Amazon Elastic Beanstalk



What is Elastic Beanstalk?

Elastic Beanstalk is a managed service offered from AWS for deploying web applications/ worker processes simply through an easy AWS console on different servers like IIS/Tomcat/Apache etc.

- It is Easy to begin.
- An easier way for developers to quickly deploy and manage applications in the AWS cloud.
- Upload and launch applications to AWS in minutes
- Retain control over the underlying infrastructure.



Elastic Beanstalk



Managed AWS Service



Deploy Cloud Apps & Services at Scale



Any region Any locale



Supporting Platforms

- Java,
- .NET
- PHP
- Node.js
- Python
- Ruby
- Go
- Docker



Key Components

- Application
- Application Version
- Environment
- Environment Configuration
- Configuration Template



Key Features/ Advantages

Automatically handles

- Details of capacity provisioning
- Load balancing
- Scaling
- Application health monitoring

Scalable Architecture

Automated Deployments

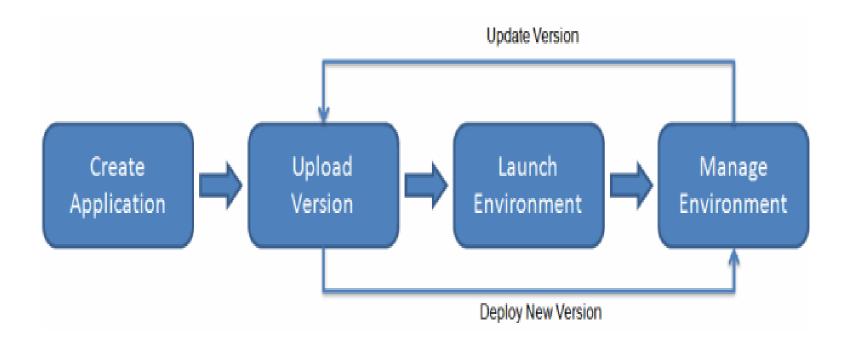
On Demand

Test & Staging Environments

Automated Infrastructure Updates

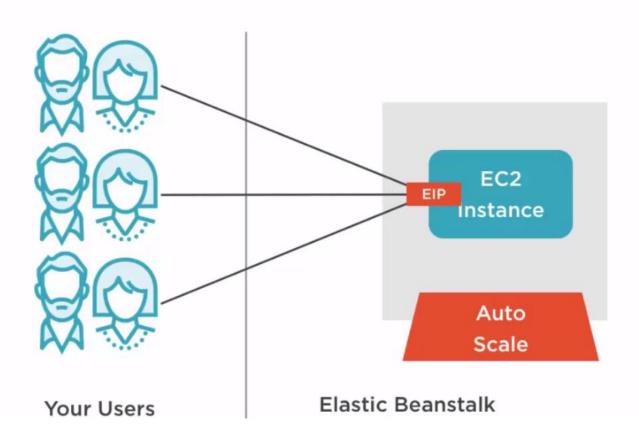


Process flow

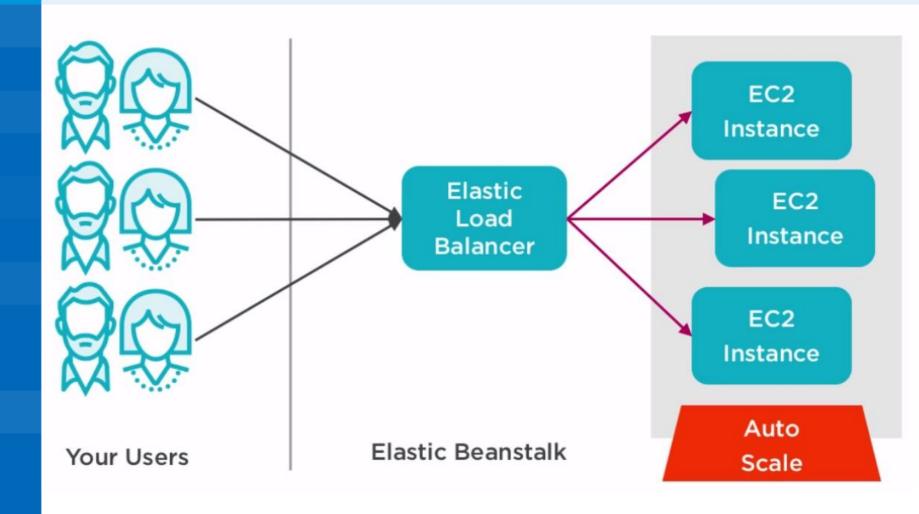




Single Instance

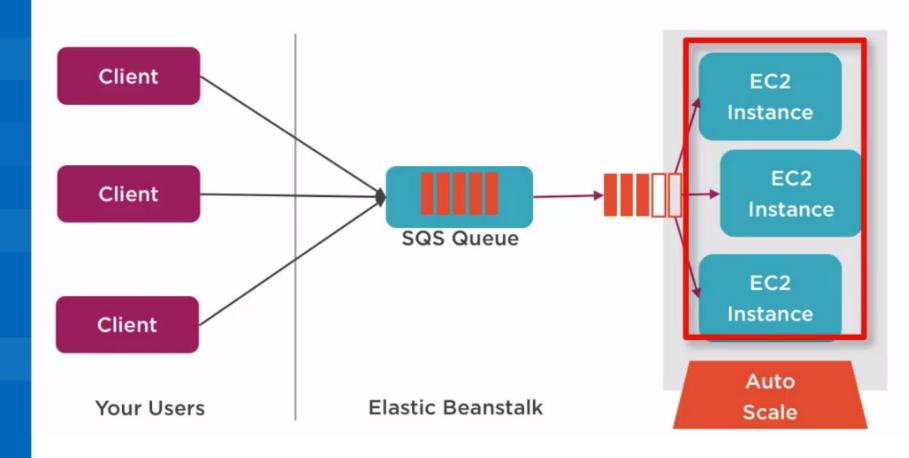




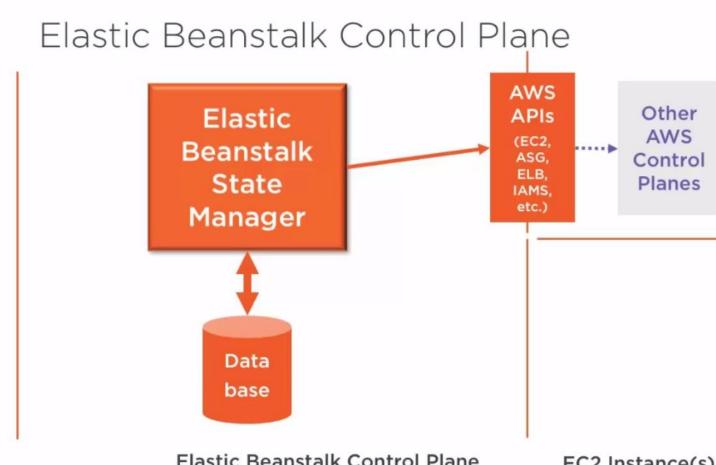




Worker Environment









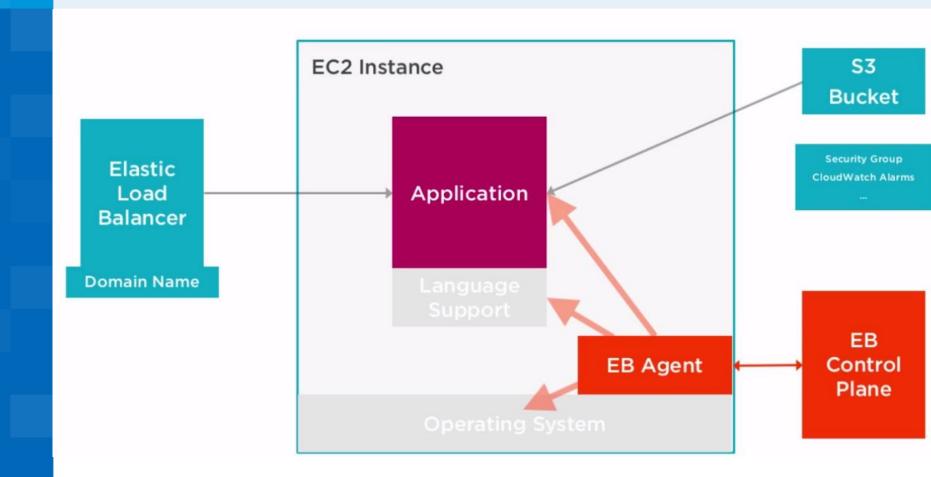
You

Elastic Beanstalk Control Plane

EC2 Instance(s)

