



**SENTURUS**

# 10 Reasons Snowflake Is Great for Analytics

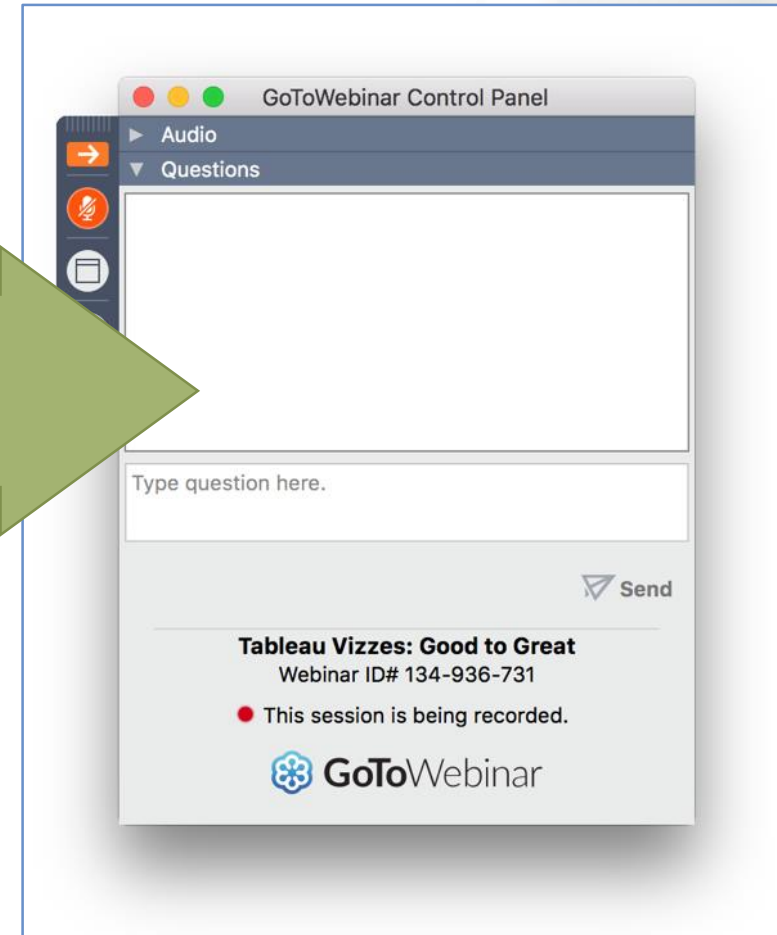


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SHEDDING LIGHT ON CLOUD BI OPTIONS  
Amazon. IBM Cognos Cloud. Microsoft Power BI Service. Tableau Online.  
Azure.



BUSINESS  
STRATEGY



IBM COGNOS REPORTING TOOLS: FEATURE SET COMPARISON  
Visual Reference Guide



FEATURES



A COMPARISON OF POWER BI, TABLEAU & COGNOS  
Differentiators Demo'd



FEATURES



# Agenda

Introduction

Snowflake overview

10 reasons Snowflake is built for analytics

Senturus overview

Additional resources

Q&A





# Introductions



**Bob Looney**

VP Software & Architecture  
Senturus, Inc.



**Reeves Smith**

Principal Snowflake Architect  
Senturus, Inc.



**Michael Weinbauer**

Director  
Senturus, Inc.

# Poll

Why did this webinar pique your interest?

- I like to keep up-to-date on new technologies
- Our organization is evaluating data platforms
- Our organization is evaluating Snowflake
- Our organization recently purchased Snowflake
- Other

# Snowflake overview

# Snowflake overview

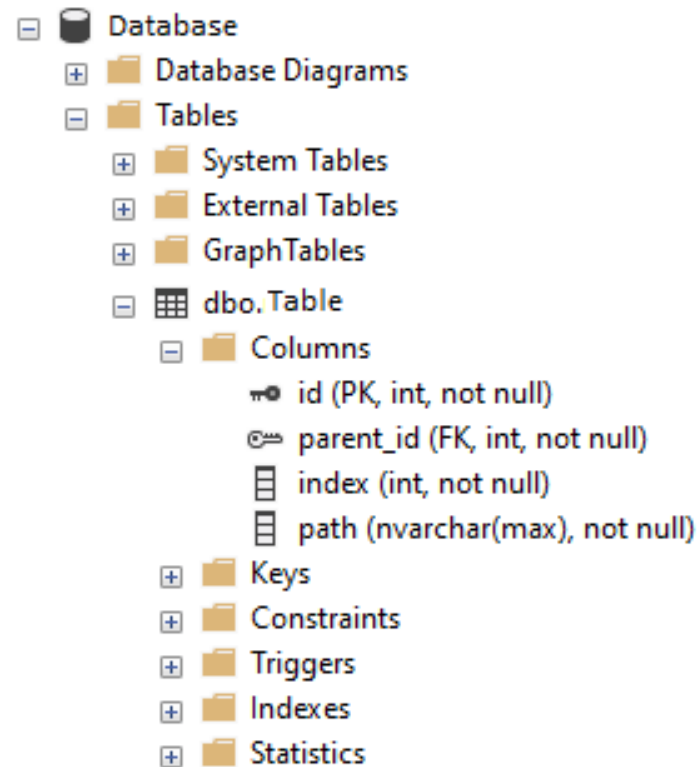
- SaaS, not PaaS
  - Low administration
  - Start a trial online for free
- Consumption based pricing
  - Compute & storage
- Cloud agnostic
  - Abstracted on top of AWS, Azure or GCP
- Analytics focus, not transactional
  - OLAP, not OLTP





# Consistent database concepts

- Database
- Schema
- Table
- Column
- View
- User
- Role
- ANSI SQL compliant



Databases > SNOWFLAKE\_SAMPLE\_DATA

TablesViewsSchemasStages

+

Create...

+

Create Like...

Clone...

