Lesson 3 Elastic Beanstalk

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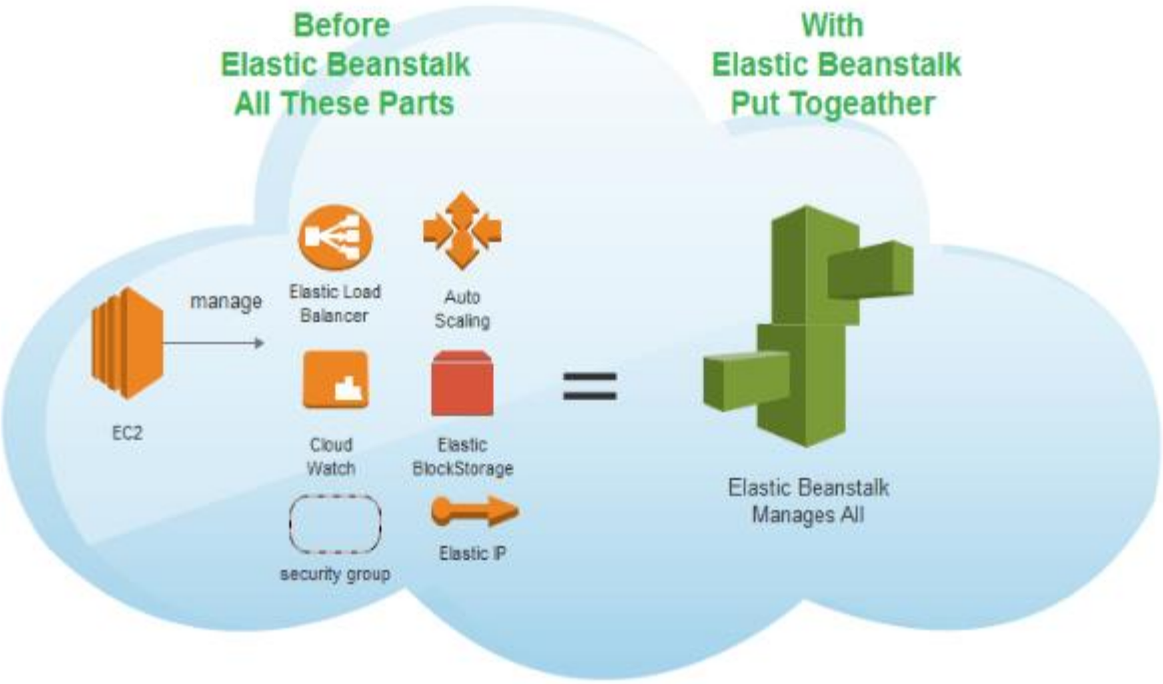
What is Elastic Beanstalk

