



I Big Data and You Can Too

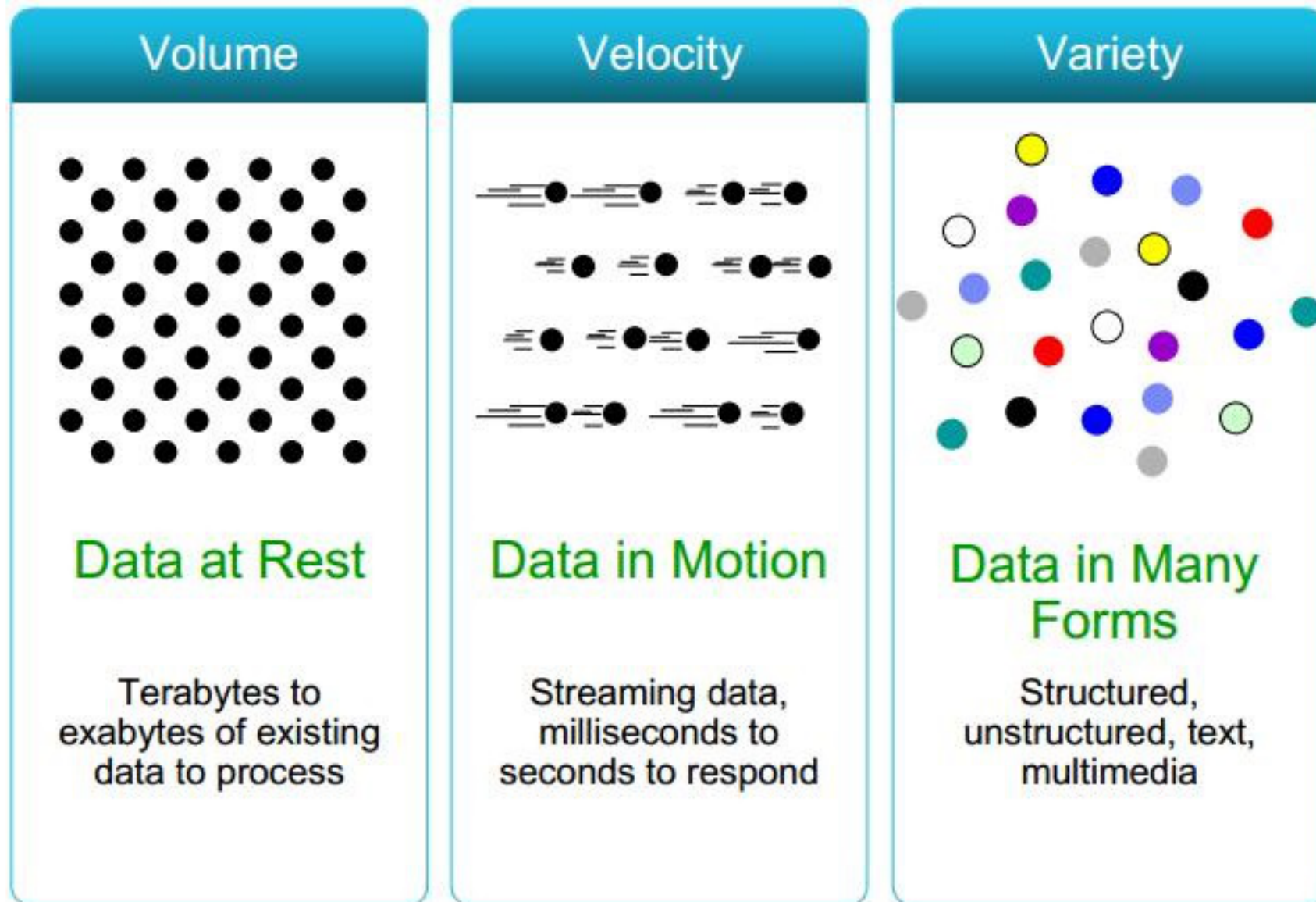
Unlocking The Potential Big Data

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Financial Modeling Group - Advanced Data Analytics

