



INNOVATE2018

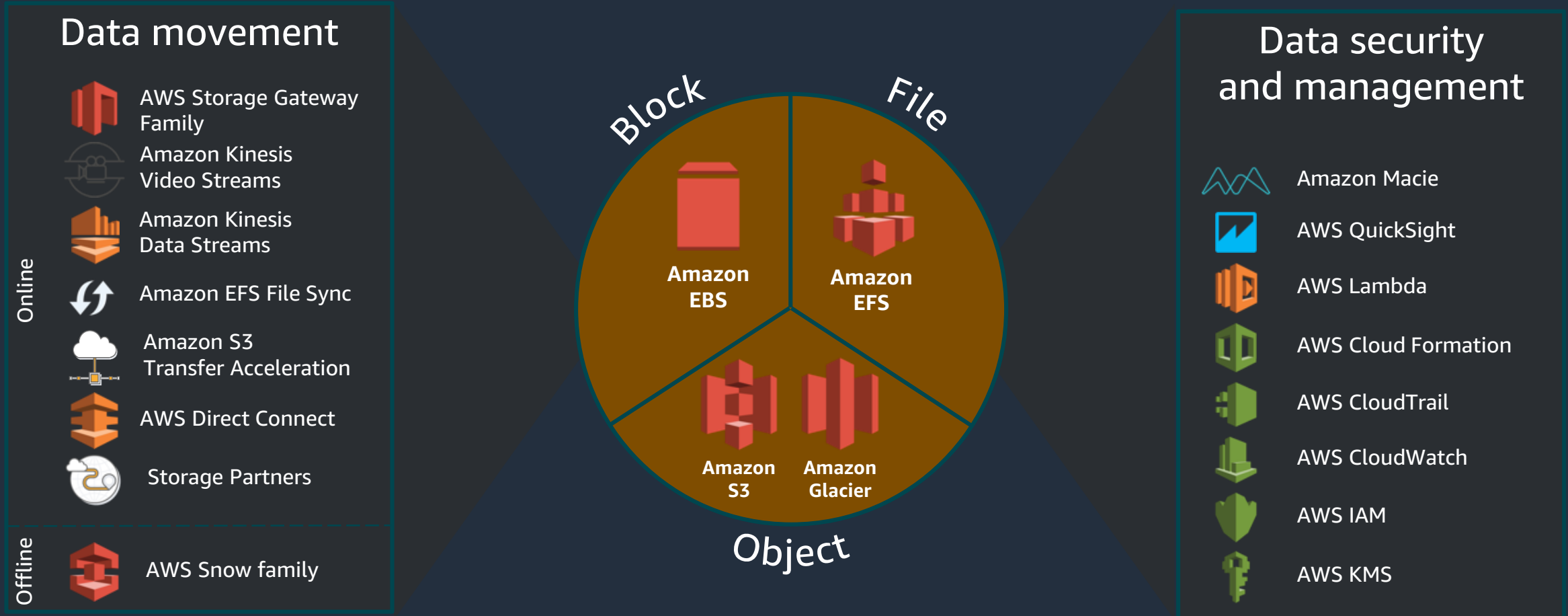
ONLINE CONFERENCE



Protect Your Data Assets with AWS (Level 200)

Luke Anderson, Head of Storage

Complete set of data building blocks



Complete set of data building blocks



Data movement

Online



AWS Storage Gateway Family



Amazon Kinesis Video Streams



Amazon Kinesis Data Streams



Amazon EFS File Sync



Amazon S3 Transfer Acceleration



AWS Direct Connect

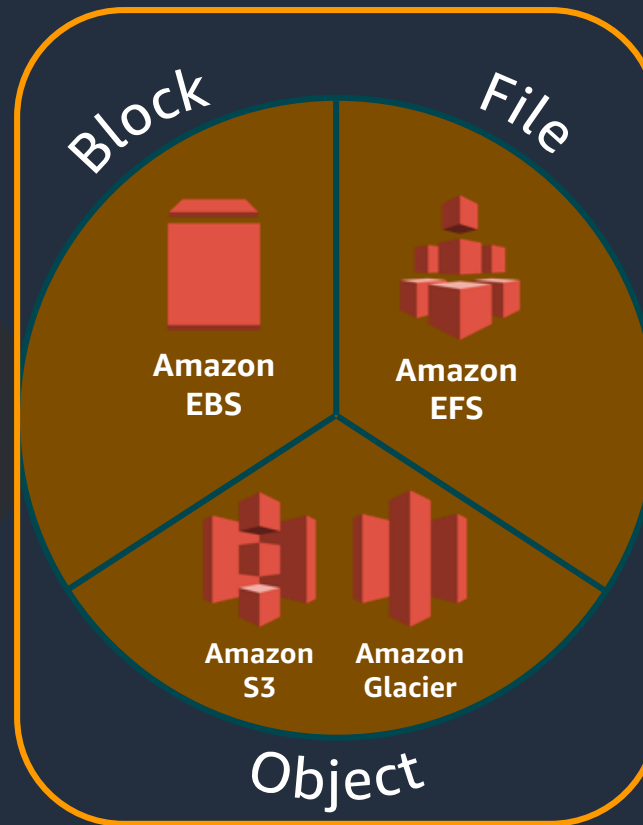


Storage Partners

Offline



AWS Snow family



Data security and management



Amazon Macie



AWS QuickSight



AWS Lambda



AWS CloudFormation



AWS CloudTrail



AWS CloudWatch



AWS IAM



AWS KMS

Backup Vs Archive



	Backup	Archive
Number of copies for one piece of data	Many	1
Growth of the repository over time	Exponential	Linear
Contains “the” copy of data?	No	Yes
Point in time copy of data?	Yes	Yes
Select individual pieces of data based on policy	Not really	Yes
Backups held for “long” periods of time	✓	✗

Remember:

- A Backup makes a copy of the data and keeps as many copies as needed.
- An Archive moves data between different classifications of storage but does not make any copies.
- Long term backups make life hard for business...
 - Costly
 - Hard to track

Business and Technical Drivers



Cost effective migration and offsite-storage alternatives

... with pay-as-you-go pricing and no upfront capital investments

Business and Technical Drivers



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Elimination of physical tape backups and administration

... for a low-cost, highly scalable virtual alternative with nominal disruptions to existing systems

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... so that you can regularly back up data on pre-set schedules

Business and Technical Drivers



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Unlocking insights from your data

... by applying analytics, artificial intelligence, and machine learning capabilities

