

→ AWS Snow Family:

Highly-secure

Portable devices to collect and process data at the edge and migrate data in and out of AWS.

Data migration:

Snowcone

Snowball Edge

Snowmobile

Edge computing:

Snowcone

Snowball Edge

→ Data Migrations with AWS Snow family

Challenges:

AWS Snow family: offline

Limited connectivity devices to perform data migration

Limited Bandwidth If it takes more than a week

High network cost to transfer over the network, use Snowball devices!

Shared BW

Connection stability

Time to transfer

100 Mbps 1 Gbps 10 Gbps

12 days 30 hrs 3 hrs

100TB 124 days 12 days 30 hrs

1PB 3 yrs 124 days 12 days

Direct upload to S3:

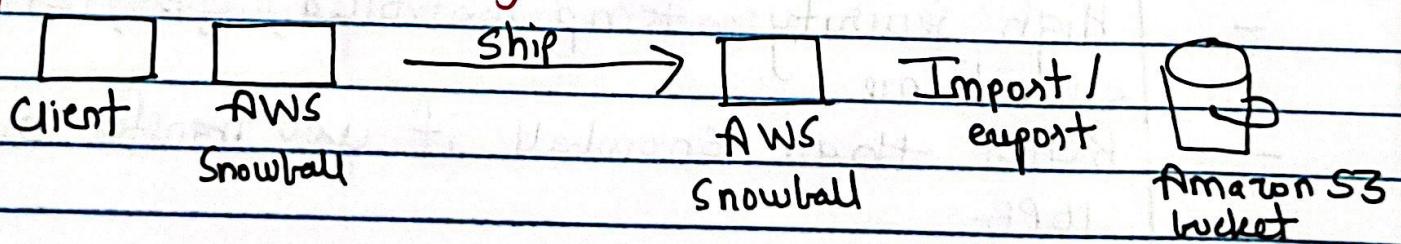


www: 100 Mbps



Amazon S3 bucket

With Snow family:



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- Snowball Edge (for data transfers)
 - Physical data transport soln
 - TBs or PBs of data in or out of AWS
 - Pay per data transfer job
 - Block storage & Amazon S3-compatible object storage
 - Storage optimized: 80TB of HDD capacity: Block Vol and S3 compatible object storage.
 - Compute optimized: 42TB of HDD capacity: Block Vol & S3 compatible object storage
 - Use cases: large data cloud migrations, DC decommission, disaster recovery.

AWS Snowcone

- Small, portable computing, anywhere, rugged & secure, withstands harsh environments.
- Light (4.5 pounds, 2.1 kg)
- Used for edge computing, storage & data transfer
- 8TBs of usable storage
- Use snowcone where snowball does not fit (space-constrained environment)
- Must provide your own battery / cables
- Can be sent back to AWS offline, or connect it to internet and use AWS Datalync to send data.

AWS Snowmobile

- Transfer exabytes of data ($1\text{EB} = 1000\text{PB} = 1,000,000\text{TBs}$)
- Each Snowmobile: 100 PB of capacity
- High security: temp controlled, GPS, 24/7 video surveillance
- Better than Snowball if you transfer more than 10PB.

→ AWS Snow Family for Data Migrations

	Snowcone	Snowball Edge	Snowmobile
Storage Capacity	8TB w/able	80TB w/able	<100PB
Migration size	Up to 24TB Online & offline	Up to petabytes offline	Up to petabytes offline
DataSync Agent	Pre-installed		
Storage clustering			Up to 15 nodes

→ Snow Family - Usage Process:

- 1) Request snowball device
- 2) Install the snowball client / AWS OptHub on your servers
- 3) Connect the snowball to your servers and copy files using the client.
- 4) Ship back the device
- 5) Data will be loaded into an S3 bucket
- 6) Snowball is completely wiped.

→ What is Edge Computing?

- Process data while it's being created on an edge location. e.g.: a truck, ship on sea, a mining station

- These locations may have: limited / no internet access, no easy access to computing power

- We setup a snowball Edge / Snowcone device to do edge computing

Use cases of Edge Computing:

1) Preprocess of data

2) ML at the edge

3) Transcoding media streams

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- 1) Snow family - Edge Computing.
Snowcone (smaller):
2 CPUs, 4GB memory, wire / wireless access
USB-C cord / optional battery
 - 2) Snowball Edge - Compute optimized.
52 vCPUs, 208 GiB of RAM.
 - 3) Optional GPU (useful for video processing or ML)
4TB wallet storage
 - 4) Snowball Edge - Storage optimized:
Up to 40 vCPUs, 80 GiB of RAM
Object storage clustering available
 - 5) All: Can run EC2 instances & AWS Lambda functions (using AWS IoT Greengrass)
Long-term deployment option: land 3 yrs discount pricing.

→ AWS OpsHub

Historically, to use Snowball family devices,
CLI needed

Use AWS OpsHub (software) to manage
your snowFamily device.

Unlocking and configuring single or clustered
devices.

Transferring files

Launching & managing instances

Monitor device metrics (storage capacity, active
instances)

Launch compatible AWS services on your devices
(e.g.: EC2 instances, DataSync, NFS).

→ Hybrid Cloud for Storage

S3: Proprietary Storage Technology

Storage Gateway: Expose the S3 data on-premise

AWS Storage Cloud Native options:
1) Block: Amazon EBS, EC2 Instance Store
2) File: EFS
3) Object: Amazon S3, Glacier

AWS Storage Gateway
Bridge between on-premise data and cloud data in S3
Hybrid storage service
Use cases: disaster recovery, backup & restore, tiered storage
Types of file storage: File Gateway, Volume Gateway, Tap Gateway

Files Volumes Tapes

AWS Storage Gateway

Amazon EBS S3 Glacier

Amazon S3 Summary *

Buckets vs Objects: Global unique name, tied to a region

S3 Security: IAM Policy, S3 Bucket Policy, S3 Encryption

S3 Websites: Host a static website on Amazon S3

S3 Versioning: Multiple versions for files, prevents accidental deletes.

S3 access logs: log requests made within your S3 bucket

S3 Replication: Same / Cross Region, must enable versioning

S3 Storage Class: Standard, IA, IZ-IA, Intelligent Glacier, Glacier Deep Archive.

S3 Lifecycle Rules: transition objects between classes.

S3 Glacier Vault Lock / S3 Object Lock: WORM

Snow Family: import data onto S3 through a physical device, edge computing.
OpSHub: Desktop application to manage Snow family devices.

Storage Gateway: Hybrid solution to extend on-premises storage to S3.