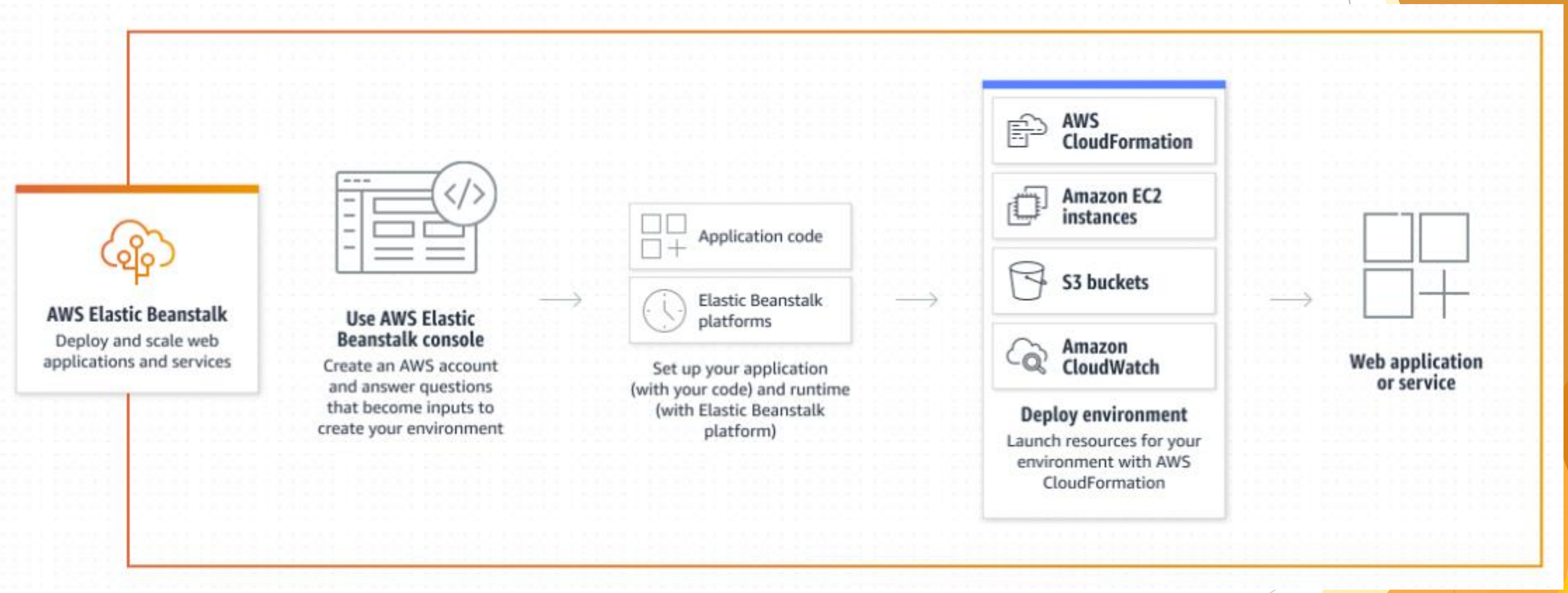
- Elastic Beanstalk is a service for deploying and scaling web applications and services. Upload your code and Elastic Beanstalk automatically handles the deployment—from capacity provisioning, load balancing, and auto scaling to application health monitoring.



Why Elastic Beanstalk

- AWS Elastic Beanstalk is the fastest way to get web applications up and running on AWS. You can simply upload your application code, and the service automatically handles details such as resource provisioning, load balancing, auto scaling, and monitoring.
- Elastic Beanstalk is ideal if you have a PHP, Java, Python, Ruby, Node.js, .NET, Go, or Docker web application. Elastic Beanstalk uses core AWS services such as Amazon Elastic Compute Cloud (EC2), Amazon Elastic Container Service (ECS), AWS Auto Scaling, and Elastic Load Balancing (ELB) to easily support applications that need to scale to serve millions of users.

How it works



AWS Elastic Beanstalk

Deploy and scale web applications and services

Use AWS Elastic Beanstalk console

Create an AWS account and answer questions that become inputs to create your environment

Set up your application (with your code) and runtime (with Elastic Beanstalk platform)