Table Name	Schema	Crea
STORE_SALES	TPCDS_SF1...	12/13
CATALOG_SALES	TPCDS_SF1...	12/13
WEB_RETURNS	TPCDS_SF1...	12/13
WEB_SALES	TPCDS_SF1...	12/13

# Unique concepts

## Snowflake (company and product)

- Does not refer to a preference for the snowflake data model
- *“Our founders just really love skiing and Snowflakes are made in the cloud.”*
- *Also a reference to each client being unique and the flexibility of the platform to fit each use case*



## Cloud data platform

- SaaS product that Snowflake sells consisting of storage and compute resources

# Unique concepts

## Procedures

- A mix of JavaScript (loops, logic) and SQL (data access)
- Unlike database procedures, don't return queries of data



```
CREATE PROCEDURE stproc1 (@FLOAT_PARAM1 float)
AS
BEGIN

    BEGIN TRY
        INSERT INTO stproc_test_table1 (num_col1) VALUES (@FLOAT_PARAM1);

        SELECT 'Succeeded.';

    END TRY
    BEGIN CATCH

        SELECT 'Failed:' + ERROR_MESSAGE();

    END CATCH

END
```

```
create or replace procedure stproc1(FLOAT_PARAM1 FLOAT)
returns string
language javascript
strict
execute as owner
as
$$
var sql_command =
    "INSERT INTO stproc_test_table1 (num_col1) VALUES (" + FLOAT_PARAM1 + ")";
try {
    snowflake.execute (
        {sqlText: sql_command}
    );
    return "Succeeded.";    // Return a success/error indicator.
}
catch (err) {
    return "Failed: " + err;    // Return a success/error indicator.
}

$$
;
```

# Unique concepts

## True decoupled compute & storage

- Multiple, independent compute resources access the same database
- *"virtually unlimited number of concurrent workloads against the same, single copy of your data"*

## Warehouse

- Sized **compute** capacity
- Acts on a database
- Start/pause/stop, scale up & down



# 10 reasons Snowflake is built for Analytics



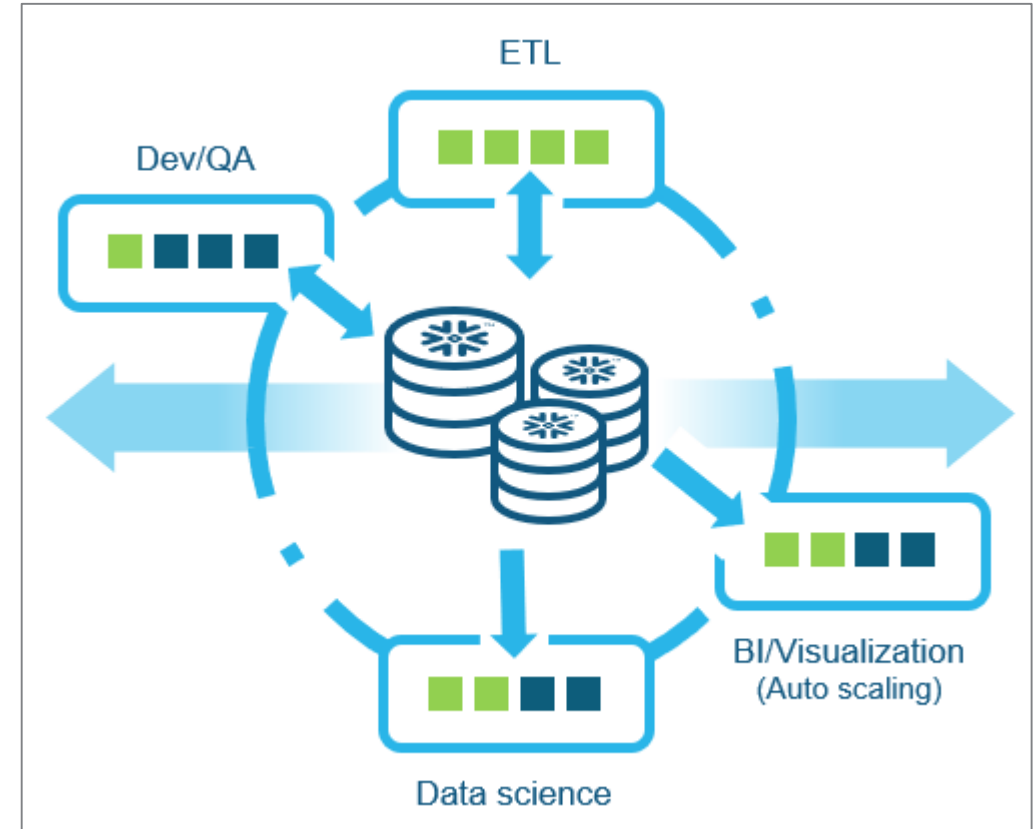


# 10 reasons Snowflake is built for analytics

1. Large data volumes
2. Data loading flexibility
3. Broad BI tools support
4. Supports “Analysis Ready” data models
5. Minimized administration
6. Performance scalability
7. Semi-structured data
8. Cloning
9. Time Travel
10. Data sharing

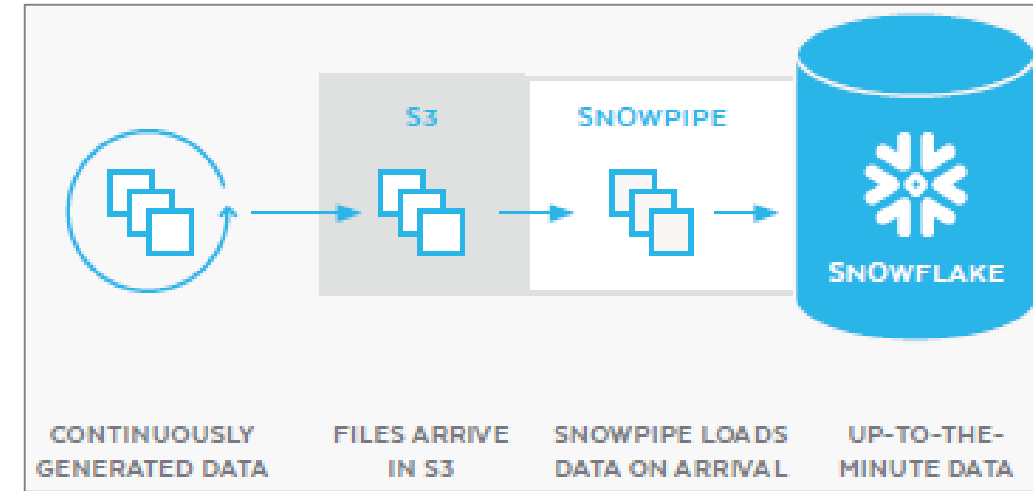
# 1) Large data volumes

- Highly reliable & scalable
  - Storage backed by cloud providers
- Flexible staging
  - **Internal stage:** part of the Snowflake tenant
  - **External stage:** Amazon S3, Azure Blob, Google cloud storage
- Fast data loading of large data sets



