

SIMONE FERRETTI – TUTOR: FEDERICO ZANI



V-Labs

GIORNATA DI INCONTRO
BORSE DI STUDIO GARR
"ORIO CARLINI"
06 DICEMBRE 2018 ROMA

Roma, 06/12/2018

Boristi Day



Learning Problems

- **Costo** dell'hardware e del software



- **Installazione e configurazione** software complicate

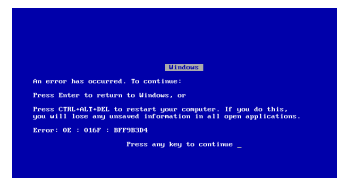


Provisioning Problems

- Gestione e **mantenimento**



- **Disaster recovery**



- **Sicurezza**





La soluzione: V-Labs

100% Opensource

- Basato su **Docker Container**  docker

- Collegato ad un'installazione di **Openshift Origin** 
OPENSIFT

- Gestibile **totalmente** via **browser**





V-Labs: Cosa è

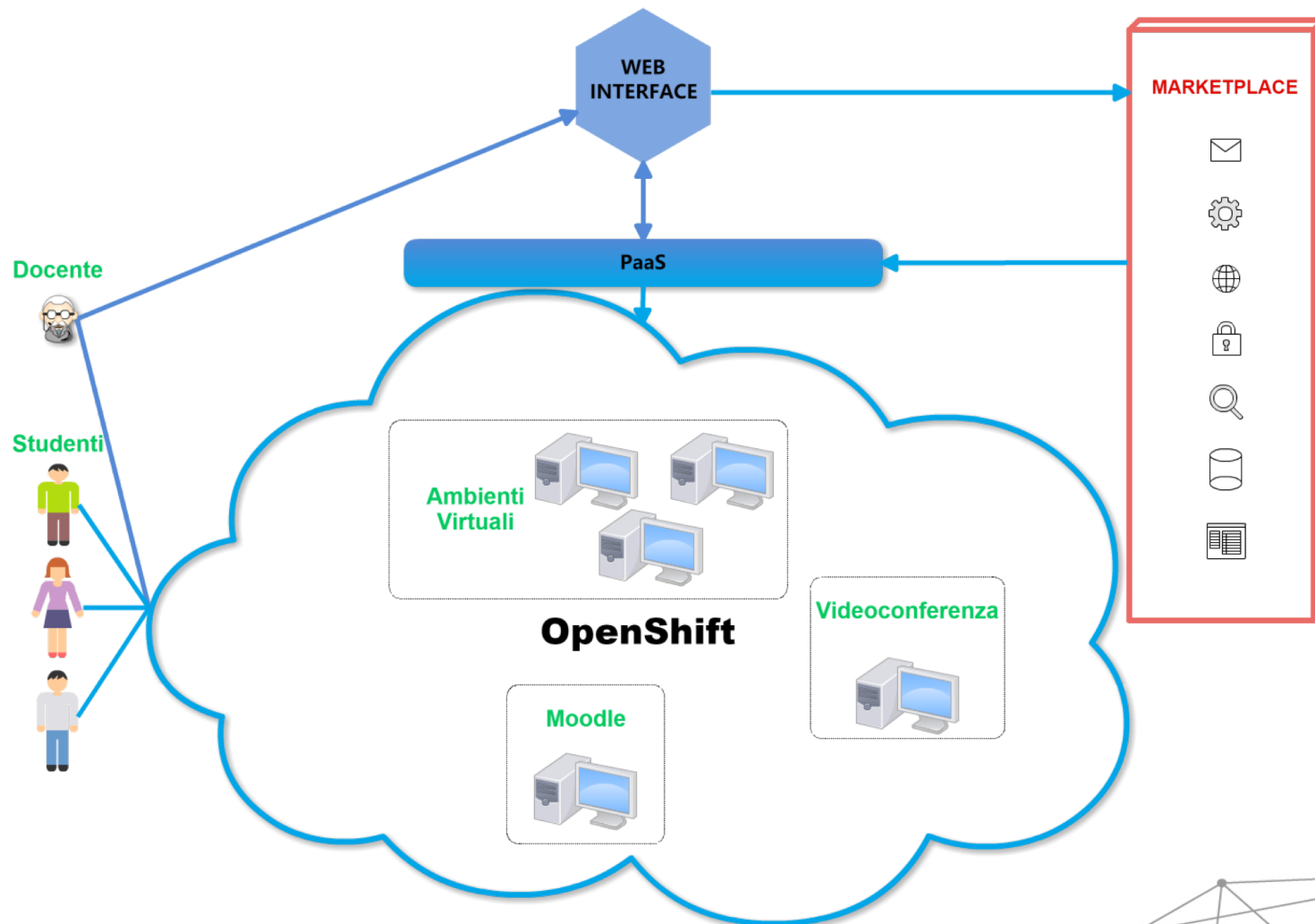
Una piattaforma per il provisioning in autonomia di aule virtuali e servizi

