Cloud Sites
Recommendations & Discussion

Cloud Sites Recommendations & Discussion

- Cloud Platform

- Batch System

- VM Image

- Contextualization

- Monitoring

https://twiki.cern.ch/twiki/bin/view/
AtlasComputing/AtlasCloudSiteGuide

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Cloud Platform

- OpenStack
  - Variant distributions, offer improved deployment/management/monitoring/HA
    - RDO (CentOS/RHEL)
    - OSAD (OpenStack Ansible Deployment)
    - Autopilot (Ubuntu)
    - Mirantis
    - HP Helion
    - ...
- Amazon EC2, Google Compute Engine

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Batch System

- Batchless (VAC, VCycle)

- HTCondor (Cloud Scheduler, Vacuum, APF)

  - Dynamic Job Slots

  - Hierarchical Group Quotas

  - MCORE quota balancing script

  - HEPiX: Managing Heterogeneous HTCondor Workloads

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VM Image

- Should converge on CernVM as standard image

  – Developed, supported, maintained by CERN IT for LHC experiments

  – Benefit from shared solutions and common configurations

- Use μCernVM dev v2.4-6 due to CVM-931

  – File corruption on ext4 FS with data=journal and libvirt < 1.2.17-13

  – Workaround: use data=ordered

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Contextualization

- Cloud-init recipe, refactored using merge_type

    – https://github.com/hep-gc/cloudinit-userdata

- Modular: base config in core.yaml, queue-specific config inherits/overwrites base

- Scheduler-agnostic, general purpose

    – All CloudScheduler config is internalized

- Standard EMI WN from /cvmfs/grid.cern.ch

To add a cloud

- ## MyNewCloud.yaml

```
#cloud-config
merge_type: 'list(append)+dict(recurse_array)+str()'

ganglia:
 cluster:
  name: '"MyNewCloud"'
 udp_recv_channel:
  port: 8999
 tcp_accept_channel:
  port: 8999
 udp_send_channel:
  port: 8999

ssh_authorized_keys:
  - ssh-rsa AAAA...== admin
```

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Comparison of Images, Contextualization?

- Sim @ P1

- VAC/VCycle image

- Helix Nebula

- Consolidate where possible, avoid overlap/duplication

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Monitoring

- Central Ganglia instance
  - http://agm.cern.ch
- All cloud resources can benefit from shared monitoring system
- Just request a cluster/port in Ganglia

Questions/Discussion

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