National Research Council Canada | Conseil national de recherches Canada

Canada

CANFAR Science Platform
ADASS 2025

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November 12, 2025

I. What is CANFAR?

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Scalable ◆ Cloud Native ◆ Collaborative Workspace

- Canadian Advanced Network for Astronomy Research, est. 2020

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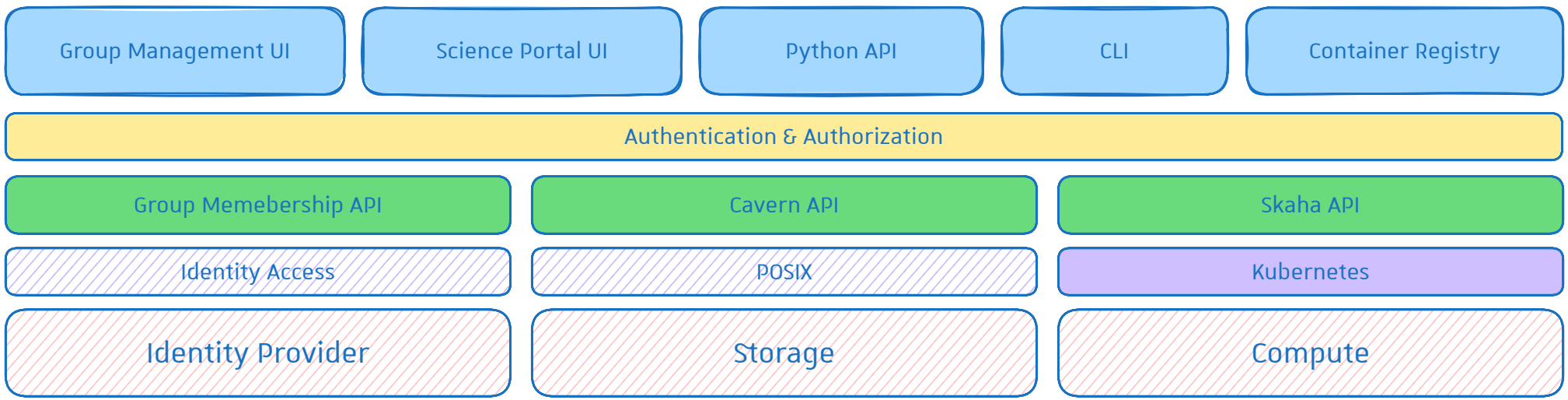
- Canadian Advanced Network for Astronomy Research, est. 2020
- One of the CADC's Mandate: Provide Access to Data
- Data Gravity → Move Compute, not petabytes
- One Place for Analysis, Batch, Publication alongside CADC Data Archives.
- Currently: 3000+ Cores & 10TB+ RAM, A100 GPUs
- Soon™: 6000+ Cores & 20TB+ RAM, H100 GPUs
- https://www.canfar.net

Architecture

CANFAR Science Platform



II. Who is CANFAR for?

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- Public or Private & Curated & User Contributed Containers
- Notebooks, Desktop, Batch Processing, CARTA, CASA, Firefly, VSCode etc.
- Self-managed Groups with Shared Projects Access & Storage
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- Request upto 16 Cores & 192 GB RAM per user session

Developers & Deployers

Open Source

- Backend API + Clients + Helm Charts
- Everything is on Github
- Contributions are always welcomed :D

Deployable

- Currently deployed at 10+ sites worldwide as part of the SKA SRCnet Project

III. What's new with CANFAR?

Formal Release Process

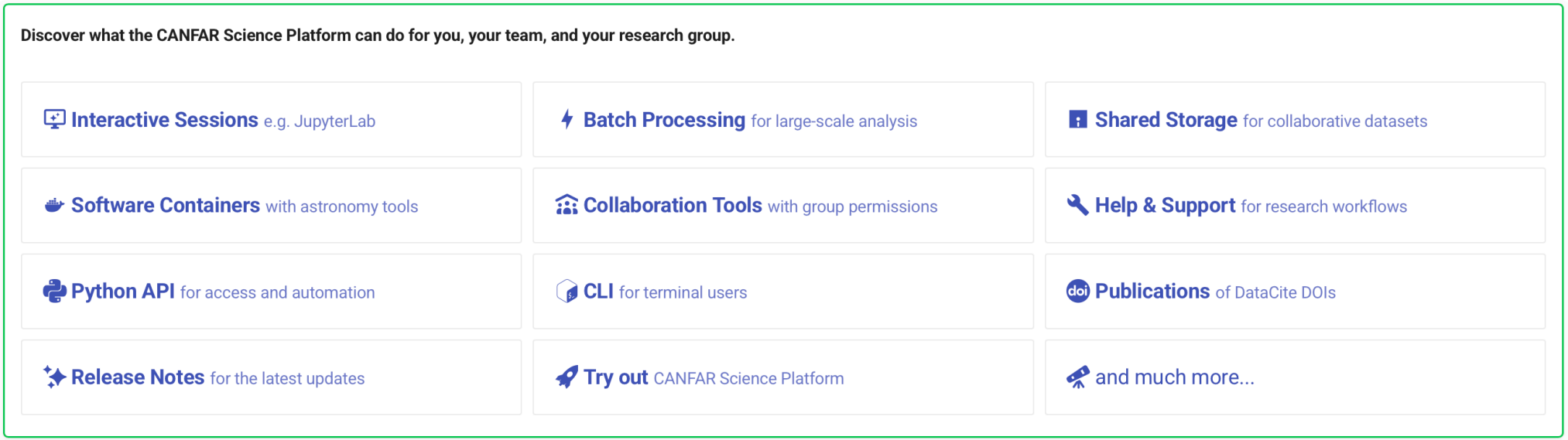
After 4 years in beta, CANFAR Science Platform is now in a formal release process.

