



CS3 Jupyter
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What's new in JupyterHub

JupyterHub

- **Context**
- What's new
- What can you do



What problems do we try to solve?

- **Deploying** Jupyter
- Interactive **Publishing**
- **Reproducible** computational environments
- Lowering barriers to **access**



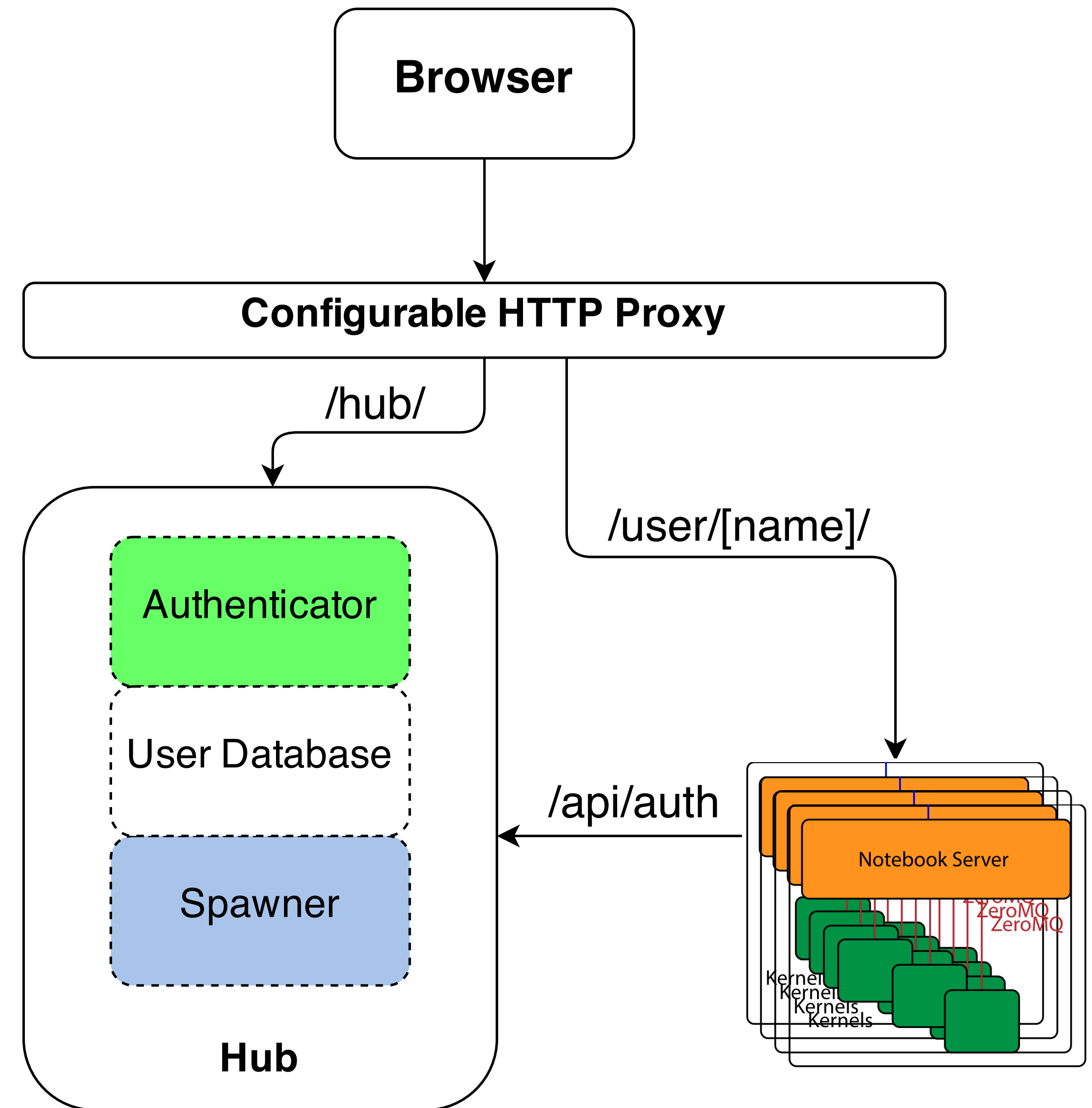
Who do we solve problems for?

