OPEN OnDemand

Open, Interactive HPC via the Web

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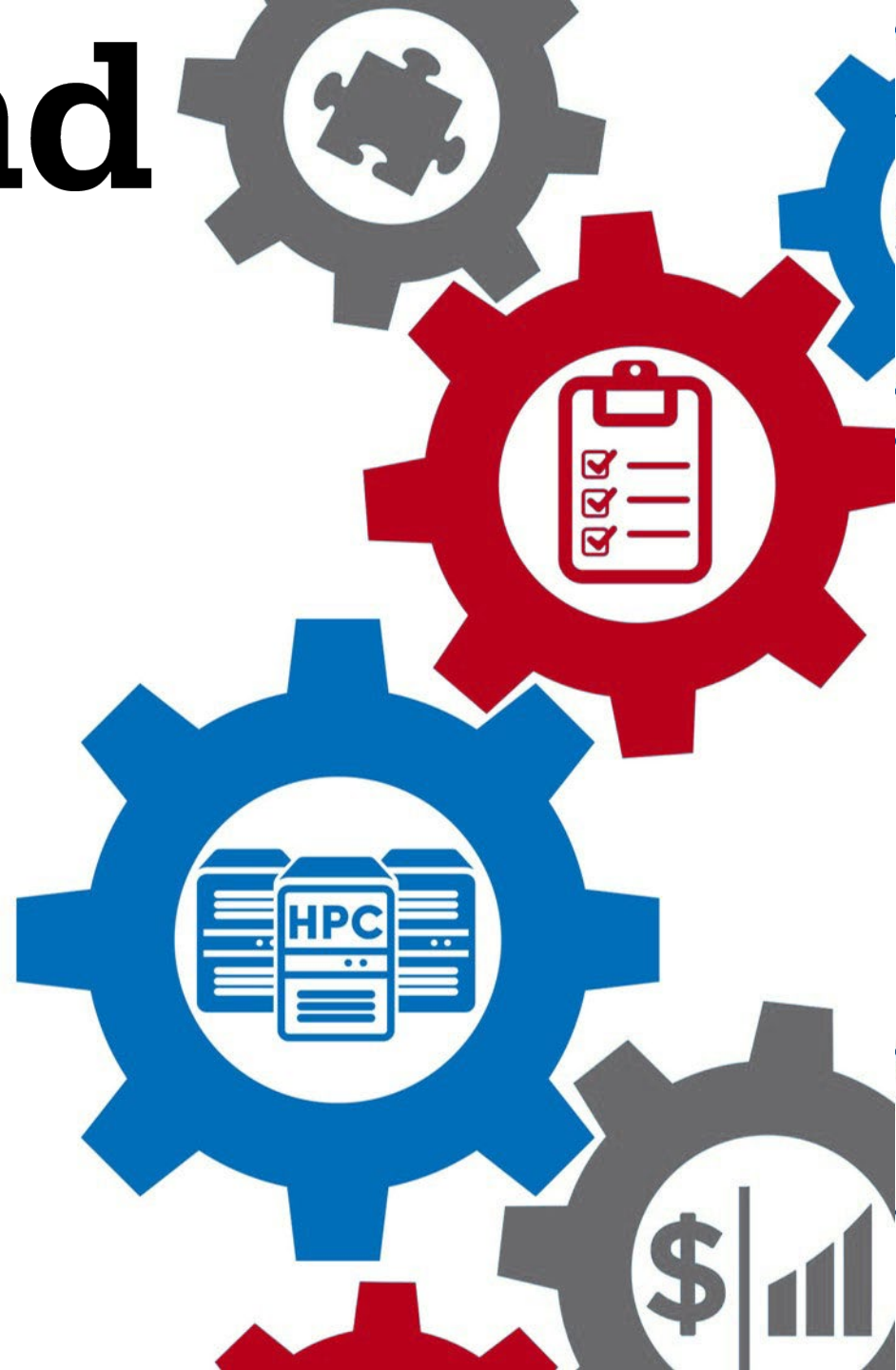
Gerald Byrket



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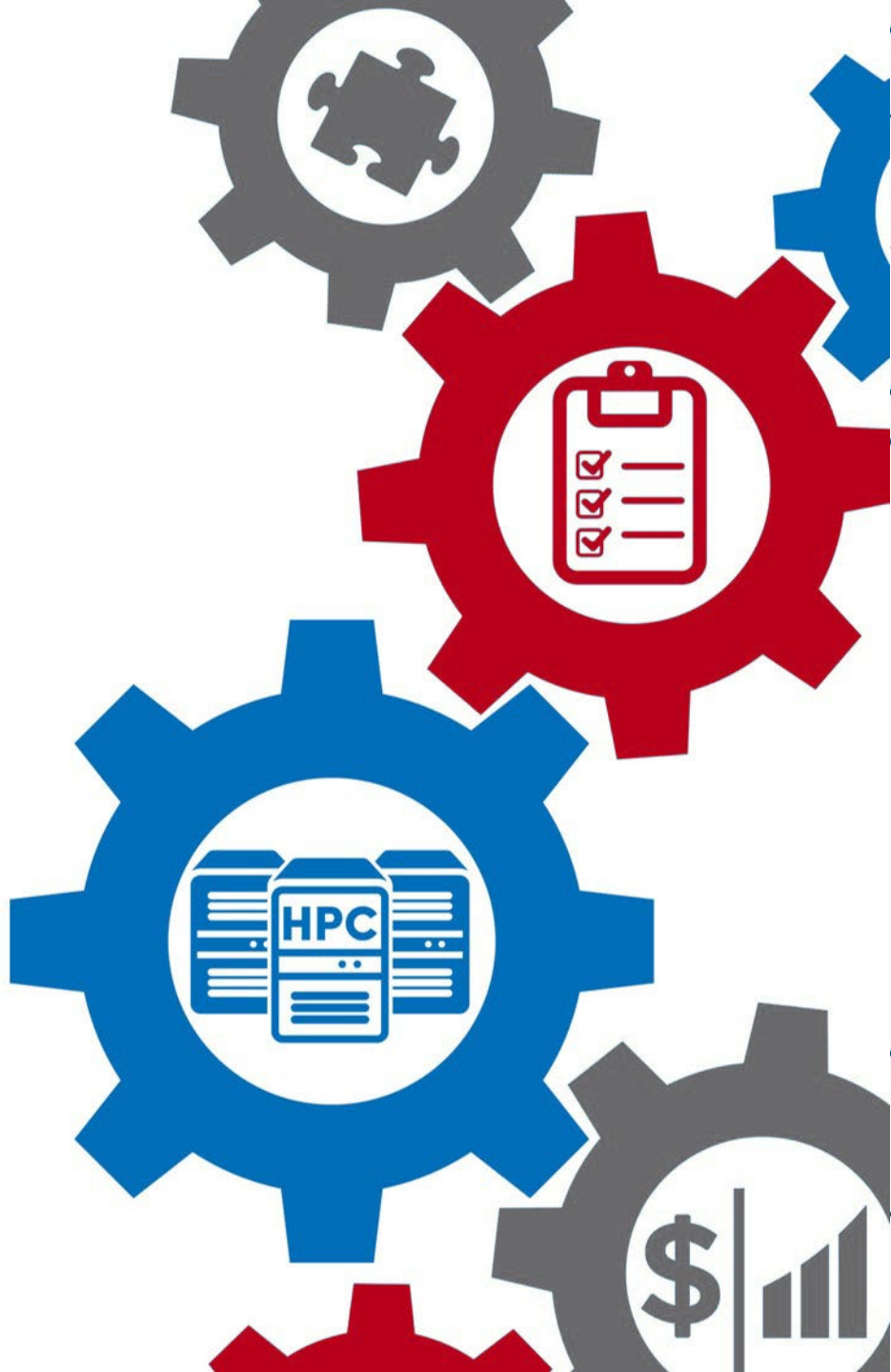
Agenda

- Tutorial Goals
- Intro to Open OnDemand
- Docker Container Installation
- Dashboard Customization
- Example Interactive App Creation
- Wrap Up



