



OPEN **nDemand**

OSC has a job opening on the Open OnDemand team!

Full details are available here:

<https://www.oh-tech.org/employment#ohio-supercomputer-center>

User Group BoF Agenda



Ohio Supercomputer Center



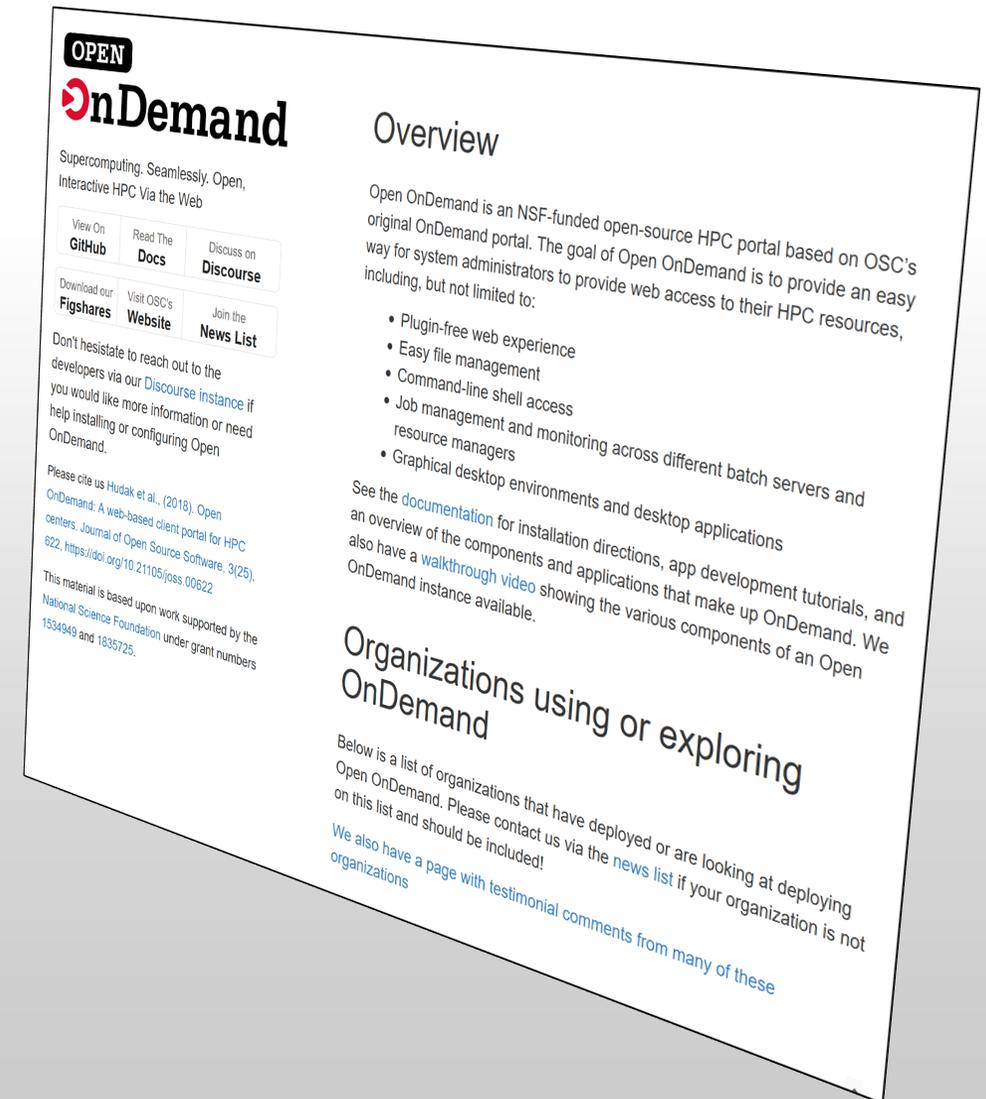
1. **About Open OnDemand**
2. Open OnDemand 2.0 Features
3. Project Planning Revamp
4. Key Items of Note
5. Open Floor Discussion

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Find Out More!

openondemand.org

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



Supercomputing. Seamlessly.

An intuitive, innovative, and interactive interface to remote computing resources