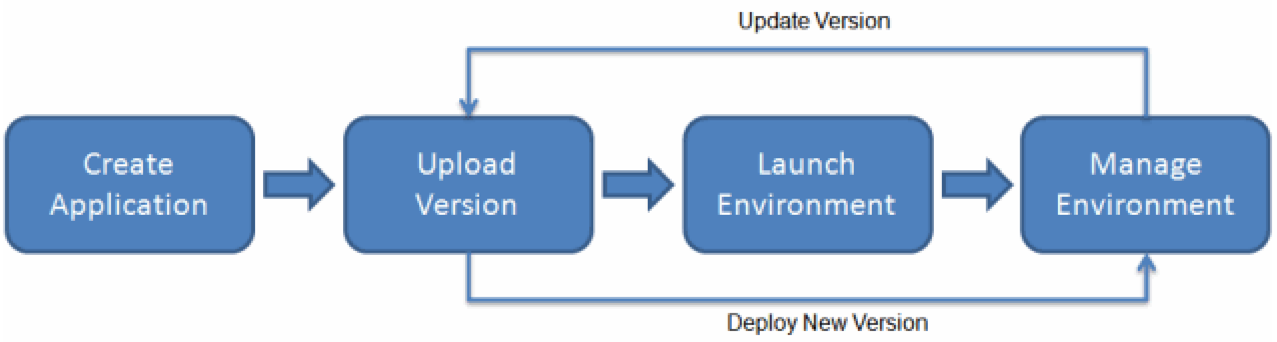
Deploy environment

Launch resources for your environment with AWS CloudFormation

Web application or service

How to use it

- To use Elastic Beanstalk, you create an application, upload an application version in the form of an application source bundle (for example, a Java .war file) to Elastic Beanstalk, and then provide some information about the application. Elastic Beanstalk automatically launches an environment and creates and configures the AWS resources needed to run your code. After your environment is launched, you can then manage your environment and deploy new application versions. The following diagram illustrates the workflow of Elastic Beanstalk.



Components

- Application
- Application version(version)
- Environment
- Environment configuration

Application

- An Elastic Beanstalk *application* is a logical collection(container) of Elastic Beanstalk components, it contains *environments*, *versions*, and *environment configurations*. In Elastic Beanstalk an application is conceptually similar to a folder.

Application version

- In Elastic Beanstalk, an *application version* refers to a specific, labeled iteration of deployable code for a web application. An application version points to an Amazon Simple Storage Service (Amazon S3) object that contains the deployable code, such as a Java WAR file. An application version is part of an application. Applications can have many versions and each application version is unique. In a running environment, you can deploy any application version you already uploaded to the application, or you can upload and immediately deploy a new application version. You might upload multiple application versions to test differences between one version of your web application and another.

Environment

- An *environment* is a collection of AWS resources running an application version. Each environment runs only one application version at a time, however, you can run the same application version or different application versions in many environments simultaneously. When you create an environment, Elastic Beanstalk provisions the resources needed to run the application version you specified.

Environment configuration

- An *environment configuration* identifies a collection of parameters and settings that define how an environment and its associated resources behave. When you update an environment's configuration settings, Elastic Beanstalk automatically applies the changes to existing resources or deletes and deploys new resources (depending on the type of change).

