



# **CLOUD COMPUTING APPLICATIONS**

Cloud Storage: Storage Gateway  
and Mass Data Transfer

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# Cloud Storage Gateways

- Hybrid Cloud
  - Some VMs on your infrastructure, some on public cloud
  - Need a way to connect storage locations
- AWS Storage Gateway
  - File Gateway
    - NFS, SMB
    - S3 REST API access
      - POSIX-style metadata, including ownership, permissions, and timestamps stored as S3 user metadata
  - Tape Gateway
  - Volume Gateway
    - Presented as iSCSI protocol
    - Stores in AWS as EBS
- Azure
  - Data Box Gateway
    - SMB, NFS
    - Azure Blob Storage
    - Azure Files
  - File Sync
  - StorSimple

# Cloud Mass Data Transfer

- Once a company decides to move to the cloud, there is a mass of data that needs to be transferred to the cloud
- Others may need to transfer data into and out of the cloud
- Problems:
  - The cost of mass data transfer could get astronomical
  - Network reliability could make it very hard
- Typical Solution: Cloud provider sends you a physical device
- AWS
  - Snowball: \$250 / 80 TB
    - Moving data into Amazon is free, same as S3
    - In comparison, transferring 80TB into/out of S3 can take 7-8 days on a 1Gbps internet connection, if there is no data transmission error
      - $80 \times 8 \times 1024 / (60 \times 60 \times 24) = 7.58$  days
    - Moving 80TB out of S3 can cost
      - $80 \times 1024 \times 0.08 = \$6,553$
    - Moving 80TB out through Snowball
      - $80 \times 1024 \times 0.03 = \$2,457$
  - Snowmobile
- Azure Data Box
  - Data Box: \$250 / 100 TB
  - Data Box Disk: \$50 / 8 TB
  - Data Box Heavy: \$4,000 / 1 PB



AWS Snowball: 50-80 TB

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AWS Snowmobile: 100 PB

*Assuming a 7-day transfer time, bandwidth = 824 Gbps*



• *Shipping fees also apply*

# Summary

- Storage Gateway
- Mass Data Transfer

Cloud Computing Applications  
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