Open OnDemand - OpenHPC Integration

Ohio Supercomputer Center

NOR-TECH
People Friendly Technology

OPEN OnDemand

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Webinar Agenda

1. **About Open OnDemand**

2. About Nor-Tech

3. Open OnDemand – OpenHPC integration

4. Questions

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
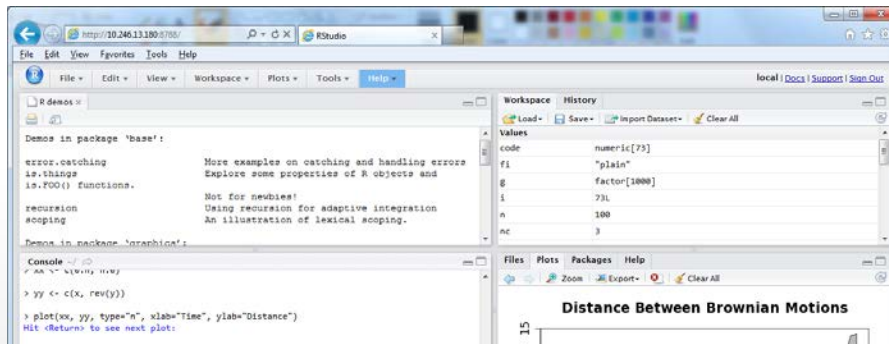- Graphical desktop environments and applications
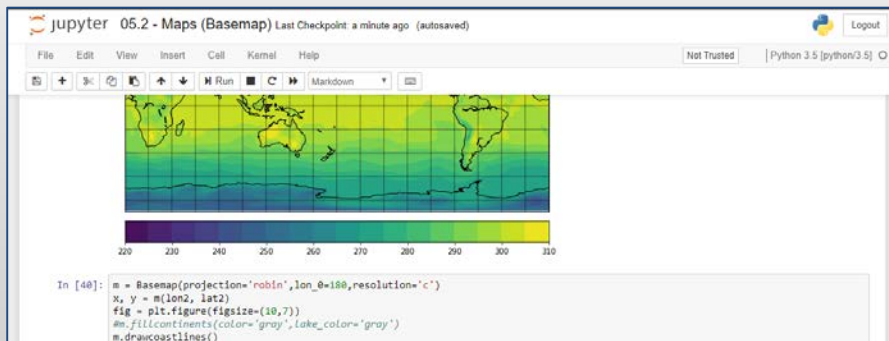
Interactive Apps & Cluster Access
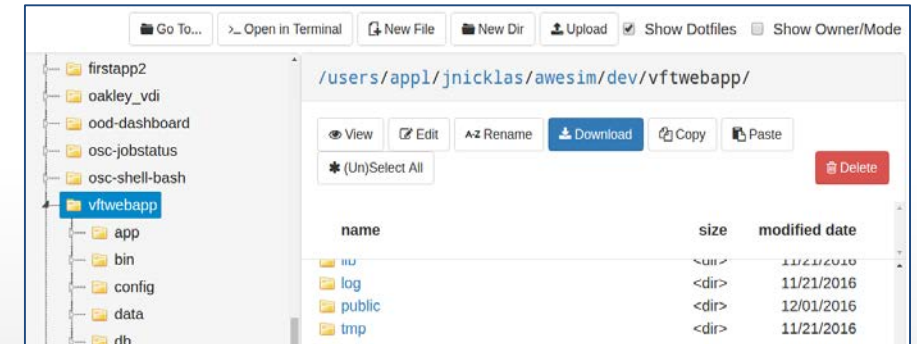
RStudio Server – R IDE

File Access (browse, edit, etc)

Jupyter Notebook – Python IDE

Manage Jobs (view, submit, etc)

