

GLUE2.1 Cloud prototype

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Current situation in GLUE2

- The CLOUD services do not publish any information related to the VO enabled on them
- Used classes and attributes defined for the GRID services
 - much information are incomplete and have been adjusted to publish something coherent and consistent with the schema.

What's new in GLUE2.1

- New classes and attributes for cloud computing services
- New attributes for GPGPUs hardware
 - Now called Accelerators

Ldap implementation

GLUE2GroupID=resource

GLUE2ServiceID (CloudComputingService)

Executes activities on its associated resources

Creates, controls and monitors
Cloud computing activities

GLUE2EndpointID (CloudComputingEndpoint)

GLUE2PolicyID VO Information

Not used for the moment

GLUE2GroupID=CloudComputingInstances

GLUE2ActivityID (CloudComputingInstance)

VMs

GLUE2ShareID (CloudComputingShare)

Policies and dynamic status

GLUE2ResourceID (CloudComputeInstanceType)

Hardware environment of the VM

GLUE2BenchmarkID

Not used for the moment

GLUE2CloudComputingVirtualAcceleratorID

Software environment of the VM

GLUE2CloudComputingImageID (CloudComputingImage)

GLUE2PolicyID VO Information

GLUE2Manager (CloudComputingManager)

Hypervisor

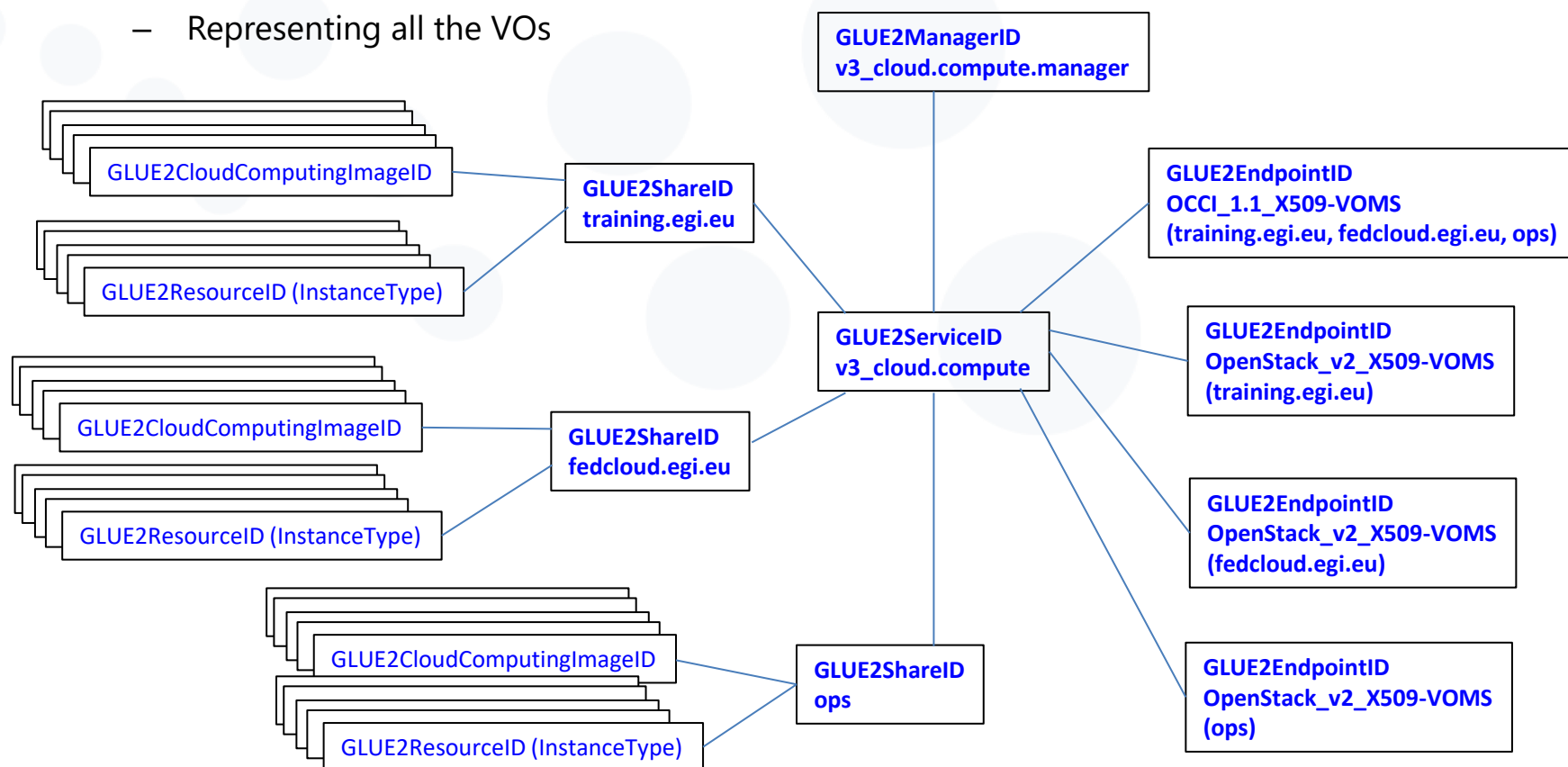
GLUE2CloudToStorageService

Not used for the moment

- Some classes not used for the moment because not needed:
 - CloudComputingInstance, Benchmark, CloudComputingVirtualAccelerators, CloudServicePrice, Glue2CloudToStorageService
- The value of many attributes retrieved by API queries to the cloud framework
- Other attributes have to be set in a dedicated configuration file
 - Some are optional: if not set, they are not published
- Ready for OpenStack, in progress for OpenNebula

Ldap implementation (III)

- 1 Endpoint object for each OpenStack project
