HEPiX Fall 2012 Report
IT Infrastructure
Grid, Cloud and Virtualisation

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16 November 2012

PES

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2 – HEPiX Fall 2012
Report

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Section 1

Clouds

OpenStack:

- IHEP: TORQUE/PBS integration
- CERN AI: Puppet-managed

OpenNebula:

- Fermilab: FermiCloud
- CERN/EMBL/ESA: HelixNebula

StratusLab:

- RAL: internal development and testbed

VMware vSphere:

- RAL: JASMIN/CEMS

- IHEP's OpenStack: 100 VMs
- CERN AI's OpenStack: 100 hypervisors, 2000 VMs
- FermiCloud: hundreds of VMs
- RAL's StratusLab: dozens of VMs

- CERN AI's OpenStack: Ceilometer
- FermiCloud: Gratia accounting framework

- Cloud as a new type of accounting record
- Sensors for OpenNebula and OpenStack so far
- Secure STOMP Messenger

Section 2

Virtualisation

- Improve resource management
- No need for sites to install software
- Control over the environment
- Image endorsement
- Performance

Implementations

- CERN AI's OpenStack: KVM, Hyper-V
- Fermilab's OpenNebula: KVM, XEN
- RAL's StratusLab: Hyper-V
- RAL's vSphere: VMware

Section 3

Configuration Management

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Management

- Ramping up: 1200 Puppet agents, 37 host groups
- Ease of configuration
- Related tools: Foreman, Hiera, MCollective
- Modules and manifests: git

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12 – Configuration
Management

- Indexing/Search/Display tool
- Not just CDB: also SCDB (SVN), Aquilon (SQL+git)

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13 – Configuration
Management
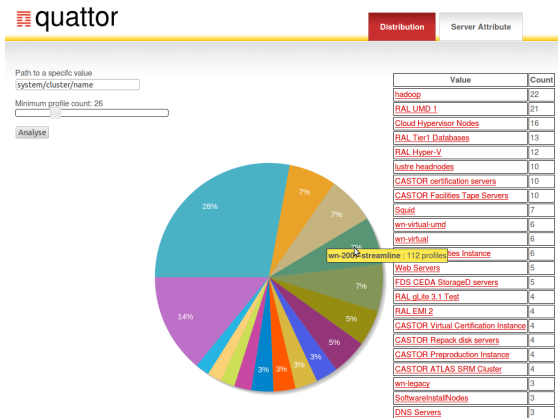
- Sandboxes
- Services
- Aquilon CLI

```
aq show model --all

        aq add_cpu --cpu "xeon_e5520" --vendor "intel"

  aq add rack --rackid r89rack96 --column 13 --row 4 --room ups

    aq search host --ip 130.246.180.88

      aq add host --hostname lcg-erasmustest.gridpp.rl.ac.uk

            aq delete continent --continent europe
```

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14 – Configuration
Management

- Used to deploy OpenStack
- Compared to Puppet and Chef
- Service orchestrator

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15 – Configuration
Management

Section 4

Monitoring

Lemon in CERN AI

- Modular architecture
- NoSQL stores
- Visualisation
- Splunk
- Why not only standard tools
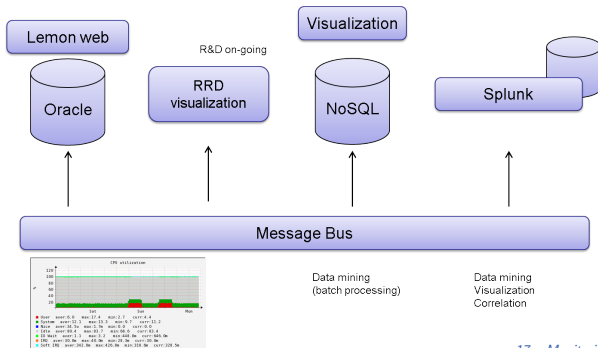
Nagios:

- FermiCloud
- EGI Federated Clouds
- DYNES (ATLAS Great Lakes Tier 2)

Ganglia:

- JASMIN/CEMS and Emerald

Section 5

ITIL, Services and Business Processes

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19 – ITIL, Services
and Business
Processes

- Trained on ITIL
- Ticketing system: xHelp → OTRS
- Service catalogue
- Identity management

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20 – ITIL, Services
and Business
Processes

- Identity management
- Documenting administrative processes
- Creating electronic workflows

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21 – ITIL, Services
and Business
Processes

Section 6

Conclusion

- IHEP impressed with the OpenStack team's response
- CERN AI enjoying the large Puppet community
- RAL emphasising the active Quattor community

Questions?