Trending



Auditability

...enhanced by chain-of-custody reporting via file sharing services

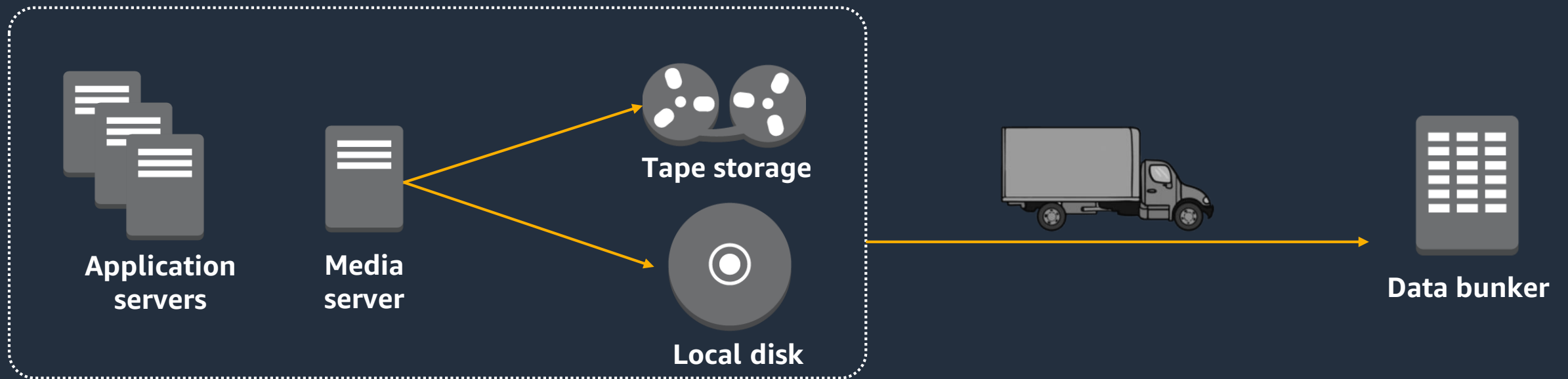
Protection against ransomware

...made possible with immutable storage and policies

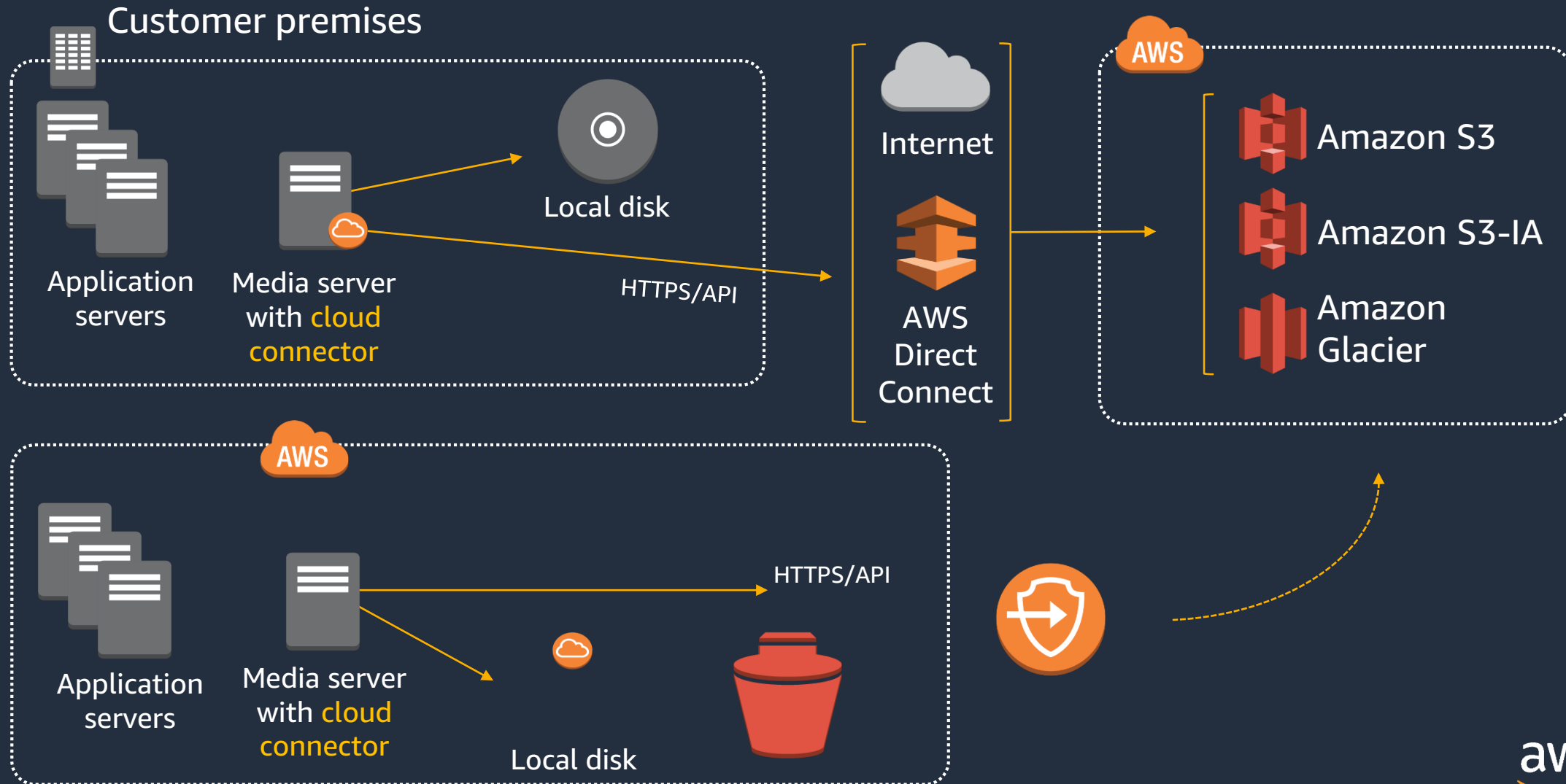
Retiring expensive bandwidth

...in favor of effective transit bandwidth

Backup and restore *before* cloud



Backup and recovery: Cloud Connectors



Backup and recovery: Cloud Connectors



1. Direct Amazon S3 / Glacier API/SDK
2. Amazon S3 lifecycle integration

COMMVAULT® 

 **CloudBerry** Lab
cloud storage tools

 **ctera**

 **DELL** EMC

 **druva**

 **IBM**


NetApp

 **VERITAS**™

 **arcserve**®

 **actifio**

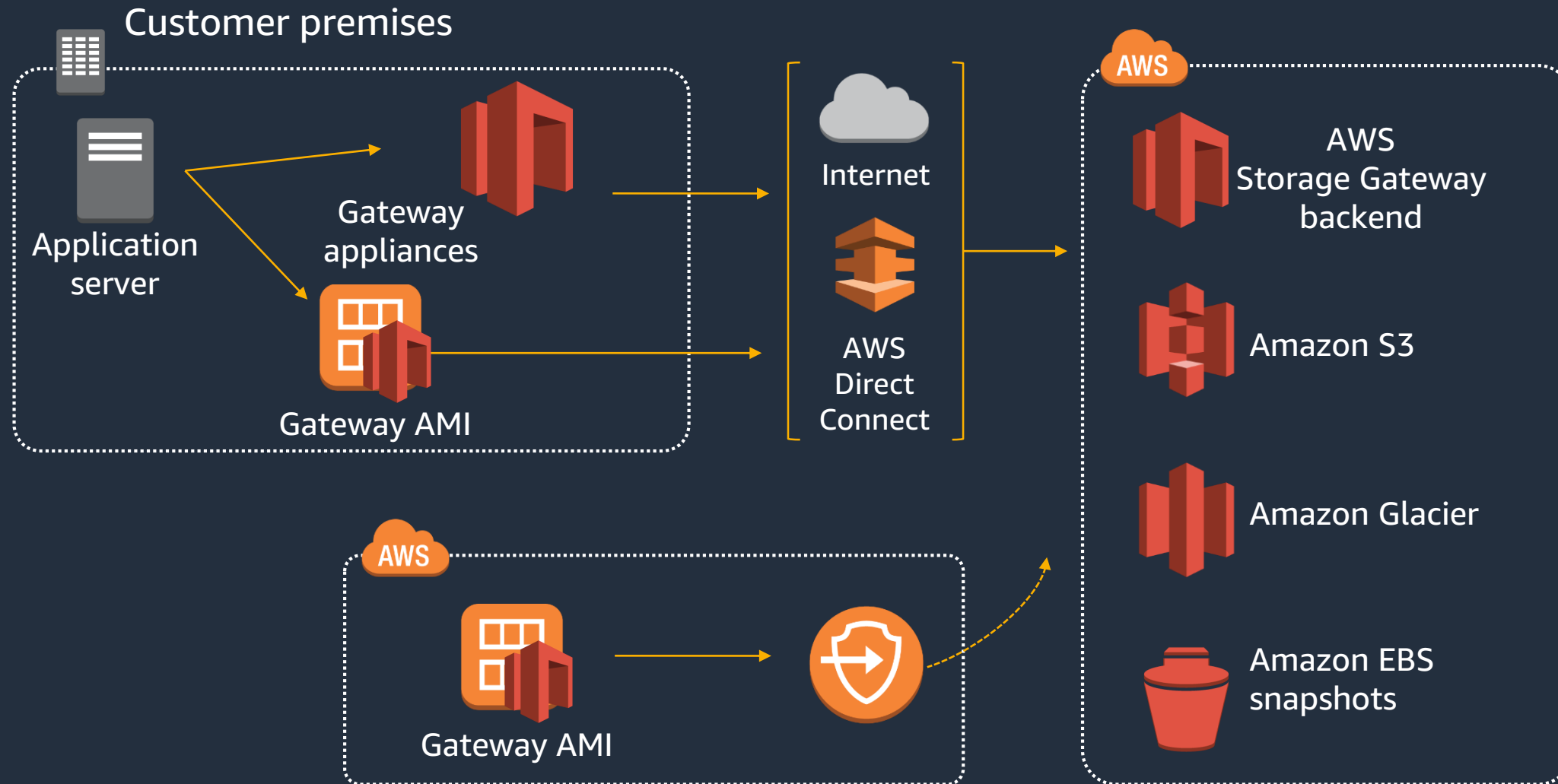
 **INDEX**
ENGINES™
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 **Quantum**®