 - Each VO belongs to a different project
- 1 Endpoint for OCCI interface
 - Representing all the VOs



GLUE2CloudComputingService Idif

dn: GLUE2ServiceID=https://192.168.56.105:5000/v2.0_cloud.compute,GLUE2GroupID=resource,o=glue

objectClass: GLUE2Entity

objectClass: GLUE2Service

objectClass: GLUE2CloudComputingService

GLUE2ServiceID: https://192.168.56.105:5000/v2.0_cloud.compute

GLUE2EntityName: Cloud Compute service on TEST

GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684

GLUE2EntityValidity: 3600

GLUE2ServiceAdminDomainForeignKey: TEST

GLUE2ServiceType: org.cloud.iaas

GLUE2ServiceQualityLevel: production

GLUE2ServiceStatusInfo: http://argo.esi.eu/lavoisier/status_report-sf?site=TEST

GLUE2CloudComputingServiceAUP: http://go.esi.eu/aup

GLUE2ServiceComplexity: endpointType=2,share=3

GLUE2ServiceCapability: executionmanagement.dynamicvmdeploy

GLUE2ServiceCapability: security.accounting

GLUE2CloudComputingServiceTotalVM: 4

GLUE2CloudComputingServiceRunningVM: 0

GLUE2CloudComputingServiceSuspendedVM: 1

GLUE2CloudComputingServiceHaltedVM: 3

GLUE2CloudComputingManager Idif (I)

dn:
GLUE2ManagerID=https://192.168.56.105:5000/v3_cloud.compute_manager,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue
objectClass: GLUE2Entity
objectClass: GLUE2Manager
objectClass: GLUE2CloudComputingManager
GLUE2ManagerID: https://192.168.56.105:5000/v3_cloud.compute_manager
GLUE2EntityName: Cloud Manager for https://192.168.56.105:5000/v3
GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684
GLUE2EntityValidity: 3600
GLUE2ManagerProductName: Foo Hypervisor
GLUE2ManagerProductVersion: 0.42
GLUE2ManagerServiceForeignKey: https://192.168.56.105:5000/v3_cloud.compute
GLUE2CloudComputingManagerCloudComputingServiceForeignKey:
https://192.168.56.105:5000/v3_cloud.compute

...

GLUE2CloudComputingManager Idif (II)

...

