



Building Customized Web Portals for HPC and Mid-Tier Computing with Open OnDemand

Empowering Researchers with Seamless Access

Thomas Berger - Product Manager

New Zealand eScience Infrastructure



Objectives for this presentation

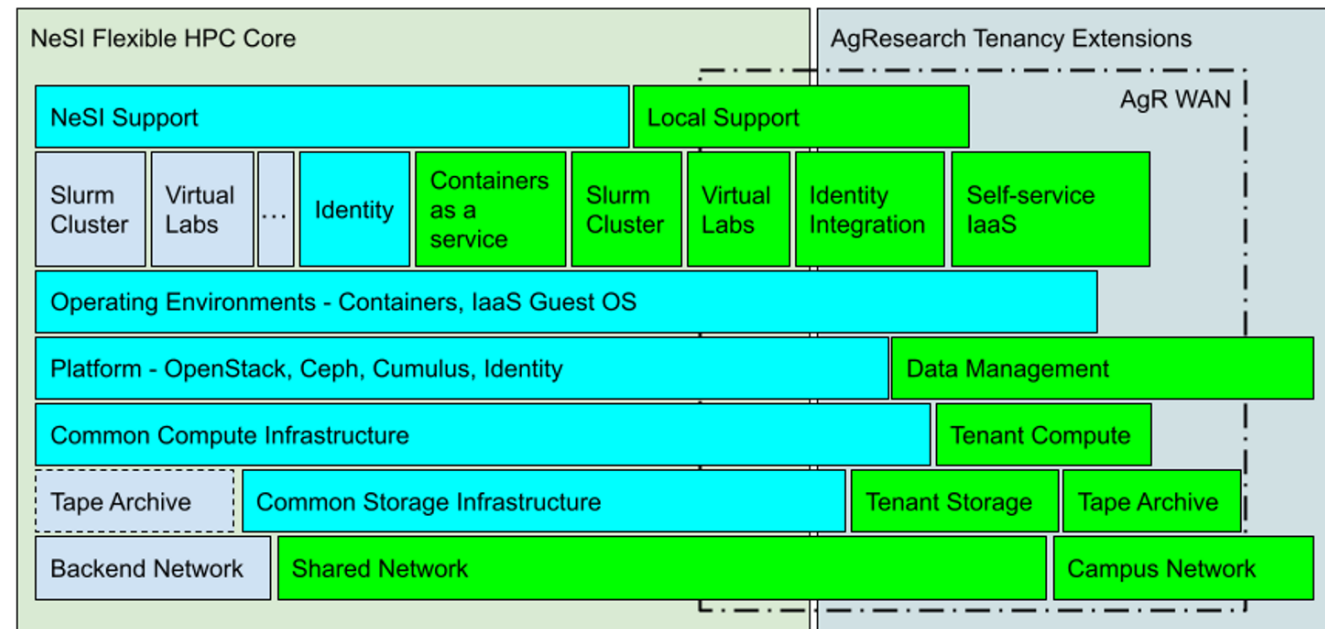
- Flexible HPC at NeSI
- AgResearch NeSI partnership
- DevOps practice / infrastructure as code
- Human-centered design approach
- Open OnDemand implementation



