Secure Data Sharing in Snowflake

Netflix shares viewership metrics data with its internal business units and external advertisers.
Ad partners already have Snowflake.
Netflix uses Direct Share, so partners pay for compute when querying shared data.

Target- A large retail chain shares daily sales & inventory with hundreds of smaller suppliers.
Many suppliers don't have Snowflake.
Target creates Reader Accounts for these suppliers so they can access data without signing up.

Salesforce wants to share usage analytics with clients:
Big clients → already use Snowflake → Direct Share.
Small clients → don't have Snowflake → Reader Account.

Shares are named Snowflake objects that encapsulate all of the information required to share a database.
Data providers add Snowflake objects (databases, schemas, tables, secure views, etc.) to a share using either or both of the following options:
Option 1: Grant privileges on objects to a share via a database role.

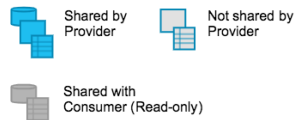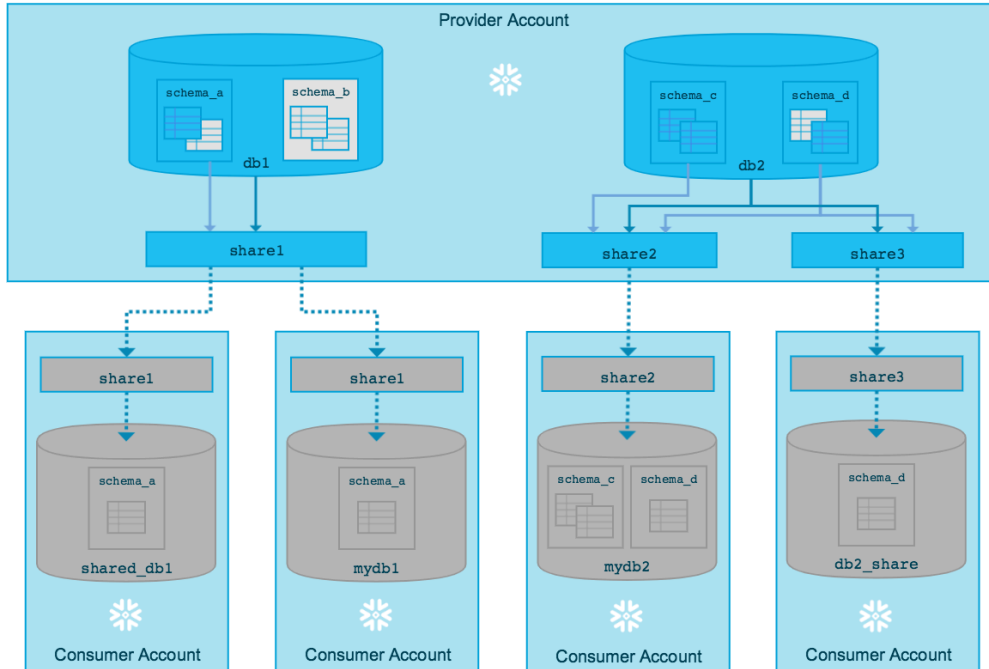Option 2: Grant privileges on objects directly to a share.

You choose which accounts can consume data from the share by adding the accounts to the share.
After a database is created (in a consumer account) from a share, all the imported objects are accessible to users in the consumer account:

Secure Data Sharing lets you share selected objects in a database in your account with other Snowflake accounts. You can share the following Snowflake objects:
- Databases
- Tables
- Dynamic tables
- External tables
- Apache Iceberg tables
- Secure views
- Secure materialized views
- User-defined functions (UDFs) (secure and non-secure)
- Models without code (such as CORTEX_FINETUNED) - *Preview*

Snowflake enables the sharing of databases through *shares*, which are created by data providers and "imported" by data consumers.
Important: All database objects shared between accounts are ***read-only*** (i.e. the objects cannot be modified or deleted, including adding or modifying table data).