Other concepts

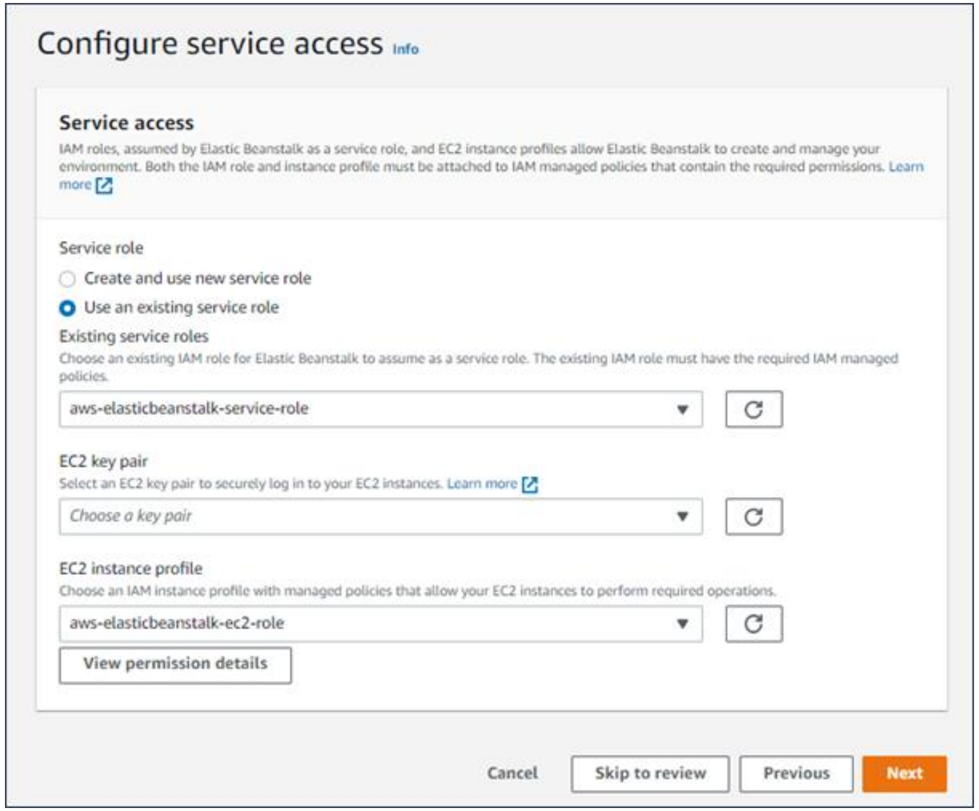
Environment tier

- When you launch an Elastic Beanstalk environment, you first choose an environment tier. The environment tier designates the type of application that the environment runs, and determines what resources Elastic Beanstalk provisions to support it. An application that serves HTTP requests runs in a web server environment tier. A backend environment that pulls tasks from an Amazon Simple Queue Service (Amazon SQS) queue runs in a worker environment tier.

Platform

- A *platform* is a combination of an operating system, programming language runtime, web server, application server, and Elastic Beanstalk components. You design and target your web application to a platform. Elastic Beanstalk provides a variety of platforms on which you can build your applications.

Elastic Beanstalk Security



Configure service access Info

Service access

IAM roles, assumed by Elastic Beanstalk as a service role, and EC2 instance profiles allow Elastic Beanstalk to create and manage your environment. Both the IAM role and instance profile must be attached to IAM managed policies that contain the required permissions. Learn more

Service role

○ Create and use new service role

● Use an existing service role

Existing service roles

Choose an existing IAM role for Elastic Beanstalk to assume as a service role. The existing IAM role must have the required IAM managed policies.

