Monthly Photon/Neutron/Muon Community Meeting
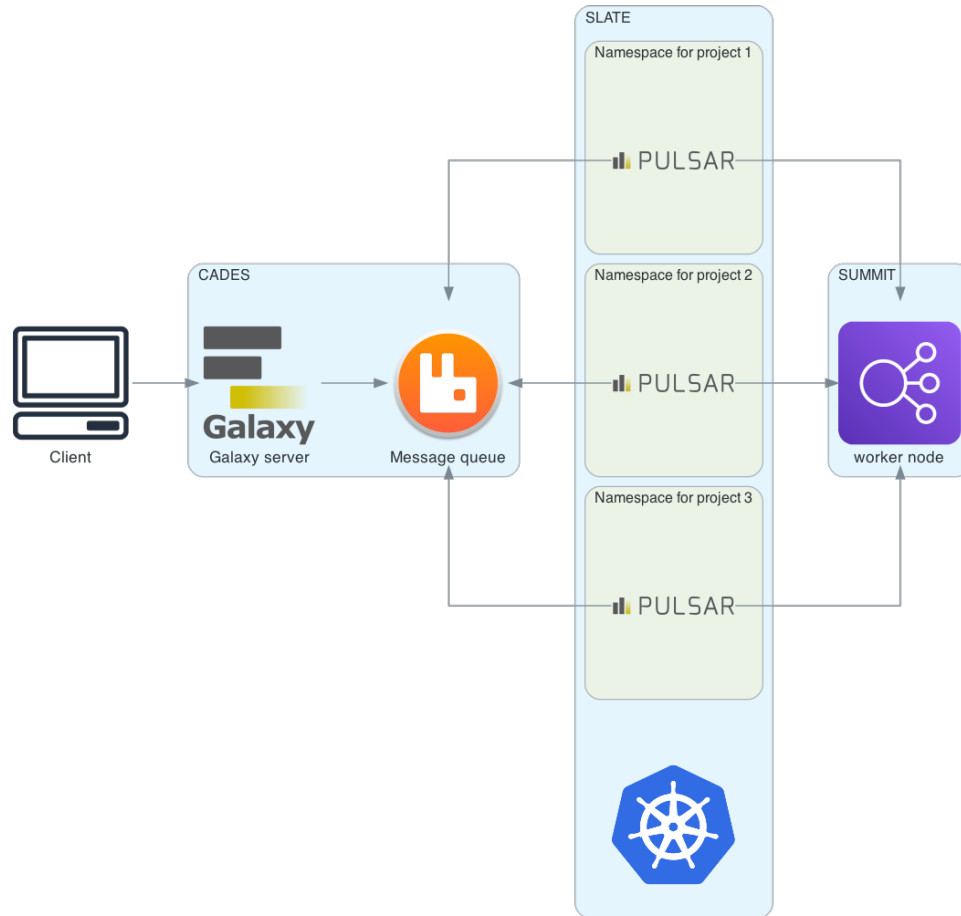
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ORNL Neutrons Galaxy – Architecture for HPC jobs

- Services in a Cloud
  - Galaxy core service
  - RabbitMQ
  - Non-HPC jobs (via other Pulsars) and interactive tools

- Slate Cluster
  - Kubernetes to host Pulsar containers
  - Access to Summit filesystems and job orchestrator
  - Pulsar submits jobs to Summit
  - Pulsar (for now) exchanges data with Galaxy