 **rubrik**

 **StorReduce**

Backup and recovery: Gateways



AWS Snow* family



AWS Snowball

- Petabyte-scale data migration
- 80 TB capacity/10 Gb networking
- Rain and dust resistant
- Data encryption end-to-end
- Move 250 TB in 1 week!
- Rugged 8.5 G impact case



AWS Snowball Edge

- Compute and storage for hybrid/edge workloads
- 1PB local storage/copper & optical networking
- Local compute equivalent to an Amazon EC2 m4.4xlarge instance
- Data encryption end-to-end
- Ruggedized and transportable



AWS Snowmobile

- Exabyte-scale data migration
- Up to 1EB capacity
- Data encryption end-to-end
- Dedicated security personnel
- GPS tracking, alarm monitoring, 24/7 surveillance, and optional additional security

Object Storage Classes



S3 Standard



S3 Standard -
Infrequent Access



S3 One Zone -
Infrequent Access



Glacier

Active data
Millisecond access
Min 3 AZs

30 day min duration
Millisecond access
Min 3 AZs

30 day min duration
Millisecond access
Min 1 AZ

Archive data
Minutes to Hours
Min 3 AZs

Automated Lifecycle Policies

Using vault lock policy with vault access policy



Compliance/Governance

Vault lock policy

- Lockable/Immutable policy
- Cannot be updated/deleted after lockdown

Use vault lock policy to:

- Deploy regulatory controls such as records retention
- Enforce data access through multi-factor authentication only

Flexibility

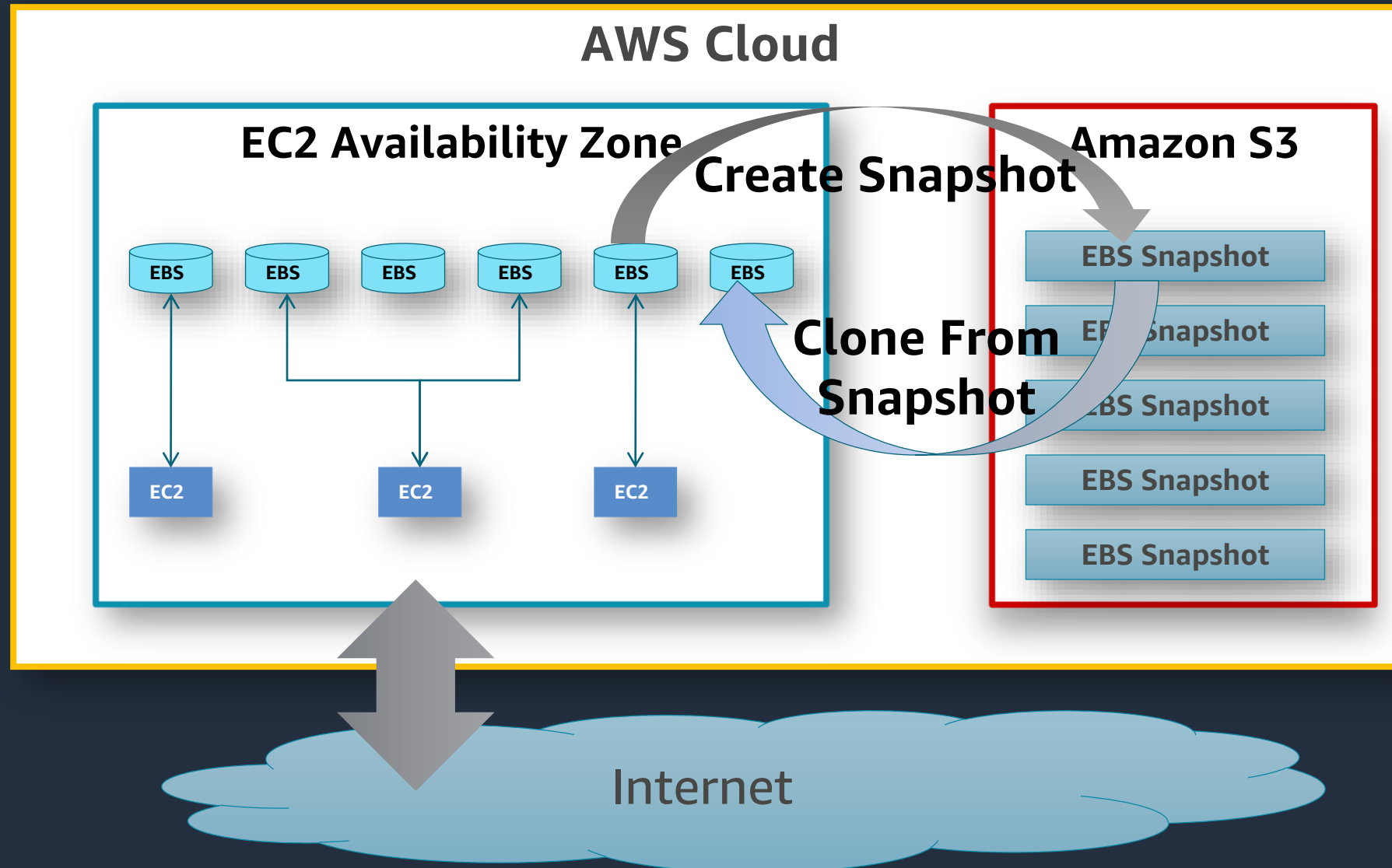
Vault access policy

- Can be updated/deleted

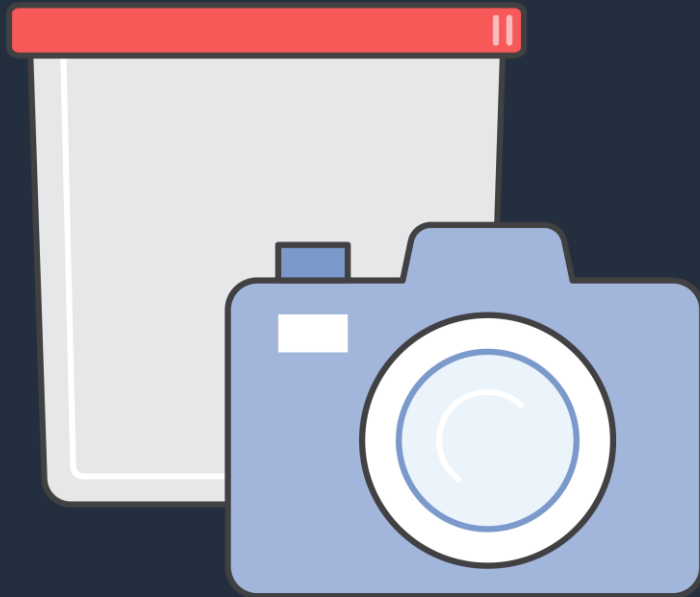
Use vault access policy to:

- Designate third-party access
- Grant temporary read permissions when necessary

Amazon EBS Lifecycle



Benefits of using EBS snapshots



More durable than an EBS volume

- Stored in Amazon S3

Incremental (space-efficient)

- First snapshot is a clone
- Pay only for what you use

Availability Zone-independent

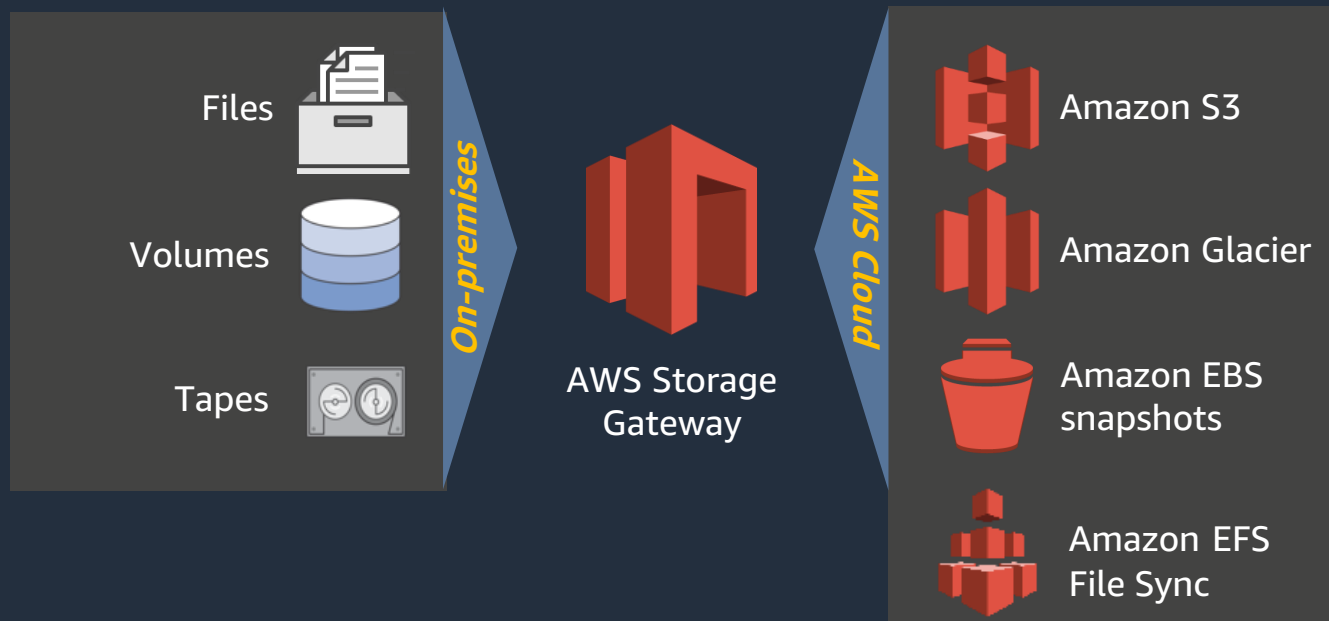
- Clone into any AZ

Can be copied efficiently across regions

AWS Storage Gateway hybrid storage solutions



Use standard storage protocols to access AWS storage services



STORAGE GATEWAY USE CASES

- Backup and restore
- Archive to AWS using native protocols
- Disaster recovery for on-premises
- Snapshot to the cloud
- Application support for Amazon S3 & S3-IA
- Migration to AWS with minimal downtime



Amazon
CloudWatch



AWS
CloudTrail



AWS Identity and
Access Management (IAM)

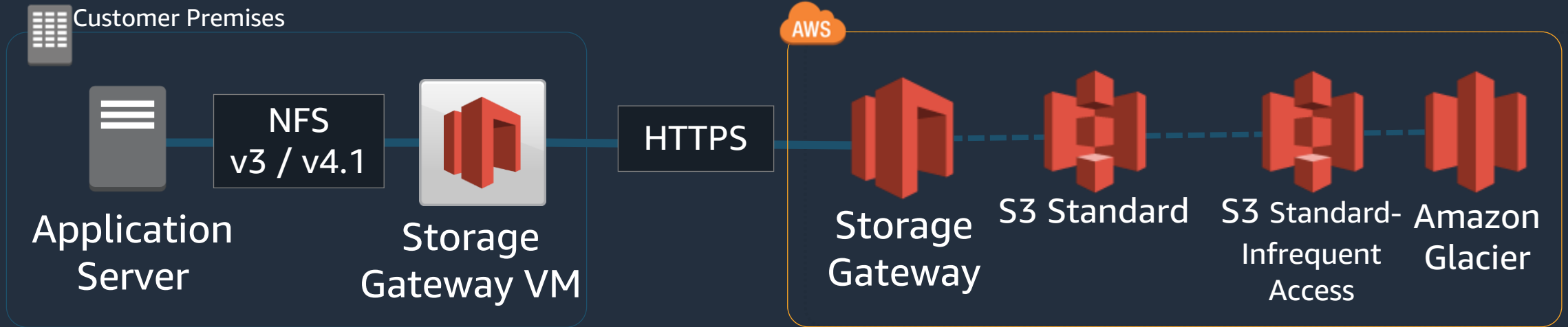


AWS Key Management
Service (KMS)



File gateway

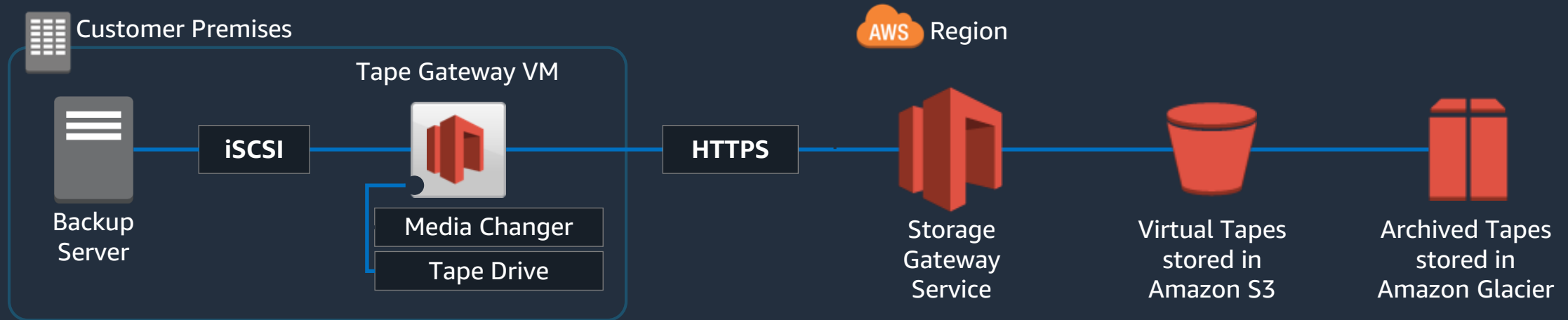
On-premises file storage maintained as objects in Amazon S3



- Data stored and retrieved from your Amazon S3 buckets
- One-to-one mapping from files to objects
- File metadata stored in object metadata
- Bucket access managed by IAM role you own and manage
- Use Amazon S3 lifecycle policies, versioning, or CRR to manage data

Tape Gateway

Virtual tape storage in Amazon S3 and Amazon Glacier with VTL



- Virtual tape storage in S3 and Glacier accessed via tape gateway
- Data compressed in-transit and at-rest
- Up to 1 PB total tape storage per gateway, unlimited archive capacity
- Supports leading backup applications
- **3-5 hour tape retrieval from Amazon Glacier

