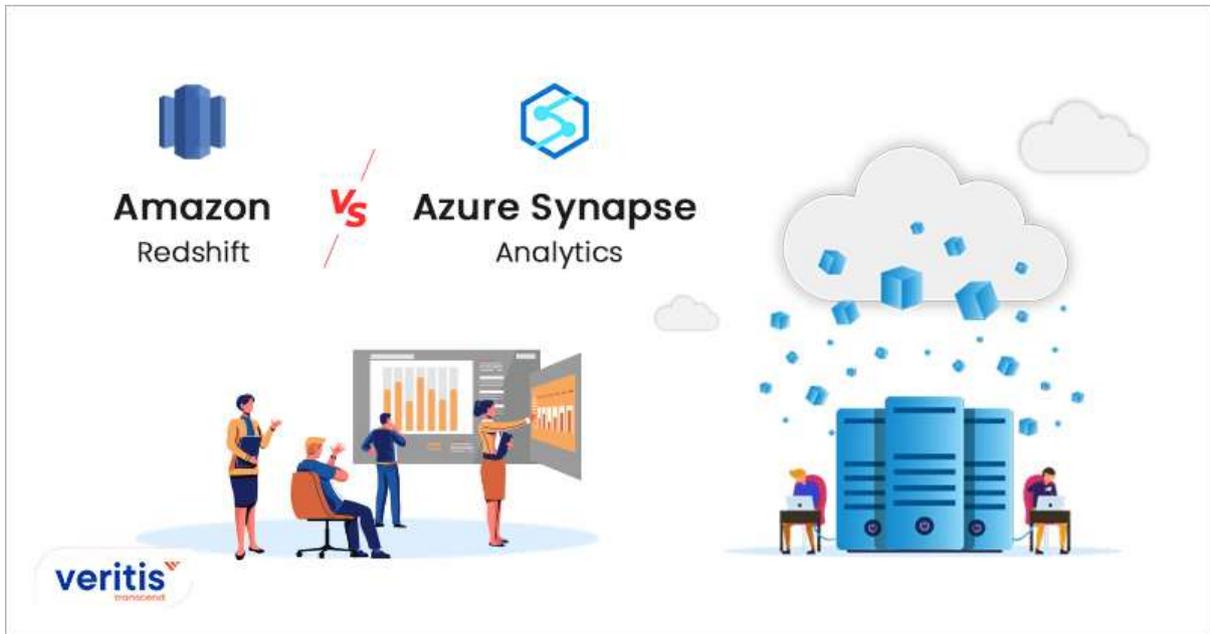


Amazon Redshift Vs Azure Synapse Analytics: Difference Between Top Data Warehouses



In this modern-day generation, CIOs are soliciting IT professionals to provide an effective data platform that supports machine learning and data-driven innovation. Moreover, they also want to continue supporting data reports and traditional business intelligence tools. Successful ones find the solution for these needs without making trade-offs while appreciating the strengths of data warehouses.

A data warehouse is a central repository for a business to share and analyze the data to guide strategic decisions. To make productive data driven decisions, the data should be free of outliers, cropped results, and user mistakes. An organization can use data-driven evidence to choose which products to build, pursue growth initiatives, and add features. Essentially, the data warehouse can provide insight and intelligence that lead to competitive advantages and new opportunities.

While a plethora of data warehouses available in the current market, Amazon Redshift and Azure Synapse Analysis stand out as the top contenders. However, choosing the

right vendor between Amazon Redshift and Azure Synapse is an arduous task as both offer a lot of advantages. In this blog, we shall guide you and help you choose the best provider for your platform.

Before delving into the major differences between the top two [cloud platforms](#), we will introduce you to a data warehouse, Amazon Redshift, and Azure Synapse Analytics.

What is a Data Warehouse?



As mentioned, A data warehouse (DWH) is a central reserve of information that can be extracted from operational sources and external data sources to produce business insights. It is typically used for data analysis, reporting, and business intelligence (BI). Data stored in the DWH is entirely different from data discovered in the operational environment.

DWH makes it easy to quickly analyze business data extracted from operational systems such as inventory management systems, point-of-sale systems, and marketing databases. Information gathered from transactional databases is hard enough to generate the data directly as it can gather through the data warehouse. For instance, an organization wants to know the total revenue produced by each salesperson for each

product every month. Transactional databases may not generate this data, but the DWH can produce it.

Amazon Redshift – Cloud Data Warehouses



Amazon Redshift is a data warehouse solution that enables business intelligence in the AWS cloud. Redshift allows customers to query petabytes of semi-structured and structured data using standard SQL queries. It is used for analysis and large-scale data storage, and Redshift frequently allows large-scale database migrations.

Users can start small with no commitments and scale up to petabytes or more. It allows them to operate their data to obtain new sights for their customers and business. Redshift is a fully managed solution that automates the most common administrative tasks associated with security, configuration, and maintaining backups, among others.

The Amazon Redshift data warehouse consists of computing resources called nodes in a cluster. Each cluster uses its Redshift engine with at least one database and performs

data analytics queries. Nodes can be deactivated and activated based on the requirement so that enterprises can use from gigabytes to petabyte-level storage in minutes.

Amazon Redshift stores data securely, offering companies insights into nearly every aspect of their enterprise, from sales and marketing to website performance. AWS touts that Amazon Redshift is the world’s fastest cloud data warehouse service and has three times better price-performance than other vendors.

Price

Amazon Redshift data warehouse is one of the cost-effective solutions that you need to pay only for what you consume. AWS charges USD 0.25 with no upfront and no commitment costs, and users can scale up to USD 250 per terabyte per year.

The cost of Amazon Redshift varies from one region to another. To put in perspective, the cost in US East (Ohio) would be.

