Elastic Load Balancer

Elastic Load Balancing automatically distributes your incoming traffic across multiple targets, such as EC2 instances, containers, and IP addresses, in one or more Availability Zones. It monitors the health of its registered targets, and routes traffic only to the healthy targets. Elastic Load Balancing scales your load balancer as your incoming traffic changes over time. It can automatically scale to the vast majority of workloads.

A load balancer distributes workloads across multiple compute resources, such as virtual servers. Using a load balancer increases the availability and fault tolerance of your applications.

You can add and remove compute resources from your load balancer as your needs change, without disrupting the overall flow of requests to your applications.

You can configure health checks, which monitor the health of the compute resources, so that the load balancer sends requests only to the healthy ones. You can also offload the work of encryption and decryption to your load balancer so that your compute resources can focus on their main work.

Elastic Load Balancing supports the following load balancers: Application Load Balancers, Network Load Balancers, Gateway Load Balancers, and Classic Load Balancers

<https://aws.amazon.com/es/elasticloadbalancing/features/#Product_comparisons>

### Balanceador de carga de aplicaciones

Se le cobra cada hora u hora parcial que se ejecute el Application Load Balancer y la cantidad de unidades de capacidad de balanceo de carga (LCU) utilizadas por hora.

### Balanceador de carga de red

Se le cobra por cada hora u hora parcial que se ejecute el balanceador de carga de red y la cantidad de Network Load Balancer Capacity Units (NLCU, unidades de capacidad del balanceador de carga de red) que utilice por hora.

### Balanceador de carga Gateway

Se le cobra cada hora u hora parcial que se ejecute el balanceador de carga Gateway y la cantidad de Gateway Load Balancer Capacity Units (GLCU, unidades de capacidad del balanceador de carga Gateway) que utilice por hora. El balanceador de carga Gateway utiliza el Gateway Load Balancer Endpoint (GWLBE, punto de enlace del balanceador de carga Gateway), un tipo nuevo de punto de enlace de la VPC impulsado por tecnología de AWS PrivateLink que simplifica el modo en que las aplicaciones pueden intercambiar el tráfico de manera segura con el GWLB a través de los límites de la VPC. Al GWLBE se aplican el precio y la factura de manera separada ([más información](https://aws.amazon.com/es/privatelink/pricing/)).

**Balanceador de carga clásico**

Se le cobrará por cada hora u hora parcial en la que el Balanceador de carga clásico esté activo y por cada GB de datos transferido a través del balanceador de carga.

<https://aws.amazon.com/es/elasticloadbalancing/pricing/>

EC2

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

Amazon EC2 provides the following features:

* Virtual computing environments, known as instances
* Preconfigured templates for your instances, known as Amazon Machine Images (AMIs), that package the bits you need for your server (including the operating system and additional software)
* Various configurations of CPU, memory, storage, and networking capacity for your instances, known as instance types
* Secure login information for your instances using key pairs (AWS stores the public key, and you store the private key in a secure place)
* Storage volumes for temporary data that's deleted when you stop, hibernate, or terminate your instance, known as instance store volumes
* Persistent storage volumes for your data using Amazon Elastic Block Store (Amazon EBS), known as Amazon EBS volumes
* Multiple physical locations for your resources, such as instances and Amazon EBS volumes, known as Regions and Availability Zones
* A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using security groups
* Static IPv4 addresses for dynamic cloud computing, known as Elastic IP addresses
* Metadata, known as tags, that you can create and assign to your Amazon EC2 resources
* Virtual networks you can create that are logically isolated from the rest of the AWS Cloud, and that you can optionally connect to your own network, known as virtual private clouds (VPCs)
* When you sign up for AWS, you can get started with Amazon EC2 for free using the [AWS Free Tier](https://aws.amazon.com/free/)
* .
* Amazon EC2 provides the following purchasing options for instances:
* **On-Demand Instances**
* Pay for the instances that you use by the second, with no long-term commitments or upfront payments.
* **Savings Plans**
* You can reduce your Amazon EC2 costs by making a commitment to a consistent amount of usage, in USD per hour, for a term of 1 or 3 years.
* **Reserved Instances**
* You can reduce your Amazon EC2 costs by making a commitment to a specific instance configuration, including instance type and Region, for a term of 1 or 3 years.
* **Spot Instances**
* Request unused EC2 instances, which can reduce your Amazon EC2 costs significantly