VERITAS

DELL EMC

veeam

COMMVAULT



Hewlett Packard
Enterprise



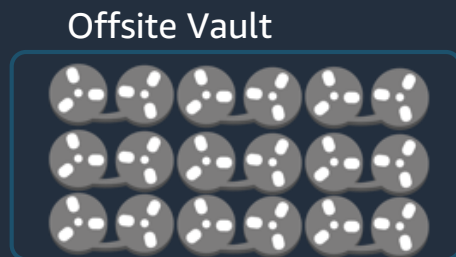
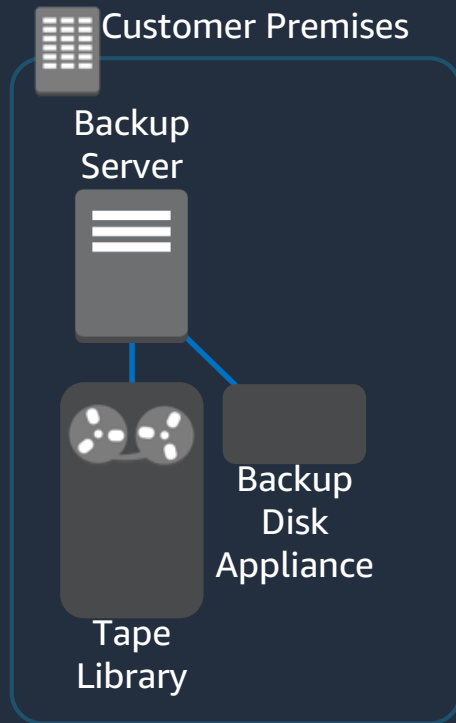
Microsoft
System Center
Data Protection Manager 2012

arcserve

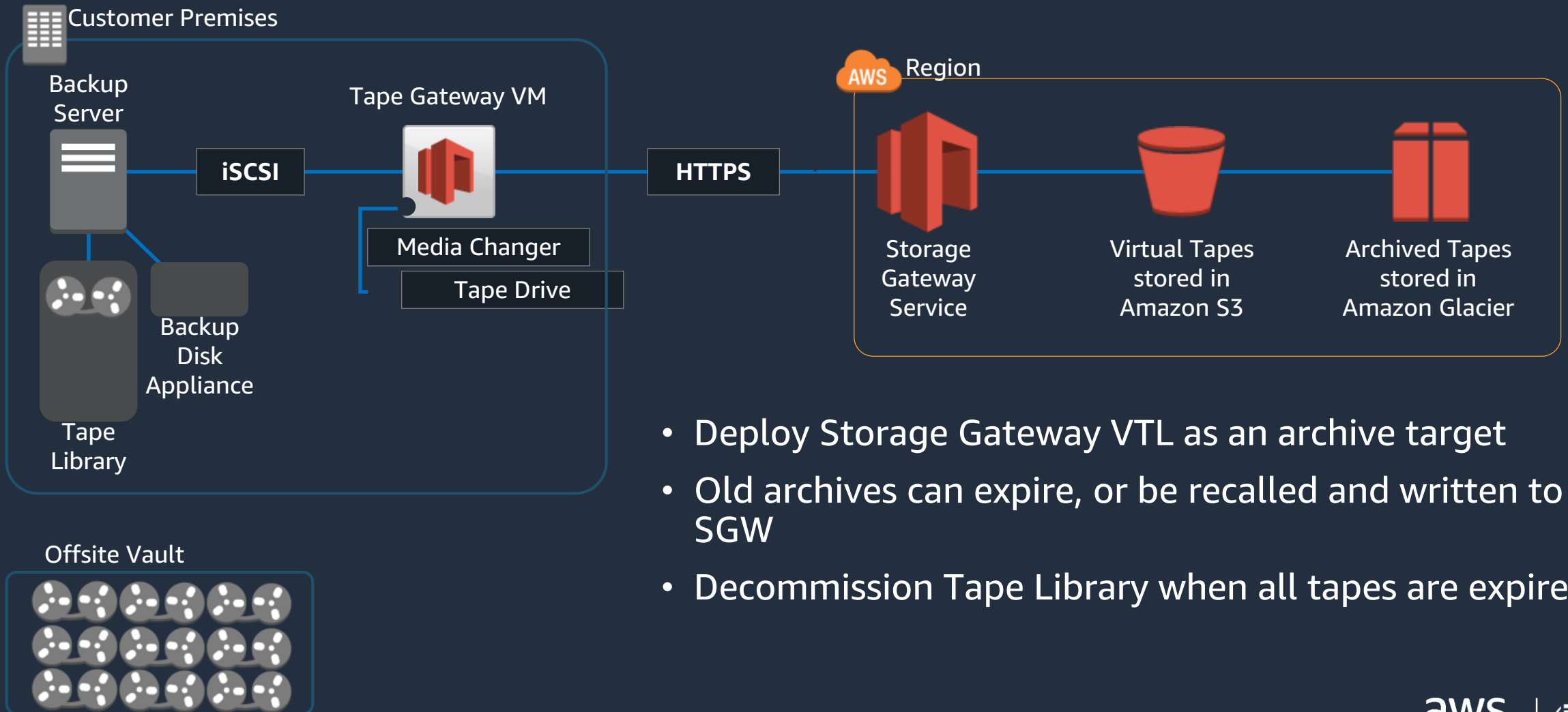
aws

intel

Move your tape archive

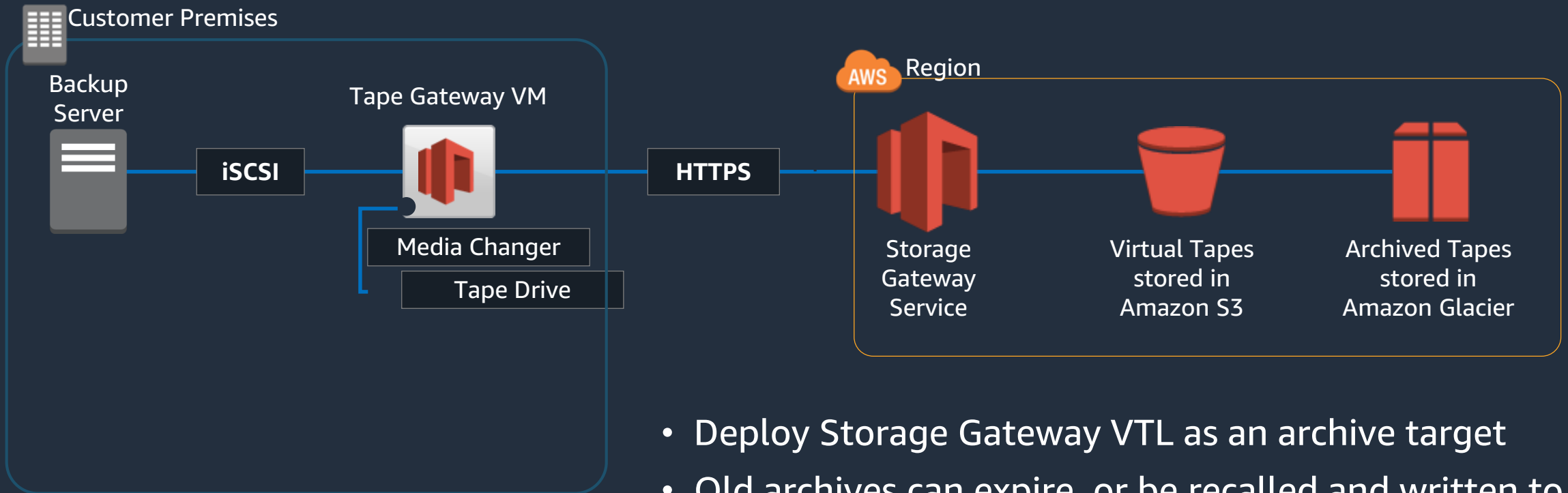


Move your tape archive



- Deploy Storage Gateway VTL as an archive target
- Old archives can expire, or be recalled and written to SGW
- Decommission Tape Library when all tapes are expired