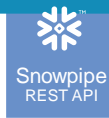
## 2) Data loading flexibility

- File based data loading
  - Structured and unstructured
- Snowpipe event driven loading
- Tool support
  - Enables rapid lift and shift of on-prem SQL based EDW
  - Integrate web applications



# Data loading options

Web Applications



Cloud Storage  
(External Stage)



AWS  
S3



Azure  
Blob

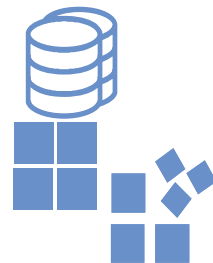


GCS

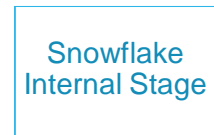
COPY



On Premises  
Databases & Files



PUT + COPY






Snowflake  
Database

3<sup>rd</sup> Party Tools



### 3) Broad BI tool support

- Chartio
- Cognos 
- Domo
- Looker
- MicroStrategy
- Power BI 
- Qlik
- QuickSight
- Sisense
- Tableau 
- Tibco
- ThoughtSpot
- ...

#### Downloads

CLI Client (snowsql)

JDBC Driver

ODBC Driver

Python Components

Node.js Driver

Spark Connector


Go Snowflake Driver


SnowCD

#### ODBC Driver

Download the latest version of the Snowflake ODBC driver for your platform from the [Snowflake Repository](#).

For prerequisites, installation and configuration details, see the [Snowflake Documentation](#).

 Snowflake Repository  
Linux, Windows, macOS

 Snowflake GPG Public Key  
For Linux RPM and DEB

Done



# BI tool demos - Power BI & Tableau



**Get Data**

sno x All

Database Snowflake

**Navigator**

Display Options

- sx70821.west-us-2.azure.snowflakecomputing....
  - DEMO\_DB
  - SNOWFLAKE\_SAMPLE\_DATA
  - TEST [1]
    - PUBLIC [1]
      - ☒ EMPLOYEE
    - UTIL\_DB

**EMPLOYEE**

ID	FIRST	LAST
1	Joe	Smith
2	Jane	Doe
3	Sally	Manager

**Snowflake**

Server: sx70821.west-us-2.azure.snowflakecomputing.com

Role: Optional

Enter information to sign in to the Snowflake instance

Authentication: Username and password

Username: BOBLOONEY

Password: .....

**Connections** Add

sx70821.west...omputing.com  
Snowflake

**Warehouse**

COMPUTE\_WH

**Database**

TEST

**Schema**

PUBLIC

**Table**

- EMPLOYEE
- New Custom SQL
- New Union

20

# BI tool - Cognos

**Snowflake\_Cognos**

Owner: Anonymous  
Created: 9/4/2020, 4:08 AM  
Modified: 9/4/2020, 4:09 AM  
Type: Connection

General **Settings** Schemas Permissions

Connection details [Edit >](#)

**Authentication method**

☐ Connect anonymously

☐ Prompt for the user ID and password

☐ Use an external namespace

☒ Use the following signon:

Snowflake\_Cognos

[Test](#) Success [i >](#)

[Save](#)

**Edit Snowflake connection**

JDBC URL:

`jdbc:snowflake://<your_account_name>|snowflakecomputing.com/?warehouse=DBCERT`

Driver class name: [Edit](#)

`net.snowflake.client.jdbc.SnowflakeDriver`

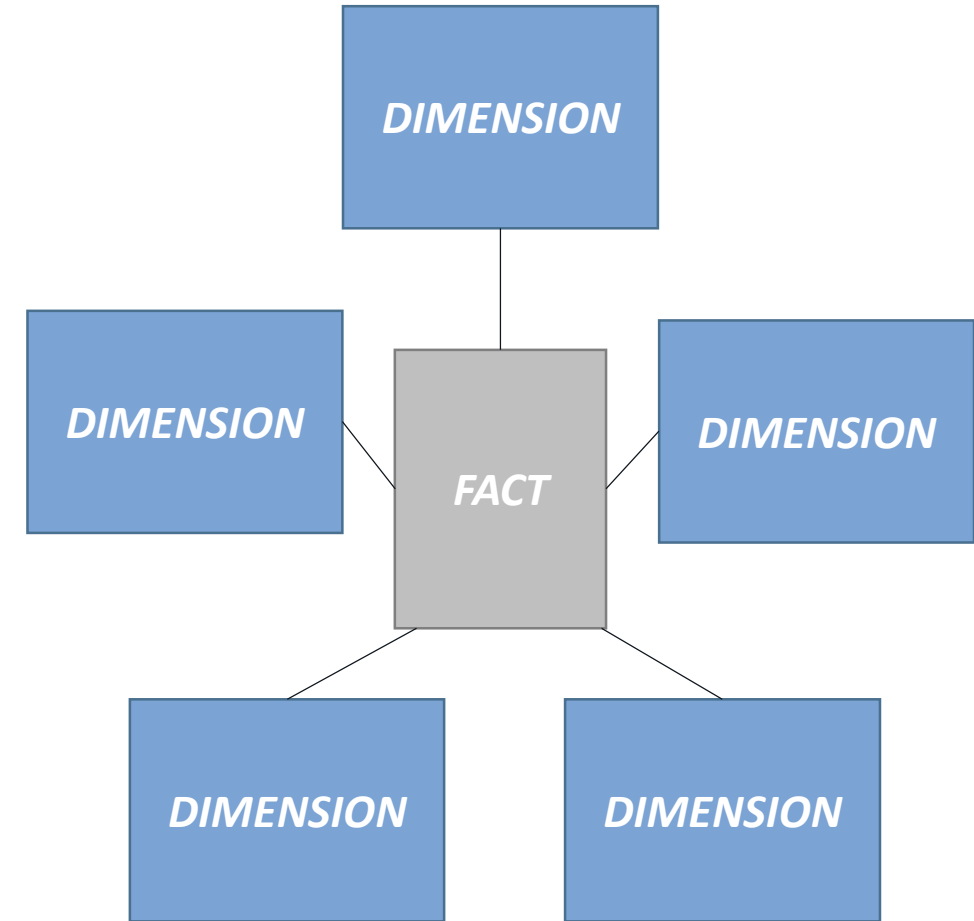
[Restore](#)

