

CLOUD COMPUTING

openstack™

UN PROJET OPEN SOURCE D'ENVERGURE POUR UN CLOUD OUVERT



FedereRez

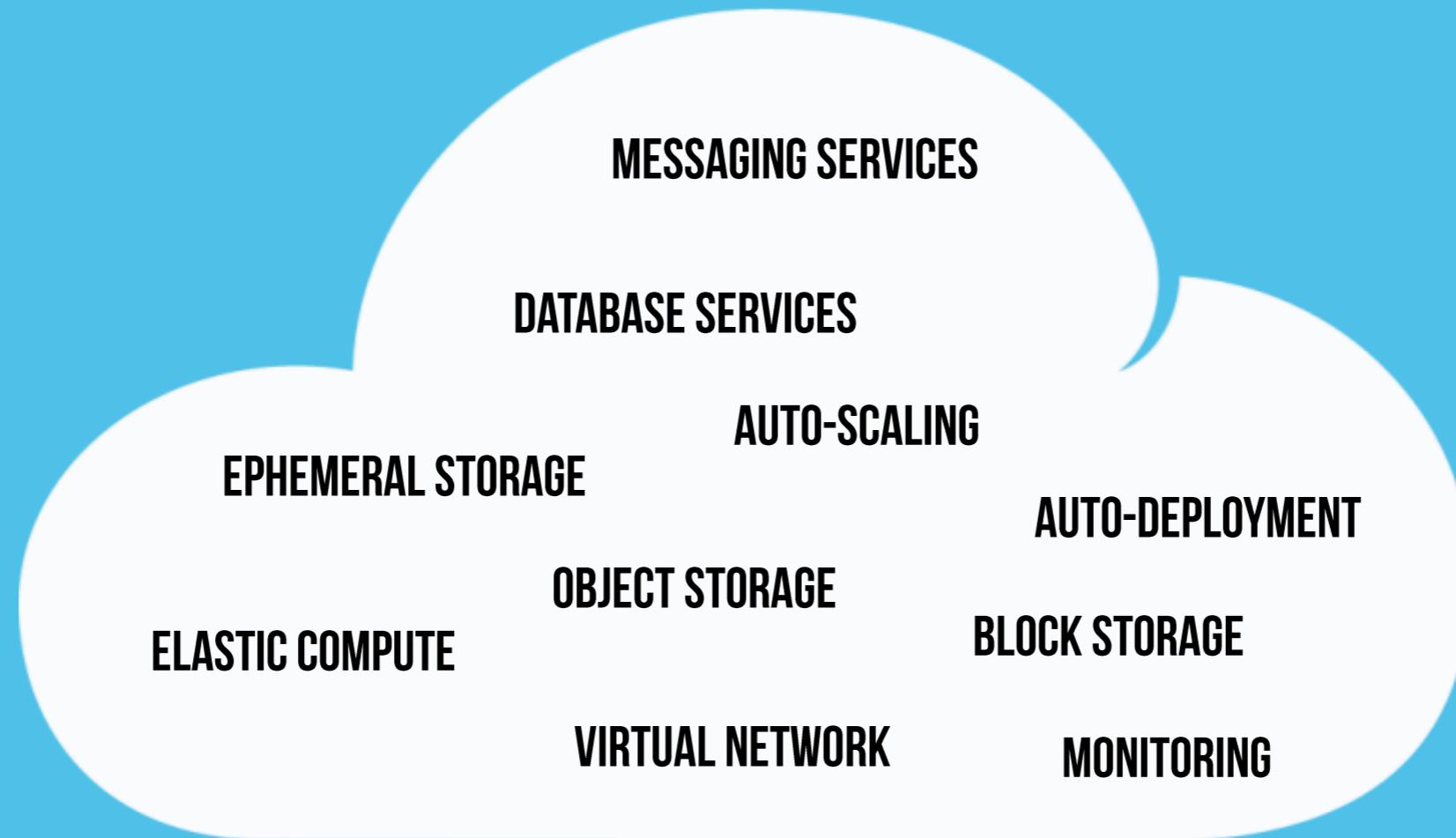
Journées 2014

#jfr2014

@CedricSoulas

CLOUD COMPUTING?

