User Virtualisation Workshop Summary

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Outline

- Why Virtualisation?

- Workshop Objectives

- Breakout Session Summaries

- Issues

- Technology Investigation Allocation

- Summary and Actions

EGI Needs

- Increase the diversity of the users
- Provide more diverse services for more users
- Scale out the support model
- Increase the flexibility of the infrastructure
- Move control back towards the end-users
- Scale out the different environments

For EGI virtualisation is the way forward

UVW1 Objectives

- Bring together 3 critical groups EGI production infrastructure
  - End-users and Resource and Technology providers

- Focused on specific areas
  - Understand if/how EGI should move towards providing IaaS model
  - What are the major issues (e.g. technical, policy, governance, etc.) that need to be resolved for this use to happen
  - Who can support what

- Present EGI Cloud Profile and 6 Usage Scenarios

- Clearly Identify
  - Best practices, standards, software maturity and availability, priorities, technology gaps, issues & concerns and solutions

- Obtain a tangible outcome
  - A set of critical observations that can be developed into a well-defined roadmap

Workshop Breakout Summaries

- Treat running VM as a black box
  - Cannot (do not?) want to look inside
- Infrastructure Level (interest in functionality)
  - Can I start/stop/status a VM through the Interface?
    - NEED: Nagios probes (service & start) with test image (VO specific?)
    - NEED: Nagios instance to host this?
- Expert level (interest in measurements)
  - Running updates on CPU load, network, IO, etc.
  - Sensible things that can be extracted from the VMM
    - Establish pub/sub feature to send expert this data?
    - NEED: Gap analysis on data from different VMM

Accounting

- Account for use of VM (not stuff inside it)
- VM instances can be long-running & idle
  - Need: incremental accounting
  - Need: to account for resources allocated
- Need to account for storage (known gap)
  - Different lifecycle than a job or running VM
  - Physical persistent space even if used in conjunction with VMs
- Accounting for network, IO, … use
- NEED: Infrastructure to support incremental, VM & storage issues
- NEED: Understand if VMM can provide this data?

VM Management

- Required Capabilities
  - Control the configuration of the instantiated VM
  - Instantiate VMs as part of a cluster
  - State discovery from the given VM handle
  - Authentication through X.509
  - Bulk management, snap shots, exclusive use
  - Link running VM to the source of the image
- NEED: List of capabilities in individual implementations exposed in which standards and their maturity
- Queued scheduling vs. resource allocation

Information Services

- Relating to the VMM environment
  - Not the services running inside the image
- Expose VMM general system state/load/capacity
  - Info/monitor/measure?
- Expose the VMM trust policy for images
- Expose enabled capabilities
  - Allow snapshots, firewall rules, pricing, hypervisors, image formats, …
- NEED: What can be delivered through the standard VMM interface & where are probes needed
- NEED: What contents can be inherited from current GLUE schemas

Issues

- Do we need to support the monitoring of stuff running inside the machine?
  - Establishing when a VM has started (or not)
  - Who looks after the systems then they have been set up?
- Standards Activities
  - OGF: Accounting (Storage & VM)
  - OGF: Network Markup for VM definition
  - OVF: Support
- Billing: How to bill and who to bill?
- Policy around trust, etc.
- Common taxonomy for information, measurement & accounting
- Validation and increasing links with user communities
- Is there authentication on image access? ($\rightarrow$ StratusLab Marketplace)
- Where does data reside for a VM that wants to process it?
  - Difference between small volume, single location and large distributed data

- OpenNebula (CESGA and OpenNebula team)
- StratusLab (Cal Loomis / David O'Callaghan)
- VMware (David Wallom, OeRC)
- Azure (Ake Edlund, KTH)
- Hyper-V (STFC / CERN)
- Platform ISF (CERN)
- Eucalyptus (Ubuntu EC) (David Wallom, OeRC)
- OpenStack (CSC)
- KVM (Davide Salomoni, INFN)

Zero are writing their own!

Summary

- General consensus to progress with virtualisation
- Actions:
  - EGI Virtualisation Vision presented
    - EGI.eu to produce a 1-page mission statement
  - Virtualisation technology to be investigated for capabilities and functionalities and tested
    - People and organisations defined (see last slide)
    - EGI.eu to set up a wiki page in order to host info and track
  - Resource providers formally (e.g. NL, UK, CZ) and informally agreed to offer resources for testbed
    - EGI.eu to arrange channel for official communication
  - EGI PDT to circulate summary report

cloud-discuss@mailman.egi.eu mailing list for general communications

References

- EGI User Virtualisation Workshop - http://go.egi.eu/uvw1

- Integration of Clouds and Virtualisation into EGI (D2.6) - https://documents.egi.eu/document/258

- EGI Cloud Integration Profile (Technical) - https://documents.egi.eu/document/435