Backup with AWS

Protect your growing data stores,
while enhancing security and durability

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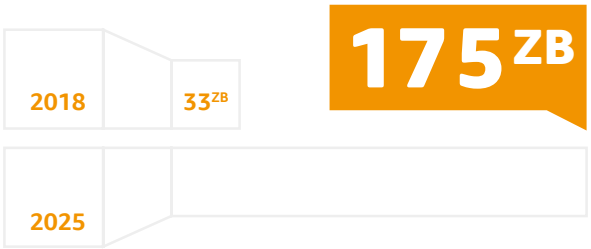
BACKUP SOLUTIONS IN TODAY'S DATA LANDSCAPE

Regardless of industry, size, or location, all organizations experience data loss caused by myriad events – from unintentional system failures to data center shutdowns. While there are measures you can take to mitigate data-loss events, the most effective data-protection method is having an enterprise-wide backup solution.

> **Everything fails, all the time.**
> – Werner Vogels, AWS CTO

Backup in the current data landscape

Due to the exponential growth of data worldwide, designing and deploying backup solutions is more complicated than before. IDC predicts global data will grow to 175 zettabytes by 2025.*

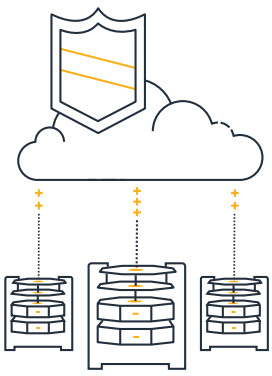


Traditional backup methods such as tape libraries cannot quickly scale to this growth and maintaining them and paying for offsite archival services can be prohibitively expensive.

New challenges, new tools

A growing number of organizations are extending on-premises backup capabilities to the cloud in order to accommodate this data growth. While the cloud offers numerous benefits, designing and deploying an agile backup solution in the cloud requires careful consideration of your existing IT investments, current operating environment, and recovery objectives.

How do you achieve greater storage scalability and control, without sacrificing security?



THIS IS WHERE AMAZON WEB SERVICES CAN HELP.

*Data Age 2025, IDC and Seagate, April 2017, https://www.seagate.com/www-content/our-story/trends/files/Seagate-WP-DataAge2025-March-2017.pdf

BENEFITS OF BACKING UP TO AWS

Since 2006, Amazon Web Services (AWS) has been providing cloud IT infrastructure services to hundreds of thousands of organizations. With AWS, companies can accommodate fluctuating backup demands in minutes, and no longer waste weeks or months procuring servers and other infrastructure.

In addition to increased scalability, organizations are realizing major benefits of extending backup targets to the AWS Cloud:

LEVERAGE EXISTING INVESTMENTS

Backup is one of the first workloads that customers move to the cloud. As all major backup vendors support Amazon S3 as a storage target, AWS enables customers to leverage the benefits of the cloud and easily move their backups with minimal modification to existing workflows.

COST EFFICIENCIES AND REDUCTION OF TOTAL COST OF OWNERSHIP

With pay-as-you-go pricing, no upfront capital investments, and cost management tools, AWS customers can spend efficiently. When properly designed, extending backups to the AWS Cloud can serve as the first step in reducing total cost of ownership and your physical data center footprint.

ENHANCED DATA DURABILITY AND AVAILABILITY

Our data security and replication protocols are designed to deliver 99.999999999% durability for all objects stored in AWS. Copies of every object are distributed across at least three physical Availability Zones that are miles apart within an AWS Region. Even when practicing industry best practices, on-premises capabilities cannot match AWS' durability due to our global scale.

MORE SECURITY WITH AWS THAN ON-PREMISES

All AWS customers benefit from a data center and network architecture built to meet the requirements of the most security-sensitive organizations in the most regulated industries, such as Financial Services, Public Sector, and Healthcare. We offer services to manage account access, detect irregular activity, isolate DDoS attacks, encrypt data in transit and at rest, and perform audits. AWS also maintains numerous security assurance programs, which means segments of your compliance are already completed.

ACCESS TO THE LATEST MACHINE LEARNING AND ANALYTICS TOOLS

Another benefit of backing up to AWS is the access your backup data has to the latest cloud-native applications for artificial intelligence, machine learning (ML), analytics, and business intelligence. This means you can extract insights from data sets that in traditional backup architectures would sit idle until recovered for production.

