Django on AWS

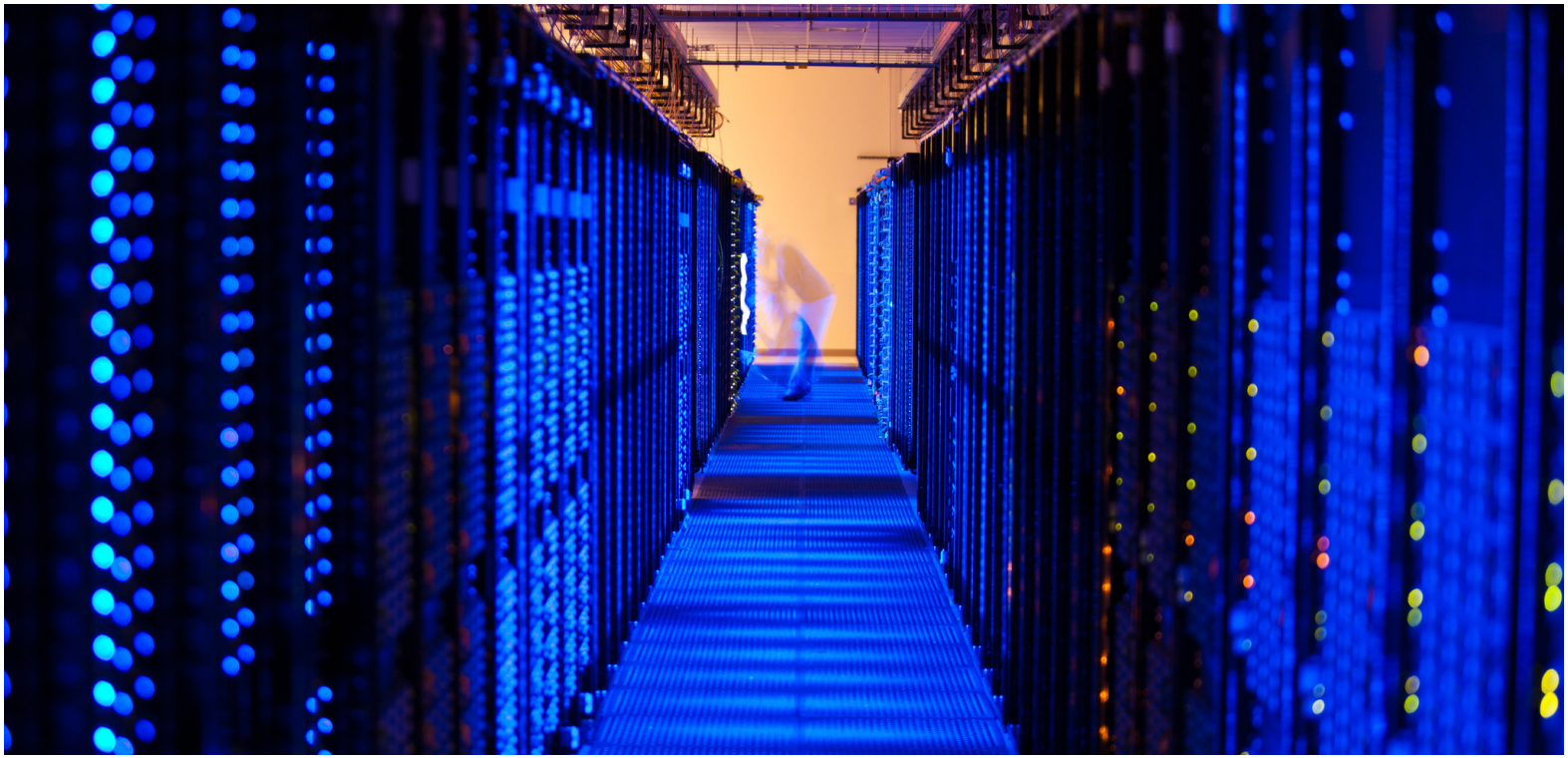
Adam Johnson - me@adamj.eu

14 December 2015

What is AWS?

