**Storage Gateway**

* Overview
  + Enables hybrid storage between on-premises environments and cloud
  + Provides low-latency performance by caching requently accessed ata on premises, while storing data securely and drably in cloud services
  + Implemented using a virtual machine that you run on-prem(VMware or Hyper-V virtual applicance)
  + Provides local storage resources backed by S3 and Glacier
  + Often used in DR preparedness to sync data to AWS
  + Useful in cloud migrations
  + StorageGW supports 3 storage interfaces: file, volume and tap
  + The table below shows the different gateways available and the interfaces and use cases:
  + Table

    Description automatically generated
  + Each gateway you have cna provide one type of interface
  + **All data transferred between any type of gateway appliacne and AWS storage is encrtyped using SSL**
  + By default, all data stored by SG in S3 is encrypted server-side with S3-Managed Encryption Keys(SSE-S3)
  + When using the file gateway, you can optionally configure each file share to have your objects encrypted with KMS using SSE-KMS
* File Gateway
  + File gateway provides a virtual on-premises file server, which enables you to store and retrieve files as objects in S3
  + Can be used for on-premises applications and for EC2-resident applications that need file storage in S3 for object based workloads
  + Used only for flat files, stored directly on S3
  + Offers SMG or NFS-based access to data in S3 with local caching
  + Files GW supports S3 standard, S3 Standard-IA and One Zone-IA
  + File GW supports clients connecting to the FW using NFSv3 and 4.1
  + Windows clients that support SMB can connect to file gateway
  + Max size of an individual file is 5TB
* Volume Gateway
  + Volume GW represents the family of gateways that support block-based volumes, previously referred to as gateway-cached and gateway-stored modes
  + Block storage - iSCI based
  + Cached Volume mode - the entire dataset is stored on S3 and a cache of the most frequently accessed data is cacehed on-site
  + Stored Volume mode - the entire dataset is stored on-sidte and is asynchronously backed up to S3(EBS point-in-time snapshots)
    - Snapshots are incremental and compressed
  + Each volume gateway can support up to 32 volumes
  + In cached mode, each volume can be up to 32 TB for a maximum of 1 PB of data per gateway(32 volumes, each 32 TB in size)
  + In stored mode, each volume can be up to 16TB for a max of 512 TB of data per gateway(32 voulmes, each 16 TB in size)
* Gateway Virtual Tape Library
  + Used for backup with tape backup software
  + Each gateway is preconfigured wiht a media changer and tape drives. Supported by NetBackup, Backup Exec, VEEam
  + When creating virtual tapes, you select one of the following sizes: 100GB, 200GB, 400GB, 800GB 1.5TB and 2.5TB
  + A tape gateay can have up to 1500 virtual tapes with a maximum aggregate capacity of 1PB