- Workshops
- Research Institutions
- Education
- Supercomputing Centers
- Businesses
- **Everyone**



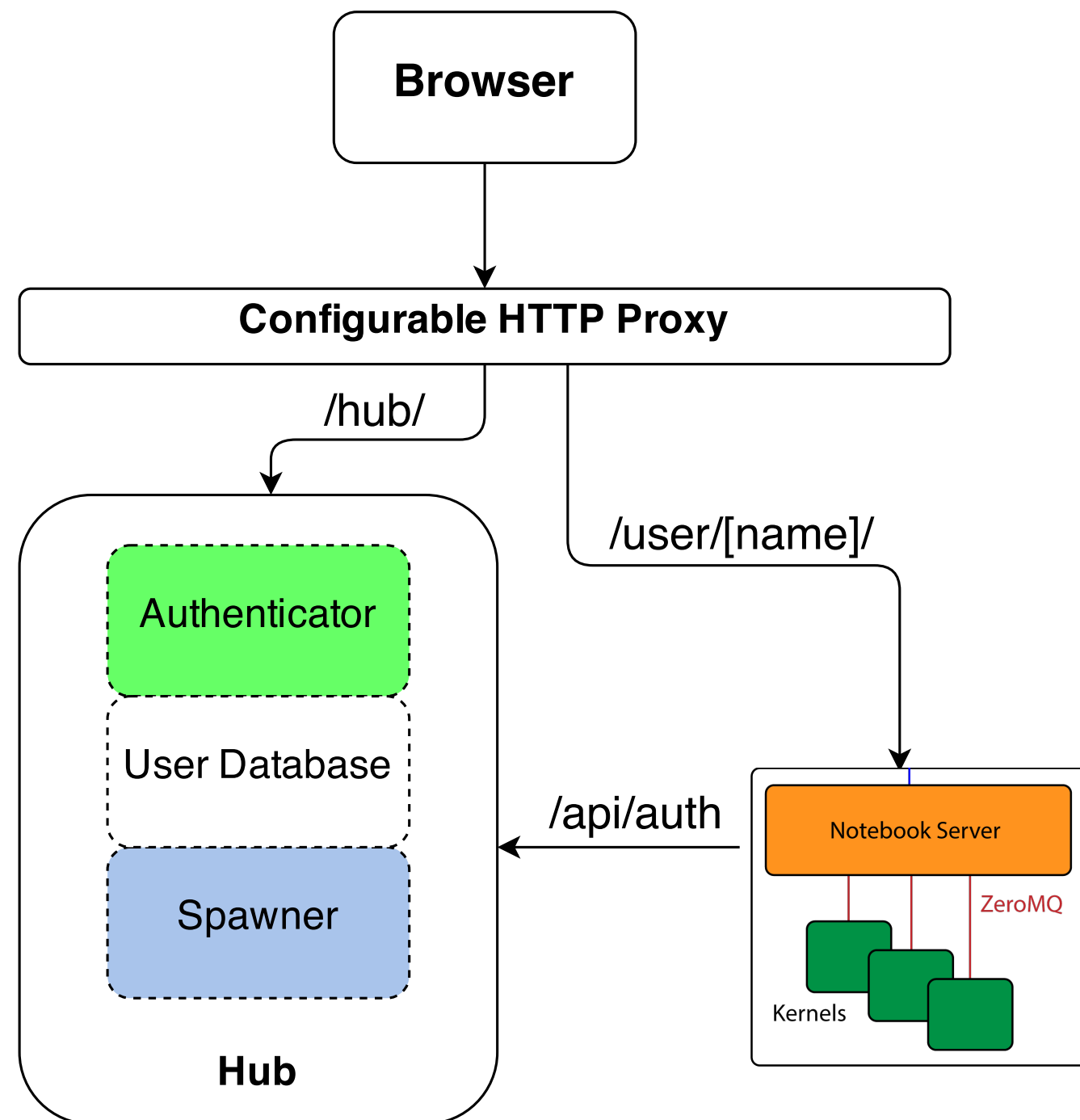
Jupyterhub

- you have **computers**
- **humans** want to use your computers (or you want them to)
- JupyterHub helps connect your **humans** to your **computers**



