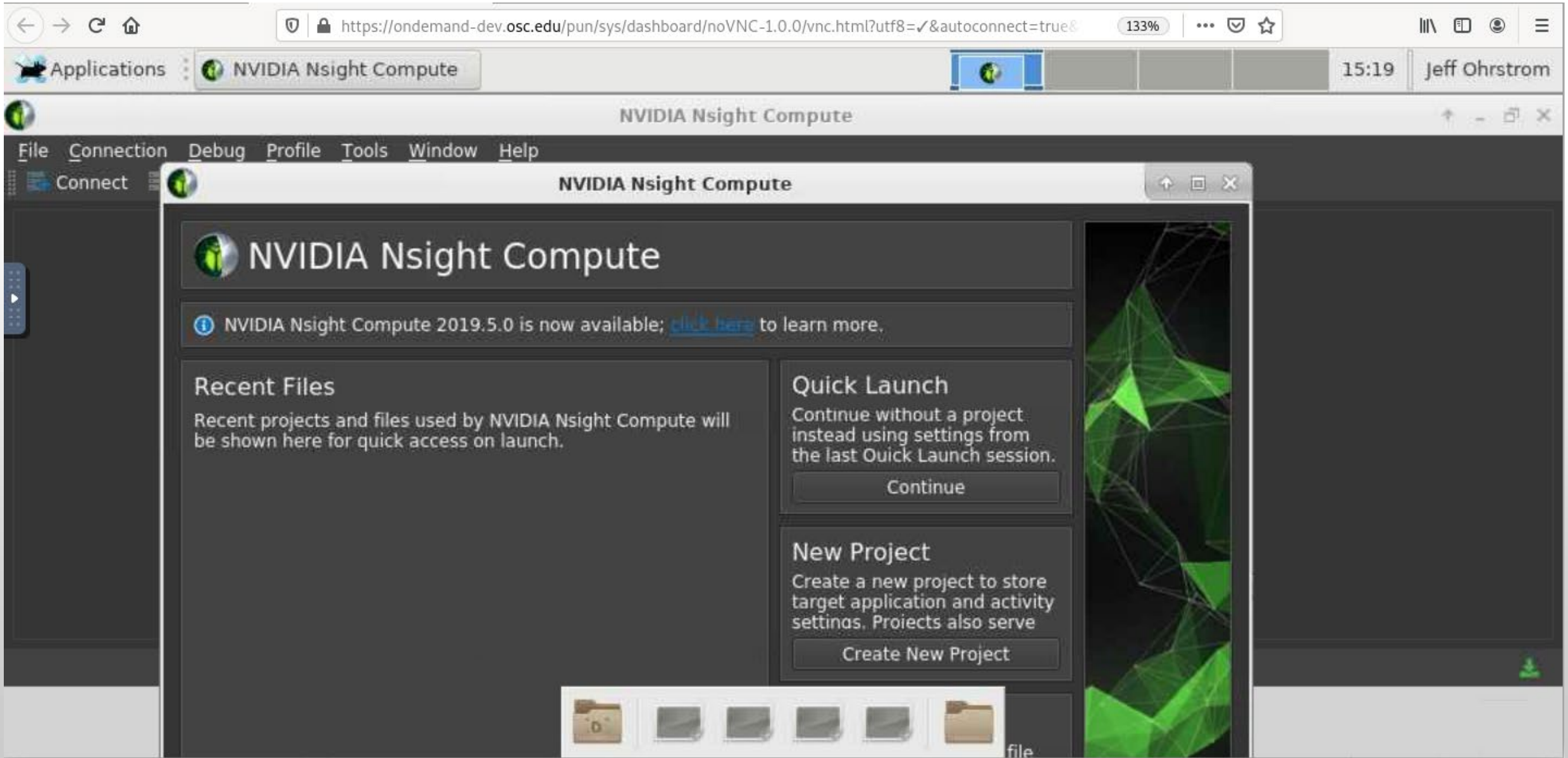


Tensorboard App (Video)