Details	Memory	Addressable Storage Capacity	vCPU	I/O	Cost
RA3 along with Redshift storage					
ra3.xlplus	32 GiB	32TB RMS	4	0.65 GB/s	USD 1.086/hour
ra3.4xlarge	96 GiB	128 TB RMS	12	2.00 GB/s	USD 3.26/hour
ra3.16xlarge	384 GiB	128 TB RMS	48	8.00 GB/s	USD 13.04/hour

Dense Compute					
dc2.large	15 GiB	0.16TB SSD	2	0.60 GB/s	USD 0.25/hour
dc2.8xlarge	244 GiB	2.56TB SSD	32	7.50 GB/s	USD 4.80/hour

Useful Link: [AWS vs Azure vs GCP: Cloud Cost Comparison](#)

Azure Synapse Analytics – Cloud Data Warehouses



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Azure Synapse Analytics is an unlimited information analysis service that combines the capabilities of enterprise data warehousing, big data analytics, ETL pipelines, analytics tools and services, visualization and dashboards, and data integration. It allows you to query data on your requirements, using either provisioned resources or serverless at scale.

Azure Synapse permits a single service for all workloads when managing, serving, and processing data for data protection and immediate business intelligence requirements. Features like data pipelines (powered by Azure data factory), data flow creation, data ingestion, data exploration, and data visualization are available in a single place. In addition, performance optimization and workload monitoring are part of the package.

Apache Spark pools are also available in Azure Synapse. This tool is one of the favourite tools for data scientists and data engineers, thanks to handling machine learning capabilities, compatibility and extensive data.

The design and architecture of the Azure Synapse data warehouse depend on multiple factors. A well-performing data warehouse should guarantee low latency, concurrency, data availability, and the ability to incorporate with other systems.

Price

In terms of pricing, Azure Synapse offers a pay-as-you-go model. You pay only you consume for the services. However, prices can be higher than in the pre-purchasing model. Currently, it offers two versions – Azure Synapse Analytics which allows only data warehousing, and the next one is the new Azure Synapse Analytics pre-purchase plan.

In the current market, the pricing models for serverless and dedicated consumption are

Dedicated

The cost of a dedicated version varies from one region to another. To put in perspective, the cost in the central US would be.



DWU	Service Level	1 year reserved	3 years reserved	Pay as you go
100	DW100c	USD 0.9513/hour	USD 0.5285/hour	USD 1.51/hour
500	DW500c	USD 4.7563/hour	USD 2.6425/hour	USD 7.55/hour
1000	DW1000c	USD 9.5126/hour	USD 5.285/hour	USD 15.10/hour
2000	DW 2000c	USD 19.0252/hour	USD 10.57/hour	USD 30.20/hour
2500	DW2500c	USD 23.7815/hour	USD 13.2125/hour	USD 37.75/hour
5000	DW5000c	USD 47.563/hour	USD 26.425/hour	USD 75.50/hour
7500	DW7500c	USD 71.3445/hour	USD 39.6375/hour	USD 113.25/hour
10000	DW10000c	USD 95.126/hour	USD 52.85/hour	USD 151/hour
15000	DW15000c	USD 142.689/hour	USD 79.275/hour	USD 226.50/hour
30000	DW30000c	USD 285.378/hour	USD 158.55/hour	USD 453/hour

Serverless

Azure Synapse serverless costs USD 5.65 TB of data processed and offers 1 TB of free queries per month until the last day of the year. You need to pay only for executed queries and data processed by each query.

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Comparison between Amazon Redshift and Azure Synapse Analytics

Details	Amazon Redshift	Azure Synapse Analytics
Administration and Management	Amazon requires AWS expertise to select the correct instance size and scale nodes manually	Azure offers dedicated models and serverless
Integrations Ecosystem	DMS, along with partners and data integration in the AWS marketplace	Azure data factory supports integration
Ingestion of streaming data	It doesn't provide the built-in capability for ingestion of data streams	Users can operate the Apache Spark streaming functionality to ingest streaming data
Data backup and recovery	Available	Available
Columnar Architecture	Yes	Yes
Massively parallel processing (MPP)	Available	Available
Database model	Relational DBMS	Relational DBMS
DB engine rankings	Rank 31 Score 25.94	Rank 36 Score 20.66
Initial Release	2012	2016

Language implemented	C	C++
Supported programming languages	It supports all languages related to ODBC/JDBC	It supports Java, PHP, and C#
Pricing	Amazon Redshift on-demand price related to on-cluster configuration. Users can buy reserved nodes at discount	Azure Synapse Analytics on-demand price related to pre-purchase reserved storage at discount

Final Thoughts on Data Warehouses



Top MNC companies are running data warehouses, either cloud or on-premise, to gather valuable insights for business decisions. Most large enterprises operate hundreds

of terabytes in data warehouses, while petabyte-sized data warehouses are rare, even in top multinational companies.

Useful Link: [Serverless Vs Containers: Comparison Between 2 Cloud Services](#)

The two cloud providers have secured the top places in [cloud computing](#), and they have cutthroat competition in the current market. Both Redshift and Azure Synapse Analytics are good enough for a business, depending on your specific requirements. They offer free trials to guide you in picking the right data warehouse vendor for your business.

Instead of picking between Amazon Redshift and Azure Synapse, why not opt for a multi-data warehouse strategy, which gets you numerous benefits for your business. However, adopting a multi-data warehouse strategy is a laborious process; this is why where organizations seek [Vertis's services](#).

Veritis, the [Stevie Award Winner](#), is a next-generation global technology that helps companies reimagine their business and adapt them to the digital world. **Veritis** offers holistic services to small, medium, and large-scale enterprises, including Fortune 500 firms with tailored, cost-effective, and efficient [cloud solutions](#).

Services