

# Jetstream

## Hands on with Jetstream

Jetstream: A national research and education cloud  
The ECSS/Staff Edition

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**There is no cloud**  
it's just someone else's computer



# What is cloud computing?

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- Wikipedia says “Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation.”

# Welcome to the As-a-Service Economy



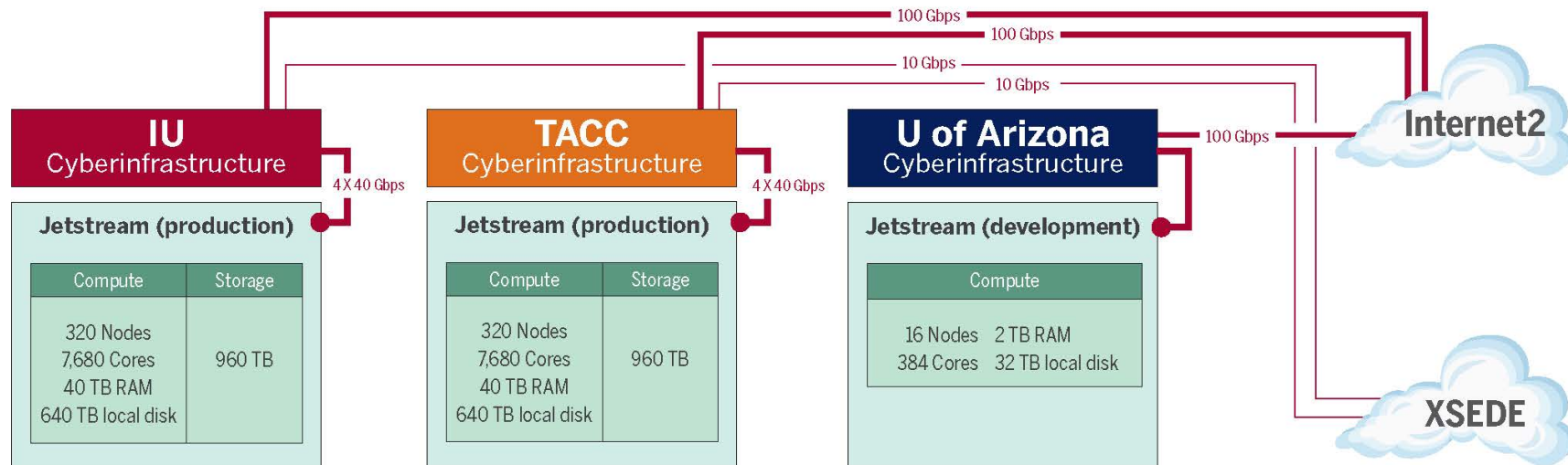
Source: HfS Research, 2014

# What is Jetstream?

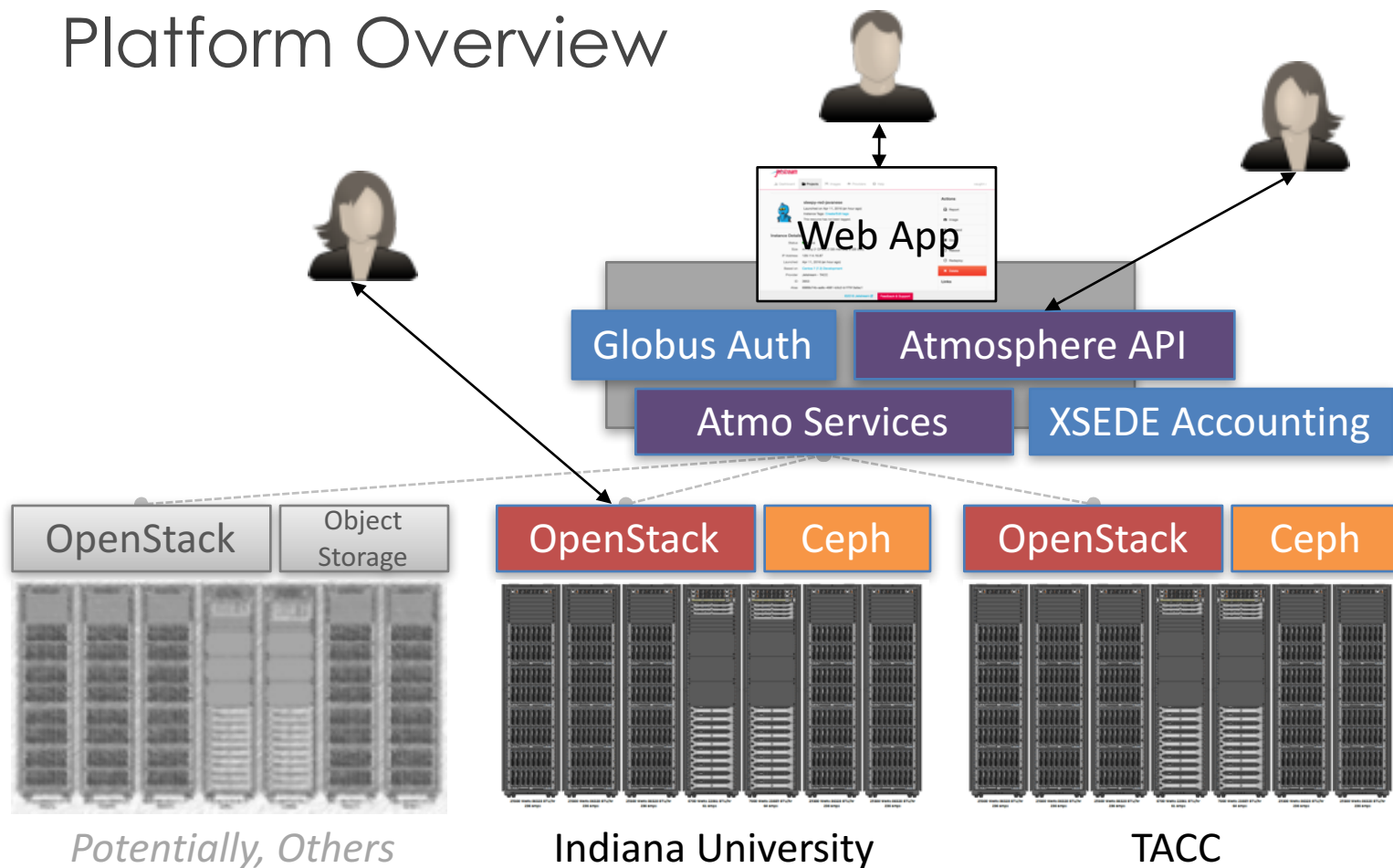
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- A resource to *expand the community of users* who benefit from investments in shared cyberinfrastructure
- *Production cloud system* supporting all domains of science and engineering research
- Provide on-demand *interactive* computing and analysis
- Enable *configurable* environments and architectures
- Support computational *reproducibility and sharing*
- Democratizes access to *cloud-native* technology and software
- Focuses on *ease of use*, but also on *maintaining flexibility*

