Why is devops tightly coupled with the cloud

What is the cloud ?

- what is a SaaS ?

- what is a IaaS ?

- what is a PaaS ?

- We are mostly going to talk about IaaS

So how is IaaS born ?

- Iaas was born with virtualization

- But virtualization is not new !

- in 1972 IBM invented hypervisors (VM/CPS 370)
  - This was the birth of virtualization

- in 1998 VMWare was created

- Amazon EC2 went in beta in 2006, production started late 2007

A focus on AWS

- Virtualization API: access to computing power by an API

- And a bit more !

- EC2 is a server factory !

- AWS is not only EC2
    - You probably already heard about S3
    - Other services developped over time (load balancers, databases, queues, caches, dns, mailing …)

So what's new ?

What's new: Technically

- network unification (in amazon only one IP per hosts, no more juggling between IP addresses)

- no more hardware to manage (but someone is still doing it !)

- OS configuration streamlined, we have now identified the bare minimal

- Easier focus on delivering applications

What's new: Scaling

- Can scale …

- Scaling is also hardware (a rack is limited to 42U)

- Scale up: unplug ip and disk, get more horse power, plug back ip and disk, running again !

- But Scale out is better: horizontal scaling (not always easy)

- And can also scale down (both ways we used to scale up)

What's new: Scaling (continued)

- Scale down, you're thinking about long term

- With previous concepts, but a bit further: you can scale up and down everydays

- Jumping from capacity planning (predict money spendings) to capacity optimization (predict money savings)

- Traffic spikes in years for your buisness (it's christmas !)

- This is a new way of thinking, it's a new culture ! ("don't repair, replace", "don't update, replace")

What's new: Availabilty

- I can launch now, a server in asia, euope, and america, and have them all ready in 5 five minute

- New deployement patterns with less (or no) downtime

- Some services are already highly available (S3, ELB)

- But don't lie: HA is also harder with no network control

What's new: Organization

- This type of scaling and availabilty saves you some $ (compared to traditional methods)

- Dev can spawn environements on demand, don't wait for your IT service !

- One infrastructure per project, disconnected from others infrastructures, better focus

- Company can know how much any project costs, for integration, for prod

- Cloud is cool for trainings !

- A place to collaborate with customers

But cloud is not only happiness

- No multicast

- I/O is expensive

- No adding of network interface

- Beware of vendor lock-in

- Poor customization

- Unpredictible network performance

- HA is also harder

Then things continued to change

- new services (blitz.io, contiunous.io, saucelabs, cloudbees, loglly, pagerduty)
    - they were able to launch their service thanks to the cloud
    - they help you build your own service, with the cloud, for the cloud

- more and more services

- lot of new projects (more generic, horizontally scalable, new filesystems)

- PaaS birth

New Challenges

- Infrastructure aware applications

- Roaming data stores and databases

- Horizontal scaling needs to abstract state, do stateless where ever you can

Thanks ! Questions ?