



## Cloud Facility for Advancing Scientific and Engineering Communities

George Turner, Chief Systems Architect  
Pervasive Technologies Institute, UITS/RT, Indiana University

Data Day  
University of Cincinnati, Cincinnati, OH

6 March 2018

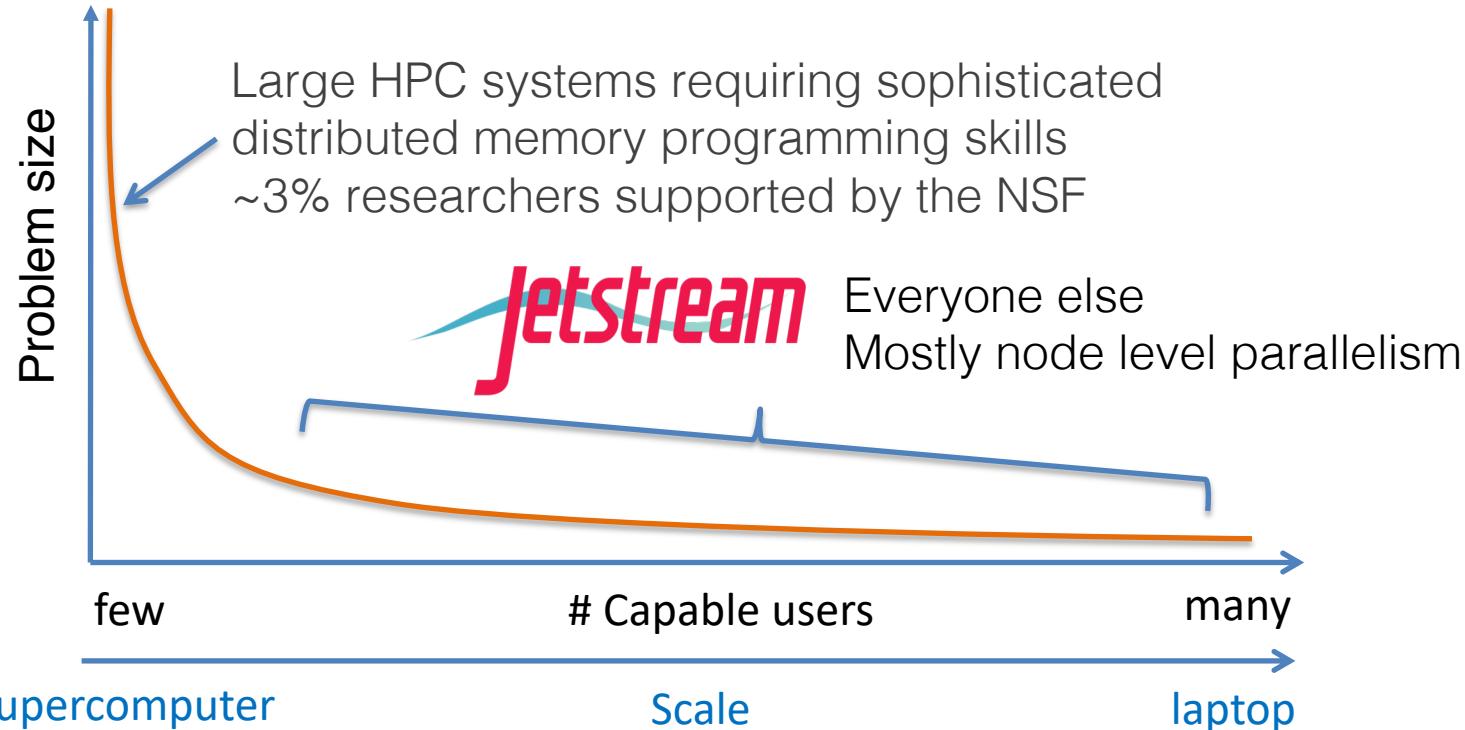


funded by the National Science Foundation  
Award #ACI-1445604

# What is Jetstream?

- **User-friendly**, widely accessible cloud environment
  - **User-selectable library** of preconfigured virtual machines
    - Interactive computing
    - Software maintained by domain specialist
    - No need for system administration skills
    - The “Atmosphere” side
  - **Programmable cyberinfrastructure**
    - Go beyond batch computing
    - Implement modern cloud computing techniques
    - Common modality for science gateways
    - The “API” side