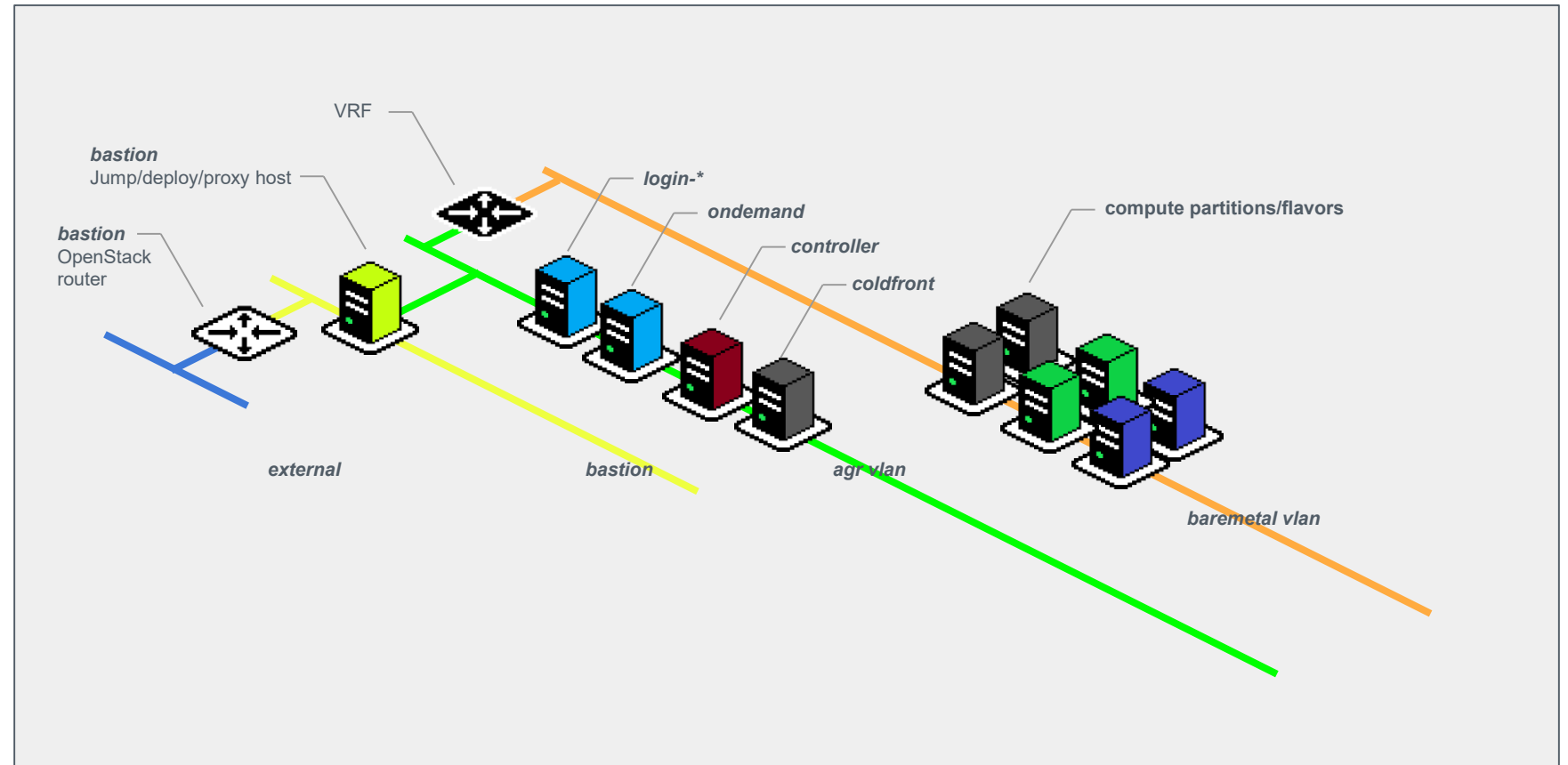
Background

NeSI Flexible HPC platform

- Enabling cloud-native deployments
- Private cloud environment - OpenStack
- Mid-tier computing
- Enabling AgResearch NeSI partnership



eRI compute cluster



DevOps

The screenshot shows a GitLab merge request interface. At the top, the browser address bar displays the URL: `https://gitlab.com/nesi1/agr-eri-slurm/-/merge_requests/14`. The page title is "Deploy IGV on Open OnDemand and layout changes". The merge request was requested by Kenny Zhao 2 weeks ago. The interface includes a sidebar with navigation options like "Project", "Issues", "Merge requests", "Code", "Build", "Secure", "Deploy", "Operate", "Monitor", "Analyze", and "Settings". The main content area shows the merge request details, including the title, author, and a "Merge" button. The "Ready to merge!" status is highlighted with a green checkmark. The "Activity" section lists recent actions, such as "Kenny Zhao requested review from @yuriy.halytskyy" and "Kenny Zhao assigned to @mzha999". The right sidebar contains sections for "Assignee" (Kenny Zhao), "Reviewer" (Yuriy Halytskyy), "Labels" (None), "Milestone" (None), "Time tracking" (No estimate or time spent), and "4 Participants".

nesi > AgR-eRI-slurm > Merge requests > !14

Deploy IGV on Open OnDemand and layout changes

Open Kenny Zhao requested to merge `igv` into `agr-eri` 2 weeks ago

Overview 2 Commits 23 Pipelines 0 Changes 12

1 unresolved thread Add a to do

Deploy IGV on OpenOnDemand

👍 1 🗑️ 0 😊

8 ✓ [Approve](#) Approval is optional ?

🟢 **Ready to merge!**

Delete source branch Squash commits ? Edit commit message

23 commits and 1 merge commit will be added to `agr-eri`.

[Merge](#)

Activity

All activity

- Kenny Zhao requested review from [@yuriy.halytskyy](#) 2 weeks ago
- Kenny Zhao assigned to [@mzha999](#) 2 weeks ago
- Kenny Zhao added 1 commit 2 weeks ago
 - [bff01fe5](#) - ondemand dashboard config[Compare with previous version](#)
- Kenny Zhao changed title from `deploy IGV on Openondemand` to `deploy IGV on Openondemand and config the layout` 2 weeks ago