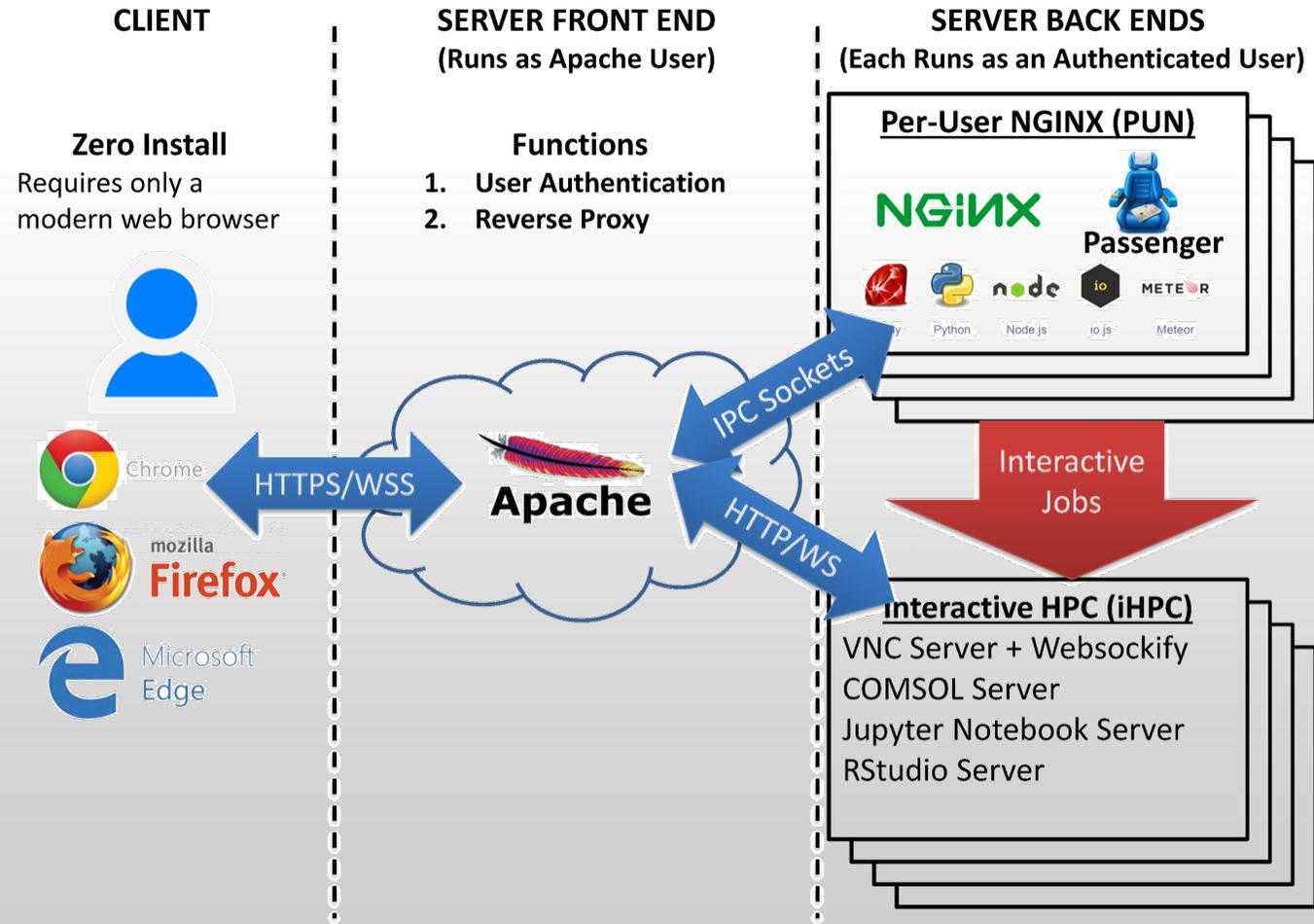
Open OnDemand helps computational researchers and students efficiently utilize remote computing resources by making them easy to access from any device. It helps computer center staff support a wide range of clients by simplifying the user interface and experience.