# “Long tail” of the Science



# What is Jetstream?

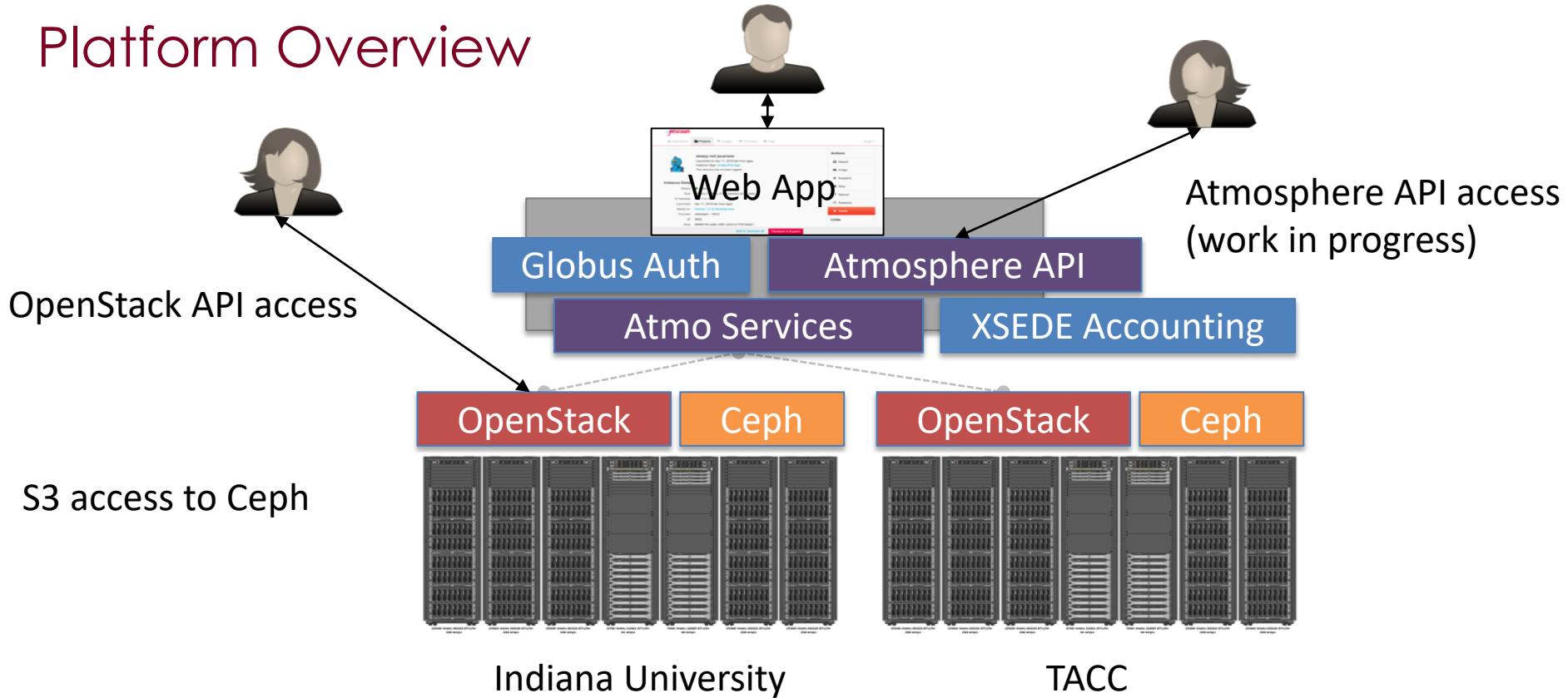
- **Primary goal** is to **expand the user base** of NSF's eXtreme Digital (XD) program resources beyond the current community of users.
- **Lowering the hurdle** to onboard to XSEDE resources
  - Working to **ease the allocation request** process
  - **Easy-Button**; quick access but limited ability. (Beta)
- **Making Science Easy** for domain researchers, engineers, & educators
  - Domain software installed & maintained by the professionals
  - No sys-admin skills necessary