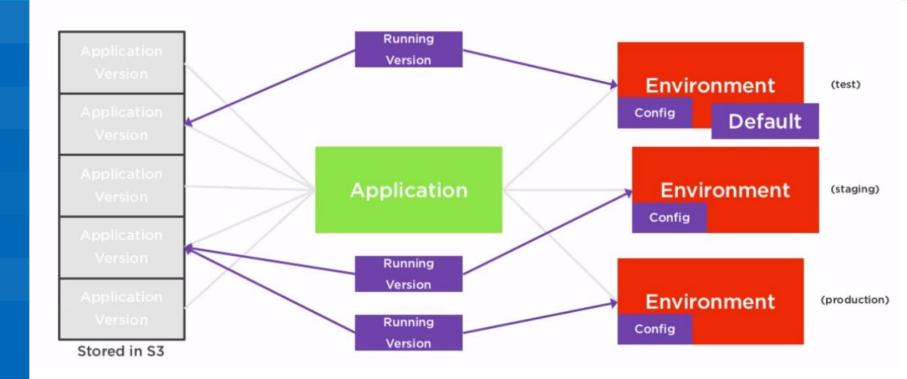


Inside Each EC2 instance



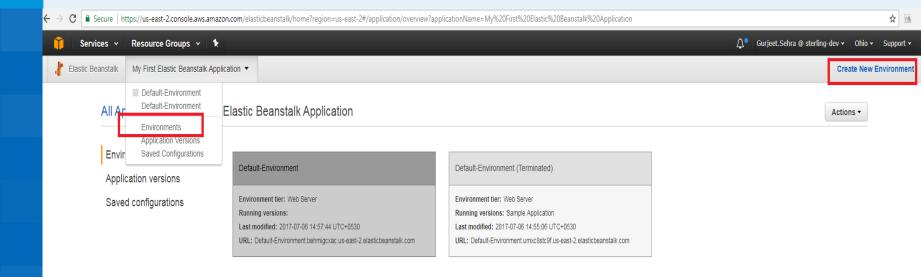


Elastic Beanstalk Terminology

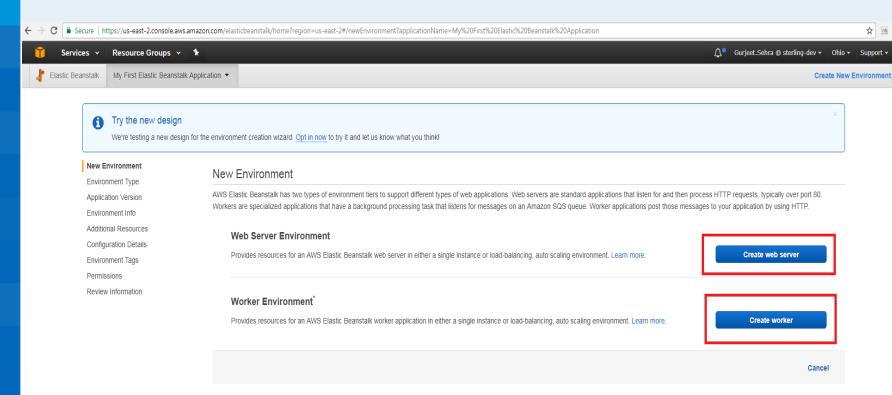




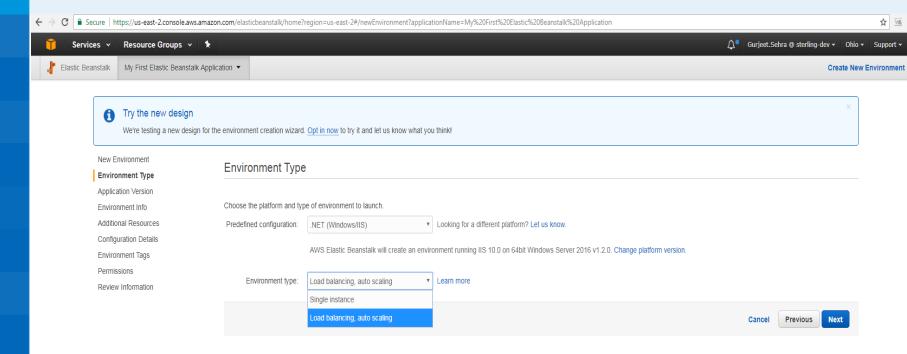
Creating Environment



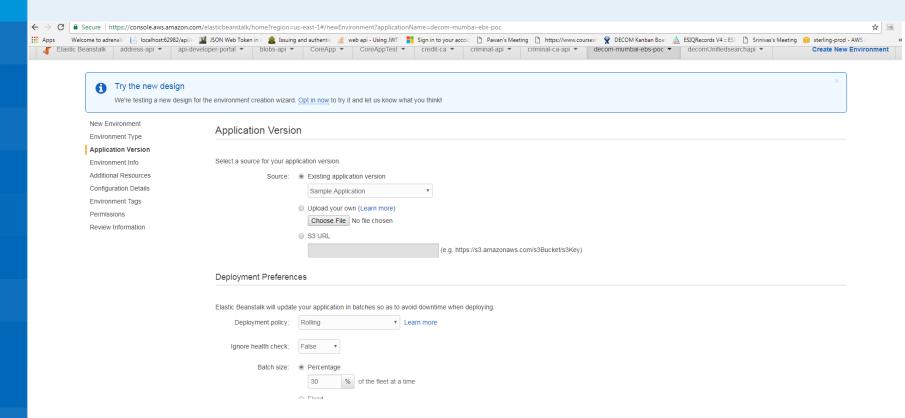














Deployment Options

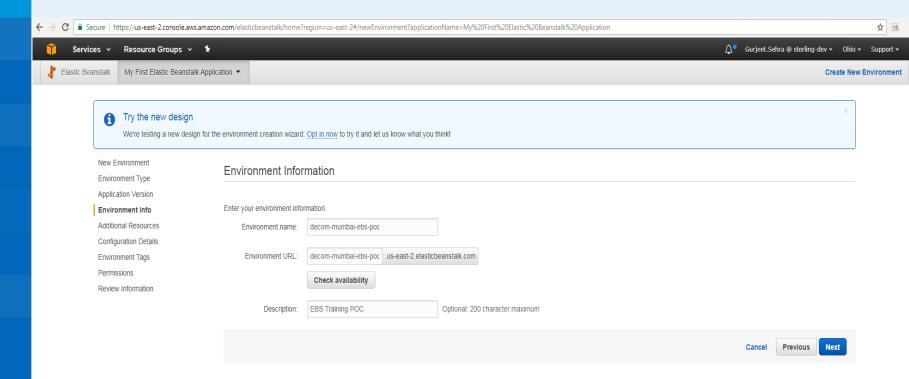
All At Once

Rolling Deployments

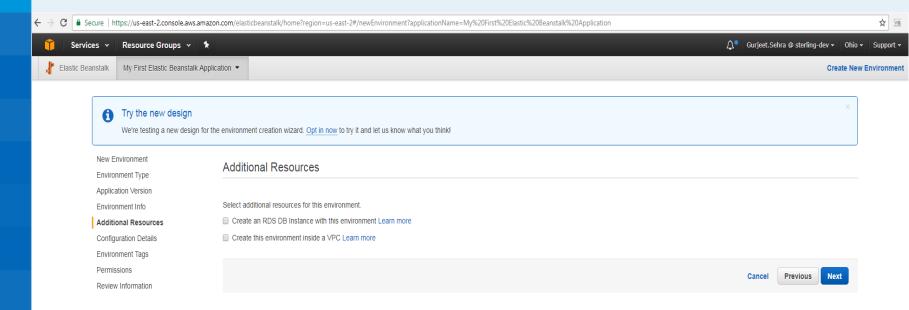
Rolling Deployments w/additional Batch

Immutable











Create RDS with Elastic Beanstalk

Advantages

RDS db created when Elastic Beanstalk Environment is created

