Google Discussions

EXAM ASSOCIATE CLOUD ENGINEER TOPIC 1 QUESTION 128 DISCUSSION

Actual exam question from Google's Associate Cloud Engineer
Question #: 128
Topic #: 1
[All Associate Cloud Engineer Questions]

You have an application on a general-purpose Compute Engine instance that is experiencing excessive disk read throttling on its Zonal SSD Persistent Disk. The application primarily reads large files from disk. The disk size is currently 350 GB. You want to provide the maximum amount of throughput while minimizing costs.
What should you do?

A. Increase the size of the disk to 1 TB.

B. Increase the allocated CPU to the instance.

C. Migrate to use a Local SSD on the instance.

D. Migrate to use a Regional SSD on the instance.

Show Suggested Answer

by szakaria at *July 9, 2020, 7:48 a.m.*

Comments

DarioFama23 Highly Voted 4 years, 3 months ago

C is correct, local SSD has more IOPS

upvoted 36 times

TAvenger 3 years, 8 months ago

Agree. This is also cheaper than having 350 Gb persistent SSD:
Here are calculations (taken from GCP when creating instance)
350 Gb SSD Persistent disk: 59.50$/month, read IOPS: 10 500 with n1-standard-1
1000 Gb SSD Persistent disk: 170.00$/month, read IOPS: 15 000 with n1-standard-1
375 Gb Local SSD (NVMe): 30.00$/month, read IOPS: 170 000 with n1-standard-1

upvoted 13 times

RegisFTM 2 years, 10 months ago

trick question... locak-ssd is not persistent. increasing the size of of the disk will also increase the iops. A is correct imho.

upvoted 7 times

shanx910 2 years, 9 months ago

Local SSDs have higher throughput and lower latency than standard persistent disks or SSD persistent disks. The data that you store on a local SSD persists only until the instance is stopped or deleted.

upvoted 2 times

obeythefist 2 years, 7 months ago

I once thought that A was the correct response because of the persistence problem, but reading the question carefully, we must choose C over A.

The question does not stipulate that the local files must be persistent, and this is the only reason why you would choose "A" over "C".

Also, the question has an important key word: Minimising costs.

1TB of zonal persistent disk costs a huge amount more than 350GB of local disk.

We should choose C.

upvoted 8 times

pfabio 2 years, 5 months ago

Very Nice, agree C is correct

upvoted 1 times

[Removed] 2 years ago

they have been using persistent disk....there was a reason during the initial design.....persistent disk was a req....we should find a solution without affecting that...increasing the size would be the best solution for this scenario.

upvoted 4 times

ESP_SAP Highly Voted 4 years, 2 months ago

Correct Answer is (C):

Performance

Standard persistent disks are efficient and economical for handling sequential read/write operations, but they aren't optimized to handle high rates of random input/output operations per second (IOPS). If your apps require high rates of random IOPS, use SSD persistent disks. SSD persistent disks are designed for single-digit millisecond latencies. Observed latency is application specific.

https://cloud.google.com/compute/docs/disks#performance

upvoted 16 times

hogtrough 2 years, 8 months ago

A local SSD is not the same as an SSD persistent disk.

"Local SSDs are physically attached to the server that hosts your VM instance. Local SSDs have higher throughput and lower latency than standard persistent disks or SSD persistent disks. The data that you store on a local SSD persists only until the instance is stopped or deleted."
https://cloud.google.com/compute/docs/disks#localssds

The answer is C.

upvoted 4 times

hogtrough 2 years, 8 months ago

nogtrough 2 years, 8 months ago

Sorry, A not C.

upvoted 1 times

cooldude26 Most Recent 11 months, 1 week ago

Selected Answer: C

C. Migrate to use a Local SSD on the instance.

Local SSDs provide high-throughput, low-latency storage that is physically attached to the instance. This can be beneficial for applications experiencing excessive disk read throttling, especially when dealing with large files. Local SSDs are ideal for temporary data that can be recomputed or regenerated if lost, and they can offer improved performance compared to Zonal SSD Persistent Disks.
(https://cloud.google.com/compute/docs/disks/local-ssd#create_local_ssd_instance) for detailed instructions.

upvoted 3 times

scanner2 1 year, 1 month ago

Selected Answer: C

Local SSD provides more throughput than Persistent disks and is cost effective solution. So, correct answer is C.