Assignee

[Kenny Zhao](#) Edit

Reviewer

[Yuriy Halytskyy](#) Edit

Labels

None Edit

Milestone

None Edit

Time tracking

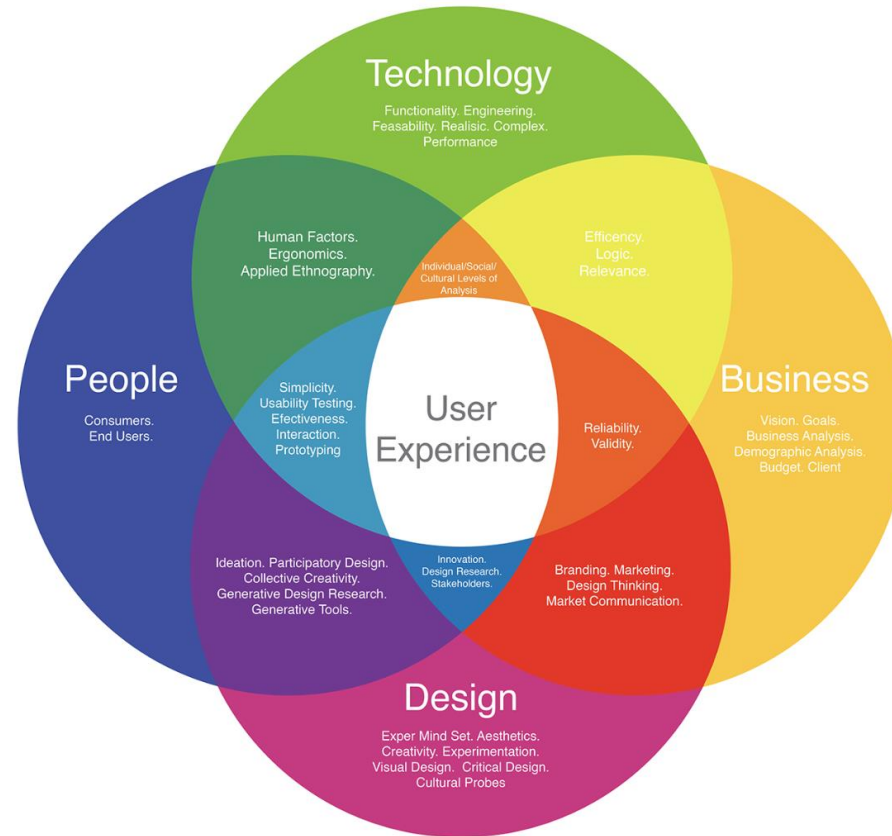
No estimate or time spent

4 Participants

[Kenny Zhao](#) [Yuriy Halytskyy](#) [mzha999](#) [yuriy.halytskyy](#)

Build for humans

Human Centered Design



Design Theories
Rund AI Dwaik



Open OnDemand

Open OnDemand



<https://openondemand.org>

- What is Open OnDemand (OOD)?
- Zero installation
- Easy to use
- Access to computational resources

Dashboard example

eRI OnDemand Apps Files Jobs Clusters Interactive Apps Monitoring My Interactive Sessions Help Logged in as bergert@agresearch.co.nz Log Out

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

Recently Used Apps

- Jupyter Lab System Installed App
- Remote Desktop System Installed App

Message of the Day

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Pinned Apps A featured subset of all available apps

Interactive Apps

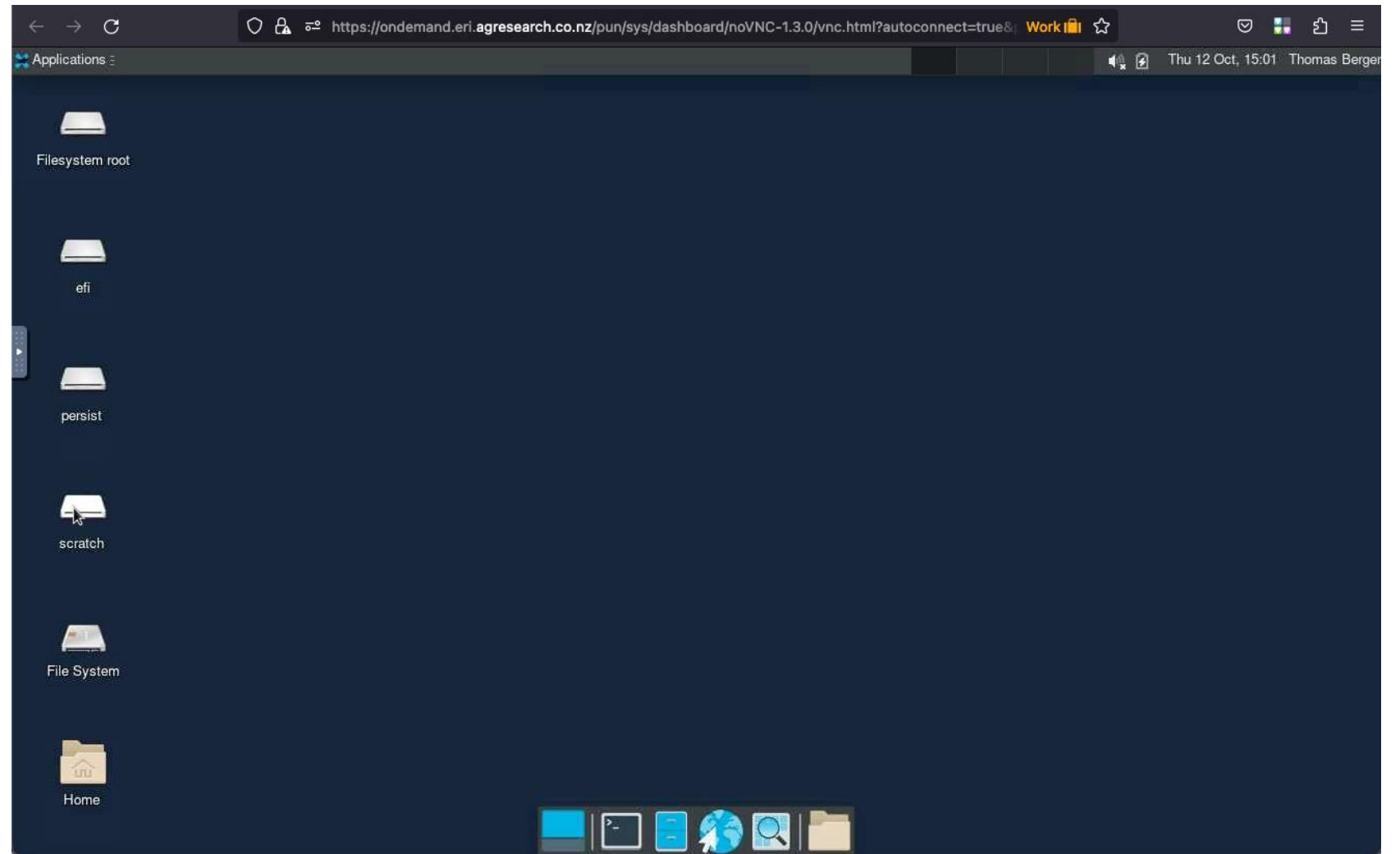
- Remote Desktop System Installed App
- IGV Integrative Genomics Viewer
- Jupyter Lab System Installed App