Credentials automatically created

Database is destroyed when environment is destroyed

Useful for development and staging environments.

Disadvantages

Database can only be used by single environment

Deleting environment deletes data

Not recommended for production environments.

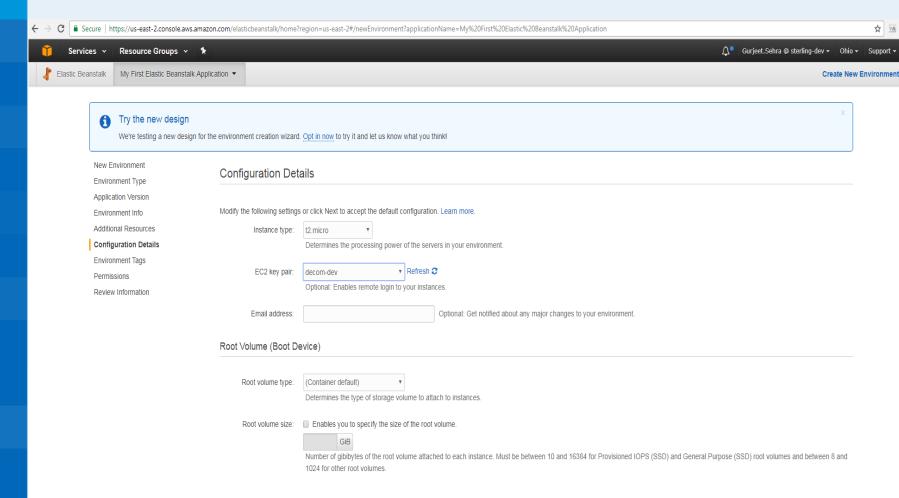


Setting up Production Database

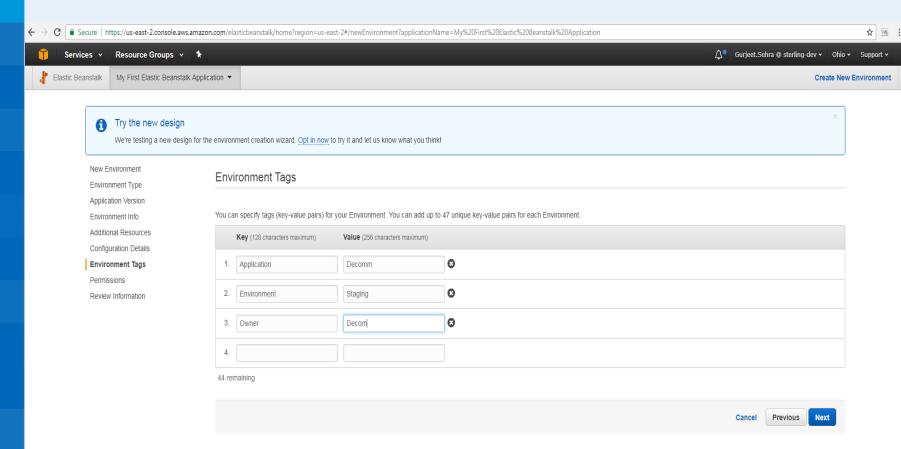


- Create database manually
- 2. Setup necessary credentials
- 3. Launch Elastic Beanstalk environment
- Add environment variables for configuration
- 5. Use environment variables in application

