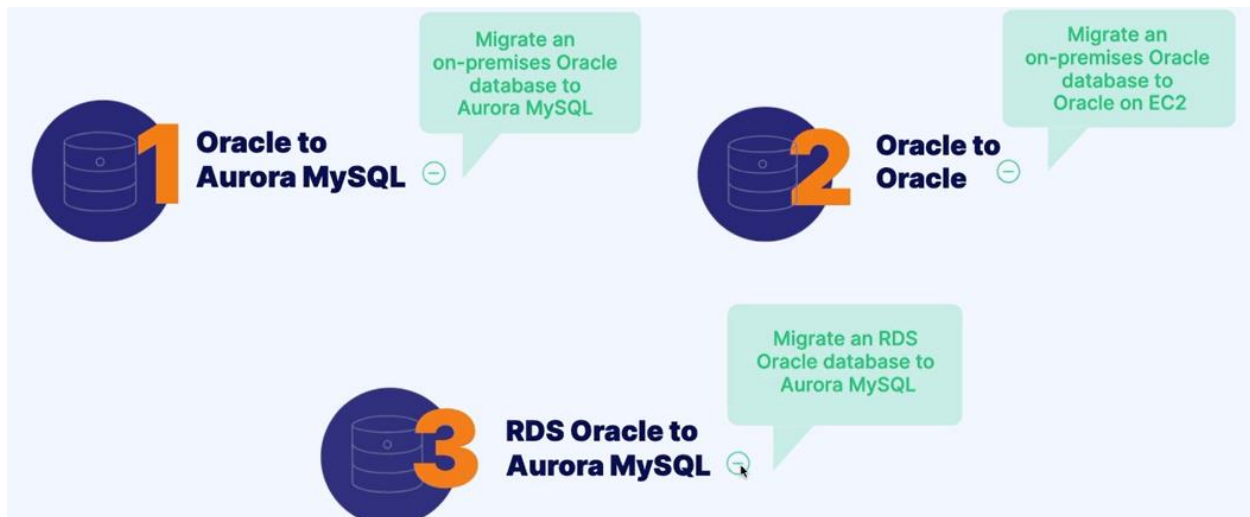


Migration

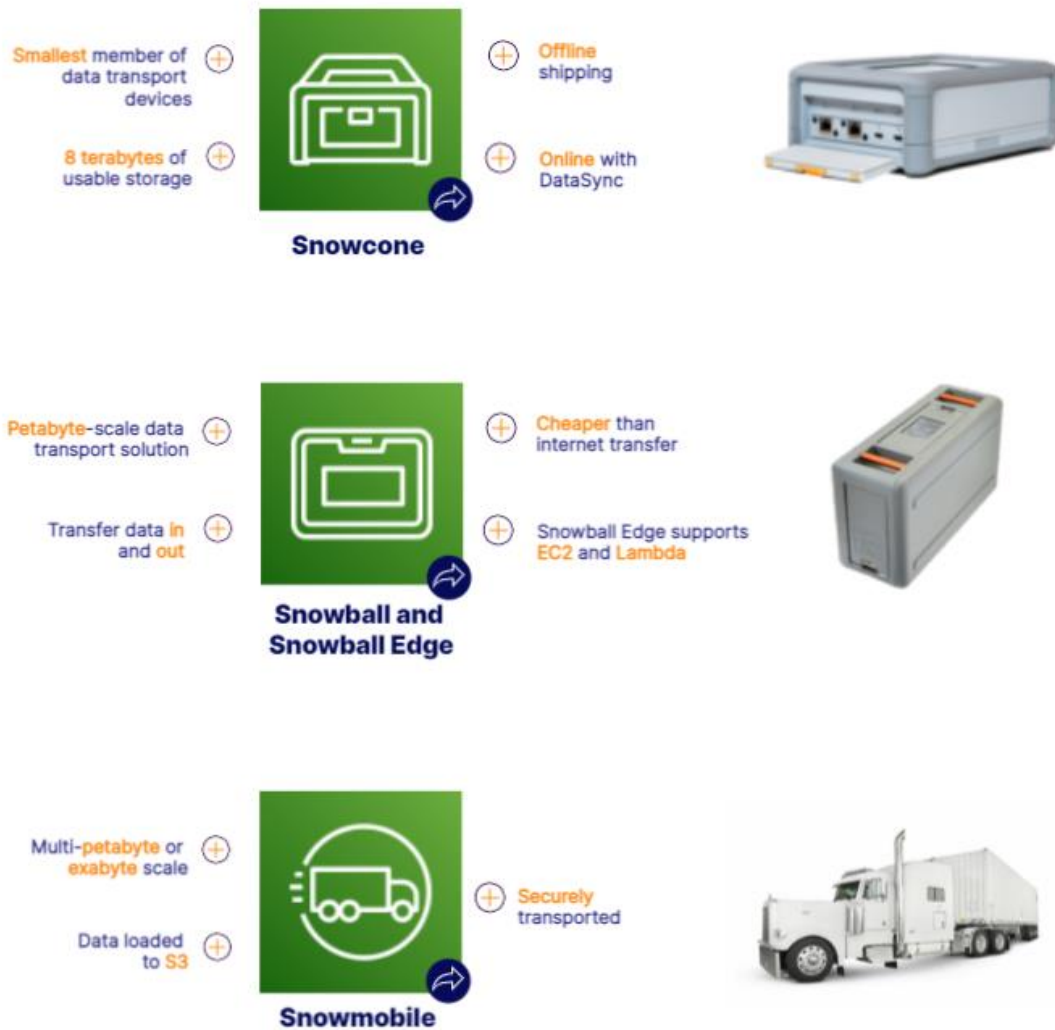
> Migrating Data with AWS Snow family

You can use the internet, direct connect and physical to migrate things over

- Database migration service (DMS)
 - Database Migration Service (DMS) makes it easy to migrate data from one database to another, whether it's in the cloud or on-premises. DMS supports both relational databases such as Aurora, Oracle, Microsoft SQL Server, MariaDB, and PostgreSQL, as well as nonrelational databases including MongoDB, DocumentDB, and DynamoDB. DMS also supports migrating data to S3, Elasticsearch, and Kinesis Data Streams. For more information, visit <https://docs.aws.amazon.com/dms/>.
 - Supports homogeneous and heterogeneous migrations
 - Continuous data replication.



- Server migration service (SMS)
 - Allows you to migrate on-premises servers to AWS
 - Server saved as a new Amazon Machine Image (AMI)
- AWS Snow Family <https://aws.amazon.com/snow/>



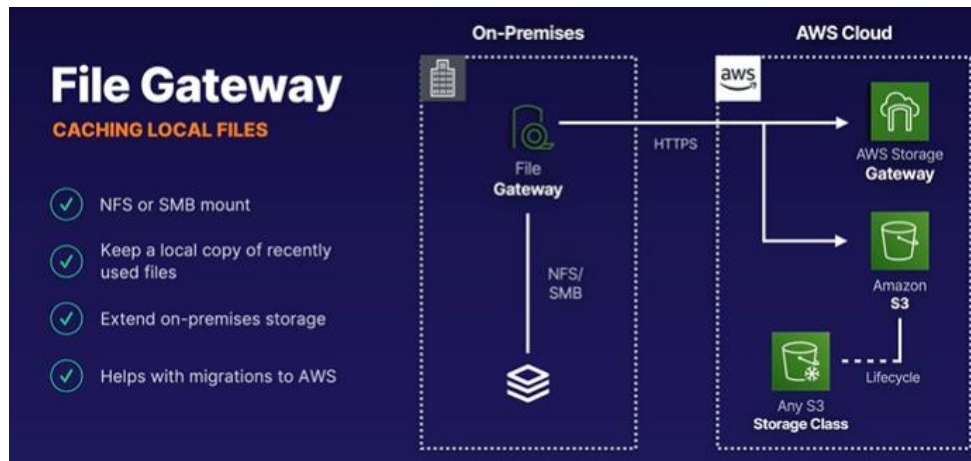
- AWS Snowball—A hardware storage appliance designed to physically move massive amounts of data to or from S3, particularly when transferring the data over a network would take days or weeks.
- AWS Snowball is a hardware appliance designed to move massive amounts of data between your site and the AWS cloud in a short time. Some common use cases for Snowball include the following:
 - ✓ Migrating data from an office or data center to the AWS cloud
 - ✓ Quickly transferring a large amount of data to or from S3 for backup or recovery purposes
 - ✓ Distributing large volumes of content to customers and partners
 - The idea behind Snowball is that it's quicker to physically ship a large amount of data than it is to transfer it over a network.
 - But instead, for a nominal fee, AWS will send you a Snowball device. You simply transfer your files to it and ship it back. When AWS receives it, AWS transfers the files from Snowball to one or more S3 buckets. You're not charged any transfer fees for importing

files into S3, and once there, they're immediately available for use by other AWS services.

