Cross region_copy_incremental snapshots

Last updated by | Kevin Gregoire | Dec 8, 2022 at 2:02 PM PST

Tags

cw.Disk-Mgmt cw.TSG

Contents

Cross-Region copy of Incremental Snapshots

Summary

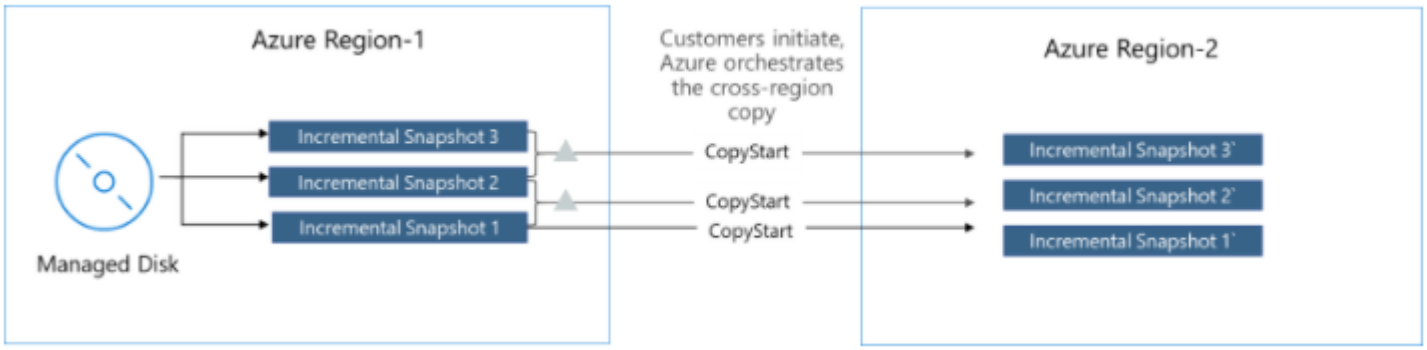
Cross-Region copy of incremental Snapshots allows customers to download incremental snapshot as a base page blob in another region. For the subsequent incremental snapshots, they can copy only the changes since the last snapshot to the base blob. After copying the changes, customers can take snapshots on the base blob that represent point in time backup of the disk in another region. They can restore their disk either from the base blob or from a snapshot on the base blob in another region.

Now customers can use the new create option CopyStart to initiate the copy of incremental snapshots to any region of their choice. Azure does the heavy lifting of managing the copy process and ensures that only delta changes since the last snapshot are copied to another region to reduce the data footprint, reducing recovery point objective (RPO). Customers can check the completion percentage of the copy to know when a target snapshot is ready for restoring disks and reading data in the target region. Customers can use CopyStart option to copy snapshots to another subscription for long-term retention. They can also use CopyStart option to copy

snapshots in the same region to ensure that snapshots are fully hardened on zone-redundant storage to get guarantee that snapshots are available during an entire zone failure.

Customer orchestrated cross-region copy of snapshots

Azure orchestrated cross-region copy of incremental snapshots via the new Clone option



Features

- By default system should create incremental snapshots for managed disks (all types except Ultra SSD) when customer create Snapshots. The default value of the property "Incremental" should be set to true at the time of Snapshot creation.
- Customers can set the value of the property "Incremental" to false to create a full Snapshot.
- The incremental Snapshots are stored on Standard_LRS by default if the region does not support Standard_ZRS
- The incremental Snapshots are stored on Standard_ZRS by default if the region supports zone redundant storage
- Customers cannot change the Storage type of incremental Snapshots
- The time to create Snapshot should not regress the current numbers.