Key Benefits & Impact

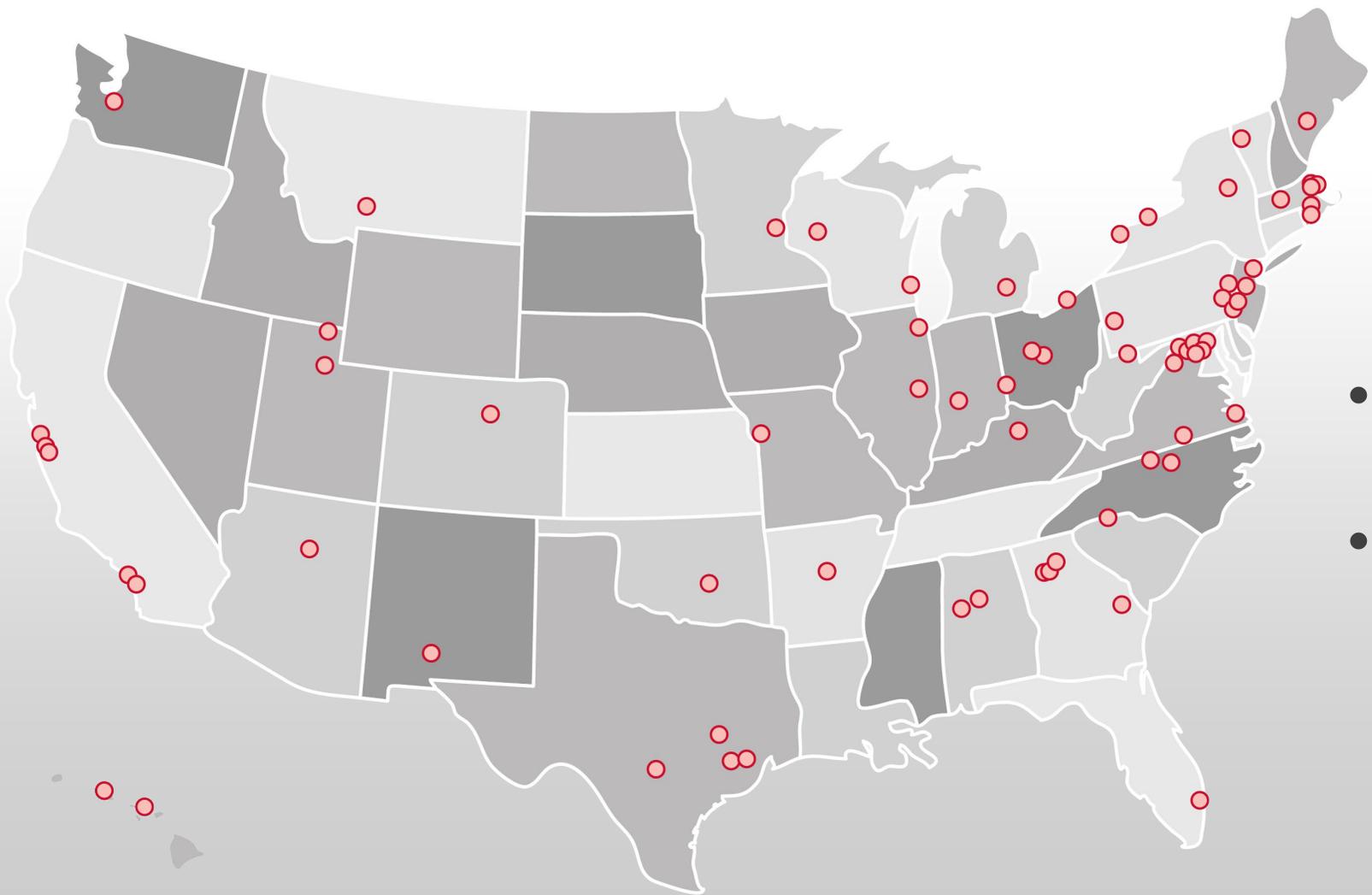
- Key benefit to you, the end user:
You can use any web browser to access resources at a computing service provider.
- Key benefit to you, the computer center staff:
A wide range of clients/needs can utilize your computing resources.
- Overall impact:
Users are able to use remote computing resources faster and more efficiently.



Architecture



Approx Number of Institutions based on RPM logs



- 136 unique US locations
- 70 unique international locations

Example Current Engagements and Deployments

In Process of Installing



Production Deployments



Open OnDemand Project Overview



Ohio Supercomputer Center



- 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

User Group BoF Agenda



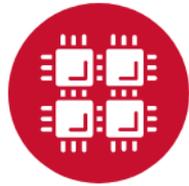
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Pinning Apps to the Dashboard



Ohio Supercomputer Center

An OH-TECH Consortium Member

OnDemand provides an integrated, single access point for all of your HPC resources.

Pinned Apps A featured subset of [all available apps](#)



IQmol
System Installed App



RStudio Server (Owens and Pitzer)
Sandbox App



Abacus/CAE
System Installed App



Jupyter (Owens and Pitzer)
Sandbox App



Pitzer Desktop
System Installed App



Home Directory
System Installed App

Configurable Landing Page Layout

The screenshot shows a web interface for the Ohio Supercomputer Center. At the top is a blue navigation bar with a logo on the left and menu items: Apps, Files, Jobs, Clusters, Interactive Apps, Gateway Apps, My Interactive Sessions, All Apps, Develop, Help, and a user status 'Logged in as johrstrom' with a Log Out button.

Below the navigation bar is the main content area. On the left is a red circular logo with a white circuit-like pattern. To its right is the text 'Ohio Supercomputer Center' in large red font, followed by 'An OH-TECH Consortium Member' in grey. Below this is a line of text: 'OnDemand provides an integrated, single access point for all of your HPC resources.'

The main content is divided into three columns:

- Left Column:** Titled 'johrstrom's current groups', it contains a table with a 'Group' header and several rows of group IDs: PZS0714, PAS1759, PAS1936, PAS1604, PZS1008, PZS1010, and PZS1117.
- Middle Column:** Titled 'Pinned Apps A featured subset of all available apps', it is divided into two sections:
 - Desktops:** A blue header bar above three desktop icons. The first is 'Owens Desktop', the second is 'Pitzer Desktop', and the third is 'VDI (Owens and Pitzer)'. Each icon has 'System Installed App' written below it.
 - GUIs:** A blue header bar above four application icons: ANSYS Workbench, SIMULIA Abaqus/CAE, COMSOL Multiphysics, and IQmol. Each icon has 'System Installed App' written below it.
- Right Column:** Titled 'Message of the Day', it contains a date '2021-07-07 - Please review your usage of /fs/ess' and a paragraph of text: 'Recent improvements to a routine OSC accounting process resulted in larger adjustments to file counts and quota usages than anticipated for some accounts. The updated metrics are more accurate but some users may now have less free space than expected. Please review your usage closely and, if necessary, remove unneeded data or request a quota expansion via OSCHelp to avoid exhausting your...'.