▼ Example URL

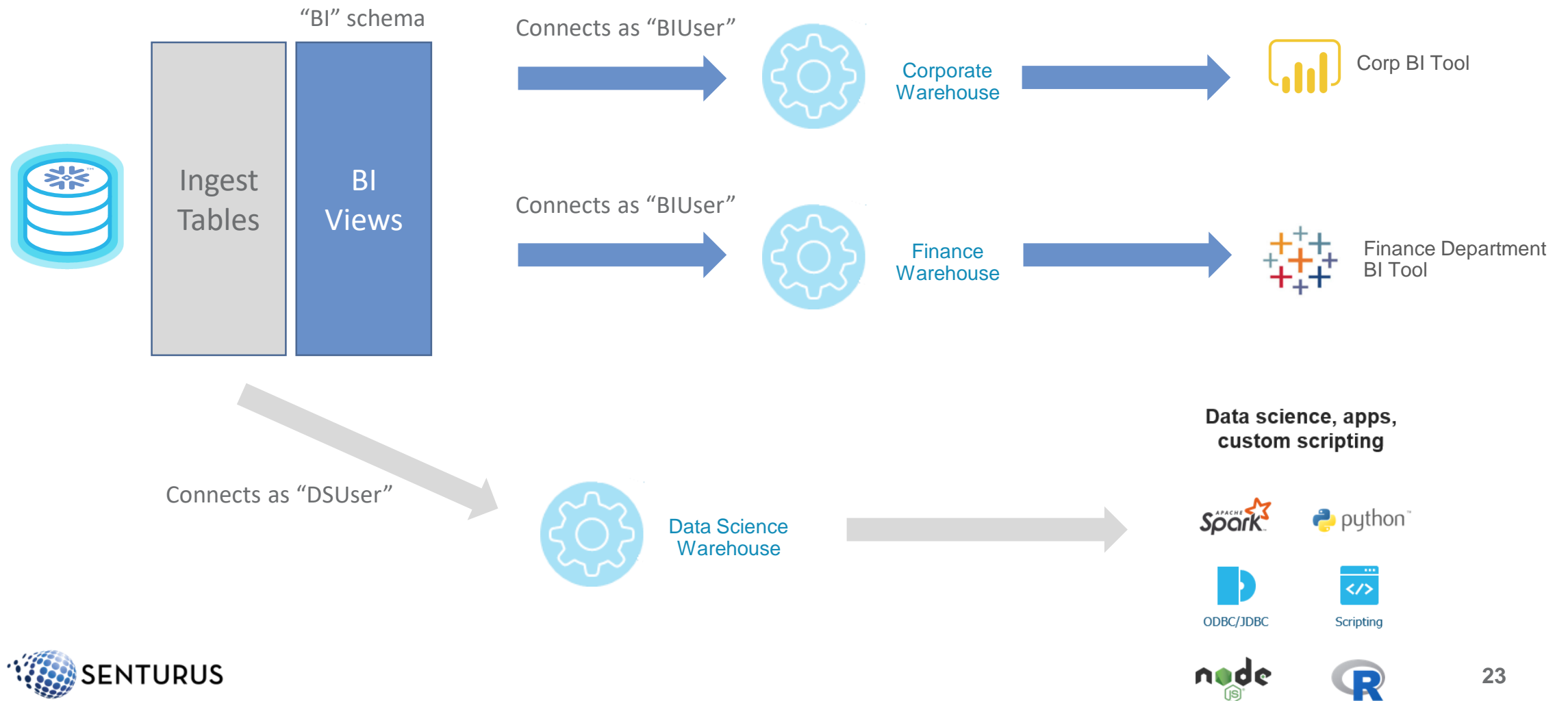
Connection properties: [?](#)

## 4) Supports “Analysis Ready” data models

- Modern BI tools work best with star or Snowflake data models
- Create a schema with BI views on top of ingestion tables
- Create security so that BI users only see BI views



# BI data modeling in Snowflake



# 5) Minimized administration

## TRADITIONAL PLATFORMS



### Infrastructure

- Initial Setup
- Upgrading
- Patching
- Capacity Planning
- Storage
- Security



### Physical Design

- Partitioning
- Indexing
- Ordering
- Vacuuming



### Data Collaboration

- Loading
- Moving
- Transforming
- Copying
- Securing



### Query Tuning

- Statistic Collection
- Memory Management
- Parallelism
- Query Plan Hinting
- Workload Management



### Availability & Maintenance

- Replication
- Backups
- Re-Clustering
- Account Management



# Snowflake minimized administration

## SNOWFLAKE CLOUD DATA PLATFORM



### Infrastructure

Initial Setup  
Upgrading  
Patching  
Capacity  
Planning  
Storage  
Security



### Physical Design

Partitioning  
Indexing  
Ordering  
Vacuuming



### Data Collaboration

Loading  
Moving  
Transforming  
Copying  
Securing



### Query Tuning

Statistic Collection  
Memory Management  
Parallelism  
Query Plan Hinting  
Workload Management



