AWS Elastic Beanstalk

Getting Started

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AWS Overview

Amazon Web Services offers a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, and enterprise applications: on-demand, available in seconds, with pay-as-you-go pricing.

Amazon Web Services (AWS) comprises over 140 AWS services are available, each of which exposes an area of functionality, from data warehousing to deployment tools, directories to content delivery.

What Is Cloud Computing?

Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform via the Internet with pay-as-you-go pricing.

You can access as many resources as you need, almost instantly, and only pay for what you use. You can provision exactly the right type and size of computing resources you need to power your newest bright idea.

Advantages and Benefits of Cloud Computing

Trade capital expense for variable expense

Benefit from massive economies of scale

Stop guessing capacity

Increase speed and agility

Stop spending money running and maintaining data centers

Go global in minutes

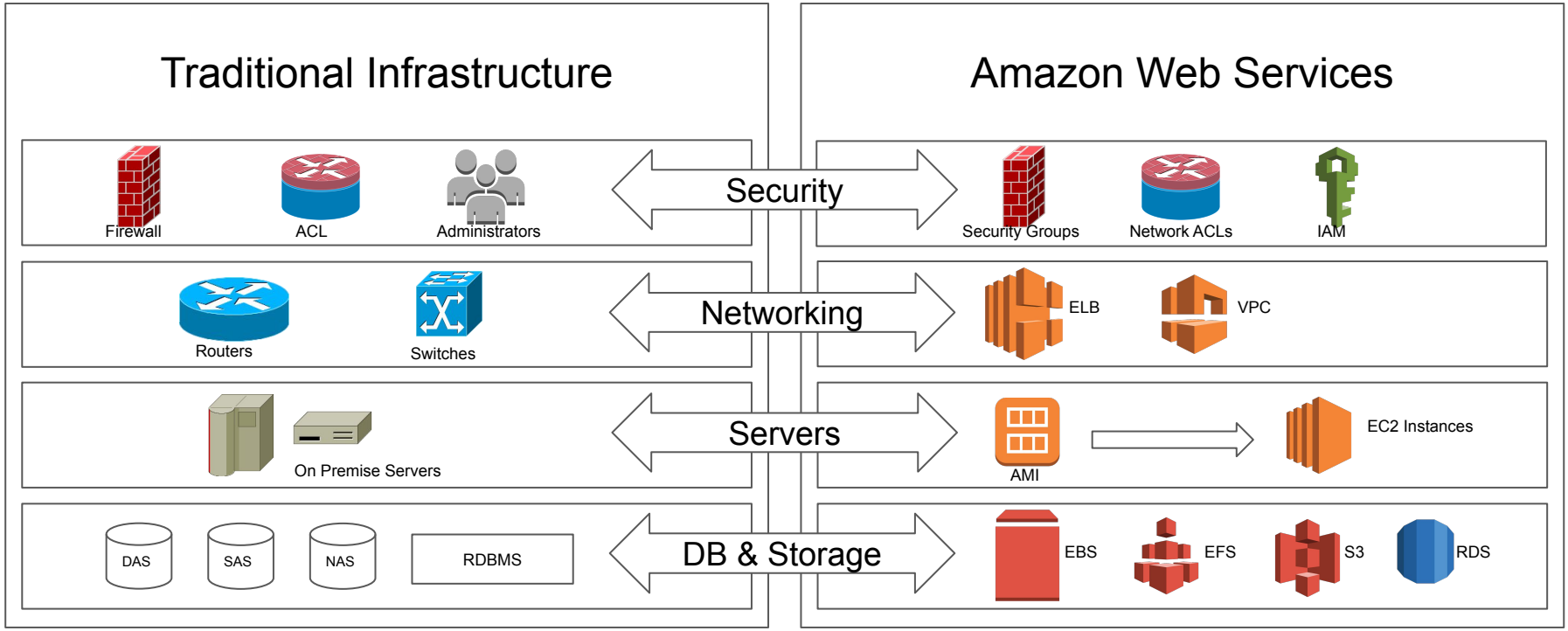
Amazon Web Services Cloud Platform

AWS consists of many cloud services that you can use in combinations tailored to your business or organizational needs.

