DBS-C01 Q&As

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QUESTION 1

A large retail company recently migrated its three-tier ecommerce applications to AWS. The company\\'s backend database is hosted on Amazon Aurora PostgreSQL. During peak times, users complain about longer page load times. A

database specialist reviewed Amazon RDS Performance Insights and found a spike in IO:XactSync wait events. The SQL attached to the wait events are all single INSERT statements.

How should this issue be resolved?

A. Modify the application to commit transactions in batches

B. Add a new Aurora Replica to the Aurora DB cluster.

C. Add an Amazon ElastiCache for Redis cluster and change the application to write through.

D. Change the Aurora DB cluster storage to Provisioned IOPS (PIOPS).

Correct Answer: A

https://docs.aws.amazon.com/AmazonRDS/latest/AuroraUserGuide/AuroraPostgreSQL.Re ference.html "This wait most often arises when there is a very high rate of commit activity on the system. You can sometimes alleviate this wait by modifying applications to commit transactions in batches. "
https://docs.aws.amazon.com/AmazonRDS/latest/AuroraUserGuide/apg- waits.xactsync.html

QUESTION 2

A gaming company is developing a new mobile game and decides to store the data for each user in Amazon DynamoDB. To make the registration process as easy as possible, users can log in with their existing Facebook or Amazon accounts. The company expects more than 10,000 users.

How should a database specialist implement access control with the LEAST operational effort?

A. Use web identity federation on the mobile app and AWS STS with an attached IAM role to get temporary credentials to access DynamoDB.

B. Use web identity federation on the mobile app and create individual IAM users with credentials to access DynamoDB.

C. Use a self-developed user management system on the mobile app that lets users access the data from DynamoDB through an API.

D. Use a single IAM user on the mobile app to access DynamoDB.

Correct Answer: A

Reference: https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/WIF.html

QUESTION 3

An online gaming company is planning to launch a new game with Amazon DynamoDB as its data store. The database should be designated to support the following use cases:

Update scores in real time whenever a player is playing the game. Retrieve a player\\'s score details for a specific game session.

A Database Specialist decides to implement a DynamoDB table. Each player has a unique user_id and each game has a unique game_id.

Which choice of keys is recommended for the DynamoDB table?

A. Create a global secondary index with game_id as the partition key

B. Create a global secondary index with user_id as the partition key

C. Create a composite primary key with game_id as the partition key and user_id as the sort key

D. Create a composite primary key with user_id as the partition key and game_id as the sort key

Correct Answer: D

https://aws.amazon.com/blogs/database/amazon-dynamodb-gaming-use-cases-and- design-patterns/

"EA uses the user ID as the partition key and primary key (a 1:1 modeling pattern)."
https://aws.amazon.com/blogs/database/choosing-the-right-dynamodb-partition-key/ "Partition key and sort key: Referred to as a composite primary key, this

type of key is composed of two attributes. The first attribute is the partition key, and the second attribute is the sort key."

QUESTION 4

A retail company is about to migrate its online and mobile store to AWS. The company\\'s CEO has strategic plans to grow the brand globally. A Database Specialist has been challenged to provide predictable read and write database performance with minimal operational overhead.

What should the Database Specialist do to meet these requirements?

A. Use Amazon DynamoDB global tables to synchronize transactions

B. Use Amazon EMR to copy the orders table data across Regions

C. Use Amazon Aurora Global Database to synchronize all transactions

D. Use Amazon DynamoDB Streams to replicate all DynamoDB transactions and sync them

Correct Answer: A

https://aws.amazon.com/dynamodb/features/

With global tables, your globally distributed applications can access data locally in the selected regions to get single-digit millisecond read and write performance.

Not Aurora Global Database, as per this link: https://aws.amazon.com/rds/aurora/global- database/?nc1=h_ls . Aurora Global Database lets you easily scale database reads across the world and place your applications close to your users.

QUESTION 5

A company wants to migrate its on-premises MySQL databases to Amazon RDS for MySQL. To comply with the company\\'s security policy, all databases must be encrypted at rest. RDS DB instance snapshots must also be shared across various accounts to provision testing and staging environments.

