Google Discussions

EXAM PROFESSIONAL DATA ENGINEER TOPIC 1 QUESTION 236 DISCUSSION

Actual exam question from Google's Professional Data Engineer
Question #: 236
Topic #: 1
[All Professional Data Engineer Questions]

You are deploying a MySQL database workload onto Cloud SQL. The database must be able to scale up to support several readers from various geographic regions. The database must be highly available and meet low RTO and RPO requirements, even in the event of a regional outage. You need to ensure that interruptions to the readers are minimal during a database failover. What should you do?

A. Create a highly available Cloud SQL instance in region Create a highly available read replica in region B. Scale up read workloads by creating cascading read replicas in multiple regions. Backup the Cloud SQL instances to a multi-regional Cloud Storage bucket. Restore the Cloud SQL backup to a new instance in another region when Region A is down.

B. Create a highly available Cloud SQL instance in region A. Scale up read workloads by creating read replicas in multiple regions. Promote one of the read replicas when region A is down.

C. Create a highly available Cloud SQL instance in region A. Create a highly available read replica in region B. Scale up read workloads by creating cascading read replicas in multiple regions. Promote the read replica in region B when region A is down.

D. Create a highly available Cloud SQL instance in region A. Scale up read workloads by creating read replicas in the same region. Failover to the standby Cloud SQL instance when the primary instance fails.

Show Suggested Answer

by scaenruy at *Jan. 3, 2024, 1:41 p.m.*

Comments

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rohan.sahi Highly Voted 1 year, 3 months ago

Selected Answer: C

Option C: Because HA read replica in multiple regions.
NotA: Coz restore from back up is time taking
NotB: No HA in Multiple regions read replica
Not D: Only one region mentioned.

upvoted 10 times

raaad Highly Voted 1 year, 4 months ago

Selected Answer: C

- Combines high availability with geographic distribution of read workloads.
- Promoting a highly available read replica can provide a quick failover solution, potentially meeting low RTO and RPO requirements.

=====
Why not A:
Restoring from backup to a new instance in another region during a regional outage might not meet low RTO and RPO requirements due to the time it takes to perform a restore.

upvoted 5 times

AllenChen123 1 year, 3 months ago

Why not B?

upvoted 1 times

datapassionate 1 year, 3 months ago

Why not B:
While B option scales up read workloads across multiple regions, it doesn't specify high availability for the read replica in another region. In the event of a regional outage, promoting a non-highly available read replica might not provide the desired uptime and reliability.

upvoted 5 times

mi_yulai Most Recent 6 months, 1 week ago

Why C? Is it possible to have HA enable in different regions? How the synchronization in disk will wokr for HA?

upvoted 1 times

tibuenoc 1 year, 3 months ago

Selected Answer: B

https://cloud.google.com/sql/docs/mysql/replication

This option involves having read replicas in multiple regions, allowing you to promote one of them in the event of a failure in region A. While there may still be a brief interruption during the failover, it is likely to be less than the time required for the synchronization of cascading read replicas.

upvoted 1 times

Matt_108 1 year, 3 months ago

Selected Answer: B

To me, it's B. it provides:
High availability: The highly available Cloud SQL instance in region A will ensure that the database remains accessible even if one of the zones in the region becomes unavailable.
Scalability: The read replicas in multiple regions will enable you to scale up the read capacity of the database to support the demands of readers from various geographic regions.
Minimal interruptions: When region A is down, one of the read replicas in another region will be promoted to become the new primary instance. This will ensure that there is no interruption to the readers.

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Matt_108 1 year, 3 months ago

Why not others:
Approach A: This approach requires you to restore a backup from a different region, which could take some time. This could result in a significant RPO (Recovery Point Objective) for the database. Additionally, the restored instance may not be physically located in the same region as the readers, which could impact performance.
Approach C: This approach requires you to promote the read replica in region B, which could result in a temporary interruption to the readers while the promotion is taking place. Additionally, the read replica in region B may not be able to

handle the same level of read traffic as the primary instance in region A.
Approach D: This approach does not provide the same level of scalability as the other approaches, as you are limited to read replicas in the same region. Additionally, failover to the standby instance could result in a temporary interruption to the readers.

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Matt_108 1 year, 3 months ago

Ignore my previous messages, it's C :D

upvoted 3 times

scaenruy 1 year, 4 months ago

Selected Answer: A

A.
Create a highly available Cloud SQL instance in region Create a highly available read replica in region B. Scale up read workloads by creating cascading read replicas in multiple regions. Backup the Cloud SQL instances to a multi-regional Cloud Storage bucket. Restore the Cloud SQL backup to a new instance in another region when Region A is down.

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