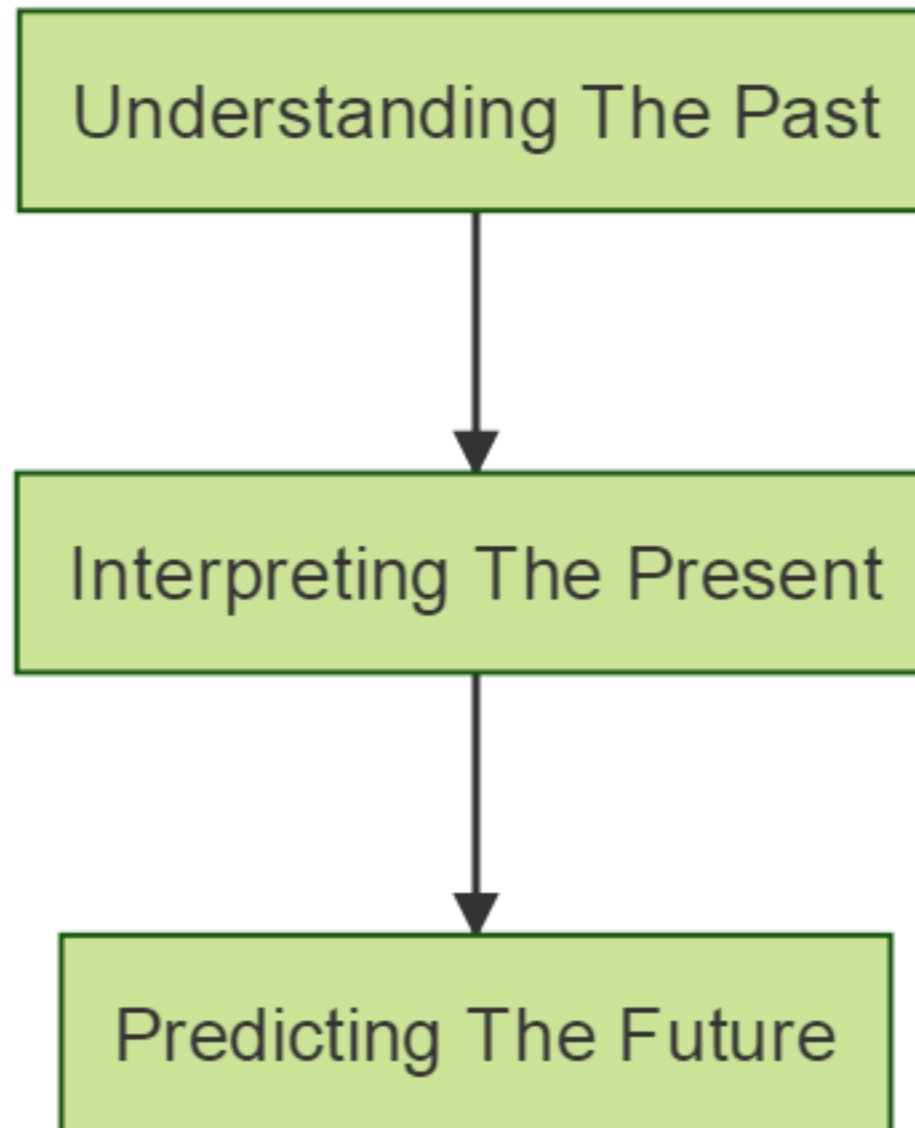
2015-09-24

What Is Big Data?



Source: http://api.ning.com/files/tRHkwQN7s-Xz5cxyIXG004GLGJdjoPd6bVfVBwvgu*F5MwDDUCiHHdmBW-JTEz0cfJjGurJucBMTkiUNdL3jcZT8IPfNWfN9/dv1.jpg

What's The Goal?