Which solution meets these requirements?

A. Create an RDS for MySQL DB instance with an AWS Key Management Service (AWS KMS) customer managed CMK. Update the key policy to include the Amazon Resource Name (ARN) of the other AWS accounts as a principal, and then allow the kms:CreateGrant action.

B. Create an RDS for MySQL DB instance with an AWS managed CMK. Create a new key policy to include the Amazon Resource Name (ARN) of the other AWS accounts as a principal, and then allow the kms:CreateGrant action.

C. Create an RDS for MySQL DB instance with an AWS owned CMK. Create a new key policy to include the administrator user name of the other AWS accounts as a principal, and then allow the kms:CreateGrant action.

D. Create an RDS for MySQL DB instance with an AWS CloudHSM key. Update the key policy to include the Amazon Resource Name (ARN) of the other AWS accounts as a principal, and then allow the kms:CreateGrant action.

Correct Answer: A

https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/USER_ShareSnapshot.html

QUESTION 6

The Security team for a finance company was notified of an internal security breach that happened 3 weeks ago. A Database Specialist must start producing audit logs out of the production Amazon Aurora PostgreSQL cluster for the Security team to use for monitoring and alerting. The Security team is required to perform real- time alerting and monitoring outside the Aurora DB cluster and wants to have the cluster push encrypted files to the chosen solution.

Which approach will meet these requirements?

A. Use pg_audit to generate audit logs and send the logs to the Security team.

B. Use AWS CloudTrail to audit the DB cluster and the Security team will get data from Amazon S3.

C. Set up database activity streams and connect the data stream from Amazon Kinesis to consumer applications.

D. Turn on verbose logging and set up a schedule for the logs to be dumped out for the Security team.

Correct Answer: C

https://aws.amazon.com/about-aws/whats-new/2019/05/amazon-aurora-with-postgresql- compatibility-supports-database-activity-streams/

"Database Activity Streams for Amazon Aurora with PostgreSQL compatibility provides a near real-time data stream of the database activity in your relational database to help you monitor activity. When integrated with third party database

activity monitoring tools, Database Activity Streams can monitor and audit database activity to provide safeguards for your database and help meet compliance and regulatory requirements."

https://docs.aws.amazon.com/AmazonRDS/latest/AuroraUserGuide/Overview.LoggingAnd Monitoring.html

QUESTION 7

A database specialist manages a critical Amazon RDS for MySQL DB instance for a company. The data stored daily could vary from .01% to 10% of the current database size. The database specialist needs to ensure that the DB instance storage grows as needed.

What is the MOST operationally efficient and cost-effective solution?

A. Configure RDS Storage Auto Scaling.

B. Configure RDS instance Auto Scaling.

C. Modify the DB instance allocated storage to meet the forecasted requirements.

D. Monitor the Amazon CloudWatch FreeStorageSpace metric daily and add storage as required.

Correct Answer: A

Explanation: If your workload is unpredictable, you can enable storage autoscaling for an Amazon RDS DB instance. With storage autoscaling enabled, when Amazon RDS detects that you are running out of free database space it automatically scales up your storage. https://aws.amazon.com/about-aws/whats-new/2019/06/rds-storage-auto-scaling/ https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/USER_PIOPS.StorageTypes.html#USER_PIOPS.Autoscaling

QUESTION 8

The Development team recently executed a database script containing several data definition language (DDL) and data manipulation language (DML) statements on an Amazon Aurora MySQL DB cluster. The release accidentally deleted thousands of rows from an important table and broke some application functionality. This was discovered 4 hours after the release. Upon investigation, a Database Specialist tracked the issue to a DELETE command in the script with an incorrect WHERE clause filtering the wrong set of rows.

The Aurora DB cluster has Backtrack enabled with an 8-hour backtrack window. The Database Administrator also took a manual snapshot of the DB cluster before the release started. The database needs to be returned to the correct state as quickly as possible to resume full application functionality. Data loss must be minimal. How can the Database Specialist accomplish this?

A. Quickly rewind the DB cluster to a point in time before the release using Backtrack.

B. Perform a point-in-time recovery (PITR) of the DB cluster to a time before the release and copy the deleted rows from the restored database to the original database.