Add custom widgets- Left most groups widget is completely custom

New Files App

OSC OnDemand Files Jobs Clusters Interactive Apps My Interactive Sessions All Apps Develop Help Logged in as johrstrom Log Out

Open in Terminal
New File
New Directory
Upload
Download
Copy/Move
Delete

Home Directory

- /fs/project/PZS0714
- /fs/project/PAS1604
- /fs/scratch/PZS0714
- /fs/scratch/PAS1759
- /fs/scratch/PAS1604
- /fs/scratch/PZS1008
- /fs/scratch/PZS1010
- /fs/ess/scratch/PZS0714
- /fs/ess/scratch/PAS1936
- /fs/ess/scratch/PZS1117
- /fs/ess/PZS0714
- /fs/ess/PAS1759
- /fs/ess/PZS1008

↑ / users / PZS0714 / johrstrom / Change directory Copy path

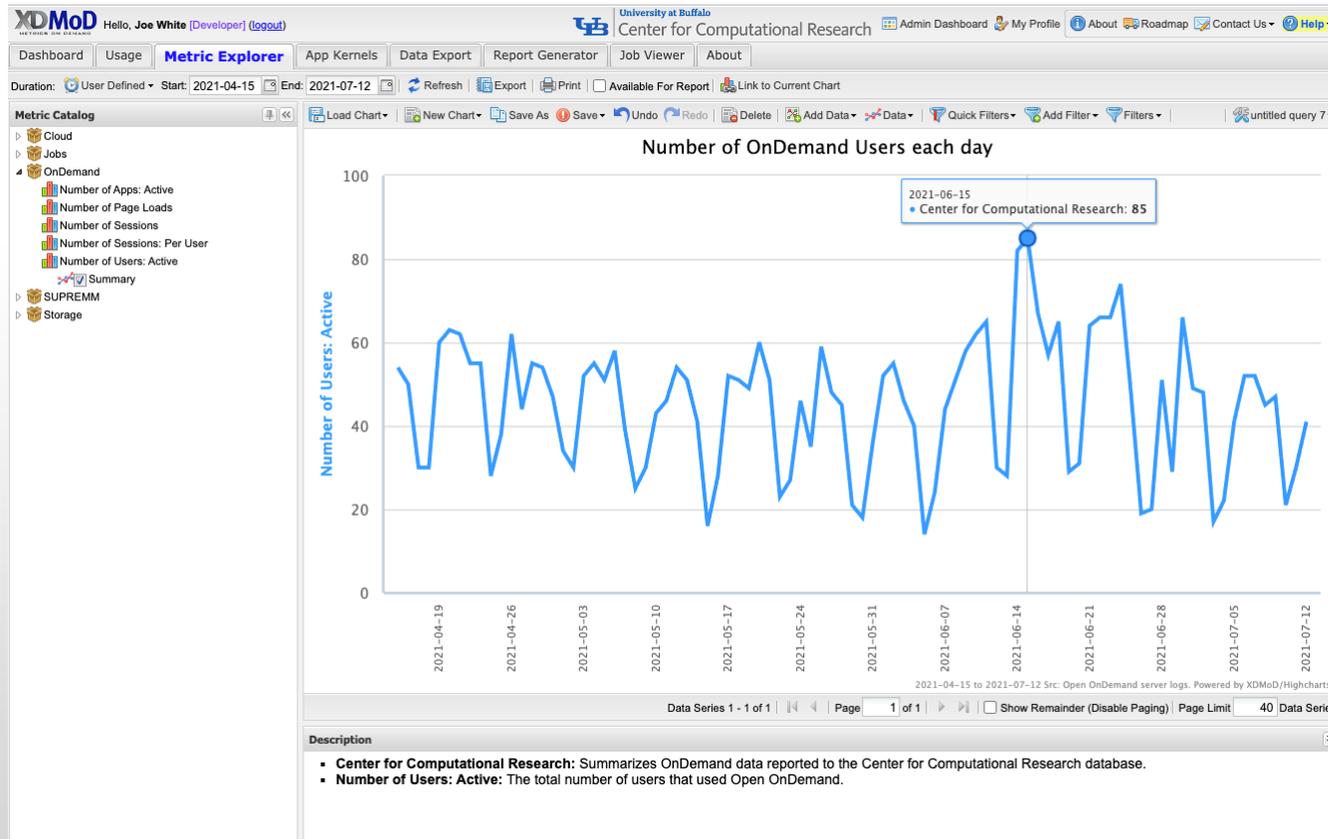
Show Owner/Mode
 Show Dotfiles
 Filter:

Showing 27 of 136 rows - 0 rows selected

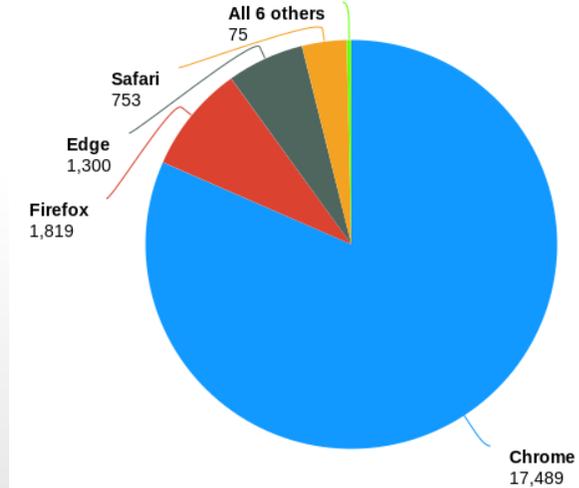
Type	Name	Size	Modified at	Owner	Mode
<input type="checkbox"/> Folder	Adlm	-	7/31/2019 12:38:55 PM	johrstrom	750
<input type="checkbox"/> Folder	awesim	-	3/5/2021 3:55:52 PM	johrstrom	750
<input type="checkbox"/> Folder	bin	-	6/10/2021 5:44:00 PM	johrstrom	750
<input type="checkbox"/> Folder	Desktop	-	6/7/2021 3:33:18 PM	johrstrom	750
<input type="checkbox"/> Folder	Documents	-	4/13/2020 2:37:10 PM	johrstrom	750
<input type="checkbox"/> Folder	Downloads	-	6/10/2019 4:05:28 PM	johrstrom	750
<input type="checkbox"/> Folder	drop	-	6/1/2021 9:01:25 AM	johrstrom	750

This will make it easier to maintain and add new features.

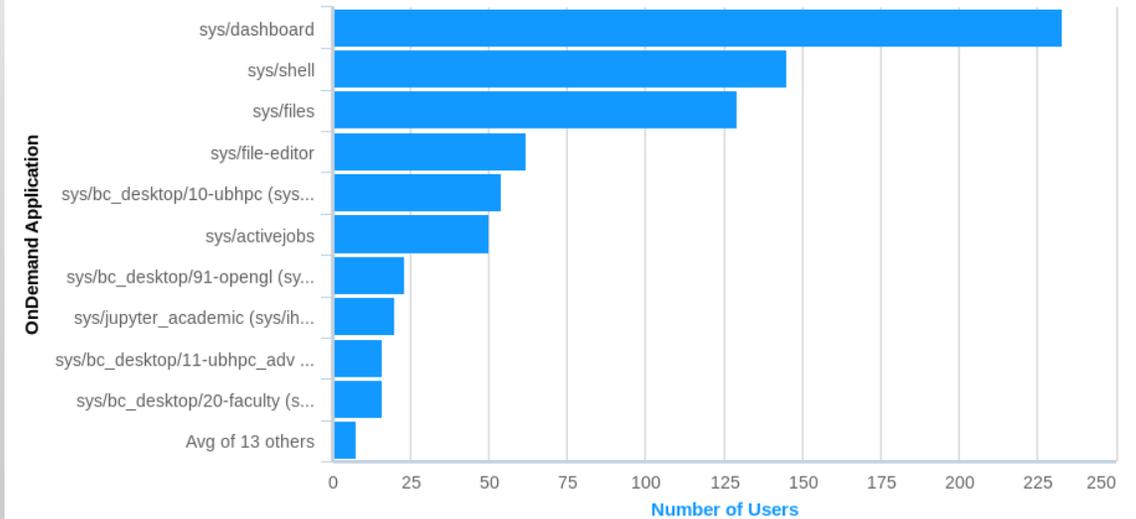
OnDemand Metrics in XDMoD



Open OnDemand Sessions By Browser



Top 10 Open OnDemand Apps by Number of distinct users



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Project Planning Revamp

- We're trying to drive engagement on features that matter.
- GitHub Projects now show the progress of large upcoming features
 - Examples are new Job Composer or Ubuntu packaging
- There's an 'Entire Project' that shows estimated version of different features
- GitHub milestones track smaller issues to a given release.

GitHub Projects

OSC / ondemand

Unwatch 11 Unstar 46 Fork 35

Code Issues 381 Pull requests 22 Actions **Projects 6** Wiki Security 6 Insights Settings

is:open

New project

6 Open ✓ 3 Closed		Sort ▾
Entire Project Updated 20 days ago	10,000 foot view of the project's progress.	⋮
APIs Updated 14 days ago	APIs for creating and managing jobs.	⋮
JavaScript Optimization Updated 24 days ago	Refactor and optimize the way we package javascript for performance and easier maintenance.	⋮
New Job Composer Alpha Updated 24 days ago	Brand new Job Composer app which is way more configurable. Released as alpha behind a feature flag.	⋮
Quick Launch Icons Updated 15 days ago	This project is to enable quick launch icons that start apps based on some set parameters. Users won't need to use a web form, instead just submitting the job with presets.	⋮
Ubuntu Packaging Updated yesterday	This project intends to add support for building .deb packages for Ubuntu focal (20.04).	⋮