AWS' data center and network architecture is built to meet the requirements of the most security-sensitive organizations in the world. This is why enterprises like Kellogg's, Ryanair, NASA's Johnson Space Center, Dow Jones, and Rackspace back up and protect data with AWS and AWS Partner Network (APN) partners.

ON-PREMISES BACKUP	AWS-POWERED BACKUP
Wait weeks or months for resources	Scale IT resources on-demand
Store backups with limited durability	Store backups with 11 9's of durability
Operate with in-house security	Operate with global-scale security
Leave backup data idle	Run ML and analytics on backup data

AWS STORAGE SERVICES

AWS offers the most storage services to store and protect data in the cloud. All of these services are supported by the AWS infrastructure, which allows them to be ***flexible***, ***durable***, ***scalable***, and ***secure***.

AMAZON S3
Object storage

AWS STORAGE GATEWAY
Hybrid storage

AMAZON EFS
File storage

AMAZON EBS
Block Storage

AWS BACKUP
Fully managed backup service

AWS is designed to deliver on a customer promise of **99.999999999%** durability of objects stored in all Amazon S3 storage classes including Amazon S3 Glacier and Amazon S3 Glacier Deep Archive.

In theory, you can expect a loss of one object of 10 million stored in AWS, every **10,000 years**.

ARCHITECTING BACKUP FOR THE CLOUD

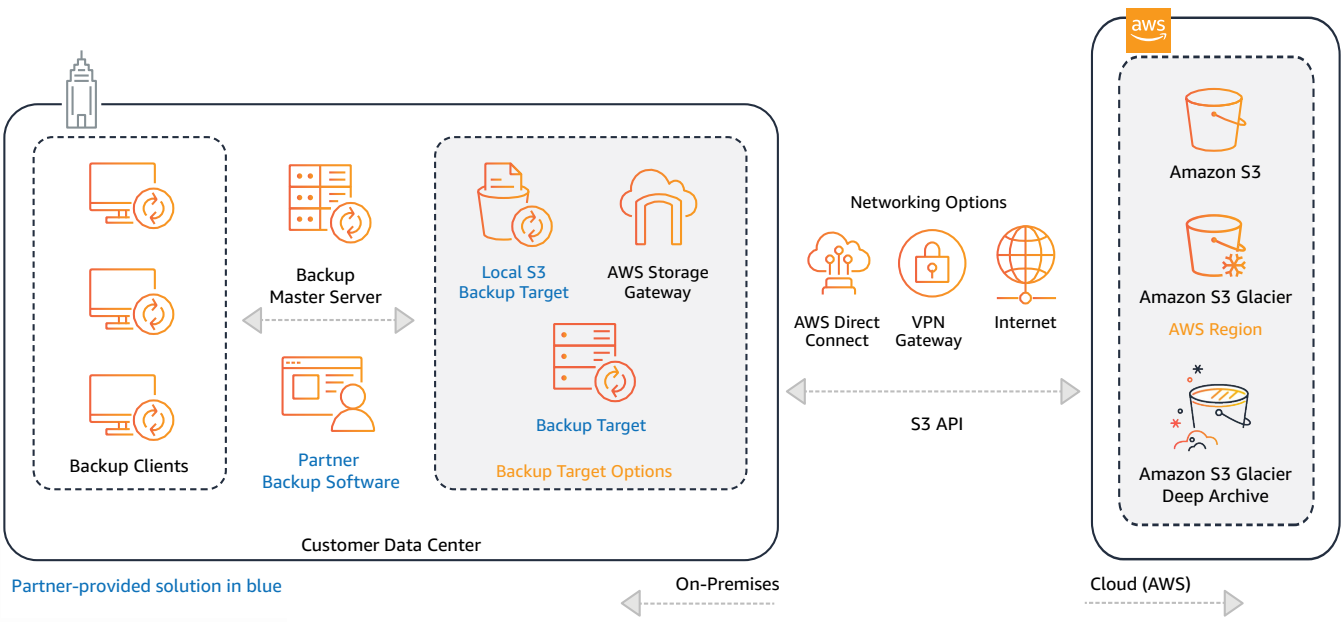
There are a range of architectural designs you can choose from to leverage the benefits of the AWS Cloud. If your current infrastructure and data are on-premises, consider a hybrid-cloud solution. For organizations already running on AWS, there are efficient cloud-native designs and features that can maximize your backup strategy and evolve it into more complex workloads for archiving and disaster recovery.