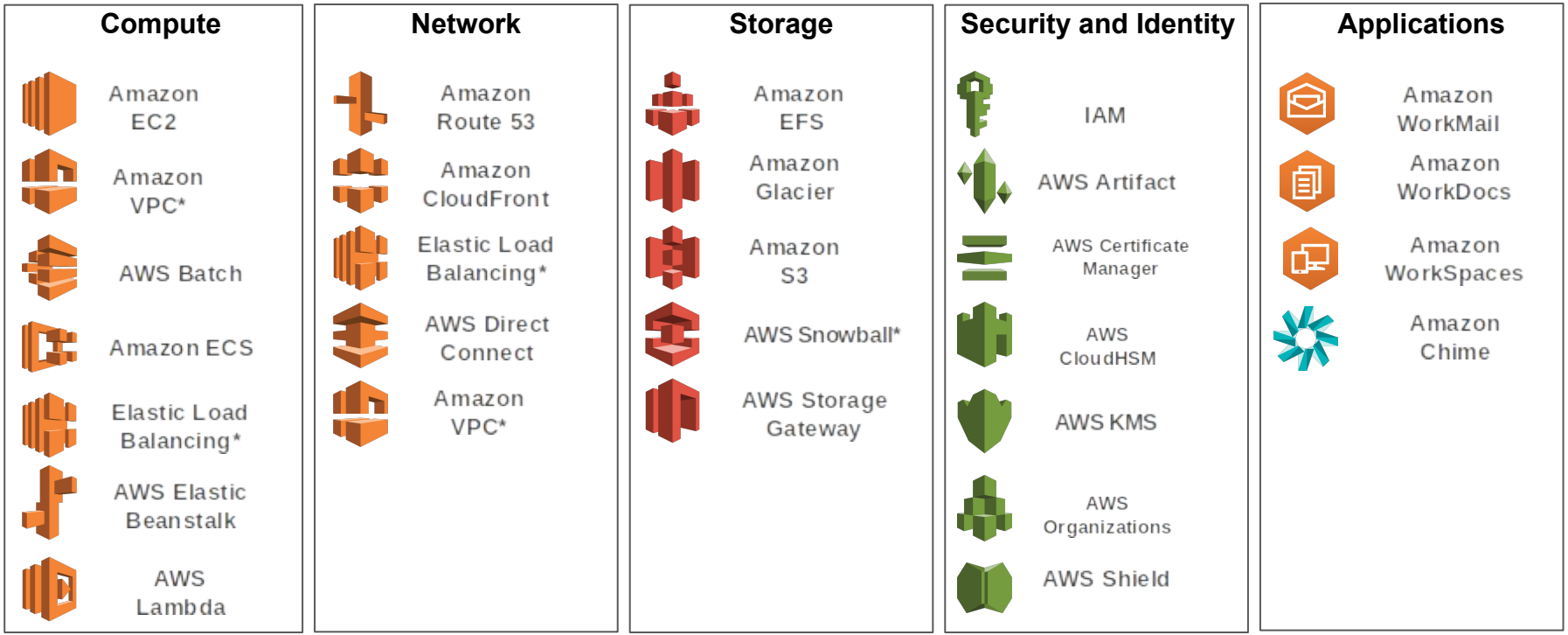
To access the services, you can use the AWS Management Console, the Command Line Interface, or Software Development Kits (SDKs).

Among these services we can find Analytics, Business Applications, Compute, Database, Storage, Machine Learning, Security, Identity, and Compliance, and many more...

AWS Core Infrastructure



AWS Foundation Services



Common Scenario

Develop a new web app or update an existing web app to respond to the customer needs and competitive pressures and make sure to:

- Do it yesterday and iterate rapidly
- Deliver at the lowest cost possible
- Eliminate downtime and customer impact
- Adhere to company and compliance standards
- Keep everything else up and running as usual

The Challenges

With limited resources, how can we operate and manage web applications at scale?

How can we accelerate innovation while allowing different runtimes and technology stacks?