C. Restore the DB cluster using the manual backup snapshot created before the release and change the application configuration settings to point to the new DB cluster.

D. Create a clone of the DB cluster with Backtrack enabled. Rewind the cloned cluster to a point in time before the release. Copy deleted rows from the clone to the original database.

Correct Answer: A

QUESTION 9

A company conducted a security audit of its AWS infrastructure. The audit identified that data was not encrypted in transit between application servers and a MySQL database that is hosted in Amazon RDS.

After the audit, the company updated the application to use an encrypted connection. To prevent this problem from occurring again, the company\\'s database team needs to configure the database to require in-transit encryption for all connections.

Which solution will meet this requirement?

A. Update the parameter group in use by the DB instance, and set the require_secure_transport parameter to ON.

B. Connect to the database, and use ALTER USER to enable the REQUIRE SSL option on the database user.

C. Update the security group in use by the DB instance, and remove port 80 to prevent unencrypted connections from being established.

D. Update the DB instance, and enable the Require Transport Layer Security option.

Correct Answer: A

Explanation: https://aws.amazon.com/about-aws/whats-new/2022/08/amazon-rds-mysql- supports-ssl-tls-connections/

QUESTION 10

A clothing company uses a custom ecommerce application and a PostgreSQL database to sell clothes to thousands of users from multiple countries. The company is migrating its application and database from its on- premises data center to the AWS Cloud. The company has selected Amazon EC2 for the application and Amazon RDS for PostgreSQL for the database. The company requires database passwords to be changed every 60 days. A Database Specialist needs to ensure that the credentials used by the web application to connect to the database are managed securely.

Which approach should the Database Specialist take to securely manage the database credentials?

A. Store the credentials in a text file in an Amazon S3 bucket. Restrict permissions on the bucket to the IAM role associated with the instance profile only. Modify the application to download the text file and retrieve the credentials on start up. Update the text file every 60 days.

B. Configure IAM database authentication for the application to connect to the database. Create an IAM user and map it to a separate database user for each ecommerce user. Require users to update their passwords every 60 days.

C. Store the credentials in AWS Secrets Manager. Restrict permissions on the secret to only the IAM role associated with the instance profile. Modify the application to retrieve the credentials from Secrets Manager on start up. Configure the rotation interval to 60 days.

D. Store the credentials in an encrypted text file in the application AMI. Use AWS KMS to store the key for decrypting the text file. Modify the application to decrypt the text file and retrieve the credentials on start up. Update the text file and publish a new AMI every 60 days.

Correct Answer: C

QUESTION 11

A software development company is using Amazon Aurora MySQL DB clusters for several use cases, including development and reporting. These use cases place unpredictable and varying demands on the Aurora DB clusters, and can cause momentary spikes in latency. System users run ad-hoc queries sporadically throughout the week. Cost is a primary concern for the company, and a solution that does not require significant rework is needed.

Which solution meets these requirements?

A. Create new Aurora Serverless DB clusters for development and reporting, then migrate to these new DB clusters.

B. Upgrade one of the DB clusters to a larger size, and consolidate development and reporting activities on this larger DB cluster.

C. Use existing DB clusters and stop/start the databases on a routine basis using scheduling tools.

D. Change the DB clusters to the burstable instance family.

Correct Answer: A

https://docs.aws.amazon.com/AmazonRDS/latest/AuroraUserGuide/Concepts.DBInstance Class.html

QUESTION 12

A Database Specialist is constructing a new Amazon Neptune DB cluster and tries to load data from Amazon S3 using the Neptune bulk loader API. The Database Specialist is confronted with the following error message:

Unable to establish a connection to the s3 endpoint. The source URL is s3:/mybucket/graphdata/ and the region code is us-east-1. Kindly confirm your Configuration S3.

Which of the following activities should the Database Specialist take to resolve the issue? (Select two.)