GLUE2CloudComputingManagerTotalCPUs: 0
GLUE2CloudComputingManagerTotalRAM: 0
GLUE2CloudComputingManagerTotalAccelerators: 0
GLUE2CloudComputingManagerInstanceMaxCPU: 8
GLUE2CloudComputingManagerInstanceMinCPU: 1
GLUE2CloudComputingManagerInstanceMaxRAM: 16384
GLUE2CloudComputingManagerInstanceMinRAM: 512
GLUE2CloudComputingManagerInstanceMaxDedicatedRAM: 0
GLUE2CloudComputingManagerInstanceMinDedicatedRAM: 0
GLUE2CloudComputingManagerInstanceMaxAccelerators: 0
GLUE2CloudComputingManagerInstanceMinAccelerators: 0
GLUE2CloudComputingManagerVirtualdiskFormat: OVA
GLUE2CloudComputingManagerFailover: False
GLUE2CloudComputingManagerLiveMigration: False
GLUE2CloudComputingManagerVMBackupRestore: False

Optional, to set in a configuration file:

- OtherInfo
- NetworkVirtualizationType
- CPUVirtualizationType
- AcceleratorVirtualizationType

CloudComputingEndpoint Idif (I)

dn: **GLUE2EndpointID**=https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue

objectClass: **GLUE2Entity**

objectClass: **GLUE2Endpoint**

objectClass: GLUE2CloudComputingEndpoint

GLUE2EndpointID: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2EntityName: Cloud Computing Endpoint OCCI (1.1/X509-VOMS) at https://192.168.56.105:8787/occi1.1

GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684

GLUE2EntityValidity: 3600

GLUE2EndpointURL: https://192.168.56.105:8787/occi1.1

GLUE2EndpointServiceForeignKey: https://192.168.56.105:5000/v3_cloud.compute

GLUE2EndpointCapability: executionmanagement.dynamicvmdeploy

GLUE2EndpointCapability: security.accounting

GLUE2EndpointQualityLevel: production

GLUE2EndpointInterfaceName: eu.esi.cloud.vm-management.occi

GLUE2EndpointHealthState: ok

...

CloudComputingEndpoint Idif (II)

...

GLUE2EndpointHealthStateInfo: Endpoint functioning properly

GLUE2EndpointServingState: production

GLUE2EndpointTechnology: webservice

GLUE2EndpointInterfaceVersion: 1.1

GLUE2EndpointImplementor: CSIC

GLUE2EndpointImplementationName: ooi

GLUE2EndpointImplementationVersion: 0.3.2

GLUE2EndpointDowntimeInfo: See the GOC DB for downtimes:

https://goc.esi.eu/portal/index.php?Page_Type=Downtimes_Calendar&site=TEST

GLUE2EndpointSemantics: <http://occi-wg.org/about/specification>

GLUE2EntityOtherInfo: Authn=X509-VOMS

GLUE2EndpointIssuerCA: /C=--

/ST=SomeState/L=SomeCity/O=SomeOrganization/OU=SomeOrganizationalUnit/CN=packstack.localdomain/emailAddress=root@packstack.localdomain

GLUE2EndpointTrustedCA: /C=FR/O=CNRS/CN=CNRS2

[...]

CloudComputingEndpoint Idif (III)

dn: **GLUE2EndpointID**=https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61_OpenStack_v2_X509-VOMS,**GLUE2ServiceID**=https://192.168.56.105:5000/v2.0_cloud.compute,**GLUE2GroupID**=resource,o=glue

objectClass: **GLUE2Entity**

objectClass: **GLUE2Endpoint**

objectClass: GLUE2CloudComputingEndpoint

GLUE2EndpointID: https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61_OpenStack_v2_X509-VOMS

GLUE2EntityName: Cloud Computing Endpoint OpenStack (v2/X509-VOMS) at
https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61

GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684

GLUE2EntityValidity: 3600

GLUE2EndpointURL: https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61

GLUE2EndpointServiceForeignKey: https://192.168.56.105:5000/v2.0_cloud.compute

GLUE2EndpointCapability: executionmanagement.dynamicvmdeploy

GLUE2EndpointCapability: security.accounting

GLUE2EndpointQualityLevel: production

GLUE2EndpointInterfaceName: org.openstack.nova

GLUE2EndpointHealthState: ok

...

CloudComputingEndpoint Idif (IV)

...