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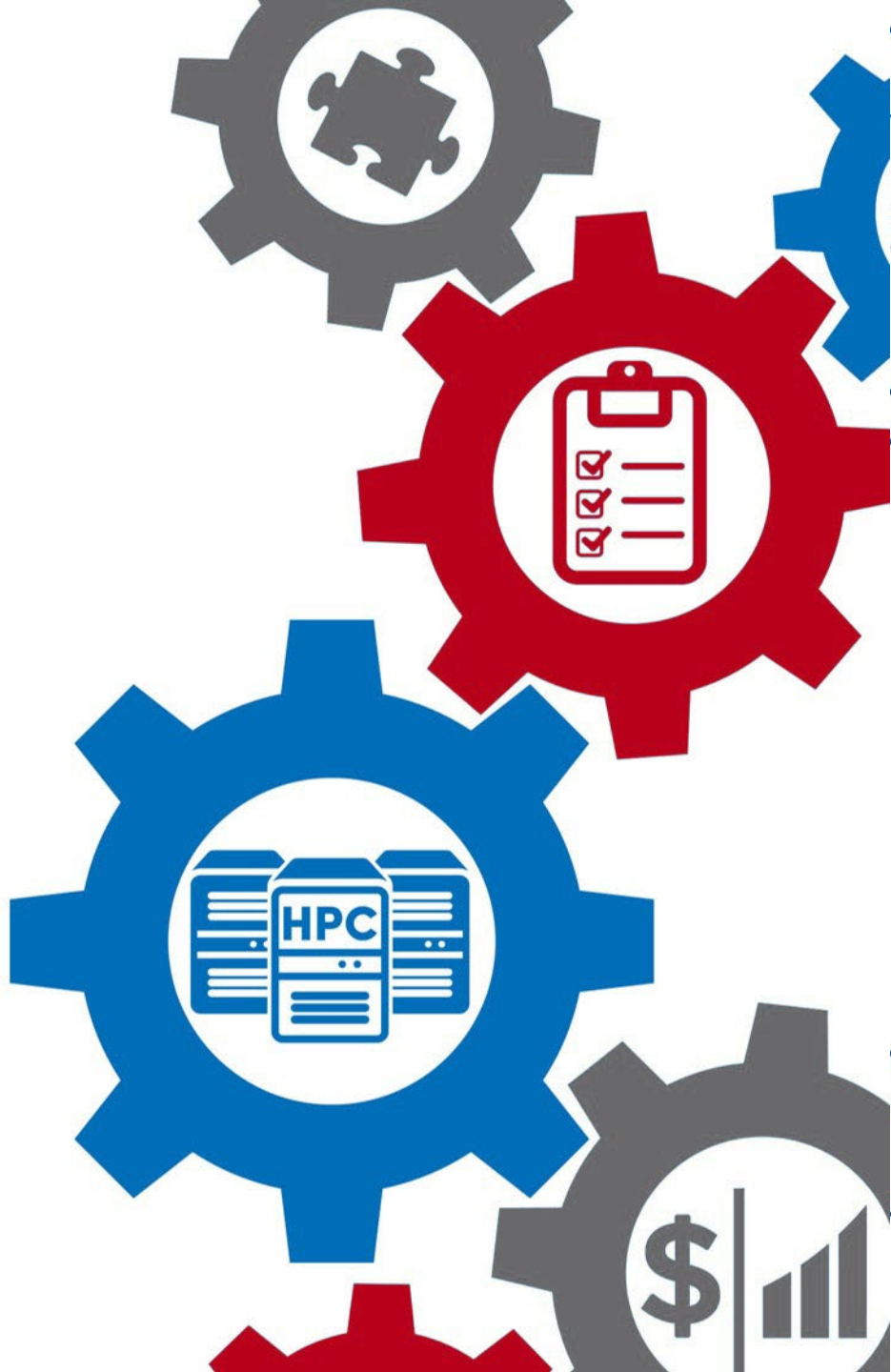
Tutorial Goals:

- Provide an overview of Open OnDemand
- Show how to setup a cluster in a container to practice
- Demonstrate features of interest to Gateways community
- Detail resources for questions & help



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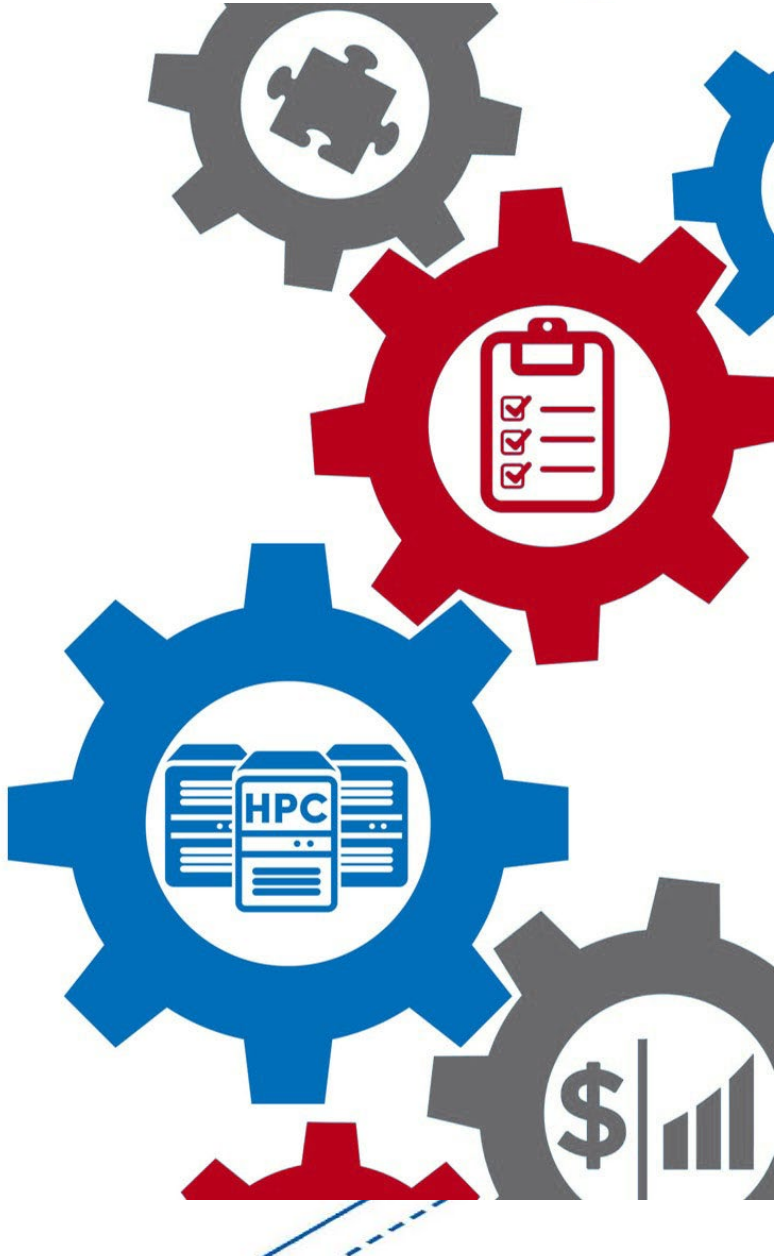
Introduction to Open OnDemand

Alan Chalker



Connecting computing power with powerful minds

Open OnDemand empowers students, researchers, and industry professionals with remote web access to supercomputers

Run Open OnDemand

Access your organization's supercomputers through the web from anywhere, on any device

Zero installation
Run Open OnDemand entirely in your browser. No client software installation required.

Easy to use
Start computing immediately. A simple interface makes Open OnDemand easy to learn and use.

Compatible with any device
Launch on any device with a browser - even a mobile phone or tablet.

Install Open OnDemand

Administer remote access to your supercomputers to transform the way users work and learn

Low barrier to entry
Empower users of all skill levels by offering an alternative to command-line interface.

Free and open source
Install Open OnDemand for free, and gather knowledge from our large open-source community.

Configurable and flexible
Create and deploy your own applications to meet your users' unique needs.

This work is supported by the National Science Foundation of the United States under the awards NSF SI2-SSE-1534949 and CSSI-Software-Frameworks-1835725.

