

BookHub hosted on AWS

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Introduction

Key Features:

- Real-time stock updates.
- User-friendly interface.
- High availability and scalability via AWS services.



The Bookhub is a static ReactJS application that provides information about all the books and its stock information



Ensures up-to-date book availability. Enhances user experience with quick and easy access to information.



This website is hosted on AWS services like Elastic Compute Cloud, Elastic Load Balancer(Application Load Balancer), AutoScalingGroups and Elastic Beanstalk



IAM User is created to spin up these services



Application Metrics are monitored through CloudWatch metrics



Cloud Watch Metrics are used to monitor the application metrics. Elastic Beanstalk creates manages the automatic deployment , Autoscaling and load balancing.

Objectives

01

Create & Spin up Elastic Beanstalk environment using an authorized user account on AWS

02

Choose the platform for the Beanstalk, NodeJS in our case

03

Create an IAM role to allow Beanstalk to create EC2 instances

04

Select the code branch from github to deploy to Elastic Beanstalk and then Deploy

05

Create Cloud Watch metrics for EC2 & ELB

Technologies Used

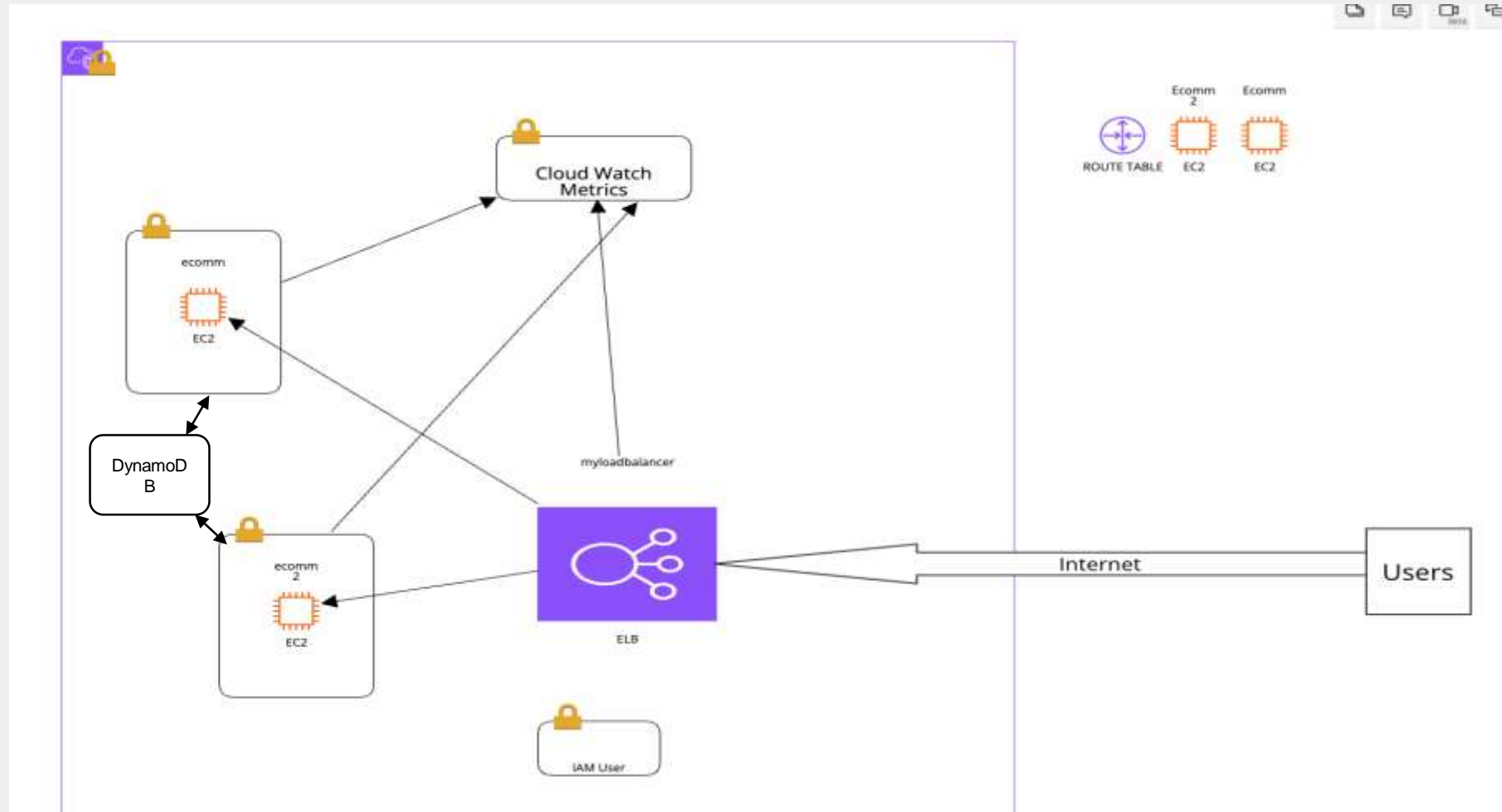
- Elastic Compute Cloud (EC2): For scalable computing capacity.
- Elastic Load Balancer (ELB): For distributing incoming traffic across multiple targets.
- AutoScalingGroups: For maintaining application availability.
- Elastic Beanstalk: For deploying and managing the application. Node.js for backend
- DynamoDB: NoSQL database
- Javascript
- HTML
- CSS