More Information

At this time the disk RP is a regional service. All of a disk's resources live in a single region, and all operations using them create new resources in the same region. Cross-Region Copy of Incremental Snapshots defines a set of basic primitives allowing customers to create copies of their managed disk resources to different regions. To begin with, the only resources that can be created from remote sources are managed disks, managed snapshots

(incremental and non-incremental) and incremental restore points. Remote copy between regions will use the slow resource creation mechanism introduced by the disk RP (https://microsoft.sharepoint.com/:w:/t/ComputeVM/EVuBu2WZsJ1GmmdNxzIXFugBE99f1sQ8sqYauf1vkDe5XQ?e=qRadza)

Advantages / Disadvantages

The advantages are:

- The managed snapshot's life cycle is independent of the source disk; once a snapshot has been created, the disk can be deleted, and the snapshot will continue to exist.
- The managed snapshot can be created quickly
- Snapshot creation is not affected by moves of the disk's underlying blob (see the managed disk design spec for details)

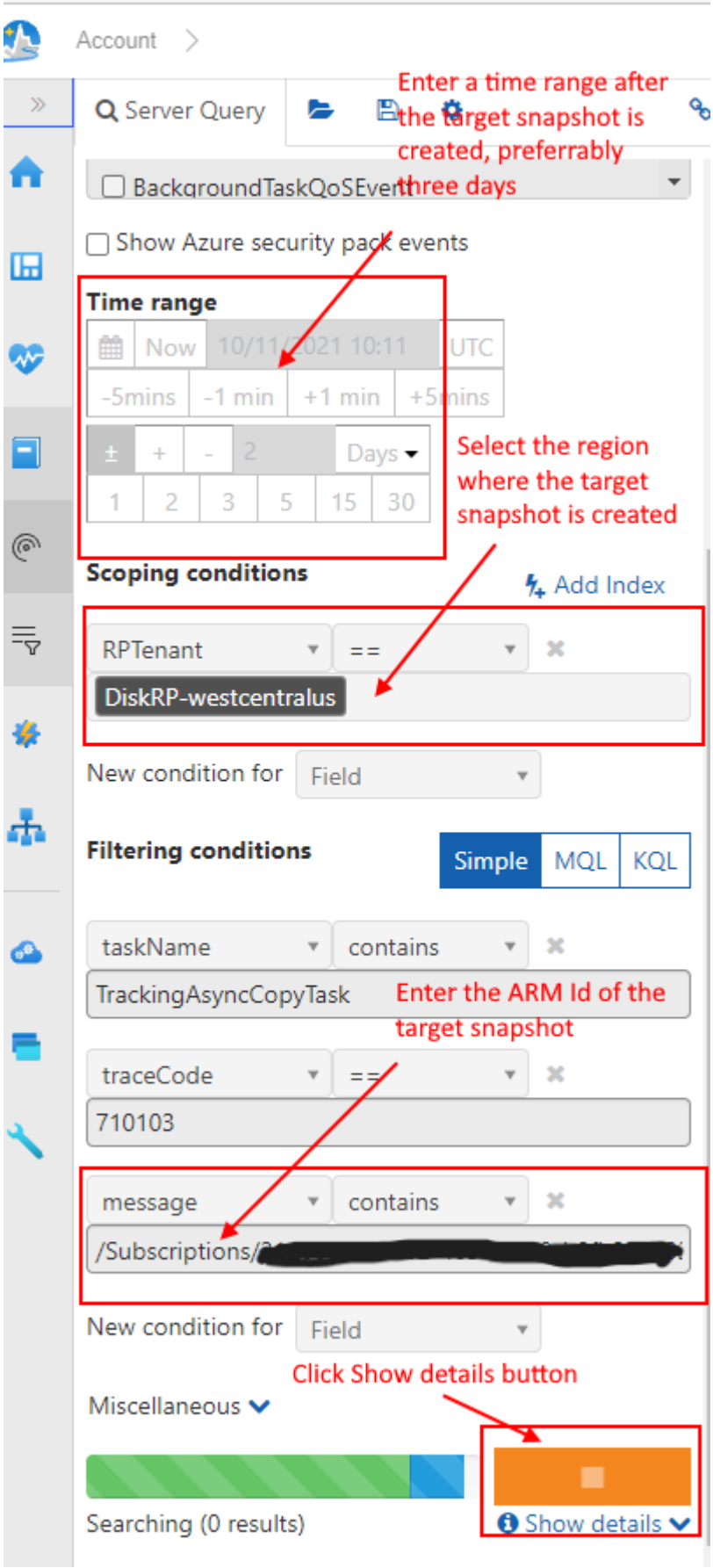
The disadvantages are:

- Each snapshot is a full copy of the source disk; this is expensive. Since a large portion of the disk's contents doesn't usually change between two snapshots, recopying the same bits is not necessary
- There is no easy way to get the delta between two snapshots.

