

Greek Research and Technology Network S.A. GRNET

~okeanos:
One Click Away from your Own
Virtual Machines, Network, Storage, ...

GÉANT Cloud Service Showcase

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okeanos





machines

New Machine +

icon list single



My New Debian server



Running



[snfdevs.dev.grnet.gr]

snf-656347.vm.oceanos.grnet.gr

info

disks

IPs



My Old Debian server



Stopped



[System project]

snf-45119.vm.oceanos.grnet.gr

info

disks

IPs

Create new machine

close

1 Image

Select an OS
Choose your preferred image

2

3

4

5

Images

System

My images

Shared with me

Public

Available images

by system

Windows Server 2012 R2 Datacenter

[details](#)



Windows Server 2012

15.31 GB

by system

Windows Server 2012 Datacenter

[details](#)



CoreOS stable

2.93 GB

by system

CoreOS 522.6.0

[details](#)



Ubuntu Server LTS

1.16 GB

by system

Ubuntu 14.04.2 LTS

[details](#)



Ubuntu Desktop LTS

3.66 GB

by system

Ubuntu 14.04.2 LTS

[details](#)



Kubuntu LTS

3.33 GB

by system

Kubuntu 14.04.2 LTS

[details](#)

cancel

next

1 ✓

2 Flavor

Select CPUs, RAM and Disk Size
Available options are filtered based on the selected image

3

4

5

System project ▼

Predefined

Small

Medium

Large

CPUs (52 left)

Choose number of CPU cores

1 x

2 x

4 x

8 x

Memory size (52.00 GB left)

Choose memory size

512 MB

1 GB

2 GB

4 GB

8 GB

8 GB

Disk size (520.00 GB left)

Choose disk size

5 GB

10 GB

20 GB

40 GB

60 GB

80 GB

100 GB

Storage

Select storage type

Archipelago

Standard

Local

Archipelago cached

previous

next

Create new machine

[close](#)

1

2

3

Networking

Networking configuration
Connect machine to networks

4

5

Available networks

Select the networks you want your machine to get connected to.

☒  Internet (public IPv6)☒  Internet (public IPv4)☐ 192.168.4.31

System project

☒ 192.168.12.2

System project

[+ create new...](#)☐  netone

192.168.0.0/24

☐  c

192.168.3.0/24

☐  d

192.168.4.0/24

☐  e

192.168.5.0/24

[previous](#)[next](#)

Create new machine

[close](#)

1

2

3

4 Personalize

Virtual machine custom options
Virtual machine custom options

5

Machine name

 My CoreOS stable server

Public SSH keys

Your account contains the following SSH public keys. Select one or more to activate in your new machine. You will then be able to ssh with the corresponding private key without a password."

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Suggested tags

You may change machine tags later from the machines view.

Role

Database server

File server

Mail server

Web server

Proxy

[previous](#)[next](#)

Create new machine

close

1 2 3 4 5 confirm

Confirm your settings
Confirm that the options you have selected are correct

Machine name

 **My CoreOS stable server**

Image

CoreOS stable

CoreOS 522.6.0

OS **Coreos**

Size **2.93 GB**

GUI **No GUI**

Kernel **3.17.8+**

Project

System project

Flavor

CPUs **1x**

Memory **1024 MB**

Disk **10.00 GB**

Storage type **Archipelago**

Machine Tags

No tags selected

SSH Keys

grnet

IP Addresses

192.168.12.2

System project

Private networks

No private networks selected

previous

create machine

- pithos+: Online object storage
- Web interface
- OpenStack API
- Multiple containers
- Versioning
- File sharing

File Storage

Pithos

Cyclades

user@synnefo.org

synnefo

Upload

New folder

move

copy

trash

delete

Sort by name A → Z

refresh

Groups

My containers

+ images

+ pithos

+ trash

+ Shared with me

Containers > pithos (5 objects)

