OCCI-compliant Interface to Amazon Web Services

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Compacted Abstract

*The rOCCI-server is used in production across the **EGI** Federated Cloud. It is a compatibility layer not only for open source by also for proprietary cloud management frameworks. The EC2 backend allows management of cloud resources in **AWS** with the same interface and abstractions, introducing a new level of integration.*

Free Trial

An OCCI [1] gateway to Amazon Web Services' EC2 interface [2] is open at `https://awsocci.cesnet.cz:11443/` for the duration of the conference. It is open to members of the `indigo` and `fedcloud.egi.eu` VOs. Use your favourite OCCI client to access it.

In case you are using the general-purpose rOCCI-cli, try instantiating a virtual machine like this:

```
occi --endpoint https://awsocci.cesnet.cz:11443/ --auth x509 --voms \
--user-cred /tmp/x509up_u`id -u` --action create --resource compute \
--mixin os_tpl#ami-971238f1 --mixin resource_tpl#t2_micro \
--attribute occi.core.title="VMby${USER}" \
--context public_key="file://${HOME}/.ssh/id_rsa.pub" \
--link /network/vpc-e2e4f686
```

That command will `create` a `compute` resource, using image ID `ami-971238f1` (Ubuntu Xenial 16.04 server) and machine size `t2_micro`. Do not forget to clean up afterwards!

Find this and other examples at `https://wiki.egi.eu/wiki/rOCCI:ROCCI-cli_AWS_Examples`

Instant FedCloud Site

With a standardized interface to virtual resource management, it may seem simple to set up your own brand new Federated Cloud site:

Just Add Credit Card?

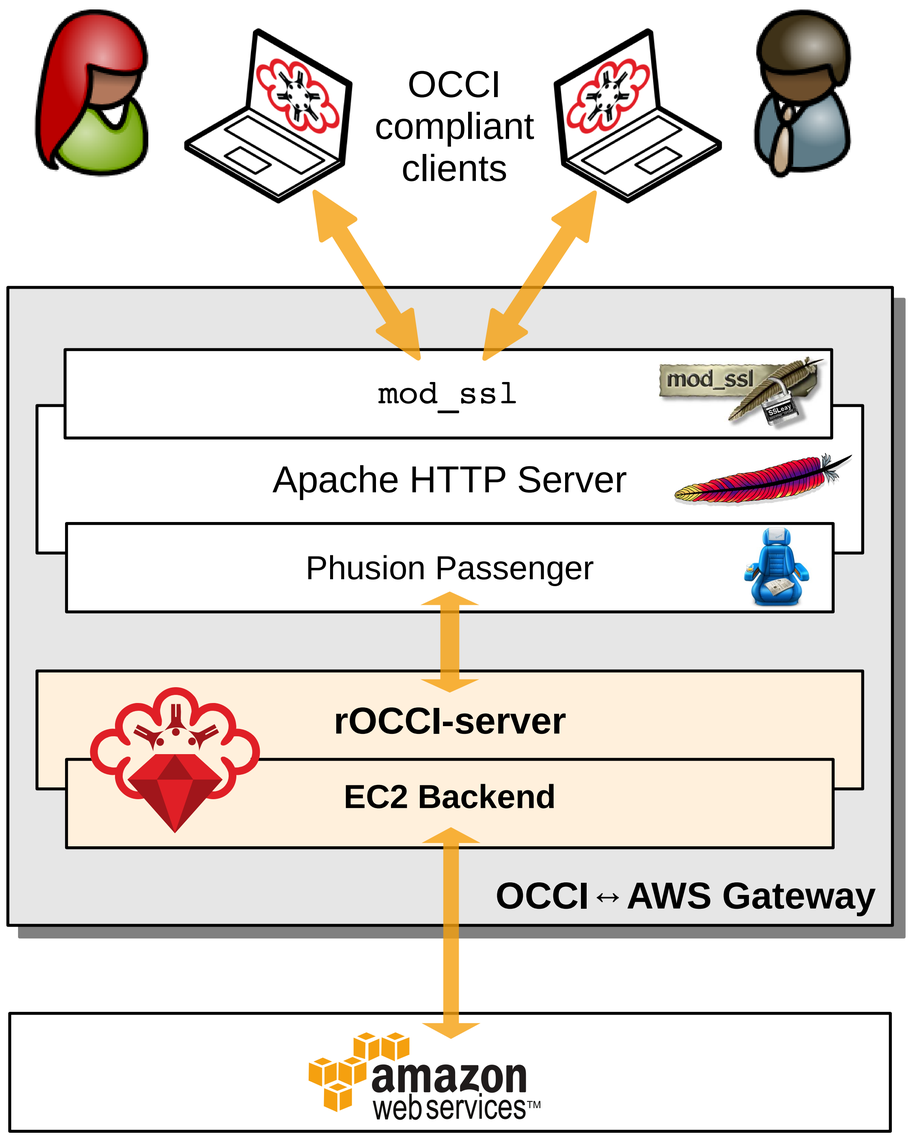
In reality, while an important feature, there are other services that must be made available at a site for it to be fully integrated with **EGI**'s Federated Cloud platform.

- **Finer grain authentication** – this pilot implementation maps whole VOs to single **AWS** accounts.
- **Accounting** – accounting data collection is not implemented for **AWS**.
- **Service discovery** – the "owner" (typically the institute who funds the resources) needs to advertise service parameters over BDII.
- **Appliance distribution** – there is currently no automated distribution of appliances from **EGI**'s Cloud Marketplace.

Only with that addressed a resource set rented from a public cloud provider may become a full-fledged site integrated into the Federated Cloud. Even at this point, however, it is possible for user groups to control rented resources when, for instance, scaling out their existing usage scenarios into public cloud.

Implementation

The rOCCI-server [3] has been designed to use interchangeable backends, although only the OpenNebula backend has been regularly used in production.



For use with **AWS** EC2, the rOCCI-server is simply configured to use its EC2 backend, which is part of the standard release.

Abstractions

The concept of cloud resources in Amazon Web Services maps relatively well to the OCCI Infrastructure class structure. Classes such as *Compute* or *Storage* have direct counterparts in **AWS** EC2. OCCI *Network* maps to **AWS**'s VPC (Virtual Private Cluster).

No OCCI concept can currently describe the choice of geographic regions. Hence each gateway can only be configured to work with resources in a single region.

Amazon Machine Images (AMI) are too numerous for reasonable use. Therefore rOCCI-server implements a filtering option, wherewith a site admin may choose which AMIs will be listed as OCCI's OS Templates to their users, typically on VO Admin's instructions.

References

[1] OCCI Working Group: `http://occi-wg.org`
[2] Amazon EC2: `http://aws.amazon.com/ec2`
[3] rOCCI: `https://wiki.egi.eu/wiki/rOCCI:ROCCI`

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