Troubleshooting

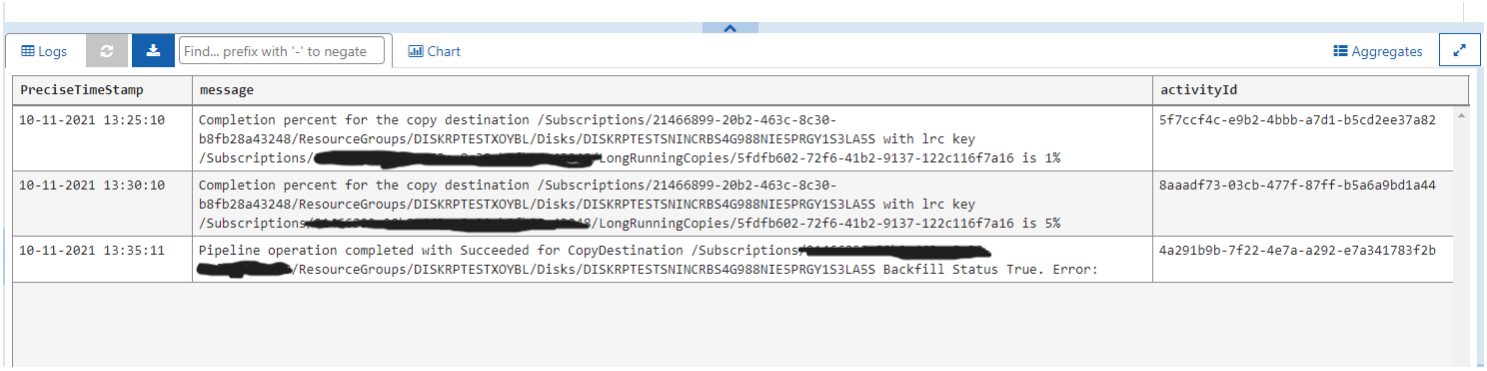
Find if copy has Hanged for a Snapshot

1. Browse the URL https://portal.microsoftgeneva.com/s/62803206
2. Follow the instructions to select the region where the target snapshot is created and the ARM Id of the snapshot



3. Click rows in the results pane to see full error messages. If you don't see the last row with the message "Pipeline operation completed with success" and if you see that the completion percent is constant for a long time in the rows, it means that the copy has hanged and the dev team has to investigate. You should

file an ICM to xstore/Triage and say that it is a table server issue and the ICM should be assigned to the team.



Logs | Find... prefix with '-' to negate | Chart | Aggregates

PreciseTimeStamp	message	activityId
10-11-2021 13:25:10	Completion percent for the copy destination /Subscriptions/21466899-20b2-463c-8c30-b8fb28a43248/ResourceGroups/DISKRPTESTXOYBL/Disks/DISKRPTESTSNINCRBS4G988NIE5PRGY1S3LA5S with lrc key /Subscriptions/[redacted]LongRunningCopies/5fdfb602-72f6-41b2-9137-122c116f7a16 is 1%	5f7ccf4c-e9b2-4bbb-a7d1-b5cd2ee37a82
10-11-2021 13:30:10	Completion percent for the copy destination /Subscriptions/21466899-20b2-463c-8c30-b8fb28a43248/ResourceGroups/DISKRPTESTXOYBL/Disks/DISKRPTESTSNINCRBS4G988NIE5PRGY1S3LA5S with lrc key /Subscriptions[redacted]/LongRunningCopies/5fdfb602-72f6-41b2-9137-122c116f7a16 is 5%	8aaadf73-03cb-477f-87ff-b5a6a9bd1a44
10-11-2021 13:35:11	Pipeline operation completed with Succeeded for CopyDestination /Subscriptions[redacted]/ResourceGroups/DISKRPTESTXOYBL/Disks/DISKRPTESTSNINCRBS4G988NIE5PRGY1S3LA5S Backfill Status True. Error:	4a291b9b-7f22-4e7a-a292-e7a341783f2b

FAQ

- Can an incremental snapshot be copied to any region of choice?