Name ^		Size	Modified	Type	
✓ folder-1		--	a minute ago	folder	
✓ folder-2		--	a minute ago	folder	
bar.pdf		69.3 KB	a few seconds ago	pdf	
✓ foo.pdf		69.3 KB	a minute ago	pdf	
image-1.png		31.5 KB	a minute ago	image	

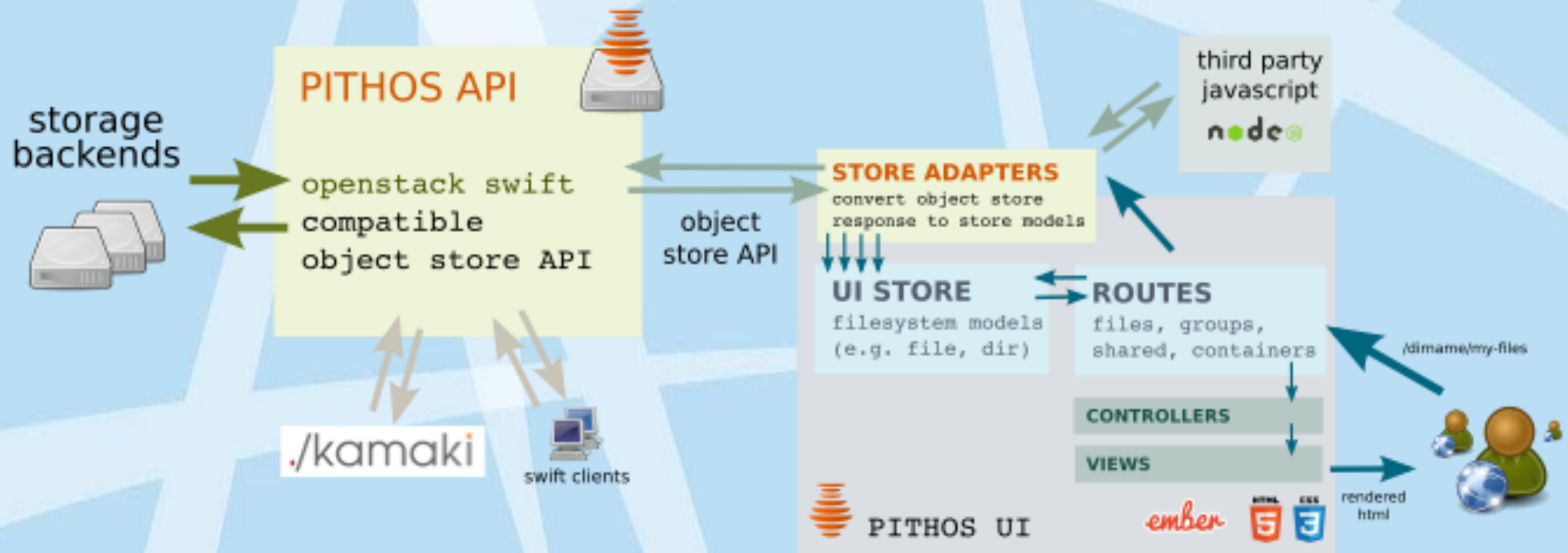
Copyright (c) 2011-2015 GRNET

Powered by Synnefo: 0.16.2next_12985_ae1b603_0f246dc

Choose theme:

https://pithos.synnefo.live/pithos/ui/containers

File Storage



File Syncing

- agkyra: Syncs file between local computer and Pithos+
- agkyra = anchor (in Greek), because it sinks.