HYBRID-CLOUD BACKUP ARCHITECTURE

You can use a gateway service such as AWS Storage Gateway to back up your on-premises data to **Amazon S3, Amazon S3 Glacier, and Amazon S3 Glacier Deep Archive,** without changing your backup workflows and with the added benefits of local caching and data compression. Depending on your on-premises backup software capabilities, you can also use built-in cloud connectors in the backup software to send backups to AWS for short- and long-term storage. During a restore, backup data is pulled back to the on-premises environment and reinstatiated for production.

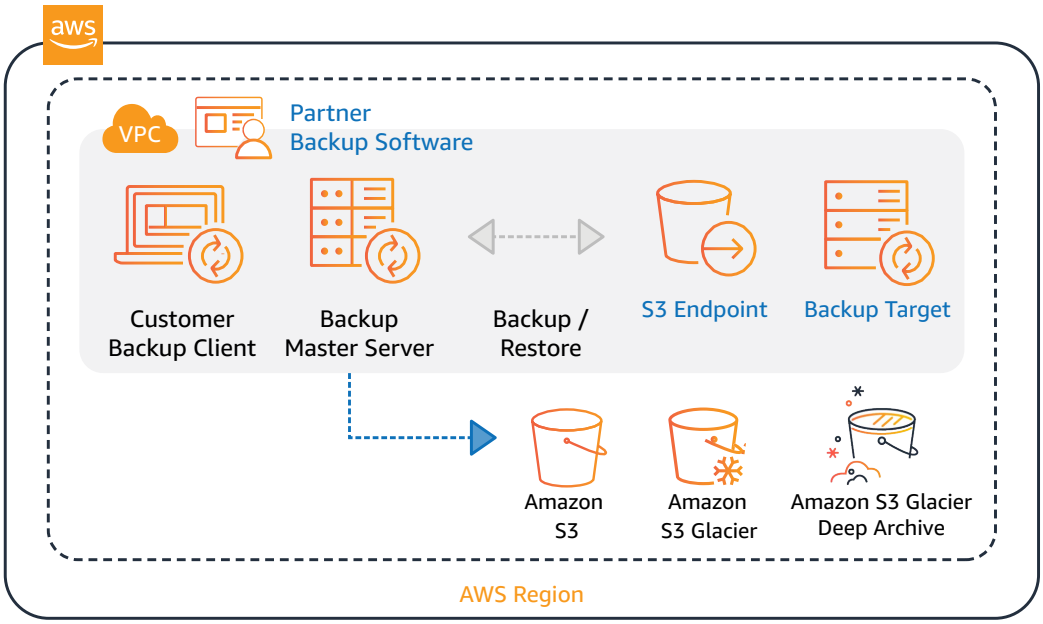
PRO TIP

To increase your ability to scale, protect, and restore backups, consider hosting backup engines and points of control in AWS (as opposed to on premises). This modification can facilitate faster data restores for use with the latest AWS Cloud-native applications for machine learning and analytics. In-cloud data restores are also critically helpful when data centers are corrupted or unavailable; you can replicate your on-premises environment in the cloud using AWS services and continue running applications with your backup data.



CLOUD-NATIVE BACKUP ARCHITECTURE

When your backup software, engines, servers, data, and storage are hosted on AWS, all these resources automatically scale to demand. There are no external resources required and customers can deploy solutions supported by the **AWS Partner Network (APN)** if collaborating with a third-party is preferred (see the AWS Partner Network section on page 8 for more information). Customers can use the **Amazon EBS** snapshot feature to back up and protect databases and file systems that are running on AWS' compute service **Amazon Elastic Compute Cloud (Amazon EC2)**.



Partner-provided solution in blue

AMAZON EBS SNAPSHOTS

Amazon Elastic Block Store (Amazon EBS) provides the underlying storage for applications that run on Amazon EC2, such as databases and file systems. This means customers can use the Amazon EBS snapshot feature to back up and protect these applications and their respective data sets. It works by creating an exact replica of an Amazon EBS volume at a specific point in time.

