Object Stores for Event Service and Logs

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Available Object Stores

- BNL
- CERN
- RAL
- Amazon
- LANCS

Create Object Store

- Provide the access key pair to PanDA (send to Tadashi)
- Register OS in agis
  - https://atlas-agis.cern.ch/agis/objectstorage/create/
    - access_key and secret_key: refer to the key name in panda.
  - https://atlas-agis.cern.ch/agis/bucket/list/
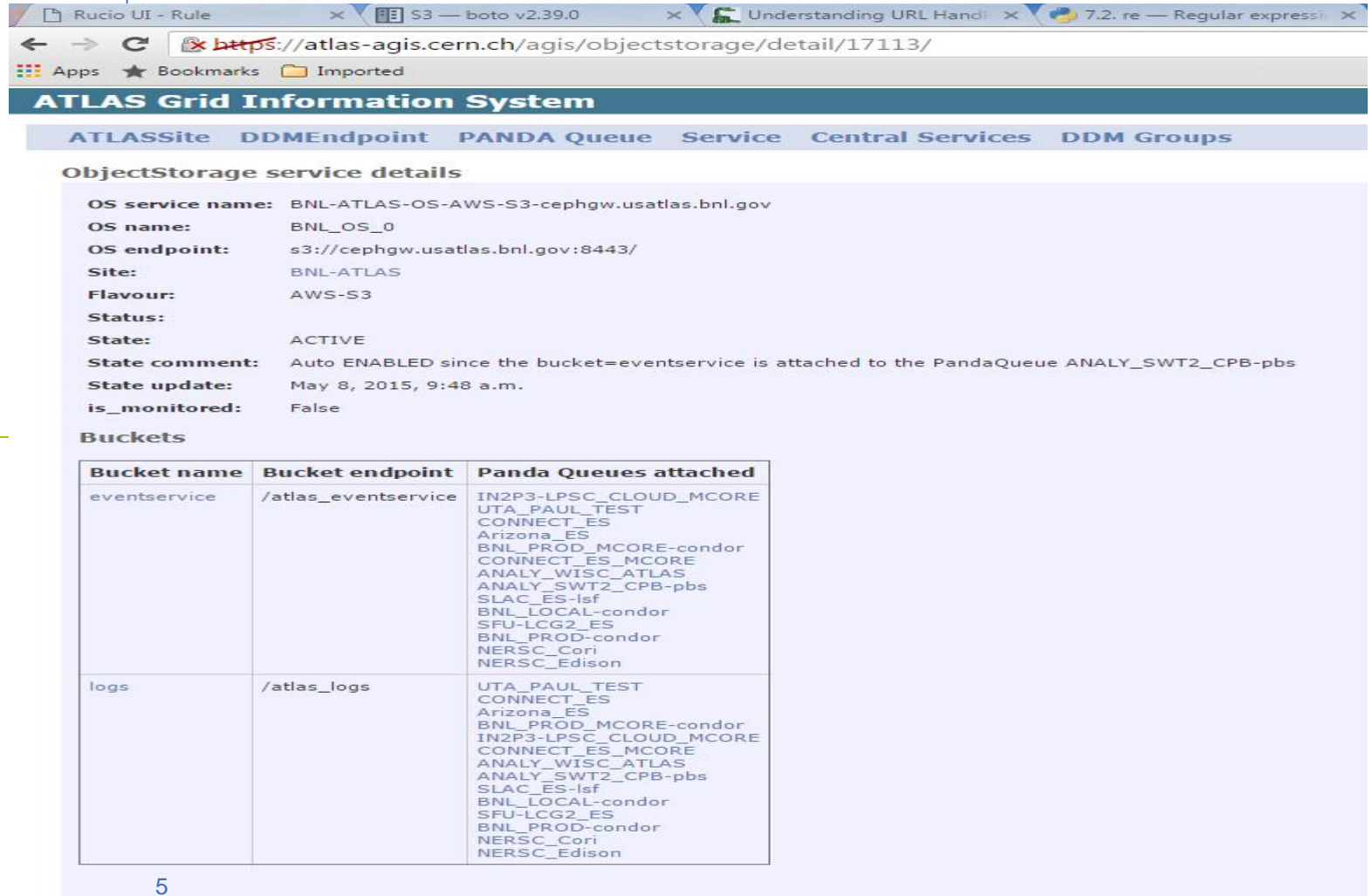
OS settings		
os_name:	ⓘ	BNL_OS_0
is_secure:	ⓘ	☐
access_key:	ⓘ	BNL_ObjectStoreKey.pub
secret_key:	ⓘ	BNL_ObjectStoreKey