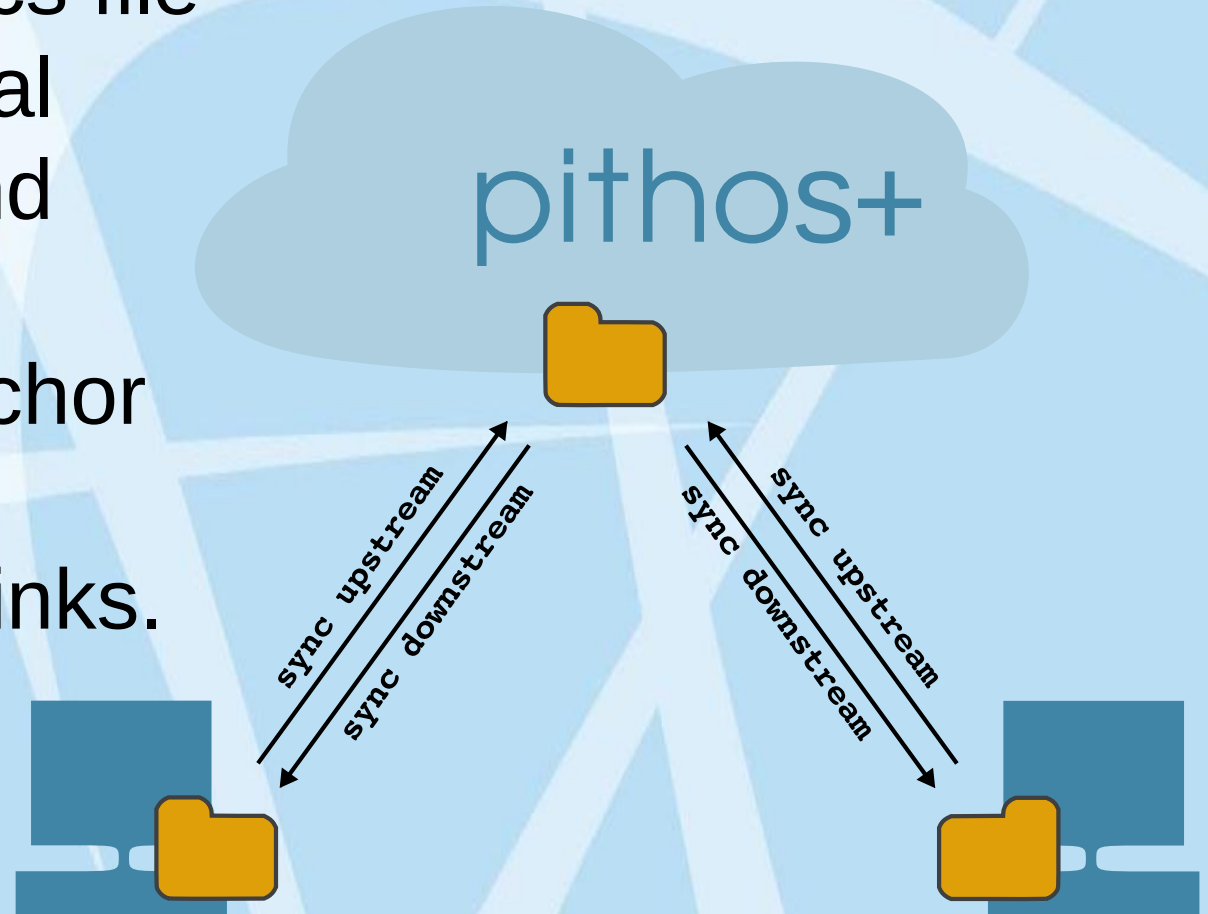