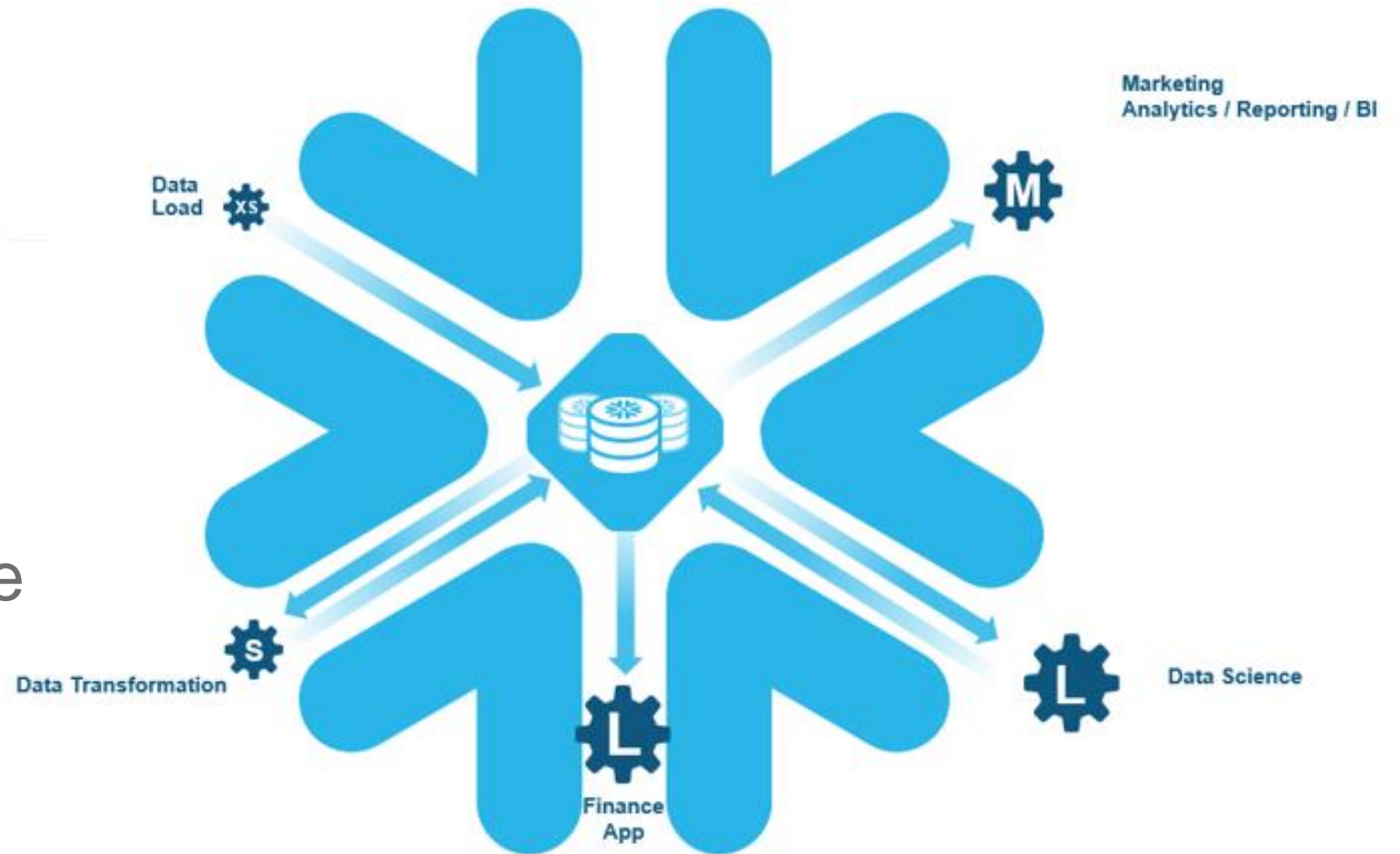
### Availability & Maintenance

Replication  
Backups  
Re-Clustering  
Account Management

**Simply load, share and query data**

## 6) Performance scalability

- Workload isolation
  - Data loading
  - Data query
  - Data science
- Auto-scale out
- Scale up/down
- Ad hoc warehouse use cases
- Auto-pause



# Performance scalability demo

## Create warehouse

**Create Warehouse**

Name \*

DEMO\_WH

Size

X-Small (1 credit / hour)

▼

Learn more about virtual warehouse sizes

[here](#)

Auto Suspend

10 minutes

▼

The maximum idle time before the warehouse will be automatically suspended.

☒ Auto Resume

?

Comment

Ad hoc Warehouse for demo purposes

[Show SQL](#)

Cancel

Finish

## Scale up/down warehouse

**Configure Warehouse**

Name

DEMO\_WH

Size

Medium (4 credits / hour)

▼

Learn more about virtual warehouse sizes

[here](#)

Auto Suspend

10 minutes

▼

The maximum idle time before the warehouse will be automatically suspended.

☒ Auto Resume

?

Comment

Ad hoc Warehouse for demo purposes

[Show SQL](#)

Cancel

Finish

# Performance scalability demo

## Multi-cluster warehouse – scale out

### Create Warehouse

Name \*

Size  ▼  
Generally appropriate for active query data sizes between 500GB and 1TB.

Maximum Clusters  ▼  
Multi-cluster warehouses improve the query throughput for high concurrency workloads.

Minimum Clusters  ▼  
The number of active clusters will vary between the specified minimum and maximum values, based on number of concurrent users/queries.

Type  ▼  
Best price/performance. Appropriate for most workloads.

Auto Suspend  ▼  
The maximum idle time before the warehouse will be automatically suspended.

☐ Auto Resume [?](#)

Comment

[Show SQL](#)

## 7) Semi-structured data

- Query directly from XML, JSON, and other semi-structured data
- Define a table with a VARIANT column

```
//Create a table in the new database
CREATE TABLE "SOCIAL_MEDIA_FLOODGATES"."PUBLIC"."TWEET_INGEST"
("RAW_STATUS" VARIANT)
COMMENT = 'Bring in tweets, one row per tweet or status entity';
```

- Create a file format that aligns with the data being imported (JSON)

```
//Create a JSON file format in the new database
CREATE FILE FORMAT "SOCIAL_MEDIA_FLOODGATES"."PUBLIC".JSON_FILE_FORMAT
TYPE = 'JSON'
COMPRESSION = 'AUTO'
ENABLE_OCTAL = FALSE
ALLOW_DUPLICATE = FALSE
STRIP_OUTER_ARRAY = TRUE
STRIP_NULL_VALUES = FALSE
IGNORE_UTF8_ERRORS = FALSE;
```



# Load data from file

Load data from a JSON file into table using the JSON file format.

Table Name	Schema	Creation Time ▼	Owner	Rows	Size
TWEET_INGEST	PUBLIC	9/8/2020, 2:50:55 ...	SYSADMIN	9	

### Load Data

Warehouse

Source Files

**File Format**

Load Options

JSON\_FILE\_FORMAT ▼ +

[Show SQL](#) Cancel Back Next Load

```
PUT file:///<file_path>/nutrition tweets.json @TWEET_INGEST/ui1604406151312

COPY INTO "SOCIAL_MEDIA_FLOODGATES"."PUBLIC"."TWEET_INGEST" FROM
@/ui1604406151312 FILE_FORMAT =
'"SOCIAL_MEDIA_FLOODGATES"."PUBLIC"."JSON_FILE_FORMAT"' ON_ERROR =
'ABORT_STATEMENT' PURGE = TRUE;
```

# Create structured view

## Create View

Name \*

HASHTAGS\_NORMALIZED

Schema Name

PUBLIC

▼

Comment

Hashtag text with Tweet ID and User ID

Definition \*

```
SELECT RAW_STATUS:user:id AS USER_ID
,RAW_STATUS:id AS TWEET_ID
,value:text::VARCHAR AS HASHTAG_TEXT
FROM TWEET_INGEST
,LATERAL FLATTEN
(input => RAW_STATUS:entities:hashtags);
```