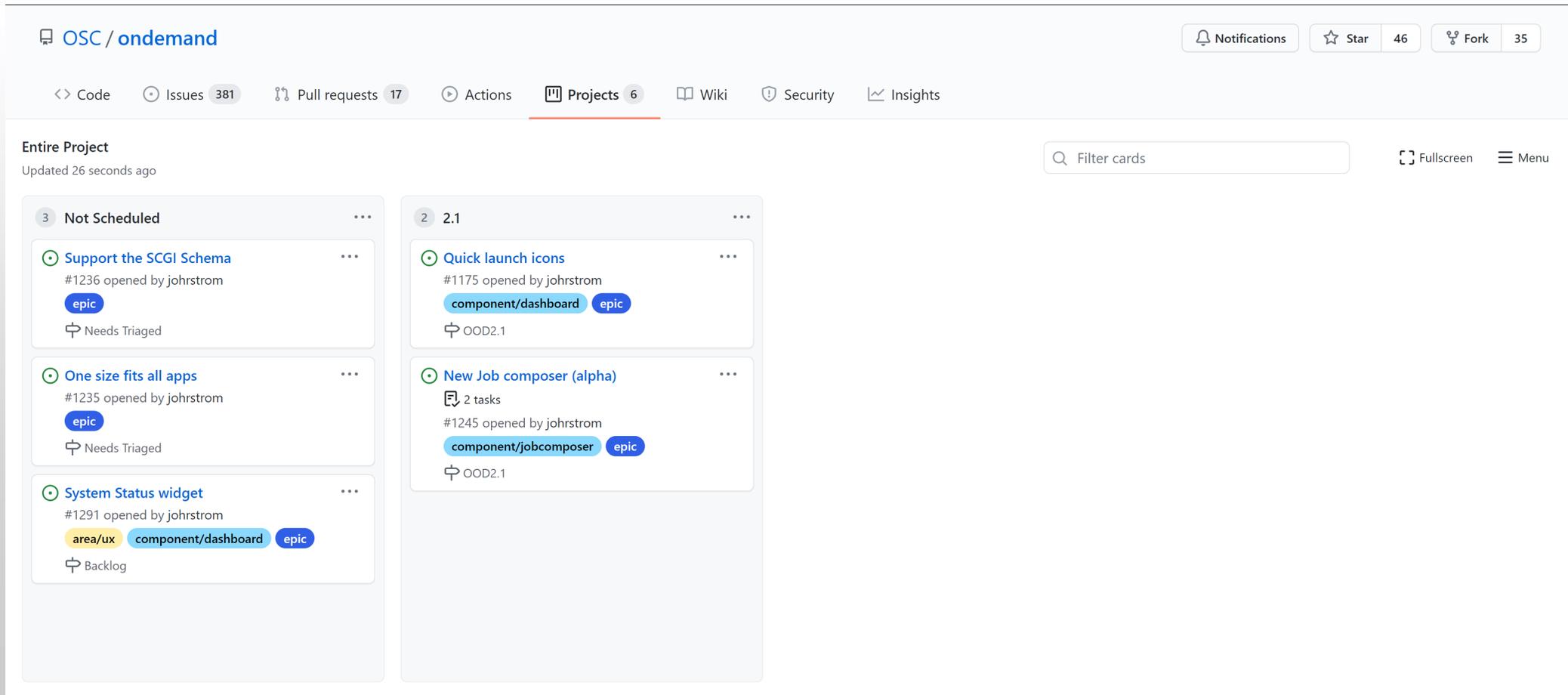
Current Projects in Flight

- APIs
- New Job Composer (alpha)
- Quick Launch Icons
- Ubuntu Packaging
- Kubernetes

Comment on tickets or react with thumbs +/- 1!

Entire Project View

- Entire Project view shows feature commitments
- Trying to limit promises in progress



The screenshot shows the GitHub interface for the repository `OSC / ondemand`. The navigation bar includes links for Code, Issues (381), Pull requests (17), Actions, Projects (6), Wiki, Security, and Insights. The 'Projects' tab is active, displaying a grid of project cards.

Entire Project
Updated 26 seconds ago

Filter cards

3 Not Scheduled

- Support the SCGI Schema** (#1236 opened by johrstrom) - epic - Needs Triaged
- One size fits all apps** (#1235 opened by johrstrom) - epic - Needs Triaged
- System Status widget** (#1291 opened by johrstrom) - area/ux, component/dashboard, epic - Backlog

2 2.1

- Quick launch icons** (#1175 opened by johrstrom) - component/dashboard, epic - OOD2.1
- New Job composer (alpha)** (2 tasks) (#1245 opened by johrstrom) - component/jobcomposer, epic - OOD2.1

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Microsoft Azure / Google Cloud Instances

Azure HPC OnDemand Platform: Cloud HPC made easy.

By  xpillons

Published 07-12-2021 07:01 AM

1,099 Views

As many customers are looking at running their HPC workloads in the cloud, onboarding effort and cost are key consideration. As an HPC administrator, in such process you try to provide a unified user experience with a minimal disruption, in which the end users and the cluster administrators can retrieve most of their on-premises environment while leveraging the power of running in the cloud.

