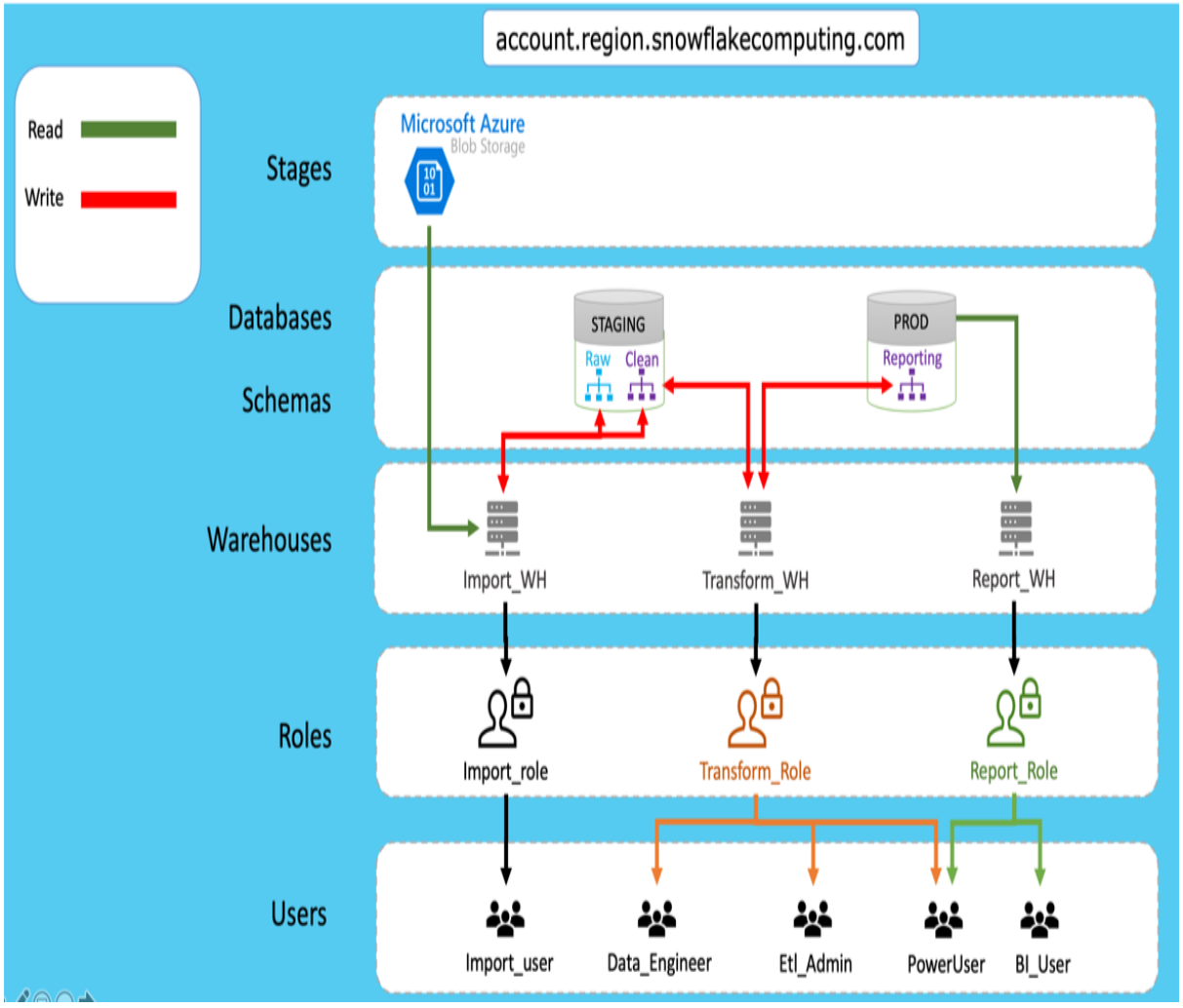
Snowflake 3 Stage Data Pipeline Setup with Staging, Transform and Reporting Layers

Quick way to start a 3 stage data pipeline process using Snowflake. This allows the process to broken in to 3 stages (STAGING, TRANSFORM & REPORTING) with different resources, roles & securities that can be assigned to different team members adn/or tools. This script will quickly create Layers in Snowflake using best practices.

It will automatically create all necessary resources including Warehouses, roles, users, databases, schemas, usage monitors & associated security using best practices to give you a quick head start.

Below is the diagram & list of resources that will be created



Assets list:

- **3 WAREHOUSES**
  - **IMPORT_WH (MEDIUM, Quick AutoSuspend 5 mins, No Multi-Clustering. INITIALLY_SUSPENDED)**
  - **TRANSFORM_WH (MEDIUM, Quick AutoSuspend 5 mins, No Multi-Clustering, INITIALLY_SUSPENDED)**
  - **REPORTING_WH (SMALL, Multi-Cluster upto 5, AutoSuspend after 15 mins to keep cache alive,INITIALLY_SUSPENDED)**
- **2 DATABASES**
  - **STAGING**
  - **PROD**
- **3 SCHEMAS**
  - **STAGING.RAW (Default Data Retension 3 days for tables to keep original raw data as it is ingested)**
  - **STAGING.CLEAN (Default Data Retension 3 days for tables to keep cleaned data for ETL & modeling & ETL)**
  - **PROD.REPORTING (Data Retension 90 days - Used by Business Users for analytics & keeps 90 day continous history)**
- **3 ROLES**
  - **IMPORT_ROLE (Can read from file stage & write to both schemas in StagingDB. No Access to Prod)**
    - **USAGE only access for Warehouse "IMPORT_WH" (Can't modify/resize)**
    - **USAGE access STAGING_SOURCE for import files**
    - **USAGE on STAGING_DB**
      - **Full access to RAW schema in STAGING_DB for all existing & new tables**
      - **Full access to CLEAN schema in STAGING_DB for all existing & new tables**
    - **No Access to PROD database**
  - **TRANSFORM_ROLE (Can read & write to STAGING_DB.Clean + PROD.REPORTING, No Access to STAGING_DB.Raw)**

- USAGE only access for Warehouse "TRASNFORM_WH" (Can't modify/resize)
- Partial USAGE on STAGING_DB
- Full access to CLEAN schema in STAGING for all existing & new tables
- No access to RAW schema in STAGING
- Full access to REPORTING schema in PROD for all existing & new tables

o REPORTING_ROLE (Read-only access to PROD.PROD schema & tables)

- USAGE only access for Warehouse "REPORTING_WH" (Can't modify/resize)
- Read-Only access to PROD schema in PROD for all existing & new tables
- No access to STAGING database

- 3 USERS (Test Users)
  - UserReporting (belongs to REPORTING_ROLE)
  - UserTransform (belongs to TRANSFORM_ROLE)
  - UserImport (belongs to IMPORT_ROLE)
- 3 USAGE MONITORS
  - IMPORT_MONITOR (100 credits a month)
  - TRANSFORM_MONITOR (100 credits a month)
  - REPORTING_MONITOR (100 credits a month)

This script assumes these roles are locked in terms of what they can do within their domain. All 3 users/roles are secured in a way that they can only use the databases/schemas that are assigned to them. Warehouses are setup to auto start & stop on demand and users CAN NOT change the size of the warehouses nor manually start or stop them. Write a SQL script with a user that has AccountAdmin & SysAdmin roles to build the above Snowflake Environment.