AWS Services Overview

- Elastic Load Balancer (ELB):
 - Description: ELB automatically distributes incoming application traffic across multiple targets.
 - Role in Bookhub: Enhances application fault tolerance. Improves load distribution.
- AutoScalingGroups:
 - Automatically adjusts the number of EC2 instances based on demand.
 - Role in Bookhub: Ensures consistent performance. Optimizes resource utilization.
- Elastic Beanstalk:
 - Description: Easy-to-use service for deploying and scaling web applications.
 - Role in Bookhub: Simplifies deployment and management. Integrates with various AWS services for seamless operation.
- Elastic Compute Cloud (EC2):
 - Description: EC2 provides resizable compute capacity in the cloud.
 - Role in Bookhub: Hosts the application servers. Ensures scalable and flexible computing power.

Architecture



Elastic Beanstalk

- This is the core service for deploying virtual servers in the cloud.

Bookapp-env Info

Environment overview

Health

✔ Ok

Domain

bookapp.us-east-1.elasticbeanstalk.com

Environment ID

e-gfmvqvqs9

Application name

bookapp

Platform

Change version

Platform

Node.js 16 running on 64bit Amazon Linux 2/5.9.4

Deprecated

Running version

app-2024-07-29T21-46-59-304Z

Platform state

⚠ Deprecated

⌂

Actions ▼

Upload and deploy

EC2 instances

- Elastic Beanstalk deploys these instances to run our application code and scales as and when required based on the load from internet.

Instances (1) [Info](#) Refresh Connect Instance state ▼ Actions ▼

All states ▼

Instance state = running X Clear filters

<input type="checkbox"/>	Name	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status	Ava
<input type="checkbox"/>	Bookapp-env	i-0f234cbd2bc2996d2	Running	t3.micro	2/2 checks passed	View alarms +	us-e

Auto Scaling groups

- An Autoscaling group is a logical grouping of resources that a load balancer distributes traffic across. Here the logical group is our EC2 instances.

EC2 > Auto Scaling groups

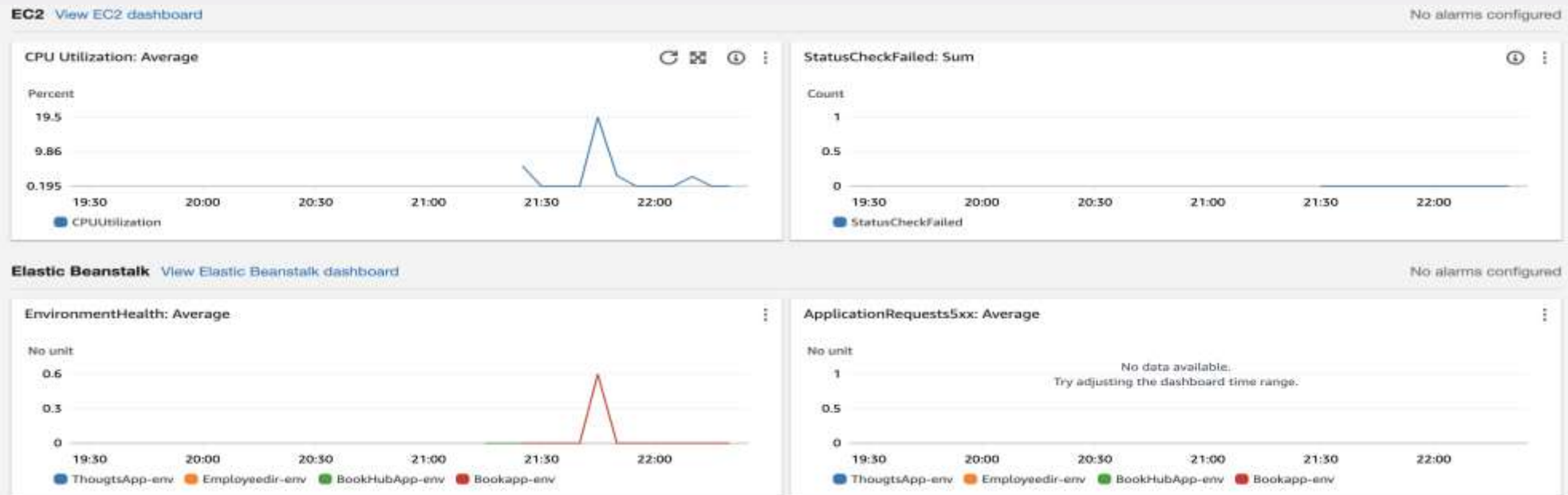
Auto Scaling groups (1) [Info](#)