Key pieces of JupyterHub

- **Proxy** in front
- **Authenticator** handles logging in
- **Spawner** launches single-user servers
- **Jupyter Server** is what you want to use
- **Hub** connects everything



JupyterHub

- Context
- **What's new**
- What can you do



Improving accessibility

- Ogoh Blessing Onyowoicho

What's new

The screenshot shows a web browser with three tabs: 'JupyterLab (auto-Y)', 'JupyterLab', and 'JupyterHub'. The address bar shows '127.0.0.1:8000/hub/login'. The WAVE accessibility tool is overlaid on the left side of the page. The tool's 'Summary' section displays the following statistics:

| Category | Count |
|---------------------|-------|
| Errors | 0 |
| Contrast Errors | 2 |
| Alerts | 5 |
| Features | 4 |
| Structural Elements | 4 |
| ARIA | 6 |

Below the summary, there is a 'View details >' button. The main content of the page is the JupyterHub login form, which includes a warning message: 'Warning: JupyterHub seems to be served over an unsecured HTTP connection. We strongly recommend enabling HTTPS for JupyterHub.' The form has fields for 'Username:' (containing 'blaire') and 'Password:' (masked with dots). A 'Sign in' button is located at the top right of the form.



Tools for CI/CD with k8s

What's new

[action-k3s-helm](#) Public

A GitHub action to install K3S, Calico, and Helm.

☆ 20  BSD-3-Clause  6  3  1 Updated 1 minute ago


[action-k8s-namespace-report](#) Public

GitHub Action to report info and logs from the current namespace.

● Shell ☆ 5  BSD-3-Clause  4  2  0 Updated on Apr 7

[action-k8s-await-workloads](#) Public

A Github Action to await k8s workloads to become Ready

● TypeScript ☆ 5  BSD-3-Clause  5  3  0 Updated on Apr 7

[action-major-minor-tag-calculator](#) Public

GitHub action to calculate major and minor semver tags, e.g. for tagging containers