Features

- **Multidisciplinarietà**
- **Flessibilità** della struttura delle aule, degli ambienti virtuali e dei servizi
- **Marketplace espandibile** dalla comunità
- Completamente **stateless**



Architettura





Tecnologie



OPENSIFT



django



[1] copyright owned by the author: Gengns-Genesis



Stock Marketplace

Learning Management System

- Moodle

Ambienti di esercitazione

- Programmazione
- Relational e NoSql databases
- CAD elettronici
- ambienti per analisi dati ROOT e Géant4
- Strumenti di analisi matematico statistica

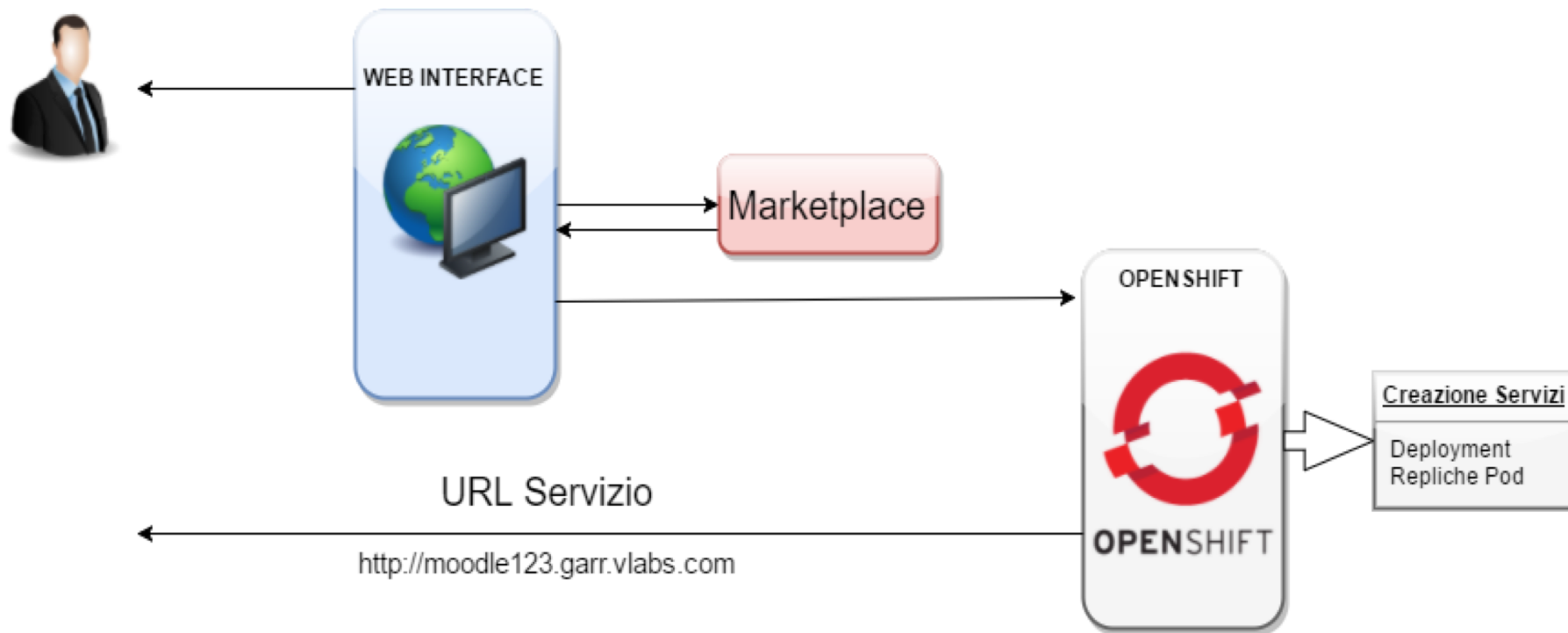
Sistemi per la videoconferenza

- RocketChat





Come Funziona





Le Rotte

Wildcard DNS

- ***Frontend TLS*** per tutti i possibili indirizzi che appartengono a un dominio o un sottodominio
- `http://*.garr.vlabs.it`
- Es.: `http://moodle-fisica.garr.vlabs.it`



Creazione di un servizio

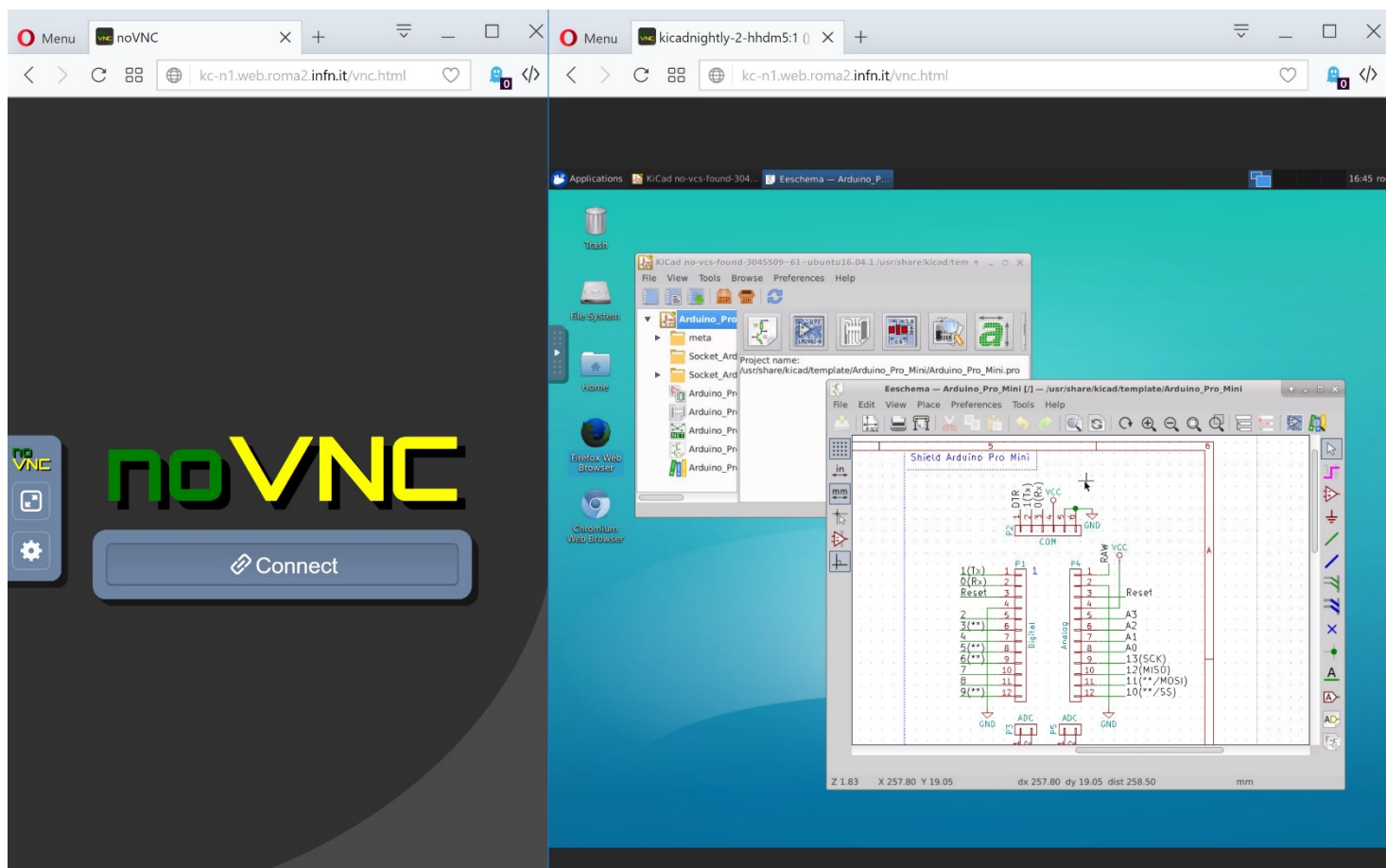
V LABS

username:

password:

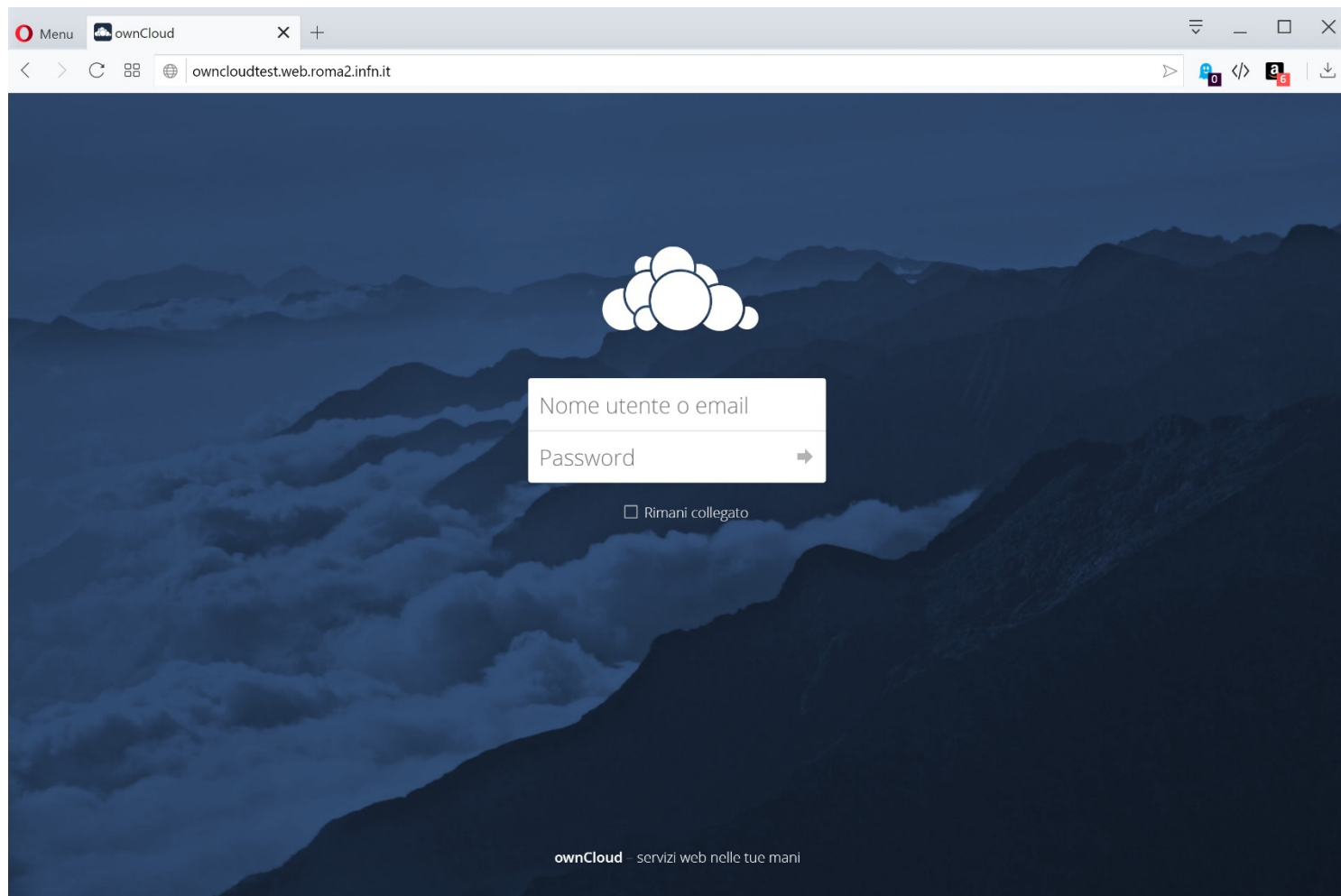


Ubuntu 18.04





Owncloud





esempio - Online LaTeX Editor

svxlabs-sharelatex-0.web.roma2.infn.it/project/5a29697054beee007a595fae

Menu Share History Chat

Menu

main.tex
references.bib
universe.jpg

```
1 \documentclass{article}
2 \usepackage[utf8]{inputenc}
3
4 \title{esempio}
5 \author{mario}
6 \date{December 2017}
7
8 \usepackage{natbib}
9 \usepackage{graphicx}
10
11 \begin{document}
12
13 \maketitle
14
15 \section{Introduction}
16 There is a theory which states that if ever anyone discovers exactly what the Universe is
17 for and why it is here, it will instantly disappear and be replaced by something even
18 more bizarre and inexplicable.
