Snow family

AWS Snow Family is a collection of physical devices designed to facilitate data transfer between your on-premises environments and AWS cloud infrastructure, especially in scenarios where large amounts of data need to be migrated or transported

AWS Snow Family

- Highly-secure, portable devices to **collect and process data at the edge**, and **migrate data into and out of AWS**
- Data migration:


Snowcone


Snowball Edge


Snowmobile

- Edge computing:

Data Migrations with AWS Snow Family

	Time to Transfer		
	100 Mbps	**1Gbps**	**10Gbps**
10 TB	12 days	30 hours	3 hours
100 TB	124 days	12 days	30 hours
1 PB	3 years	124 days	12 days

Challenges:

- Limited connectivity
- Limited bandwidth
- High network cost
- Shared bandwidth (can't maximize the line)
- Connection stability

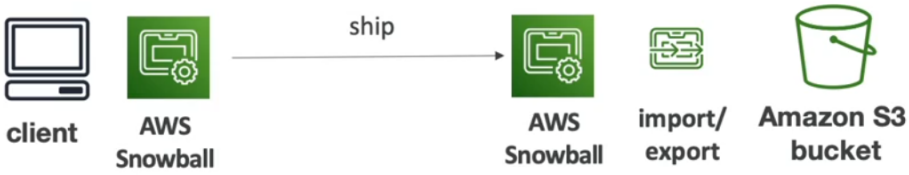
AWS Snow Family: offline devices to perform data migrations

If it takes more than a week to transfer over the network, use Snowball devices!

Diagrams

- Direct upload to S3:

- With Snow Family:



Snowball Edge (for data transfers)

- Physical data transport solution: move TBs or PBs of data in or out of AWS
- Alternative to moving data over the network (and paying network fees)
- Pay per data transfer job
- Provide block storage and Amazon S3-compatible object storage
- Snowball Edge Storage Optimized
  - 80 TB of HDD capacity for block volume and S3 compatible object storage
- Snowball Edge Compute Optimized
  - 42 TB of HDD capacity for block volume and 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)
- Device used for edge computing, storage, and data transfer
- **8 TBs 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 DataSync** to send data

AWS Snowmobile

- Transfer exabytes of data (1 EB = 1,000 PB = 1,000,000 TBs)
- Each Snowmobile has 100 PB of capacity (use multiple in parallel)
- High security: temperature controlled, GPS, 24/7 video surveillance
- **Better than Snowball if you transfer more than 10 PB**

AWS Snow Family for Data Migrations

Snowcone

Snowball Edge

Snowmobile

	Snowcone	Snowball Edge Storage Optimized	Snowmobile
Storage Capacity	8 TB usable	80 TB usable	< 100 PB
Migration Size	Up to 24 TB, online and offline	Up to petabytes, offline	Up to exabytes, offline
DataSync agent	Pre-installed		
Storage Clustering		Up to 15 nodes	

Snow Family – Usage Process

1. Request Snowball devices from the AWS console for delivery
2. Install the snowball client / AWS OpsHub on your servers
3. Connect the snowball to your servers and copy files using the client
4. Ship back the device when you're done (goes to the right AWS facility)
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**
  - A truck on the road, a ship on the sea, a mining station underground...

- These locations may have
  - Limited / no internet access
  - Limited / no easy access to computing power
- We setup a **Snowball Edge / Snowcone** device to do edge computing
- Use cases of Edge Computing:
  - Preprocess data
  - Machine learning at the edge
  - Transcoding media streams
- Eventually (if need be) we can ship back the device to AWS (for transferring data for example)

Snow Family – Edge Computing

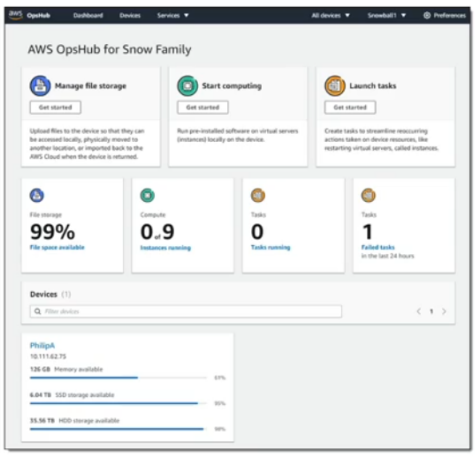
- Snowcone (smaller)
  - 2 CPUs, 4 GB of memory, wired or wireless access
  - USB-C power using a cord or the optional battery

- Snowball Edge – Compute Optimized
  - 52 vCPUs, 208 GiB of RAM
  - Optional GPU (useful for video processing or machinel learning)
  - 42 TB usable storage
- Snowball Edge – Storage Optimized
  - Up to 40 vCPUs, 80 GiB of RAM
  - Object storage clustering available

- All: Can run EC2 Instances & AWS Lambda functions (using AWS IoT Greengrass)
- Long-term deployment options: 1 and 3 years discounted pricing

AWS OpsHub

- Historically, to use Snow Family devices, you needed a CLI (Command Line Interface tool)
- Today, you can use **AWS OpsHub** (a software you install on your computer / laptop) to manage your Snow Family Device
  - Unlocking and configuring single or clustered devices
  - Transferring files
  - Launching and managing instances running on Snow Family Devices
  - Monitor device metrics (storage capacity, active instances on your device)
  - Launch compatible AWS services on your devices (ex: Amazon EC2 instances, AWS DataSync, Network File System (NFS)



https://aws.amazon.com/blogs/aws/aws-snowball-edge-update/