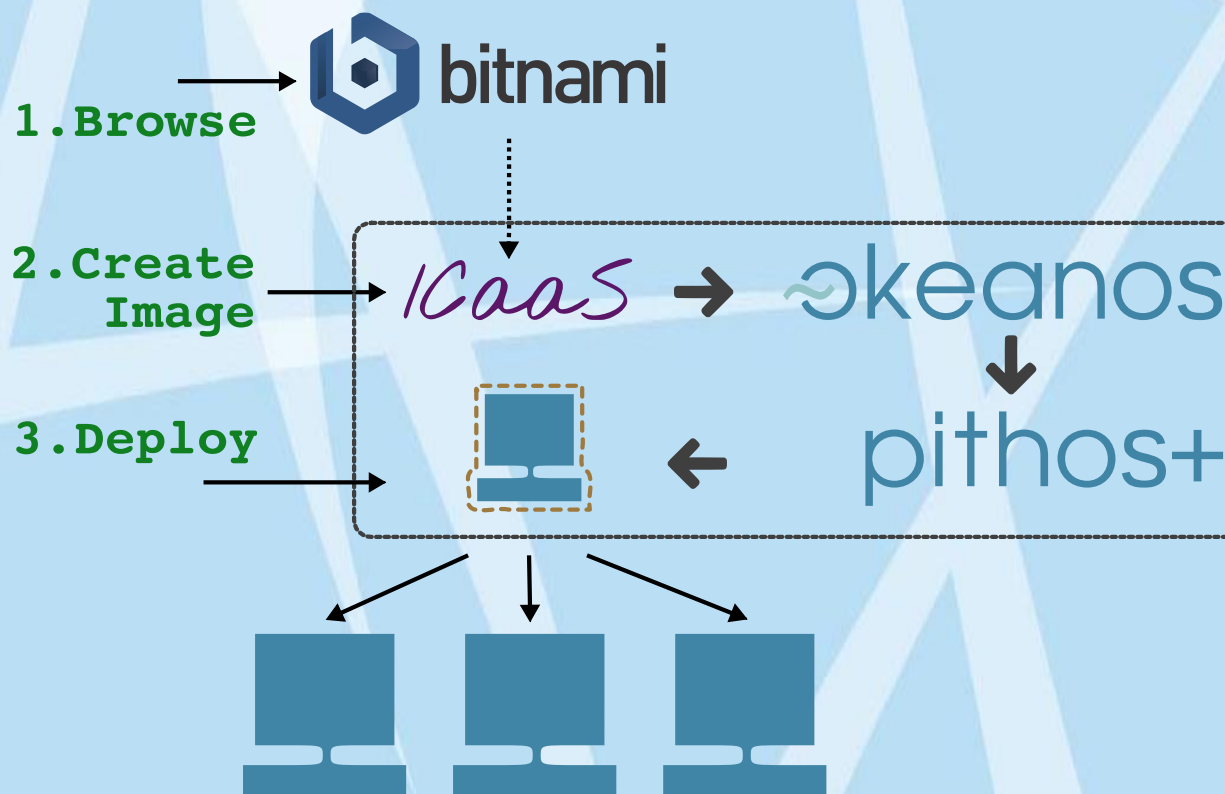