aws-elasticbeanstalk-service-role ▼

EC2 key pair

Select an EC2 key pair to securely log in to your EC2 instances. Learn more

Choose a key pair ▼

EC2 instance profile

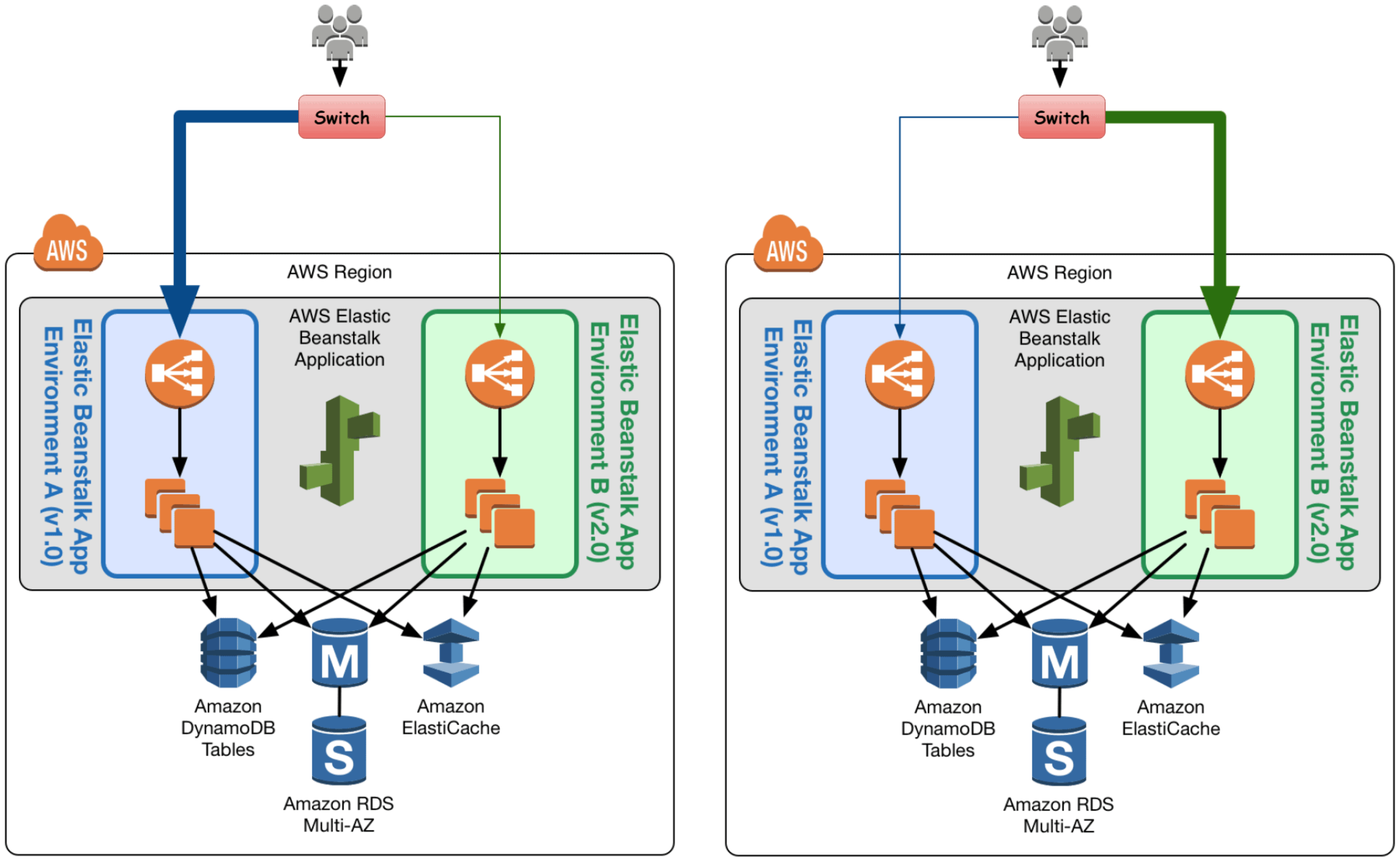
Choose an IAM instance profile with managed policies that allow your EC2 instances to perform required operations.

aws-elasticbeanstalk-ec2-role ▼

Deploy Application

- Step 1: Create an example application
- Step 2: Explore your environment
- Step 3: Deploy a new version of your application
- Step 4: Configure your environment
- Step 5: Clean up