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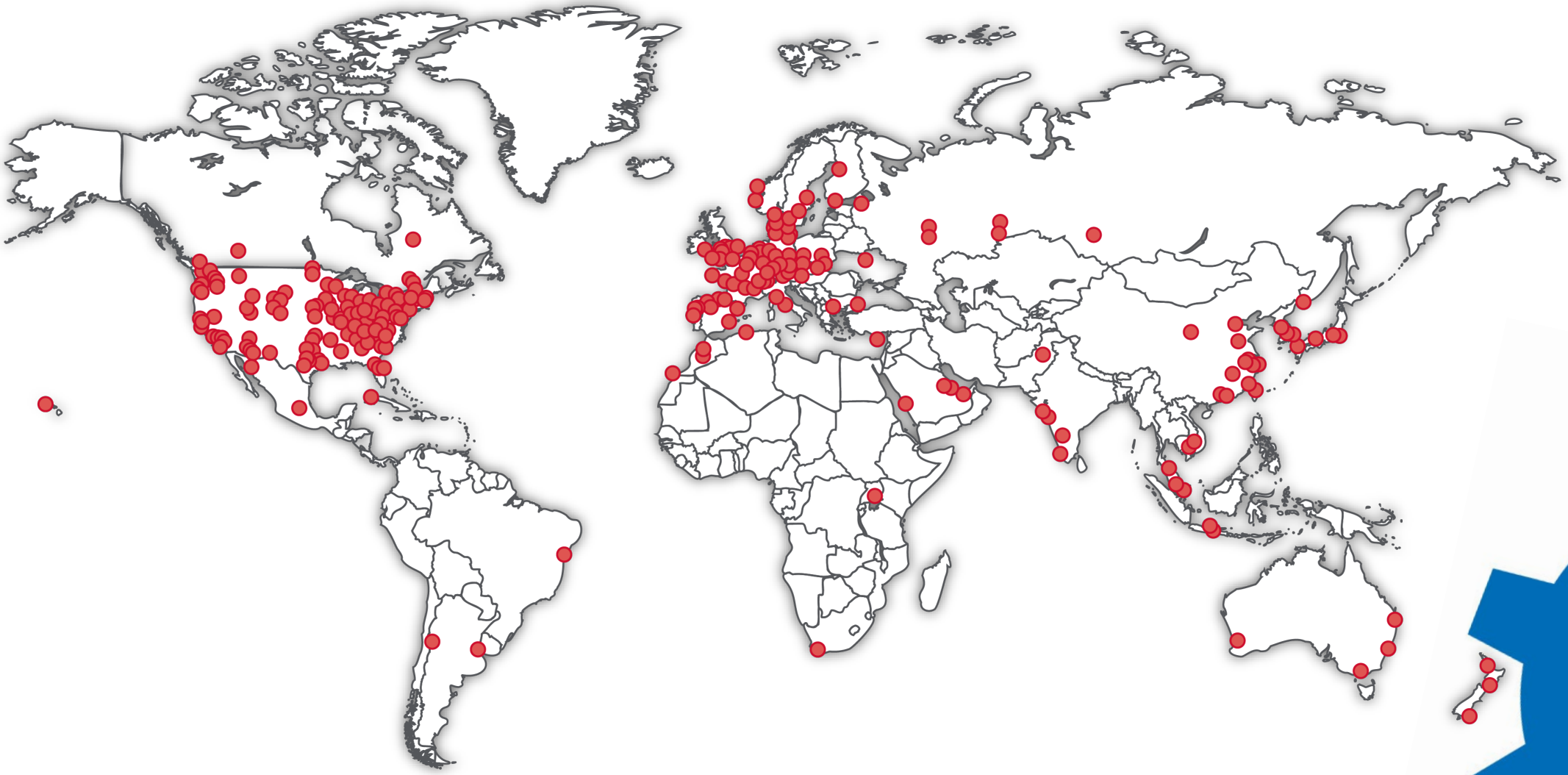
Almost 400 active installations worldwide



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Don't see your logo?
Let us know!

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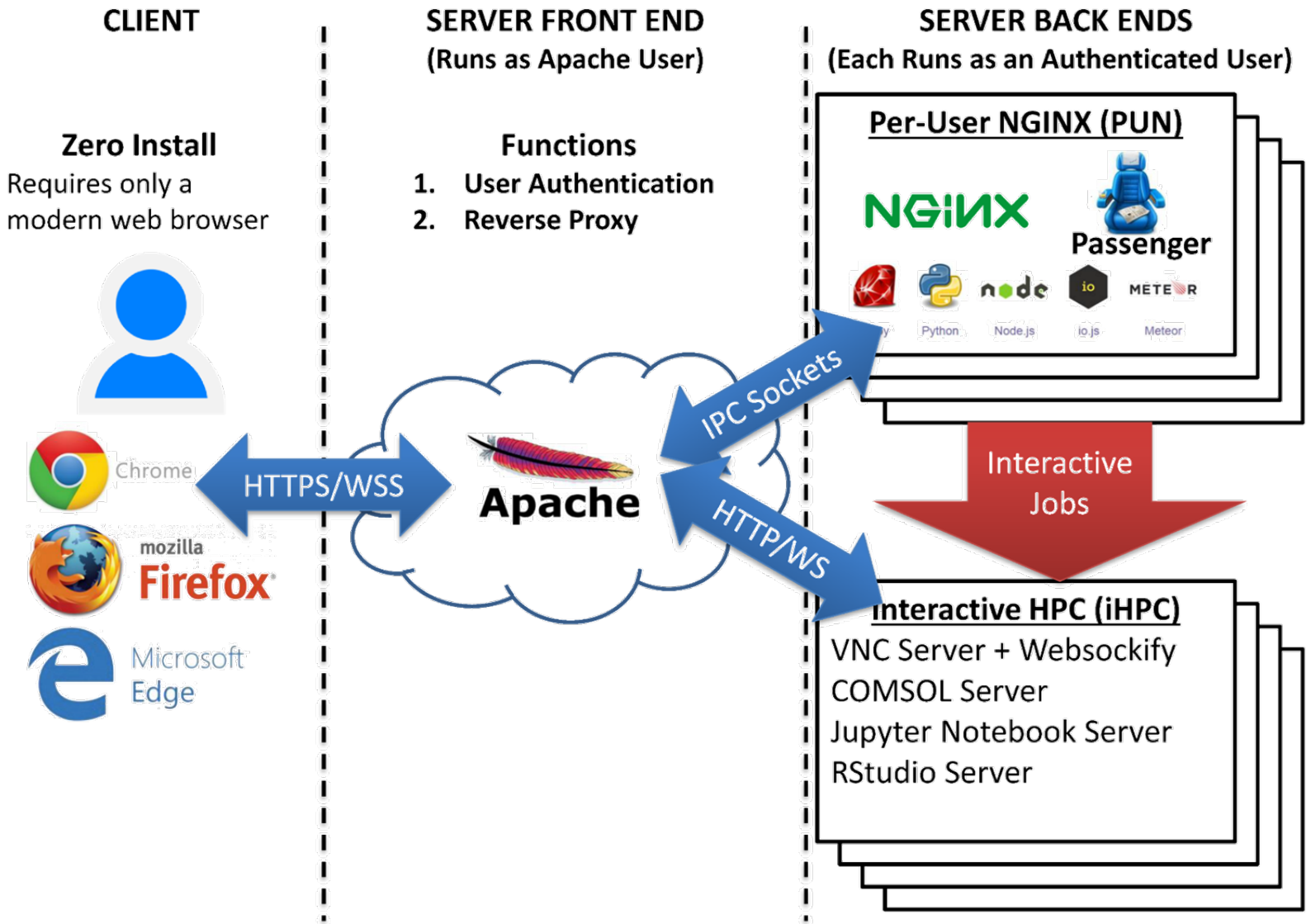