Move your tape archive



- Deploy Storage Gateway VTL as an archive target
- Old archives can expire, or be recalled and written to SGW
- Decommission Tape Library when all tapes are expired

Tape replacement with Storage Gateway



Cost effective storage in AWS with local or cloud restore and DR

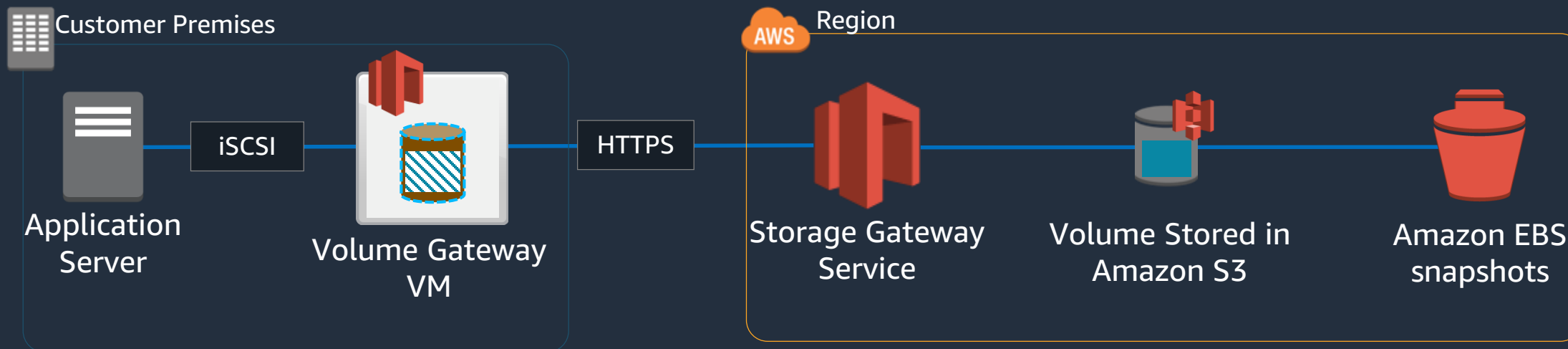


“Using AWS Storage Gateway,
we switched from physical to virtual tape backup
simply by dropping the gateway’s virtual appliance into our existing
Veeam workflow.

Setting it all up took three hours, at most.
We can now provision virtual tapes on AWS
with the click of a button.”