● JavaScript ☆ 4  MIT  6  0  4 Updated 2 weeks ago

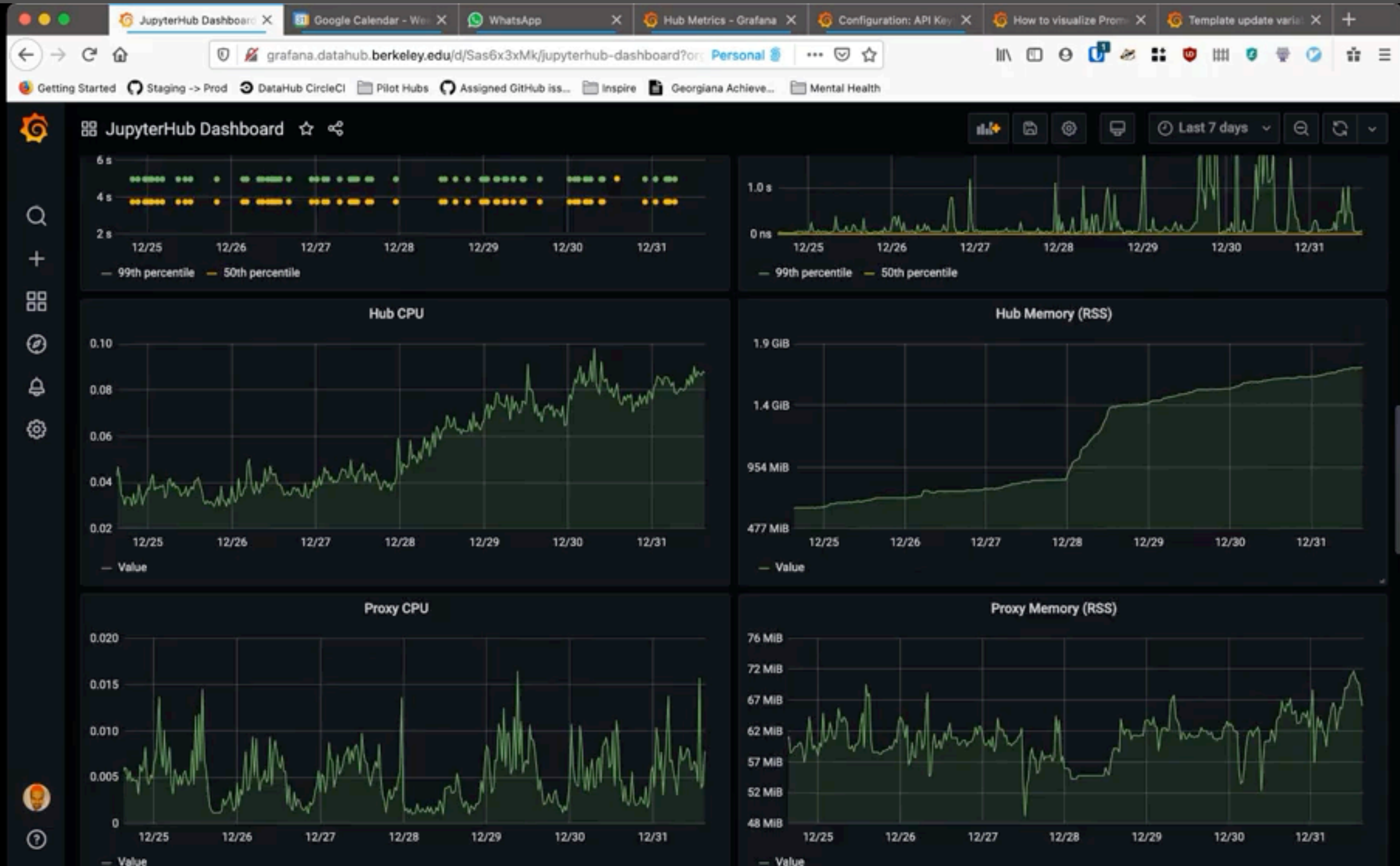


- ⌵ ✖ Await local chart 30s
- 49 Error: Action failure: max restarts
- 50 - hub-5f4744985b-txdw9
- ⌵ ⌚ Await local chart cert acquisition 0s
- ⌵ ⌚ Run tests 0s
- > ✔ Kubernetes namespace report 3s
- ⌵ ⌚ Debug PostgreSQL logs on failure 0s
- ⌵ ✔ Post Run actions/checkout@v3 0s

```
1 Post job cleanup.
2 /usr/bin/git version
3 git version 2.39.2
4 Temporarily overriding HOME='/home/runner/work/_temp/a04ec050-8434-435f-b238-ad0d6c3fe169' before making global git
  config changes
5 Adding repository directory to the temporary git global config as a safe directory
6 /usr/bin/git config --global --add safe.directory /home/runner/work/zero-to-jupyterhub-k8s/zero-to-jupyterhub-k8s
7 /usr/bin/git config --local --name-only --get-regexp core\.sshCommand
8 /usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'core\.sshCommand' && git
  config --local --unset-all 'core.sshCommand' || :"
9 /usr/bin/git config --local --name-only --get-regexp http\.https\:\/\/github\.com\/\.extraheader
10 http.https://github.com/.extraheader
11 /usr/bin/git config --local --unset-all http.https://github.com/.extraheader
12 /usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp
  'http\.https\:\/\/github\.com\/\.extraheader' && git config --local --unset-all 'http.https://github.com/.extraheader' ||
  :"
```



grafana dashboards for hub on kubernetes



JupyterHub **5.0**
now in beta



What's coming to JupyterHub



- emphasis on **Sharing** and **Collaboration**
- **user-initiated** sharing
- **runtime**-managed services
- **Authenticator**-managed roles



