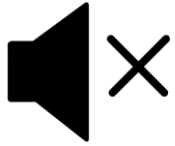**Informatica**

16 April, 2024

SQL ELT with Snowflake

- Ananya Venkat, Solution Architect, CSA

- Ankit Tripathi, Senior Solution Architect, CSA

Where data
& AI come to LIFE

Housekeeping Tips

- Today's Webinar is scheduled for 1 hour

- The session will include a webcast and then your questions will be answered live at the end of the presentation

- All dial-in participants will be muted to enable the speakers to present without interruption

- Questions can be submitted to "All Panelists" via the Q&A option and we will respond at the end of the presentation

- The webinar is being recorded and will be available on our Success Portal - where you can download the slide deck for the presentation. The link to the recording will be emailed as well.

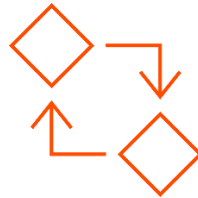- Please take time to complete the post-webinar survey and provide your feedback and suggestions for upcoming topics.

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Feature Rich Success Portal
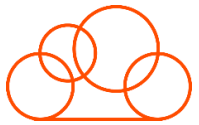
| Bootstrap trial and POC Customers | Enriched Customer Onboarding experience | Product Learning Paths and Weekly Expert Sessions | Informatica Concierge | Tailored training and content recommendations |

More Information

Success Portal

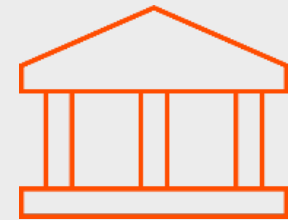https://success.informatica.com

Communities & Support

https://network.informatica.com

Documentation

https://docs.informatica.com

University

https://www.informatica.com/in/services-and-training/informatica-university.html
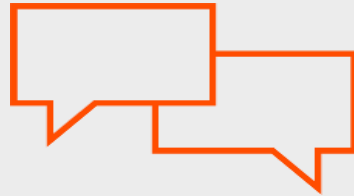
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SQL ELT
With Snowflake