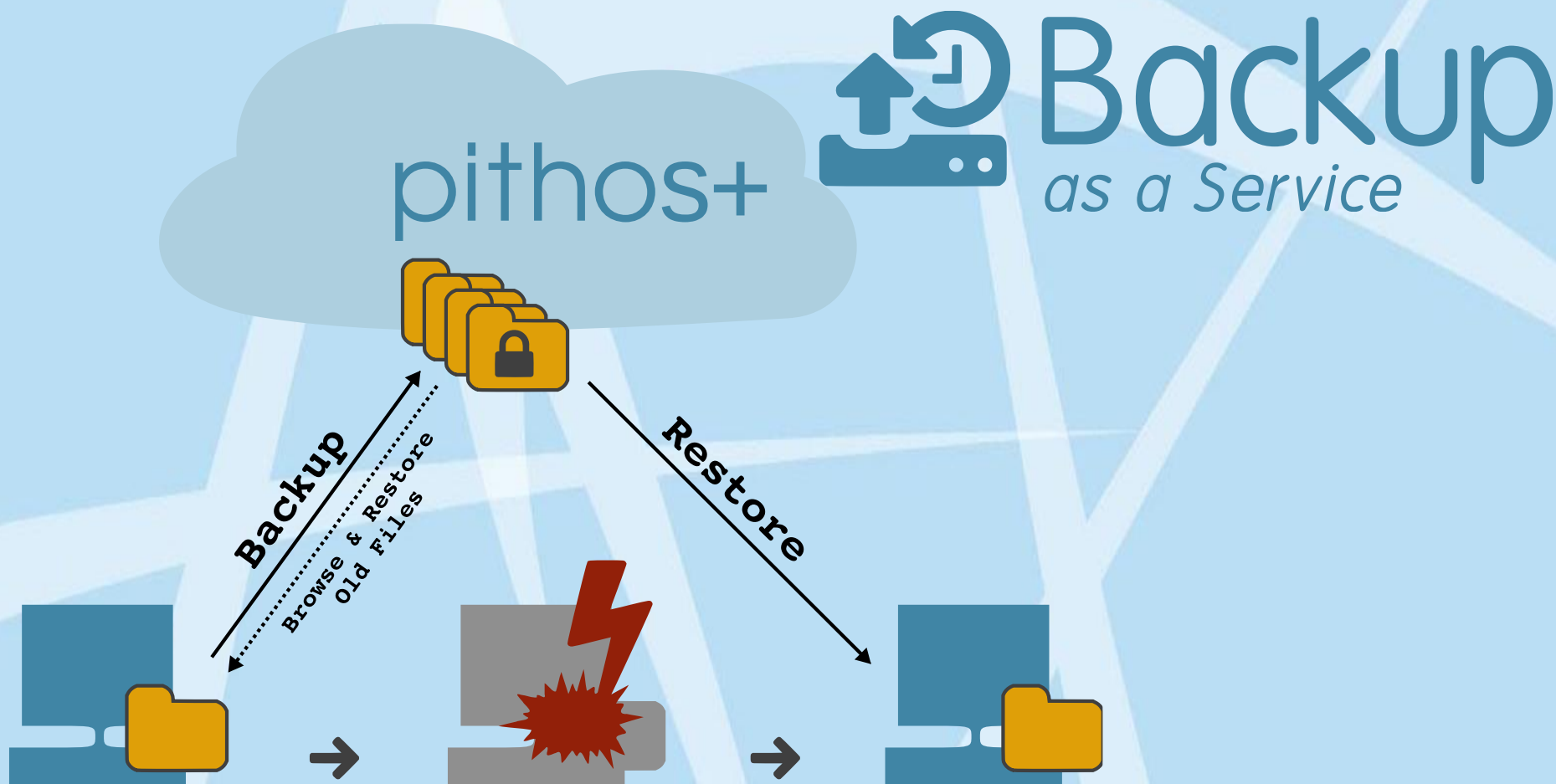