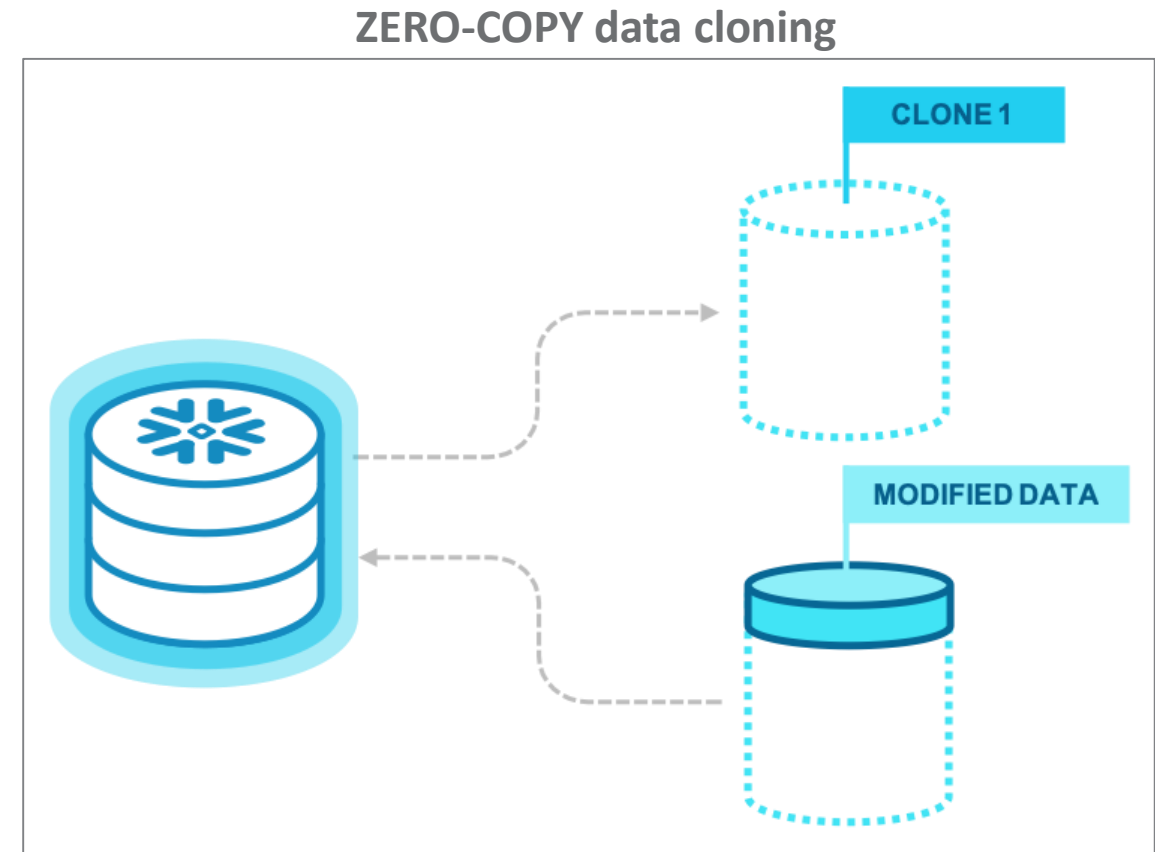
Show SQL

Cancel

Finish

## 8) Cloning

- Copy a huge database very quickly without consuming additional storage (cost)
- DevOps implications
  - Promoting table changes through Dev → Test → Prod
  - Copy Prod database back to Dev or Test quickly



# Cloning demo

## Clone Prod to a Dev database

```
CREATE DATABASE Dev CLONE Prod;
```

## Promote a new table from Dev to Test or Prod

- With data...

```
CREATE TABLE C CLONE Dev.public.C;
```

- Without data...

```
CREATE TABLE C LIKE Dev.public.C;
```

## 9) Time travel

- Query data back in time
- SQL extensions for “AT” and “BEFORE” keywords
- Automatically enabled with a 1-day retention
  - 90-day max
  - Impacts storage costs
- Benefits
  - Troubleshoot data loading and transformations
  - Don’t have to worry as much about making data mistakes

