How Hadoop clusters break in the real world

Ari Rabkin (UC Berkeley and Cloudera, inc.) Randy Katz (UC Berkeley)

Problem
System builders don't know which failure patterns are common, so can't avoid. Results in brittle systems.

Approach
Look at real failure data for Hadoop ecosystem to understand what goes wrong. Data includes HBase, Pig, Hive, Zookeeper, Flume, Oozie, etc.

Observations
Classified 293 Cloudera support tickets, in period from Feb. to July 2011. Used ticket count + reported supporter time spent as metrics. Classification was by ultimate fix. Ex: 'bug' means support case required patch to close. Most other problems could also have been fixed by some redesign. (These are not counted as bugs.)

Observation
Incompatibly-set options cause all thread allocation and most RAM allocation problems. Config. options should be aligned with sensible scaling dimensions. Potentially prevents most misconfigurations

Hadoop requires balanced # of send and receive threads for MR shuffle. But users specify each separately.

Error-prone current design
Better alternative