Image Creation as a Service (ICaaS)

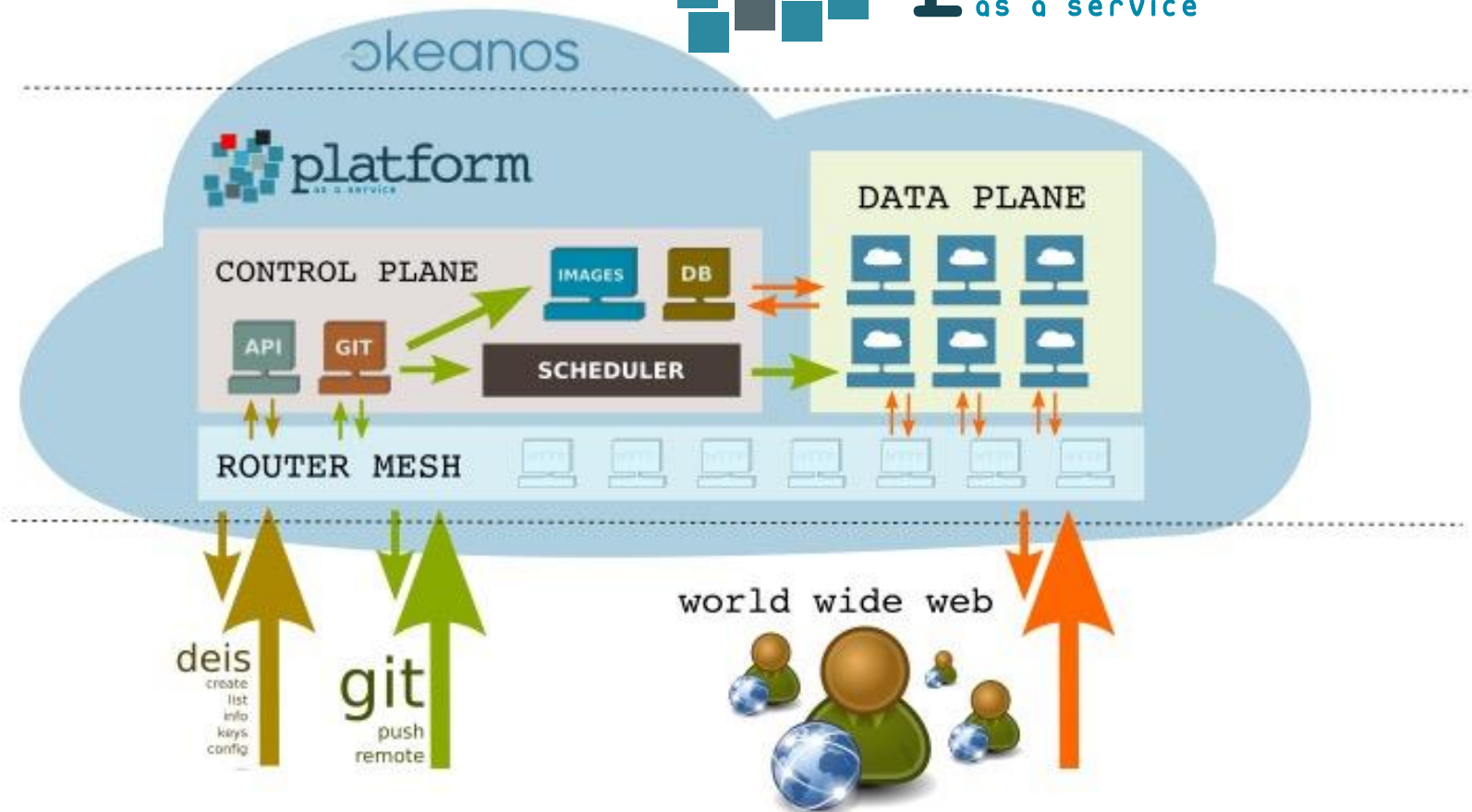


Backup as a Service (BaaS)



 **Backup**
as a Service

Platform as a Service (PaaS)



