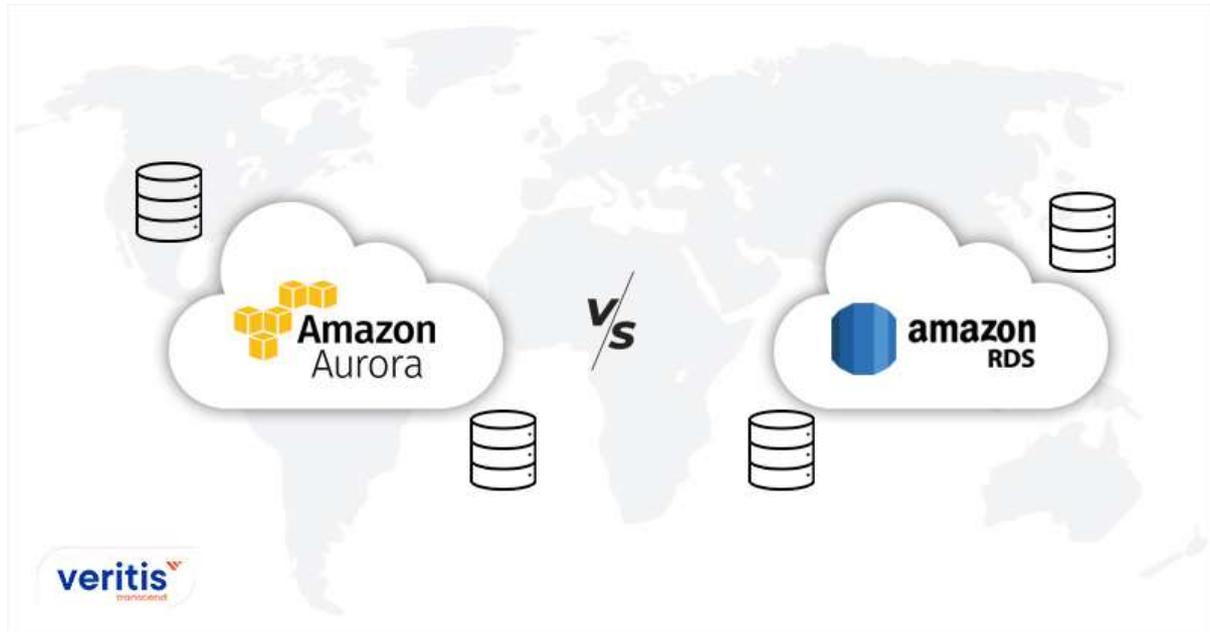


## Amazon Aurora Vs Amazon RDS Comparison Which is the Best Database Service



Databases are the main pillars for any application as they are one of the most essential components for business infrastructure. Additionally, data management also became a vital part not only in on-premises but also in the cloud platform.

Database-as-a-service (DBaaS), also known as Managed Databases permits users to set up, operate, and scale databases without maintaining, and managing their underlying technologies. It allows most organizations, and individuals to opt for a cost-efficient solution. Database administrators (DBA) are facing more challenges, and problems while increasing workloads, and database complexity as most IT organizations are moving towards an application-centric approach.

Before opting the best solution for your organization, you should consider multiple factors like security, scalability, monitoring, performance, high availability, management, capacity planning, and operational cost. If any organization wants to run their services in **Amazon Web Service (AWS)**, there are two best platforms– **Amazon Aurora**,

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and **Amazon RDS**. Both the services provide multiple options to assist in database administration.

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**Useful Link:** [MongoDB Vs RDBMS: Comparing the Big 2 Database Services](#)

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This blog post will focus on Amazon Aurora, Amazon RDS, and a comparison between them.

## Amazon Aurora



Amazon Aurora is a cutting-edge relational database service, created, and offered by AWS in 2014. Amazon designed Aurora to work in conjunction with MySQL 5.6, and PostgreSQL, built for the [cloud service](#). Aurora delivers five times better performance than MySQL and 3 times better performance than PostgreSQL with the reliability, security, and availability of high-end commercial databases at one-tenth price.

In addition, when Aurora syncs with MySQL, and PostgreSQL, it offers a bunch of special features like security, durability, migration, and many more to the list. Moreover, it stunts maintenance costs without cutting corners on performance.



AWS Aurora, without your intervention, allocates database storage volume in 10 GB logical blocks, also known as the Protection group. The data available in the protection group is reproduced across six storage nodes which are automatically allocated across three separate availability zones (AZs) in the Amazon Aurora cluster. If data fails in one AZ, then it aims to recover data in another AZ.

When you create a cluster, it automatically consumes data. If data increases, and exceeds its storage capacity, the service engine seamlessly expands its volume to meet the requirement, and it auto-scales all the way up to 64 TB.

## **Aurora Database Cluster**

This database engine consists of multiple DB instances, and a cluster volume that primarily aims to hold the data for the DB instances. Aurora is a virtual database storage volume that spans various Availability Zones into a single AWS region, and houses a copy of the DB cluster data.

This is all about that your DB cluster can permit a failure of Availability Zone without having any interruption of services, and any loss of data. Here, we have 2 types of Aurora DB instances – Primary DB instance, and Aurora Replica.

## **Primary DB Instance**

This instance is responsible for performing all data input modifications (read and write operations) to the cluster volume. Every cluster in this database consists of at least one primary DB instance.

