**DYNAMO DB**

* It is a nosql database with fast performance and scalability. You can create tables and store data and retrieve any amount of data to handle traffic.
* It automatically spreads data and traffic across sufficient servers to handle traffic.
* Create a table and add string while creating table.
* In **Items** tab, click on **items** to create items and add data. You can create as many items as you want.
* Click on **append** and select another string in item to add another data.
* To delete a table, select table, click actions and click **delete**.
* In **Metrics** tab, You can see all your read and write **metrics** in dynamo db dashboard.
* In **Alarms** tab, You can create **alarms** for **read** and **write** capacity, **throughputs**, **put** and **get** requests etc. It will notify you when you have reached the specified limit.
* In **Capacity** tab, You can extend the read and write capacities as you want and you can see the estimated cost below. You can enable autoscaling for dynamodb, it will increase and decrease the read and write capacity automatically based on your table read & writes.

**BACKUP AND RESTORE**

* You can create backups for your tables and restore them whenever you want.
* Backups are not available in all regions. They are available only in these regions **N.** **Virginia**, **ohio**, **Oregon**, **Ireland**.
* Backup and restores shows **zero** impact on your tables and performance.

To backup a table,

**Select table.**

**Go to backup tab.**

**Click create backup.**

**Select table to backup.**

**Give a name to backup.**

**Click Create.**

* It will take time based on the size of table.
* You can see your backups in **backups** **tab** in left pane.
* To restore a table

**Go to backups tab.**

**Select the backup you want to restore.**

**Click restore backup.**

* It will take hours to restore backup based on the size.
* To delete backup,

**Go to backups tab.**

**Select the backup you want to delete.**

**Click delete backup.**

**GLOBAL TABLES**

* Global tables provides a multi-region and multi-tiered databases without maintaining replications.
* When you create a global table, you specify the regions where you want the table to be available. Dynamo db performs all the actions required to create identical tables in every region we selected.
* It treats them as same unit. So, when we write data in one region, It automatically replicates the data in the tables across all regions.
* If any one of the region is unavailable, we can still access the tables in other regions and when the regions is back online, it writes all the data to that region.
* These tables are identical for large scale applications with globally dispersed users.
* Global tables supports only 5 regions upto now…**N.virginia, ohio, Ireland, Oregon, Frankfurt.**
* To use global tables, you have to enable dynamo db stream.
* You can add and remove replica tables from global table.
* If you want to add a replica table to global table,

**It must have same primary key as all the other replicas.**

**The table must have same name as others.**

**Stream must be enabled.**

**None of the replica tables in the global table can contain any data.**

* To create Global table,

**Create a normal table**

**Go to global table tab, click enable stream.**

**Click add region.**

**Select the region and click create.**

**Repeat the above step for how may replicas you want.**

**Click, create.**

* After adding the regions to global table, write some data in main table and within seconds it will replicate in all regions.
* To remove a region from global table,

**Select the region to remove.**

**Click remove region.**

* It will remove the region from global table and it has no connection to the other replicas.
* You can monitor the behavior and performance of global table with cloud watch metrics.
* **Replication latency** – the time between an updated item appearing in one replica table and updating in other replicas.
* **Pending replication count** – the number of items are pending to be updated from one replica table to other replicas.
* When you create global table for the first time, it will create an IAM role called **AWSservicerolefordynamodbreplication**. It allows dynamodb to replicate on your behalf.
* Do not delete this service-linked role. If you do, then all of your global tables will no longer function.
* If you are an IAM user, you must have permissions to create global table and to replicate, for that you have to create a policy called **dynamodb:CreateGlobalTable** permission

{

**"Version": "2012-10-17",**

**"Statement": [**

**{**

**"Effect": "Allow",**

**"Action": ["dynamodb:CreateGlobalTable"],**

**"Resource": "\*"**

**}**

**]**

**}**

**MONITORING**

* Aws provides tools to monitor dynamodb like cloud watch, trail, cloud watch logs etc.
* By default, dynamodb metrics are sent to **cloud** **watch**.
* You can create **cloud** **watch** **alarms** to watch over a single metric and get notified when it exceeds the metric.
* You can also integrate dynamodb with **cloudtrail**, which captures all api calls made to dynamodb from your aws account through console (or) API. It stores all those in an s3 bucket you specified.
* There are so many API actions that are supported by cloud trail like CreateBackup, CreateGlobalTable, CreateTable, DeleteBackup, DeleteTable, DescribeBackup, ListBackups, ListTables etc.

**VPC ENDPOINTS**

* A vpc endpoint for dynamodb enables ec2 instances in your vpc to access dynamodb with its private ip with no exposure to public internet.
* Your ec2 instances do not require public ip and you don’t need nat instance, IGW etc. You just use vpc endpoint to control access to dynamo.
* Create an instance, configure your aws security credentials in ec2.
* **aws ec2 describe-vpc-endpoint-services** – verifies that dynamodb service is available for creating endpoint in that region.
* If the dynamodb shown from the above command, copy the service name and note down your vpc-id from vpc console.
* **aws ec2 create-vpc-endpoint --vpc-id vpcid --service-name dynamodbservicename** – To create vpc endpoint.
* Use your vpc id and dynamodb service name in the place of example above.
* After creating vpc endpoint check whether it is communicating or not.
* **aws dynamodb list-tables** – To verify communication.
* **aws ec2 describe-vpc-endpoints** - To see vpc endpoints.
* **aws ec2 delete-vpc-endpoints --vpc-endpoint-ids endpointid** – To delete vpc endpoint.