upvoted 1 times

Bobbybash 1 year, 8 months ago

Selected Answer: C

C. Migrate to use a Local SSD on the instance. Local SSDs provide higher throughput and lower latency compared to Zonal SSD Persistent Disks, and are optimized for use cases that require high-speed, temporary storage. They are physically attached to the instance, so network latencies are minimized. However, they are not intended for long-term storage and may not provide the same level of durability as persistent disks. Since the application is primarily reading large files from disk and experiencing disk read throttling, using a Local SSD should provide a significant improvement in performance while minimizing costs. Increasing the size of the Zonal SSD Persistent Disk or increasing the allocated CPU to the instance may provide some improvement, but are unlikely to fully address the disk read throttling issue. Migrating to a Regional SSD is also not likely to improve performance significantly, as the disk is still separate from the instance and network latencies can impact performance.

upvoted 3 times

researched_answer_boi 1 year, 9 months ago

According to the page containing the tables and to the tables "https://cloud.google.com/compute/docs/disks/performance#n1_vms" and "https://cloud.google.com/compute/docs/disks/performance#n2_vms", the number of CPU cores greatly influence the available max. read THROUGHPUT ("excessive disk read throttling on its Zonal SSD Persistent Disk", "The application primarily reads large files from disk.") on general purpose VMs.
The question also requires minimizing the costs, however, as Local SSDs are EPHEMERAL, they are out of question for the scenario at hand.
So, answer "B" seems to be the correct one.

upvoted 1 times

AwesomeGCP 2 years ago

Selected Answer: C

C. Migrate to use a Local SSD on the instance

upvoted 1 times

Charumathi 2 years ago

Selected Answer: C

C is the correct Answer,

Local SSDs
Local SSDs are physically attached to the server that hosts your VM instance. Local SSDs have higher throughput and lower latency than standard persistent disks or SSD persistent disks. The data that you store on a local SSD persists only until the instance is stopped or deleted. Each local SSD is 375 GB in size, but you can attach a maximum of 24 local SSD partitions for a total of 9 TB per instance.

Performance
Local SSDs are designed to offer very high IOPS and low latency. Unlike persistent disks, you must manage the striping on local SSDs yourself. Combine multiple local SSD partitions into a single logical volume to achieve the best local SSD performance per instance, or format local SSD partitions individually.

Local SSD performance depends on which interface you select. Local SSDs are available through both SCSI and NVMe interfaces.

upvoted 1 times

Cornholio_LMC 2 years ago

had this question today

upvoted 2 times

upvoted 2 times

gcp_world123 2 years, 2 months ago

C is correct

Local SSDs are physically attached to the server that hosts your VM instance. Local SSDs have higher throughput and lower latency than standard persistent disks or SSD persistent disks. The performance gains from local SSDs require certain trade-offs in availability, durability, and flexibility. Because of these trade-offs, Local SSD storage isn't automatically replicated and all data on the local SSD might be lost if the instance terminates for any reason.

Ref: https://cloud.google.com/compute/docs/disks#localssds
Ref: https://cloud.google.com/compute/docs/disks/performance#type_comparison

upvoted 1 times

theBestStudent 2 years, 2 months ago

Selected Answer: B

C can´t B for the reasons explained here in the answers (local disk info will be totally deleted if you restart or delete your vm). Then A or B. Google recommends to increase the size of the disk as performance of the disk is linear to the size of the same. But Im wondering if 1TB is too much (it is almost 2 times more the original size of the disk, and that sounds like too much, plus if with 350GB the files already fit there, then increasing the size of the disk "a little bit more" should have been a better approach to test how the performance increases. Then Google Also recommends to add more CPU to get a better IOPS, it might be cheaper than option A if the right machine with more CPU is chosen.

Answer: B

upvoted 1 times

AzureDP900 2 years, 4 months ago

Local SSD .. C is right

upvoted 1 times

Tirthankar17 2 years, 4 months ago

Selected Answer: C

C is correct.

upvoted 1 times

Rutu_98 2 years, 5 months ago

Selected Answer: C

Go with C
As Local SSDs have high IOPS

upvoted 1 times

Akash7 2 years, 6 months ago

C for me.
https://cloud.google.com/compute/docs/disks#performance

upvoted 1 times

Soso_zozo 2 years, 6 months ago

Correct Answer is B
From both tables:
https://cloud.google.com/compute/docs/disks/performance#performance_by_disk_size
https://cloud.google.com/compute/docs/disks/performance#machine-type-disk-limits

The general purpose vm limit is less than ssd persistent disk size limit of 250-500

upvoted 3 times

s_a_t_y_a_m 2 years, 7 months ago

Selected Answer: C

Increasing Disk size would increase cost while question is asking for minimising the cost

upvoted 2 times

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