Amazon Redshift

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At the core of the lesson

You will learn how to do the following:

- Define data warehouses and how they work.
- Describe the Amazon Redshift data warehouse service.

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Data warehouses

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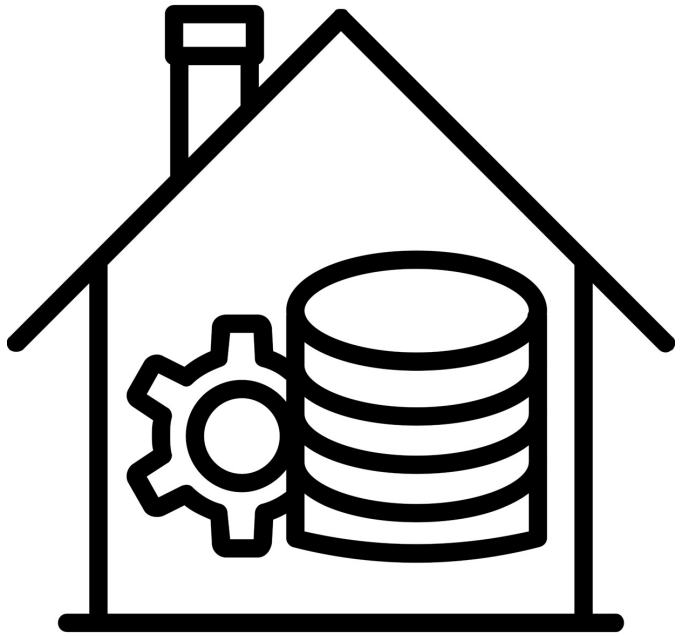
What is a data warehouse?

A data warehouse is a central repository of information that can be analyzed to make more informed decisions.



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Benefits of a data warehouse

With a data warehouse, users can do the following:

- Make informed decisions.
- Consolidate data from many sources.
- Analyze historical data.
- Confirm data quality, consistency, and accuracy.
- Separate analytics processing from transactional databases, improving the performance of both systems.

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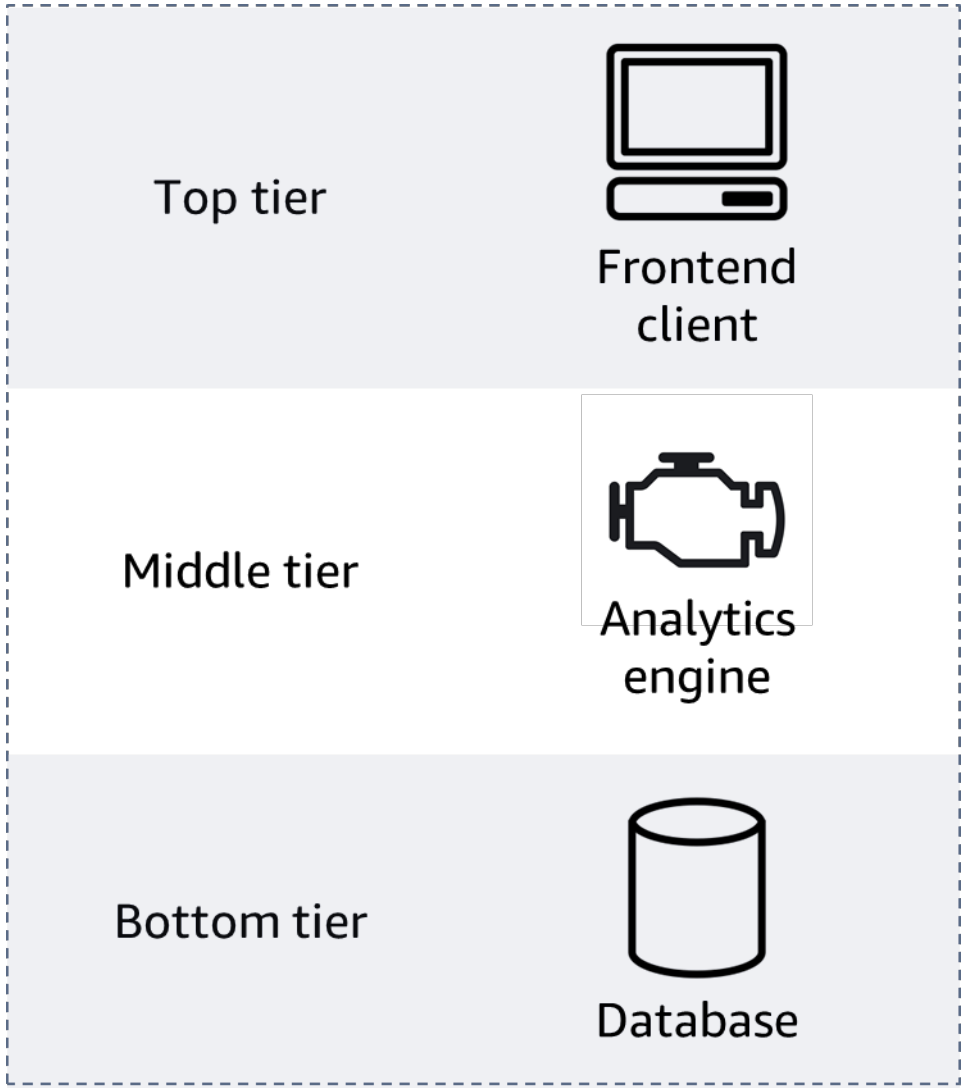
Data warehouse architecture

A data warehouse architecture consists of tiers.

- The top tier is the frontend client that presents results through reporting, analysis, and data mining tools.
- The middle tier consists of the analytics engine that is used to access and analyze the data.
- The bottom tier of the architecture is the database server, where data is loaded and stored.



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Data warehouse use case

Typically, businesses use a combination of a database, a data lake, and a data warehouse to store and analyze data.

Load the data into a database or data lake.

Explore and prepare the data.

Select the data and move it to a data warehouse.

Perform reporting.

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Amazon Redshift overview

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What is Amazon Redshift?

Amazon Redshift

Amazon Redshift is a fully managed data warehouse service in the cloud.

- You can use it to run complex analytic queries against petabytes of structured data.
- It uses sophisticated query optimization, columnar storage on high-performance local disks, and parallel query execution.

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Amazon Redshift features

Management

Security

Compatibility

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Amazon Redshift use cases

Enterprise data warehouse (EDW)

- Migrate at a pace that customers are comfortable with.
- Experiment without large upfront cost or commitment.
- Respond faster to business needs.

Big data

- Incur a low price point for small customers.
- Ease deployment and maintenance via managed service.
- Focus more on data and less on database management.

Software as a service (SaaS)

- Scale the data warehouse capacity as demand grows.
- Add analytics functionality to applications.
- Reduce hardware and software costs by an order of magnitude.

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Checkpoint questions

1. What is a data warehouse?
2. What are the benefits of using Amazon Redshift?
3. What are the three Vs of big data?

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Key ideas

- A data warehouse is a central repository of information that can be analyzed to make more informed decisions.
- A data warehouse can contain multiple databases.
- Amazon Redshift is a fast, fully managed data warehouse service and is scalable with virtually no downtime.
- Amazon Redshift monitors clusters automatically and nearly continuously and has encryption built in.

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