Provider Account

- db1
  - schema_a
  - schema_b
- db2
  - schema_c
  - schema_d

share1
share2
share3

Consumer Account

- share1
  - shared_db1
    - schema_a

Consumer Account

- share1
  - mydb1
    - schema_a

Consumer Account

- share2
  - mydb2
    - schema_c
    - schema_d

Consumer Account

- share3
  - db2_share
    - schema_d

Shared by Provider

Not shared by Provider

Shared with Consumer (Read-only)

How does Secure Data Sharing work?

With Secure Data Sharing, *no* actual data is copied or transferred between accounts. **All sharing uses Snowflake's services layer and metadata store**. *Shared data does not take up any storage in a consumer account and therefore does not contribute to the consumer's monthly data storage charges.* The **only** charges to consumers are for the compute resources (i.e. virtual warehouses) used to query the imported data.

Because no data is copied or exchanged, Secure Data Sharing setup is quick and easy for providers and access to the imported data is near-instantaneous for consumers:

● The provider creates a share of a database in their account and grants access to specific objects in the database. The provider can also share data from multiple databases, as long as these databases belong to the same account. One or more accounts are then added to the share, which can include your own accounts (if you have multiple Snowflake accounts).

● On the consumer side, a **read-only** database is created from the share. Access to this database is configurable using the same, standard role-based access control that Snowflake provides for all objects in the system.

With this architecture, Snowflake enables a network of providers that can share data with multiple consumers (including within their own organization) and consumers that can access imported data from multiple providers:
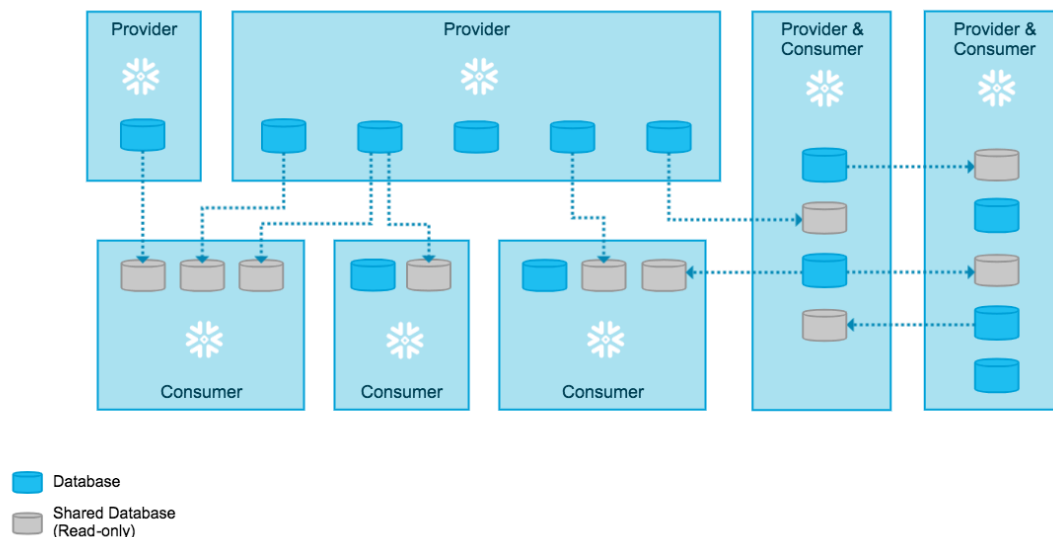
Note: Any full Snowflake account can both provide and consume imported data. Snowflake also supports third-party accounts, a special type of account that consumes imported data from a single provider account. For more details, refer to Reader accounts for third-party access (in this topic).

Options for sharing in Snowflake

You can share data in Snowflake using one of the following options:

● Additional metadata as a data product to one or more accounts,
● a Direct Share, in which you directly share specific database objects (a share) to another account in your region,
● a Data Exchange, in which you set up and manage a group of accounts and offer a share to that group.

You can also convert a direct share to a listing.

Overview of data providers and consumers

When sharing in Snowflake, the account that shares data is called a provider, and the account that is a recipient of the data is called a consumer.