The **Specialized Workloads for Industry and Mission** team that works on some of the most complex HPC customer and partner scenarios has built a solution accelerator **Azure HPC OnDemand Platform** (aka **az-hop**) available in the [Azure/az-hop](#) public GitHub repository to help our HPC customers onboard faster. **az-hop** delivers a complete HPC cluster solution ready for users to run applications, which is easy to deploy and manage for HPC administrators. **az-hop** leverages the various Azure building blocks and can be used as-is, or easily customized and extended to meet any uncovered requirements.

Based on our experience, from years of customer engagements, we have identified some common principles that are important to our customers and designed **az-hop** with these in mind:

- A pre-packaged HPC Cluster easy to deploy in an existing subscription, which contains all the key building blocks and best practices to run a production HPC environment in Azure,
- A unified and secured access for end users and administrators, so each one can reuse their on-premises tools and scripts,
- A solution to integrate applications under the same unified cloud experience,
- Build on standards, common tools and open blocks so it can be easily extended and customized to accommodate the unique requirements of each customer.

CloudyCluster & GCP: Introducing HPC VM Pre-Tuned Images

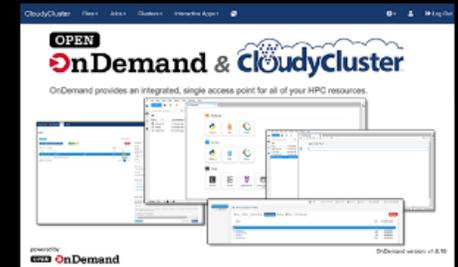


Feb. 8, 2021 - Today, we're excited to announce the release of version 3.1.1 of CloudyCluster on Google Cloud Platform, leveraging a CentOS 7-based Virtual Machine (VM) image optimized for high performance computing (HPC) workloads. This new release is designed with a focus on tightly-coupled MPI workloads. [Read the full blog here-->](#)

INTERACTIVE RESEARCH COMPUTING

With the latest release of CloudyCluster, users can now take advantage of the GUI developed by **OSC** and the cloudyCluster Team. This new inclusion offers non-computer scientists a pathway to cloud-based HPC tools, without having to utilize the CLI. Upload and Download files with a file browser-like interface. You can now: draft job scripts with the built-in Job Script tool, spin-up new computing instances with or without a variety of GPU Acceleration, and have them tear down automatically after your specified work window. The current release includes JupyterLab with Jupyter Notebooks in Python 3 for true interactive code testing.

[CloudyCluster online documentation-->](#)
[Open OnDemand Project-->](#)



Second TrustedCI Engagement

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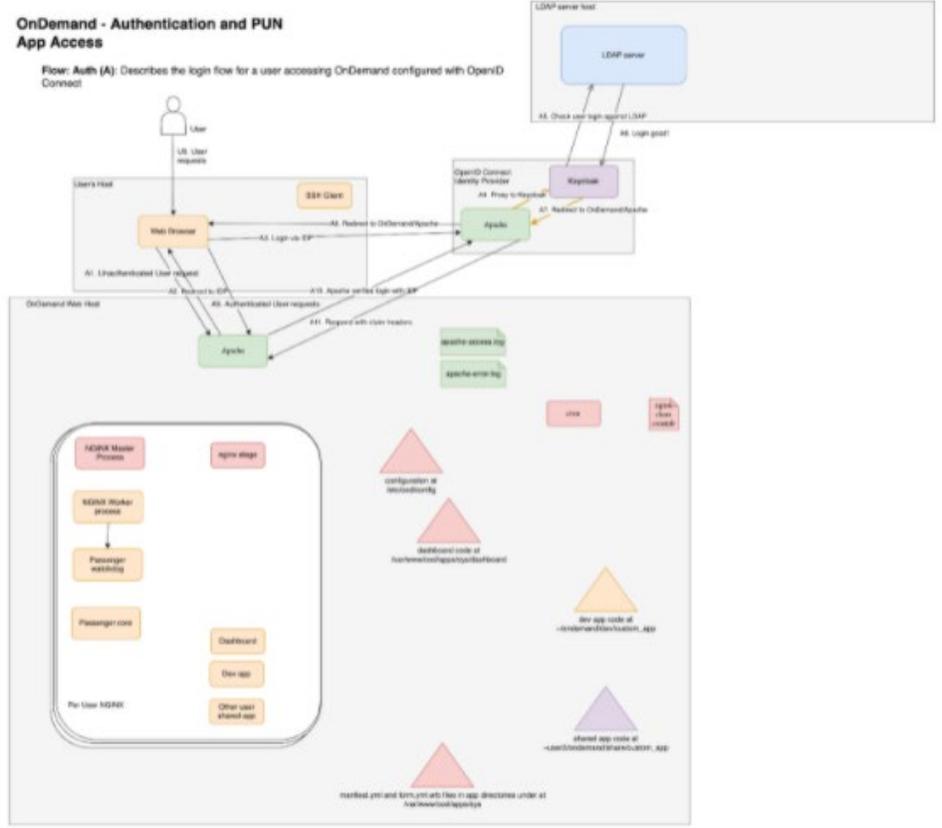