Check out the Project on GitHub

See all the projects at: https://github.com/OSC/ondemand/projects

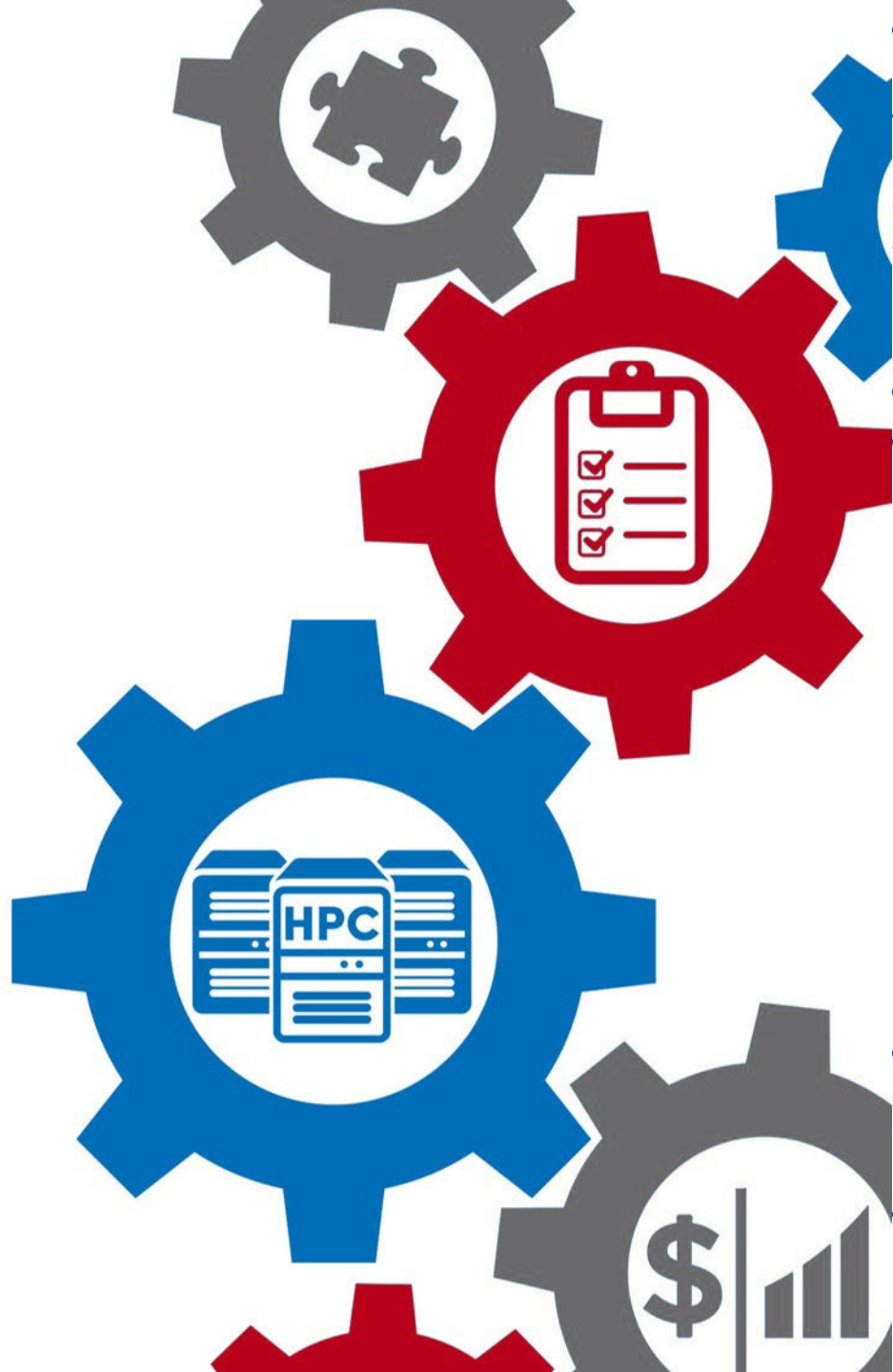
Large features currently stated for release: https://github.com/OSC/ondemand/projects/10

Feel free to comment or react to tickets. Open feature requests or anything. We want to hear from you!

If you have an idea or want to work on any of the features or bug fixes, please feel free to reach out to us and we will get you started. We always want to include our community in the Open OnDemand efforts.

Docker Container Installation

Travis Ravert



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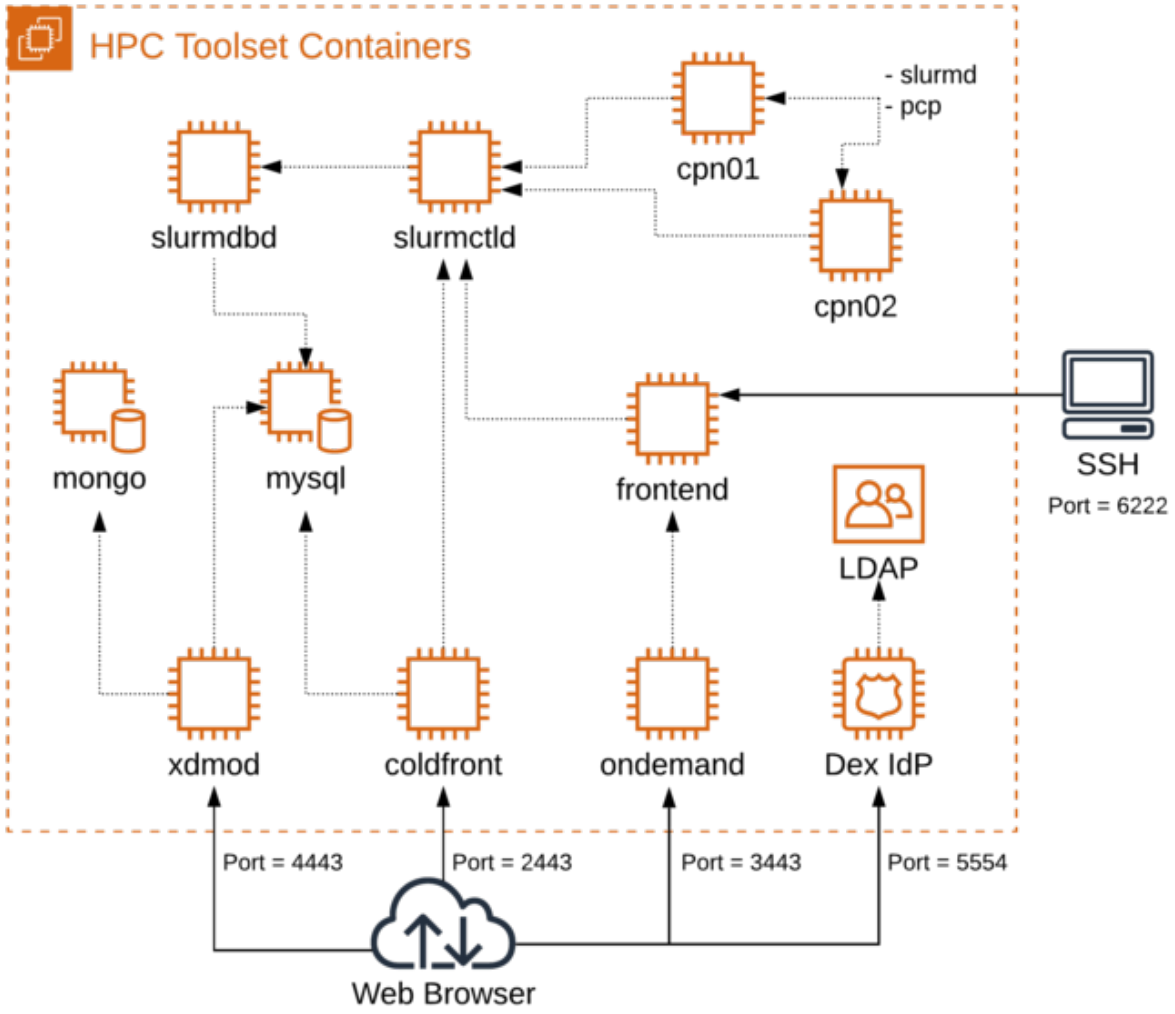
Tutorial Container Architecture

https://github.com/ubccr/hpc-toolset-tutorial



Clone the Github Repo:

```
git clone https://github.com/ubccr/hpc-toolset-tutorial
cd hpc-toolset-tutorial
./hpcts start
```

* The first time you do this, you'll be download ~20GB worth of containers from Docker Hub. This can take a long time depending on your network speeds. After downloaded, the containers are started and services launched.

WARNING!!! DO NOT run these containers on production systems. This project is for educational purposes only. The container images we publish for the tutorial are configured with hard coded insecure passwords and should be run locally in development for testing and learning only.