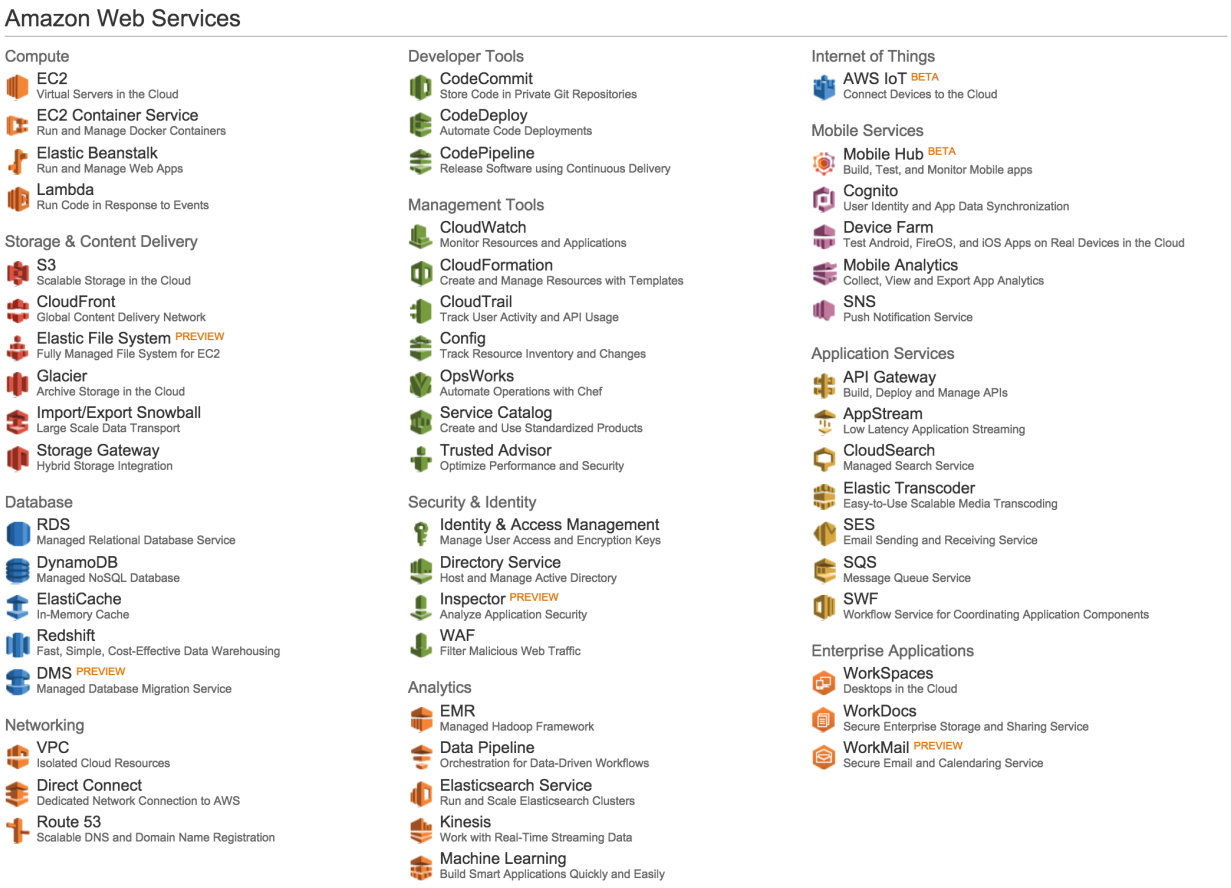
- Amazon Web Services, the biggest cloud service provider
- Who is using, or has used, AWS? With Django?

What is AWS?



Services

- Hundreds of services!
- Compute, database, queueing, DNS, auditing, git repos, email, ...
- Some high level, some low level. Typically Django apps use more of the low level stuff.



EC2

- **Elastic Compute Cloud**
- Virtual servers, with a dizzying amount of options.
- Use in a Django app: web servers, task servers, and other services e.g. monitoring.
- Treat them as ephemeral - use automation so you can launch a new server within minutes. They aren't guaranteed to last forever.

RDS

- **Relational Database Service**
- Managed database servers - all the major Django DB's available: MariaDB, MS SQL, MySQL, Oracle, PostgreSQL.
- Important features: solid backups with easy restore, automated operations such as adding read-replicas, and redundancy.
- Don't run your database yourself on EC2 unless you have very specific requirements - hard to build the same robustness as RDS.

S3

- **Simple Storage Service**
- Like a filesystem, but with unlimited storage and guaranteed high durability (99.999999999%).
- Store things that don't go in the database - Django's static and media files.
- Storage backend `S3BotoStorage` from `django-storages-redux` makes it really easy.

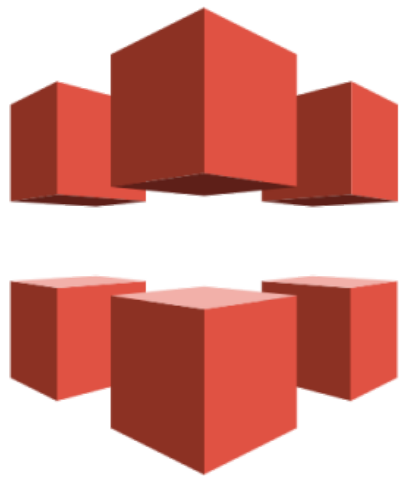
S3 to the internet

- S3 can serve direct to the internet itself, which often works, however it is not fully featured, e.g. it won't gzip assets if the client can use them.
- Easy to configure your webserver to sit in front of it though, e.g. `nginx`:

```
location /static/ {
  proxy_hide_header x-amz-id-2;
  proxy_hide_header x-amz-request-id;
  expires max;
  proxy_pass https://s3-eu-west-1.amazonaws.com/my-bucket/;
}
```

Cloudfront

- Content Delivery Network (CDN) - faster delivery of your content via private global network with "edges" that cache and serve to clients
- 54 locations worldwide - 3 in London!
- Makes your static assets faster
- Can also speed up your dynamic content - no caching, but private network still give a speed boost



IAM

- **Identity Access Management**
- Create users for your account, allow login with password or API key, grant granular permissions
- Some security hints:
  - Never use your root account
  - Activate Multi Factor Authentication on all accounts
  - Use EC2 IAM Roles - permissions automatically granted to machine, no password required in your Django settings!

YPlan on AWS

Pretty much as I've been discussing:

- MySQL on RDS
- Static and media assets in S3, served via Cloudfront and webservers
- Web and Celery on EC2: each build, we freeze an Amazon Machine Image (AMI) for each deployment using Ansible - all code, dependencies, etc. included. AMI deployed as multiple instances in several Autoscaling groups.
- Memcached in EC2 autoscaling group too - **Elasticache** became annoying

AWS vs other cloud providers

- Most Cloud providers have equivalents of EC2 and S3 - in fact often API compatible.
- However can lack other services. AWS tend to build every little thing to attract all types of customers, however it makes things very complex.
- Might be a bit more $ per CPU cycle, but imo the added value from services is worth it

Thank You

- My blog: adamj.eu/tech/