  Yes

- Can an incremental snapshot be copied in another subscription and another region?

  Yes

- Can an incremental snapshot encrypted with CMK be copied to any region?

  Yes

- Is the target snapshot automatically encrypted with CMK if the source is encrypted with CMK?

  No. You have explicitly encrypt the target snapshot with CMK at the time of creation.

- Can multiple incremental snapshots of the same disk be copied in parallel to the same region?

  No. They have to wait for the previous clone to complete.

- Can incremental snapshots of multiple disks be copied at the same time?

  Yes. However, we will introduce a subscription-level limit on the number of in progress clones at the s

- Does the system copy only the delta changes since the last snapshot copied to the target region?

  Yes

- How can I check when a snapshot is ready?

```
You can check the status of the copy by checking the property completionPercent. A snapshot is ready wh
```

- How quickly the copy process of a target snapshot is initiated after creation?

```
It is initiated as soon as the target snapshot is created. However, completionPercent might take up to
```

- Can I copy snapshot out of order?

```
No. For example, let’s say on the source region snapshots 1, 2, 3 were created in that order. You copie
```

- What happens when source snapshot is deleted when the completionPercent of the target snapshot is still not 100?

```
The ProvisioningState will become fail.
```

- If a target snapshot fails during the CopyStart operation, how can I retry it?

```
You can retry by creating the target snapshot again.
```

Creating Full Snapshots from Full or Incremental Snapshot in a remote region

Async Pipeline: DiskRP will perform a privileged BeginGetAccess call to the source DiskRP to get a Snapshot SAS (system key) that’s valid for 2 weeks. This requires the destination DiskRP to be whitelisted with all of source DiskRPs (System SAS is required to not interfere with user SAS for the source snapshot. For eg, a new user SAS request would revoke the previous user SAS or extend its expiry). The pipeline will then begin an XStore async copy to the destination blob. It will persist the copy Id returned by XStore. DiskRP would queue a background task to poll the status of the async copy and update the Snapshot resource with the progress. The pipeline will complete and the async operation will be marked successful.

During the copy, on a destination snapshot deletion, DiskRP will abort the copy and delete the Xstore blob.

The Full snapshot created on the destination region because of this API would be backed by a Page blob and not the usual Link blob. All operations such as: copying that snapshot to another full snapshot in the same region (PageBlob->SyncCopy->COR->Link), to another full snapshot in a different region (PageBlob->AsyncCopy->PageBlob) or to a Disk (PageBlob->SyncCopy->COR->Link) would be supported.

More Information Cross Region Copy of Managed Snapshots

Documentation

Internal

- Private preview of Cross-region copy of Incremental snapshot
- Cross Region Copy of Managed Snapshots
- Incremental Snapshots_Disk Mgmt

External

- Cross-region snapshot copy (preview)
- Back up Azure unmanaged Virtual Machine disks with incremental snapshots

Need additional help or have feedback?

To engage the Disk Management SMEs...	*To provide feedback on this page...*	*To provide kudos on this page...*
Please reach out to the **Disk Management SMEs** for faster assistance. Make sure to use the **Ava process** for faster assistance.	Use the **Disk Management Feedback** form to submit detailed feedback on improvements or new content ideas for Disk Management. ***Please note*** the link to the page is required when submitting feedback on existing pages! If it is a new content idea, please put N/A in the Wiki Page Link.	Use the **Disk Management Kudos** form to submit kudos on the page. Kudos will help us improve our wiki content overall! ***Please note*** the link to the page is required when submitting kudos!