
cloudyCluster

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iRODS

Where to start?

Amazon Web Services

Compute
- EC2 — Virtual Servers in the Cloud
- EC2 Container Service — Run and Manage Docker Containers
- Elastic Beanstalk — Run and Manage Web Apps
- Lambda — Run Code in Response to Events

Storage & Content Delivery
- S3 — Scalable Storage in the Cloud
- CloudFront — Global Content Delivery Network
- Elastic File System PREVIEW — Fully Managed File System for EC2
- Glacier — Archive Storage in the Cloud
- Snowball — Large Scale Data Transport
- Storage Gateway — Hybrid Storage Integration

Database
- RDS — Managed Relational Database Service
- DynamoDB — Managed NoSQL Database
- ElastiCache — In-Memory Cache
- Redshift — Fast, Simple, Cost-Effective Data Warehousing
- DMS — Managed Database Migration Service

Networking
- VPC — Isolated Cloud Resources
- Direct Connect — Dedicated Network Connection to AWS
- Route 53 — Scalable DNS and Domain Name Registration

Developer Tools
- CodeCommit — Store Code in Private Git Repositories
- CodeDeploy — Automate Code Deployments
- CodePipeline — Release Software using Continuous Delivery

Management Tools
- CloudWatch — Monitor Resources and Applications
- CloudFormation — Create and Manage Resources with Templates
- CloudTrail — Track User Activity and API Usage
- Config — Track Resource Inventory and Changes
- OpsWorks — Automate Operations with Chef
- Service Catalog — Create and Use Standardized Products
- Trusted Advisor — Optimize Performance and Security

Security & Identity
- Identity & Access Management — Manage User Access and Encryption Keys
- Directory Service — Host and Manage Active Directory
- Inspector — Analyze Application Security
- WAF — Filter Malicious Web Traffic
- Certificate Manager — Provision, Manage, and Deploy SSL/TLS Certificates

Analytics
- EMR — Managed Hadoop Framework
- Data Pipeline — Orchestration for Data-Driven Workflows
- Elasticsearch Service — Run and Scale Elasticsearch Clusters

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EC2 Dashboard
- Events
- Tags
- Reports
- Limits

INSTANCES
- Instances
- Spot Requests
- Reserved Instances
- Dedicated Hosts

IMAGES
- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE
- Volumes
- Snapshots

NETWORK & SECURITY
- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces

LOAD BALANCING
- Load Balancers

AUTO SCALING
- Launch Configurations
- Auto Scaling Groups

COMMANDS
- Command History
- Documents

VPC Dashboard

Filter by VPC: None

Virtual Private Cloud
- Your VPCs
- Subnets
- Route Tables
- Internet Gateways
- DHCP Options Sets
- Elastic IPs
- Endpoints
- NAT Gateways
- Peering Connections

Security
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VPN Connections
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Dashboard

Search IAM

Details
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- Roles
- Policies
- Identity Providers
- Account Settings
- Credential Report

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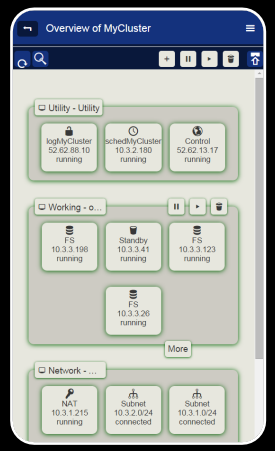
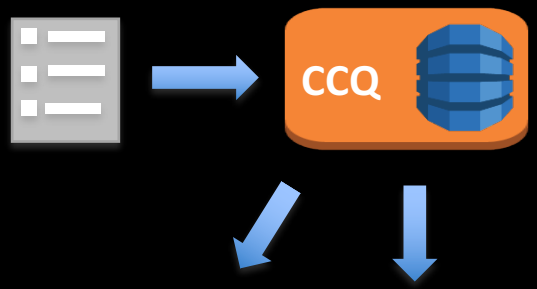
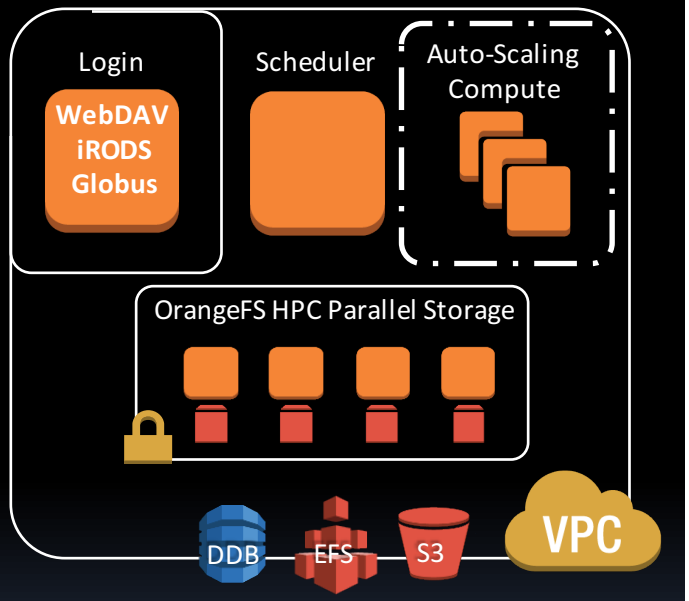
Self-Service Elastic HPC