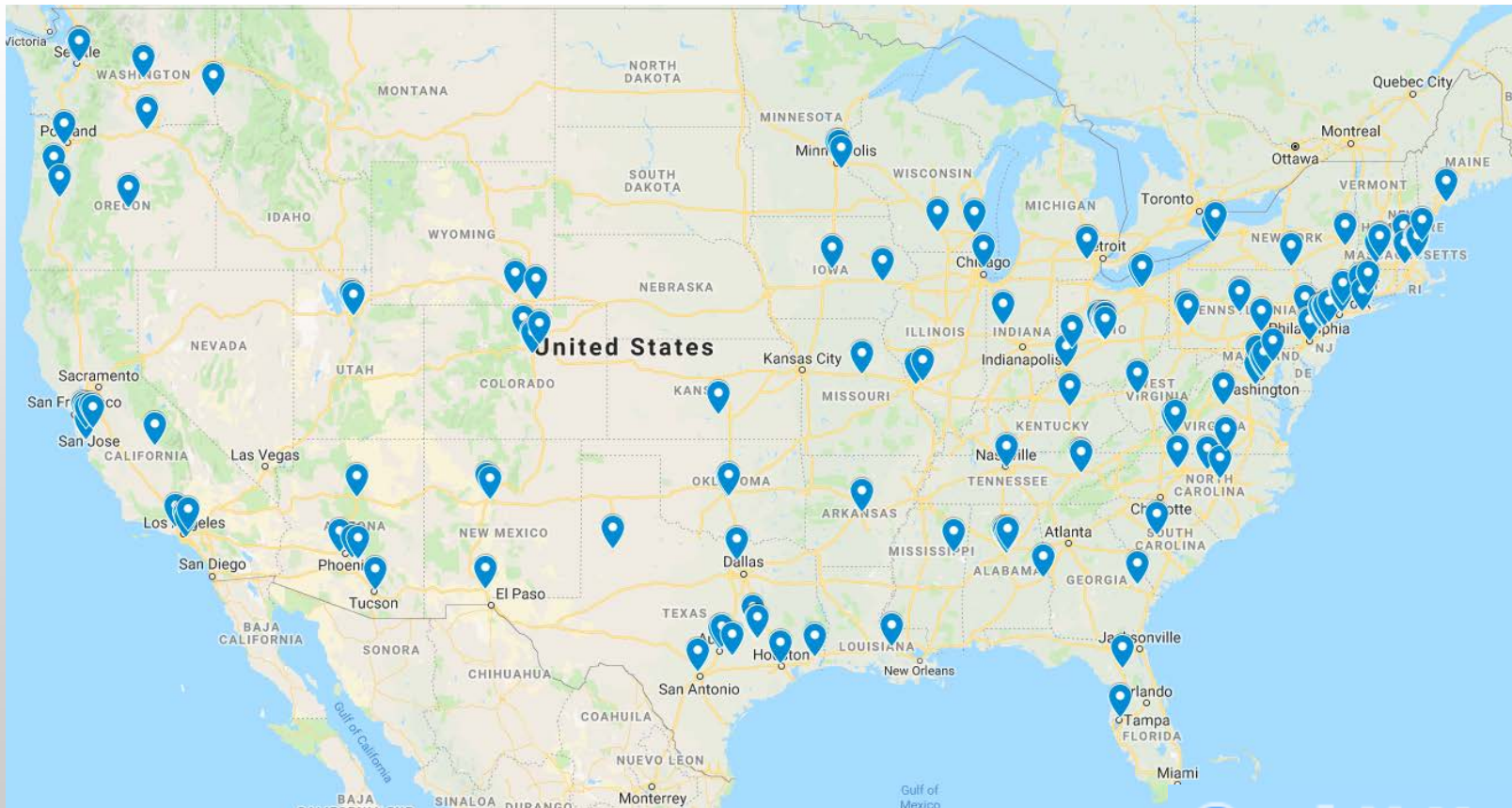And many more, such as ANSYS Workbench, Abaqus/CAE, MATLAB, Paraview, COMSOL Multiphysics
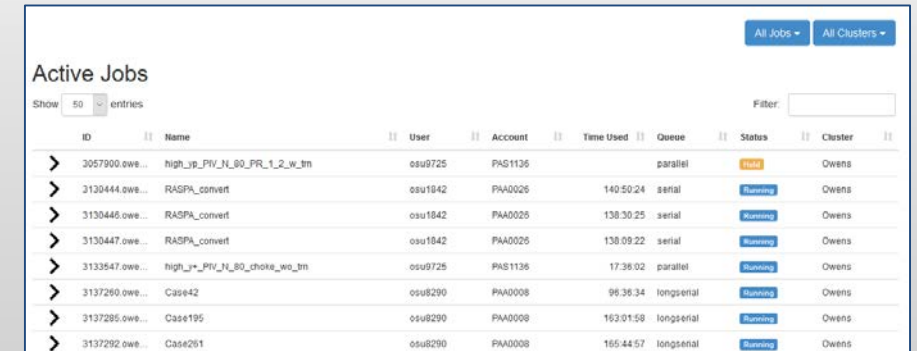
And many more, such as in-browser SSH terminal, job constructors, VNC desktops
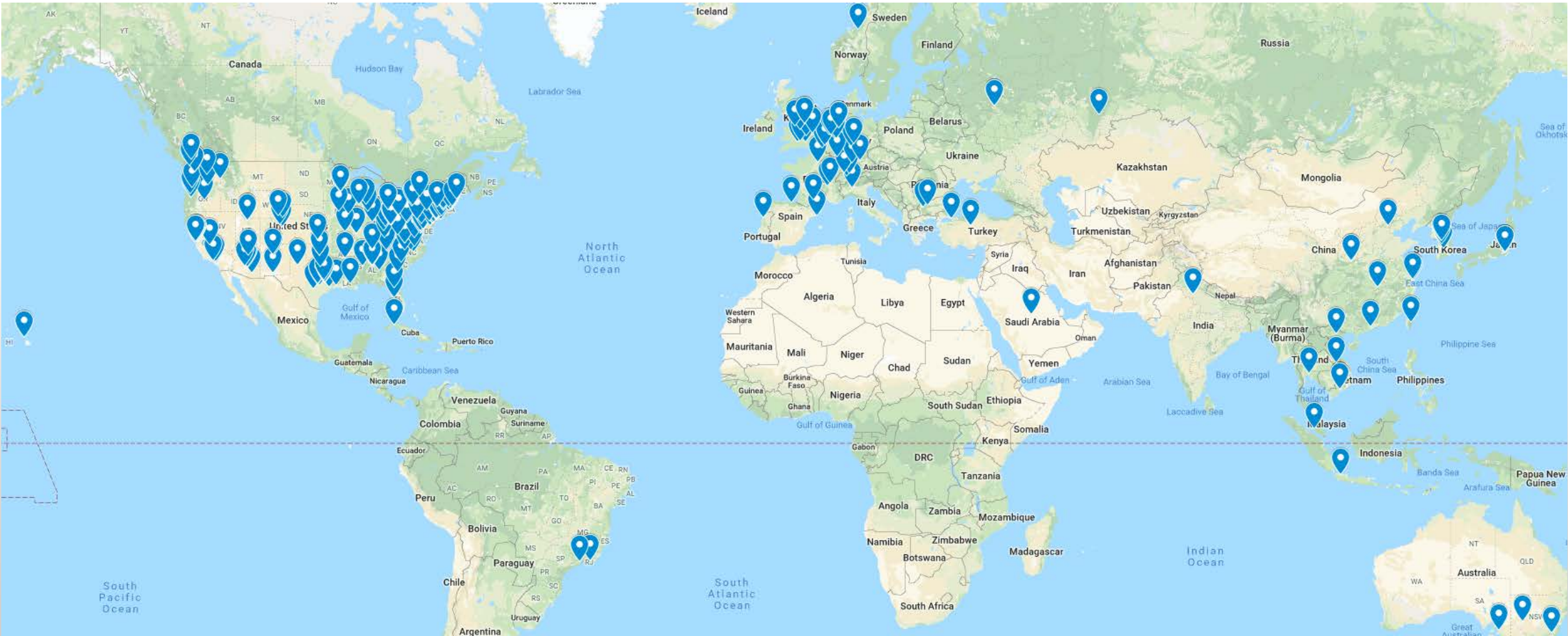
Approx Number of Institutions based on RPM logs

