

Case Study

AWS Infrastructure Database Design & Development

Provisioning the AWS infrastructure for running a web app that uses the Neo4j database.

AWS CLOUDFRONT CDN

AMAZON LOAD BALANCER

AMAZON EC2 AND EBS

KUBERNETES

NEO4J DB

DOCKER

ANSIBLE

JENKINS



Case Info



Location:

France



Industry:

Mobile app and web development



Partnership period:

3 weeks in December 2017



Team size:

2 people



Team location:

Kharkiv, Ukraine



Services:

Cloud Infrastructure Design and Development, DevOps-as-a-Service, Web Development, Product and Infrastructure Monitoring



Expertise delivered:

AWS Cloud Administration, DevOps services, Microservices and Containerization, DevOps Support Team, Cloud Monitoring Solutions



Technology stack:

AWS CloudFront CDN, Neo4j DB, Amazon Load balancer, Amazon EC2 and EBS, Kubernetes, Docker, Ansible, Jenkins



Client's goals

The customer wanted us to **analyze the existing system configuration**, come up with recommendations on ensuring its stable performance and implement the whole structure. We explored the existing solution and understood the main limitation was the lack of built-in scalability and redundancy features for Neo4j, so this had to be provided externally.

The main challenges were the following:

- **Ensuring the redundancy** for Neo4j database
- The **app itself was under development**, so the final number of modules, their size or mode of interaction was unknown
- **The system had to be scalable**, secure and easily configurable



Design and implementation
of AWS cloud architecture using
Neo4j database



Ensuring the system
security and **scalability**



Developing the scripts
to **automate the**
product deployment

Project requirements

IT Svit team had to deliver the following list of tasks:

- Design the cloud architecture for deploying a web solution, using a specific database - Neo4j
- Ensure the system scalability and fault-tolerance
- Ensure the system security and redundancy
- Prepare configuration and deployment scripts and guidelines

Project results

We have accomplished all the tasks within time and under budget. IT Svit team has achieved the following results:

- We ensured the system scalability through using **AWS Cloudfront CDN for front-end** scaling and **AutoScaling groups for back-end** cloud infrastructure components
- The system is protected with a **bastion host**, ensuring the security of access
- The application runs on **several nodes** located in various Amazon availability zones behind an **Amazon Load Balancer** to ensure optimal performance
- The **system is modular**, so even if one component fails, it does not impact the system performance and **the faulty component is rebooted automatically**



Challenges resolved

We knew that application consisted of the following components: Customer-facing UI, API, and a Neo4j database. To implement the required solution we've split the application deployment into three parts:

- **Amazon S3 storage** behind the Amazon CloudFront CDN for Frontend part
- **Several API instances** in different Availability Zones behind the Amazon Application Load Balancer (ALB)
- **An Amazon Elastic Compute Cloud (EC2)** instance for Neo4j database engine with Amazon Elastic Block Store (EBS) volume attached for data persistence

Both the UI and the API parts operate in private networks, protected by Amazon CDN and Amazon ALB. This way the origin instances where the application is running are not available directly from the Internet. A bastion host is used for management tasks.



The AWS infrastructure has been extremely successful. Everything that they did and that they set up has been working flawlessly. Every time we set or agreed on a deadline, every time we asked them to do something within a certain amount of time, they stuck to it

Managing director
at Everdapt

About Us



BIG DATA



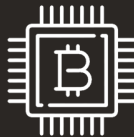
DEVOPS



MACHINE LEARNING



WEB DEV



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STARTUPS

For more than **12** years IT Svit helps the companies worldwide innovate and overcome their challenges. We have completed more than **600** projects, delivered successful projects for **6** Fortune 500 companies, helped **16** startups secure the investment and develop awesome MVPs. Our team of **50+** specialists provides services that earn **4.9** out of 5 customer satisfaction on Clutch.co.

IT Svit specializes in DevOps services, Big Data technology, Machine Learning, bespoke Blockchain platforms, full-cycle services for startups, web development and QA.

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