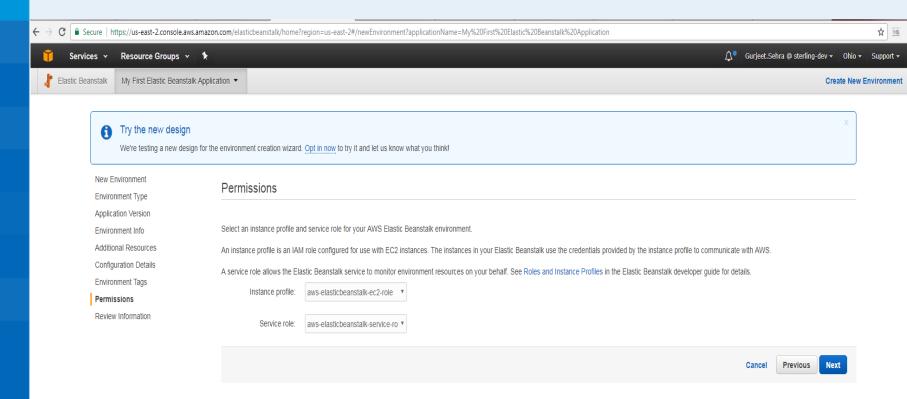




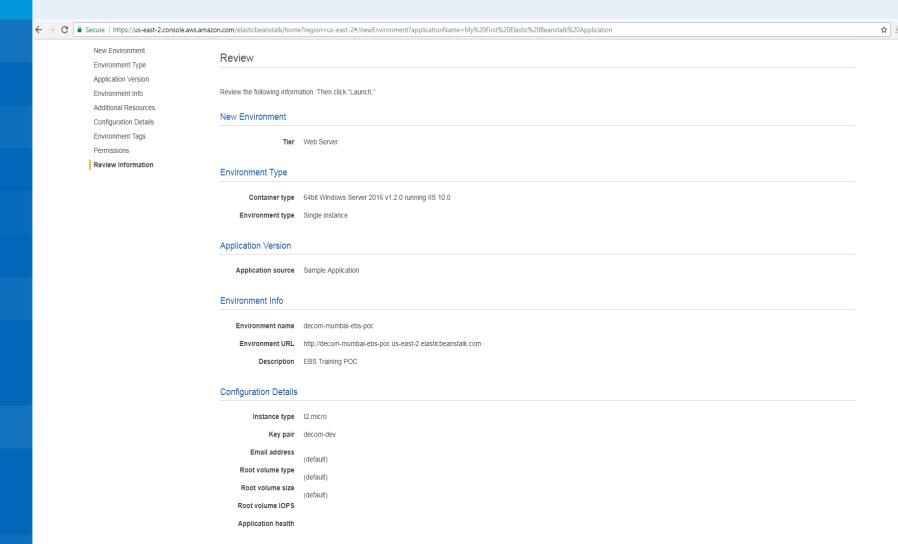




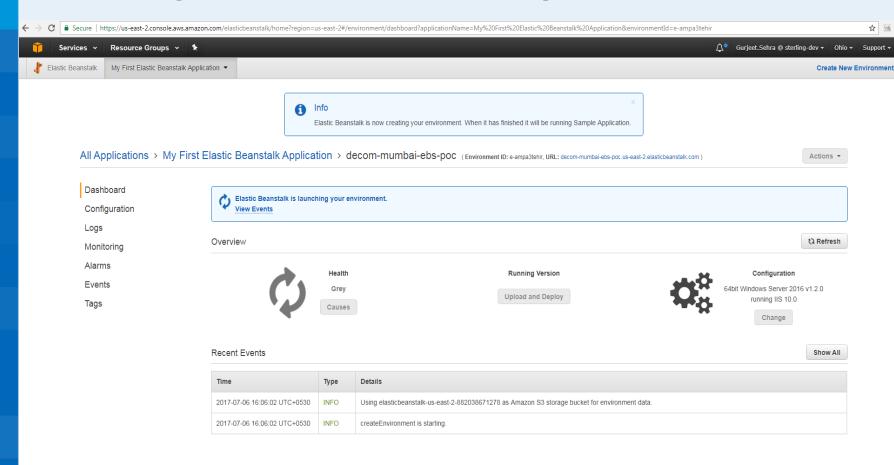






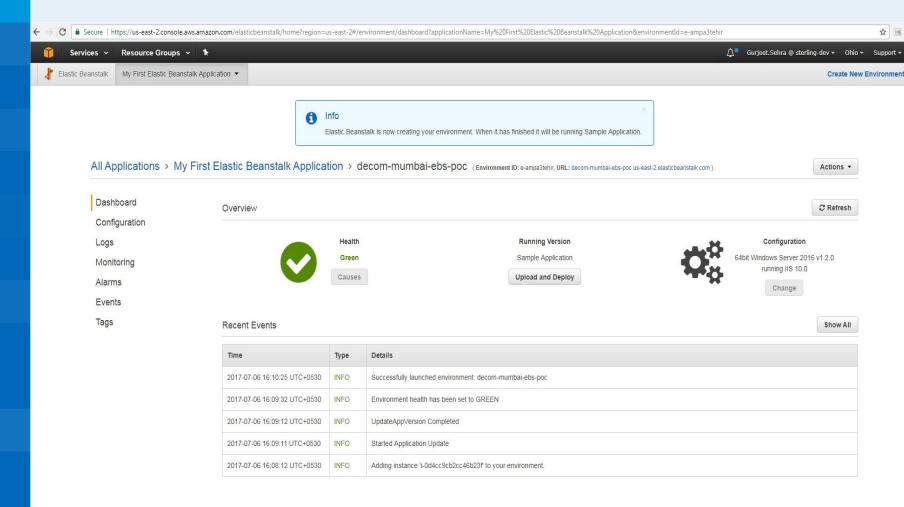






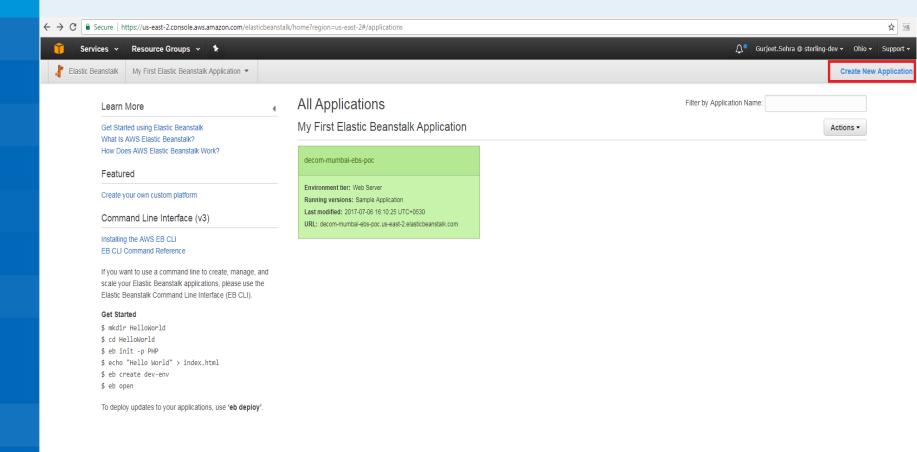


Creating Environment - Final step



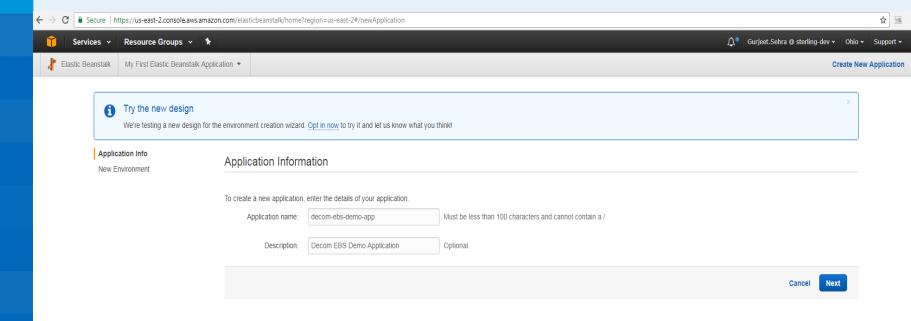


Creating Application





Creating Application





There are 2 ways to Deploy application (.Net Application)

- Build Package file from VS CMD and Upload AWS Console
- Using AWS SDK installed on Visual Studio



(Build Package file from VS CMD)

Process:

- Create Web Application in VS and build solution.
- After successful building of application create a package file from the below command using MSBuild VS Command Prompt/VS Command Prompt
- Command: C:/> msbuild <path of project file .csproj> /t:Package /p:DeploylisAppPath="Default Web Site"
- This will create a package file with .zip in the project's \obj\Debug\Package folder.
- This .zip file need to be upload to AWS console.