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ON DEMAND RESOURCES



PAY-PER-USE

xAAS

OPENSTACK

**WEB APPS
FOR END USERS**

SAAS

**TOOLS FOR DEVELOPERS
CODE & DEPLOY**

PAAS

**COMPUTE, STORAGE
& NETWORK**

IAAS

openstackTM

**NOVA GLANCE CINDER
SWIFT NEUTRON KEYSTONE**

openstack™

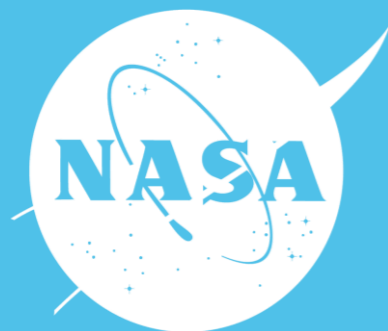
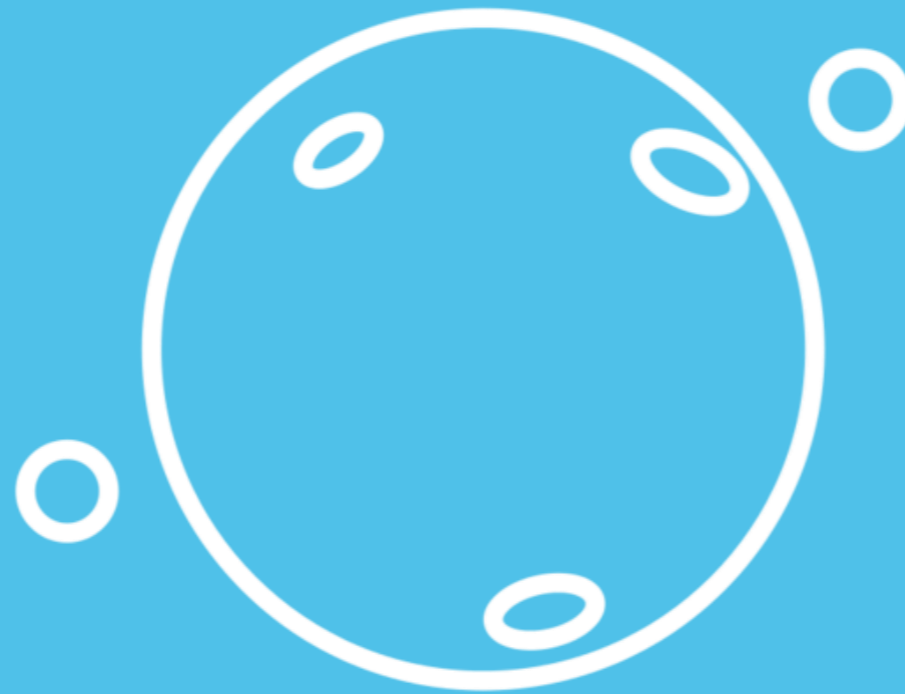
NOVA GLANCE CINDER
SWIFT NEUTRON KEYSTONE

Router-aaS, Firewall-aaS,
Load-balancer-aaS, VPN-aaS, DNS-aaS

Orchestration, Database-aaS,
Big-data-aaS, Messaging-aaS...

HISTORY

OPENSTACK



*“How to host and process
high-res Moon and Mars images?”*

Host on...

Amazon?

Google?

Microsoft?

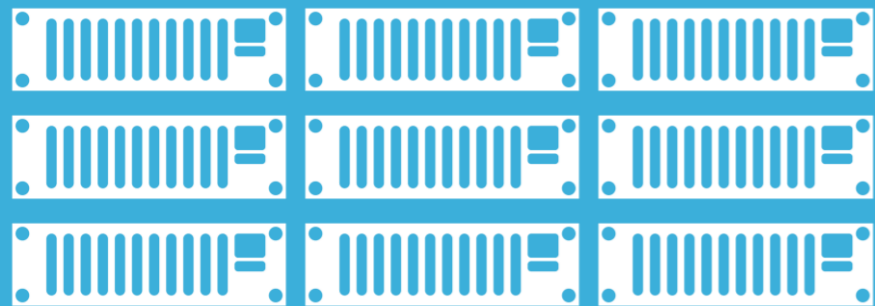
No.

