REST Assured utilized for REST APIs

Quick Read

The client has developed a powerful platform to optimize the marketing mix and campaign planning strategies using smart, data-driven decisions in marketing, sales, and pricing.

Context Summary

In presented case study the platform architecture uploads analytical data sets on MongoDB. To store the data sets in cache, we have used Redis server. With the help of REST Assured, we have made assertion for the REST calls.We have created the REST Assured on TDD as well as BDD architecture using Cucumber.

Reporting has been done using JUnit/TestNG. For the CI, we have used GitLab pipelines and for CD, we have used Jenkins Boxes. With every code commit from dev team, CI automatically get triggerd and creates a pass/fail build for the same.
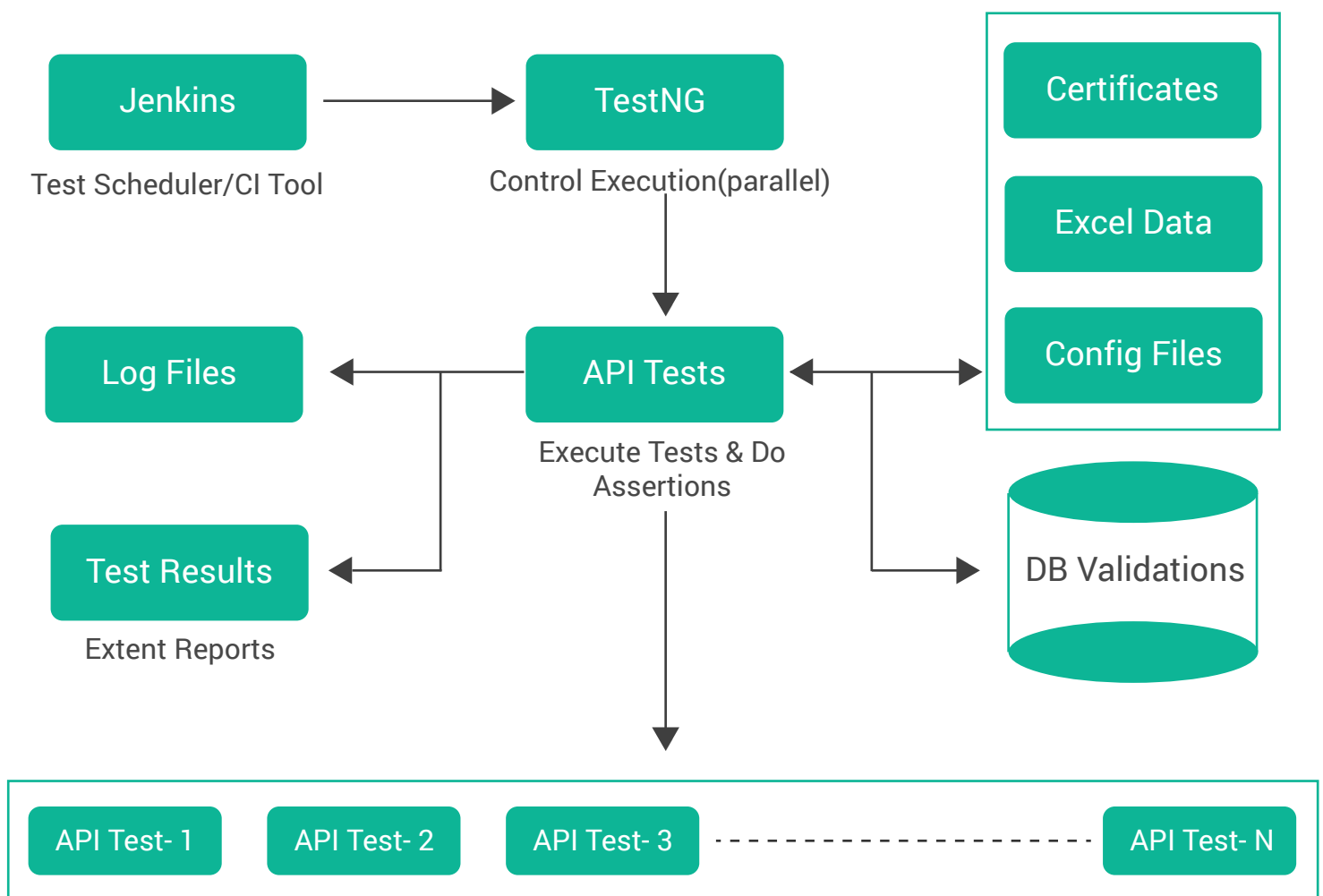
We have deployed API engines on AWS Load Balancers.
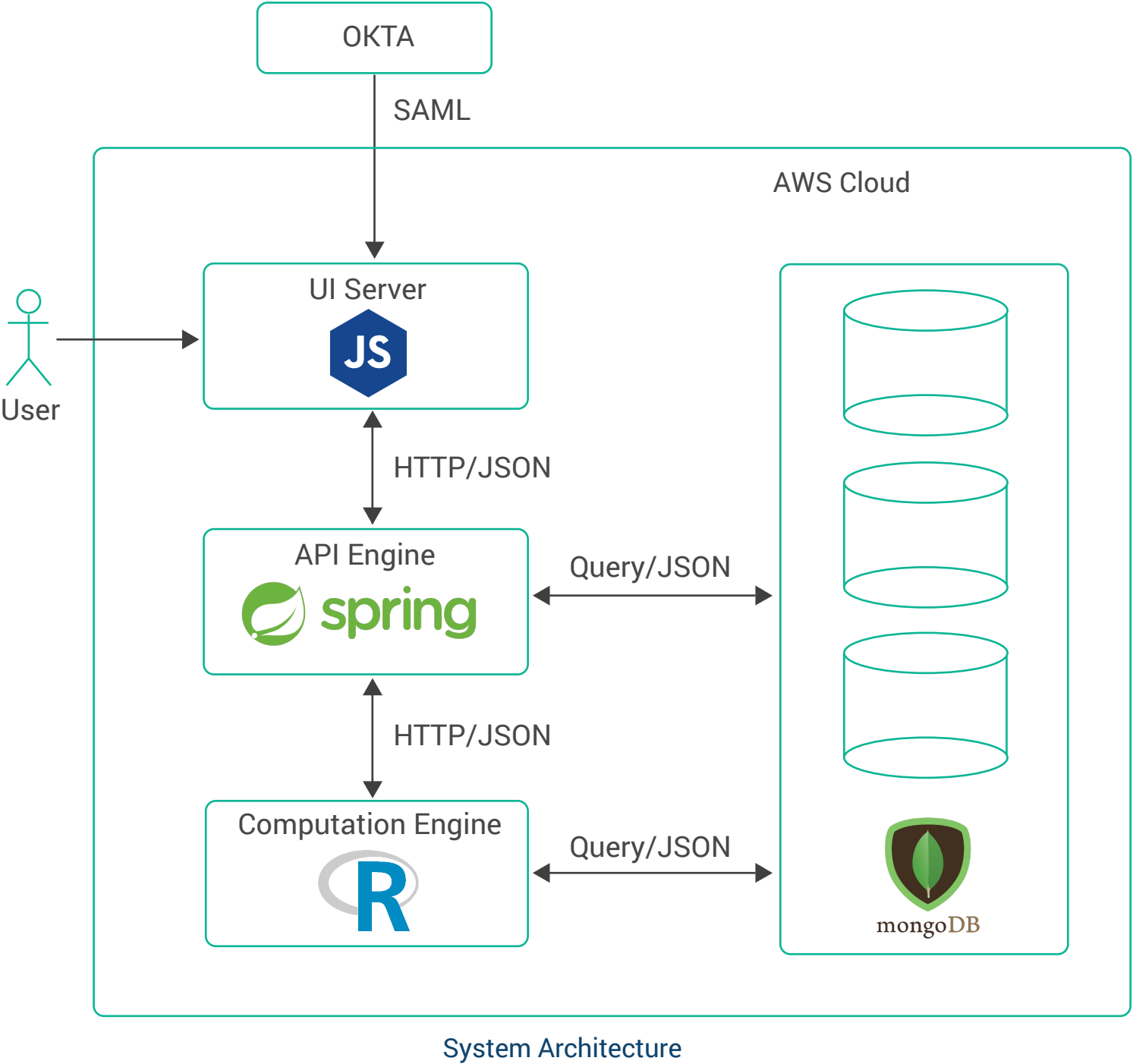
Solution Approach & Methodology

REST Assured is an open-source Java Domain-specific language (DSL) that makes testing REST services simple. It simplifies things by eliminating the need to use boiler-plate code to test and validate complex responses. It also supports XML and JSON Request/Responses.