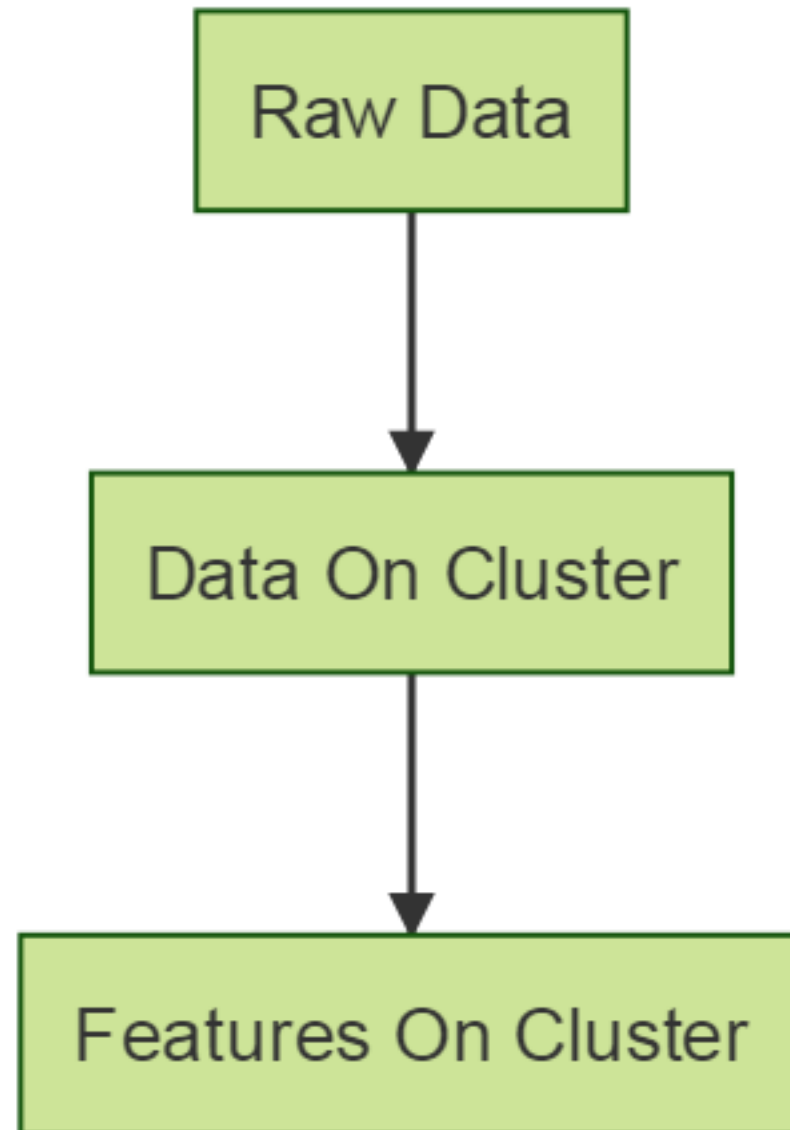


What's The Dream?