Nasa built Nova



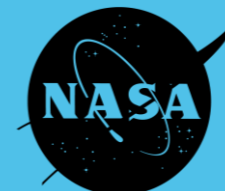
Nova

A cloud computing fabric controller
(like Amazon EC2)



On demand virtual resources

A project started by



MEANWHILE...

Rackspace was building Swift...

Swift

A highly available and distributed file store
(like Amazon S3)



Transparent file storage
from everywhere

A project started by  **rackspace**[®]
the open cloud company

TWO CLOUD COMPUTING PROJECTS?

Rackspace and Nasa discovered they had taken a strikingly similar technical approach.

And shared the same vision.

Swift

Nova

openstackTM

In July 2010, Rackspace and NASA jointly launched OpenStack under Apache License 2.0

COMMUNITY

OPENSTACK

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COMMUNITY GREW RAPIDLY

Monthly Contributors

2010

2011

2012

2013

400

300

200

100

0

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+1200 CONTRIBUTORS



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+ 1.3 MILLION LINES OF PYTHON



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**ONE OF THE WORLD'S LARGEST
OPEN-SOURCE COMMUNITIES**



AN OPEN SOURCE PROJECT...

**COMMUNITY STRUCTURE?
CONTRIBUTION PROCESS?**

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IS DIVIDED INTO +20 PROJECTS



Compute

Object Storage

Image Service

Identity

Dashboard

Networking

Block Storage

Telemetry

Orchestration

Database Service

Bare metal

Queue service

Data processing

Common Libraries

Infrastructure

Documentation

Quality Assurance

Deployment

Devstack

Release cycle
management

One project is

1 TEAM LEADER

Maintains milestone plans

+ CORE DEVELOPERS

Approve code for merging

+ CONTRIBUTORS

Anyone can submit blueprints and bugs
Anyone can commit and review code



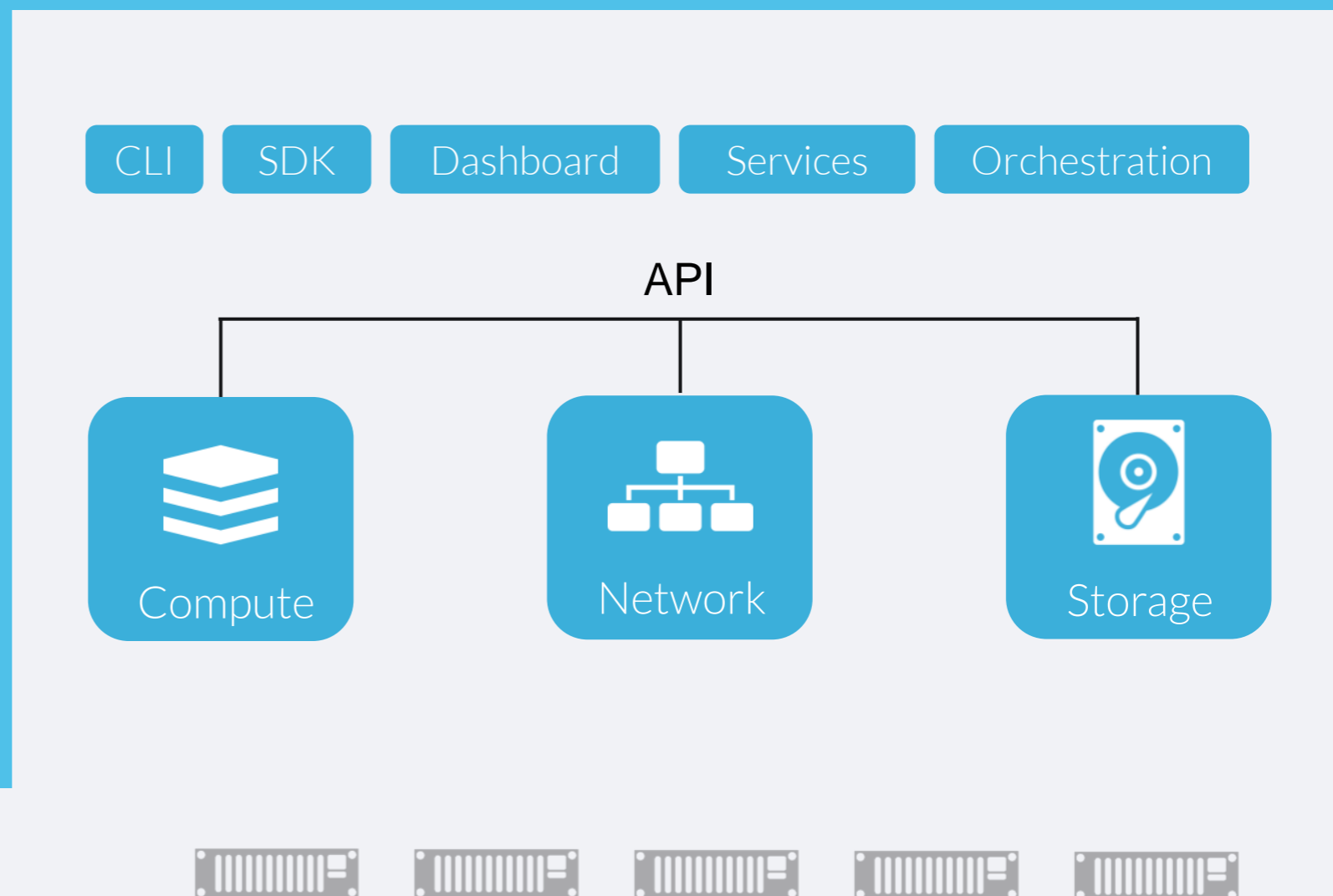
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A CLOUD OPERATING SYSTEM