EBS

Amazon Elastic Block Store (Amazon EBS) provides block level storage volumes for use with EC2 instances. EBS volumes behave like raw, unformatted block devices. You can mount these volumes as devices on your instances. EBS volumes that are attached to an instance are exposed as storage volumes that persist independently from the life of the instance. You can create a file system on top of these volumes, or use them in any way you would use a block device (such as a hard drive). You can dynamically change the configuration of a volume attached to an instance.

We recommend Amazon EBS for data that must be quickly accessible and requires long-term persistence. EBS volumes are particularly well-suited for use as the primary storage for file systems, databases, or for any applications that require fine granular updates and access to raw, unformatted, block-level storage. Amazon EBS is well suited to both database-style applications that rely on random reads and writes, and to throughput-intensive applications that perform long, continuous reads and writes.

* You create an EBS volume in a specific Availability Zone, and then attach it to an instance in that same Availability Zone. To make a volume available outside of the Availability Zone, you can create a snapshot and restore that snapshot to a new volume anywhere in that Region. You can copy snapshots to other Regions and then restore them to new volumes there, making it easier to leverage multiple AWS Regions for geographical expansion, data center migration, and disaster recovery.
* Amazon EBS provides the following volume types: General Purpose SSD, Provisioned IOPS SSD, Throughput Optimized HDD, and Cold HDD. For more information, see [EBS volume types](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-volume-types.html).

The following is a summary of performance and use cases for each volume type.

* + General Purpose SSD volumes (gp2 and gp3) balance price and performance for a wide variety of transactional workloads. These volumes are ideal for use cases such as boot volumes, medium-size single instance databases, and development and test environments.
  + Provisioned IOPS SSD volumes (io1 and io2) are designed to meet the needs of I/O-intensive workloads that are sensitive to storage performance and consistency. They provide a consistent IOPS rate that you specify when you create the volume. This enables you to predictably scale to tens of thousands of IOPS per instance. Additionally, io2 volumes provide the highest levels of volume durability.
  + Throughput Optimized HDD volumes (st1) provide low-cost magnetic storage that defines performance in terms of throughput rather than IOPS. These volumes are ideal for large, sequential workloads such as Amazon EMR, ETL, data warehouses, and log processing.
  + Cold HDD volumes (sc1) provide low-cost magnetic storage that defines performance in terms of throughput rather than IOPS. These volumes are ideal for large, sequential, cold-data workloads. If you require infrequent access to your data and are looking to save costs, these volumes provides inexpensive block storage.
* You can create your EBS volumes as encrypted volumes, in order to meet a wide range of data-at-rest encryption requirements for regulated/audited data and applications. When you create an encrypted EBS volume and attach it to a supported instance type, data stored at rest on the volume, disk I/O, and snapshots created from the volume are all encrypted. The encryption occurs on the servers that host EC2 instances, providing encryption of data-in-transit from EC2 instances to EBS storage. For more information, see [Amazon EBS encryption](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html).
* You can create point-in-time snapshots of EBS volumes, which are persisted to Amazon S3. Snapshots protect data for long-term durability, and they can be used as the starting point for new EBS volumes. The same snapshot can be used to instantiate as many volumes as you wish. These snapshots can be copied across AWS Regions. For more information, see [Amazon EBS snapshots](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html).
* Performance metrics, such as bandwidth, throughput, latency, and average queue length, are available through the AWS Management Console. These metrics, provided by Amazon CloudWatch, allow you to monitor the performance of your volumes to make sure that you are providing enough performance for your applications without paying for resources you don't need. For more information, see [Amazon EBS volume performance on Linux instances](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSPerformance.html).