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Tutorial Walk Through

https://github.com/ubccr/hpc-toolset-tutorial

Keep the applications page open for easy access to account usernames/passwords and portal URLs:

https://github.com/ubccr/hpc-toolset-tutorial/blob/master/docs/applications.md

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Customizing the OnDemand Dashboard

Travis Ravert

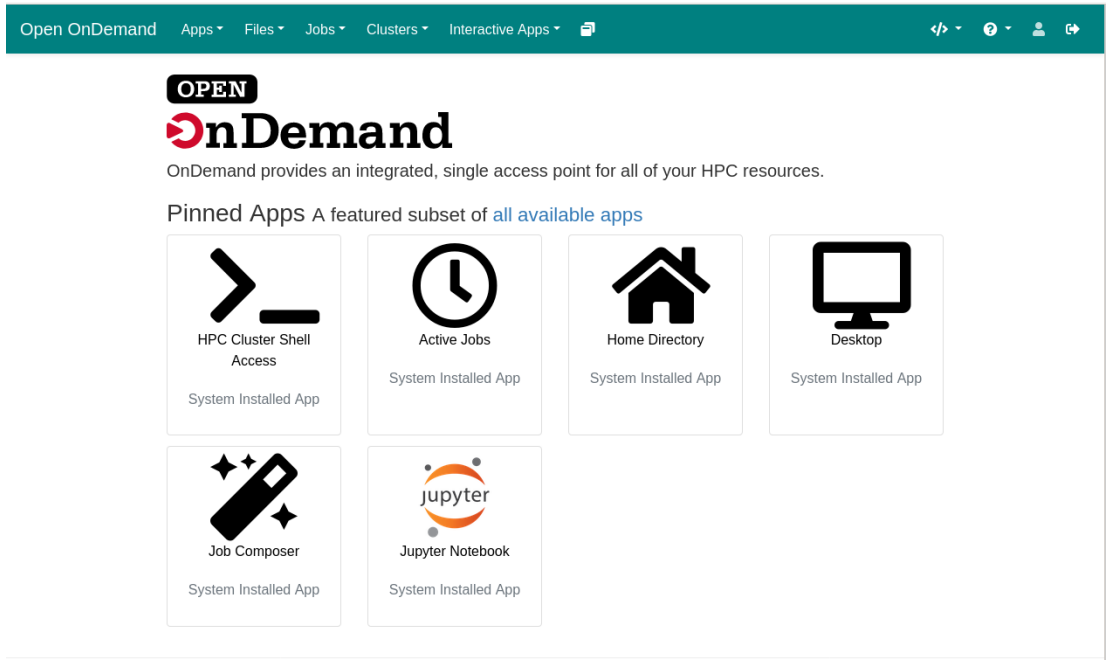
Hands on Tutorial: Dashboard in Development Mode

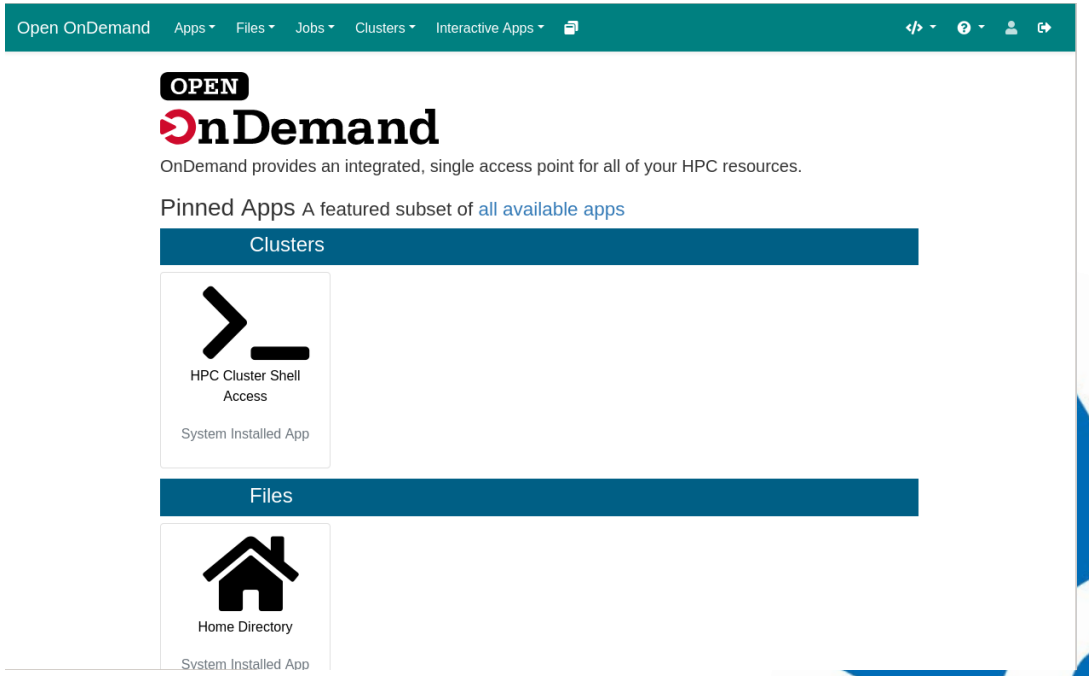
It Covers:

- **Setting up the dashboard in development mode**
- **Changing the navigation bar color**
- **2.0 Features:**
  - **Pinning Apps to the dashboard**
  - **Changing the layout of the dashboard**
  - **Adding custom widgets to the dashboard**