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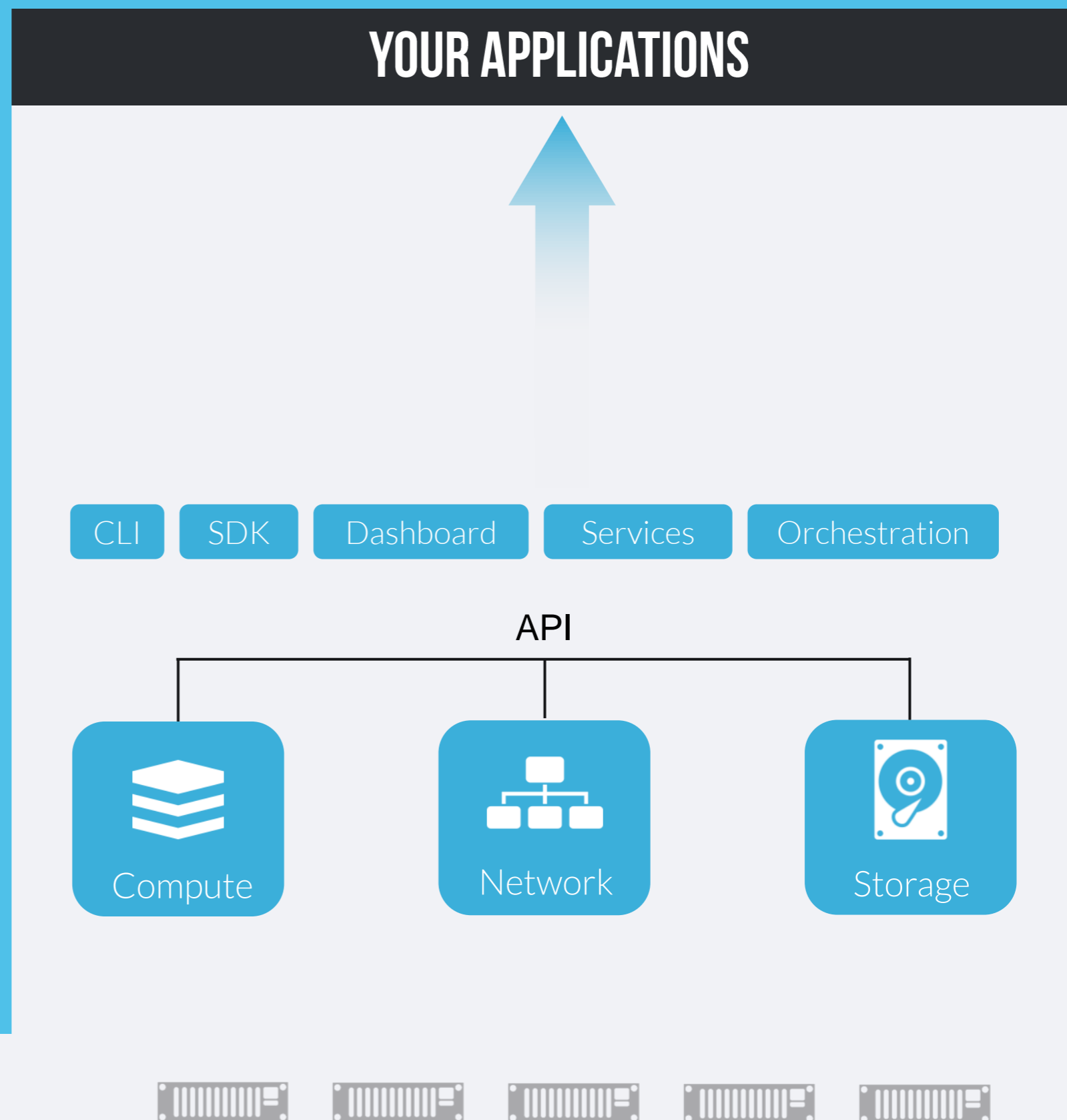
A CLOUD OPERATING SYSTEM