- 136 unique US locations

- 70 unique international locations

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

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Who is Nor-Tech?

Nor-Tech's headquarters in Burnsville, Minnesota.

- Nor-Tech is a Leading Provider of Turnkey Cluster Solutions

- Nor-Tech has been a leader in HPC Clusters solutions for more than 20 years

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CONTRACTS

GSA Contract Holder
Contract GS-35F-0030V

Public / Private Educational Institutions and Government agencies may purchase directly from Nor-Tech utilizing our GSA Contract # GS-35F-133CA.

- Contract with the University of Wisconsin since 2003 CONTRACT #15-2308

- Contract with state of Minnesota CONTRACT #160318

- Only HPC company invited by NASA to exhibit at NASA Expo 2019 in D.C.

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A Spectrum of Cluster Sizes

- Rackmount HPC Clusters
- Portable HPC Clusters
- Modular Servers / Blades
- NAS, SAN & iSCSI Storage Servers

Also

- Voyageur Desktop PCs
- Small-Form Factor PCs
- Notebooks & Netbooks
- Mini & Mountable PCs
- and much, much more…

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Achieve Better ROI with Nor-Tech's Simulation & Modeling HPC

- Intel & AMD Demo Clusters Available
- Run your jobs, build your ROI case
- Test on latest Hardware & Applications
- HPC Integration Partner with Sim/Mod Major ISV's
- Average of 20 years of Linux Experience

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OPEN OnDemand

Why Open OnDemand with OpenHPC

- Many CAE users are Moving from Windows Workstations to HPC Solvers

- Many users are uncomfortable with Command Line Interface (CLI)

- Many users are uncomfortable with the Linux OS

- Many users are uncomfortable with CLI file upload and download utilities

- Most users are very comfortable with GUI Browser Interfaces

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What is OpenHPC

OpenHPC provides collection of Open-Source HPC software components, to lower barriers to deployment of modern HPC methods and tools.