19 There is another theory which states that this has already happened.
20
21 \begin{figure}[h!]
22 \centering
23 \includegraphics[scale=1.7]{universe.jpg}
24 \caption{The Universe}
25 \end{figure}
26
27 \section{Conclusion}
28 "I always thought something was fundamentally wrong with the universe"
29 \cite{adams1995hitchhiker}
30
31 \bibliographystyle{plain}
32 \bibliography{references}
33 \end{document}
```

Recompile

esempio

mario
December 2017

1 Introduction

There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.



Figure 1: The Universe

2 Conclusion

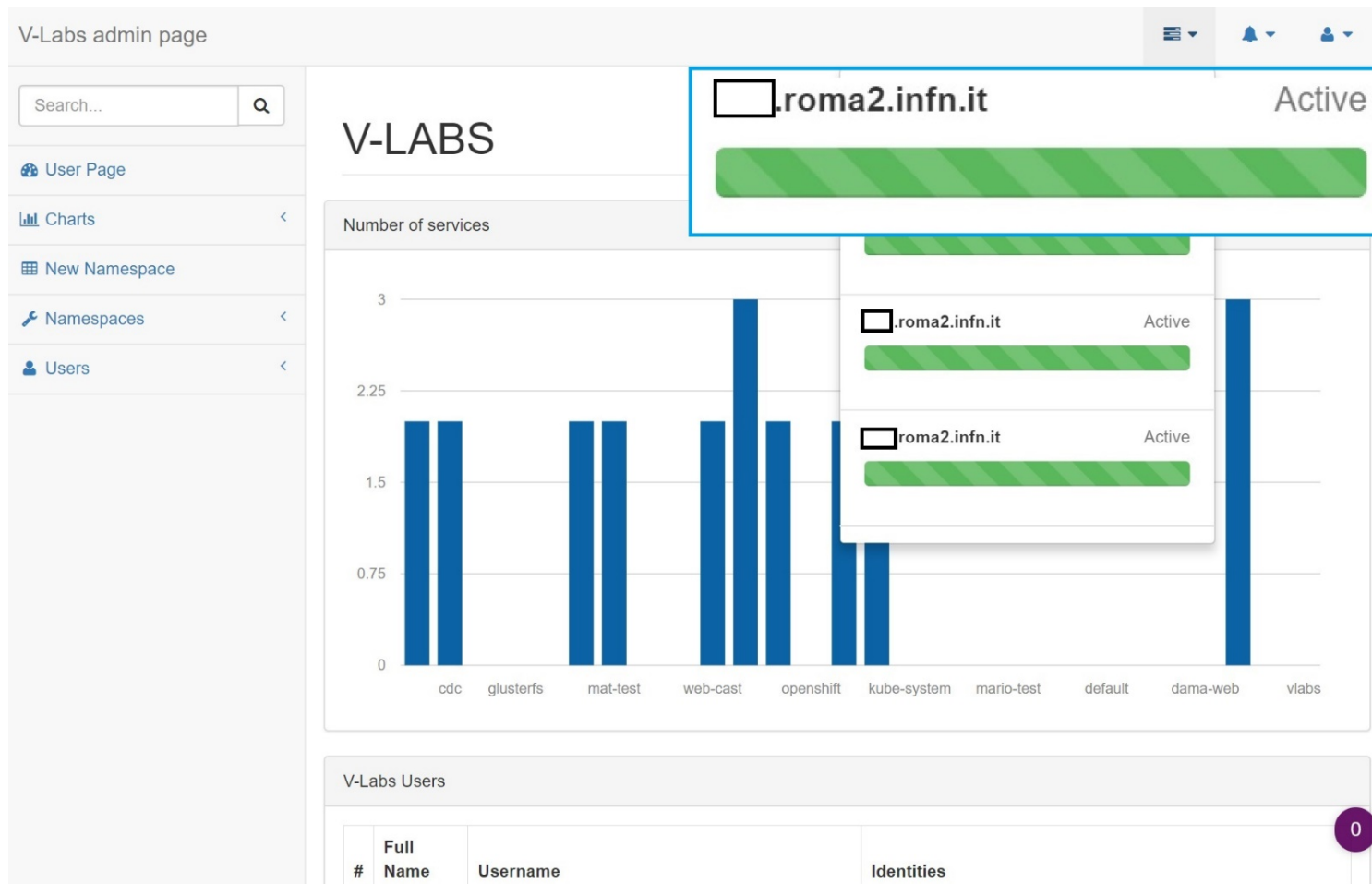
"I always thought something was fundamentally wrong with the universe" [1]

