



PERVASIVE TECHNOLOGY INSTITUTE



UNIVERSITY INFORMATION TECHNOLOGY SERVICES
RESEARCH TECHNOLOGIES

Jetstream2

Jetstream2 Gateways Introduction

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Science Gateways Webinar - Hosted by SGX3

About Jetstream2

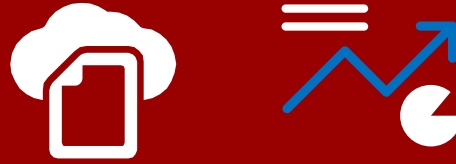
- NSF-funded production cloud environment
- Ease-of-use focus, rapid on-ramp to ACCESS
- On-demand interactive computing and persistent services for science gateways
- Enables configurable environments; programmable cyberinfrastructure
- Building on the success of Jetstream1
 - The 63 science gateways that utilized Jetstream indirectly supported over 183,197 people.
 - Six year of operations an overall availability of 98.54%, incl. planned and unplanned outages
 - An uptime of 99.9967% where the system was operating but at a reduced capacity



Gateways use JS2 in several ways



Gateway web hosting



Datasets and
Database hosting



Gateway Security
Services

Integrated JupyterHub



Interactive
Computing



Elastic Virtual Clusters



Jetstream2 Features

- Primary Cloud (IU)
 - 400 compute nodes -- AMD EPYC 3rd Generation Milan CPUs – 128 cores per node + 512gb RAM
 - 90 GPU nodes – NVIDIA A100 40gb
 - 32 Large Memory nodes – up to 1TB of RAM
- Regional Clouds available by invitation/request (Arizona State, Cornell, Hawaii, TACC)
- Default VM root disks and storage are NVMe. Large dataset storage available on HDDs
- Filesystems-as-a-service – natively shared filesystems between VMs
- Load-balancing-as-a-service recently deployed
- Shared application store with common applications (NVIDIA HPC Toolkit, multiple compilers, R/Rstudio, Matlab, Anaconda, etc)
- Federated JupyterHubs, Virtual Clusters, and orchestration are all available with features being added and refined
- Support for commercial cloud integration and funding when using Jetstream2 coming this year



Jetstream2 Allocation/Usage Considerations

- No scheduled downtime for upgrades
 - Upgrades are done while the system stays live overall
 - 99.87% availability for 9-7-22 to 3-31-23
- Persistent IP addresses (for the life of an allocation if desired)
- No runtime limits – VMs can exist as long as there is an active allocation with SUs available
- No allocation limits for SUs – if you can justify it and we can provide it, we do
- Instance, core, and ram limits are flexible and extendable – if you can justify it and we can provide it, we do
- Storage allocations are reasonably generous – 1TB default up to 50TB in volume, shared, or object storage



Gateways using Jetstream2

- Presently 56 gateways on Jetstream2
- Gateway users per allocation range from single digits to over 60,000



Galaxy

PROJECT



WHOLE TALE



Searching SRA



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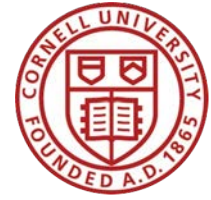
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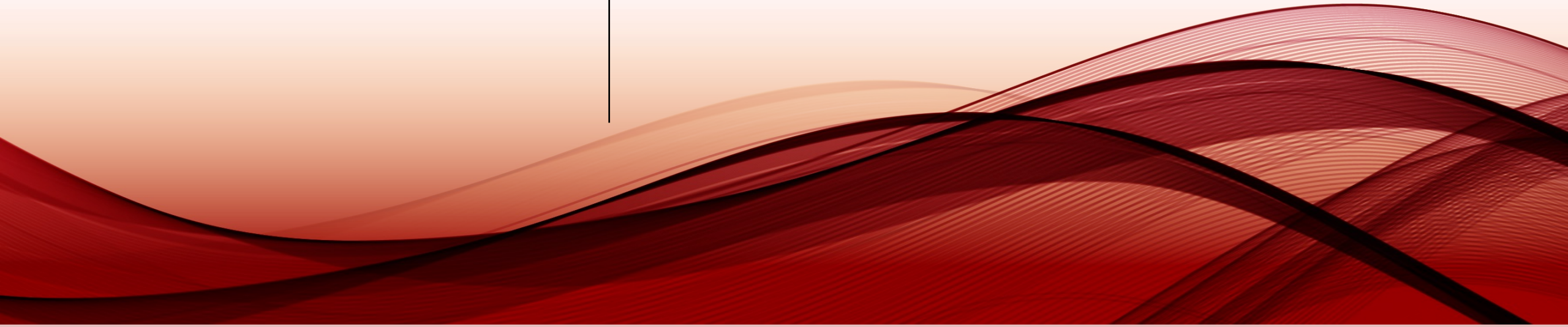


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