We have created complete framework to test the service level test cases using REST Assured.
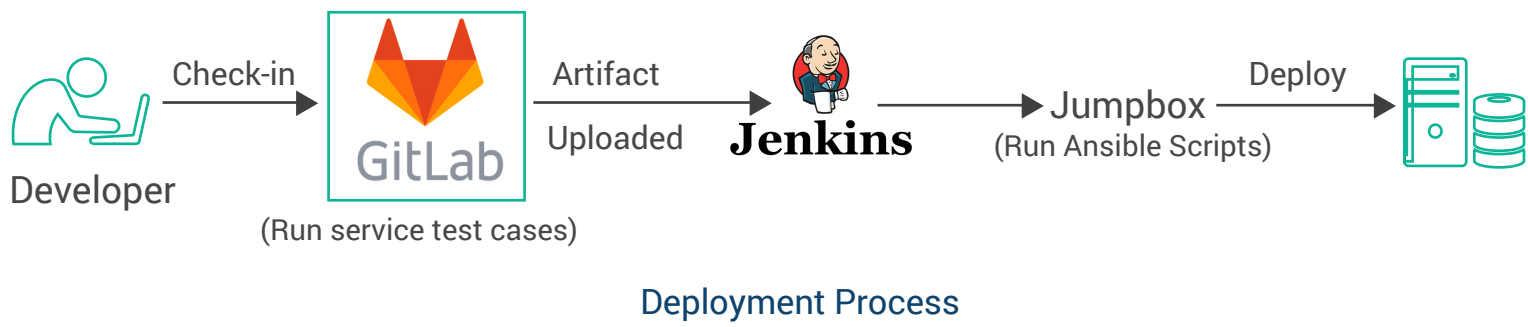
REST Assured Framework Architecture

Low Level Design

System Architecture

System Architecture of Deployment Process

	Check-in		Artifact Uploaded			Deploy	

Developer → GitLab (Run service test cases) → Jenkins → Jumpbox (Run Ansible Scripts) →

