[Ahmed Heaba]

5 AWS Services

1. AWS EC2 – Elastic Compute Cloud:

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. Amazon EC2's simple web service interface allows you to obtain and configure capacity quickly and with minimum effort, EC2 provides a set of predefined instance profiles, or virtual server definitions, to create virtual machines, You can choose your VM configurations from any of the predefined instance types. VM instances can be memory-optimized, compute-optimized, or storage-optimized.

2. AWS RDS – Relational Database Service:

RDS is a managed service from AWS using which you can set up, operate and scale a relational database in the cloud easily. As with EC2, Amazon RDS is available as several predefined database instance types – optimized for memory, performance or I/O. You can also pick the database engine of your choice from the six supported technologies including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and Microsoft SQL Server.

3. AWS DynamoDB – NoSQL Database Services:

DynamoDB is Amazon's NoSQL database solution that supports document and key-value data models. It's a fully managed, multi-region, multi-active, durable database with

built-in security, backup and restore, and in-memory caching for internet-scale applications.

4. AWS S3 – Simple Storage Service:
Amazon S3 or Amazon Simple Storage Service is a service that provides is cloud-based persistent storage through a web service interface. It's built to store, protect and retrieve data from "buckets" at any time, from anywhere, on any device.

5. AWS Lambda:
AWS Lambda is an event-driven, serverless computing service that lets you run code without provisioning or managing servers. With Lambda, you can upload your code as a ZIP file or container image, and Lambda automatically and precisely allocates compute execution power and runs your code based on the incoming request or event. You can write Lambda functions in your favorite language (Node.js, Python, Go, Java, and more) and use both serverless and container tools, such as AWS SAM or Docker CLI, to build, test, and deploy your functions.

[Alaa Adel Alaraby]

5 AWS services and their usages

1- **AWS EC2 – Elastic Compute Cloud**

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. Amazon EC2's simple web service interface allows you to obtain and configure capacity quickly and with minimum effort.

EC2 provides a set of predefined instance profiles, or virtual server definitions, to create virtual machines. You can choose your VM configurations from any of the predefined instance types. VM instances can be memory-optimized, compute-optimized, or storage-optimized.

2- AWS RDS – Relational Database Service

Almost all applications deployed in AWS will need access to a database. This is where AWS' Relational Database Service (RDS) fits in. RDS is a managed service from AWS using which you can set up, operate and scale a relational database in the cloud easily. As with EC2, Amazon RDS is available as several predefined database instance types – optimized for memory, performance or I/O. You can also pick the database engine of your choice from the six supported technologies including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and Microsoft SQL Server. One of the key advantages of RDS is that the managed service automates time-consuming administration tasks such as hardware provisioning, database setup, patching and backups.

3- Amazon Simple Storage Service (S3)

We are living in the age of big data. Some call it the incessant data deluge. As a result, we need more storage than ever before. Amazon Simple Storage Service (S3) has come to the rescue. It makes sense why this would be included in our list of the top 10 most used AWS services. It offers a highly secure and redundant file storage service. It also stores data in three data centers within a specific region. And, there's more. Amazon S3 also offers integrations to help prevent breaches by way of PCI-DSS, HIPAA/HITECH, and FedRAMP. You get data flexibility without almost zero latency.

4- AWS Beanstalk

Developers have to deal with enough headaches as it is. AWS Beanstalk was created to help developers manage website infrastructure. It's difficult for developers to switch from development to maintenance at the drop of a hat. Yet, AWS Beanstalk offers autoscaling to ensure automatic updates of new software. And, this service runs automatically.

AWS Beanstalk really is a timesaver. It automates the setup, configuration, and provisioning of other AWS services such as EC2, RDS, and S3. Not to mention, the automated setup also helps to mitigate human error.

5- AWS Lambda

AWS Lambda is an event-driven, serverless computing service that lets you run code without provisioning or managing servers. With Lambda, you can upload your code as a ZIP file or container image, and Lambda automatically and precisely allocates compute execution power and runs your code based on the incoming request or event. You can write Lambda functions in your favorite language (Node.js, Python, Go, Java, and more) and use both serverless and container tools, such as AWS SAM or Docker CLI, to build, test, and deploy your functions.

Lambda Function-As-Service (FaaS) Use Cases

Lambda is a great technology choice for background processing that is triggered by events.

Typical use cases of AWS Lambda include:

- **Image transformation for newly uploaded images.**
- **Real-time metric data processing.**
- **Streaming data validation, filtering, and transformation.**

Lambda is very good at handling massive scale loads without the need to increase the amount of infrastructure allocated to your application. Unlike Amazon EC2, which is priced by the hour but metered by the second, AWS Lambda is metered by rounding up to the nearest millisecond with no minimum execution time.