# What is Jetstream?

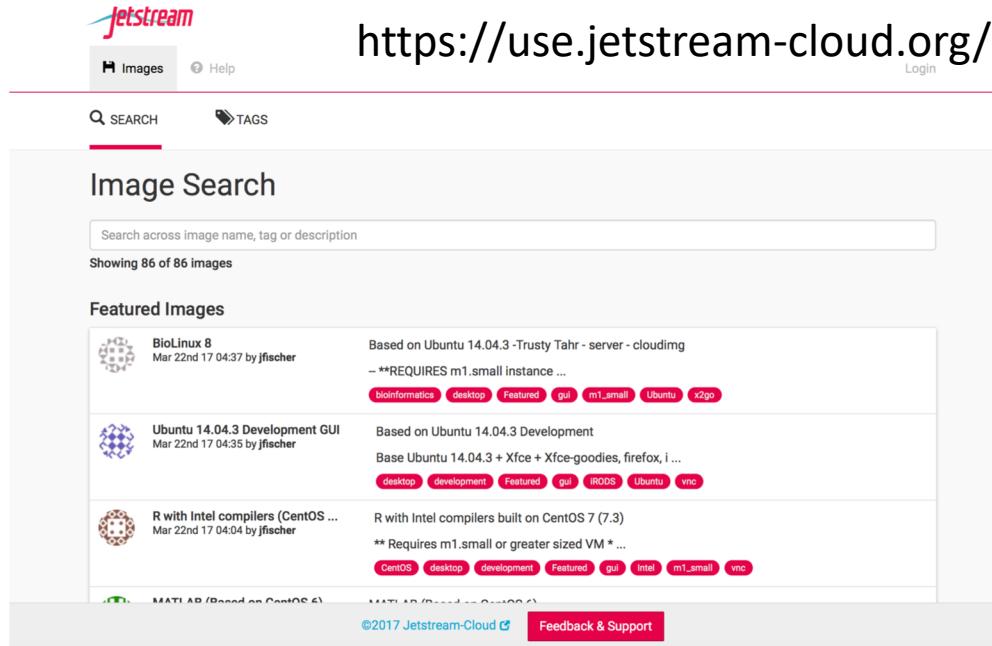
(Cont.)

- **Creating communities**
  - Domain developers **create, install, and maintain** the software
  - **Encourage collaboration** within the domains
  - **Operating system** level software is professionally **patched and maintained**
- **Repeatability:** store & publish images via IU Scholarworks & create a DOI
- **Science Gateways:**

# Platform Overview



# Jetstream's Atmosphere Interface



The screenshot shows the Jetstream Atmosphere Interface at <https://use.jetstream-cloud.org/>. The interface has a top navigation bar with the Jetstream logo, a search icon, 'Images' (selected), a help icon, and 'Login'. Below the navigation is a search bar with 'SEARCH' and a 'TAGS' button. The main area is titled 'Image Search' and displays a search result for 'Showing 86 of 86 images'. It features a 'Featured Images' section with three items:

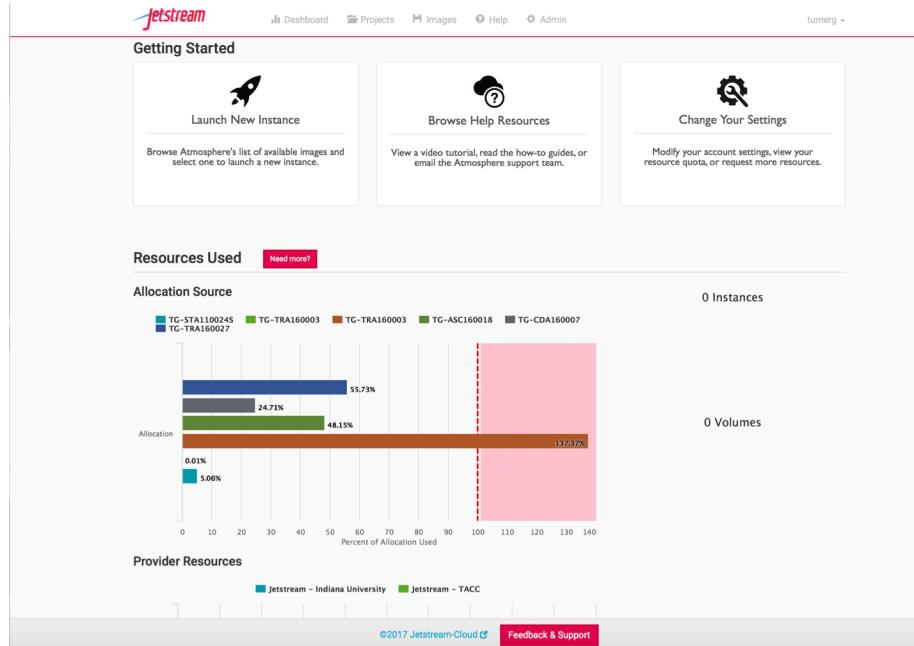
- BioLinux 8** (Mar 22nd 17 04:37 by jfischer) - Based on Ubuntu 14.04.3 -Trusty Tahr - server - cloudimg. Requires m1.small instance. Tags: bioinformatics, desktop, Featured, gui, m1\_small, Ubuntu, x2go.
- Ubuntu 14.04.3 Development GUI** (Mar 22nd 17 04:35 by jfischer) - Based on Ubuntu 14.04.3 Development. Base Ubuntu 14.04.3 + Xfce + Xfce-goodies, firefox, i ... Tags: desktop, development, Featured, gui, IRODS, Ubuntu, vnc.
- R with Intel compilers (CentOS ...** (Mar 22nd 17 04:04 by jfischer) - R with Intel compilers built on CentOS 7 (7.3). Requires m1.small or greater sized VM \* ... Tags: CentOS, desktop, development, Featured, gui, Intel, m1\_small, vnc.