USING STANDARD HARDWARE



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A CLOUD OPERATING SYSTEM
USING STANDARD HARDWARE



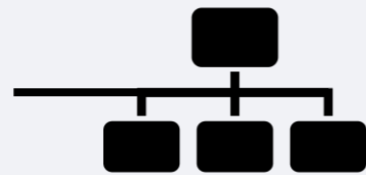
VIRTUAL SERVERS



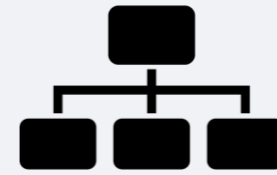
Flavor
4 vCPU
15 Go RAM

ON-DEMAND VIRTUAL NETWORKS

Internet



Public Network



Private Network

NETWORK SERVICES OUT OF THE BOX



Firewall



Router



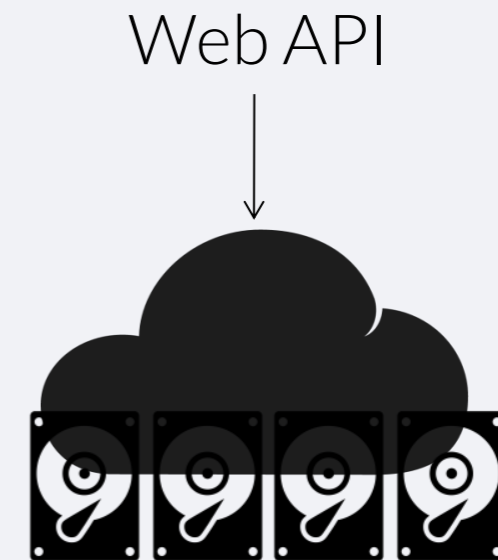
Load Balancer



VPN

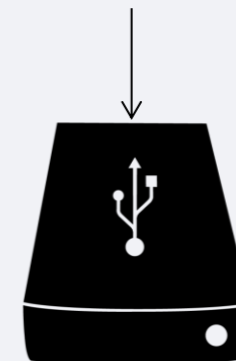
OBJECT STORAGE

- ✓ From anywhere
- ✓ Standards-based ReST interfaces
- ✓ To store file collections

**BLOCK STORAGE**

- ✓ Network-attached to one server
- ✓ Unformatted block device
- ✓ To store operating systems, databases, apps...

Virtual Server



DEMO

DASHBOARD & CLI



FedeRez

Journées 2014

BY THE WAY...

Cloudwatt is hiring python developers
(OpenStack team)

cedric.soulas@cloudwatt.com

Credits

- Mars by nikki rodriguez from The Noun Project
- Servers by Jaime Carrion from The Noun Project
- Lightning by Ryan Oksenhorn from The Noun Project
- Explosion by Bohdan Burmich from The Noun Project
- Rocket by Benni from The Noun Project
- Cloud by Paul Philippe Berthelon Bravo from The Noun Project
- Fonts: Lato and Bebas Neue
- Git contributors data from <http://www.qyjohn.net/?p=3373>