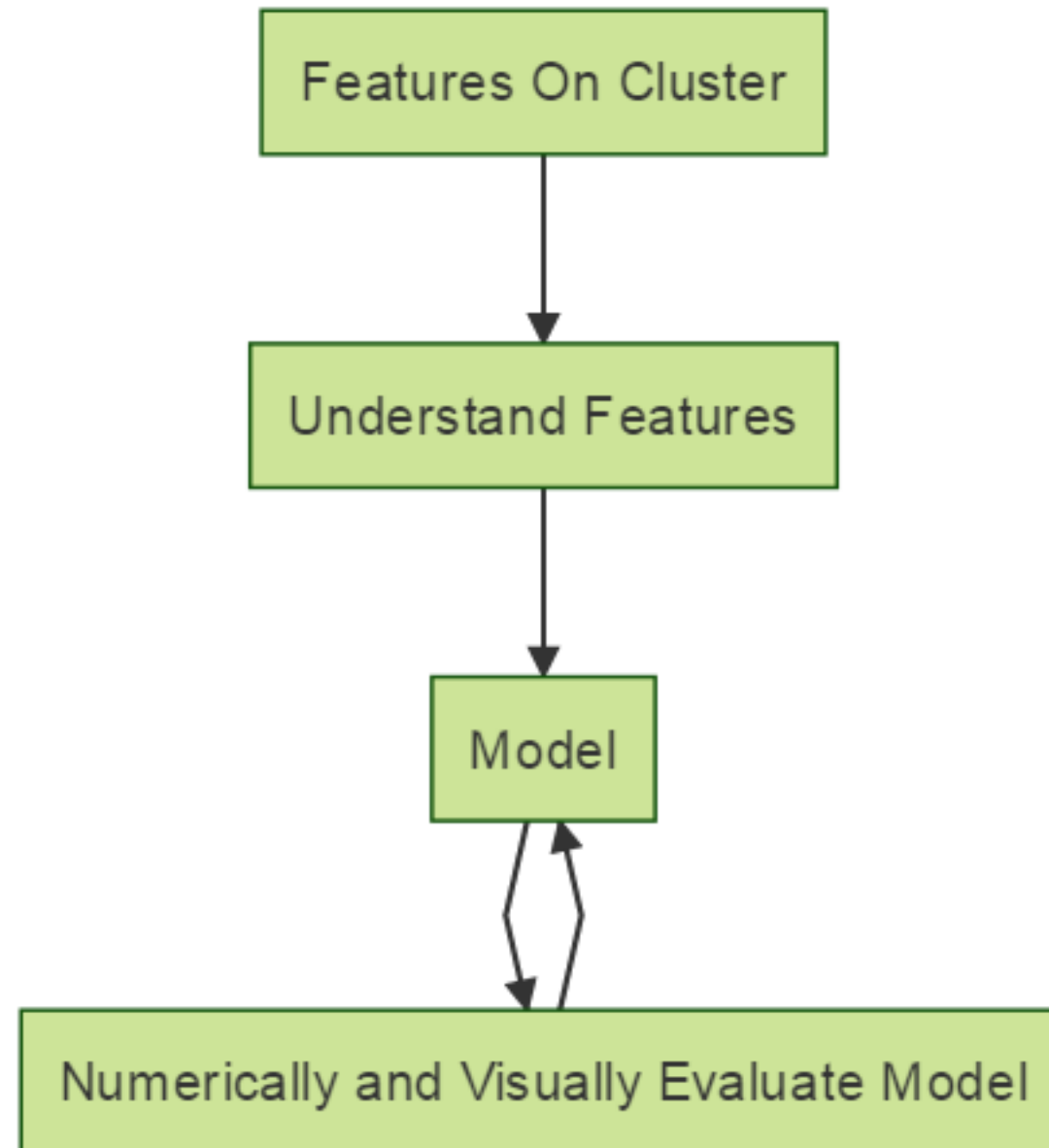
The Optimal Implementation Of The Goal



What's The Dream? - Processing



What's The Dream? - Modeling

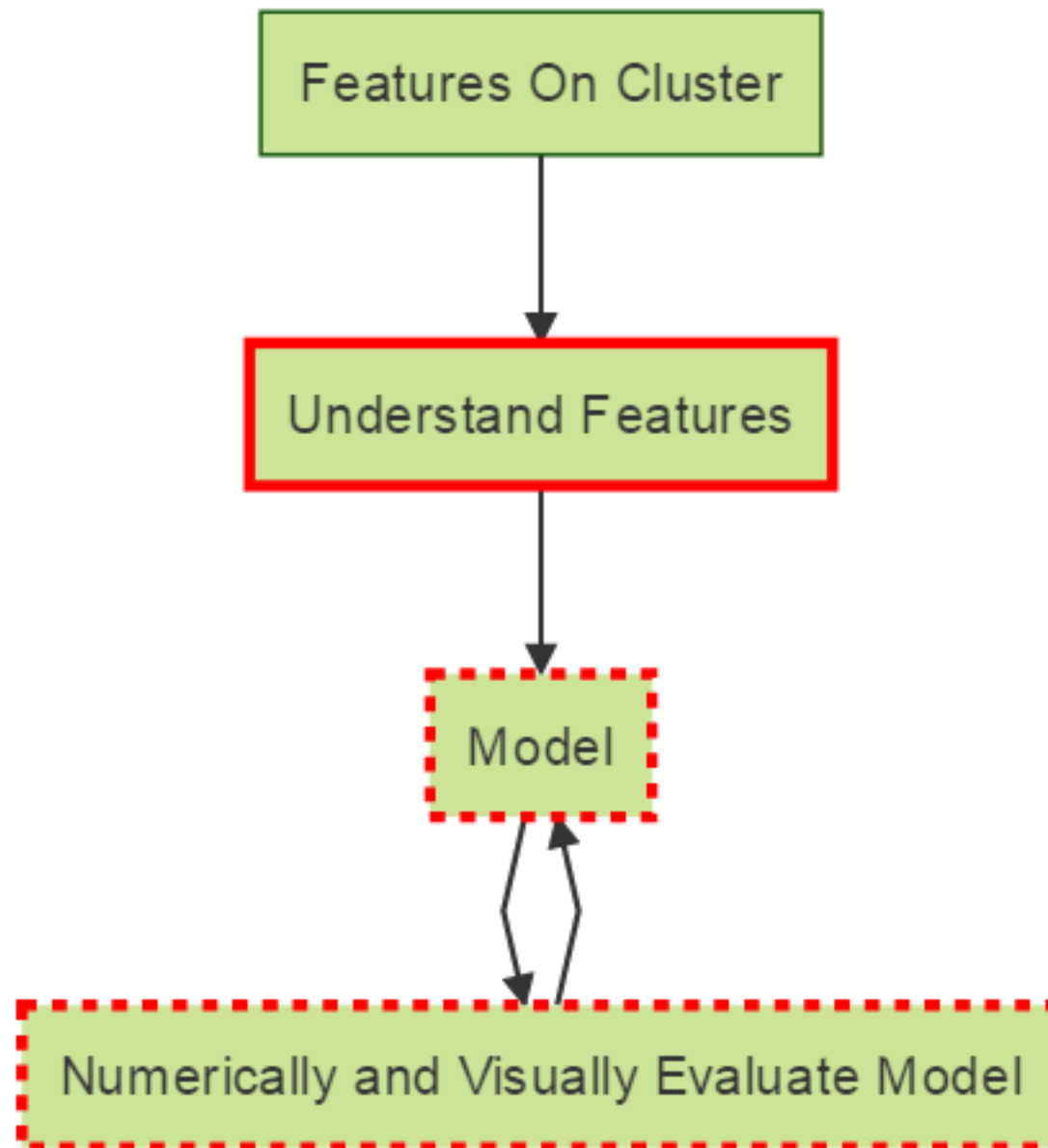


What's The Dream? - Actionable Information

A model that:

1. Consumes raw market/indicative data
2. **Automatically** produces **numerical** and **visual** analyses that **business users** can leverage to make decisions

What Are We Discussing Today?



I Big Data. Can You?

```
snoop@ubuntu: ~/spark
snoop@ubuntu:~/spark$ MASTER=spark://ubuntu:7077 ./bin/spark-shell
Welcome to

  ____      _
 / ___|  _ \| | | |
 \___ \| |_) | |_| |
  ___) | |_) | | | |
 |____|_|___|_|_|_|

version 1.0.0

Using Scala version 2.10.4 (Java HotSpot(TM) 64-Bit Server VM, Java 1.7.0_60)
Type in expressions to have them evaluated.
Type :help for more information.
Spark context available as sc.

scala> 
```

What's wrong with this picture?

Source: <https://raw.githubusercontent.com/bbouille/start-spark/master/src/spark-shell-standalone.png>