About providers

A data provider is any Snowflake account that creates shares and makes them available to other Snowflake accounts to consume. As a data provider, you share a database with one or more Snowflake accounts. For each database you share, Snowflake supports using grants to provide granular access control to selected objects in the database (i.e., you grant access privileges for one or more specific objects in the database).

You can create as many shares as you want, and add as many accounts to a share as you want. If you want to provide a share to many accounts, you might want to use a [listing](#) or a [data exchange](#).(Advance)

About consumers

A data consumer is any account that chooses to create a database from a share made available by a data provider. As a data consumer, once you add an imported database to your account, you can access and query the objects in the database just as you would with any other database in your account.

You can consume as many shares as you want from data providers, but you can only create one database per share.

For more details, refer to [Consume imported data](#).

Shares are secure, configurable, and controlled completely by the provider account:

- New objects added to a share become immediately available to all consumers, **providing real-time access** to imported data.
- **Updates** to existing objects in a share become **immediately available** to all consumers.
- Access to a share (or any of the objects in a share) can be revoked at any time.

Usage metrics shared with providers

If you provide listings privately, using a data exchange, or on the Snowflake Marketplace, you have access to various metrics about consumer usage of your listings, and metrics about the consumer accounts accessing your listings.

For details about usage data for listings, refer to [Monitoring Usage of Your Listing](#). Usage data for listings shared in a data exchange is only available in the views contained in the [Data Sharing Usage](#) schema of the imported Snowflake database.

Reader accounts for third-party access

Data sharing is only supported between Snowflake accounts. As a data provider, you might want to share data with a consumer who does not already have a Snowflake account or is not ready to become a licensed Snowflake customer.

To facilitate sharing data with these consumers, you can create reader accounts. Reader accounts (formerly known as "read-only accounts") provide a quick, easy, and cost-effective way to share data without requiring the consumer to become a Snowflake customer.

Each reader account belongs to the provider account that created it. As a provider, you use *shares* to share databases with reader accounts; however, a reader account can only consume data from the provider account that created it. Refer to the following diagram:
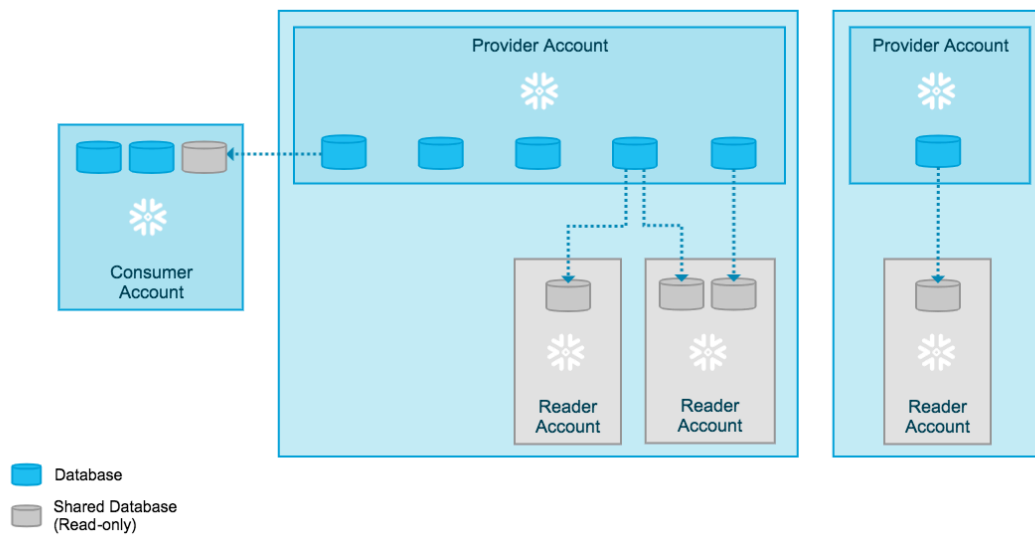
Users in a reader account can query data that has been imported with the reader account, but cannot perform any of the DML tasks that are allowed in a full account, such as data loading, insert, update, and similar data manipulation operations.