FedCloud client: the powerful client for EGI Federated Cloud

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Introduction

fedcloudclient is a simple but powerful client tool for working with OpenStack sites in EGI Cloud infrastructure:

- Simple: setup in one minute, no privileges required, intuitive syntax
- Powerful: can work with all sites, all VOs, customisable, extensible, advanced options
- Federated: considers EGI Cloud infrastructure as a whole, sites and VOs are just parameters of the client

Easy to use

- Can you imagine that executing an OpenStack command on EGI Cloud federation is easier than on local site?
  - With native OpenStack command:

    ```
    $ openstack image list  --os-auth-url https://cloud.ui.savba.sk:5000/v3/
    --os-auth-type v3oidcaccesstoken --os-identity-provider egi.eu
    --os-project-id 51f736d36ce34b9ebdf196cfcabd24ee --os-protocol openid
    --os-access-token $OS_ACCESS_TOKEN
    ```

  - With FedCloud client

    ```
    $ fedcloud openstack image list --site IISAS-FedCloud --vo eosc-synergy.eu
    --oidc-access-token $OS_ACCESS_TOKEN
    ```

- The fedcloud command is natural and intuitive: listing images on site IISAS-FedCloud in VO eosc-synergy.eu using access token, that is all

3

Federation-wide

- Moving from a site to another site by changing single parameter

  `$ fedcloud openstack image list --site IISAS-FedCloud --vo eosc-synergy.eu`

  `$ fedcloud openstack image list --site IFCA-LCG2 --vo eosc-synergy.eu`

- Global operations on all sites with `--site ALL_SITES` parameters

  `$ fedcloud openstack server list --site ALL_SITES --vo eosc-synergy.eu`

- Global operations are performed in parallel for quick responses

Rich functionalities

- fedcloud.openstack module: native support for all OpenStack commands, simple execution

But still much more:

- fedcloud.checkin: manipulating with access token, listing VO memberships
- fedcloud.endpoint: listing services in GOCDB
- fedcloud.site: managing site configurations
- fedcloud.select: searching/selecting images, flavors and networks
- fedcloud.secret: managing secrets in Secret management service
- fedcloud.ec3: supporting EC3

Designed for automation

- Simple commands with clear inputs/outputs like shells
- Setting environment variables for other tools
- JSON output formats for machine processing: e.g. via jq

```
$ fedcloud openstack flavor list  --site IISAS-FedCloud --vo eosc-synergy.eu --json-output |\

  jq -r  '.[].Result[] | select(.VCPUs == 2) | .Name'
```

The first command generates list of flavors, and the second command selects only flavors with 2 VCPUs, and print their names

- Calling fedcloud functions directly from Python codes

Easy install and customizable

- Simple install:

```
$ pip3 install -U fedcloudclient
```

- Working out of the box without additional configuration
- Integration with oidc-agent for automatic refreshing of access tokens
- Integration with bash shell completion
- All default parameters can be set in configuration files and environment variables
  - In 2.0-alpha

Rich documentations

- Main documentation: https://fedcloudclient.fedcloud.eu/
  - Quick start, installation guides, use guides, FAQ, cheat sheets, …
- Tutorial on Google drive
- Demonstration video on Youtube

Open, active developments

- Open source, codes are available in [GitHub](#)
- 7 contributors, 452 commits, 30 releases
- More than 20 new features are planned
- Version 2.0 expected in the next year
- Contributions are welcomed

Summary

fedcloudclient is a simple but powerful client tool and library for working with OpenStack sites in EGI Cloud infrastructure.

- For beginners: simple setup, simple usage, intuitive syntax
- For advanced users, site admins: many customizations and powerful commands
- For VO managers: all-sites operations
- For developers: library for developing other tools/services in EGI Federated Cloud

Thank you for your attention

Questions: tdviet@gmail.com