See link: https://github.com/openhpc/ohpc/wiki/Papers,--Presentations,-and-Tutorials

See pdf schulz-openhpc-hpckp-2019.pdf pages 3 - 13

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The Cost Factor

- Prior to OHPC and OOD Commercial Cluster Managers had GUI

- Commercial Cluster Managers have Significant License Cost

- OHPC & OOD can Reduce $$$ shock of moving from Wkst to HPC solvers

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The Cost Factor

- No Extra Hardware Cost to add Open OnDemand (OOD) to OHPC

- OOD Web Server Runs on Cluster Head Node as a KVM Virtual Machine

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User Friendly HPC

- KVM Virtual Machine is Managed by GUI virt-manager
  https://www.linuxtechi.com/install-kvm-hypervisor-on-centos-7-and-rhel-7/

- OOD Image is Just Another VNFS Image on Head Node
  VNFS (Virtual Node File System)
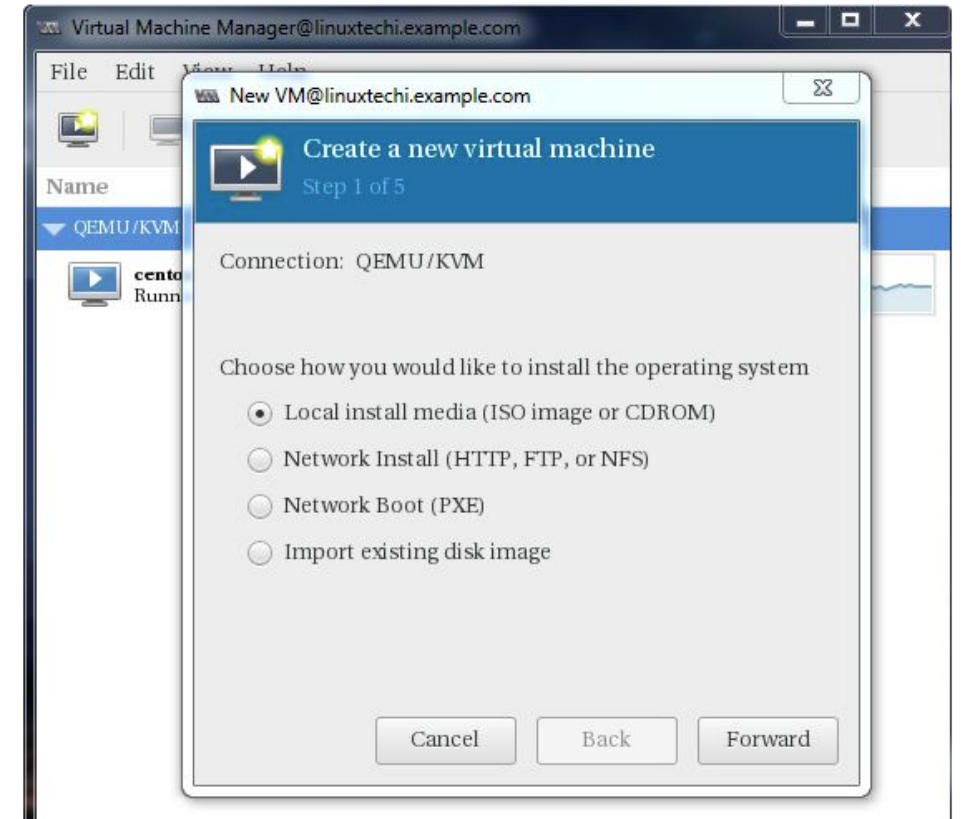
User Friendly HPC

- OOD is Managed with same OHPC tools that Manage Compute Nodes

- VM OOD Boots and Loads Every Time Head Boots Up

- Cluster Users & OOD Users are Automatically Sync'd

www.nor-tech.com/leading-edge/open_ondemand/

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Staying in Touch

- Visit our websites
  - http://openondemand.org
  - https://www.nor-tech.com/contact-2018/
- 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