Monitoring Spark

Proposed Architecture

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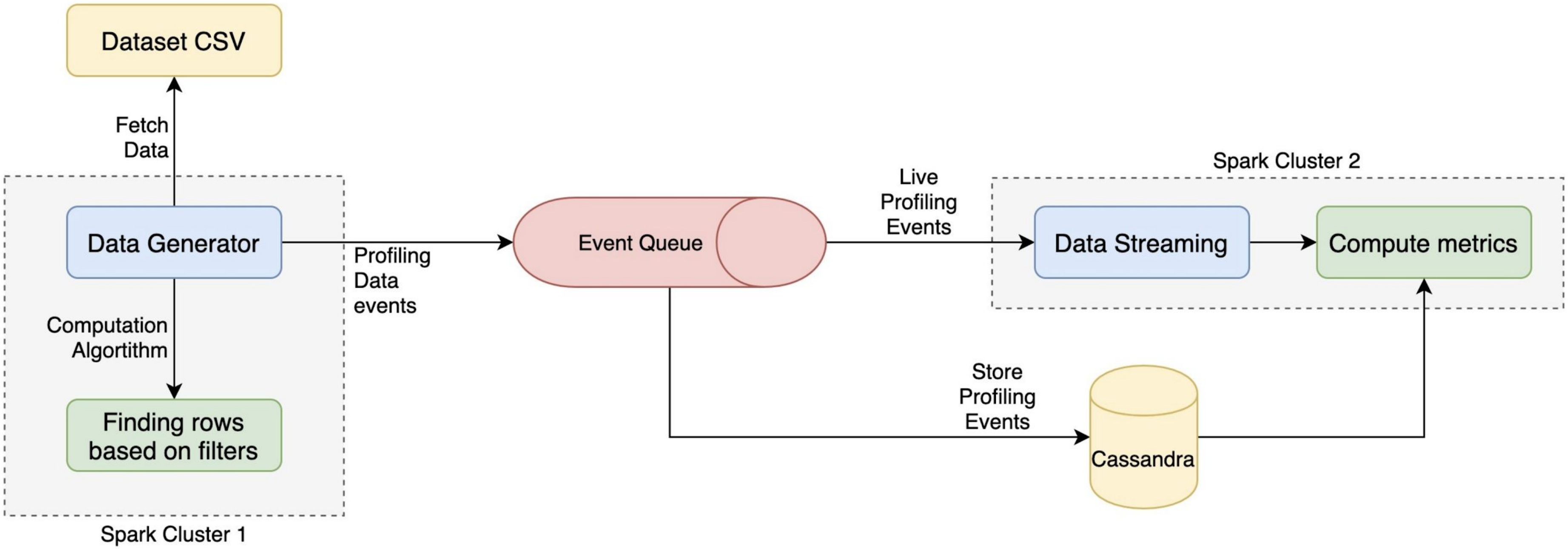
Problem Statement

Your goal is to monitor the load on a Spark cluster and perform different types of profiling. Can you determine where bottlenecks are? How do different algorithms perform?

Approach


Dataset CSV
Fetch Data
Data Generator
Computation Algortithm
Finding rows based on filters
Spark Cluster 1
Profiling Data events
Event Queue
Live Profiling Events
Spark Cluster 2
Data Streaming
Compute metrics
Store Profiling Events
Cassandra

Approach

- Deploy Apache Spark as a data generator
- Read data directly from CSV
- Perform some basic computation over this data
- Send performance metadata for profiling to an event queue

- Consume profiling events from the event queue
- Store the events in Cassandra
- Setup an Apache Spark cluster to consume streaming data from the event queue and historical data from Cassandra, and use it to compute the metrics

Dataset

Congressional Voting Results

Source :

Origin:

Congressional Quarterly Almanac, 98th Congress, 2nd session 1984, Volume XL: Congressional Quarterly Inc. Washington, D.C., 1985.
https://archive.ics.uci.edu/ml/datasets/Congressional+Voting+Records

Citation:

Dua, D. and Graff, C. (2019). UCI Machine Learning Repository [http://archive.ics.uci.edu/ml]. Irvine, CA: University of California, School of Information and Computer Science.

Attributes	Possible Outcomes
Class Name	(democrat/republican)
handicapped-infants	(Y/N)
water-project-cost-sharing	(Y/N)
adoption-of-the-budget-resolution	(Y/N)
physician-fee-freeze	(Y/N)
el-salvador-aid	(Y/N)
religious-groups-in-schools	(Y/N)
anti-satellite-test-ban	(Y/N)
aid-to-nicaraguan-contras	(Y/N)
mx-missile	(Y/N)
immigration	(Y/N)
synfuels-corporation-cutback	(Y/N)
education-spending	(Y/N)
superfund-right-to-sue	(Y/N)
crime	(Y/N)
duty-free-exports	(Y/N)
export-administration-act-south-africa	(Y/N)

Thank You!