OCCI Requirements

Functional Requirements

This section deals with the functional requirements. The requirements have been split up in tables and prioritized.

Table 1. Functional requirements on VM description

ID	Description	Usecases	Priority
A.1.1	Attributes to define memory, CPU, disk and network requirements should be available.	2.2, 2.3, 2.6	High
A.1.2.	Attributes to define placement constraints, such as geographical location must be supported	2.2	Medium
A.1.3.	A attributes should demonstrate if migration is supported by the infrastructure	2.2	Medium
A.1.4.	The API should be able to fully express a cluster (e.g. 5 VMs, storage for each VM, two networks (a private one connecting the machines, and the public internet also connected to the load balancer), a fixed static IP for the website on the public internet)	2.9	High
A.1.5.	A means to add constraints (non-functional, functional) on attributes which are declared in a provisioning request	2.1	High
A.1.6.	Support the scheduling of resource execution. Allow provisioned resources to be execute sometime in the future from the original request	2.1	Medium
A.1.7.	Common operating systems should be supported	-	High
A.1.8.	Resources should be grouped according to provider policies	-	High
A.1.9.	Then requesting new resource(s) the request must be fully complete/describing	-	High

Table 2. Functional requirements on VM management

ID	Description	Usecases	Priority
A.2.1.	Methods to start, stop, suspend and resume VMs must be available	2.1, 2.2, 2.3, 2.5, 2.11, 2.10	High
A.2.2.	Automated management in the event of a disaster should be supported	2.1, 2.7	Low
A.2.3.	Provide IDs for each backup disk and images	2.2	High
A.2.4.	Provide methods to donwload any backup	2.2	Medium
A.2.5.	API should offer functionality to enforce the following operations: deploy, shutdown, cancel, checkpoint, save, restore, poll (could be merged with monitoring)	2.3	High
A.2.6.	The state model should include: pending, booting, running, suspended, shutdown, cancel, failed	2.3	Medium
A.2.7.	Listing collections should be possible without listing all properties for each entry	2.4	Medium

ID	Description	Usecases	Priority
A.2.8.	Allow resource representations to be updated and have those changes trigger events/changes upon VMs	-	Low
A.2.9.	Support the usage of terminal, web, desktop and automated management interfaces	2.10	Low
A.2.10.	Support the migration of resources from a physical resource to the cloud, from a cloud to another cloud and from a virtual resource to the cloud (This is a topic regarding Interoperability)	-	Medium
A.2.11.	Support a subset of all functions of today IaaS based Clouds (e.g. Amaton EC2)	2.6	Medium
A.2.12.	A common interface should be used which can be supported by many Cloud service providers (regarding Infrastructure and Data interfaces).	2.13, 2.14	Medium

Table 3. Functional requirements on Network management

ID	Description	Usecases	Priority
A.3.1.	Support the creation of VPNs	2.3	Low
A.3.2.	Support multiple network connection (Public and Private)	2.1, 2.2, 2.3	High
A.3.3.	It must be possible to attach and change IPs at runtime	2.3, 2.7	Medium
A.3.4.	Support a tagging mechanism for a group of network connections	2.1, 2.2, 2.3	Low
A.3.5.	Support network setups which allow an 'Intercloud' setup (This relates to Integration)	-	Medium

Table 4. Functional requirements on Storage management

ID	Description	Usecases	Priority
A.4.1.	Allow the usage of URIs as mount points - allows reuse of Storage service offerings	2.1	High
A.4.2.	Allow the attachment of additional storage resources at runtime	-	Medium

Table 5. Functional requirements on Image management

ID	Description	Usecases	Priority
A.5.1.	Methods which are capable to register, upload, update and download disk images must be available.	2.2	Medium
A.5.2.	Updates based on rsync commands to synchronize machines with physical equivalents should be supported	2.7	Medium
A.5.3.	When an upload completes successfully, an identifier should be returned	2.2	Low

Table 6. Identifications/References

ID	Description	Usecases	Priority
A.6.1.	Unique IDs for VM images and their components must be available	2.2, 2.13, 2.14	High

ID	Description	Usecases	Priority
A.6.2.	It must be possbile to tag resources and their components	2.10, 2.12	Medium
A.6.3.	It must be possible to search for resources based on e.g. tags.	2.10, 2.12	Medium

Table 7. Monitoring

ID	Description	Usecases	Priority
A.7.1.	Support pull-based monitoring that request the status of the elements such as network , VM ...	2.1, 2.2, 2.3	Medium
A.7.2.	Support for a publish/subscribe pattern that request events which occur in the VM or networks (such as Errors on some component, changes in the VM state and other periodic notifications)	2.2	Medium
A.7.3.	Attributes that define simple quick call to poll the list of servers, drives, etc should monitorable	2.4	Low
A.7.4.	Attributes about resource consumption of the VM from the hypervisor (CPU, memory...) should be monitorable	2.1, 2.2	Medium
A.7.5.	Management reports should be generated from in some of the following formats XML, PDF	-	Low

Non-functional Requirements

This section deals with all the non-funtional requirements.

Table 8. Security requirements

ID	Description	Usecases	Priority
B.1.1.	Support the usage of X509 Certificates	2.3, 2.13, 2.14	High
B.1.2.	Support the usage of ACLs	B.1, 2.1	High
B.1.3.	Attributes to define Security levels should be available in the descriptions	2.1	High
B.1.4.	Transport and user level security should be given	2.1, 2.13, 2.14	High
B.1.5.	Allow geographical region to be specified	B.4	High

Table 9. Quality of Service

ID	Description	Usecases	Priority
B.2.1.	Support capacities requirements for recovery / failover cases	2.7	Low
B.2.2.	Support of attributes in the VM description to define QoS level (this also includes the reponse times)	2.1	High
B.2.3.	Support of attributes in the VM describing the Isolation level	2.1	Medium
B.2.4.	Support of attributes for an advanced reservation functionality	2.3	Low
B.2.5.	Allow VM response times to be specified	B.4	High

Table 10. Syntax

ID	Description	Usecases	Priority
B.3.1.	No development tools or libraries should be needed by the end-user	2.8	Medium
B.3.2.	Support simple JSON syntax to suppot Ajax interface	2.4, 2.10	Medium
B.3.3.	Clear definition of units (MB, GB etc) should be used in the requests (Like those defined by IEC 60027-2 A.2)	A.2, 2.4	Medium

Table 11. Backup/Disaster recovery

ID	Description	Usecases	Priority
B.4.1.	Support a backup functionality of cloud resources	-	Low
B.4.2.	The interface should reconsider failover, disaster recovery and business continuity plans	-	Medium