AWS Storage Gateway

## Service Overview

***AWS Storage Gateway*** *connects an on-premises software appliance with cloud-based storage to provide seamless integration with data security features between your on-premises IT environment and the AWS storage infrastructure. You can use the service to store data in the AWS Cloud for scalable and cost-effective storage that helps maintain data security.*

*AWS Storage Gateway offers* ***file-based****,* ***volume-based****, and* ***tape-based*** *storage solutions:*

***File Gateway*** *– A file gateway supports a file interface into Amazon Simple Storage Service (Amazon S3) and combines a service and a virtual software appliance. By using this combination, you can store and retrieve objects in Amazon S3 using industry-standard file protocols such as Network File System (NFS) and Server Message Block (SMB). The software appliance, or gateway, is deployed into your on-premises environment as a virtual machine (VM) running on VMware ESXi, Microsoft Hyper-V, or Linux Kernel-based Virtual Machine (KVM) hypervisor. The gateway provides access to objects in S3 as files or file share mount points. With a file gateway, you can do the following:*

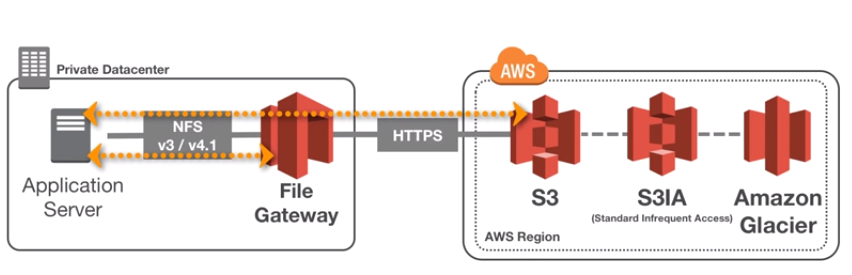
* *You can store and retrieve files directly using the NFS version 3 or 4.1 protocol.*
* *You can store and retrieve files directly using the SMB file system version, 2 and 3 protocol.*
* *You can access your data directly in Amazon S3 from any AWS Cloud application or service.*
* *You can manage your S3 data using lifecycle policies, cross-region replication, and versioning. You can think of a file gateway as a file system mount on S3.*

*A file gateway simplifies file storage in Amazon S3, integrates to existing applications through industry-standard file system protocols, and provides a cost-effective alternative to on-premises storage. It also provides low-latency access to data through transparent local caching. A file gateway manages data transfer to and from AWS, buffers applications from network congestion, optimizes and streams data in parallel, and manages bandwidth consumption. File gateways integrate with AWS services, for example with the following:*

* *Common access management using AWS Identity and Access Management (IAM)*
* *Encryption using AWS Key Management Service (AWS KMS)*
* *Monitoring using Amazon CloudWatch (CloudWatch)*
* *Audit using AWS CloudTrail (CloudTrail)*
* *Operations using the AWS Management Console and AWS Command Line Interface (AWS CLI)*
* *Billing and cost management*

*So, File Gateway:*

* *Configured S3 buckets are accessible using the NFS and SMB protocol*
* *Supports S3 standard, S3 IA, S3 One Zone IA*
* *Bucket access using IAM roles for each File Gateway*
* *Most recently used data is cached in the file gateway*
* *Can be mounted on many servers*



***Volume Gateway*** *– A volume gateway provides cloud-backed storage volumes that you can mount as Internet Small Computer System Interface (iSCSI) devices from your on-premises application servers.*

*The volume gateway is deployed into your on-premises environment as a VM running on VMware ESXi, KVM, or Microsoft Hyper-V hypervisor.*

*The gateway supports the following volume configurations:*

* ***Cached volumes*** *– You store your data in Amazon Simple Storage Service (Amazon S3) and retain a copy of frequently accessed data subsets locally. Cached volumes offer a substantial cost savings on primary storage and minimize the need to scale your storage on-premises. You also retain low-latency access to your frequently accessed data.*
* ***Stored volumes*** *– If you need low-latency access to your entire dataset, first configure your on-premises gateway to store all your data locally. Then asynchronously back up point-in-time snapshots of this data to Amazon S3. This configuration provides durable and inexpensive offsite backups that you can recover to your local data center or Amazon Elastic Compute Cloud (Amazon EC2). For example, if you need replacement capacity for disaster recovery, you can recover the backups to Amazon EC2.*

