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EXAM PROFESSIONAL DATA ENGINEER TOPIC 1 QUESTION 287 DISCUSSION

Actual exam question from Google's Professional Data Engineer

Question #: 287

Topic #: 1

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You are administering shared BigQuery datasets that contain views used by multiple teams in your organization. The marketing team is concerned about the variability of their monthly BigQuery analytics spend using the on-demand billing model. You need to help the marketing team establish a consistent BigQuery analytics spend each month. What should you do?

- A. Create a BigQuery Enterprise reservation with a baseline of 250 slots and autoscaling set to 500 for the marketing team, and bill them back accordingly.
- B. Establish a BigQuery quota for the marketing team, and limit the maximum number of bytes scanned each day.
- C. Create a BigQuery reservation with a baseline of 500 slots with no autoscaling for the marketing team, and bill them back accordingly.
- D. Create a BigQuery Standard pay-as-you go reservation with a baseline of 0 slots and autoscaling set to 500 for the marketing team, and bill them back accordingly.

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by [scaenrui](#) at Jan. 4, 2024, 11:08 a.m.

Comments

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🗄️ 👤 **raaad** Highly Voted 1 year, 3 months ago

Selected Answer: C

Reservations guarantee a fixed number of slots (computational resources) for BigQuery queries, ensuring a predictable monthly cost, addressing the marketing team's concern about variability.

👍 🔄 🚩 upvoted 13 times

🗄️ 👤 **AllenChen123** 1 year, 3 months ago

Why 500 slots?

👍 🔄 🚩 upvoted 4 times

🗄️ 👤 **AllenChen123** 1 year, 3 months ago

But seems only C makes sense.

https://cloud.google.com/bigquery/quotas#query_jobs

"There is no limit to the number of bytes that can be processed by queries in a project."

👍 🔄 🚩 upvoted 3 times

🗄️ 👤 **datapassionate** 1 year, 3 months ago

"However, you can set limits on the amount of data users can query by creating custom quotas to control query usage per day or query usage per day per user."

<https://cloud.google.com/blog/products/data-analytics/manage-bigquery-costs-with-custom-quotas>

B would be correct

👍 🔄 🚩 upvoted 2 times

🗄️ 👤 **saschak94** 1 year, 2 months ago

If you use B - the marketing team wouldn't be able to run their queries when the quota is reached, which could harm the business.

Having a reservation for 500 slots and no autoscaling gives you exact predictable cost for each month without harming the business or have variable cost with autoscaling

So C should be the right answer

👍 🔄 🚩 upvoted 8 times

🗄️ 👤 **gabbferreira** Most Recent 1 week, 5 days ago

Selected Answer: C

It's C

👍 🔄 🚩 upvoted 1 times

🗄️ 👤 **desertlotus1211** 1 month, 1 week ago

Selected Answer: C

Answer A - Autoscaling introduces variable costs — which defeats the goal of cost consistency

Answer B: it doesn't convert to predictable costs — on-demand billing still applies per scan.

Answer C is best.

👍 🔄 🚩 upvoted 1 times

🗄️ 👤 **MarcoPellegrino** 2 months, 2 weeks ago

Selected Answer: B

The input doesn't specify the consistent monthly spend. hence, A, C, and D can't be used

👍 🔄 🚩 upvoted 1 times

🗄️ 👤 **desertlotus1211** 1 month, 1 week ago

Answer A - Autoscaling introduces variable costs — which defeats the goal of cost consistency

Answer B: it doesn't convert to predictable costs — on-demand billing still applies per scan.

Answer C is best.

👍 🔄 🚩 upvoted 1 times

🗄️ 👤 **desertlotus1211** 1 month, 1 week ago

'The marketing team is concerned about the variability of their monthly BigQuery analytics spend using the on-demand billing model' so yes - this implies wanting consistent spend.