At the bottom, there are links for 'MATLAB (Based on CentOS 6)' and 'MATLAB (Based on CentOS 7)'. The footer includes '©2017 Jetstream-Cloud' and 'Feedback & Support'.

- No login required at this point
- You will be able to peruse the image library
- Based upon the work of the CyVerse team of Univ of AZ
- See [cyverse.org](http://cyverse.org) for further details concerning the Atmosphere interface

# Jetstream's Atmosphere Interface

user's home dashboard



# Jetstream's Atmosphere Interface

Instance ready for use



Jetstream

Dashboard Projects Images Help Admin turnerg ▾

RESOURCES DETAILS OPTIONS ▾

## geo-tests

NEW ⌂ ⌂

Instances

Name	Status	Activity	IP Address	Size	Provider
 geo-demo-CentOS7-001	Active	N/A	149.165.156.173	M1.Small	Jetstream - Indiana University

Volumes

You have not added any volumes to this project.

Images

You have not added any images to this project.

Links

You have not added any links to this project.

Jetstream Homepage - Jetstream Partners - Citing Jetstream - Jetstream is supported by NSF ACI-1445604 FEEDBACK & SUPPORT

# Jetstream's Atmosphere Interface

User's instance dashboard

The screenshot shows a web-based interface for managing cloud instances. At the top, there's a navigation bar with links for Dashboard, Projects, Images, Help, Admin, and a dropdown for 'turnerg'. Below the navigation is a toolbar with 'RESOURCES' and 'DETAILS' buttons, and an 'OPTIONS' dropdown.

The main content area displays an instance named 'geo-demo-CentOS7-001'. It includes a thumbnail image of the instance, its allocation source ('TG-TRA160003'), and its usage ('72% of 1500000 SUs from TG-TRA160003').

Under 'Instance Details', there are several key pieces of information:

- Status: Active
- Activity: N/A
- Size: m1.small (2 CPUs, 4 GB memory, 20 GB disk)
- IP Address: 149.165.156.173 ([Copy](#))
- Launched: May 10, 2017 (7 minutes ago)
- ID: 12234
- Alias: 637dd2c7-b993-4577-bfb8-d10572d7c30b ([Copy](#))

To the right of the instance details is a vertical 'Actions' menu with the following options:

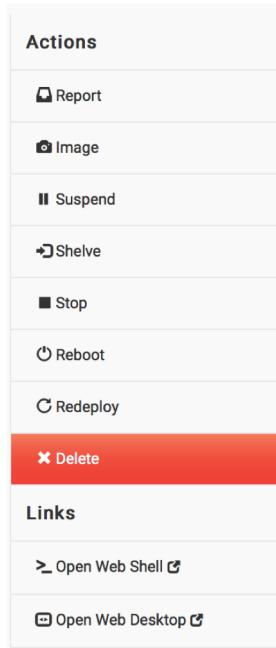
- Report
- Image
- Suspend
- Shelve
- Stop
- Reboot
- Redeploy

A prominent red button labeled 'Delete' is highlighted. Below the actions is a 'Links' section with two items: 'Open Web Shell' and 'Open Web Desktop'.

At the bottom of the interface, there are links for 'Jetstream Homepage', 'Citing Jetstream', and 'Jetstream is supported by NSF ACI-1445604', along with a 'FEEDBACK & SUPPORT' button.

# Jetstream's Atmosphere Interface

User's instance dashboard  
Action requests



Open Web Desktop

# Jetstream's Atmosphere Interface

Web desktop access to instance  
VNC access also available