With Amazon EBS, you pay only for what you use. For more information about Amazon EBS pricing, see the Projecting Costs section of the Amazon Elastic

RDS

Amazon Relational Database Service (Amazon RDS) is a web service that makes it easier to set up, operate, and scale a relational database in the AWS Cloud. It provides cost-efficient, resizable capacity for an industry-standard relational database and manages common database administration tasks.

Why do you want a managed relational database service? Because Amazon RDS takes over many of the difficult and tedious management tasks of a relational database:

* When you buy a server, you get CPU, memory, storage, and IOPS, all bundled together. With Amazon RDS, these are split apart so that you can scale them independently. If you need more CPU, less IOPS, or more storage, you can easily allocate them.
* Amazon RDS manages backups, software patching, automatic failure detection, and recovery.
* To deliver a managed service experience, Amazon RDS doesn't provide shell access to DB instances. It also restricts access to certain system procedures and tables that require advanced privileges.
* You can have automated backups performed when you need them, or manually create your own backup snapshot. You can use these backups to restore a database. The Amazon RDS restore process works reliably and efficiently.
* You can use the database products you are already familiar with: MySQL, MariaDB, PostgreSQL, Oracle, Microsoft SQL Server.
* You can get high availability with a primary instance and a synchronous secondary instance that you can fail over to when problems occur. You can also use MariaDB, Microsoft SQL Server, MySQL, Oracle, and PostgreSQL read replicas to increase read scaling.
* In addition to the security in your database package, you can help control who can access your RDS databases by using AWS Identity and Access Management (IAM) to define users and permissions. You can also help protect your databases by putting them in a virtual private cloud.

The basic building block of Amazon RDS is the DB instance. A DB instance is an isolated database environment in the AWS Cloud. Your DB instance can contain multiple user-created databases. You can access your DB instance by using the same tools and applications that you use with a standalone database instance. You can create and modify a DB instance by using the AWS Command Line Interface, the Amazon RDS API, or the AWS Management Console.

Each DB instance runs a DB engine. Amazon RDS currently supports the MySQL, MariaDB, PostgreSQL, Oracle, and Microsoft SQL Server DB engines. Each DB engine has its own supported features, and each version of a DB engine may include specific features. Additionally, each DB engine has a set of parameters in a DB parameter group that control the behavior of the databases that it manages.

The computation and memory capacity of a DB instance is determined by its DB instance class. You can select the DB instance that best meets your needs. If your needs change over time, you can change DB instances. For information, see DB instance classes.

For pricing information on DB instance classes, see the Pricing section of the Amazon RDS product page.

DB instance storage comes in three types: Magnetic, General Purpose (SSD), and Provisioned IOPS (PIOPS). They differ in performance characteristics and price, allowing you to tailor your storage performance and cost to the needs of your database. Each DB instance has minimum and maximum storage requirements depending on the storage type and the database engine it supports. It's important to have sufficient storage so that your databases have room to grow. Also, sufficient storage makes sure that features for the DB engine have room to write content or log entries. For more information, see Amazon RDS DB instance storage.

You can run a DB instance on a virtual private cloud (VPC) using the Amazon Virtual Private Cloud (Amazon VPC) service. When you use a VPC, you have control over your virtual networking environment. You can choose your own IP address range, create subnets, and configure routing and access control lists. The basic functionality of Amazon RDS is the same whether it's running in a VPC or not. Amazon RDS manages backups, software patching, automatic failure detection, and recovery. There's no additional cost to run your DB instance in a VPC. For more information on using Amazon VPC with RDS, see Amazon Virtual Private Cloud VPCs and Amazon RDS.

Amazon RDS uses Network Time Protocol (NTP) to synchronize the time on DB Instances

Amazon cloud computing resources are housed in highly available data center facilities in different areas of the world (for example, North America, Europe, or Asia). Each data center location is called an AWS Region.