# Jetstream System Overview



# Platform Overview



# Levels of access

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## Two levels of access

- Interactive user access via web interface and vnc/ssh
- Persistent access for Science Gateways and other “always on” services or services launched programmatically on demand; e.g. elastic compute techniques



# Hardware and Instance "Flavors"

## VM Host Configuration

- Dual Intel E-2680v3 "Haswell"
- 24 physical cores/node @ 2.5 GHz (Hyperthreading on)
- 128 GB RAM
- Dual 1 TB local disks
- 10GB dual uplink NIC
- Running KVM Hypervisor

Flavor	vCPUs	RAM	Storage	Per Node
m.tiny	1	2	8	46
m.small	2	4	20	23
m.medium	6	16	60	7
m.large	10	30	120	4
m.xlarge	24	60	240	2
m.xxlarge	44	120	480	1

- Short-term storage comes as part of launched instance
- Long-term storage is XSEDE-allocated
- Implemented on backend as OpenStack Volumes
- Each user gets 10 volumes up to 500GB total storage
- Piloting object storage as well after recent update



# Where can I learn more?

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- Production:
  - Wiki: <http://wiki.jetstream-cloud.org>
  - User guides: <https://portal.xsede.org/user-guides>
  - XSEDE KB: <https://portal.xsede.org/knowledge-base>
  - Campus Champions: <https://www.xsede.org/campus-champion>

# Questions to this point?

Project website: <http://jetstream-cloud.org/>

Project email: [help@jetstream-cloud.org](mailto:help@jetstream-cloud.org) Direct email: [jeremy@iu.edu](mailto:jeremy@iu.edu)

## License Terms

- Fischer, Jeremy. July 21, 2016. Hands on with Jetstream – XSEDE16 Conference. Available at: <http://jetstream-cloud.org/publications.php>
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# Accessing Jetstream

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- First time, you should log into Atmosphere and accept the terms from Globus and XSEDE
- See the GUI – know what most end users might see
- The other reason(s)? It's good to know the GUI so you can disregard it? 😊
- GUI vs API in terms of use

# Data and the ins and outs

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- Moving data in and out...well, that's up to you
  - Globus on Atmosphere
  - Globus on API VMs
- Backups
  - Punchcards
  - Jetstream proper
  - VMs
  - Snapshots
- Let's talk about storage in general...

# Image preservation and publication

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- Part of the “what makes Jetstream unique” design is the plan for long term image storage
- When you’re ready:  
<http://www.jetstream-cloud.org/request-doi-test.php>
- The result (a sample):  
<http://doi.org/10.5967/P9H59R> (Old style IUSW)  
<https://scholarworks.iu.edu/iuswrdemo/handle/123456789/20894>

# Things to cut n paste for the play at home game!

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Examples available at:

<https://goo.gl/I7wEpJ>

Docs at (examples will live here soon):

<http://wiki.jetstream-cloud.org>