👍 🔄 🚩 upvoted 1 times

🗄️ 👤 **Augustax** 2 months, 4 weeks ago

Selected Answer: A

Estimate a consistent spending doesn't mean overpay...

   upvoted 1 times

  **Maxd** 3 months ago

A because allow flexibility and scaling, so setting a baseline with autoscaling ensures that the marketing team can handle their queries without large fluctuations in cost.

   upvoted 1 times

  **b3e59c2** 3 months, 3 weeks ago

Selected Answer: C

C seems much more robust and reliable than B. We can keep spend consistent whilst not sacrificing on performance (if we do B, once the byte scan limit has been reached, users will not be able to perform any analysis which could be detrimental to business)

   upvoted 1 times

  **himadri1983** 4 months, 3 weeks ago

Selected Answer: C

This is trick question. The answer B is setting quota on bytes but it does not address the cost variability. The C will give the predictable monthly cost.

   upvoted 2 times

  **m_a_p_s** 4 months, 3 weeks ago

Selected Answer: C



Answer appears to be C. Check the example from docs: https://cloud.google.com/bigquery/docs/reservations-workload-management#managing_your_workloads_and_departments_using_reservations

   upvoted 1 times

  **CloudAdrMX** 5 months ago

It's a treaking question but it's C, they are asking for establish a consistent Bigquery analytics spend each month, if you put 500 slots as baseline and with no autoscaling, each month they'll get the a consistent Bigquery analytics spend.


   upvoted 1 times

  **cloud_rider** 5 months, 1 week ago

Selected Answer: B

A, C and D talks about slot counts, whereas question does not talk about any such requirement, we should not make assumption on slots required or not required. Option B provides the visibility of cost to the team and can be revised as needed. So B is the right option.

   upvoted 1 times

  **8284a4c** 6 months ago

Selected Answer: A

The correct answer is:

A. Create a BigQuery Enterprise reservation with a baseline of 250 slots and autoscaling set to 500 for the marketing team, and bill them back accordingly.

Here's the rationale:

Consistent Spend with Reservation: Creating a BigQuery Enterprise reservation provides the marketing team with dedicated slots, which can help stabilize and predict their monthly costs. By having a reservation baseline of 250 slots, they are guaranteed a certain level of performance and cost each month.

Autoscaling for Flexibility: The autoscaling up to 500 slots allows the team to handle spikes in demand without being constrained by the fixed slot count. Autoscaling in this scenario enables some flexibility while still providing predictable spending due to the baseline.

Billing Back: The reservation model allows for internal chargeback by department based on slot usage, helping the marketing team plan a predictable budget.




   upvoted 4 times

  **mi_yulai** 6 months, 1 week ago

Answer is B. Custom quotas are a powerful feature that allow you to set hard limits on specific resource usage. In the case of BigQuery, quotas allow you to control query usage (number of bytes processed) at a project- or user-level. Project-level custom quotas limit the aggregate usage of all users in that project, while user-level custom quotas are separately applied to each user or service account within a project.

Custom quotas are relevant when you are using BigQuery's on-demand pricing model, which charges for the number of bytes processed by each query. When you are using the capacity pricing model, you are charged for compute capacity (measured in slots) used to run queries, so limiting the number of bytes processed is less useful.

By setting custom quotas, you can control the amount of query usage by different teams, applications, or users within your organization, preventing unexpected spikes in usage and costs.

   upvoted 2 times

🗄️ 👤 **baimus** 6 months, 4 weeks ago

Selected Answer: C

Just to clarify a point of confusion: setting a quota does not affect variability (as specified in the question). It means there is a limit to the maximum but it can still vary anywhere between zero and that maximum each month. It would also prevent the marketing team actually performing the queries if set too low. C is the only one that makes sense, though the question "why 500" is a valid one, all the other answers simply do not deliver the requirements.

👍 ↩️ 🚩 upvoted 1 times

🗄️ 👤 **Preetmehta1234** 7 months, 1 week ago

Selected Answer: B

It should be B

C is a subset of B. I mean you can put custom quota == 500 slots and obviously there wont be any auto scaling. that exactly the purpose of quota

👍 ↩️ 🚩 upvoted 2 times

🗄️ 👤 **chrissamharris** 7 months, 1 week ago

A Create a BigQuery Enterprise reservation with a baseline of 250 slots and autoscaling set to 500 for the marketing team, and bill them back accordingly.

Gives a consistent baseline cost and allocation for peak times

👍 ↩️ 🚩 upvoted 1 times

🗄️ 👤 **Preetmehta1234** 7 months, 1 week ago

Selected Answer: B

The objective here is not performance. It's more concerned about the spend each month. It's not about 250 slots or 500 slots. Selecting a custom quota will let you select what ever slot you want but stay consistent with it, rather than getting stick by a particular slot option.

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