Each AWS Region contains multiple distinct locations called Availability Zones, or AZs. Each Availability Zone is engineered to be isolated from failures in other Availability Zones. Each is engineered to provide inexpensive, low-latency network connectivity to other Availability Zones in the same AWS Region. By launching instances in separate Availability Zones, you can protect your applications from the failure of a single location. For more information, see Regions, Availability Zones, and Local Zones .

You can run your DB instance in several Availability Zones, an option called a Multi-AZ deployment. When you choose this option, Amazon automatically provisions and maintains a secondary standby DB instance in a different Availability Zone. Your primary DB instance is synchronously replicated across Availability Zones to the secondary instance. This approach helps provide data redundancy and failover support, eliminate I/O freezes, and minimize latency spikes during system backups. For more information, see High availability (Multi-AZ) for Amazon RDS.

EFS

Objects that you can view in an Amazon EFS system include regular files, directories, symbolic links, and special files (FIFOs and sockets). Each of these objects is metered for 2 kibibytes (KiB) of metadata (for its inode) and one or more increments of 4 KiB of data. The following list explains the metered data size for different types of file system objects:

* Regular files – The metered data size of a regular file is the logical size of the file rounded to the next 4-KiB increment, except that it might be less for sparse files.

A sparse file is a file to which data is not written to all positions of the file before its logical size is reached. For a sparse file, in some cases the actual storage used is less than the logical size rounded to the next 4-KiB increment. In these cases, Amazon EFS reports actual storage used as the metered data size.

* Directories – The metered data size of a directory is the actual storage used for the directory entries and the data structure that holds them, rounded to the next 4-KiB increment. The metered data size doesn't include the actual storage used by the file data.
* Symbolic links and special files – The metered data size for these objects is always 4 KiB.

When Amazon EFS reports the space used for an object, through the NFSv4.1 space\_used attribute, it includes the object's current metered data size but not its metadata size. You can use two utilities for measuring the disk usage of a file, the du and stat utilities. Following is an example of how to use the du utility on an empty file, with the -k option to return the output in kilobytes.

Customers only pay for the amount of time that Provisioned Throughput is enabled. Provisioned Throughput is metered once every hour. For metering when Provision Throughput is set for less than one hour, Amazon EFS calculates the time-average using millisecond precision.

Amazon EFS file systems meter the throughput for read requests at one-third the rate of the other file system I/O operations. For example, if you are driving 30 MB/s of both read throughput and write throughput, the read portion counts as 10 MB/s of effective throughput, the write portion counts as 30 MB/s, and the combined metered throughput is 40 MB/s. This combined throughput adjusted for consumption rates is reflected in the MeteredIOBytes CloudWatch metric.

DataSync

AWS DataSync is an online data transfer service that simplifies, automates, and accelerates moving data between on-premises storage systems and AWS storage services, and also between AWS storage services. DataSync can copy data between Network File System (NFS), Server Message Block (SMB) file servers, self-managed object storage, AWS Snowcone, Amazon Simple Storage Service (Amazon S3) buckets, Amazon EFS file systems, and Amazon FSx for Windows File Server file systems.

These are some of the main use cases for AWS DataSync:

Data migration – Move active datasets rapidly over the network into Amazon S3, Amazon EFS, or FSx for Windows File Server. DataSync includes automatic encryption and data integrity validation to help make sure that your data arrives securely, intact, and ready to use.

Archiving cold data – Move cold data stored in on-premises storage directly to durable and secure long-term storage such as Amazon S3 Glacier or S3 Glacier Deep Archive. This can free up on-premises storage capacity and shut down legacy systems.

Data protection – Move data into any Amazon S3 storage class, choosing the most cost-effective storage class for your needs. You can also send data to Amazon EFS or FSx for Windows File Server for a standby file system.