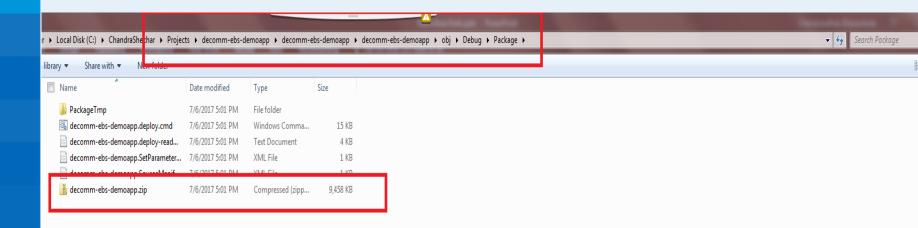


(Build Package file from VS CMD)

```
Administrator: MSBuild Command Prompt for VS2015
 To get the instructions on how to deploy the web package please visit the fol ,
  http://go.microsoft.com/fwlink/?LinkId=124618
GenerateSampleDeployScript
  Sample script for deploying this package is generated at the following locati
  C:\ChandraShekhar\Projects\decomm-ebs-demoapp\decomm-ebs-demoapp\decomm-ebs-d
  enoapp\obj\Debug\Package\decomm-ebs-denoapp.deploy.cnd
  For this sample script, you can change the deploy parameters by changing the
  following file:
 C:\ChandraShekhar\Projects\decomm-ebs-demoapp\decomm-ebs-demoapp\decomm-ebs-d
 enoapp\obj\Debug\Package\decomn-ebs-denoapp.SetParameters.xml
Done Building Project "C:\ChandraShekhar\Projects\decomm-ebs-demoapp\decomm-ebs
demoapp\decomm-ebs-demoapp\decomm-ebs-demoapp.csproj" (Package target(s)).
Build succeeded.
   0 Warning(s)
    Ø Error(s)
c:\>msbuild C:\ChandraShekhar\Projects\decomm-ebs-demoapp\decomm-ebs-demoapp\dec
omm-ebs-demoapp\decomm-ebs-demoapp.csproj /t:Package /p:DeploylisAppPath="Defau
It Web Site"_
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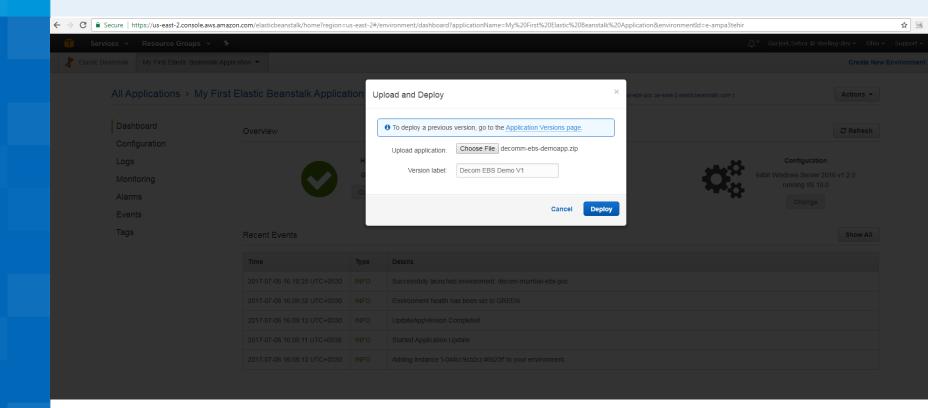


(Build Package file from VS CMD)



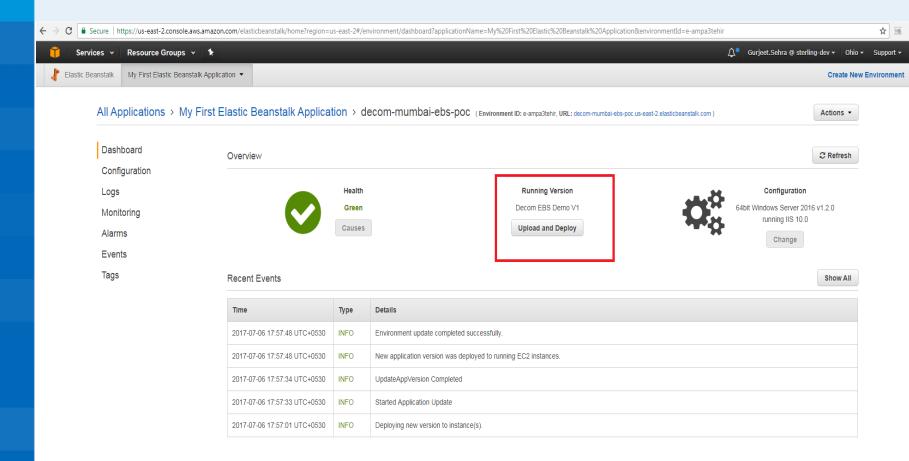


(Build Package file from VS CMD)





(Build Package file from VS CMD) - Deployment Successful.





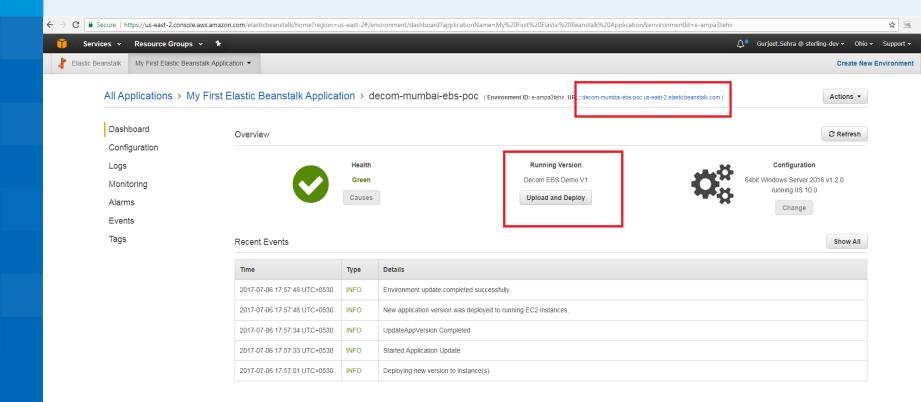
(Build Package file from VS CMD)

View Deployed application

- After successful deployment, browse the below URL to preview the deployed application.
