Cloud Facility for Advancing Scientific and Engineering Communities

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Data Day
University of Cincinnati, Cincinnati, OH

funded by the National Science Foundation
Award #ACI-1445604

6 March 2018
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

Large HPC systems requiring sophisticated distributed memory programming skills
~3% researchers supported by the NSF

Everyone else
Mostly node level parallelism

Problem size
few
# Capable users
many

Supercomputer
Scale
laptop

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http://jetstream-cloud.org/
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


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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

OpenStack API access

Atmosphere API access (work in progress)

S3 access to Ceph

Indiana University

TACC

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http://jetstream-cloud.org/
Jetstream’s Atmosphere Interface

https://use.jetstream-cloud.org/

- 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 for further details concerning the Atmosphere interface
Jetstream’s Atmosphere Interface user’s home dashboard
Jetstream’s Atmosphere Interface

Instance ready for use
Jetstream’s Atmosphere Interface

User’s instance dashboard
Jetstream’s Atmosphere Interface

User’s instance dashboard
Action requests

Open Web Desktop

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Jetstream’s Atmosphere Interface

Web desktop access to instance
VNC access also available