Dashboard Tutorial: Pinning Apps to the dashboard

- **Pinning Apps and then grouping them**

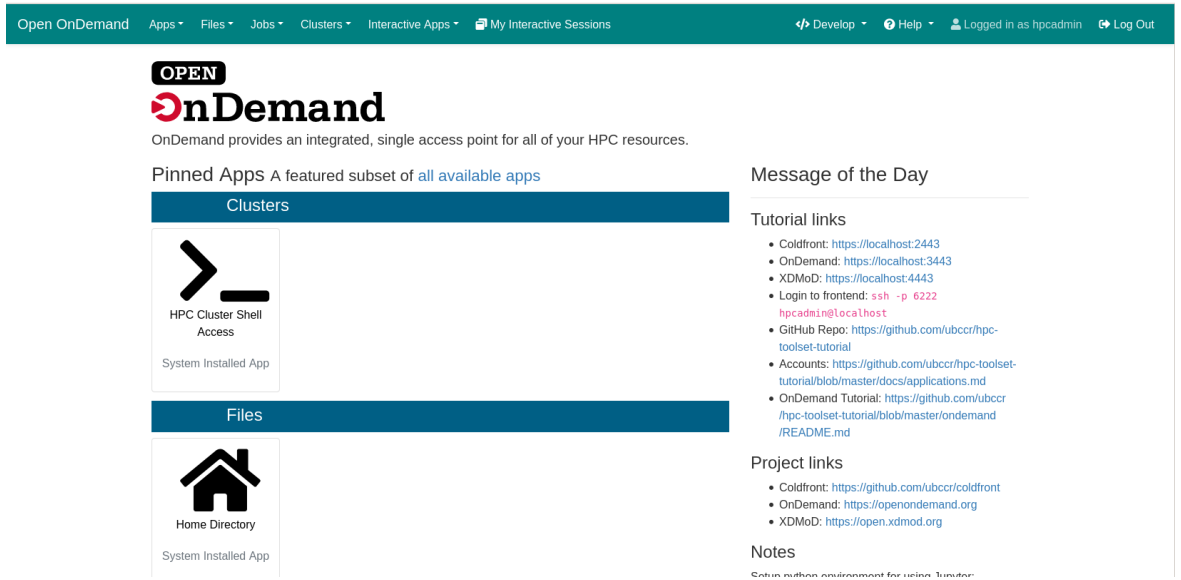




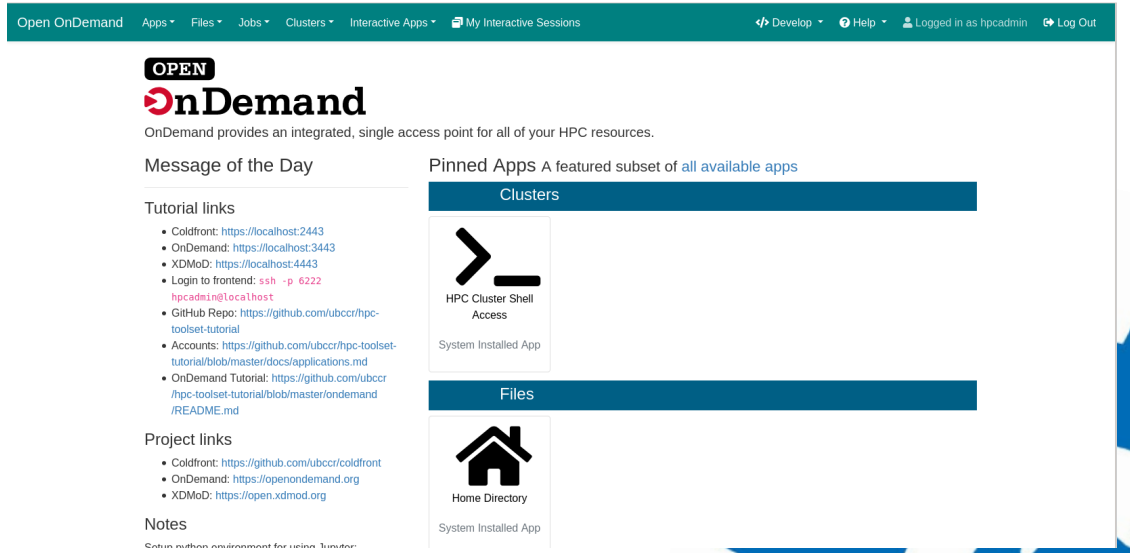
Dashboard Tutorial: Changing the layout

- **Change the layout so that Message of the Day is on the left**

Before

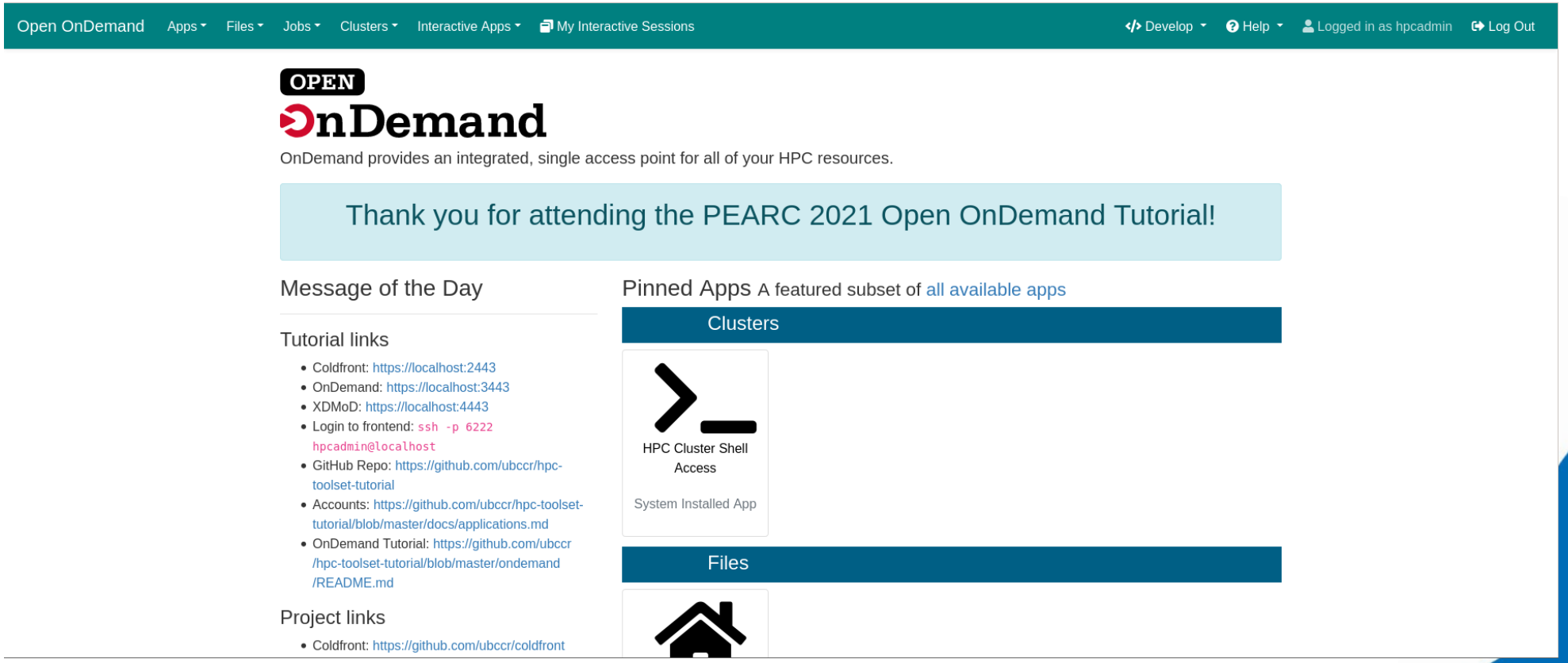


After



Dashboard Tutorial: Adding a new widget

- **Add a new custom widget**



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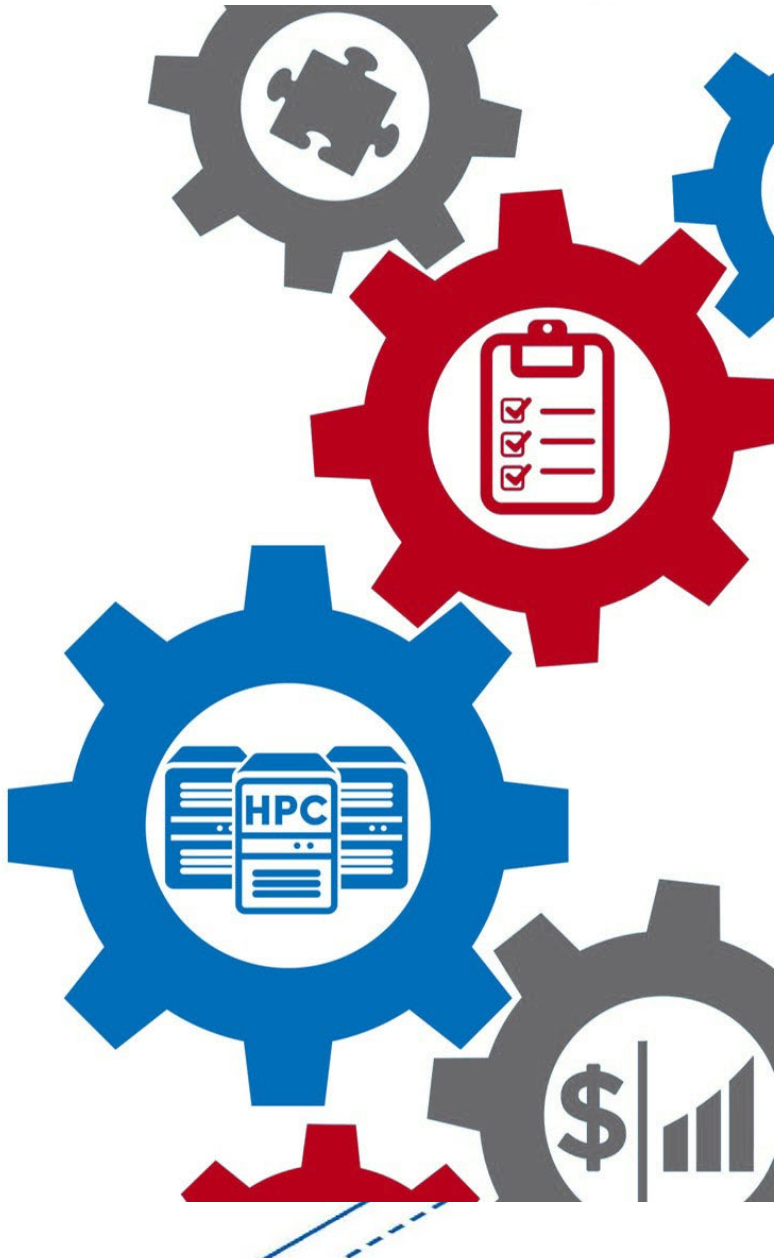
Create a Jupyter “Interactive App Plugin”