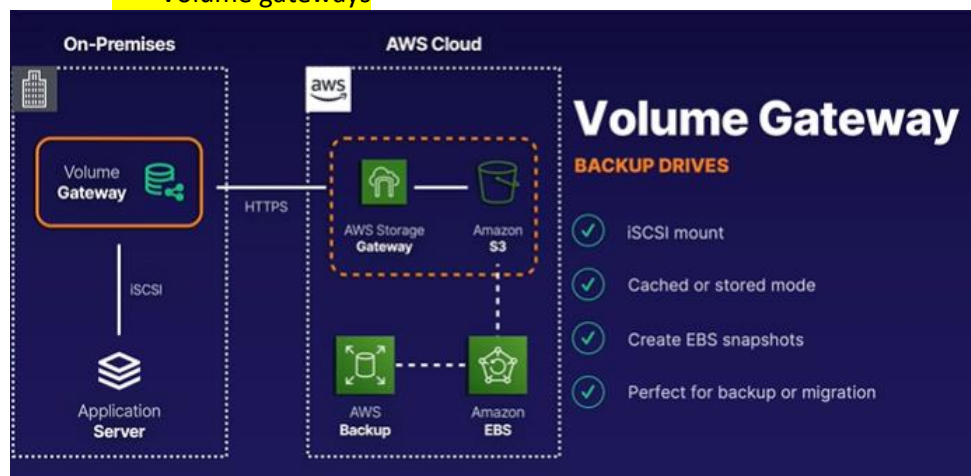
- Once you receive your Snowball, you can keep it for 10 days without incurring any additional costs. If you hold onto it longer than that, you'll be charged an extra \$15 per day. You're allowed to keep Snowball for up to 90 days, which is more than enough time to fill it up.
 - Snowball uses two layers of encryption. First, when you transfer data to or from Snowball, the data is encrypted in transit using SSL. Second, the data you put on a Snowball is always encrypted at rest. Snowball enforces data encryption by requiring you to transfer data to it using only either the Snowball Client or the more advanced S3 SDK Adapter for Snowball. The former doesn't require any coding knowledge. Both run on Linux, macOS, and Windows operating systems.
 - Data is encrypted using AES 256-bit encryption that's enforced by the Snowball Client or S3 SDK Adapter for Snowball, ensuring that the device never stores your AWS Snowball
- Data Sync
 - Allows for online data transfer from on-prem to AWS storage services like S3 or EFS
 - Copy data over direct connect or the internet. Which also copy data between AWS services
 - Replicate data cross-region or cross-account

>Storage Gateway

- Storage gateway
 - This is a hybrid storage service which connects on-premises and cloud data
 - Recommended for moving backups to the cloud reducing cost for hybrid cloud storage
 - Low latency
 - AWS Storage Gateway makes it easy to connect your existing on-premises servers to storage in the AWS cloud. Because it uses industry-standard storage protocols, there's no need to install special software on your existing servers. Instead, you just provision an AWS Storage Gateway virtual machine on-premises and connect your servers to it. Storage Gateway handles the data transfer between your servers and the AWS storage infrastructure. The virtual machine can run on a VMware ESXi or Microsoft Hyper-V hypervisor.
 - AWS Storage Gateway offers the following three virtual machine types for different use cases:
 - File gateways



▪ Volume gateways



▪ Tape gateways



- Stored volumes - With a stored volume, Storage Gateway stores all data locally and asynchronously backs it up to S3 as Elastic Block Store (EBS) snapshots.
 - When it comes to local storage, AWS Storage Gateway lets you access your data by going through a virtual machine that automatically synchronizes your data with S3.

