An Experience with OHDSI tools

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2016

OHDSI tools with "traditional" technologies on GCP

1) OHDSI Web API

2) CDM Statistics (Achilles)

3) Atlas

- Google Compute Engine
  - Linux Ubuntu 16
  - PostgreSQL 9.5.3
  - HTTP user authentication with Tomcat 8

  Installation instructions on OHDSI Community wiki

Migrate to Google Managed Services Platforms

- Why?
  - Seek to eliminate virtual machines
    - Security concerns
    - Management overhead
    - Optimization overhead
  - Seek to manage costs
    - Pay only for what we use rather than idle VMs
  - Seek to manage dynamic auto-scalability

OHDSI with Google BigQuery

- BigQuery limitations: Read-only Data Warehouse
  - No support for Update, Insert, Delete Queries
- No JDBC driver with support for these queries
  - Experience with CData (commercial; mature)

OHDSI with Google Cloud SQL

- Based on MySql

- Mysql is missing several basic SQL functions
    - Windowing functions
    - Multiple use of temp tables within a given query

Conclusions

- These two GCP environments
  - do not have required SQL Functionality
  - are not able to support OHDSI tools w/o significant redesign

- Compass solution
  - EDW: OMOP CDM V5 in BigQuery for data queries
  - OHDSI tools: OMOP CDM V5 in Linux/Postgres VM
    - New release of BigQuery SQL has more features (inserts, deletes) but still missing key SQL features (windowing)
    - Later released of BigQuery SQL may reach needed functionality
      - If so, will migrate to BQ backend