Deployment Process

System Architecture of API Engine

Web Container

spring boot

Spring Data MongoDB

spring
Spring Core

mongoDB

API Engine
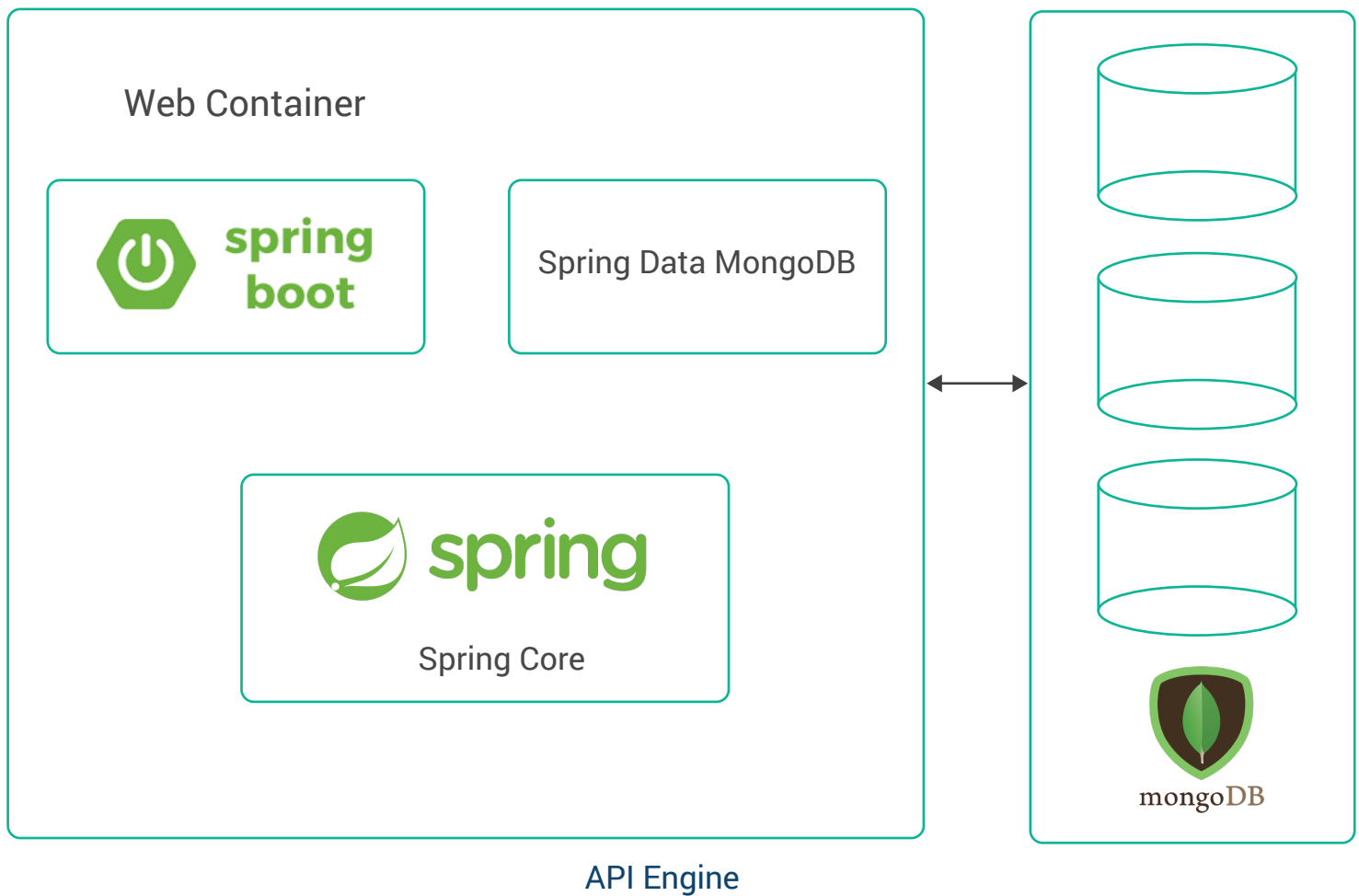
System Architecture for REST Assured