GLUE2EndpointHealthStateInfo: Endpoint functioning properly

GLUE2EndpointServingState: production

GLUE2EndpointTechnology: webservice

GLUE2EndpointInterfaceVersion: v2

GLUE2EndpointImplementor: OpenStack Foundation

GLUE2EndpointImplementationName: OpenStack Nova

GLUE2EndpointImplementationVersion: Liberty

GLUE2EndpointDowntimeInfo: See the GOC DB for downtimes:

https://goc.egi.eu/portal/index.php?Page_Type=Downtimes_Calendar&site=TEST

GLUE2EndpointSemantics: <https://developer.openstack.org/api-ref/compute>

GLUE2EntityOtherInfo: Authn=X509-VOMS

GLUE2EndpointIssuerCA: /C=--

/ST=SomeState/L=SomeCity/O=SomeOrganization/OU=SomeOrganizationalUnit/CN=packstack.localdomain/emailAddress=root@packstack.localdomain

GLUE2EndpointTrustedCA: /C=FR/O=CNRS/CN=CNRS2

GLUE2EndpointTrustedCA: /C=FR/O=CNRS/CN=GRID2-FR

...

Proposal on Contextualization attributes

- GLUE2CloudComputingEndpointContextualizationName:
 - supported contextualization mechanism (cloudinit, bash), if any;
- GLUE2CloudComputingEndpointContextualizationVersion
 - supported contextualization mechanism version
- They are more related to the particular image rather than to the entire endpoint
- Proposal to move them under CloudComputingImage
- New names:
 - GLUE2CloudComputingImageContextualizationName
 - GLUE2CloudComputingImageContextualizationVersion

Policy object (Endpoint)

dn: **GLUE2PolicyID**=https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS_training.egi.eu_Policy,**GLUE2EndpointID**=https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue

objectClass: GLUE2Entity

objectClass: GLUE2Policy

objectClass: GLUE2AccessPolicy

GLUE2PolicyID: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS_Policy

GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684

GLUE2AccessPolicyEndpointForeignKey: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2PolicyScheme: org.glite.standard

GLUE2EntityName: Access control rules for training.egi.eu on
https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2PolicyRule: VO:training.egi.eu

GLUE2CloudComputingShare Idif (I)

dn:
GLUE2ShareID=https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue
objectClass: GLUE2Entity
objectClass: GLUE2Share
objectClass: GLUE2CloudComputingShare
GLUE2ShareID: https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training
GLUE2EntityName: Share in service https://192.168.56.105:5000/v3_cloud.compute for VO training.esi.eu (Project training)
GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684
GLUE2EntityValidity: 3600
GLUE2ShareServiceForeignKey: https://192.168.56.105:5000/v3_cloud.compute
GLUE2ShareDescription: Share in service https://192.168.56.105:5000/v3_cloud.compute for VO training.esi.eu (Project training)
GLUE2CloudComputingShareCloudComputingServiceForeignKey:
https://192.168.56.105:5000/v3_cloud.compute
GLUE2ShareEndpointForeignKey: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS
...

GLUE2CloudComputingShare Idif (II)

...

GLUE2CloudComputingShareCloudComputingEndpointForeignKey:

https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2ShareEndpointForeignKey:

https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61_OpenStack_v2_X509-VOMS

GLUE2CloudComputingShareCloudComputingEndpointForeignKey:

https://192.168.56.105:8774/v2/f4812fc14d094a5fba4a9868793c3f61_OpenStack_v2_X509-VOMS

GLUE2CloudComputingShareInstanceMaxCPU: 8

GLUE2CloudComputingShareInstanceMaxRAM: 16384

GLUE2CloudComputingShareSLA: <https://egi.eu/sla/training>

GLUE2CloudComputingShareTotalVM: 1

GLUE2CloudComputingShareRunningVM: 0

GLUE2CloudComputingShareSuspendedVM: 0

GLUE2CloudComputingShareHaltedVM: 1

GLUE2CloudComputingShareNetworkInfo: UNKNOWN

GLUE2CloudComputingShareInstanceMaxAccelerators: 0

GLUE2CloudComputingShareMaxVM: 10

Policy object (Share)

dn:
GLUE2PolicyID=https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training_Policy,**GLUE2ShareID**=https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue
objectClass: **GLUE2Entity**
objectClass: **GLUE2Policy**
objectClass: **GLUE2MappingPolicy**
GLUE2PolicyID: https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training_Policy
GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684
GLUE2PolicyScheme: org.glite.standard
GLUE2MappingPolicyShareForeignKey:
https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training
GLUE2PolicyRule: VO:training.esi.eu
GLUE2PolicyUserDomainForeignKey: training.esi.eu