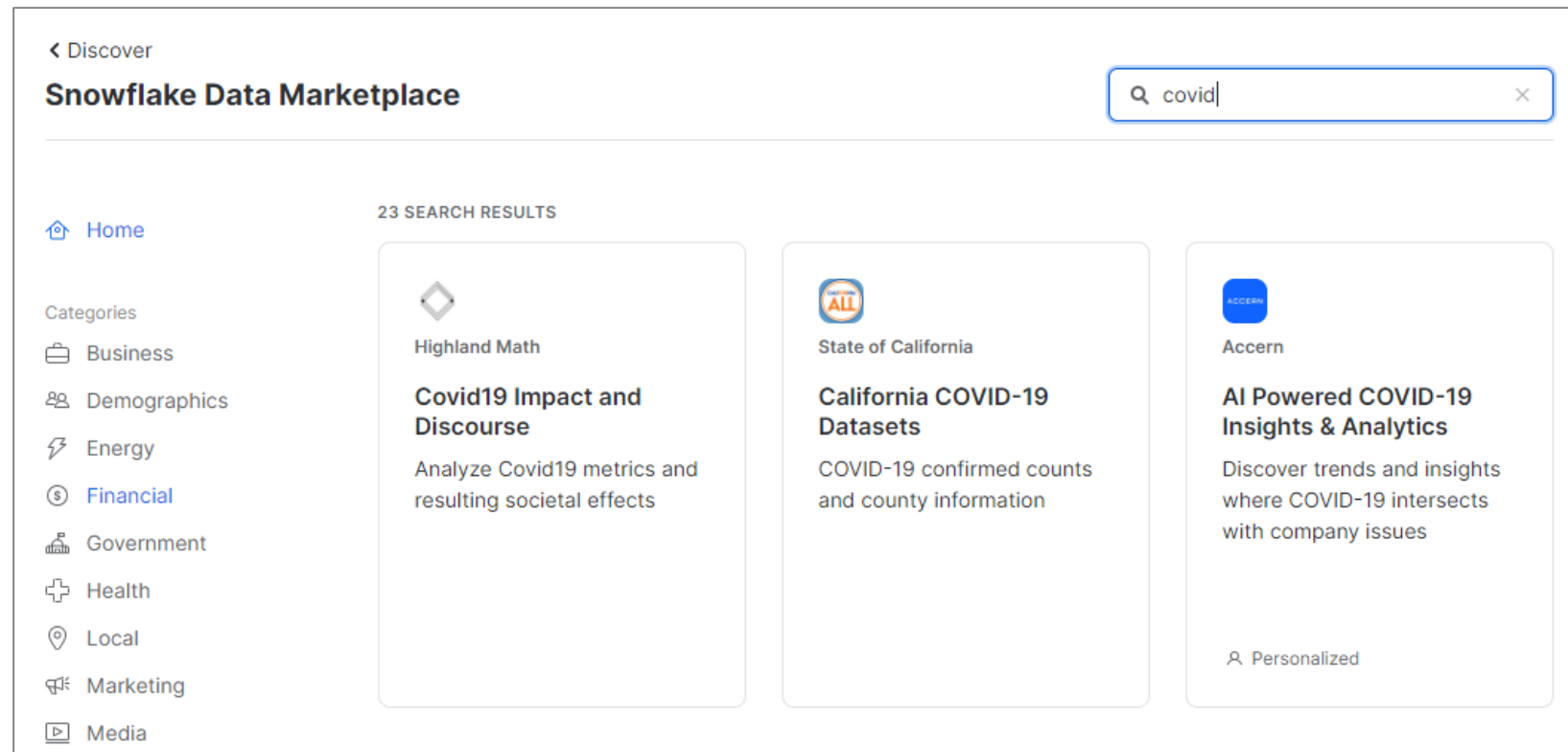
# Time Travel demo

Example: select what the data was 5 minutes ago.

```
select * from my_table at(offset => -60*5);
```

# 10) Data sharing

- Pull in curated data sets
- Share your data with partners, safely, securely, efficiently



# Data sharing demo

### Get Data

Create a database to query data from the listing. This database will not take up any storage space in your account.

Database name

Which roles, in addition to ACCOUNTADMIN, can access this database?

PUBLIC

☒ I accept [Snowflake's consumer terms](#) and [State of California's terms of use](#).  
Snowflake processes the personal information you provide us in accordance with our [Privacy Notice](#).

Cancel Create Database




# Data sharing demo

1 `select top 10 * from "COVID_STATE_OF_CA"."OPEN_DATA"."CASE_DEMOGRAPHICS_AGE" ORDER BY Date DESC, AGE_GROUP ASC`

Results Data Preview

✓ Query ID SQL 238ms 10 rows

Filter result...  Copy

Row	AGE_GROUP	TOTALPOSITIVE	DATE	CASE_PERCENT	DEATHS	DEATHS_PERCENT	C
1	0-17	99679	2020-11-01	10.7	2	0	
2	18-49	555933	2020-11-01	59.7	1274	7.2	
3	50-64	175508	2020-11-01	18.9	3368	19	
4	65+	98643	2020-11-01	10.6	13037	73.7	
5	Missing	865	2020-11-01	0.1	2	0	
6	0-17	99123	2020-10-31	10.7	2	0	
7	18-49	553578	2020-10-31	59.7	1273	7.2	
8	50-64	174737	2020-10-31	18.9	3365	19.1	
9	65+	98240	2020-10-31	10.6	13020	73.7	
10	Missing	856	2020-10-31	0.1	2	0	

# 10 reasons Snowflake is built for analytics

1. Large data volumes
2. Data loading flexibility
3. Broad BI tools support
4. Supports “Analysis Ready” data models
5. Minimized administration
6. Performance scalability
7. Semi-structured data
8. Cloning
9. Time Travel
10. Data sharing

# Questions?

Schedule a complimentary call to address your specific questions regarding using Snowflake for analytics

Migration

Performance

Architecture

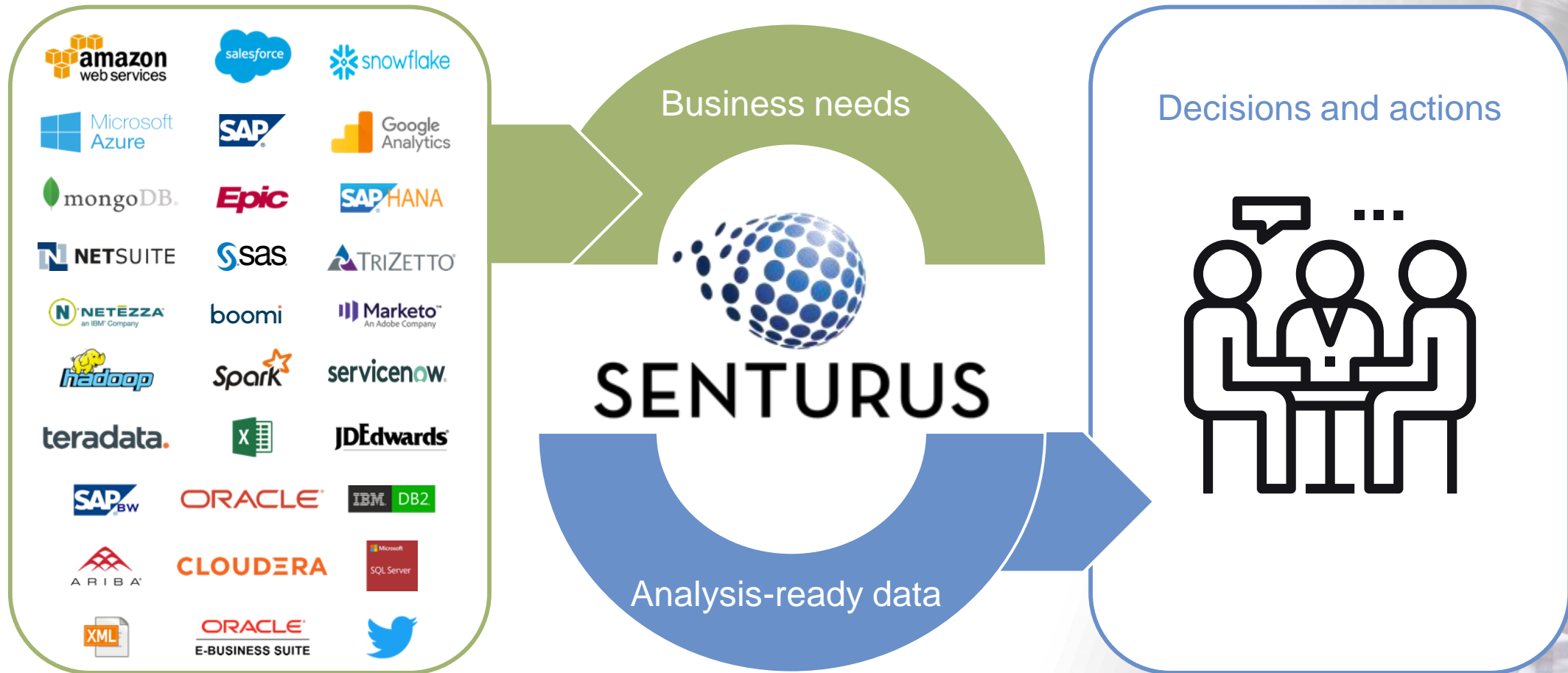
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expertise across the BI stack