REST Assured for REST
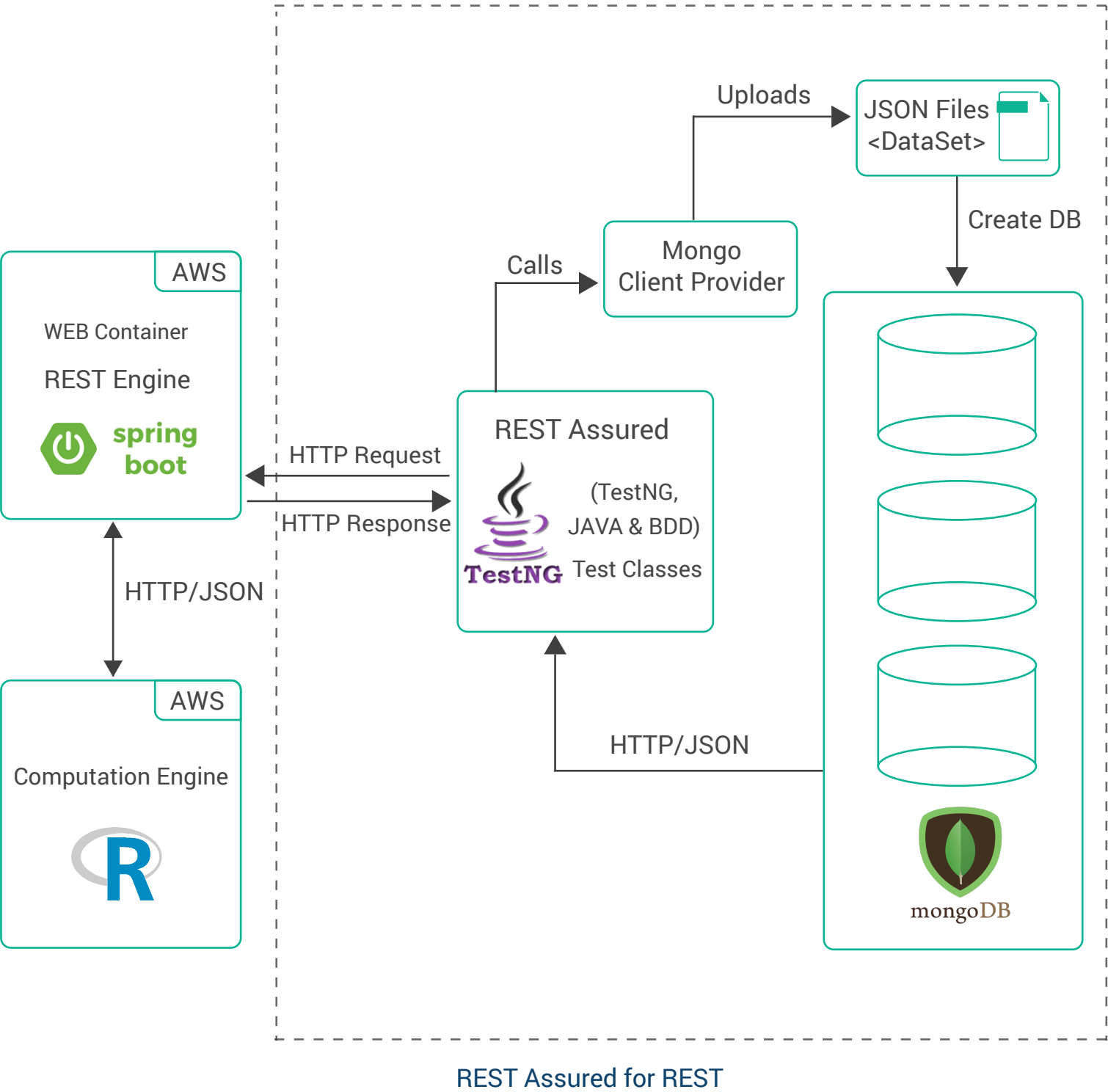
System Architecture for Delivery Process
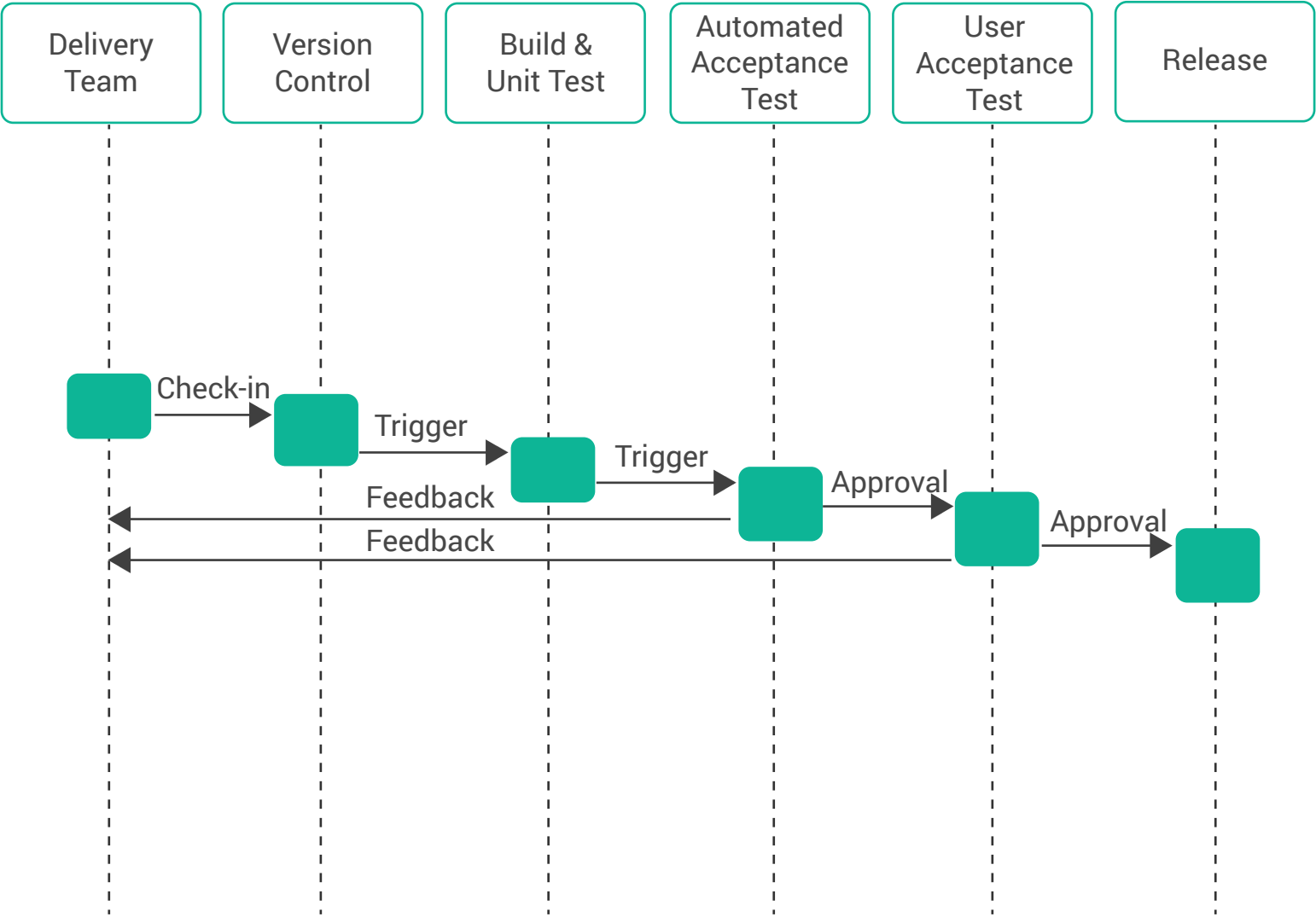