A. Check that Amazon S3 has an IAM role granting read access to Neptune

B. Check that an Amazon S3 VPC endpoint exists

C. Check that a Neptune VPC endpoint exists

D. Check that Amazon EC2 has an IAM role granting read access to Amazon S3

E. Check that Neptune has an IAM role granting read access to Amazon S3

Correct Answer: BE

Explanation: https://docs.aws.amazon.com/neptune/latest/userguide/bulk-load-tutorial- IAM.html
https://docs.aws.amazon.com/neptune/latest/userguide/bulk-load-data.html

"An IAM role for the Neptune DB instance to assume that has an IAM policy that allows access to the data files in the S3 bucket. The policy must grant Read and List permissions." "An Amazon S3 VPC endpoint. For more information, see the Creating an Amazon S3 VPC Endpoint section."

QUESTION 13

A company has an AWS CloudFormation stack that defines an Amazon RDS DB instance. The company accidentally deletes the stack and loses recent data from the DB instance. A database specialist must change the CloudFormation template for the RDS resource to reduce the chance of accidental data loss from the DB instance in the future.

Which combination of actions should the database specialist take to meet this requirement? (Choose three.)

A. Set the DeletionProtection property to True.

B. Set the MultiAZ property to True.

C. Set the TerminationProtection property to True.

D. Set the DeleteAutomatedBackups property to False.

E. Set the DeletionPolicy attribute to No.

F. Set the DeletionPolicy attribute to Retain.

Correct Answer: ADF

QUESTION 14

A company uses Amazon DynamoDB as the data store for its ecommerce website. The website receives little to no traffic at night, and the majority of the traffic occurs during the day. The traffic growth during peak hours is gradual and predictable on a daily basis, but it can be orders of magnitude higher than during off-peak hours.

The company initially provisioned capacity based on its average volume during the day without accounting for the variability in traffic patterns. However, the website is experiencing a significant amount of throttling during peak hours. The company wants to reduce the amount of throttling while minimizing costs.

What should a database specialist do to meet these requirements?

A. Use reserved capacity. Set it to the capacity levels required for peak daytime throughput.

B. Use provisioned capacity. Set it to the capacity levels required for peak daytime throughput.

C. Use provisioned capacity. Create an AWS Application Auto Scaling policy to update capacity based on consumption.

D. Use on-demand capacity.

Correct Answer: C

On-demand mode is a good option if any of the following are true: You create new tables with unknown workloads. You have unpredictable application traffic. You prefer the ease of paying for only what you use. https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/HowItWorks.Read WriteCapacityMode.html#HowItWorks.ProvisionedThroughput.Manual Amazon DynamoDB auto scaling uses the AWS Application Auto Scaling service to dynamically adjust provisioned throughput capacity on your behalf https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/AutoScaling.html

QUESTION 15

A company is running a blogging platform. A security audit determines that the Amazon RDS DB instance that is used by the platform is not configured to encrypt the data at rest. The company must encrypt the DB instance within 30 days.

What should a database specialist do to meet this requirement with the LEAST amount of downtime?

A. Create a read replica of the DB instance, and enable encryption. When the read replica is available, promote the read replica and update the endpoint that is used by the application. Delete the unencrypted DB instance.

B. Take a snapshot of the DB instance. Make an encrypted copy of the snapshot. Restore the encrypted snapshot. When the new DB instance is available, update the endpoint that is used by the application. Delete the unencrypted DB instance.

C. Create a new encrypted DB instance. Perform an initial data load, and set up logical replication between the two DB instances When the new DB instance is in sync with the source DB instance, update the endpoint that is used by the application. Delete the unencrypted DB instance.

D. Convert the DB instance to an Amazon Aurora DB cluster, and enable encryption. When the DB cluster is available, update the endpoint that is used by the application to the cluster endpoint. Delete the unencrypted DB instance.

Correct Answer: C

Explanation: https://docs.aws.amazon.com/prescriptive-guidance/latest/patterns/encrypt- an-existing-amazon-rds-for-postgresql-db-instance.html When the new, encrypted copy of the DB instance becomes available, you can point your applications to the new database. However, if your project doesn\\'t allow for significant downtime for this activity, you need an alternate approach that helps minimize the downtime. This pattern uses the AWS Database Migration Service (AWS DMS) to migrate and continuously replicate the data so that the cutover to the new, encrypted database can be done with minimal downtime.