## Aurora Replica

Replica only supports read operations, and joins to the same data cluster as the primary DB instance connects. Each DB cluster can support up to 15 Aurora replicas, and these replicas can distribute across the Availability Zones that a DB cluster spans across the AWS region.

Aurora Replica has mainly two purposes – You can raise queries to them to remove the only read operations for your application. It also helps to increase availability. If the writer DB instance is failed and is unavailable in a single master cluster, then the failover mechanism (Aurora) automatically approaches and replaces a new writer DB instance.

All DB instances can perform read/write operations in the Aurora multi-master cluster. Especially, in this particular case, Aurora Replica doesn't apply to a primary instance's notions, and it is used for multiple read-only.

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**Useful Link:** [Principles that every CIO needs to Adopt for DevOps Acceleration](#)

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## Aurora Features



**Aurora Features**

- 1 Availability and Durability
- 2 Higher Security
- 3 Fully Managed
- 4 Migration Support

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#### **a) Availability and Durability**

AWS Aurora offers a feature of self-healing, and fault-tolerant storage built for the cloud. It is designed to provide an excellent availability of 99.99%, and the cloud storage replicates six copies of your data that can be created in each across three Availability Zones. Furthermore, due to the safety purpose of storage failure, it continuously backs up the data to Amazon S3.

#### **b) Higher Security**

This web service provides numerous levels of strong security for protecting your database like encryption at rest using AWS Key Management Service (KMS), encryption of data in transit operating SSL, and network isolating using Amazon VPC. There are automatic backups, replicas, and snapshots in the same cluster.

#### **c) Fully Managed**

An Amazon Relational database service (RDS) completely manages the Amazon Aurora. As a result, users don't need to worry over database management tasks like setup, configuration, backups, software patching, and hardware provisioning.

#### **d) Migration Support**

Amazon Aurora makes it simple to migrate your local database using MySQL dump, and PostgreSQL dump commands.

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**Useful Link:** [Serverless Vs Containers: Comparison Between Top Two Cloud Services](#)

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## Amazon Relational Database Service (RDS)



Amazon RDS is a cloud-based relational database service that allows you to manage, and scale your application in the cloud. RDS has many database engines like Microsoft SQL server, Oracle Database, MariaDB, MySQL, PostgreSQL, and Amazon Aurora. It automatically backs up your database and keeps updating the software with the latest version. The service engine offers various instant types with different resources like network capability, storage options, CPU, memory, and it is a fully managed RDBMS service.

Administrators are allowed to control RDS With the AWS Command Line Interface, and AWS Management Console, which can decrease or increase your RDS requirements within minutes. These interfaces are used to deploy database instances to apply specific settings to users.

Additionally, RDS users can operate Access Management, and AWS Identity to define, and set permissions to access an RDS database.

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## RDS Features

- Amazon RDS automatically replace the host if the hardware fails
- No upfront payment is needed as RDS charges only for the resources consumed by the user and it also offers a few pricing models like ‘Reserved instances’, and ‘On-Demand’.
- It provides high security to access their database and their related services.
- This relational database service engine manages automatic backup timings, and back up the transaction log up to five minutes.
- Users are allowed to capture snapshots daily of their database instances stored in Amazon S3.
- AWS service engine automatically acquires all the patches for the database software

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Useful Link: [Which Cloud has Better Private Connectivity: AWS or Azure or GCP?](#)

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## Comparison Between Amazon Aurora, and Amazon RDS

Details	MongoDB	RDBMS
Storage	Storage can be expanded from a minimum of 10 GB to a maximum of 64 TB depending on the requirement	RDS permits 64 TB for most engines but for SQL server, it allows only 16 GB

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<b>Scalability</b>	Aurora permits users to scale the memory, and compute resources in a few minutes up to a maximum extent of 32 vCPUs, and 244 GiB of RAM	Same as Aurora
<b>Database Engine</b>	Aurora supports two database engines – MySQL 5.6, and PostgreSQL 9.6.1	RDS supports five database engines – Microsoft SQL server, Oracle Database, MariaDB, MySQL, PostgreSQL, and Amazon Aurora
<b>Replication</b>	It supports fifteen replicas for the provision	It supports five replicas
<b>Pricing</b>	It is difficult to predict the price as it mainly depends on I/O operations	Users allow to try it free of charge with no minimum usage fee

## *Conclusion*



Before adopting any engine for your database, organizations have to weigh the pros and cons of both the services Amazon Aurora and Amazon RDS, and take the decision based on your requirement.

Amazon Aurora, and Amazon RDS are among the fastest-growing cloud platforms in the database service. While both the services are excellent, Amazon Aurora is the best option to go forward for any organization as it offers more features when compared to its counterpart.

Although there is a small increase in price, this is definitely a worth investing. However, RDS has its own unique advantage over Aurora as users would be able to try it for no expense and it supports more database engines.

But in this world of multiple options, zeroing in on an MSP is a herculean task. **Veritis** is one of the [best IT consulting services](#) with a trusted partner of Fortune 500 companies that we handle everything from Cloud to [Technology Advisory Services](#), and [Digital Transformation](#). Veritis desires to provide the best solution with the right expertise and technological acumen to help clients achieve their goals.



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