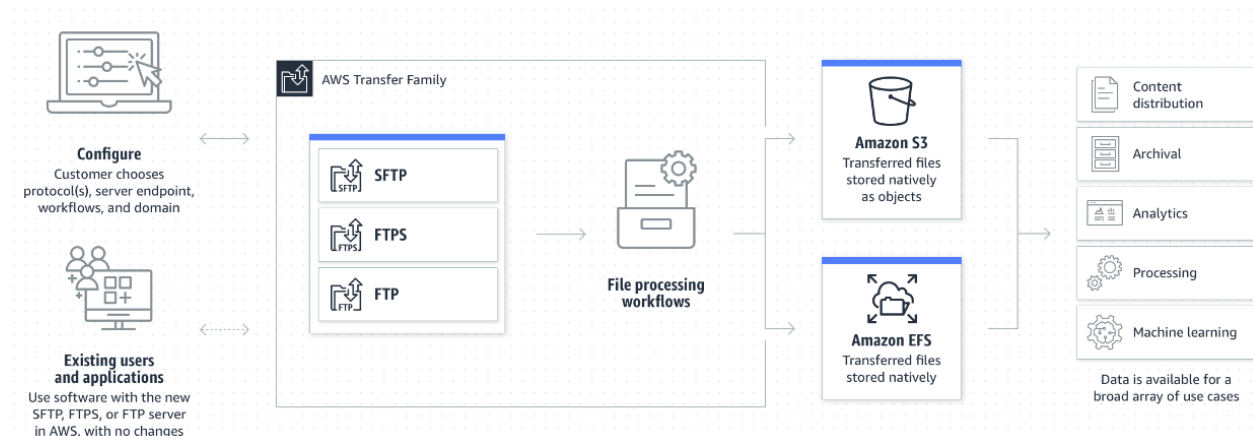
>AWS DataSync

Agent-based solution for migrating on-prem storage to AWS. Uses NFS and SMB shares and AWS storage solutions. Provides secure transmission of your data over the internet, which this is encrypted of course.

This section is short. More information here: <https://aws.amazon.com/datasync/>

>AWS Transfer Family

Allows you to easily move files in and out S3 or EFS using Secure File Transfer Protocol (SFTP), FTPS, or FTP.



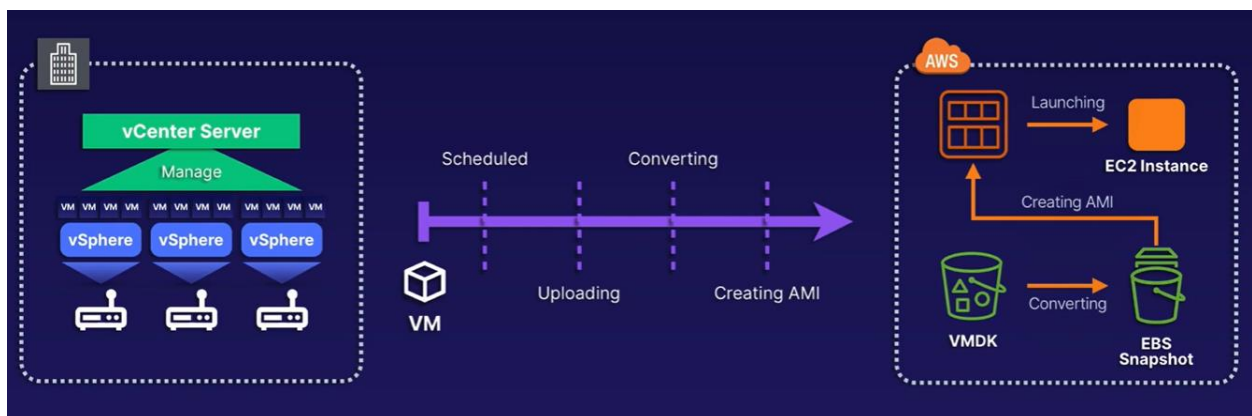
For FTP... It only supports transfers internally inside your VPC for security reasons.

Another short section. For more information look here: <https://aws.amazon.com/aws-transfer-family/#>