Blue/Green deployment


Switch
AWS
AWS Region
AWS Elastic Beanstalk Application
Elastic Beanstalk App Environment A (v1.0)
Elastic Beanstalk App Environment B (v2.0)
Amazon DynamoDB Tables
Amazon RDS Multi-AZ
Amazon ElastiCache
Switch
AWS
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AWS Elastic Beanstalk Application
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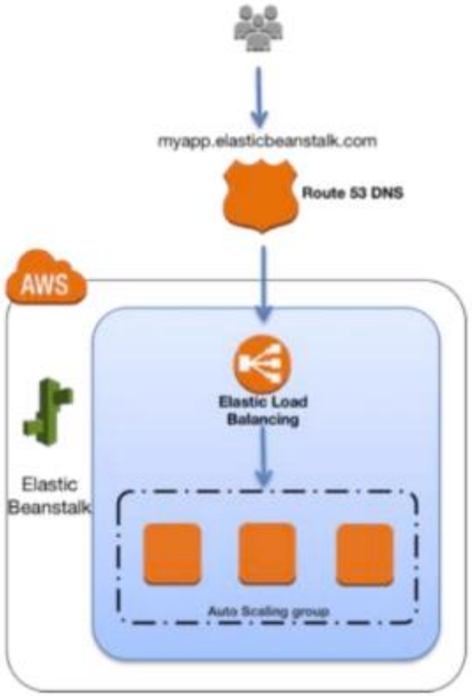
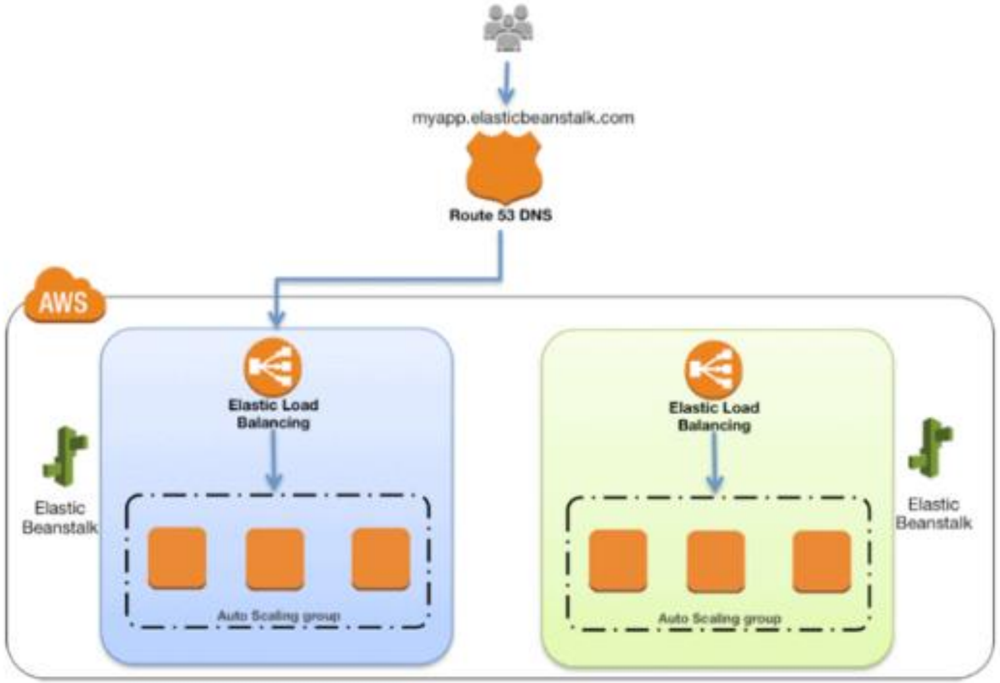
“Blue Environment”