# Bridging the data and decisioning gap



# Full spectrum of BI services

- Dashboards, reporting and visualizations
- Data preparation and modern data warehousing
- Hybrid BI environments (migrations, security, etc.)
- Software to enable bimodal BI and platform migrations
- BI support retainer (expertise on demand)
- Training and mentoring



# A long, strong history of success

- 19+ years
- 1300+ clients
- 2500+ projects



# Expand your knowledge

Find more resources  
on the Senturus website

[senturus.com/senturus-resources](https://senturus.com/senturus-resources)





# Upcoming event

## **Data Integration Options for Microsoft Power BI**

Choosing the right tool for the job

Thursday, Nov. 19, 2020, 11am PT/2pm ET

# Complete BI training offerings



**Power BI**



Tailored group sessions



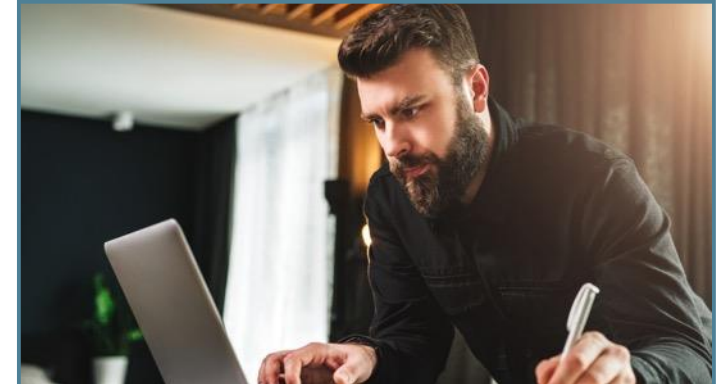
Mentoring



Instructor-led online courses



Self-paced learning



# Additional resources from Senturus

## Unbiased product reviews



## Technical tips



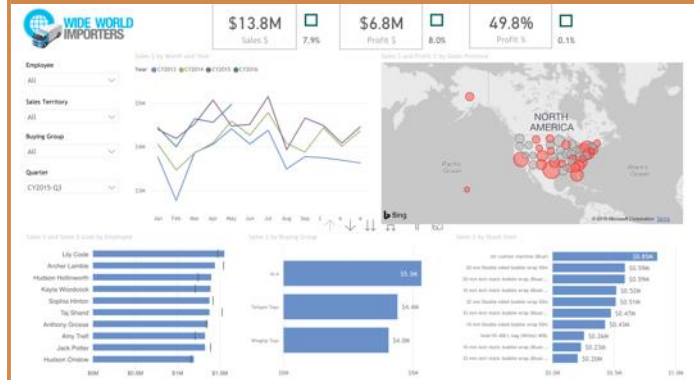
## Insider viewpoints



## More on this subject



## Product demos



## Upcoming events



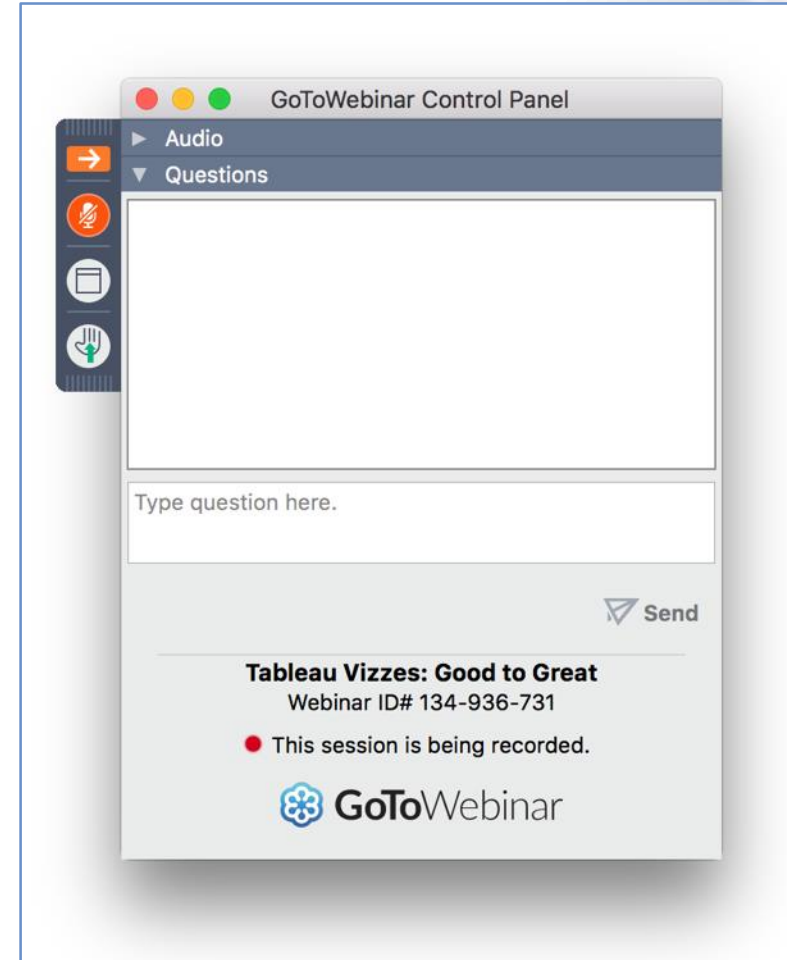


# Q & A

If your question or issue is broader than what we are able to answer today, contact us at

[info@senturus.com](mailto:info@senturus.com)

and we will set up a free consultation.



# Thank You



## SENTURUS

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