Monitoring

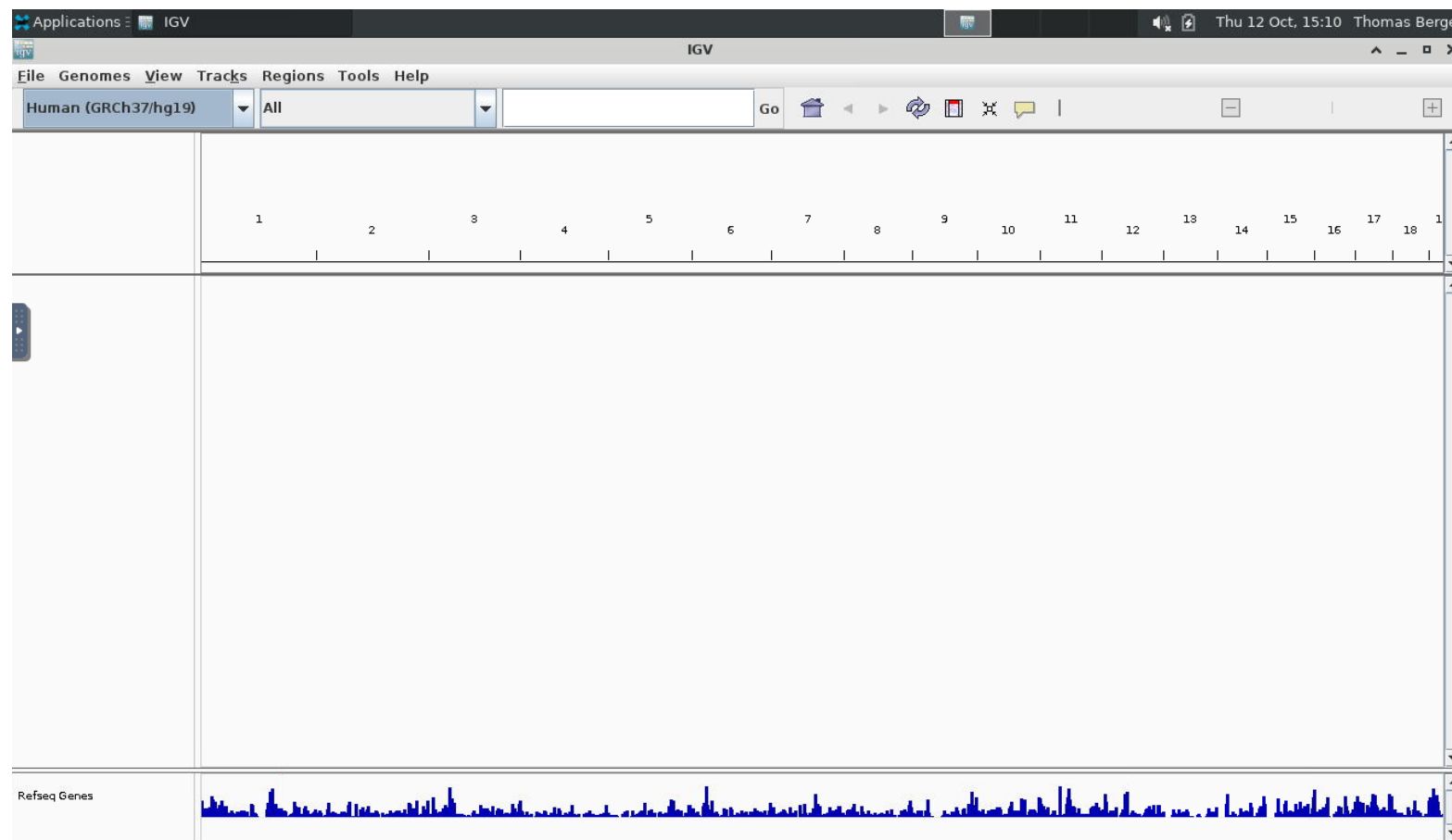
- Grafana System Installed App

powered by **OPEN OnDemand** OnDemand version: 3.0.1

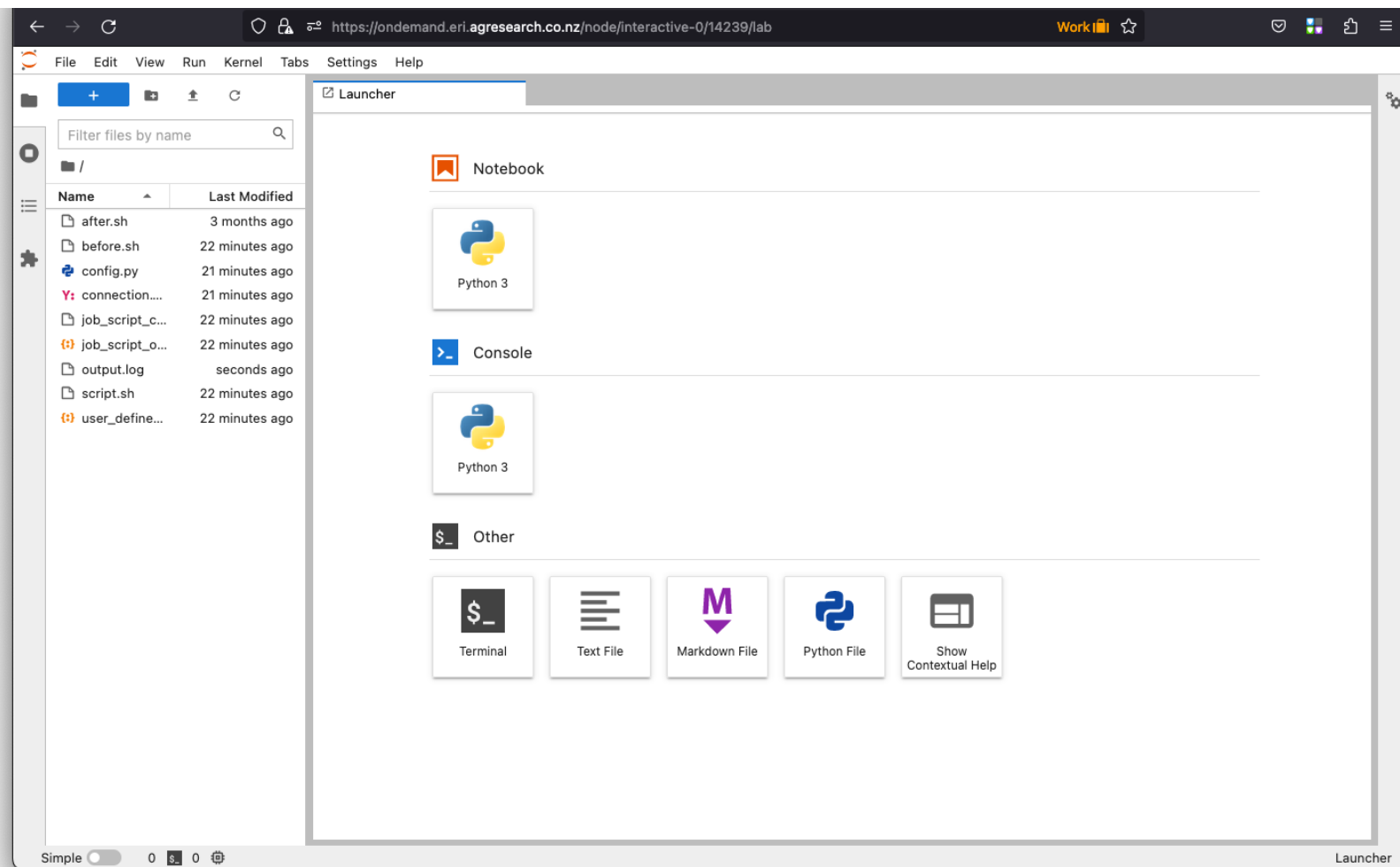
Open OnDemand



Open OnDemand



Open OnDemand

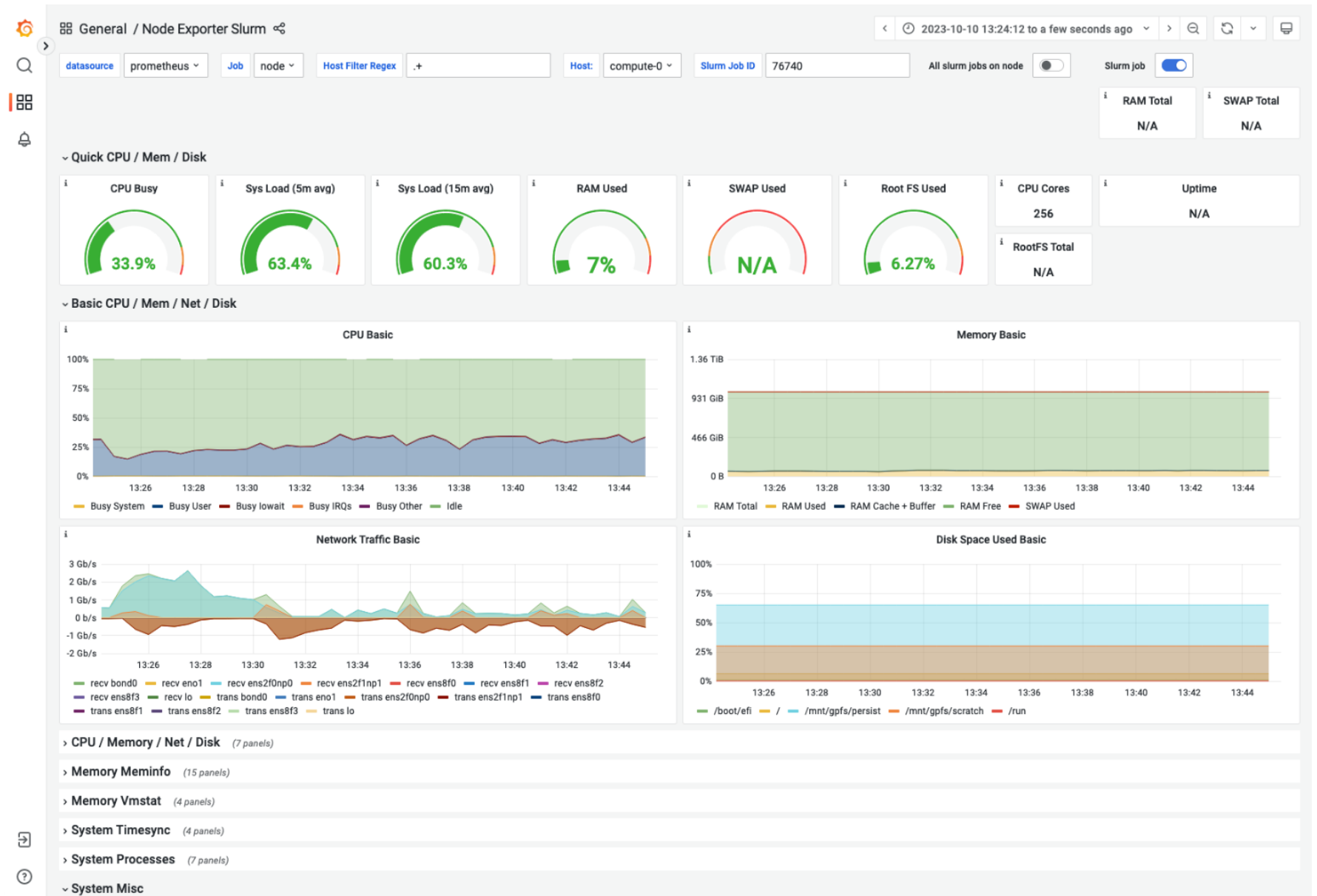


Open OnDemand

The screenshot displays the eRI OnDemand web interface. The browser address bar shows the URL: https://ondemand.eri.agresearch.co.nz/pun/sys/dashboard/batch_connect/sessions. The navigation menu includes: eRI OnDemand, Apps, Files, Jobs, Clusters, Interactive Apps, and Monitoring. The main content