CloudComputingInstanceType Idif

dn:

GLUE2ResourceID=<http://schemas.openstack.org/template/resource#3>,**GLUE2ShareID**=https://192.168.56.105:5000/v3_cloud.compute_share_training.esi.eu_training,**GLUE2ServiceID**=https://192.168.56.105:5000/v3_cloud.compute,**GLUE2GroupID**=resource,o=glue

objectClass: **GLUE2Entity**

objectClass: **GLUE2Resource**

objectClass: **GLUE2CloudComputingInstanceType**

GLUE2ResourceID: <http://schemas.openstack.org/template/resource#3>

GLUE2EntityCreationTime: 2017-06-15T16:25:45.531114

GLUE2EntityValidity: 3600

GLUE2EntityName: <http://schemas.openstack.org/template/resource#3>

GLUE2CloudComputingInstanceTypeIDForEndpoint: <http://schemas.openstack.org/template/resource#3>

GLUE2ResourceManagerForeignKey: https://192.168.56.105:5000/v3_cloud.compute_manager

GLUE2CloudComputingInstanceTypeCloudComputingManagerForeignKey:
https://192.168.56.105:5000/v3_cloud.compute_manager

GLUE2CloudComputingInstanceTypeCloudComputingEndpointForeignKey: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2CloudComputingInstanceTypePlatform: amd64

GLUE2CloudComputingInstanceTypeevCPU: 2

GLUE2CloudComputingInstanceTypeRAM: 4096

GLUE2CloudComputingInstanceTypeNetworkIn: undefined

GLUE2CloudComputingInstanceTypeNetworkOut: True

GLUE2CloudComputingInstanceTypeNetworkInfo: infiniband

GLUE2CloudComputingInstanceTypeEphemeralStorage: 0

GLUE2CloudComputingInstanceTypeDisk: 40

GLUE2CloudComputingImage Idif

dn: **GLUE2CloudComputingImageID**=http://schemas.openstack.org/template/os#407a0a29-f884-4f80-825a-c19c5c2a6985,**GLUE2ShareID**=https://192.168.56.105:5000/v2.0_cloud.compute_share_training.esi.eu_training,**GLUE2ServiceID**=https://192.168.56.105:5000/v2.0_cloud.compute,**GLUE2GroupID**=resource,o=glue

objectClass: **GLUE2Entity**

objectClass: **GLUE2CloudComputingImage**

GLUE2EntityName: Image for TinyCoreLinux [Other/TinyCoreLinux/QEMU-KVM]

GLUE2CloudComputingImageID: http://schemas.openstack.org/template/os#407a0a29-f884-4f80-825a-c19c5c2a6985

GLUE2EntityCreationTime: 2017-06-01T17:17:55.514684

GLUE2EntityValidity: 3600

GLUE2CloudComputingImageIDForEndpoint: http://schemas.openstack.org/template/os#407a0a29-f884-4f80-825a-c19c5c2a6985

GLUE2CloudComputingImageCloudComputingManagerForeignKey: https://192.168.56.105:5000/v2.0_cloud.compute_manager

GLUE2CloudComputingImageCloudComputingEndpointForeignKey: https://192.168.56.105:8787/occi1.1_OCCI_1.1_X509-VOMS

GLUE2CloudComputingImageMarketPlaceID: https://appdb.esi.eu/store/vm/image/541b01a8-94bd-4545-83a8-6ea07209b440:1525/

GLUE2CloudComputingImageOSName: other

GLUE2CloudComputingImageOSVersion: TinyCoreLinux

GLUE2CloudComputingImageOSFamily: linux

GLUE2CloudComputingImageOSPlatform: amd64

GLUE2EntityOtherInfo: description:Image for TinyCoreLinux [Other/TinyCoreLinux/QEMU-KVM] version UNKNOWN on UNKNOWN
other TinyCoreLinux amd64

GLUE2CloudComputingImageDiskSize: 0

GLUE2CloudComputingImageAccessInfo: none

Side activities: AppDB & BDII

- AppDB consumes BDII information
 - Some modifications to accept the new schema
- Virtual appliances uploading:
 - Reviewed the required information
 - To be compliant with the GLUE2.1 attributes
- To implement the new schema in the BDII package

Thank you for your attention.

Questions?



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