[Beshoy Ayad AbdelMalak]

5 AWS Services

1- Amazon Virtual Private Cloud (Amazon VPC)

Amazon Virtual Private Cloud (Amazon VPC) gives you full control over your virtual networking environment, including resource placement, connectivity, and security. Get started by setting up your VPC in the AWS service console. Next, add resources to it such as Amazon Elastic Compute Cloud (EC2) and Amazon Relational Database Service (RDS) instances. Finally, define how your VPCs communicate with each other across accounts, Availability Zones, or AWS Regions. In the example below, network traffic is being shared between two VPCs within each Region.

2- Amazon Lightsail

Build applications and websites fast with low-cost, pre-configured cloud resources
Amazon Lightsail offers easy-to-use virtual private server (VPS) instances, containers, storage, databases, and more at a cost-effective monthly price.

With Lightsail you can

- Launch simple web applications

  use pre-configured development stacks like LAMP, Nginx, MEAN, and Node.js. to get online quickly and easily.

- Create custom websites

  Build and personalize your blog, ecommerce, or personal website in just a few clicks, with pre-configured applications like WordPress, Magento, Prestashop, and Joomla.

-

- Build small business applications

  Launch line-of-business software such as file storage and sharing, backups, financial and accounting software, and more.

- Spin up test environments

  Easily create and delete development sandboxes and test environments where you can try out new ideas, risk free.

3- Amazon Pinpoint

Amazon Pinpoint is a flexible and scalable outbound and inbound marketing communications service. You can connect with customers over channels like email, SMS, push, voice or in-app messaging. Amazon Pinpoint is easy to set up, easy to use, and is flexible for all marketing communication scenarios. Segment your campaign audience for the right customer and personalize your messages with the right content. Delivery and campaign metrics in Amazon Pinpoint measure the success of your communications. Amazon Pinpoint can grow with you and scales globally to billions of messages per day across channels.

4- AWS IoT Core

AWS IoT Core lets you connect billions of IoT devices and route trillions of messages to AWS services without managing infrastructure.

With AWS IoT Core you can

- Monitor and manage industrial operations

Build industrial IoT applications for predictive quality, maintenance, and remote operation monitoring.

- Build differentiated consumer products

Create connected applications for home automation, home security and monitoring, and home networking.

- Innovate with automotive data

Develop solutions for connected, autonomous, shared, and electric vehicle (EV) applications.

- Develop safety products

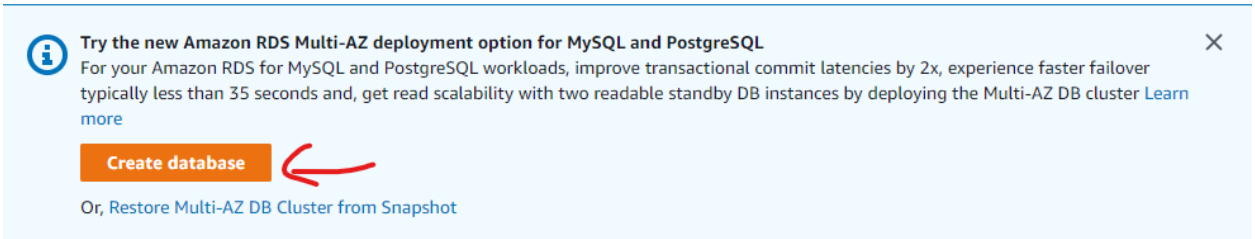
Design commercial applications for traffic monitoring, public safety, and health monitoring

5- Amazon Interactive Video Service

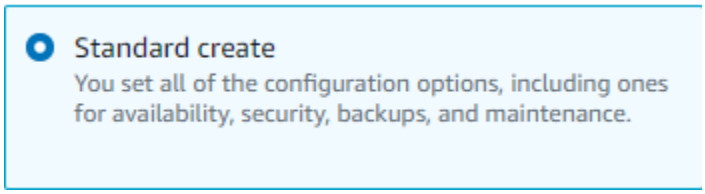
> Amazon Interactive Video Service (Amazon IVS) is a managed live streaming solution that is designed to provide quick and easy set up to let you build interactive video experiences. Send your live streams to Amazon IVS using streaming software and the service is designed to do everything you need to make low-latency live video available to viewers around the world, letting you focus on building interactive experiences alongside the video. You can customize and enhance the audience experience through the Amazon IVS player SDK, timed metadata APIs, and stream chat APIs, allowing you to build a more valuable relationship with your viewers on your own websites and applications.