area is titled "My Interactive Sessions" and features a sidebar with "Interactive Apps" including Desktops, Remote Desktop, Integrative Genomics Viewer, IGV, Servers, and Jupyter Lab. The main panel lists three sessions:

- Jupyter Lab (76768)**: Status: 1 node | 2 cores | Running. Host: >_interactive-0. Created at: 2023-10-12 14:51:41 NZDT. Time Remaining: 34 minutes. Session ID: 9f695238-2faf-426d-8964-c5beeda16d40. Includes a "Connect to Jupyter" button and a "Delete" button.
- Remote Desktop (76756)**: Status: Completed. Created at: 2023-10-12 10:24:35 NZDT. Session ID: 94997621-fdd0-4d66-bab6-31c5eccf9b9f. Includes a "Relaunch Remote Desktop Session" button and a "Delete" button. A note states: "For debugging purposes, this card will be retained for 6 more days".
- Jupyter Lab (76697)**: Status: Completed. Created at: 2023-10-06 10:48:29 NZDT. Includes a "Delete" button.

Open OnDemand



Open OnDemand ready apps



Enabled Applications

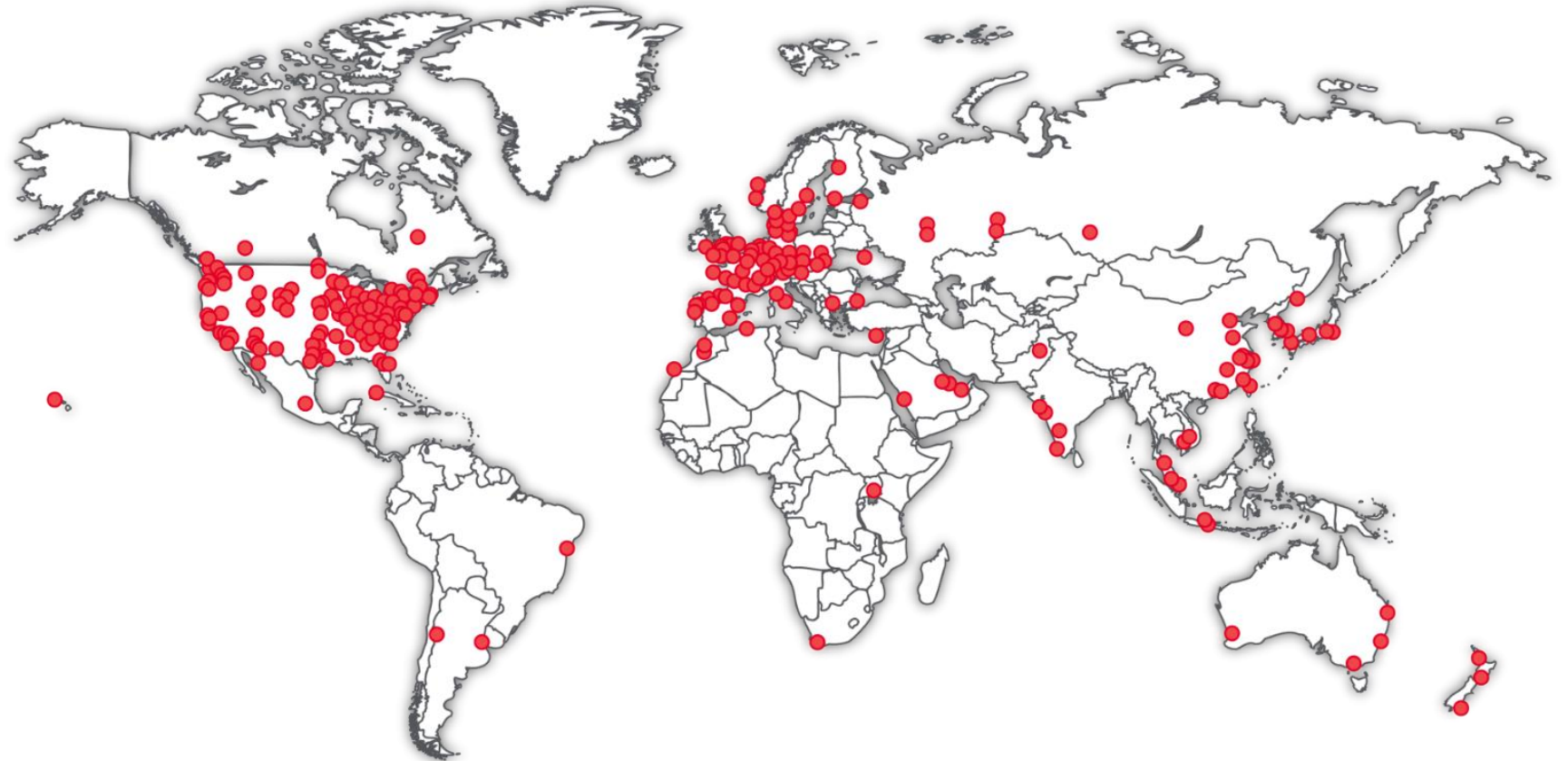
Open OnDemand makes it easy to access your favorite apps for data visualization, simulations, modeling, and more. Explore our enabled apps and new ones coming soon.