What's new

JupyterHub 4.1, 5.0

- 4.1: xsrf changes, affects some plugins
- 5.0: **user-initiated sharing**



What's new

5.0: Breaking changes

- Minimal db **schema** upgrade
- Require Python **3.8**
- New default **subdomain** scheme
- Authenticator.**allow_all** no longer default
- Bootstrap **5**

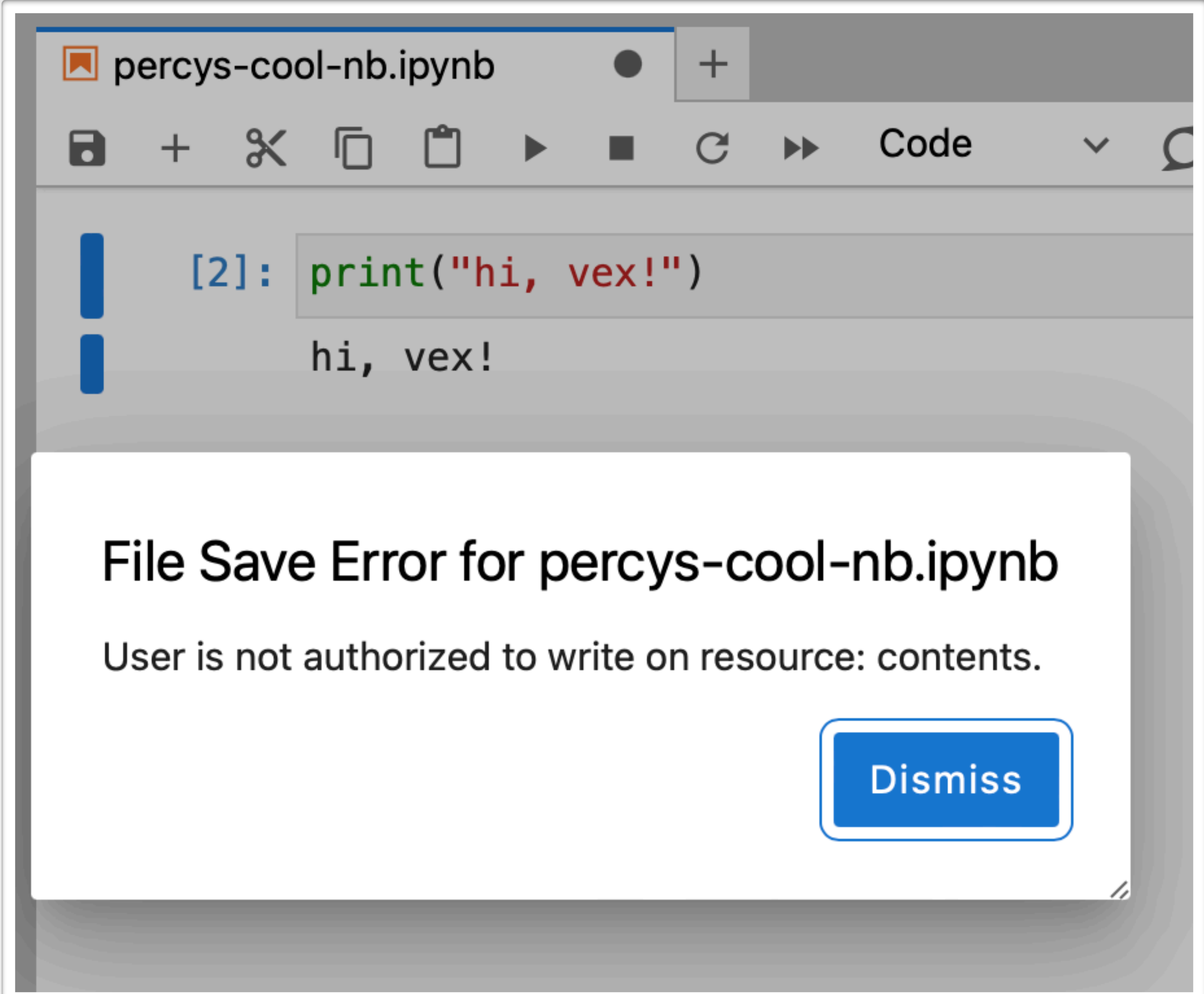


JupyterLab RTC

The screenshot displays the JupyterLab interface for a Real-Time Collaboration (RTC) session. The top menu bar includes File, Edit, View, Run, Kernel, Tabs, Settings, and Help. On the left sidebar, the 'User info' section shows a green circle with the letter 't' and the name 'vex'. Below it, the 'Online Collaborators' section shows a blue circle with the letter 'p' and the name 'pike • collab.ipynb'. The main workspace shows a notebook with two code cells. The first cell contains the code `print("Hello, pike")` and has executed, displaying the output 'Hello, pike'. The second cell contains the code `print("Hello, vex")` and is currently being edited by 'pike', with the cursor at the end of the string. The output for the second cell is 'Hello, vex'. The notebook title bar shows 'collab.ipynb' and various action icons like save, copy, and run.



Read-only



The screenshot shows a Jupyter Notebook window titled "percys-cool-nb.ipynb". The code cell contains the following Python code:

```
[2]: print("hi, vex!")
```

The output of the code cell is:

```
hi, vex!
```

An error message dialog box is displayed in the foreground, titled "File Save Error for percys-cool-nb.ipynb". The message reads: "User is not authorized to write on resource: contents." A blue "Dismiss" button is located at the bottom right of the dialog box.



User-initiated Sharing

- Users may grant access to **their own servers**
- Share with **user/group**
- Share via **invite code**
- Combine with **RTC, custom scopes**, e.g. read-only



User-initiated Sharing

Accept sharing invitation

You (test) have been invited to access admin's server at </user/admin/>.

By accepting the invitation, you will be granted the following permissions, restricted to this particular server:

Access user servers via API or browser. Applies to server admin/.

[Accept invitation](#)

After accepting the invitation, you will be redirected to </user/admin/>.



Security changes

- ?token=... URLs rejected by default