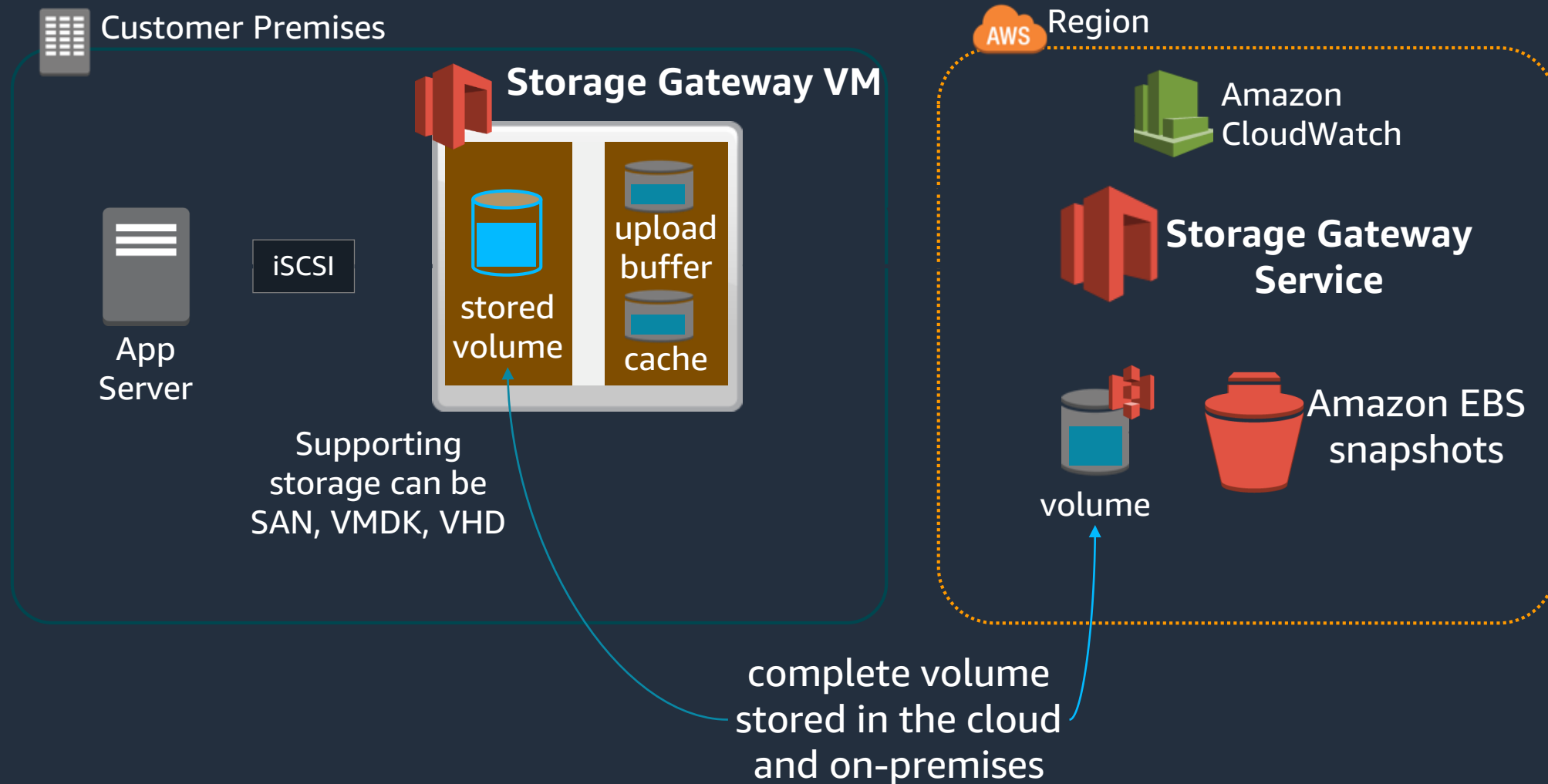
Volume gateway

On-premises volume storage backed by Amazon S3 with EBS snapshots

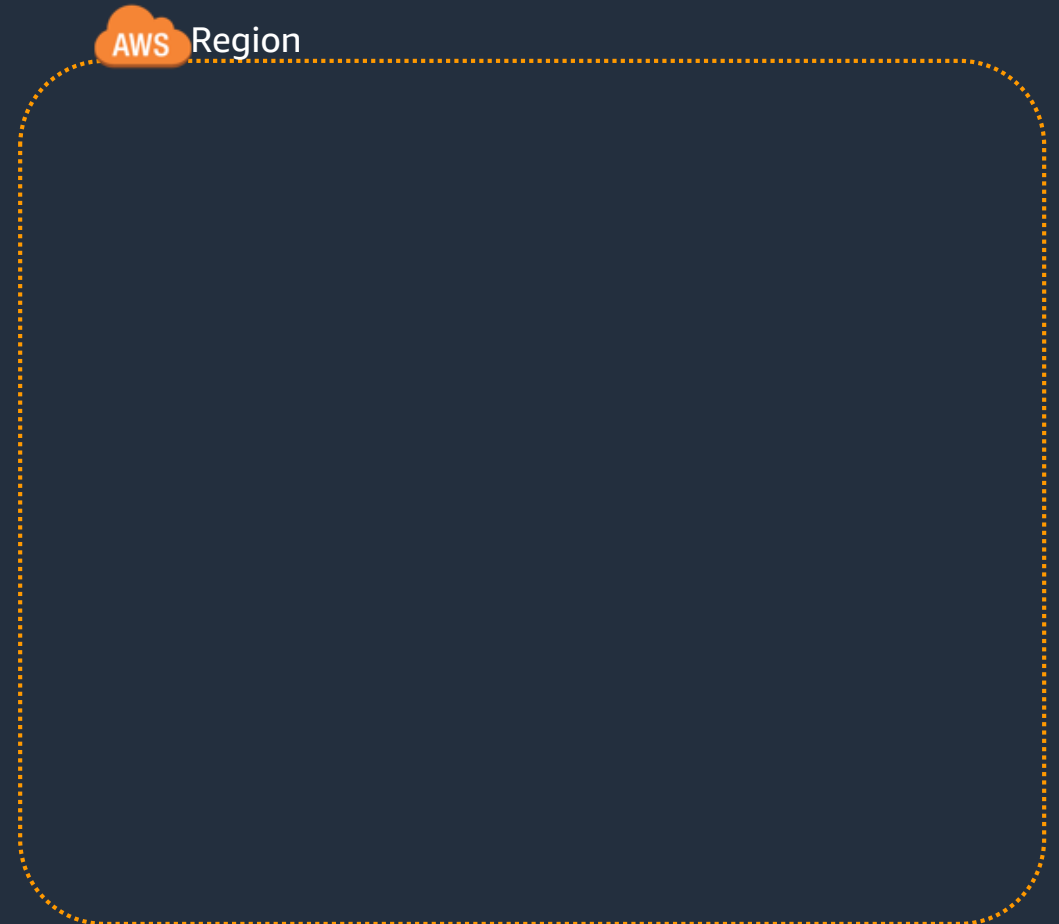
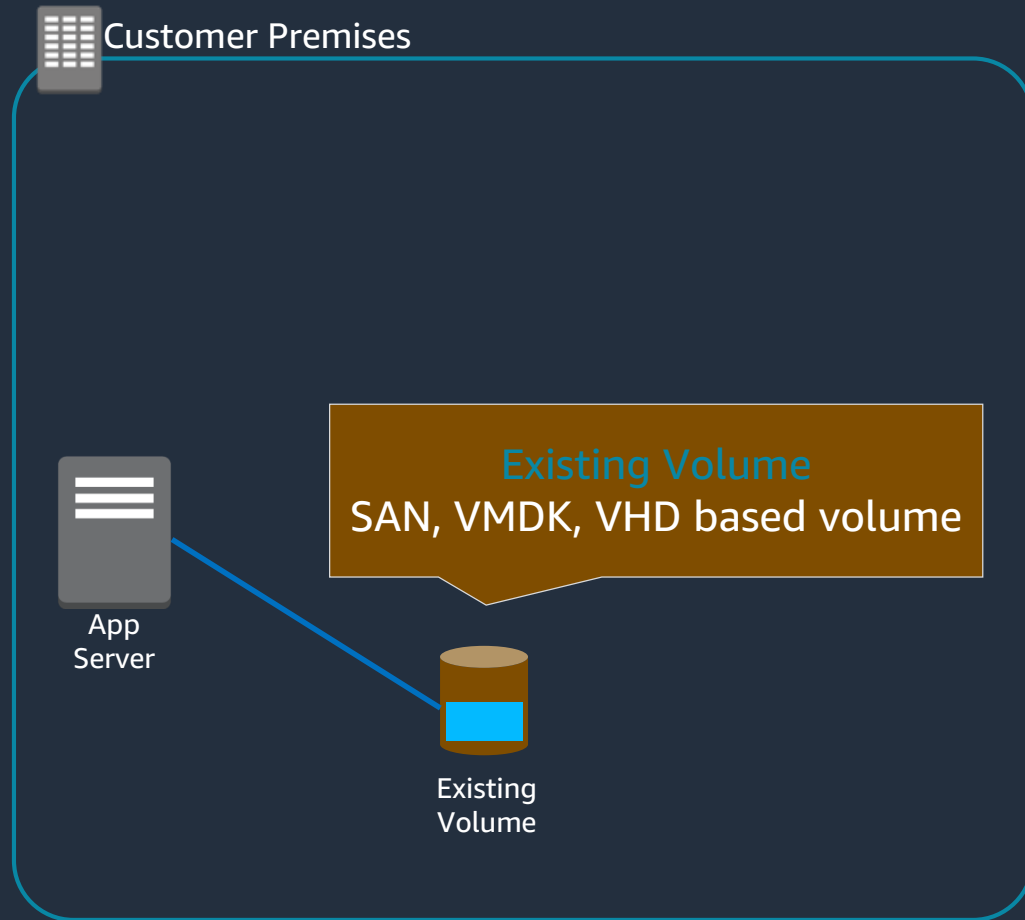


- Presents block storage on top of Amazon S3 accessed via the volume gateway
- Compression of data in transit and at rest
- Back up on-premises volumes to EBS snapshots
- Create on-premises volumes from EBS snapshots
- Up to 1 PB of total volume storage per gateway