Create a fully operational HPC Cluster in minutes, complete with:

- ***Storage***: OrangeFS on EBS, S3, EFS
- ***Compute***: Job Driven Elastic Compute through CCQ
- ***Scheduler***: Initially Torque with CCQ MetaScheduler



- ***HPC Libraries***:
  Boost, Cuda Toolkit, Docker, FFTW, FLTK, GCC, Gengetopt, GRIB2, GSL, Hadoop, HDF5, ImageMagick, JasPer, NetCDF, NumPy, Octave, OpenCV, OpenMPI, PROJ, R, Rmpi, SciPy, SWIG, WGRIB, UDUNITS
- ***HPC Software***:
  Ambertools, ANN, ATLAS, BLAS, Blast, Blender, Burrows-Wheeler Aligner, CESM, GROMACS, LAMMPS, NCAR, NCL, NCO, nwchem, OpenFoam, papi, paraview, Quantum Espresso, SAMtools, WRF
- You can also Install your own in a custom AMI
- All from an easy to use Web UI from mobile, tablet or desktop
- Microsoft Azure Targeted for the end of 2016

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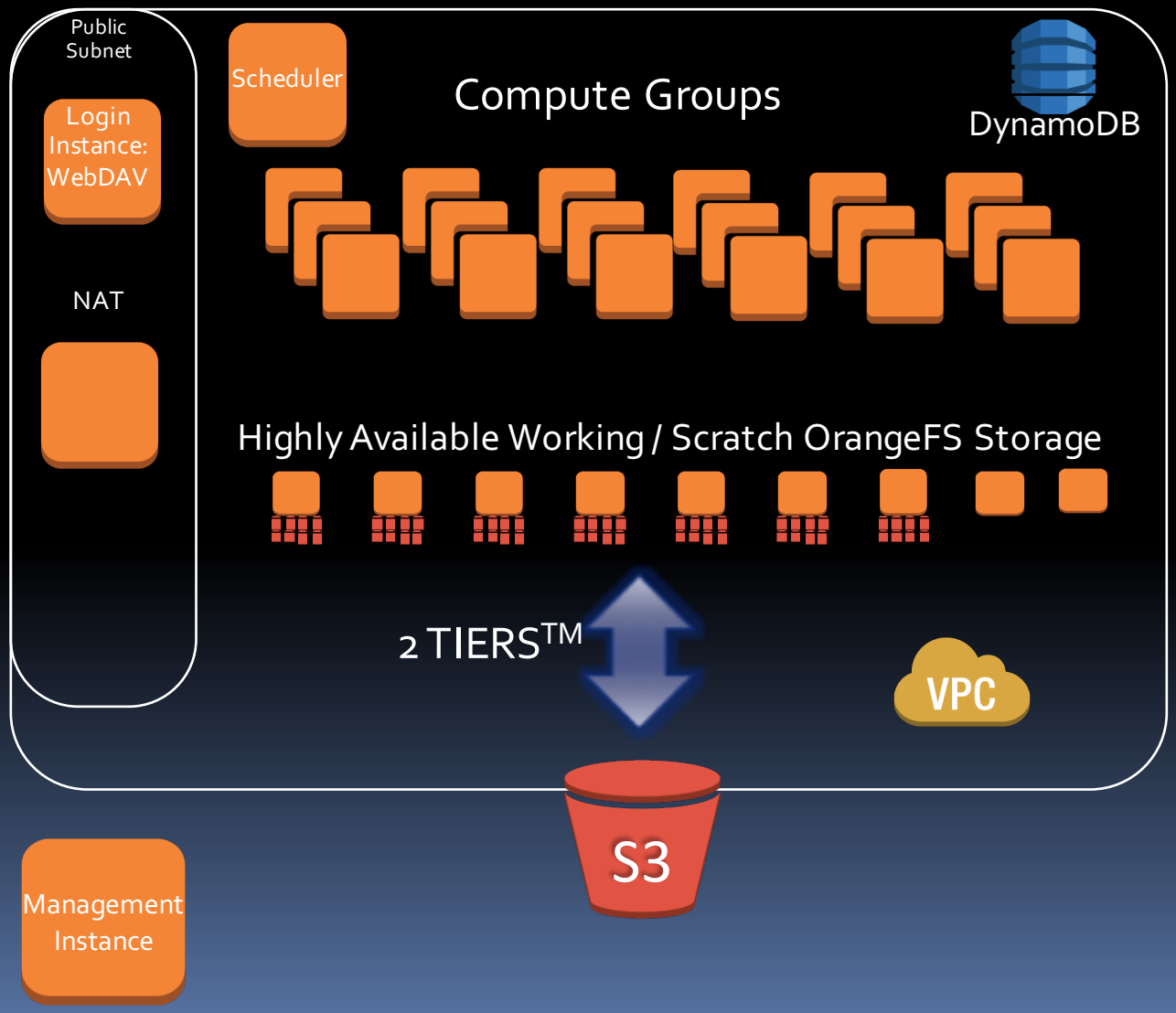
Quick Demo

