AWS Certified Cloud Practitioner Training Bootcamp

Relational Database Service (RDS) Basics 101

What is Amazon RDS ?

- Amazon Relational Database Service (RDS) is a web service that makes it easier to set up, operate and scale a relational database in the cloud

- A Database is just a location to store and retrieve data

- Microsoft Excel is a great example, think of spreadsheets in Excel where information is stored in columns and rows

- RDBs can use information from multiple tables and combine it (create relations between tables)

Relational Databases Example

F12

	A	B	C	D	E	F	G	H
1	**Courses**			**Students**			**Registration**	
2	**Course Name**	**Course ID**		**Student Name**	**Student ID**		Registration ID Number	
3	Math	123		Mary	135		Course ID	
4	History	234		John	246		Student ID	
5	Physics	456		Gabriel	357			
6								

Course Table

Courses	
Course Name	Course ID
Math	123
History	234
Physics	456

Students Table

Students	
Student Name	Student ID
Mary	135
John	246
Gabriel	357

Registration Table

Registration	
Registration ID Number	
Course ID	
Student ID	

Why would you choose a managed RDS?

- Easily allocate or increase resources as you need them, on the fly (CPU, memory, storage)
- Forget about backups, OS patches, recovery
- Automated or manual backups for DB restore
- Achieve HA with primary DB and a synchronous secondary DB; use read replicas to increase read scaling
- Control who can access your DB with AWS IAM

Amazon RDS

Amazon RDS DB Instances

- The *DB Instance* is the basic building block of AWS RDS
- A DB instance is just a database environment in the cloud

Amazon RDS

- Each DB instance runs a *DB Engine* and AWS supports MySQL, MariaDB, PostgreSQL, Oracle and Microsoft SQL Server DB engines
- The DB engines differ in terms of features; the DB engine controls the DBs that it manages

Amazon RDS DB Instances

- The *DB Instance class* determines the CPU and memory the DB will use

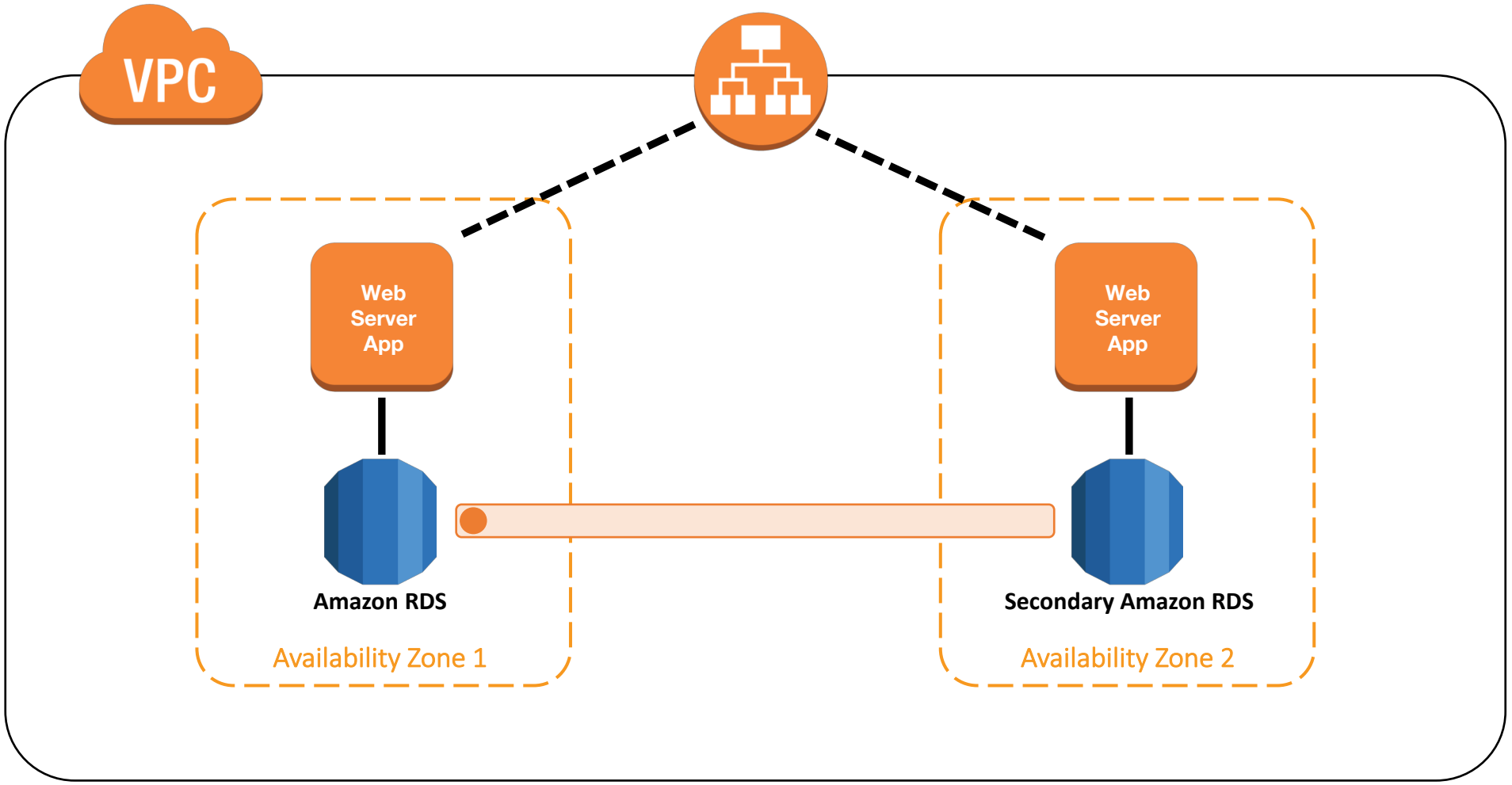
Amazon RDS

- When you select the storage for the DB, you can choose from:
  - Magnetic
  - General Purpose (SSD)
  - Provisioned IOPS (PIOPS)

- Each DB instance has min/max storage requirements; depends on the storage type and DB engine it supports

Amazon RDS Redundancy and High Availabilty

Multi-AZ Deployment



Amazon RDS Security

- RDS security is implemented through security groups; you can allow access to the DB by specifying IP address ranges or Amazon EC2 instances

- Three types of security groups can be used:
  - DB security group, controls access to a DB instance that is not in a VPC
  - VPC security group controls access to a DB instance inside a VPC
  - Amazon EC2 security group controls access of an EC2 instance to the DB

Amazon RDS Interfaces – How to interact ?

- There are several ways to interact with AWS RDS:
  - AWS Management Console
  - Command Line Interface
  - AWS Software Development Kits (SDKs)

Amazon RDS

- Monitoring?
  - You can use the free Amazon CloudWatch service to monitor the performance and health of a DB instance
  - Performance charts are shown in the Amazon RDS console

Amazon RDS Pricing

- Amazon RDS costs depend on the following:
  - Clock hours of server time – pay for what you use
  - DB instance type
  - DB purchase type – on-demand or reserved
  - Number of DBs (of course ☺)
  - Backup storage is charged on a per GB/month

Amazon RDS

Amazon RDS Pricing cont.

- Amazon RDS costs depend on the following:
  - Number of input and output requests
  - Deployment type – single or multi-AZ
  - Data transfer - inbound data transfer is free and for outbound data transfer you are charged

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Thank you