How can we adopt a systematic approach to CI/CD tools and methodologies?

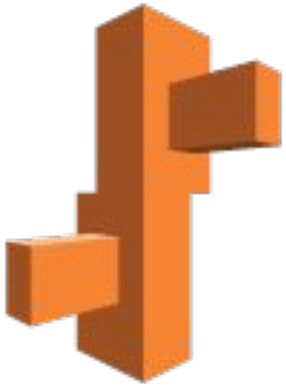
How can I quickly deploy and test my web application?

What Is AWS Elastic Beanstalk?

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring.

What Is AWS Elastic Beanstalk?



- Elastic Beanstalk is the fastest and simplest way to deploy your application on AWS
- Enables you to focus on writing code rather than spending time managing and configuring servers, etc...
- Automatically scales your application up or down based on your application's need
- Gives freedom to select the AWS resources, like EC2 instance type, that are optimal to your application

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What Is AWS Elastic Beanstalk?

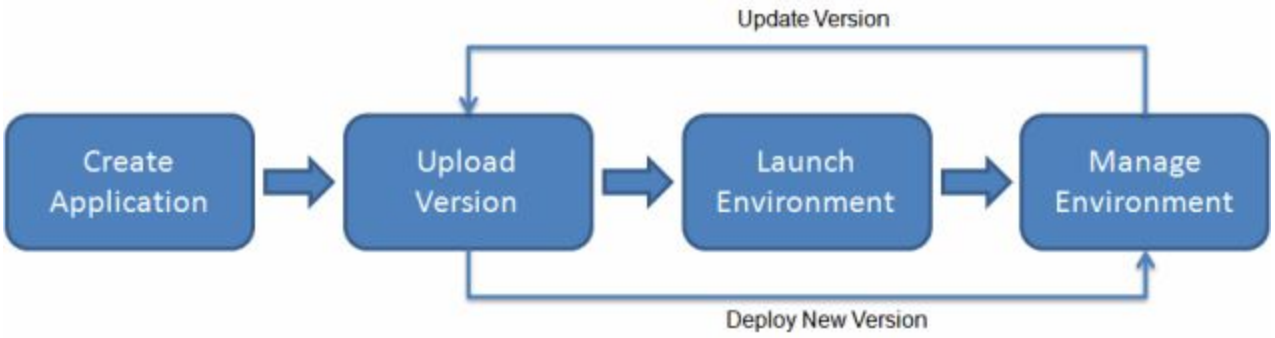
To run an application on AWS resources, Elastic Beanstalk takes the following actions: creates an Elastic Beanstalk application, launches an environment, creates a new application version, deploys the application code.

These take about five minutes to complete and uses the following AWS resources:

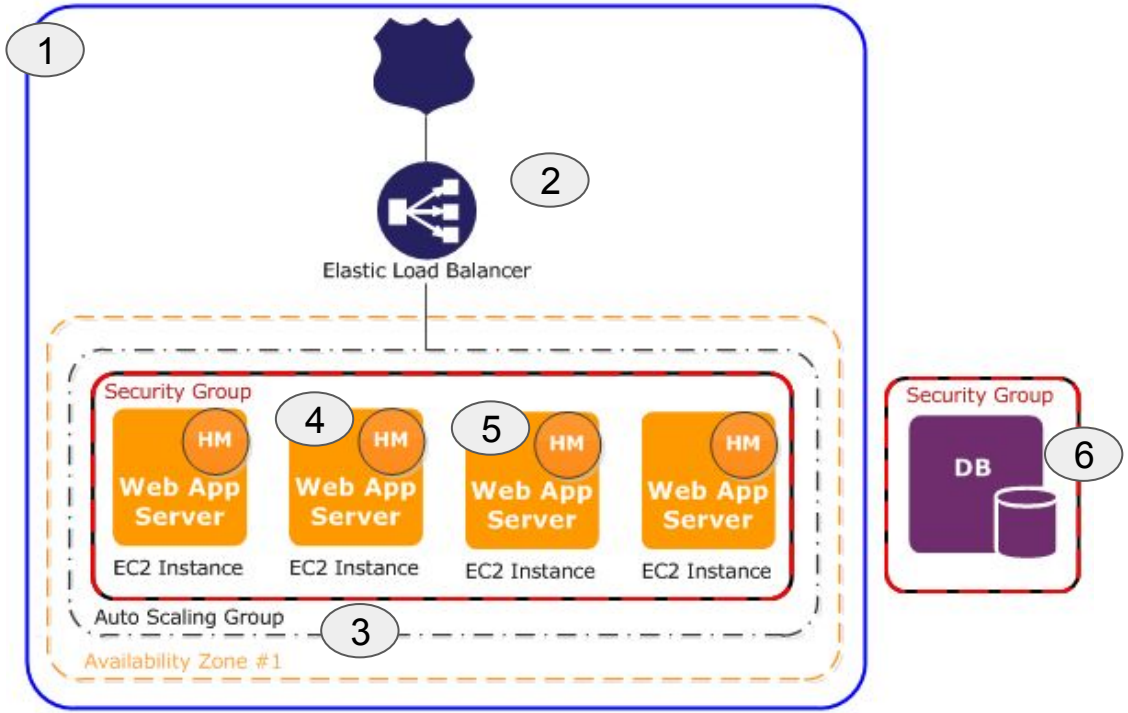
- EC2 instance
- Instance security group
- Amazon S3 bucket
- Amazon CloudWatch alarms
- AWS CloudFormation stack

What Is AWS Elastic Beanstalk?

The following diagram illustrates the workflow of Elastic Beanstalk.



Elastic Beanstalk: Architecture



1. Beanstalk Environment
2. Elastic Load Balancer
3. Auto Scaling Group
4. EC2 Instances
5. Host Manager
6. Security Groups

AWS Elastic Beanstalk

Applications and environments

- An application can contain multiple environments.
- Code is deployed to an environment.
- Allows matched deployment types and configurations for your development stages.

Supports two environment modes: Single Instance and High Availability.

Deployment and health notifications through Amazon SNS and CloudWatch Log Streaming.

AWS Elastic Beanstalk

Application versions

- Every deployment has its own unique version.
- All versions stored in Amazon S3.
- Allows easy rollback to a previous version without having to back out committed code changes.
- Allows you to promote versions across different environments within an application.

AWS Elastic Beanstalk

Health monitoring

- Real-time health monitoring including load balancer checks, resource metrics, OS metrics, and web server logs.
- Easily enable AWS X-Ray for additional analysis and debugging.
- Visible through Console, Amazon CloudWatch Logs streaming, Elastic Beanstalk CLI and API

AWS Elastic Beanstalk

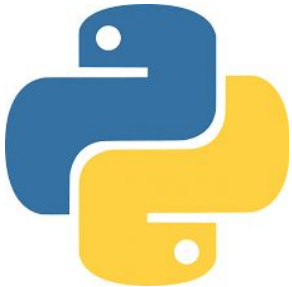
Security and compliance

- Managed updates.
- Identity and Access Management (IAM) instance profiles and services roles.
- AWS CloudTrail and AWS Config integration.

Demo Time

This hands-on walks you through the process of generating a Flask web application in order to show an simple Restful API and deploying it to an AWS Elastic Beanstalk environment.

<https://github.com/stahlmatias/aws-eb>



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Summary

Elastic Beanstalk will handle the deployment details such as provisioning, load balancing, auto scaling and application health monitoring.

No need to learn, provision, configure, or manage any of the underlying resources.

With Elastic Beanstalk you also retain full control over all the AWS resources powering your app.

Elastic Beanstalk lets you focus on building great web or mobile apps for your users without spending a lot of time managing and configuring infrastructure.

It helps get you to market faster because it's quick and simple to get started.

Where to Go Next

For more information about AWS, visit

aws.amazon.com/what-is-aws/

For more information about AWS Elastic Beanstalk, visit

docs.aws.amazon.com/elastic-beanstalk/

For more information about Flask, visit

Flask.pocoo.org

Questions?

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Thank You!