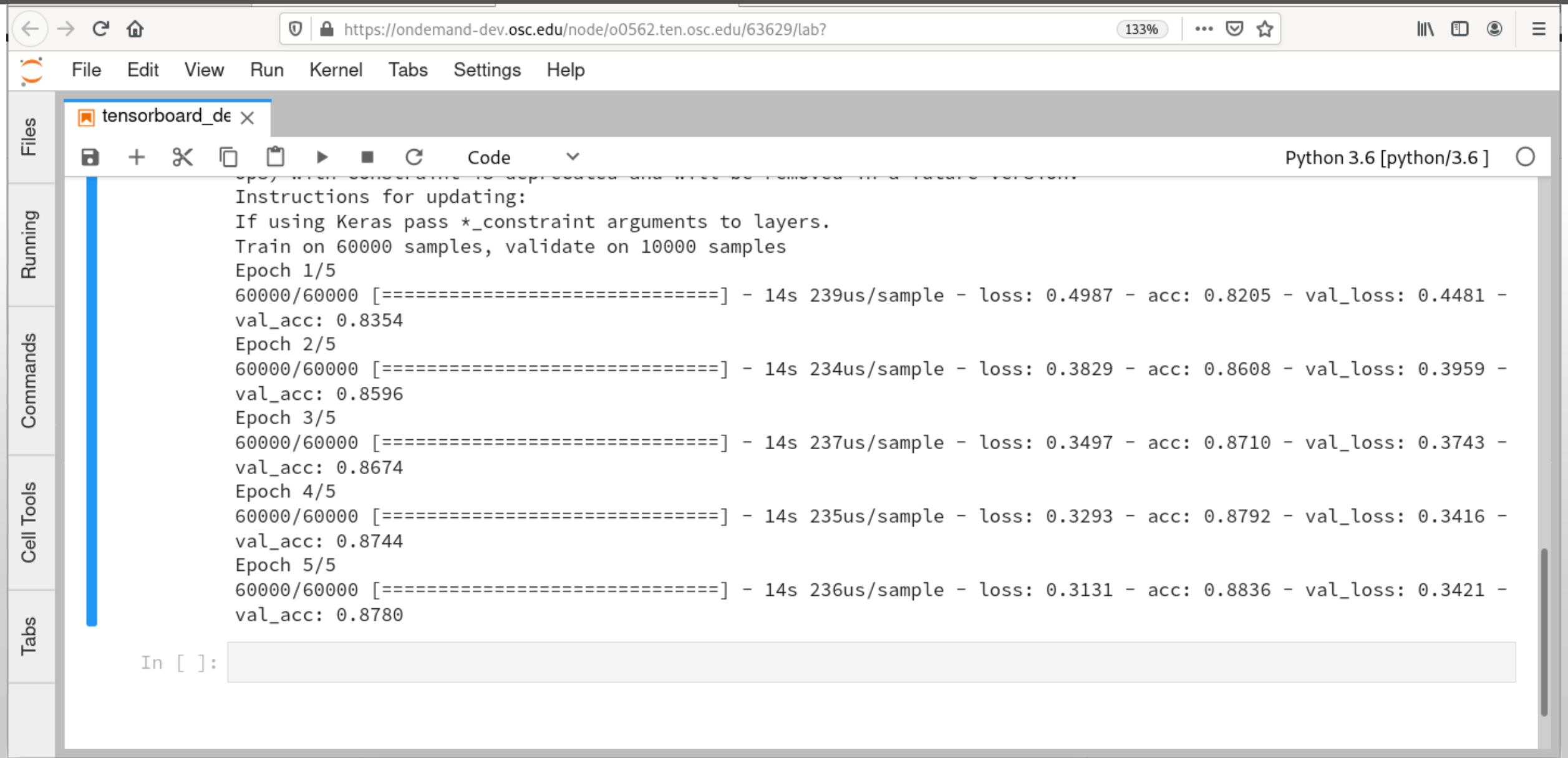
Tensorboard App (Screenshot)



NVIDIA nsight App



Jupyter with TensorFlow App



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