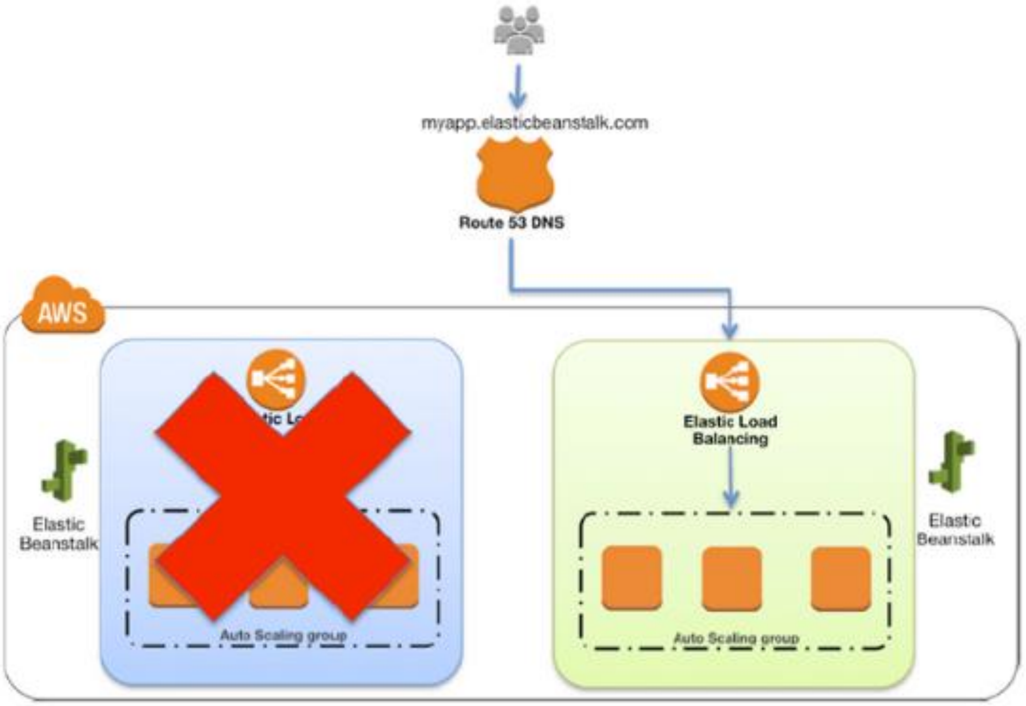
ElasticBeanStalk with Blue Environment

“Blue/Green” Environments



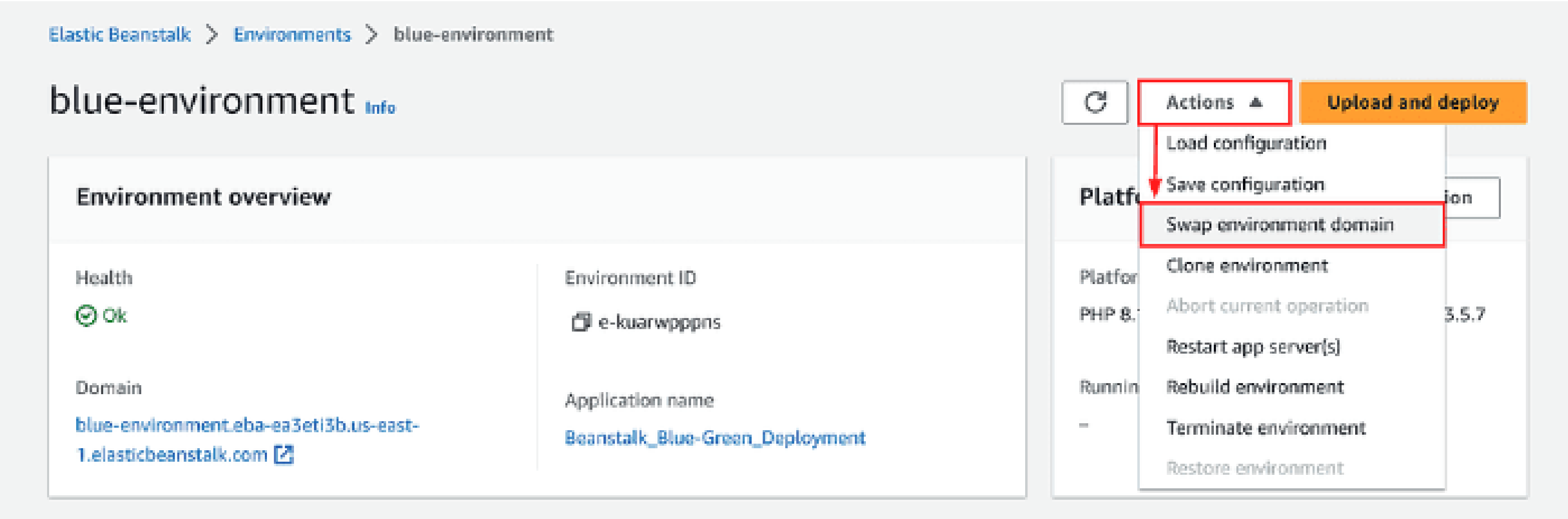
Blue-Green Environment

“Blue/Green” Environments



Live with Green Environment(Blue Terminated)

Swap the URL



Elastic Beanstalk > Environments > blue-environment

blue-environment Info

Environment overview

Health
Ok

Environment ID
e-kuarwpppns

Domain
blue-environment.eba-ea3eti3b.us-east-1.elasticbeanstalk.com

Application name
Beanstalk_Blue-Green_Deployment