Hadoop Summit 2010

in a few slides

Who was there?

- Web companies
  - Yahoo
  - Facebook
  - Amazon
  - Linkedin, Twitter, Netflix, etc...
- Support companies
  - Cloudera, Datameer
- Academics

1000 people all up, nearly double last year and they sold out early.

Major themes

- The most successful users build everything they do around Hadoop.
- Development is still driven by the interests of the biggest users (Yahoo and Facebook).
- The rise of the support companies.
- The eco system is more than just map-reduce.
- Data pipelines.
- Work flows.
- High level languages.
- Graph processing.
- Data driven development.

Yahoo

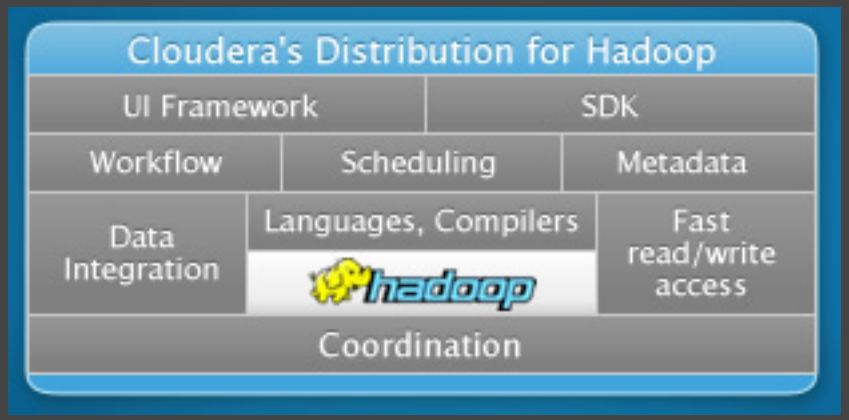
- Releasing their task scheduler in a month or two.
- 1/2 of their jobs are written in Pig (they also use hive).
- Announced Oozie, work flow engine.
- Added hadoop security features (which we don't really care about).
- Namenode SPOF is not a priority, they replicate.

Amazon

- New elastic map reduce features
  - Nodes can be dynamically added and removed from the cluster while jobs are running.
  - Price bidding for resources.
- Datameer, KarmaSphere integration.
- MicroStrategy integration (business intelligence).
- Hadoop images come with Hive and Pig out of the box.

Cloudera

- Seem to be getting closer to the redhat model.
- CDH3 released.
  - HBase now supported
  - ZooKeeper now supported
  - Oozie now supported
- Hue open sourced (formally Cloudera Desktop)
- Flume open sourced (similar to scribe, looks awesome)
- We have diagrams!



Facebook

- Processes 1TB a day.
- Data driven development powered by hadoop.
  - Product launches should be controlled tests.
  - AB test all new features, incremental rollouts.
  - Social features can be AB tested across geographic regions, say Japan vs Brazil. This helps test viral effects, eg the "like/+1" button.
  - eg: Email notifications, measure click thrus. Results can be surprising.
- Scribe writes to 2 staging hdfs clusters (different masters but same worker nodes), data is then copied to production mapred clusters, then copied to a research cluster.

Facebook (continued)

- 95% of jobs are hive queries.
- Nice hive web ui (good for non tech users)

- Some jobs run every minute on the production cluster
- So moving more towards real-time (as opposed to batch)
- = reason for separate production and warehouse clusters

- Putting their weight behind HBase
- Planning to use it in production, instead of Cassandra
  - HBase is better at cross-datacenter replication
  - HBase/Hadoop have a great and extensive community
  - They are fixing the reliability and HA issues

LinkedIn

- LinkedIn is big, and their Hadoop clusters are even bigger
- Order of magnitude more nodes, but not users, than us

- Pete showed some nifty things he was working on
- They made us realize/remember the potential of geo data

- They employ Allen full-time for optimizing Hadoop
- He gave us some tips regarding Hadoop configuration:
  - JVM reuse FTW (we knew this already actually)
  - Avoid small files by requiring explicit # reducers
  - 12 mappers and 12 reducers might be way too much
    - we should experiment with less
    - => more memory per task, yay

Twitter

Tweeting from twitter...
8:13 PM Jun 30th via twidroid

Data pipelines

For streams

- Scribe (facebook).
- Flume (cloudera).
- Honu (netflix).
- Crane (twitter).

For DBs

- Sqoop.

Flume seems like the standout

- Highly available.
- Central configuration.
- Supports a variety of data formats.
- Amazing documentation.
- We should definitely look into it.

Work flows (cron + make)

A better Citrine?

- Oozie (Yahoo)
  - Seems mature and supports arbitrary complexity.
  - Xml config for flow.
  - Runs in tomcat backed by MySql.
  - Everything must run in a map reduce job. So java, hive or pig jobs only. No dumbo or bash scripts.
  - Unlikely to be adaptable to all our needs.
- Azkaban (linkedin)
  - Very simple, maybe too simple.
- Might be worth developing on the one Olivier started.

High level languages

Everyone's doing it. They are becoming the norm.

- Hive, often for ad hoc.
- Pig, for data flow / production.
- A mixture of both is common.
- Even Yahoo uses Hive.
- Hive and Pig are working on integrating better, specifically on a common meta data store.

Graph processing

- Research is very active in porting and adapting (so that they scale) parallel graph processing algorithms.
- Graphs are everywhere.
  - eg: Text is full of graphs, token frequencies, similar documents.
- Graph algorithms are a lot of fun.

Conclusions

We should:

- do a lot more data-driven testing and development
- invest more in data analysis
- explore our (unused) data sets
- replace shell scripts with Flume for putting data in Hadoop
- look into using a workflow management system
- configure our Hadoop properly
- buy 12 disk 2U nodes from now on
- consider HBase again in the near future
- go to the Hadoop Summit again next year

Questions?

https://staff.last.fm/wiki/Hadoop_Summit_2010