DNS Belgium in the cloud

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Status early 2015

- Last hardware renewal : 2011
  - Big bang migration
  - New hardware / network design / storage solution / colo
  - Lots of vendors to manage

- Go for another big bang ?

- Do we really need our own hardware ?

- Why not use the cloud ?
Main drivers for change

- Configuration drift (Test vs. Prod)
- Long lead times (e.g., patching)
- Difficult hand-overs Dev-Ops
- Infrequent deployments
- Lots of fire fighting, little time for fire prevention
- Aging hardware
Classic model for registries: DIY

RAR
- Modules Registration System
- Third party software
- Virtual Machines
- Hypervisor
- Host OS
- Server Hardware
- Networking

RANT
- Application servers
- RDBMS
- Storage

CUSTOMER SUPPORT

Focus
- Dev
- Ops

Focus
- Out-sourced
- In-house

Power
Physical space
Connectivity
Extra layer

Focus Engineering

Security

RAR
RANT
CUSTOMER SUPPORT

Modules Registration System
Third party software
Application servers
Orchestration & Config Mgmt

In-house

Out-sourced

Virtual Machines
Hypervisor
Host OS
Server Hardware
Storage
Networking
Power
Physical space
Connectivity

RDBMS

Security

Security
Initial assessment of AWS

- **Initial tests:**
  - Get to know Amazon Web services (AWS)
  - Proof-of-concept

- **Risk assessment**
  - Technically feature complete?
  - Confidentiality, Integrity, Availability?
  - Legal risk assessment

- **Performance tests**

- **Cost assessment**
  - Man days
  - €
Infra-as-code: building blocks

Git repos:
- Puppet modules + config
- In-house software
- Cloudformation templates
Oracle – multi-AZ RDS

- On-prem
  - Both RAC nodes in same DC
  - Manual fail-over to stand-by instance
- AWS: multi-AZ RDS
  - Synchronous Replication
  - Automatic & Transparent Fail-Over
RDS & Database migration

- Amazon RDS = enormous time saver!
- No OS level access on Amazon RDS => DataGuard etc not an option
- Amazon Database Migration Service (DMS) was too immature for the migration (now better)
- Used complex Oracle Datapump export / import sequence instead
- Temporarily up-scaled Oracle instance
- Final export / transfer / import / verify: 2.5h
Experience after 12 months

- RAR’s dealt well with change of IP addresses
- Very satisfied with quality of service & docs
- Zero performance or availability issues
- Infrastructured is continuously improved by AWS (both performance and features) requiring zero effort from us
Next steps

• Disaster Recovery site in another region

• Fully automate Continuous Delivery Pipeline

• Blue / Green deployments

• Nameservers in the cloud ?

• Multi-cloud ? (e.g. AWS + Google+……+…+…)

• Serverless architecture ?
The team

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