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Objectstore attached sites

ObjectStorage service details

|	
OS service name:	BNL-ATLAS-OS-AWS-S3-cephgw.usatlas.bnl.gov
OS name:	BNL_OS_0
OS endpoint:	s3://cephgw.usatlas.bnl.gov:8443/
Site:	BNL-ATLAS
Flavour:	AWS-S3
Status:	
State:	ACTIVE
State comment:	Auto ENABLED since the bucket=eventservice is attached to the PandaQueue ANALY_SWT2_CPB-pbs
State update:	May 8, 2015, 9:48 a.m.
is_monitored:	False

Buckets

| Bucket name	Bucket endpoint	Panda Queues attached
eventservice	/atlas_eventservice	IN2P3-LPSC_CLOUD_MCORE UTA_PAUL_TEST CONNECT_ES Arizona_ES BNL_PROD_MCORE-condor CONNECT_ES_MCORE ANALY_WISC_ATLAS ANALY_SWT2_CPB-pbs SLAC_ES-lsf BNL_LOCAL-condor SFU-LCG2_ES BNL_PROD-condor NERSC_Cori NERSC_Edison
logs	/atlas_logs	UTA_PAUL_TEST CONNECT_ES Arizona_ES BNL_PROD_MCORE-condor IN2P3-LPSC_CLOUD_MCORE CONNECT_ES_MCORE ANALY_WISC_ATLAS ANALY_SWT2_CPB-pbs SLAC_ES-lsf BNL_LOCAL-condor SFU-LCG2_ES BNL_PROD-condor NERSC_Cori NERSC_Edison

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- ObjectStore development
  - Pilot S3ObjectStoreSiteMover
  - Pilot S3PandaProxySiteMover
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Pilot S3 OS Sitemover(Production)
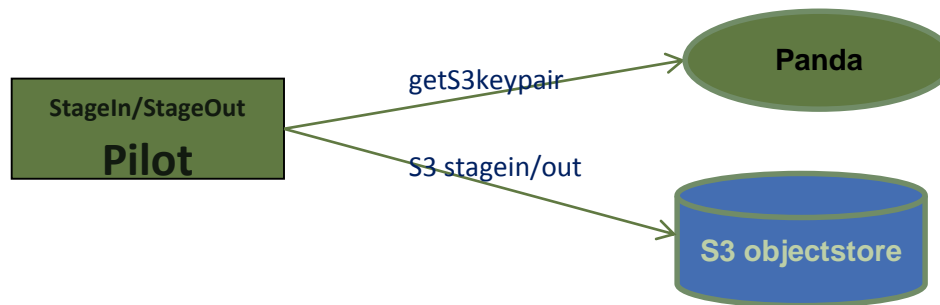
- Using **atlas_eventservice** bucket for ES
- Using **atlas_logs** bucket for logs.
- Issue: S3 access keys are downloaded to worker nodes(in memory)