Travis Ravert



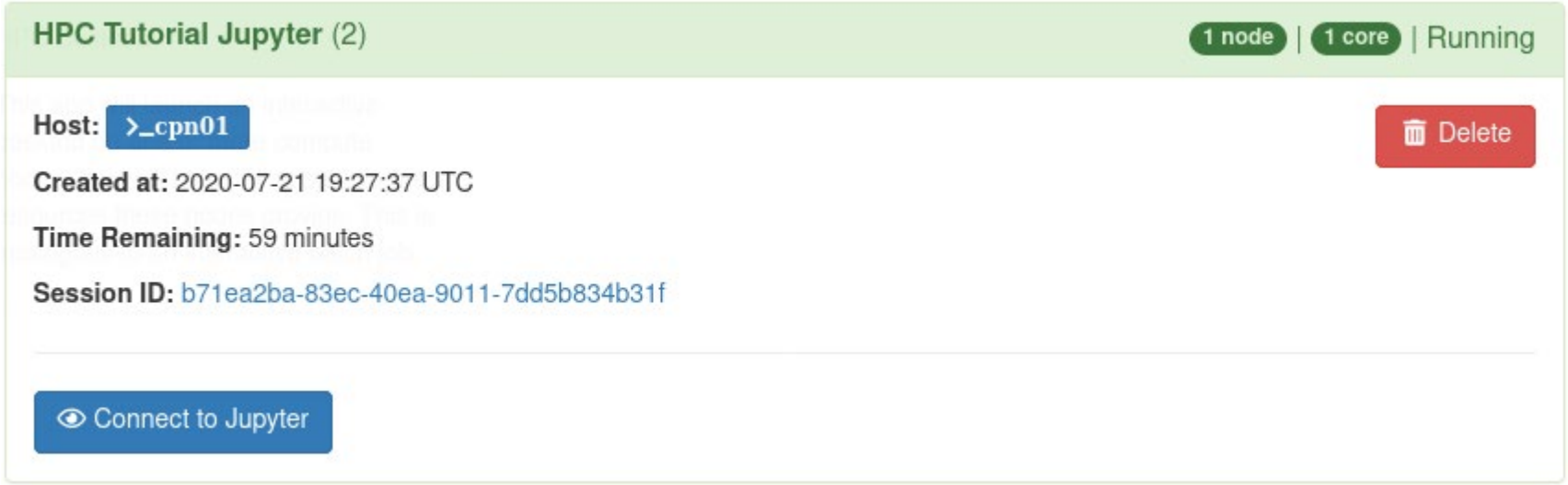
Hands on Tutorial: Create a Jupyter “Interactive App Plugin”

It Covers:

- **Getting the app to work.**
- **Checking logfiles to debugging failures.**
- **Changing the types of form items**
  - **From text input to select widgets**
- **Adding new form options**
- **Using Native scheduler options**
- **Explanations of files**
- **Promoting the app to production**

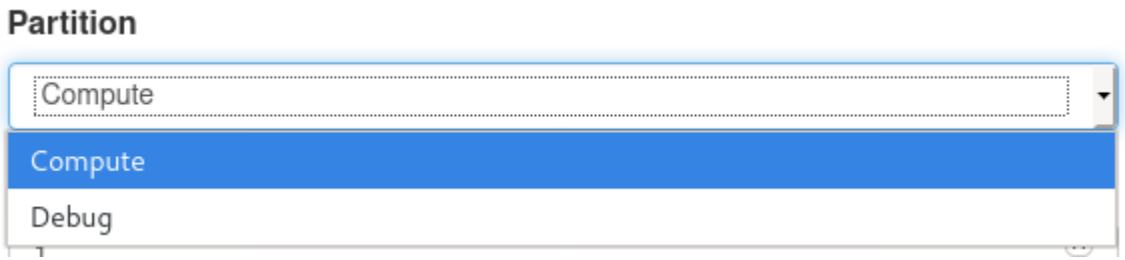
Jupyter Tutorial: Get the App working

- **Jupyter example application doesn't work out of the box**
  - Configure it to use this cluster
  - Configure it to use the correct Jupyter installation
- **The card is shown when a successful Jupyter job is launched**



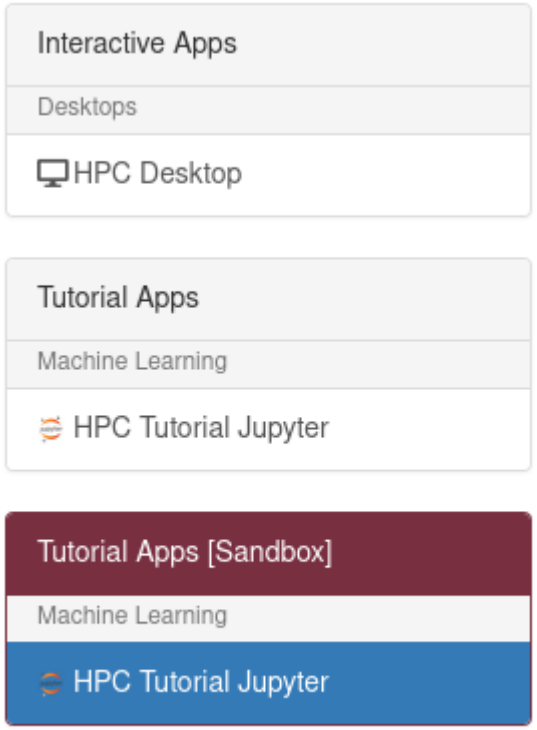
Jupyter Tutorial: Modify the Partition

- **Change the partition element to be a select dropdown instead of a text field**



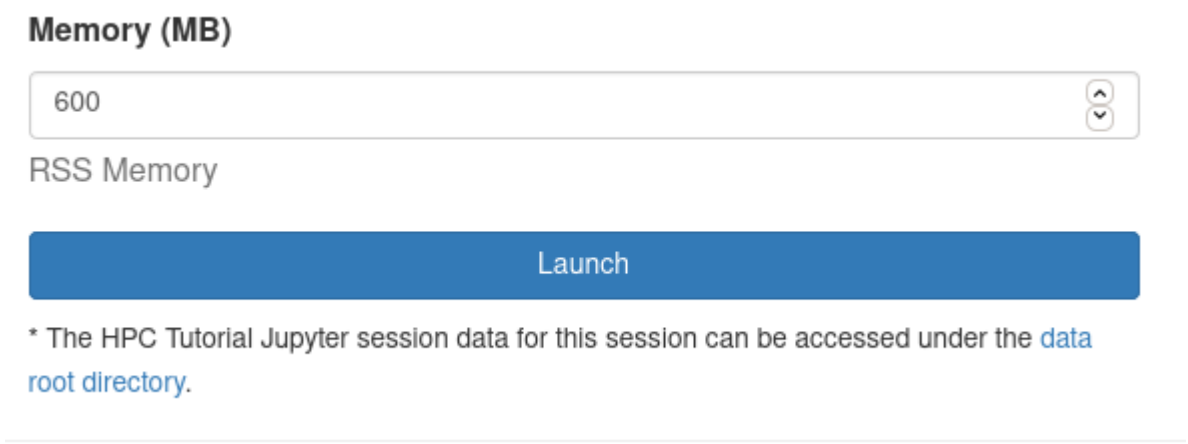
Jupyter Tutorial: Deploy to production

- **Deploy the app to production for other users**



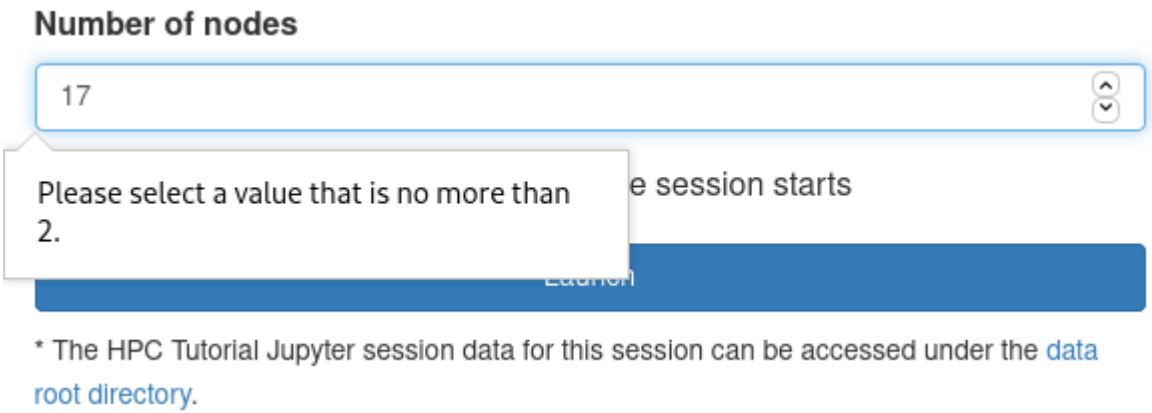
Jupyter Tutorial: Set the memory request for the job