- The below URL is created by AWS with environment as subdomain name.
- URL Format: http://{environmentname}.us-east-2.elasticbeanstalk.com/
- In Our Demo : http://decom-mumbai-ebs-poc.us-east-2.elasticbeanstalk.com/



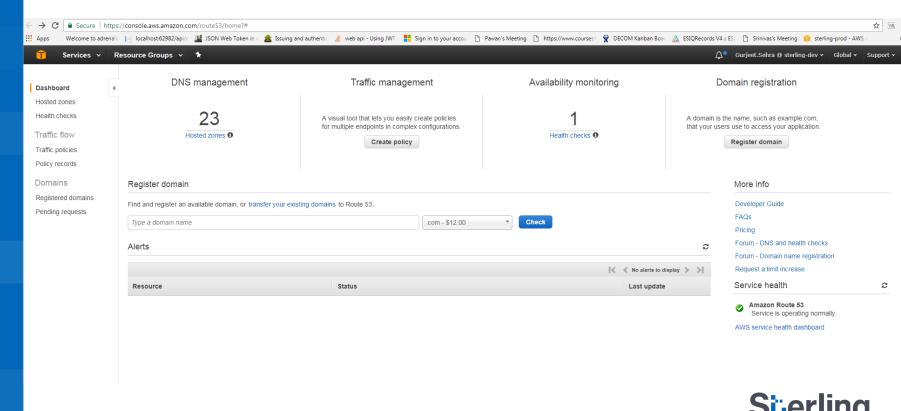
(Build Package file from VS CMD) - Deployment Successful.





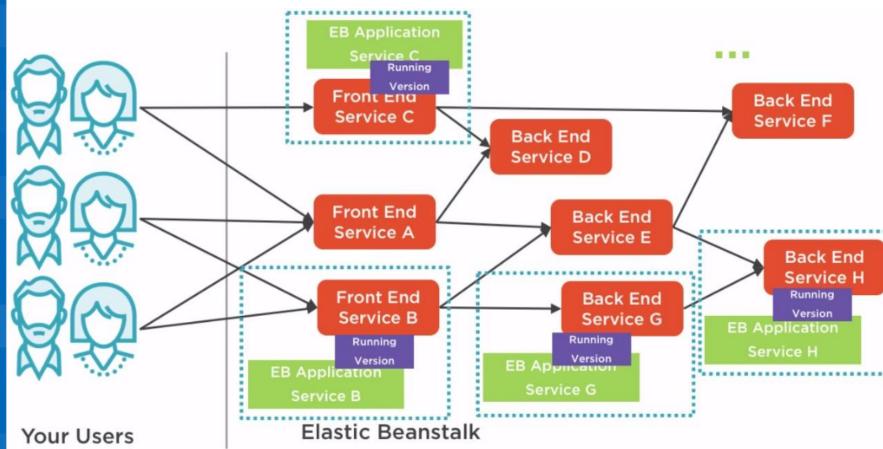
Customize Application Domain URL

- Using AWS Route 53 we can map our own domain name to Elastic Beanstalk.
- Documentation available here: AWS Route 53



Multiple Environment Application

 We can deploy the same application in Multiple environments with same version or different version.





Pricing

- There is no additional charge for AWS Elastic Beanstalk.
- Pay for AWS resources (e.g. EC2 instances or S3 buckets) that create to store and run your application. You only pay for what you use, as you use it.
- There are no minimum fees and no upfront commitments.

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Summary

- Elastic Beanstalk helps us to easily deploy updates to our .Net application while also leveraging Amazon's powerful infrastructure.
- Enhancing the deployment process with containers like Docker — will add even more versatility.
- If we're looking to reduce system operations and just focus on what you're developing, Elastic Beanstalk is a solid choice.



References

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/Welcome.html
- https://aws.amazon.com/documentation/elastic-beanstalk/
- http://jayendrapatil.com/aws-elastic-beanstalk/



Thank you