Ankit Tripathi
Principal Solution Architect – Customer Success

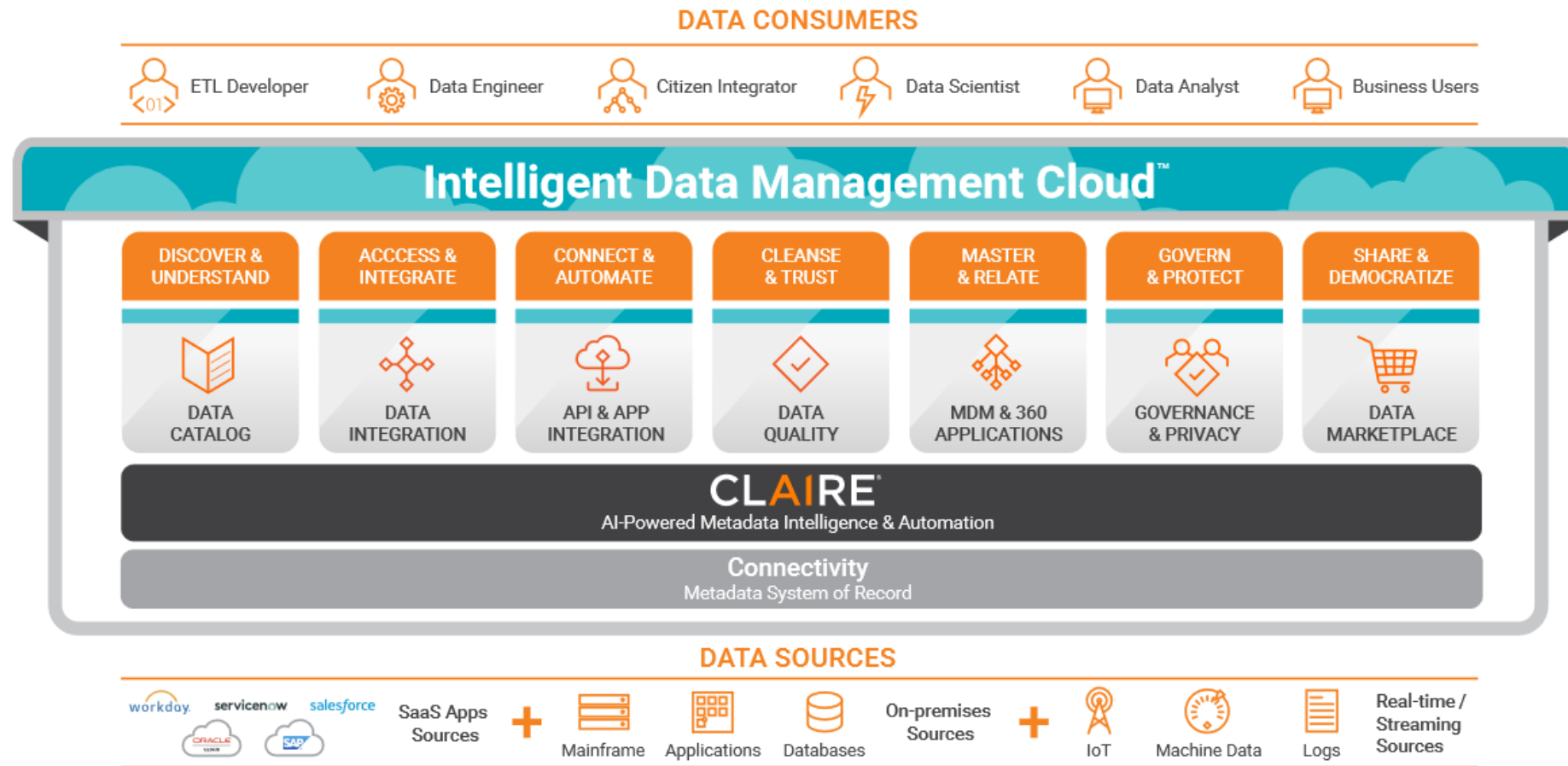**Ananya Venkat**
Solution Architect – Customer Success

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Agenda

- Introduction – Why SQL ELT

- The Informatica ELT : A Look Back

- SQL ELT Mode For Snowflake

- Pre-requistes

- Demo

- Q&A

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Informatica iPaaS (IDMC):

SQL ELT is part of the Cloud Data Integration Service within IDMC

Introduction – Why SQL ELT

- **Cause**
  - The emergence of new technologies, such as generative artificial intelligence (genAI), large language models (LLMs) and other machine learning (ML) models, has made data integration and ingestion even more powerful.
  - For AI/ML projects to be successful, they require the processing of huge volumes of both structured and unstructured data at various data lakes, data warehouses and data lakehouses.

- **Effect**
  - That's why extract, load, transform (ELT) — which optimizes performance and saves time — is best suited for these complex use cases. And with the evolution of data storing and processing capabilities of the data lake and warehouse, adoption of ELT processes have become more widespread.

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The Informatica ELT : A Look Back

- **ELT** is not new, rather the technologies that support ELT have evolved over time. Noticeable advancement being pushdown technology.

- 3 Era's of ELT:

  - **On-premises ELT:** For years traditional data warehouses were built on-premises. Some examples include Oracle, SQL server and MySQL databases. Organizations used to spend capital expenses on procuring their own server and installing enterprise relational database licenses. To optimize cost and performance, they started to use pushdown to leverage the full compute of their servers to load and transform their business data. And yes, for more than 20 years, we have had our own on-premises ETL tool — Informatica PowerCenter — that, to this day, still uses relational pushdown to the source or target databases.

The Informatica ELT : A Look Back (Contd.)