Data movement for timely in-cloud processing – Move data into or out of AWS for processing when working with systems that generate data on-premises. This approach can speed up critical hybrid cloud workflows across many industries. These include machine learning in the life sciences industry, video production in media and entertainment, big data analytics in financial services, and seismic research in the oil and gas industry.

By using AWS DataSync, you can get the following benefits:

Simplify and automate data movement – AWS DataSync makes it easier to move data over the network between on-premises storage and AWS storage services, and also between AWS storage services. DataSync automates both the management of data transfer processes and the infrastructure required for high-performance and secure data transfer.

Transfer data securely – DataSync provides end-to-end security, including encryption and integrity validation, to help ensure that your data arrives securely, intact, and ready to use. DataSync accesses your AWS storage using built-in AWS security mechanisms such as AWS Identity and Access Management (IAM) roles. It also supports VPC endpoints, giving you the option to transfer data without traversing the public internet, and further increasing the security of data copied online.

Move data faster – With DataSync, you can transfer data rapidly over the network into AWS. It uses a purpose-built network protocol and a parallel, multi-threaded architecture to accelerate your transfers. This speeds up migrations, recurring data processing workflows for analytics and machine learning, and data protection processes.

Reduce operational costs – You can move data cost-effectively with the flat, per-gigabyte pricing of DataSync. You can save on script development, and deployment and maintenance costs, and avoid the need for costly commercial transfer tools.

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S3

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can use Amazon S3 to store and protect any amount of data for a range of use cases, such as data lakes, websites, mobile applications, backup and restore, archive, enterprise applications, IoT devices, and big data analytics. Amazon S3 provides management features so that you can optimize, organize, and configure access to your data to meet your specific business, organizational, and compliance requirements.

Storage classes

Amazon S3 offers a range of storage classes designed for different use cases. For example, you can store mission-critical production data in S3 Standard for frequent access, save costs by storing infrequently accessed data in S3 Standard-IA or S3 One Zone-IA, and archive data at the lowest costs in S3 Glacier and S3 Glacier Deep Archive.

You can store data with changing or unknown access patterns in S3 Intelligent-Tiering, which optimizes storage costs by automatically moving your data between four access tiers when your access patterns change. These four access tiers include two low-latency access tiers optimized for frequent and infrequent access, and two opt-in archive access tiers designed for asynchronous access for rarely accessed data.

For more information, see Using Amazon S3 storage classes. For more information about S3 Glacier, see the Amazon S3 Glacier Developer Guide.

Storage management

Amazon S3 has storage management features that you can use to manage costs, meet regulatory requirements, reduce latency, and save multiple distinct copies of your data for compliance requirements.

S3 Lifecycle – Configure a lifecycle policy to manage your objects and store them cost effectively throughout their lifecycle. You can transition objects to other S3 storage classes or expire objects that reach the end of their lifetimes.

S3 Object Lock – Prevent Amazon S3 objects from being deleted or overwritten for a fixed amount of time or indefinitely. You can use Object Lock to help meet regulatory requirements that require write-once-read-many (WORM) storage or to simply add another layer of protection against object changes and deletions.

S3 Replication – Replicate objects and their respective metadata and object tags to one or more destination buckets in the same or different AWS Regions for reduced latency, compliance, security, and other use cases.

S3 Batch Operations – Manage billions of objects at scale with a single S3 API request or a few clicks in the Amazon S3 console. You can use Batch Operations to perform operations such as Copy, Invoke AWS Lambda function, and Restore on millions or billions of objects.

S3 Glacier

Amazon S3 Glacier is a secure, durable, and extremely low-cost Amazon S3 storage class for data archiving and long-term backup.

With S3 Glacier, customers can store their data cost effectively for months, years, or even decades. S3 Glacier enables customers to offload the administrative burdens of operating and scaling storage to AWS, so they don't have to worry about capacity planning, hardware provisioning, data replication, hardware failure detection and recovery, or time-consuming hardware migrations. For more service highlights and pricing information, go to the [S3 Glacier detail page](https://aws.amazon.com/glacier)