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***Tape Gateway*** *– A tape gateway provides cloud-backed virtual tape storage. The tape gateway is deployed into your on-premises environment as a VM running on VMware ESXi, KVM, or Microsoft Hyper-V hypervisor.*

*With a tape gateway, you can cost-effectively and durably archive backup data in GLACIER or DEEP\_ARCHIVE. A tape gateway provides a virtual tape infrastructure that scales seamlessly with your business needs and eliminates the operational burden of provisioning, scaling, and maintaining a physical tape infrastructure.*

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## Use cases / Considerations

*You can run AWS Storage Gateway either on-premises as a VM appliance, as a hardware appliance, or in AWS as an Amazon EC2 instance. You deploy your gateway on an EC2 instance to provision iSCSI storage volumes in AWS. You can use gateways hosted on EC2 instances for disaster recovery, data mirroring, and providing storage for applications hosted on Amazon EC2.*

*For an architectural overview, see* [*How AWS Storage Gateway works (architecture)*](https://docs.aws.amazon.com/storagegateway/latest/userguide/StorageGatewayConcepts.html)*. To see the wide range of use cases that AWS Storage Gateway helps make possible, see* [*AWS Storage Gateway*](http://aws.amazon.com/storagegateway)*.*

*To get started with Storage Gateway, see the following.*

***Topics***

* [*Are you a first-time AWS Storage Gateway user?*](https://docs.aws.amazon.com/storagegateway/latest/userguide/WhatIsStorageGateway.html#are-you-first-time-user)
* [*How AWS Storage Gateway works (architecture)*](https://docs.aws.amazon.com/storagegateway/latest/userguide/StorageGatewayConcepts.html)
* [*Plan your Storage Gateway deployment*](https://docs.aws.amazon.com/storagegateway/latest/userguide/WhatIsStorageGateway.html#planning-gateway-deployment)

## Governance

*Maintaining your gateway includes tasks such as configuring cache storage and upload buffer space, and doing general maintenance your gateway's performance. These tasks are common to all gateway types. If you haven't created a gateway, see* [*Creating Your Gateway*](https://docs.aws.amazon.com/storagegateway/latest/userguide/create-gateways.html)*.*

***Topics***

* [*Shutting Down Your Gateway VM*](https://docs.aws.amazon.com/storagegateway/latest/userguide/MaintenanceShutDown-common.html)
* [*Managing local disks for your AWS Storage Gateway*](https://docs.aws.amazon.com/storagegateway/latest/userguide/ManagingLocalStorage-common.html)
* [*Managing Bandwidth for Your Gateway*](https://docs.aws.amazon.com/storagegateway/latest/userguide/MaintenanceUpdateBandwidth-common.html)
* [*Managing Gateway Updates Using the AWS Storage Gateway Console*](https://docs.aws.amazon.com/storagegateway/latest/userguide/MaintenanceManagingUpdate-common.html)
* [*Performing Maintenance Tasks on the Local Console*](https://docs.aws.amazon.com/storagegateway/latest/userguide/manage-on-premises.html)
* [*Deleting Your Gateway by Using the AWS Storage Gateway Console and Removing Associated Resources*](https://docs.aws.amazon.com/storagegateway/latest/userguide/deleting-gateway-common.html)

## Monitoring

*Storage Gateway provides CloudWatch metrics at no additional charge. Storage Gateway metrics are recorded for a period of two weeks. By using these metrics, you can access historical information and get a better perspective on how your gateway and volumes are performing. Storage Gateway also provides CloudWatch alarms, except high-resolution alarms, at no additional charge. For more information about CloudWatch pricing, see* [*Amazon CloudWatch pricing*](http://aws.amazon.com/cloudwatch/pricing/)*.* *For more information about CloudWatch, see* [*Amazon CloudWatch User Guide*](https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/WhatIsCloudWatch.html)*.*

*For more information about Monitoring Storage Gateway, see* [*Monitoring Storage Gateway*](https://docs.aws.amazon.com/storagegateway/latest/userguide/Main_monitoring-gateways-common.html)*.*

## Pricing considerations

*For current information about pricing, see* [*Pricing*](http://aws.amazon.com/storagegateway/pricing) *on the AWS Storage Gateway details page.*

## More details

*Use official Amazon documentation* [*Amazon Storage Gateway User Guide*](https://docs.aws.amazon.com/storagegateway/latest/userguide/index.html)*.*