References

[1] D. Adams. *The Hitchhiker's Guide to the Galaxy*. San Val, 1995.



Admin Page: lo status dei nodi





Admin Page: Utenti e Progetti

V-Labs Users

#	Full Name	Username	Identities		
4	Mario Maionchi	mario	['htpasswd_auth:mario']		
19	mario-test	[, 'mario']	pv-mariomoodle-moodle	1Gi	pvc-b3a9c408-f58a-11e8-9f8d-0050569a703a
			pv-mariomoodle-mysql	1Gi	pvc-b3d44a6d-f58a-11e8-9f8d-0050569a703a



Admin Page: i ruoli di Mario

- AUTHZ



Namespace	Services
vlabs	[]
test-project	['wordpress-mysql', 'wordpress-wordpress']
mario-test	['shellinabox-psiabox']

- NO AUTHZ



Namespace
cdc
dama-web
default
erasmus

V-Labs admin page

Search... Q

User Page

Charts

New Namespace

Namespaces

Users

User: MARIO

#	Namespace	Services	Delete Role Binding
0	vlabs	[]	Delete role
1	test-project	['wordpress-mysql', 'wordpress-wordpress']	Delete role
2	mario-test	['shellinabox-psiabox']	Delete role

User: MARIO

#	Namespace	Add Role Binding
0	cdc	Add role
1	dama-web	Add role
2	default	Add role
3	erasmus	Add role
4	glusterfs	Add role
5	kube-public	Add role



Admin Page: il namespace di Mario

• STATO SERVIZI E REPLICHE

V-Labs admin page

Search...

Dashboard

Namespaces

Users

V-LABS

MARIO-TEST Services

#	Full Name	Replicas	Volume Claims	Status	Last Update	Last Message	Set new number of replicas
0	pythonbds-psiabox	Replicas: 1 Available Replicas: 0	None	Available	Dec. 1, 2018, 3:16 p.m.	Deployment config does not have minimum availability.	Quantity (between 1 and 3): Set

MARIO-TEST Limits

Name	Limits						
memory-resource-limits	<table border="1"><thead><tr><th>Type</th><th>Spec</th></tr></thead><tbody><tr><td>Pod</td><td>{'default': None, 'default_request': None, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '6Mi'}, 'type': 'Pod'}</td></tr><tr><td>Container</td><td>{'default': None, 'default_request': {'u'memory': '4Mi'}, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '4Mi'}, 'type': 'Container'}</td></tr></tbody></table> Delete Limit	Type	Spec	Pod	{'default': None, 'default_request': None, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '6Mi'}, 'type': 'Pod'}	Container	{'default': None, 'default_request': {'u'memory': '4Mi'}, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '4Mi'}, 'type': 'Container'}
	Type	Spec					
Pod	{'default': None, 'default_request': None, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '6Mi'}, 'type': 'Pod'}						
Container	{'default': None, 'default_request': {'u'memory': '4Mi'}, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '4Mi'}, 'type': 'Container'}						