- Summit
  - Where actual jobs will run
  - Behind a job scheduler

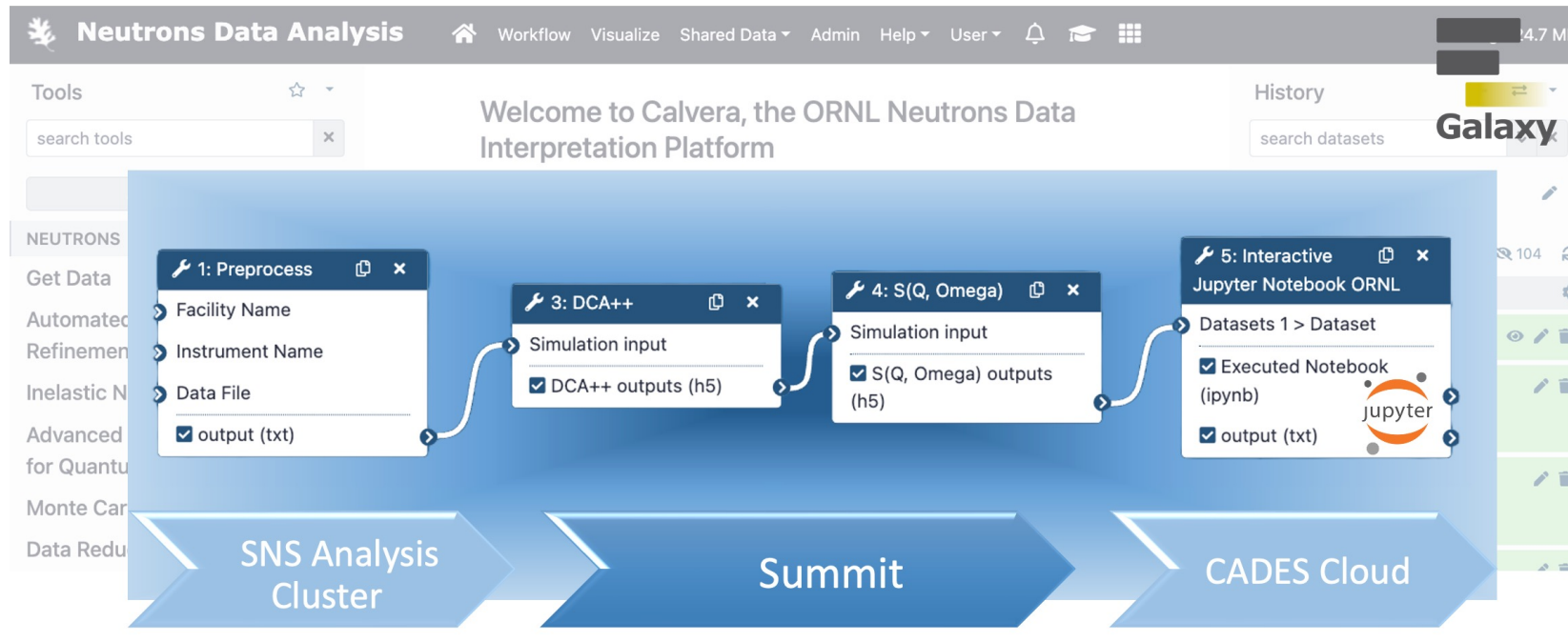**OAK RIDGE**
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ORNL Neutrons Galaxy – Security