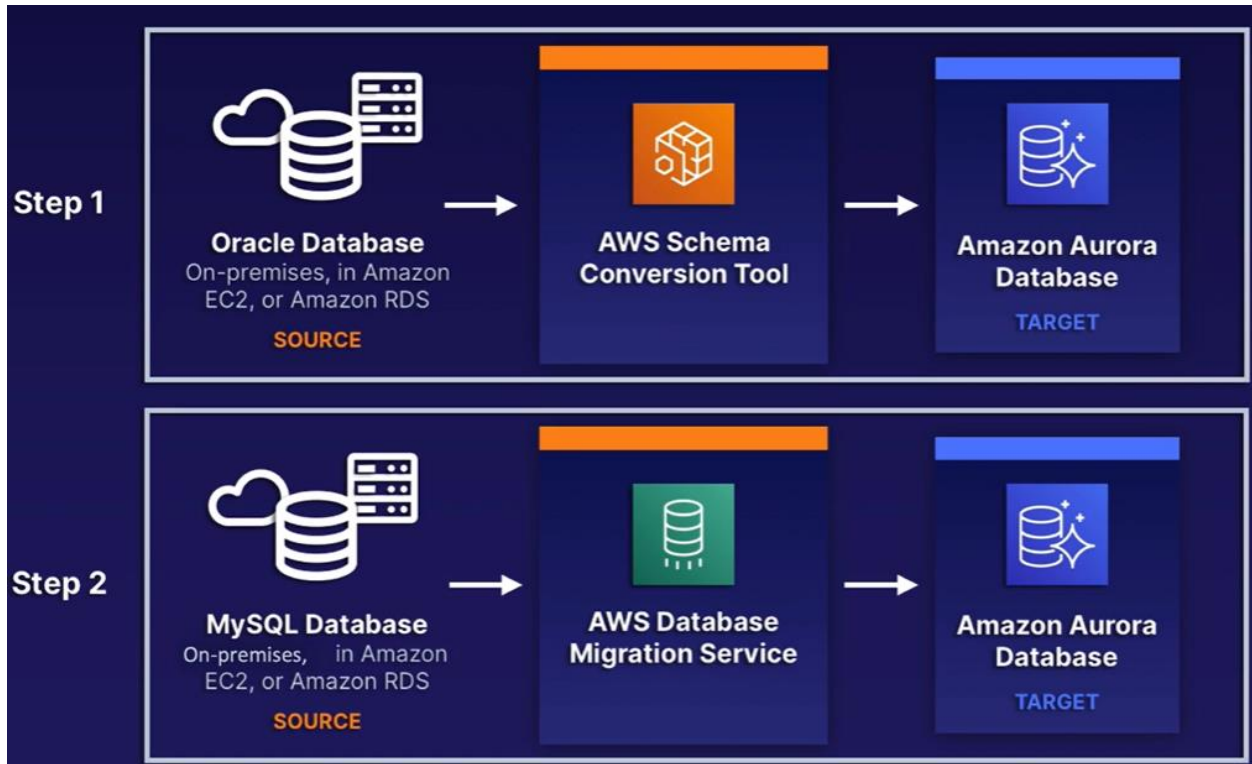
>Migration Hub

Single place to track progress of your application migration to AWS. Integrates with SMS and DMS

- SMS
 - Schedule when you'd like copies to happen



- DMS
 - Kinda does the same thing as SMS but this has a database



Exam Tips

1. Snow Family

- a. Snowball edge - When going into the exam, don't forget the services natively supported by Snowball Edge, like EC2 and Lambda.
- b. Snowball - Remember that Snowball transfers petabytes of data and is cheaper than transferring over the internet.
 - i. Can hold up to 81 TB of data
- c. Snowmobile - Don't forget Snowmobile is the largest member of the transport family and supports exabyte-scale data.
 - i. Holds up to 100 PB in a very large truck
- d. DataSync - Don't forget DataSync transfers data online and can be used to replicate data cross-Region or cross-account.
- e. Snowcone
 - i. Holds up to 8 TB of data
- f. Snow family works to get data into AWS, as well as shipped back to you
- g. The turnaround is a week, but depends on the customer

2. Storage Gateway

- a. Storage gateway is hybrid storage
- b. Know the general use cases for each storage gateway type
- c. Out of space on-prem? Which storage gateway solutions solves the issue?
- d. Not Tape Gateway
 - i. Have a high-level knowledge of Tape Gateway. The exam won't cover this as much as the other two
- e. File gateway and Volume gateway
 - i. These are the primary focus for the exam.

3. AWS DataSync

- a. DataSync is great for a one-time migration
- b. Storage Gateway is great for a hybrid architecture
- c. Agent based needs to be installed on the architecture on your end to get into AWS
- d. Endpoints – S3, EFS, and FSx are all supported locations for your data

4. Transfer Family

- a. Anything on the test for FTP related. Think Transfer Family
- b. Keep in mind of protocols
 - i. FTPS & SFTP is from your outside AWS environment in
 - ii. And inside your VPC will be FTP (For security reasons)
- c. DNS stays the same but the location for the storage becomes S3

5. Moving to the Cloud Migration Hub

- a. Anything about moving databases will be DMS
- b. And SMS is the best for moving servers
- c. Schema conversion tool can help us migrate to Aurora or RDS
 - i. We want to migrate off of Oracle, off of SQL Server