Delivery Process

API testing tests logic tier directly and checks expected functionality, reliability, performance and security. In the agile development world, requirements are changing during short release cycles frequently and GUI tests are more difficult to be conducted according to those changes. Thus, API testing becomes critical to test application logic.

We have uploaded the test data files in Mongo Database and with the help of REST Assured, we asserted the Web Services. On every code checking auto trigger of the build has been done on GitLab pipeline.

Key Highlights

1 Strategy:
It required a framework/library which helps in testing APIs easy in less time and we chose the REST Assured Library. The codes were written considering below stated rules

2 Single Responsibility:
- Each test has a single responsibility
- Explicit separation has advantages while we do black-box testing

3 High Level of Abstraction:
- The logic of a test should be written in a broad way
- All details such as sending request, creating request, dealing with IO should be done via utility methods and not by inline methods

4 Re-usability:
Develop the class, methods etc. that can be re-used for the testing of other endpoints of APIs

5 Documentation:
Add documentation and comments to describe the tests sufficiently

Achievements

- Deployed on AWS Infrastructure
- CI is completed on GitLab pipeline
- CD is conducted on Jenkins/Octopus
- JUnit/TestNG reporting of the service Test Cases
- Highly cohesive structure
- Clubbed REST Assured with Cucumber for BDD
- We have achieved TDD and BDD both development strategies using REST Assured

Project Highlights

Client	Analytics & Marketing Leader
Location	USA
Solution Domain	Strategic Marketing
Project Duration	45 days
Team Size	2 members

About PSI

Pratham Software (PSI) is a global IT services company (with established ISO 9001:2015 & ISO/IEC 27001:2013 practices) providing software product development, consulting and outsourcing solutions to enterprises worldwide. While providing a wide range of solutions, we focus on Outsourced Product Development (OPD), Business Process Management (BPM), Application Development and Maintenance (AMD) and Content Engineering. Our extensive experience in OPD helps us build strong relationships with Independent Software Vendors (ISVs), as we work with them throughout the product development lifecycle. In terms of technology and platform, we work across all major technologies such as Microsoft, Java and Open source and have capabilities and experience in developing solutions for web, mobile, Cloud and social media. For Enterprise customers, in addition to Process Automation, we also offer development and support services in BI and DWH.