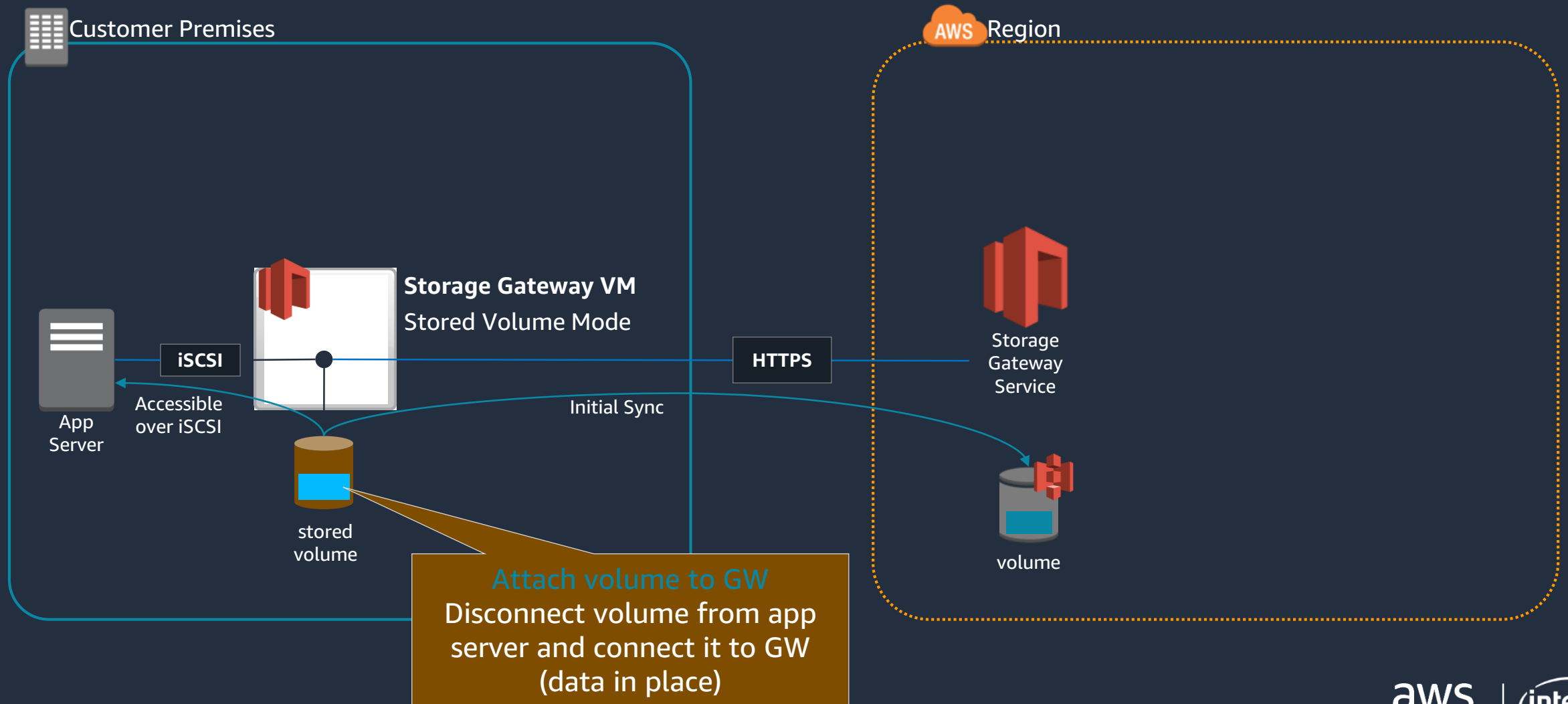
Volume stored



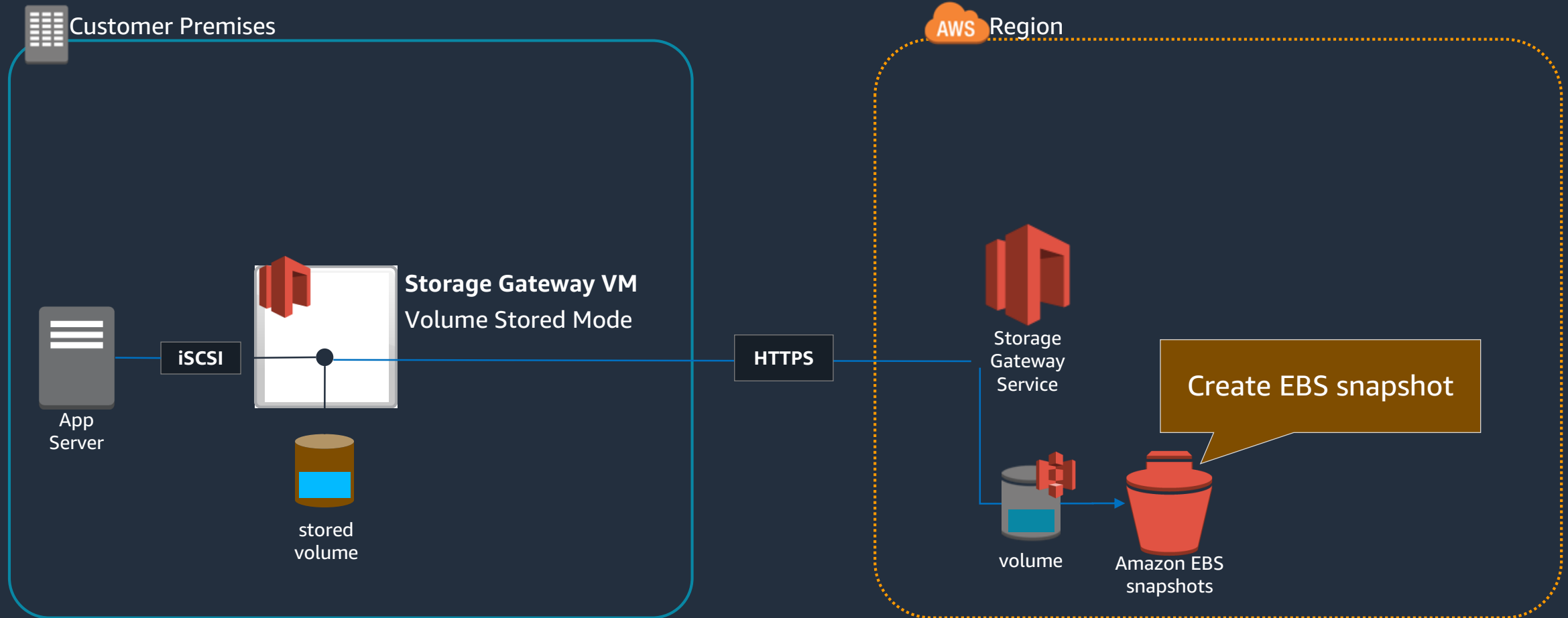
Backing up with Storage Gateway volumes



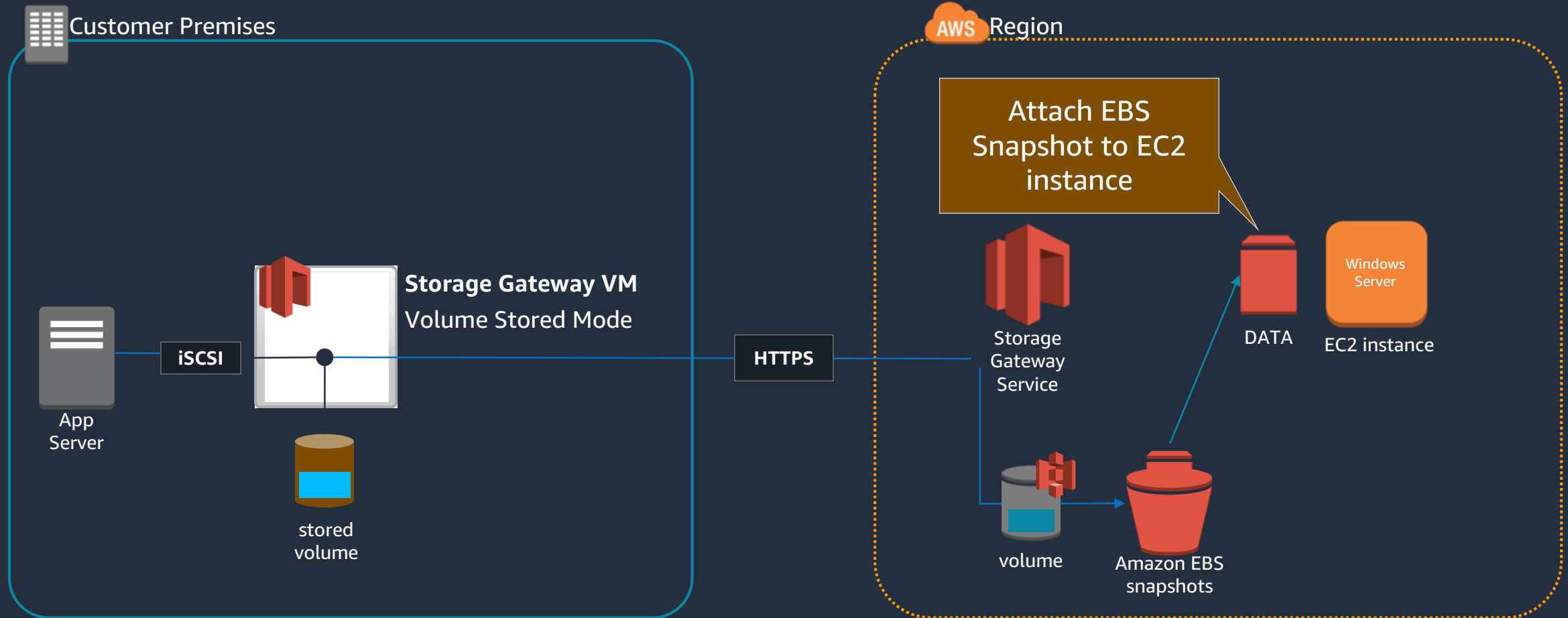
Backing up with Storage Gateway volumes



Backing up with Storage Gateway volumes



Restoring with Storage Gateway volumes



Restoring with Storage Gateway volumes



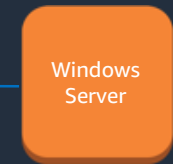
Customer Premises



Region



DATA



EC2 instance

AWS Third Party Integrations



The AWS Partner Network (APN) helps you seamlessly integrate AWS services into your existing storage environment

Backup & Restore



COMMVAULT



Data Migration



Archive



COMMVAULT



NetApp



Primary Storage



NetApp



BC/DR



CloudEndure



NetApp



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