An Experience with OHDSI tools

Hajar Homayouni
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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 MySqi
- 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