Release Cadence

- Every 3 months, starting with 2025.1 in September 2025
- New features introduced as feature flags in beta
- Atleast 6 months of bug fixes and deprecation warnings
- Installation & Migration Guides for Deployers

Lockstep with SRCnet Program Iterations

Improved User Experience



https://opencadc.org/canfar/latest

Public Python Client & CLI

bash

```
pip install --user canfar
```

bash

```
canfar create headless skaha/terminal:1.1.2 -- env
```

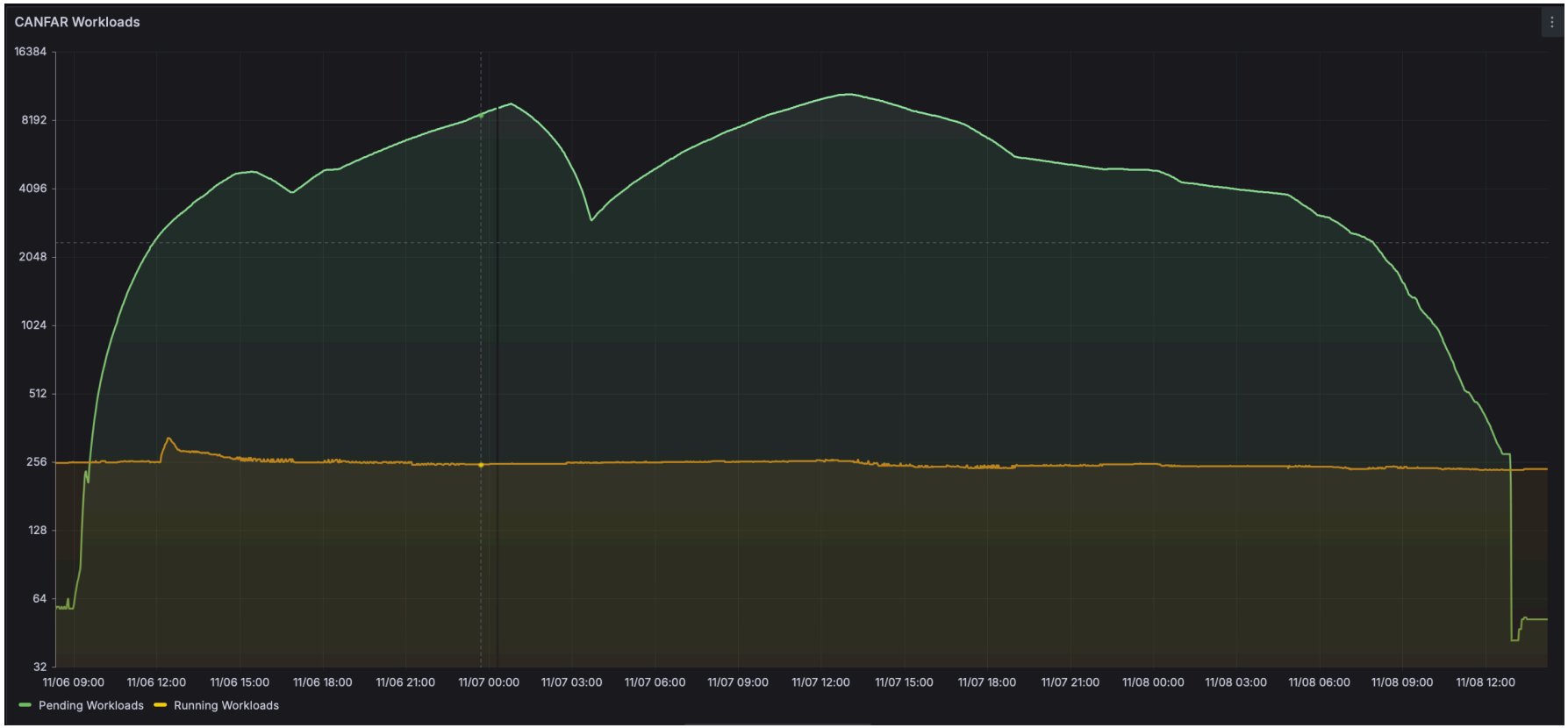
python

```
from canfar.sessions import Session

with Session() as session:
    session.create(
        name="adasser",
        image="skaha/astroml:latest",
        kind="notebook",
    )
```

IV. Quick CLI Demo

Batch Scheduling with Kubernetes Kueue



V. What have we learned?

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Scale Really starts at >50 Nodes

Users and Use Cases are Unpredictable

Social Engineering

- Requested ≠ Needed
- Utilization Challenges

VI. What's next for CANFAR?

What have we learned?

Metrics & Logs

- User & Admin Telemetry (LGTM Stack)

Fair Share & Quotas

Official Container Library

UI Refresh

VII. Danke!