A grid of 12 application cards, each with a yellow header labeled "Active". Each card contains an application logo, the application name, and two links: "Overview" and "GitHub", both with right-pointing chevrons. The applications are:

- Row 1: Abaqus, ANSYS OSC, COMSOL OSC, MATLAB OSC
- Row 2: Paraview OSC, Jupyter OSC, MATLAB U of Utah, COMSOL U of Utah
- Row 3: Abaqus U of Utah, ANSYS U of Utah, Jupyter U of Utah, Jupyter Dynpart

Open OnDemand

- <https://openondemand.org/locations>




Open OnDemand customisation

OPEN OnDemand

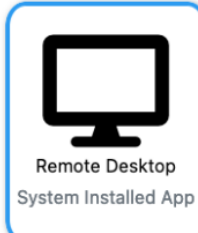
OnDemand provides an integrated, single access point for all of your HPC resources

- Contact Support
- Online Documentation
- Restart Web Server
- User Feedback
- Resource allocations


Recently Used Apps



Jupyter Lab
System Installed App



Remote Desktop
System Installed App



IGV
Integrative Genomics Viewer

Pinned Apps A featured subset of all available apps

Interactive Apps



Remote Desktop
System Installed App



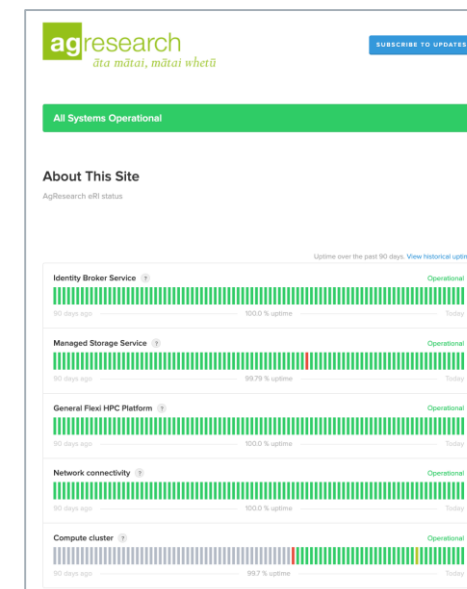
IGV
Integrative Genomics Viewer



Jupyter Lab
System Installed App

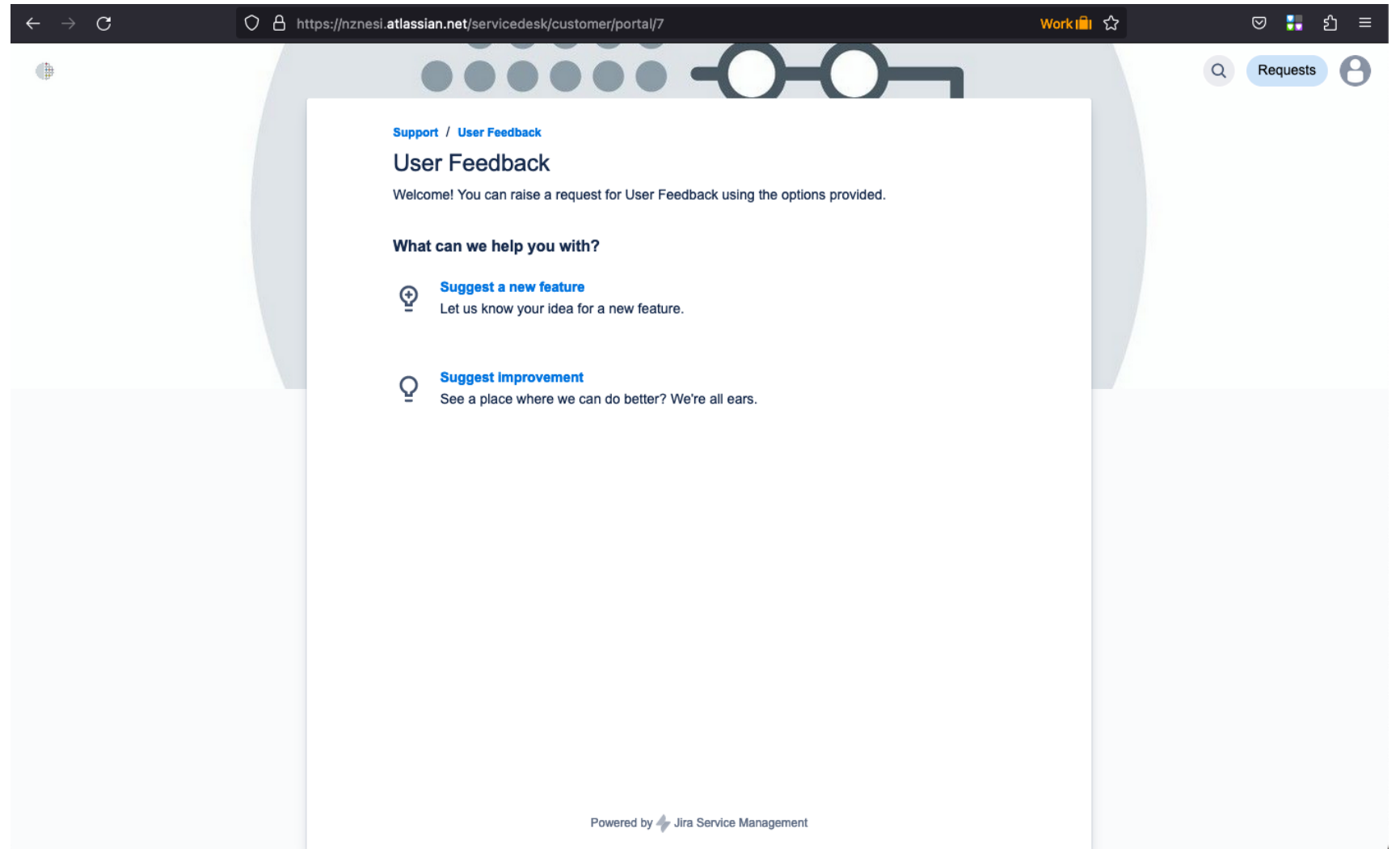
Message of the Day

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The screenshot shows a system status dashboard for AgResearch. At the top, it says "All Systems Operational" with a green bar. Below this, there is a section titled "About This Site" with the text "AgResearch eRI status". The dashboard displays several uptime charts for different services over the last 90 days. Each chart shows a green bar representing uptime and a red bar representing downtime. The services and their uptime percentages are: Identify Broker Service (100%), Managed Storage Service (99.7%), General Flexi HPC Platform (100%), Network connectivity (100%), and Compute cluster (99.7%).

Open OnDemand



Open OnDemand

The screenshot shows a web browser window displaying the Atlassian Service Desk customer portal. The URL in the address bar is <https://nznesi.atlassian.net/servicedesk/customer/portal/1/group/18>. The page title is "Flexi Services support". Below the title, there is a message: "If you can't find what you're looking for here, please reach out however is easiest." A dropdown menu labeled "Contact us about" is set to "AgResearch eRI". Under the heading "What can we help you with?", there are three options: "Something is not working" (with a wrench icon), "Service request" (with a monitor icon), and "Request access information" (with a gear icon). The page is powered by Jira Service Management.