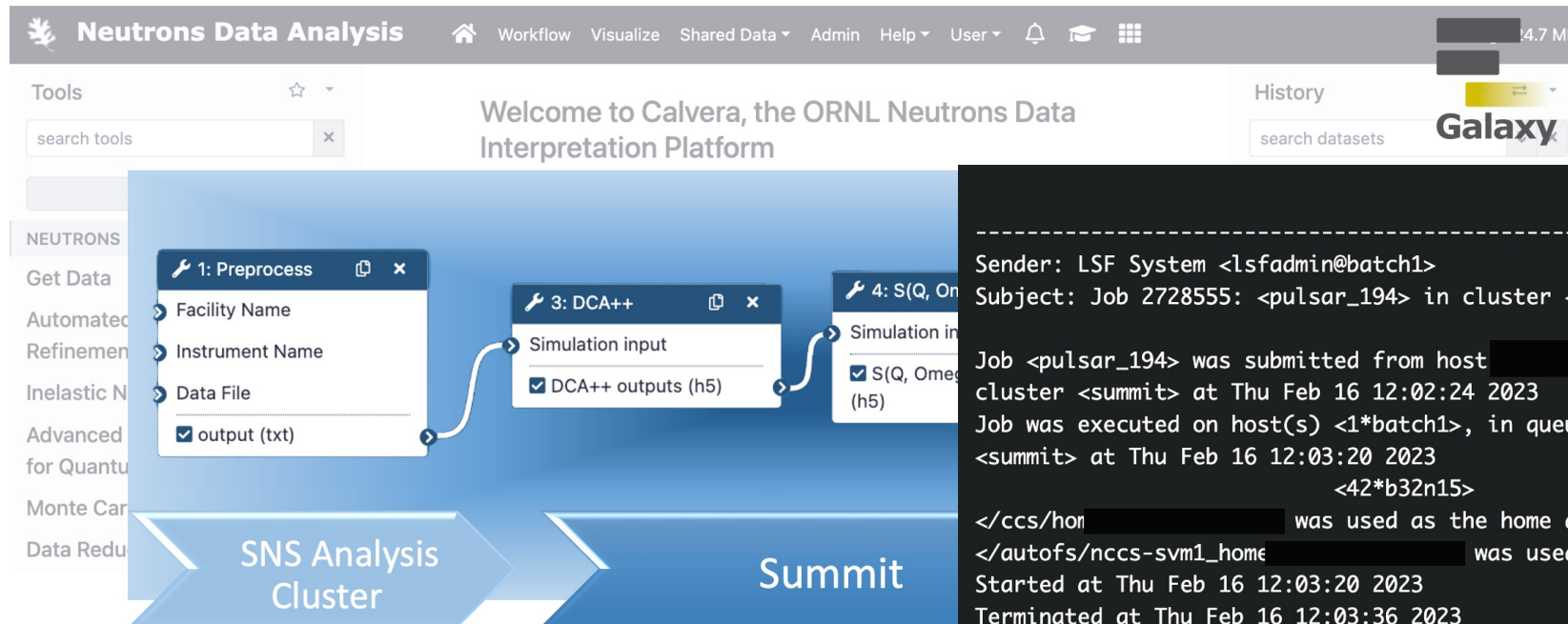Using OIDC tokens when running jobs via Pulsar
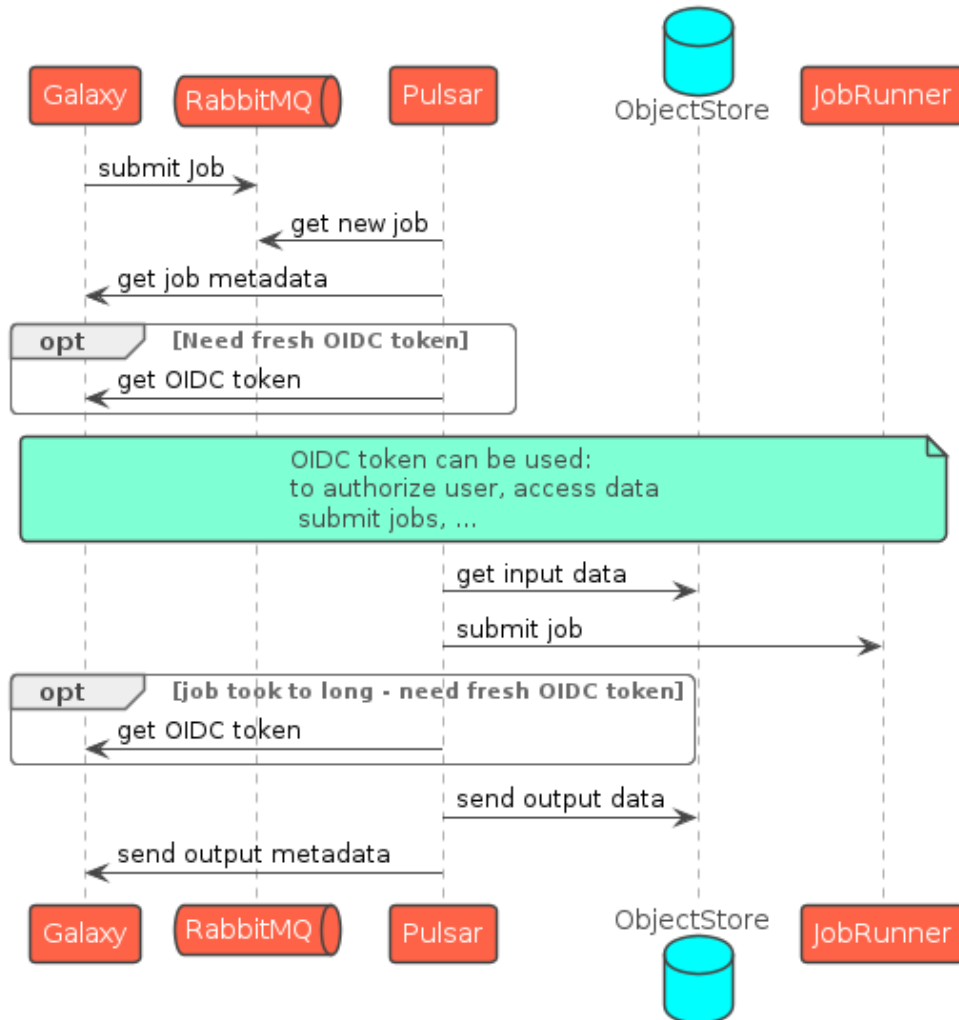
- Authentication via OIDC tokens
  - An endpoint to get token added to Galaxy API
  - Authentication plugin in Pulsar: request ID token, verify and extract the username
  - Authorization plugin in Pulsar: check if a user is allowed to submit jobs to Summit (using a list for now)

- Firewall configuration
  - We need connections between HPC and Cloud – Pulsar->Galaxy, Pulsar->RabbitMQ
  - Thanks to RabbitMQ, only outbound connections
  - Inbound might be needed for data management solution (when Galaxy requests some data from HPC) – use message queue as well?

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ORNL Neutrons Galaxy – "Demo"

ORNL Neutrons Galaxy – "Demo"

ORNL Neutrons Galaxy – ToDo

- Containerize tools
  - Singularity

- Directing jobs to Summit
  - Total Perspective Vortex (TPV)

- Configure required job resources
  - TPV/job destination config, tool parameters

- Automate configuration/deployment
  - Gitlab/Ansible

- Data management
  - Rucio

- Monitoring – services, jobs

- Frontier?

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