- **ELT on Spark or Hadoop:** As data analytics became more advanced, companies started to lean toward Big Data infrastructure. In fact, we saw a technology and architecture shift when our customers started to migrate to open-source technology like Hadoop and Spark engines. To address such workloads, Informatica introduced our next-generation pushdown version of ELT on Spark. As an open-source analytics engine, Spark processes data much faster with horizontal scaling. It can also be customized and run on commodity hardware. This means improved performance and lower costs.

- **ELT on the cloud:** Over the last 10 years, organizations are generating even bigger amounts of data for AI/ML analytics. What's needed to keep up is a scalable and flexible infrastructure to support these changes. With that in mind, companies are adapting to cloud solutions such as Google Cloud, Amazon Web Services (AWS) and Microsoft Azure. One of the key challenges? Moving the data efficiently and securely.

Next-Gen ELT: Informatica SQL ELT

- To keep pace with the changing technology landscape, Informatica created a modern pushdown capability, SQL ELT, on Informatica Cloud Data Integration, a service of our Intelligent Data Management Cloud (IDMC). Our SQL ELT capability is built to natively support cloud data lake (CDL) to cloud data warehouse (CDW) or CDW to CDW use cases.

- **Some key benefits of SQL ELT?** Developers can set full ELT mode as a runtime property and preview the code before running it in production. This helps streamline data workflows and optimize the execution of complex data integration tasks — critical to compete in a digital economy. Plus, Informatica SQL ELT helps reduce latency and egress costs by enabling data processing to run directly within the target database. This eliminates the need for unnecessary data movement between systems and minimizes network overhead

- Bottom line? Using Informatica SQL ELT can help improve efficiency, reduce latency and decrease associated costs. This alone can give you a competitive edge to stand out in a crowded landscape

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SQL ELT Mode for Snowflake

- New Mapping Type – **"Mapping SQL ELT"**

- Simple and intuitive GUI experience for Users

- Always Leverages Native CDW compute - First Class ELT

- Ecosystem context aware, built specifically for each ecosystem

- Support 150+ Snowflake native functions

  - Consumption is charged under APDO metering
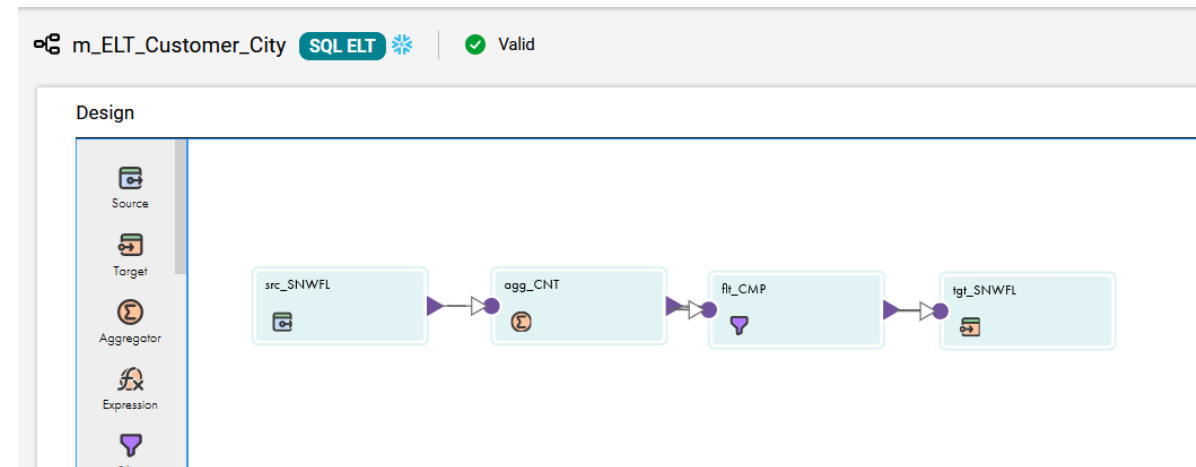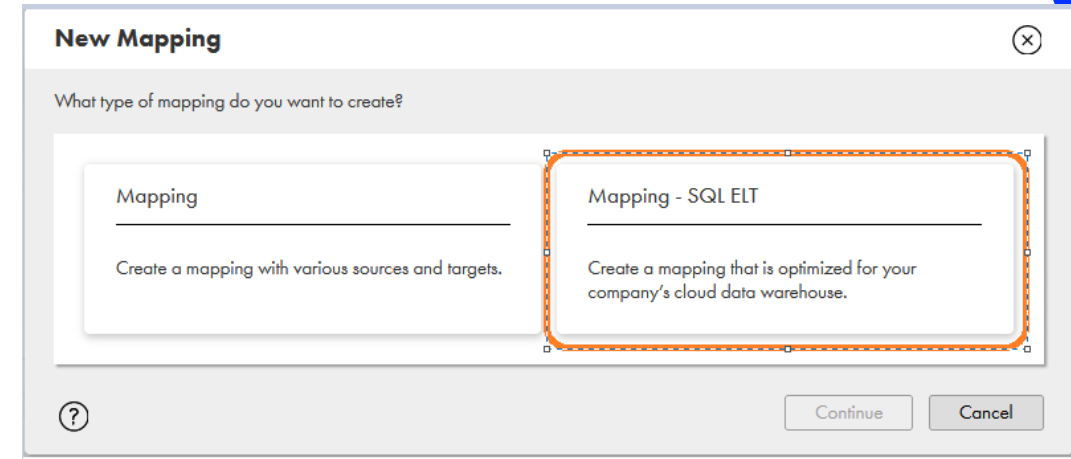
SQL ELT Mode for Snowflake