Synnefo and ~okeanos Releases



An open source cloud software written in Python and C

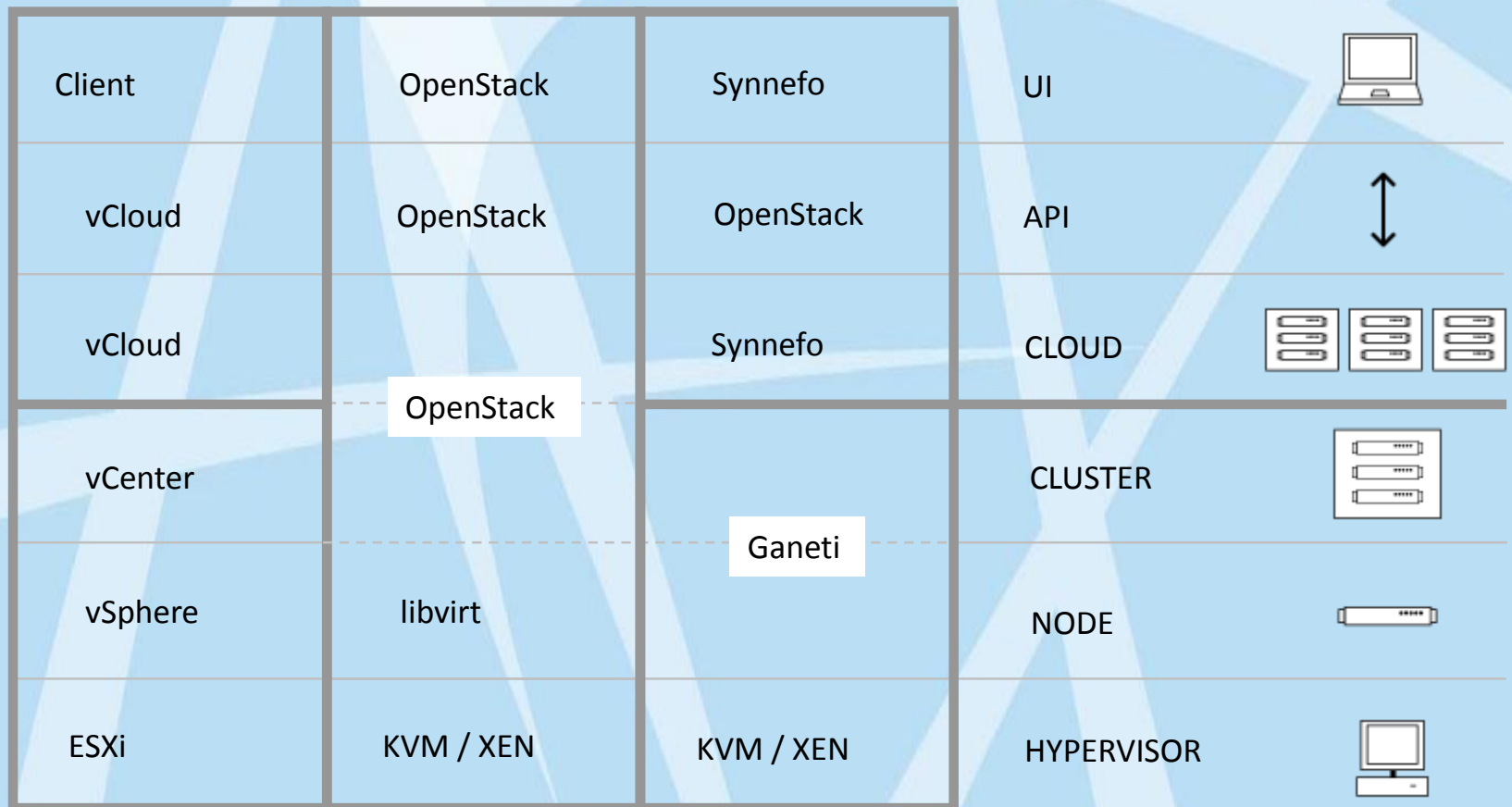
- Oct. 2010: implementation starts
- July 2011: v0.5.2.1 (powers ~okeanos alpha)
- 28.3.2012: v0.9
- 26.6.2013: v0.14.1
- 3.10.2013: v0.14.7
- 22.12.2013: v0.15rc1 (powers ~okeanos beta)
- 10.02.2014: v0.15rc5
- 14.02.2014: v0.15
- 11/2014: v0.16
- 12/2015: v0.17