- **IFrames disallowed** by default
- Strongly recommend **per-user domains**
- Read updated **Security Overview** docs

<https://jupyterhub.readthedocs.io/en/latest/explanation/websecurity.html>



bootstrap 5

Start My Server

Named Servers

In addition to your default server, you may have additional server(s) with names. This allows you to have more than one server running at the same time.

Server name

URL

Last activity

Actions

name-your-server

Add New Server

named

a month ago

start

delete



Admin page

localhost:8000/hub/admin#/?limit=10

jupyterhub Home Token Admin admin Logout

Search users [> Manage Groups](#)

| User ↕ | Admin | Server | Last Activity ↕ | <input type="checkbox"/> All servers | Actions |
|---------------------------|-------|--------|-----------------|---|---------------------------|
| Add Users | | | | Start All Stop All Shutdown Hub | |
| admin | admin | | 45 seconds ago | Stop Server Access Server | Edit User |
| test-118 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-180 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-78 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-105 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-25 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-119 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-24 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-153 | | | Never | Start Server Delete Server Spawn Page | Edit User |
| test-6 | | | Never | Start Server Delete Server Spawn Page | Edit User |

Displaying 1-10 of 451

Items per page:

Previous Next

JupyterHub 5.0.0.dev



allow_all config

- Allowing all authenticated users **no longer default**
- **Opt-in** via `Authenticator.allow_all = True`
- Also new:
`Authenticator.allow_existing_users`



Authenticator managed roles

- Authentication may return role **assignments on login**
- Allows defining new, **dynamic roles**
- Authenticators may load roles at **startup**



Fix highlights

- Fixes for group ids, e.g. when using **LDAP**
- Greatly improve DB **query performance** with lots of users
- **JupyterHub.subdomain_hook** for customizing subdomains



How can you help?

- **Share** your knowledge and experiences with the Jupyter community
- **Try** out JupyterHub 5, prereleases, docs, etc.
- **Join** JupyterHub Collaboration Café, discourse, GitHub, Binder Federation!



Thank you!

