

Amazon Web Services S3 and EC2 Overview

François Deppierraz
`francois@ctrlaltdel.ch`

BarcampLausanne2

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Storage - S3

- Simple Storage System
- Based on HTTP
 - GET
 - PUT
- File size between 1 Byte and 5 GB
- Bucket ~= Directory in a flat namespace
- File visibility
 - public
 - private (crypto token required)

On demand computing power - EC2

- Elastic Computing Cloud
- Xen instances running on Amazon servers
- Local storage is not permanent
- Hardware abstraction

Hardware abstraction

- Xen virtual machine
- Multiple flavours
 - Small instance
 - 1.7 GB RAM
 - one 1 GHz Opteron
 - 160 GB harddisk
 - Extra large instance
 - 15 GB RAM
 - four 2 GHz Opteron
 - 1.7 TB harddisk

EC2 instance image

- AMI – Amazon Machine Image
- Stored in S3
- XML image description
- Split root filesystem
- `ec2-bundle-image`

Cost

- Instance time (by hour)
- Internet traffic (GB)
- Storage (GB*month)
- Number of queries
 - GET
 - PUT

Drawbacks

- EC2 local storage is **not** permanent
- Dynamic IP address
 - DNS difficulties
- Permanent storage only on S3
 - no POSIX filesystem (well, except fuse-s3...)

Drawbacks (bis)

- “**Reliable**: Store data durably, with 99.99% availability. There can be no single points of failure. All failures must be tolerated or repaired by the system without any downtime.”

source: <http://aws.amazon.com/>

- Amazon accounting system
 - 15th February, 3 hours outage

How does it work ?

- Official developer tools
 - CLI
 - written in Java
- Python
 - boto
- Ruby
 - aws-s3 and amazon-ec2

Slashdot effect ? No problem

```
$ ec2-run-instances -n 100 ami-2bb65342
```

```
$ sleep 300
```

```
$ HOSTS=$(ec2-describe-instances | egrep  
"INSTANCE.*running" | awk '{print $4;}')
```

```
$ for h in $HOSTS
```

```
do echo "www IN CNAME $h." >> myzone
```

```
done
```

```
$ ndc reload myzone
```

Demo

- Finding the right AMI
 - `ec2-describe-images -o amazon -o self`
- EC2 instance launch
 - `ec2-run-instance -k SSH-KEY AMI-ID`
- Listing instances
 - `ec2-describe-instances`