Pilot S3 PandaProxy SiteMover (testing)
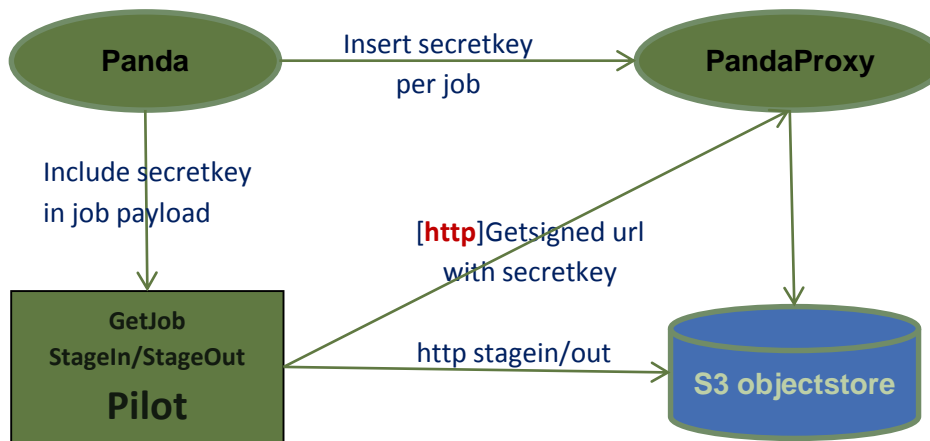
- PandaProxy is http accessible. X509 proxy is not needed to access PandaProxy.
- S3 access keys stored on pandaProxy server. Pilot doesn't need to download the key pairs.
- Can be used not only on grid sites, but also BOINC.

Rucio ObjectStore solution

- Define different RSEs for logs and ES
- For logs
  - Every log file has one replica record.
  - Same as normal file.
- For event objects
  - Organize event objects in directory.
    - For example: all event outputs from the same job in one directory.
  - Rucio only keeps one replica record for the directory.
    - For a job with 1000 event outputs, only one replica.
  - The deletion is based on directory.

Rucio ObjectStore solution

- Objectstore RSEs:
  - BNL-OSG2_{LOG|ES}
  - BNL-OSG2_AWS_{LOG|ES}
  - CERN-PROD_{LOG|ES}
  - RAL-LCG2_{LOG|ES}
  - UKI-NORTHGRID-LANCS-HEP_{LOG|ES}

Rucio Objectstore solution
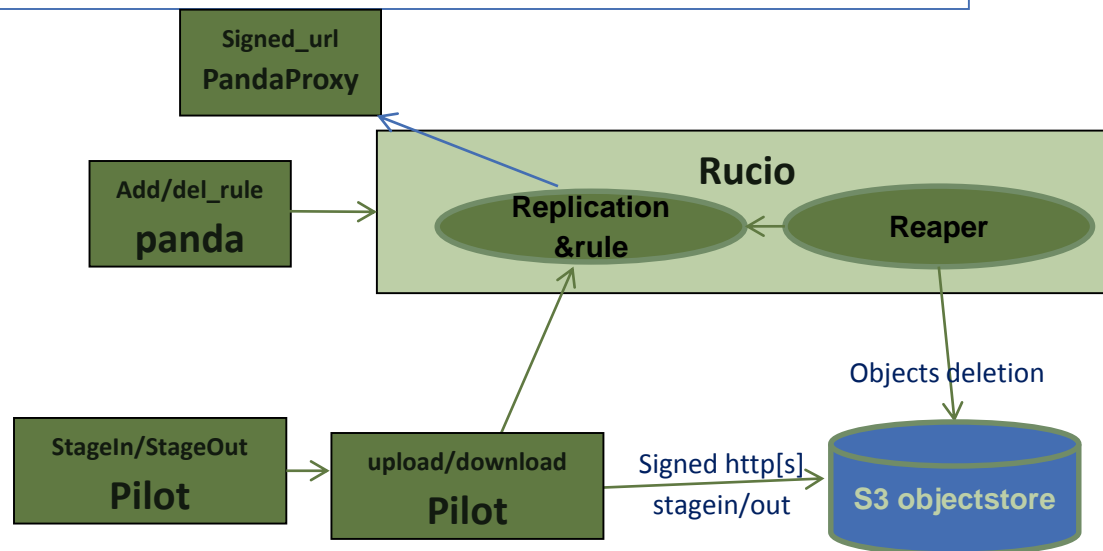
- Panda add_rule for ES outputs.
- Pilot upload/download objects to/from os.
- upload/download
    - Using signed http[s] url generated by pandaproxy
    - S3PandaProxySiteMover
    - RucioSiteMover
- Panda delete rule or rule expires when events merged.
- Rucio Reaper delete objects.

Summary

- ObjectStore is a solution for ES and logs.
- Developed/developing work includes:
  - Pilot
  - Pandproxy
  - Rucio
- More support is coming.