After an EBS snapshot is created, it is stored as an object in an Amazon S3 bucket and inherits the data durability and replication features that support all other objects stored in Amazon S3. Amazon EBS snapshots are incremental, which means only changes since the last snapshot are saved.

CLOUD-NATIVE BACKUP ACROSS AWS SERVICES

AWS Backup is a fully managed, policy-based backup solution that makes it easy to automatically back up your application data across AWS services. AWS Backup's policies provide automated backup scheduling, backup retention management, and lifecycle rules, helping to streamline backup processes. AWS Backup's centralized backup monitoring, backup encryption, and backup access policy features help you to meet internal and regulatory backup compliance requirements.

AWS Backup supports Amazon EC2, Amazon EBS, Amazon RDS, Amazon DynamoDB, Amazon EFS, and AWS Storage Gateway, to enable you to back up key data stores, such as your storage volumes, databases and file systems.

AWS PARTNER NETWORK, AWS STORAGE COMPETENCY PARTNERS, AND AWS MARKETPLACE

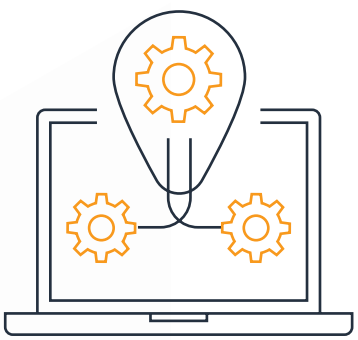
For organizations with complex legacy IT investments, extending backup targets to the AWS Cloud may require significant resource reallocations, budget changes, and training.

To help, the **AWS Partner Network (APN)** – the largest ecosystem of cloud service providers – recognizes Storage Competency Partners that can help deploy backup strategies that leverage AWS services and your existing IT investments and processes. All APN partners have validated their technical AWS expertise and proven customer success of their services and products. If your on-premises backup provider is already an APN member, you can work with them directly to enable built-in cloud connectors or deploy gateways that extend backup targets to the AWS Cloud. For customers looking for new capabilities, the APN can help narrow down the list of providers that best fit your requirements and then you can explore their solutions on the **AWS Marketplace**.

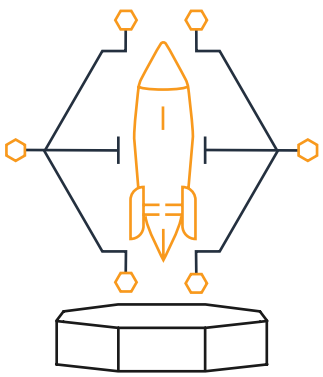
> The AWS Marketplace is a digital catalog offering 3,500+ software listings from 1,100+ independent software vendors recognized by the APN for AWS expertise and proven customer success. Find, buy, and start using backup solutions today.

Whether you're extending on-premises backup targets to the cloud or creating cloud-native processes, working with an APN backup provider and the AWS Marketplace offers these benefits:

LEVERAGING BUILT-IN CAPABILITIES



EASING THE CONSTRAINTS OF DEVELOPMENT



HOW TO GET STARTED

AWS MARKETPLACE

Explore the AWS Marketplace for familiar and new backup providers. Find a solution provider who can best accommodate your needs and begin backing up to the AWS Cloud today!

BUILT-IN CLOUD CONNECTORS

Take a look at your incumbent capabilities. There may be built-in cloud connectors that can be enabled to start sending backups to the AWS Cloud for durable and secure storage.

AWS STORAGE GATEWAY

Try AWS Storage Gateway for free to extend your on-premises environment to the AWS Cloud. The service is easy to use and can be deployed in a few steps.

AWS BACKUP

Sign in to your AWS account, launch the AWS Backup console, create a backup plan, and assign AWS resources —Amazon EC2 instances, Amazon EBS volumes, Amazon RDS databases, Amazon DynamoDB tables, Amazon EFS file systems, and AWS Storage Gateway volumes.

VISIT US

For more information about AWS services or to contact one of our sales representatives, visit us at **http://aws.amazon.com/backup-restore**.

In addition to service and solution overviews, we also provide hands-on tutorials, tech talks, upcoming events, and technical whitepapers to help you evolve your current backup capabilities into comprehensive solutions that durably and securely protect your data and your organization.