04/06/2015

-

Computing clusters, grids, clouds
Professor: Andrey SHEVEL
ITMO, St. Petersburg

Openstack disk storage
VS
Amazon disk storage

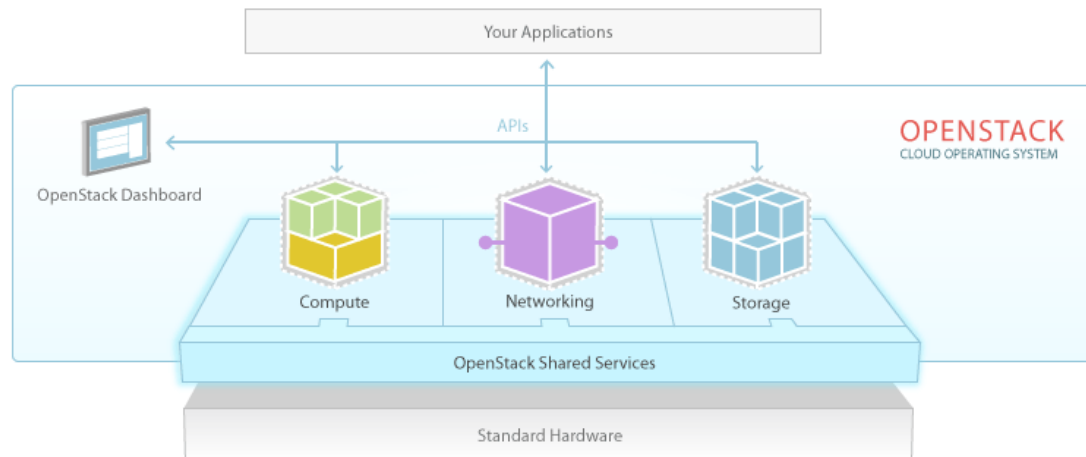Student: Jonathan PUCHER

-

Jonathan.pucher.pro@gmail.com

Contents

- What is Openstack?
- Amazon WS?
- Disk storage in the cloud?

- Openstack disk storage plans
- Amazon WS disk storage plans

- Openstack VS Amazon WS: the match!
- Who use them?

jonathan.pucher.pro@gmail.com

What is Openstack?

- Cloud operating system

- Open source

jonathan.pucher.pro@gmail.com

Amazon WS?

- Networking
- Computing
- Storage
- Database
- Application

- Amazon GLACIER, S3, EC2

jonathan.pucher.pro@gmail.com

Disk storage in the cloud?

- Ephemeral storage
  - faster, stable, but loss when instance down
- Persistent storage
  - Block storage
    - performance sensitive scenarios (as database storage, expandable file systems, or providing a server with access to raw block level storage)
  - Object storage
    - for large datasets

jonathan.pucher.pro@gmail.com

Disk Storage Plans

- Block storage: **CINDER**
  - interaction with other platforms (e.g. CEPH)
  - only with Openstack compute instances (full integration)
  - linux server storage
  - from VM
  - block storage drivers
  - through a block device (managing)
  - add storage to a VM

jonathan.pucher.pro@gmail.com

Disk Storage Plans

- Object storage: **SWIFT**
  - interaction with other platforms (e.g. CEPH)
  - driven by the REST API
  - supports Amazon S3
  - for large datasets + VM image
  - from anywhere
  - redundant, durable and scalable thanks to the software

jonathan.pucher.pro@gmail.com

Disk Storage Plans

- Amazon **EC2:** Elastic compute cloud
  - Amazon EBS: block level
    - General Purpose (SSD): default
    - Provisionned IOPS (SSD): consistent and low-latency performances
    - Magnetic: low speed, cost effective for large data
  - Temporary storage for instances
  - 4.5$ per month (reserved instances) up to 6.8$ per hour (storage optimized instance)

jonathan.pucher.pro@gmail.com

Disk Storage Plans

- Amazon **S3**: Simple storage service
  - via buckets, up to 5TB
  - object storage architecture
  - buckets retrived from REST/SOAP interface
  - interaction with other platforms (e.g. CEPH, Openstack)
  - 99.999999999% durability and 99.99% availability
  - around 0.03$/GB/month + charge when retrieving

jonathan.pucher.pro@gmail.com

Disk Storage Plans

- Amazon **GLACIER**
  - long-term storage
  - archiving data
  - high redundancy and availability
  - slow access time: 3 to 5 hours
  - low cost: 0.01$/month + charge when retrieving

jonathan.pucher.pro@gmail.com

The Match!

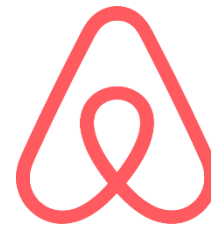| Openstack	Amazon WS
• Free	• Expensive
• Difficult	• Easy
• Open source	• More services
• No file-level storage	• Limited control
• Community	• Scalability

jonathan.pucher.pro@gmail.com
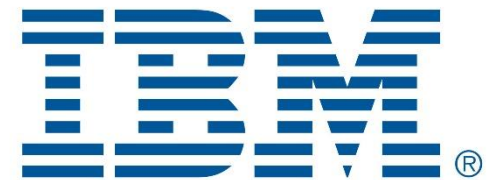
Who use it?

jonathan.pucher.pro@gmail.com

Who use it?

jonathan.pucher.pro@gmail.com

THANK YOU. QUESTIONS?

jonathan.pucher.pro@gmail.com