Figure D1. Authentication Flow for Open OnDemand version 1.8.19

Intel Case Studies

Case Study

High Performance Computing (HPC)
Intel® Xeon® Scalable Processors



Ohio Supercomputer Center OnDemand Portal Accelerates Remote Learning

Web-based interface provides students with HPC virtual laboratories based on Intel Xeon Scalable processors

Ohio Supercomputer Center Clusters

Pitzer

- Dell EMC PowerEdge C6420 servers with CoolIT Systems' Direct Contact Liquid Cooling coupled with Dell EMC PowerEdge R740 servers
- Intel Xeon Platinum 8268 processors
- Intel Xeon Gold 6148 processors

Owens

- Dell EMC PowerEdge servers including C6320, R730 and R930 servers
- Intel Xeon E5 2680 v4 processors



Executive Summary

Because of the COVID-19 pandemic, students at Ohio State University (OSU) and many other schools have had to adapt to remote learning situations. This proved to be especially challenging for work normally done in labs for a wide range of areas such as science, math, computer science, statistics, business, and other disciplines.

But, thanks to the [Ohio Supercomputer Center](#) (OSC), OSU was well prepared for the switch to remote learning. Plus, they were able to provide other universities with virtual laboratory portals as well. The center provides these virtual computer labs by offering students an easy to use web-based interface in a tool they developed called [OnDemand](#). The students use customized dashboards developed by OSC for access to digital labs across multiple disciplines of classes including architecture, statistics, crop sciences and more. When students log on to OSC OnDemand, they have access to an OSC supercomputer capable of running large workloads with advanced processing capabilities not typically available to users on their own computers.

Challenge

Historically, the high performance computing (HPC) community did their work via a command-line interface to enter system commands and move through files or directories, as well as run programs. Lack of a web-interface in HPC led to the perception that HPC work was lagging behind in ease of use.

Many students have only used web-based graphical user interfaces (GUIs) and are not interested in spending time learning about file systems, directories, and command line entries. Scientists and engineers would rather spend their time advancing their disciplines than learning HPC. Developing an easy-to-use web-based interface would lower the barrier to entry so that students, commercial clients, and government researchers have access to OSC supercomputer cluster systems.

Solution

Alan Chalker, Ph.D., Director of OSC Strategic Programs, explained that the inspiration behind OSC OnDemand was that every other technology developed web-based user portals so end-users could easily interact with the technology.

OnDemand is an accessible web interface that allows anyone with OSC access to log into and use one of the OSC supercomputer clusters. This would allow students, researchers, or commercial customers need to meet their most challenging data processing and research simulation needs.

OnDemand's novel architecture ensures that clients can utilize any modern web browser and helps utilize the underlying system security and user management.

HPC WIRE

Since 1987 - Covering the Fastest Computers in the World and the People Who Run Them

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OnDemand Portal Accelerates HPC Work for Academic and Industrial Users

By Linda Barney

December 21, 2020

Editor's note: This special guest post explores the use of the OnDemand and Open OnDemand web interfaces, developed by Ohio Supercomputer Center to facilitate use of powerful HPC resources, and used by academia and industry, including NASCAR.

Historically, the HPC community has done their work via a command-line interface to enter system commands and move through files or directories, as well as run programs. To facilitate greater use of its significant computational resources, Ohio Supercomputer Center ([OSC](#)) developed [OnDemand](#), an accessible web interface that allows anyone with OSC access to log into and use one of the OSC supercomputer clusters. With funding through the National Science Foundation (NSF), OSC created an open source version called Open OnDemand (OOD) that allows research institutions and universities to run their own instance of OnDemand. In addition, OSC created a special OnDemand portal for commercial customers called AweSim OnDemand.

OSC's OnDemand high performance computing environment includes clusters based on Intel Xeon processors. Pitzer, OSC's newest system, is an Intel Xeon processor-based cluster built by Dell. When students and customers log onto OSC OnDemand, they have access to a supercomputer capable of running large workloads with advanced processing capabilities not typically available to all users on their own computers. Running on an OSC cluster accelerates the time to insight during data analysis and lowers the cost-per-terabyte during data processing. One AweSim user, NASCAR, uses workflows developed by TotalSim to perform simulations of race cars.



OSC addresses the computational demands of academic and industrial research communities with a robust shared infrastructure. Pictured is OSC's Dell/Intel Owens cluster. "Owens" is the namesake of J.C. "Jesse" Owens, who won four gold medals at the 1936 Olympics.

PEARC'21 Sessions

Mon, July 19

- 11AM ET - Open OnDemand, Open XDMoD, and ColdFront: an HPC center management toolset (Tutorial)
- 3PM ET - Interactive Scientific Computing on the Anvil Composable Platform (Tutorial)

Tues, July 20

- 2:15PM ET – Open OnDemand User Group Meeting (BoF)

Weds, July 21

- 12:30 ET - Using Single Sign-On Authentication with Multiple Open OnDemand Accounts: A Solution for HPC Hosted Courses (Paper)
- 12:40 ET – Common Resource Descriptions for Interoperable Gateway Cyberinfrastructure (Paper)
- 2PM ET – Marketing and Promotion of Scientific Software for Sustainability Purposes (BoF)

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