EMC 2TIERS™ on CloudyCluster

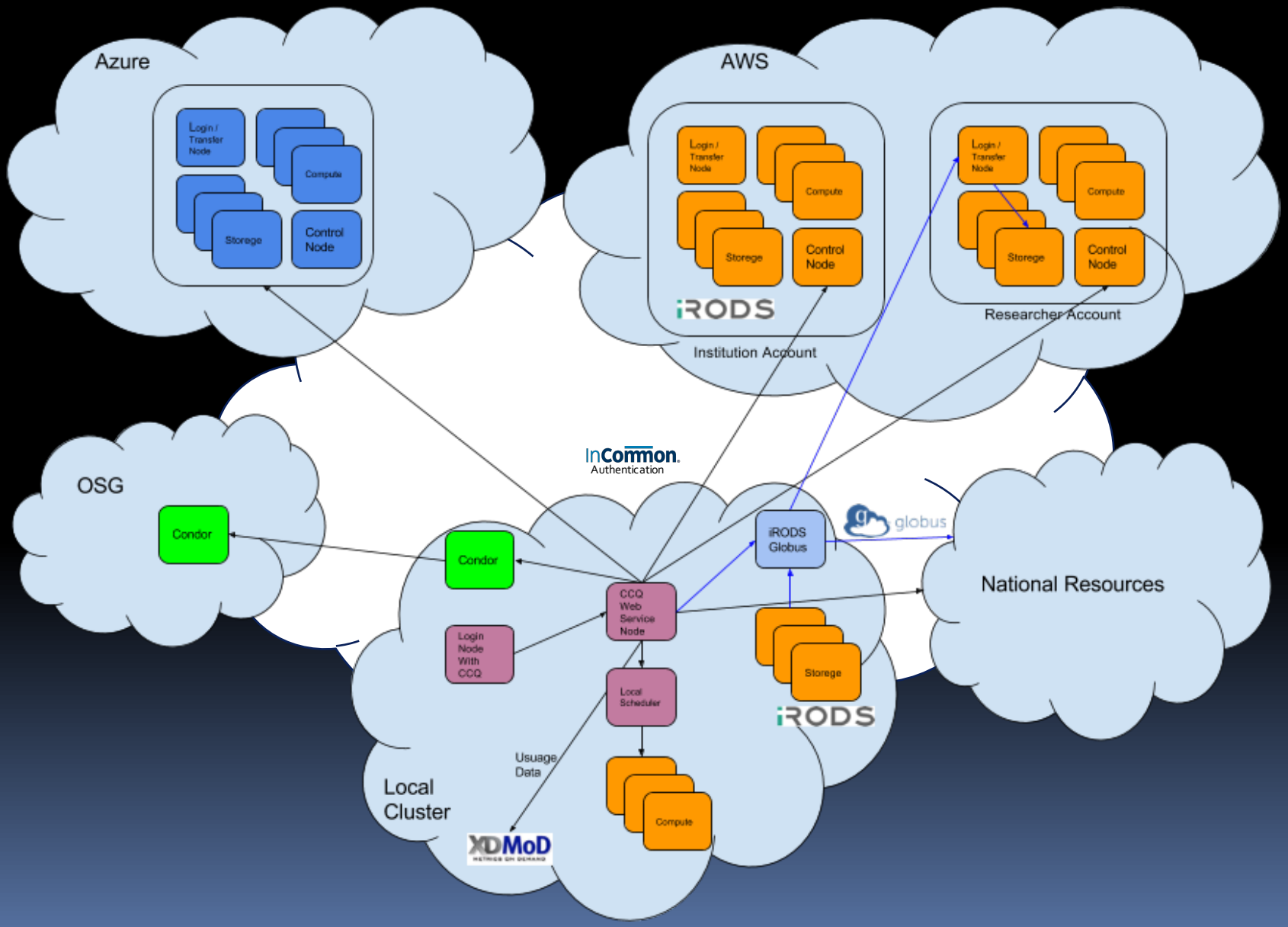
2 Tiers is a storage solution prototype that provides a high performance storage tier and cost effective capacity tier .

