Making Big Data Analytics Interactive

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Motivation

Data is growing faster than computation speeds
   » Web apps, mobile, scientific, ...

Requires large clusters to analyze

Programming clusters is hard
   » Failures, placement, load balancing
Spark Programming Model

Manipulate distributed datasets as you would local collections

Concept: *resilient distributed datasets* (RDDs)

» Distributed collections of objects that are automatically reconstructed on failure

» Built through parallel *transformations* (map, filter, etc)

» Can be *cached* in memory for fast reuse
Example: Log Mining

Load error messages from a log into memory, then interactively search for various patterns

```scala
lines = spark.textFile("hdfs://...")
errors = lines.filter(_.startsWith("ERROR"))
messages = errors.map(_.split('\t')(2))
messages.cache()

messages.filter(_.contains("Linux")).count()
messages.filter(_.contains("PHP")).count()
```

**Result:** scaled to 1 TB data in 5 sec (vs 170 s for on-disk data)
Projects Built on Spark

Spark available in Java, Scala, Python

Growing open source community
  » 500-member meetup
  » 14 companies contributing

Using it to develop a stack of fast analytics tools
  » Shark SQL, Spark Streaming, …
Find Out More

Visit us at the AMP Lab: 4th floor Soda Hall

www.spark-project.org