Spark Streaming

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Big Data
27 November 2014

Presentation Plan

1. Introduction
2. Spark architecture
3. Example stream processing task
4. How to run Spark?

What is Apache Spark™?

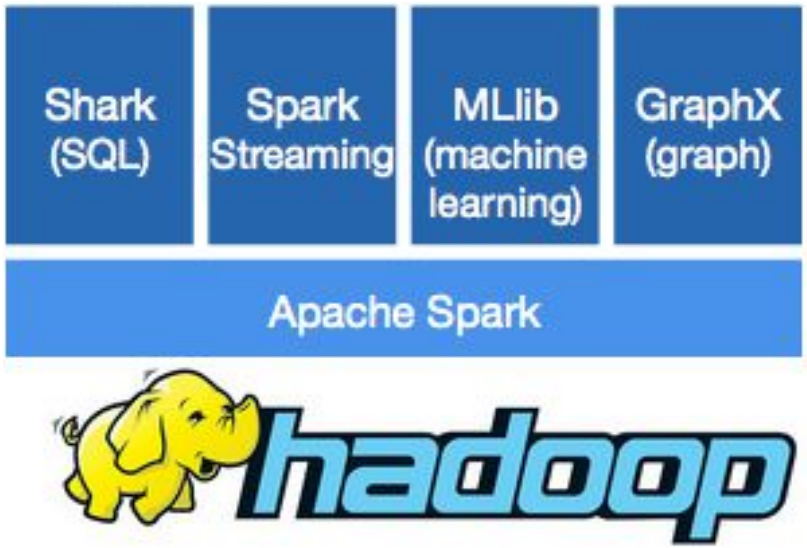
Apache Spark™

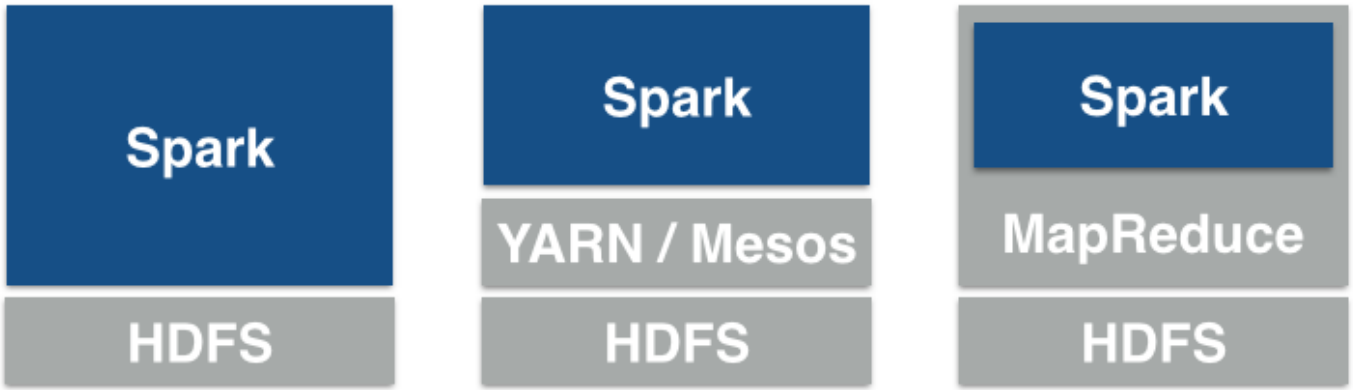
- distributed computations system
- not only MapReduce applications
- supports in-memory operations (Resilient Distributed Dataset)
- may use HDFS

APIs

- Scala
- Java
- python

Spark architecture

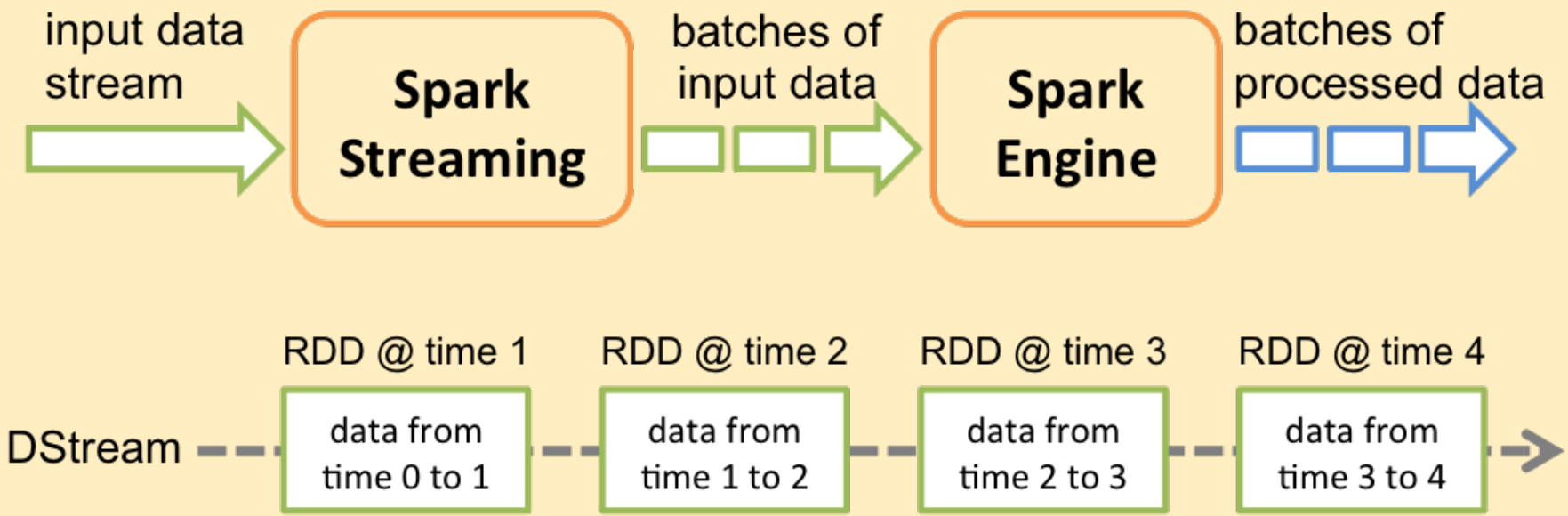




What is Spark Streaming?

Spark Streaming

- subproject of Apache Spark™
- allows for real-time distributed stream processing
- utilizes an idea called Discretized Stream (DStream)



Why do we want Spark Streaming?

- Fraud detection
- Financial market analysis
- On-line surveillance
- Early earthquakes detection
- ...

Example stream processing task

Data producer

Generate another number every 100ms

Data analyzer

Count all distinct numbers

How to run Spark? I

Running worker on Linux

- Get precompiled Spark 1.1.0 for Hadoop 1.x from `/home/2012/m.okulewicz/spark` and unpack it
- If necessary edit: `conf/spark-env.sh` and add location of `JAVA_HOME`
- Run `sbin/start-slave.sh 1 spark://phd03.phd.ipipan.waw.pl`
- Check in browser if `http://localhost:8081` is available and master points to `phd03.phd.ipipan.waw.pl`

How to run Spark? II

Running master and task on Linux

- Run `sbin/start-master.sh`
- Check in browser if `http://localhost:8080` is available
- TO BE CHANGED Run `bin/spark-submit`
  `--class org.apache.spark.examples.SparkPi`
  `--master spark://207.184.161.138:7077`
  `--executor-memory 20G`
  `--total-executor-cores 100`
  `/path/to/examples.jar 1000`

Bibliography I


https://spark.apache.org/docs/0.9.0/streaming-programming guide.html.
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