- Single FS Namespace with dynamically loadable namespace partitions (DLN)
- Tiering of both Data and Metadata
- Fast Tier Performance Target: greater than 10x Capacity of a Data Lake
- Direct access (read-only) to the Capacity Tier, bypassing the Fast Tier
- 2 TIERS™ provides Tiering and Non-Tiering modes
- No client changes required
- No changes to the products required for integration

Initial Custom AMI is built by EMC with 2 TIERS™ and CloudyCluster.



Federated CCQ

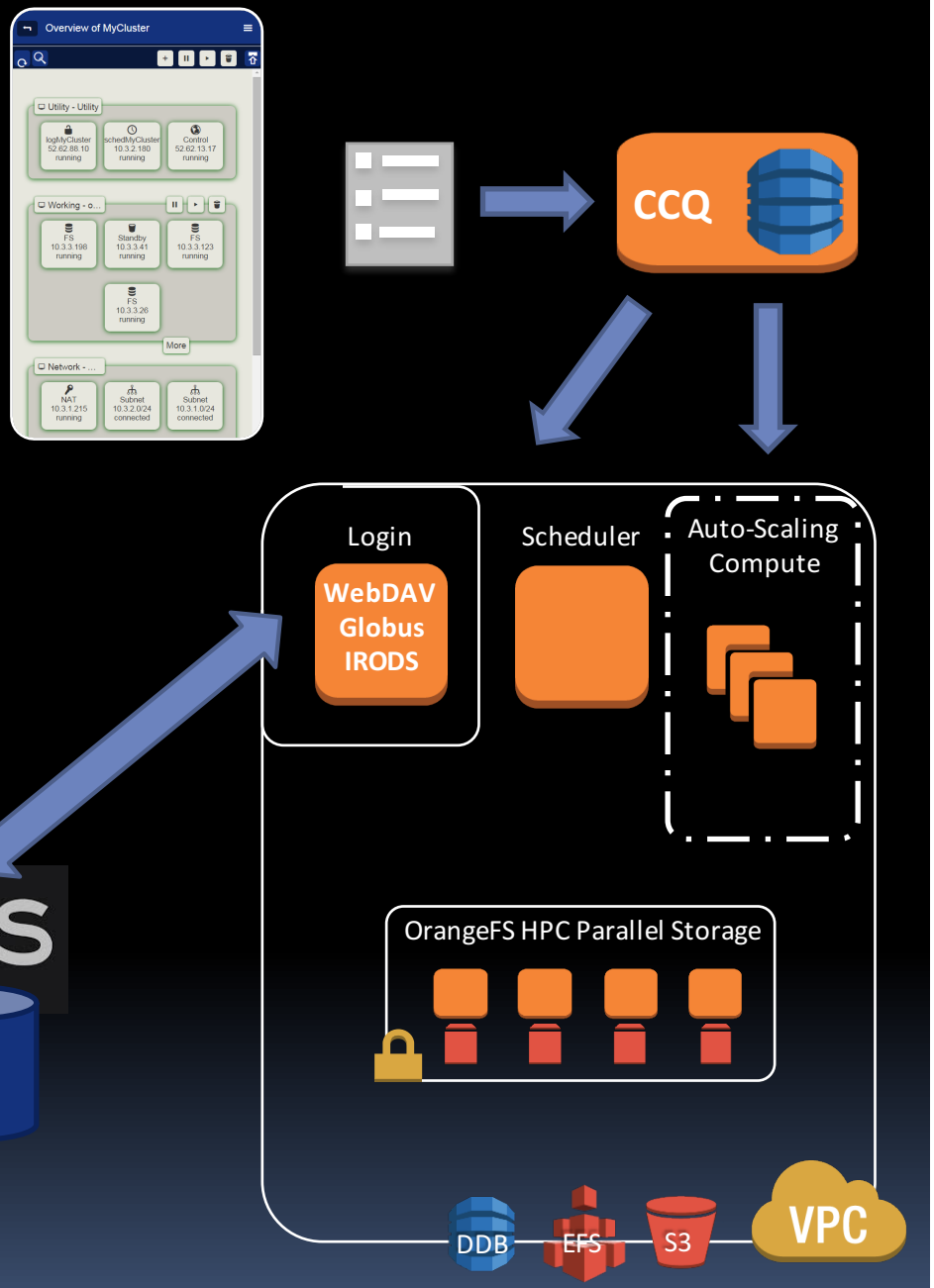


CloudyCluster & iRODS

Ideas on How best to integrate?

- End point Integration (manage in / out)
- Data movement as part of CCQ jobs?

Helping make an iRODS self service iRODS server part of the Cloud Marketplaces?



iRODS

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