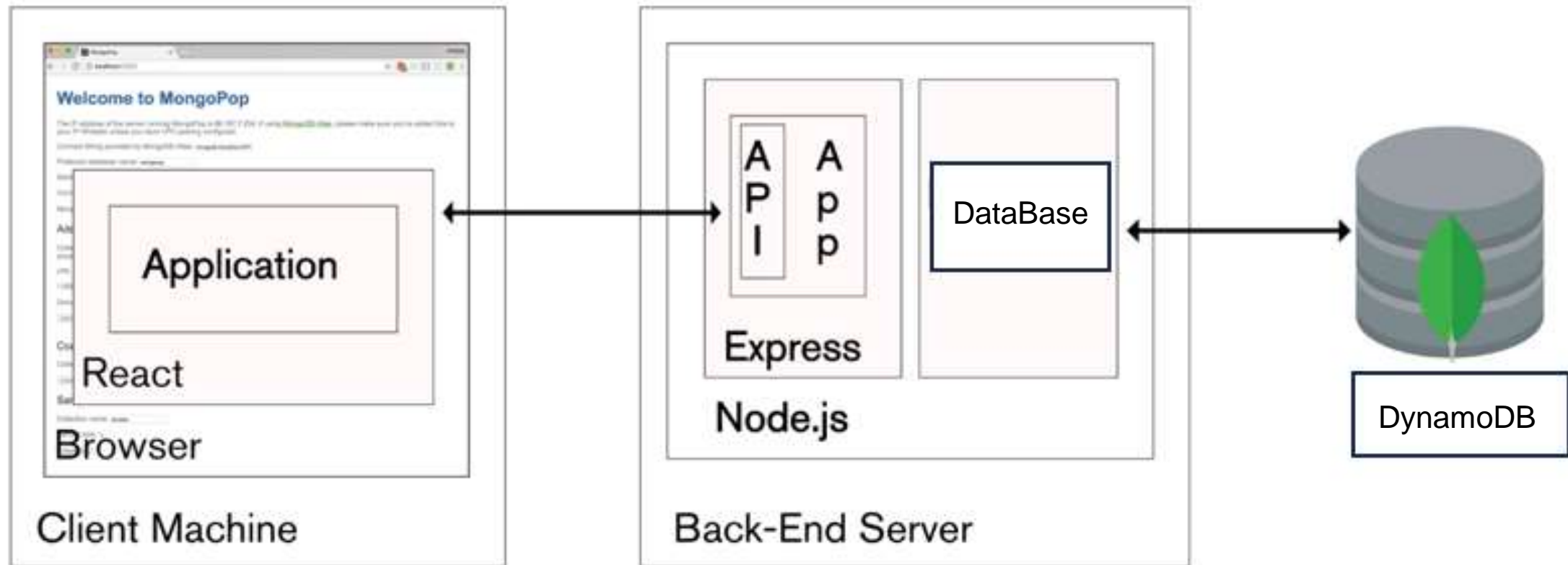
[Refresh](#) [Launch configurations](#) [Launch templates](#) [Actions](#) [Create Auto Scaling group](#)

<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min
<input type="checkbox"/>	awseb-e-gfmvqvqxs9-stack-AWSEBAutoScalingGroup-8IAiS7Xlmgzg	AWSEBEC2LaunchTemplate_SfeUsJZLTco	1	-	1	1

Cloud Watch Metrics

- This service is a monitoring and observability service for AWS resources. It provides detailed operational metrics about your AWS resources, such as CPU utilization, network traffic, and application performance





Conclusion

- Benefits of Using AWS Services:
 - Scalability: Automatically adjusts resources based on demand.
 - Reliability: Ensures high availability and fault tolerance.
 - Cost-effectiveness: Optimizes resource utilization and reduces costs.
- Project Impact:
 - Efficiency: Streamlines book information management.
 - Performance: Delivers robust and responsive user experience.
 - Future Prospects: Scalable to accommodate future growth and enhancements.

Thank you