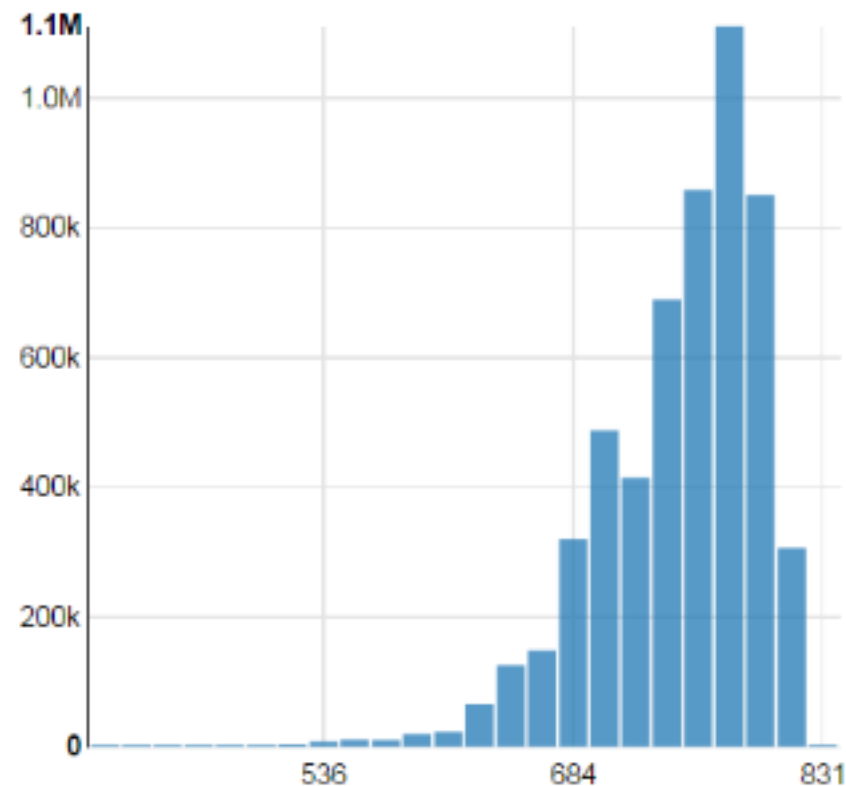
Our Implementation - DaVinci

FicoScoreAtOrigination

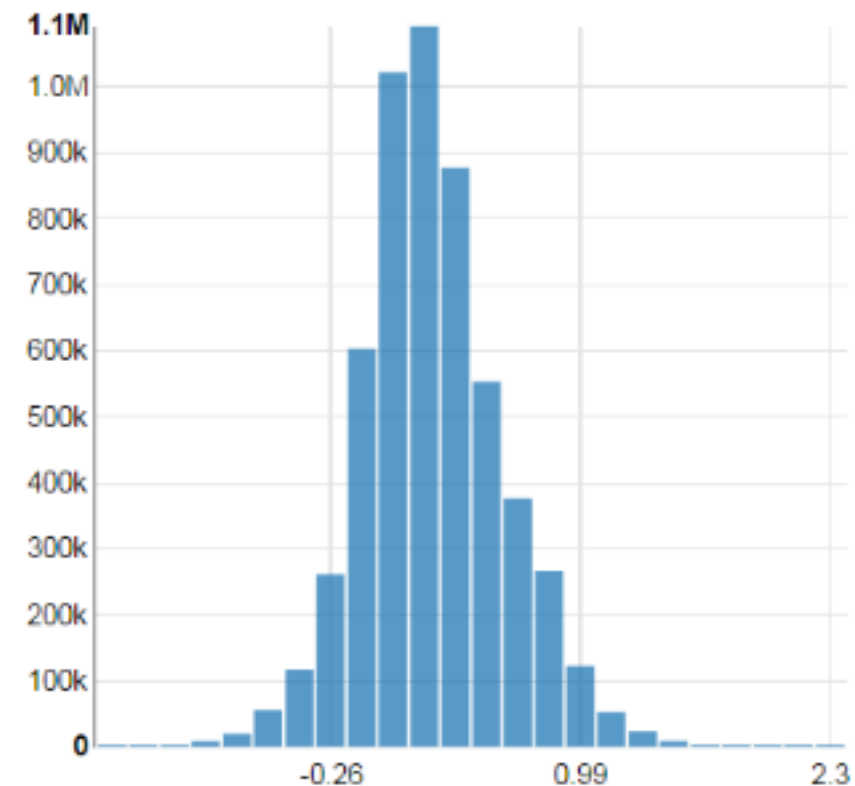
Bar

SATO

Bar

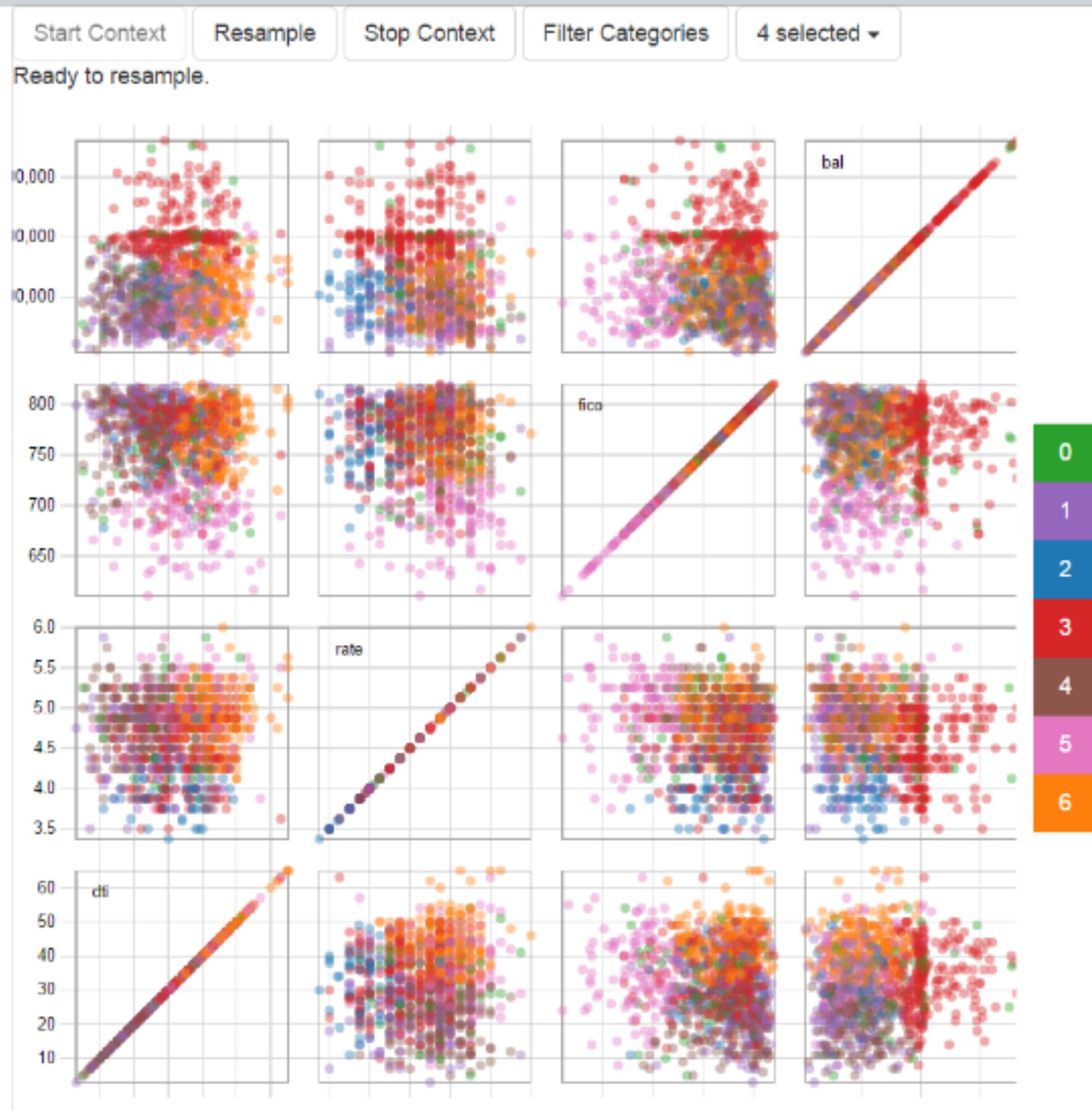


Mean 750.9624831635765
Std. Dev. 49.10343938729633
Max 844
Min 333
Missing
Total Count 5468798



Mean 0.2612488533357916
Std. Dev. 0.3541688591515994
Max 2.3986363636363626
Min -1.5625
Missing
Total Count 5468798

Our Implementation - Scatterplot Matrix



What Is Spark Job Server?

"[A] RESTful interface for submitting and managing Apache Spark jobs, jars, and job contexts" (<https://github.com/spark-jobserver/spark-jobserver>)

1. Create a JAR with an object implementing the SparkJob trait

```
sbt ajaxJob/assembly
```

2. Upload to Spark Job Server

```
curl --data-binary @ajaxJob.jar jobserver.com:8090/jars/ajaxJob
```

3. Call it with AJAX

```
curl --d "input.params = param1 ..."  
jobserver.com:8090/jobs?appName=ajaxJob?classPath=path.to.object
```

Where Does Spark Job Server Fit?

Internally

HTML5 Application

Spark Job Server

YARN

Private Cluster

Externally

HTML5 Application

Spark Job Server

Standalone Cluster

EC2

Try Our External Version

1. Clone the repo at <https://github.com/David-Durst/spark-jobserver>
2. Run `bin/ec2_deploy_and_kmeans.sh`
3. Open the scatterplot matrix in the web browser and enter the URL printed by the script

Create Your Own Internal Version

1. Clone the repo at <https://github.com/David-Durst/spark-jobserver>
2. Copy config/local.sh.template to config/internal.sh and modify to fit your environment
3. Copy config/local.conf.template to config/internal.conf and modify to fit your environment
4. Run bin/server_deploy.sh internal

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