PRACTICAL: Create one service under the free tier

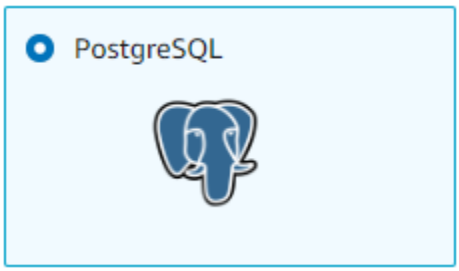
- Select Create Database



Select Standard Create



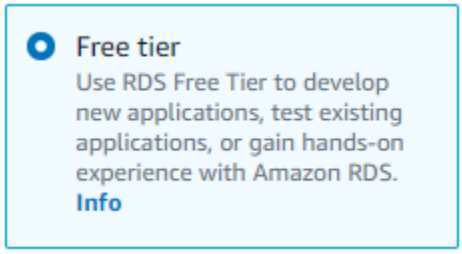
- Select Database Engine “in my case PostGreSQL”



- Select Version

My recommendation

- Select Free Tier



- Type DB instance identifier

“that is unique for all DB instances owned by your AWS account in the current region. DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance"

DB instance identifier Info

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

database-1

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

- Master Username and password :
  "In my case using postgres for poth "

▼ Credentials Settings

Master username Info

Type a login ID for the master user of your DB instance.

postgres

1 to 16 alphanumeric characters. First character must be a letter.

☐ Auto generate a password

Amazon RDS can generate a password for you, or you can specify your own password.

Master password Info

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).

Confirm password Info

- select DB.t2 for testing

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class Info

○ Standard classes (includes m classes)

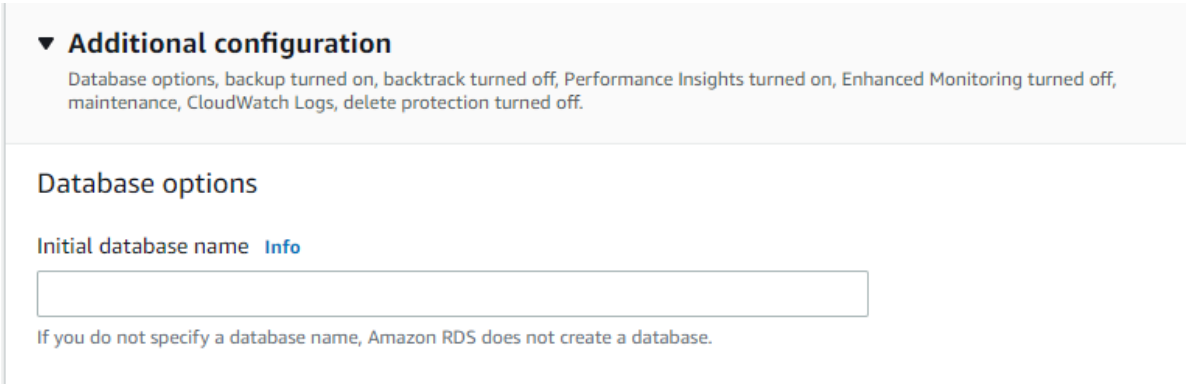
○ Memory optimized classes (includes r and x classes)

◉ Burstable classes (includes t classes)

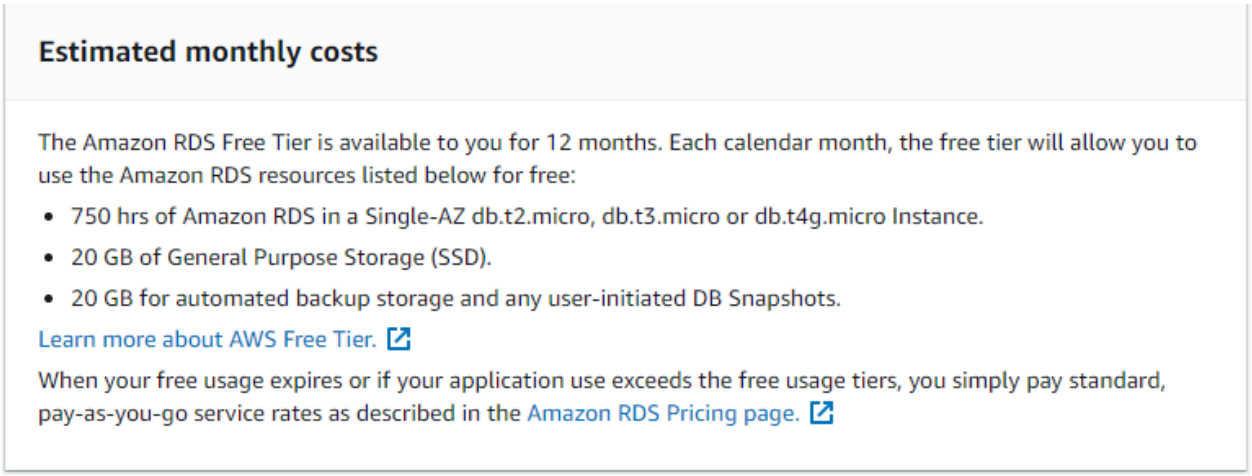
db.t2.micro
1 vCPUs 1 GiB RAM Not EBS Optimized

◯ Include previous generation classes

- Type Database name in Additional Configuration



- For testing be sure that you are in free tier and there is no add cost



- Click Create Database