Some Numbers

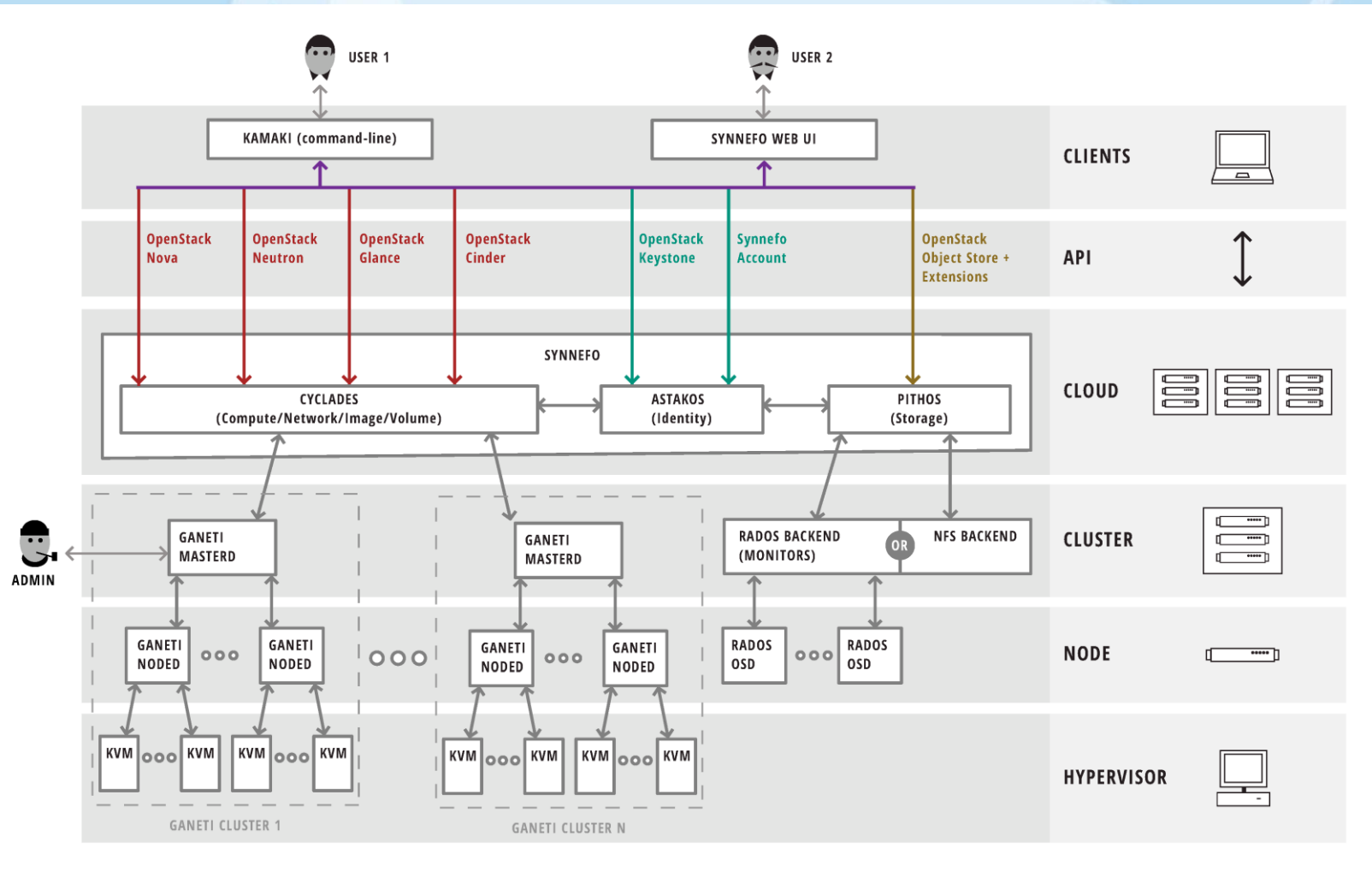
- VMs: > 4000 currently active
- ~500K VMs spawned so far (started/destroyed)
- ~120K vLANs spawned so far (user owned VLANs)
- Typical VM flavor (more than 340 flavors available!):
4 cores (vCPUs), 80GB Hard Disk, 4 or 8GB RAM
- 13 Ganeti Clusters, spanning a whole DC
- 1PB of raw storage capacity

- Capacity will triple in the next few months, as we are adding resources to three DCs!

Design



Architecture



Thanks

- Try it live at:
<http://oceanos-global.grnet.gr>
- Homepage:
<http://oceanos.grnet.gr>
- Software lives at:
<http://www.synnefo.org>
- Repository:
<https://github.com/grnet/synnefo>

 oceanos GLOBAL

 oceanos

 synnefo

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