Use case : You work for healthcare solutions and your organization provides healthcare technology to pharmacies and pharmacy chains. You enable pharmacies to process prescriptions, store and provide access to healthcare records, and improve patient outcomes. Your organization stores its data in Amazon S3.

The management wants to create a patient-centric pharmacy management system. The organization plans to leverage the warehouse infrastructure of Snowflake and load all its data to Snowflake so that they can make operational, financial, and clinical decisions with ease.

Solution : To load data from an Amazon S3 object to Snowflake, you must use SQL ELT with the required transformations that support the data warehouse model. Use an Amazon S3 V2 connection to read data from the Amazon S3 source and a Snowflake Data Cloud connection to write to a Snowflake target. The Amazon S3 source data is uploaded to the Snowflake stage using the PUT command. The Snowflake COPY commands are used to convert the transformations to the corresponding SQL functions and expressions while loading the data to Snowflake. You can enhance the performance of the task and reduce the costs involved by configuring SQL mappings.

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Prepare for SQL ELT

- Before you can configure SQL ELT to load data from different source to Snowflake, you need to meet certain requirements :
    - Access to data files in Google Cloud Storage bucket
    - Access to data files in a Microsoft Azure Data Lake Storage Gen2 container
    - Verify permissions to run mappings in SQL ELT mode

- On Snowflake, Permissions define the level of access for the operations that you can perform.
    - The following table lists the permissions that you require in the Snowflake account to run mappings in SQL ELT mode:

Object Type	Privileges
Database	Usage
Schema	Usage, Create Table, Create View, Create Procedure, Create Sequence, Create Function, Create Stage
Table	All
Sequence	All
Stored Procedure	All
User Defined Function (required for semi-structured data types)	All
View	All

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Documentation

- [Access to data files in a Google Cloud Storage bucket](#)

- [Access to data files in a Microsoft Azure Data Lake Storage Gen2 container](#)

- [Verify Snowflake permissions for SQL ELT](#)

Demo

Informatica Cloud Integration Hub is designed ....

- To bring down integration cost

- Increase data and integration reliability

- Improve IT efficiency and speed to market

Right data, in the hands of the right people, right when they need it

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Thank You