Support / Flexi Services support




Flexi Services support


If you can't find what you're looking for here, please reach out however is easiest.

Contact us about

AgResearch eRI

What can we help you with?

-  **Something is not working**
Let us know if something is broken or not working as expected.
-  **Service request**
Let us know if you need something - generic service request
-  **Request access information**
Request a list of group members, Access Control List entries and fileset details for a project or dataset

Powered by  Jira Service Management

Resource and Allocation management

- Enable self-service access control

2023-nesi_slurm_testing

Manage Project [Update Project Information](#) [Archive Project](#)

[Add Users](#) [Add Grant](#) [Add Publication](#) [Add Research Output](#)

Principal Investigator: Thomas Berger (bergert@agresearch.co.nz) [✉](#)

Description: EAP testing project NeSI users

Field of Science: Performance Evaluation and Benchmarking

Project Status: Active

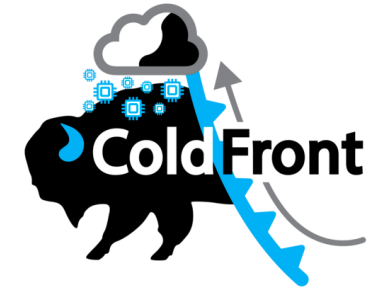
Created: Jul. 10, 2023

Users ¹³ [Email Project Users](#) [Add Users](#) [Remove Users](#)

Show entries Search:

Enable Notifications

Username	First Name	Last Name	Email	Role	Status	Enable Notifications	Actions
vicky	Vicky	Fan	vicky@iam.flexi.nesi.org.nz	User	Active	<input checked="" type="checkbox"/>	✎
wae	Wae	Harall	wae@iam.flexi.nesi.org.nz	User	Active	<input type="checkbox"/>	✎



<https://coldfront.readthedocs.io>

Resource and Allocation management

- Compute allocation links to OOD

The screenshot displays the AgResearch AgR eRI ColdFront interface. At the top, the AgResearch logo is on the left, and the text 'AgR eRI ColdFront' is on the right. Below the logo is the Māori phrase 'āta mātai, mātai whetū'. A navigation bar contains links for 'Home', 'Center Summary', and 'Project', along with a user profile icon and the email 'bergert@agresearch.co.nz'. The main content area is divided into two sections: 'Projects' and 'Allocations'. The 'Projects' section shows a single project named '2023-nesi_slurm_testing'. The 'Allocations' section contains a table with two rows of allocation data.

Project	Resource	Status
2023-nesi_slurm_testing	AgR eRI Storage - Project (Storage Project)	Active
2023-nesi_slurm_testing	AgR eRI Compute (Cluster)	Active

At the bottom of the interface, a blue footer bar states 'Powered by ColdFront Version 1.1.5 | GitHub'.



We'd love to
connect with you

www.nesi.org.nz

@NeSI_NZ

support@cloud.nesi.org.nz