- **Use the script.native attributes to set the --mem SLURM argument**



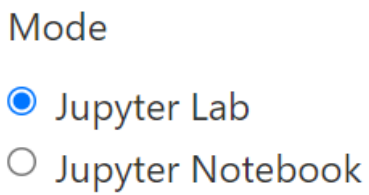
Jupyter Tutorial: Limit the number of nodes

- **Put an upper limit on the number of nodes allowed**



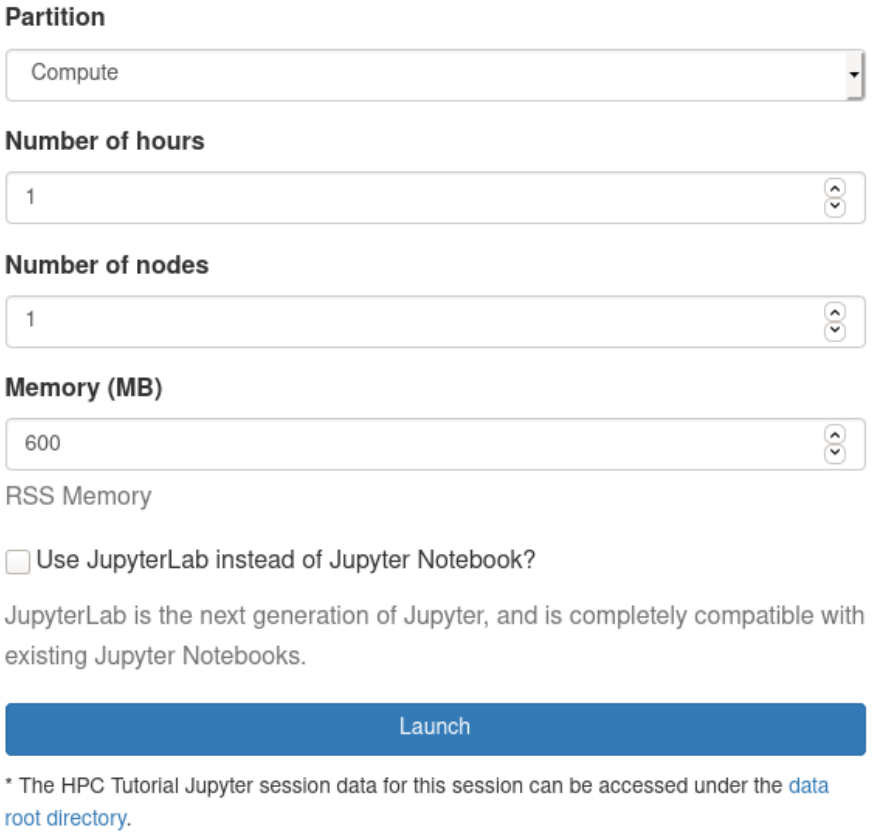
Jupyter Tutorial: Add a radio button to start JupyterLab

- **Add radio buttons so users can boot JupyterLab or Jupyter Notebook**



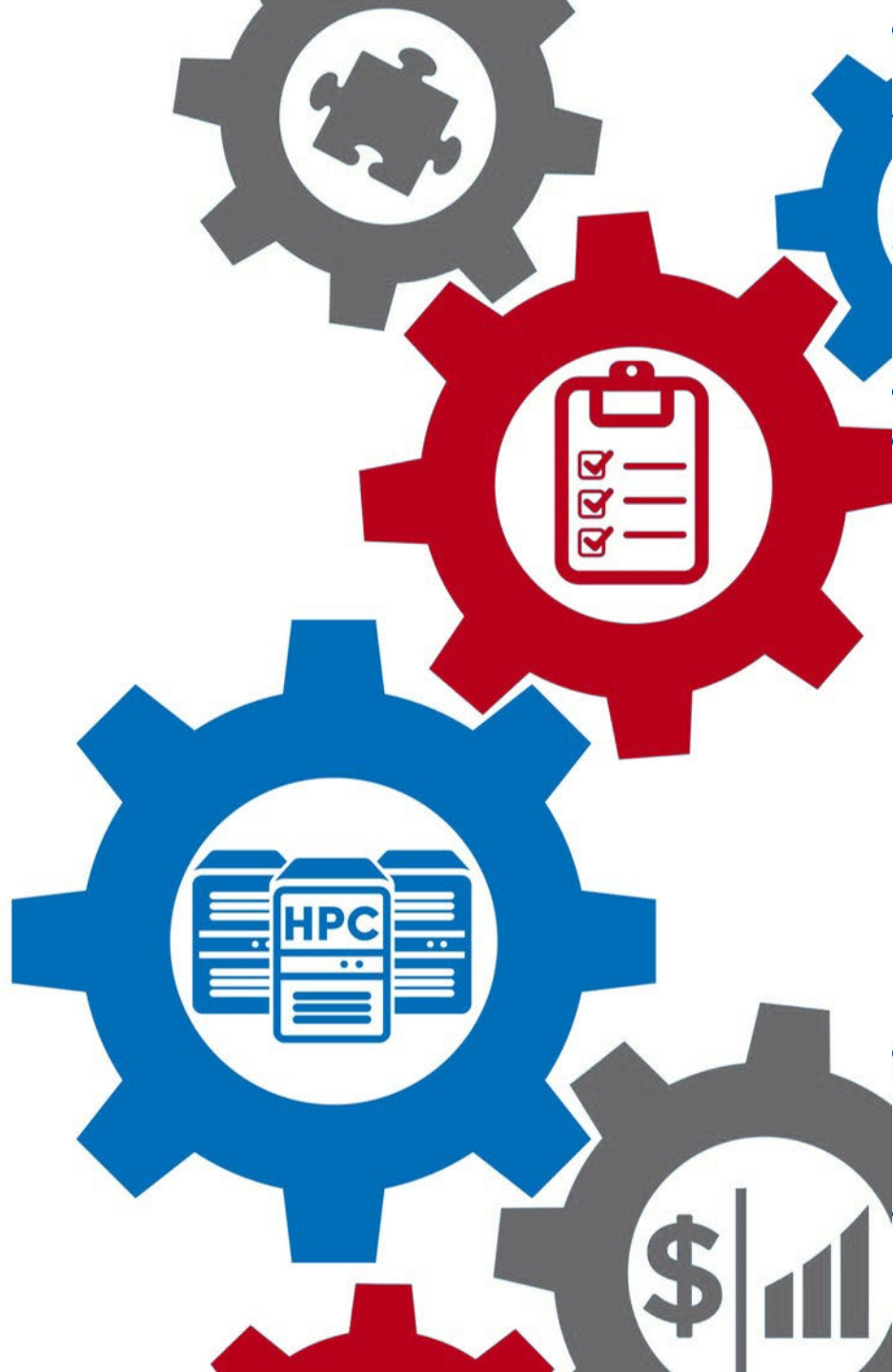
Jupyter Tutorial: Delete unused fields

- **Delete unused fields to clean up the form**



Wrap Up

Alan Chalker



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Funding and other acknowledgements:

- OnDemand is supported by the National Science Foundation – award numbers NSF#1534949 and NSF#1935725
- We gratefully acknowledge the partnership with Virginia Tech and Univ. of Buffalo on our current joint NSF project

How to reach us:

Visit us at the OnDemand table at Gateways next week!

Use our Discourse instance for help

https://discourse.openondemand.org/

Monthly “Tips and Tricks” webinars – 1st Thursday of the month (Thanks Martin Cuma!) – recordings on website

Monthly open office hours – 2nd Tues of the month

Submit a Github issue

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