Migration & Deployment Plan

# 1. Overview

This document outlines the step-by-step process to migrate and deploy a Python/Laravel-based monolithic application to AWS Cloud infrastructure. It also details the AWS resources involved, their specifications, and how Bitbucket CI/CD will be integrated. The client is based in the UK, so all resources will be hosted in the London (eu-west-2) region for compliance and performance.

# 2. Objectives

- Migrate existing monolithic application from current environment to AWS.

- Set up a robust, scalable, and cost-effective infrastructure.

- Automate deployments using Bitbucket Pipelines.

- Ensure security using a bastion host (jump server).

- Leverage managed services like RDS for database stability.

# 3. AWS Infrastructure Design

## a. Compute (EC2 Instances)

• 2 x EC2 Instances (t3.medium)

Purpose: Application servers for Laravel/Python monolith

Specs: 2 vCPUs, 4 GB RAM each

AMI: Amazon Linux 2 or Ubuntu 22.04 LTS

• 1 x EC2 Instance (t2.micro)

Purpose: Bastion (Jump) server to access private infrastructure

Specs: 1 vCPU, 1 GB RAM

Access: Only whitelisted IPs will have SSH access

## b. Networking

• VPC with Public & Private Subnets

Application servers and RDS will be deployed in private subnets; the jump server in public subnet.

• 2 x Elastic IPs

1 for each application EC2 instance (if load balancer is not used initially).

## c. Database

• Amazon RDS for MySQL

Instance type: t3.medium (2 vCPUs, 4 GB RAM)

Deployment: Single-AZ (Production)

Storage: 100 GB General Purpose SSD (gp3)

Backup Retention: 7 days

## d. Region

• AWS Region: Europe (London) - eu-west-2

# 4. Repository and CI/CD Integration

## Bitbucket

• Code is hosted in Bitbucket repositories.

• Branching strategy to be followed: main, dev, feature/\*

## Bitbucket Pipelines

• A custom pipeline will be defined to:

- Run tests

- Build assets

- Deploy code via SSH to EC2 servers using bastion host

Note: SSH will be tunneled through the bastion server.

# 5. Deployment Process

1. Prepare AWS Infrastructure

2. Configure Bastion Host

3. Install Required Packages

4. Application Setup

5. CI/CD Enablement

6. Monitoring & Logging

# 6. Security Considerations

• Use AWS Systems Manager Session Manager for future SSH-less access.

• Enable automatic security updates.

• Store secrets in AWS Systems Manager Parameter Store or Secrets Manager.