Development of Business Intelligence framework and set up of DevOps team for brokerage Compensation Company

Reducing deployment times from months to seconds

PSL Latin America HQ
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Client
Leading provider of sales management software and performance measurement system solutions

Industry
Financial Services

Country
United States

Solution
Custom Application Development

DevOps team

Methodology
Lean Software Development

Core Technologies
Angular

Twiter Bootstrap

DevXtreme

Maven, Grunt, Npm

JUnit, Protractor, Cucumber

Spring, Java

Amazon Web Services:

VPC, EC2, AMI, ELB, Auto Scaling, RDS, Route53, S3, CloudFormation, EMR

Spark, Hadoop Filesystem HDFS, Elastic Search

Docker, Mesos Cluster

- 22 person distributed development and DevOps team
- Deep communication and collaboration with client

Context

The client, a leading provider of sales management software and performance measurement system solutions for the financial services industry, came to PSL with two main needs:

The first one was to integrate and expose a large volume of data (millions of data per day) from different sources in a single repository where they could create dashboards for decision making. They needed to create a framework that could present new content very quickly and add value to their customers.

The second objective was to set up a DevOps team to provision and maintain the infrastructure to deploy this application in the cloud with all the related requirements of scaling, security and networking.

The team would need to create an application that generates the UI based on models. If users wanted to add new features on their dashboard they would be able to modify a model and see the impact straight away.

Functionality Overview

One of the main problems the client had before was that the time to market to add a new functionality used to be months. This lack of speed, if not improved, could make them loose market share. The client needed to deliver new features as soon as possible.

Many changes would need to be implemented in order to increase the reaction times for adapting to the market´s needs. Before, the customer used to set up their own physical infrastructure but made the key decision to stop investing on

hardware as it wasn't part of their core business. The costs were too high, having to pay for real estate, hardware, maintenance and personnel. Thus, they made the choice to move to the cloud for new applications while they kept their existing applications on their current infrastructure.

This change in philosophy meant to adopt a completely different way to work as their physical environment would evolve to become a totally dynamic cloud based environment.

The platform is now able to provision the infrastructure and deploy the application. With one click the team can deploy an environment with all the related requirements of security, networking and migrate customers gradually.

The infrastructure is versioned as code, this lets the client and PSL deliver new functionalities without any problems between environments. Continuous integration and continuous delivery were adopted in order to accelerate deployment time.

From the developer´s commit, all tests are automated so the build is stable right after it is done. The more this process is automated the more certain the team is the version is stable to deploy without doing a full regression test which is very slow and expensive. Time is invested automating tests instead of manually doing them.

When the new version of the application is deployed a physical image of the server is automatically created so a newly deployed environment will always have the same configuration. In general, all the infrastructure that supports the servers working together is generated via code. The infrastructure is created by setup scripts which launch the whole environment: Networks, load balancers, security, and auto scaling rules.

The team also implemented their own discovery service using HAProxy inside each service. With this approach they were able to distribute the load balancing instead of having a single service in charge of both.

We have been incredibly impressed with PSL's technical competency (working with us on a very complex project), their communication skills (brining multi-lingual resources to our project) and their ability to transform our requirements into a successful ongoing project.

CEO

Remote team composition and collaboration mechanisms

Since the client´s tech team is distributed along the US, they are used to working remotely. In order to facilitate communication with PSL a set of tools and methodologies were adopted from the client such as IP phones and Lync for calls. LucidCharts was used to communicate through diagrams which helped to improve documentation with a common language and keeping references without losing speed. All of this in addition to some tools

normally deployed in our projects such as Bamboo for continuous integration on the cloud, Jira and Confluence.

Due to the highly volatile characteristics of requirements and new DevOps technologies, the team has adopted a Lean Software Development methodology with it´s main focus on fast delivery and eliminating waste (of time). This methodology strives to generate, prototype and test hypothesis in the fastest and cheapest way for the project.

Client´s side team:

- Lead Architect (Client): US remote
- Business Analysts 2 (Client): US remote
- Lead Stakeholder (Client): US remote

PSL BI team:

- 2 Tech Leads for frontend deployment and connection to the backend
- 2 Tech Leads for the back-end
- 8 frontend developers

PSL DevOps team:

The DevOps team is composed of full stack developers proficient in front-end, back-end technologies, continuous delivery, infrastructure, security and networking.

- 1 Architect/Product Owner
- 1 SCRUM Master / Project Manager (as the project does not fit exactly with SCRUM due to the continuous communication, implementation, verification, improvement) daily delivery of features/versions.
- 5 DevOps engineers
- 2 DevOps and ETL engineers
- 1 Automation Configuration Manager for Continuous Integration and Delivery

Results

Bottom line: This new BI framework has reduced time to market from months to minutes and pretty soon will reduce it to seconds. This allows the client to launch new applications for their customers whenever they need it. The platform currently processes 3.8 millions of records in less than 15 minutes.

With the automated deployment the customer is certain that new versions of applications will work exactly the same on production environments as on a development environments. Downtimes have decreased significantly thanks to cloud infrastructure and auto scaling, auto repairing server's configuration.

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