MARIO-TEST Quotas

Name	Spec	Used
mariotestquota	persistentvolumeclaims: 399	persistentvolumeclaims: 0 Delete Quota

Set new number of replicas

Quantity (between 1 and 3):

• LIMITI

Type	Spec
Pod	{'default': None, 'default_request': None, 'max': None, 'max_limit_request_ratio': None, 'min': {'u'memory': '6Mi'}, 'type': 'Pod'}

• QUOTE

Spec	Used
persistentvolumeclaims: 399	persistentvolumeclaims: 0



II Marketplace

File YAML

Definisce:

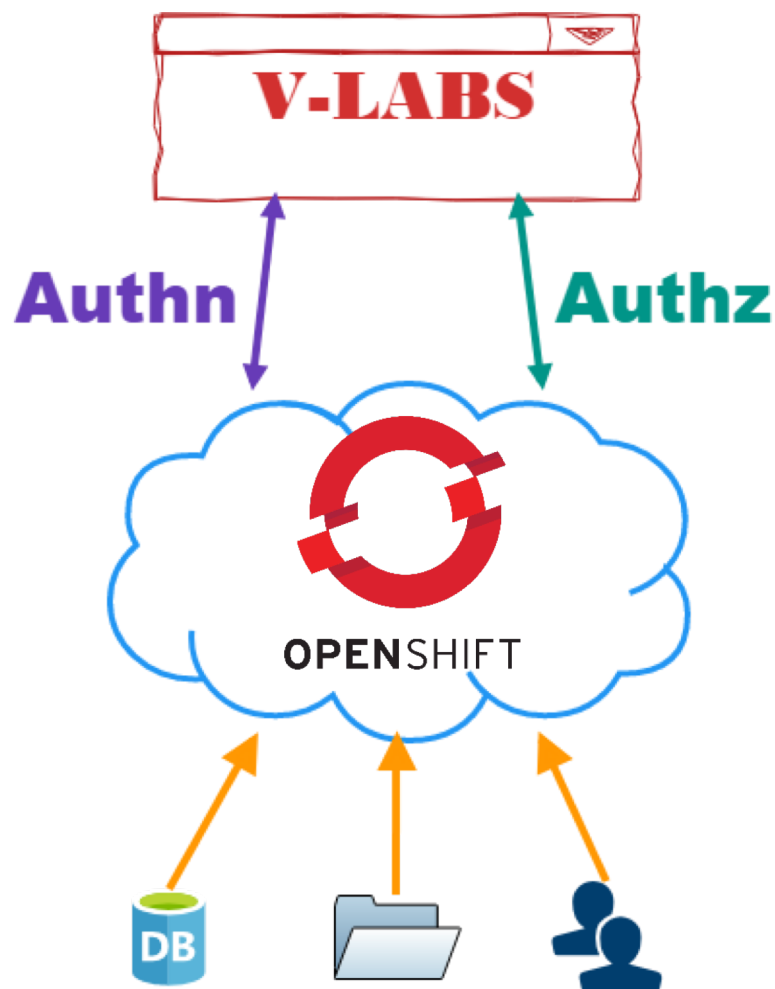
- Servizi
- Variabili
- Porte e Rotte
- DataPath

```
- name: 'moodle'
  services:
    - nameservice: 'moodle'
      ports:
        - port: 'moodle'
          tcp: 80
          route: 'yes'
      imagename: 'virtuallabs/moodlelabs:1.34'
      env:
        - name: 'DB_HOST'
          value: $service[mysql]
        - name: 'DB_NAME'
          value: $variable[mysql:MYSQL_DATABASE]
      [...]
      volumes:
        persistentvolumeclaim: 'yes'
        datadir: '/var/www/moodledata'

- nameservice: 'mysql'
  ports:
```



Authn/Authz





Termine lavori

- Termine fase di **test**
- V-Labs **container**
- **Dockerfile**
- **Documentazione**



Riferimenti

<https://github.com/virtlabs>

<https://hub.docker.com/u/virtuallabs/>