Om Shel
THADOMAL SHAHANI TSEC ENGINEERING COLLEGE
TE C32
2103163

Experiment No : 5

Aim : To study and implement platform as a service using AWS Elastic Beanstalk service

Theory :

- **Amazon AWS Elastic Beanstalk (EBS)**

⇒ EBS is a cloud computing service provided by AWS that simplifies the management, scaling of web applications as services.

- It abstracts away the complexities of the infrastructure management allowing developers to focus on writing code while AWS handles provisioning, load balancing, auto-scaling and other operational tasks.
- Key features include :

1) Easy development

⇒ Developers can simply upload their application code as EBS automatically handles the deployment process, including provisioning the necessary resources.

2) Auto-scaling

⇒ EBS can automatically scale the number of EC2 instances based on application load, ensuring that the application

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5) Monitoring Cologging

⇒ EBS provides built-in monitoring and logging capabilities, allowing developers to monitor application health and troubleshoot issue easily.

- Languages / Frameworks supported by EBS

1) AWS Elastic Beanstalk supports a variety of programming languages and frameworks providing flexibility for developers to deploy their application using their technology stack.

2) EBS provides support for Docker containers allowing developers to package their applications and dependencies into Docker containers allowing developers to package their applications.

3) Ruby applications allows developers to develop web applications built when ruby on framework.

4) Go applications are supported by EBS, enabling developers to deploy web applications written in the Go applications written web application by Go Language.

• Elastic Load Balancing (ELB)

⇒ ELB is provided by AWS that automatically distribute incoming application traffic across multiple targets, such as EC2 instances or lambda functions to ensure optimum performance, availability and fault tolerance of the applications.

- Features include:

1) Distribution of incoming traffic

⇒ ELB automatically distribute incoming application traffic across multiple targets, ensuring that each target receives a balanced load of requests.

2) Scalability

⇒ ELB can automatically scale its request handling capacity in response to changes in incoming traffic.

3) High Availability

⇒ ELB enhances the availability of the application by automatically detecting unhealthy targets and rerouting traffic to health targets.

- Comparison between EC2 and EBS

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EC2	EBS
1) Provides full control over the virtual corners allowing users to configure their OS and application according to their requirement.	1) Abstracts away the infrastructure management, automatically provisioning, load balancing, auto scaling and application health monitoring.
2) Requires manual configuration and management of infrastructure component	2) Simplifies deployment and management tasks by automatically infrastructure provisioning & configuration.
3) User are responsible for manually scaling EC2 instances application load.	3) Automatically handles scaling based on the application load.
4) Users pay for the EC2 instances, other resources provisioned manually with pricing based on the interface types.	4) Users pay for the underlying AWS resources provisioned by EBS along with any addition service.

(A)

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