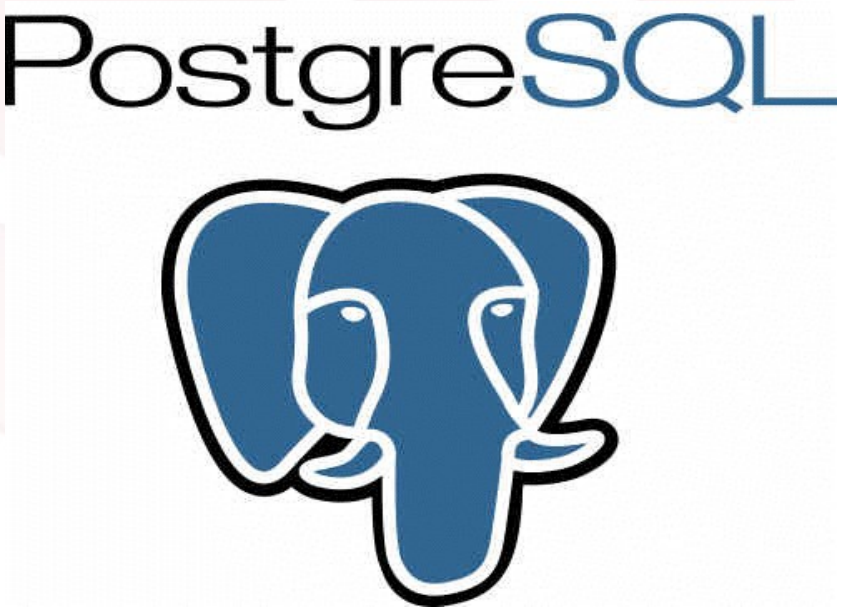
PostgreSQL to HBase Replication



PostgreSQL to HBase Replication

- What's HBase?
- Example.
- Why we want to use it.
- Getting data to Hbase.
- hbrep.
- Magic.

What's HBase?

- An open-source, distributed, column-oriented store on top of Hadoop core.
- Based on Google's BigTable.
- Multidimensional, sparse, distributed, sorted hash map
- Goal is billions of rows X millions of columns.

Example

Row Key	Time Stamp	Column "contents:"	Column "anchor:"		Column "mime:"
"com.cnn.www"	t9		"anchor:cnnsi.com"	"CNN"	
	t8		"anchor:my.look.ca"	"CNN.com"	
	t6	"<html>..."			"text/html"
	t5	"<html>..."			
	t3	"<html>..."			

Example

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- Sorted by row key.
- Each column family, can contain arbitrary no of columns.
- Supports timestamps/versions.
- Sparse. Null values cost nothing.
- Cell values are any byte[], column and row keys must be valid utf8 byte[].

Why we want to use it

- Why replicate?
  - Why not?
  - Sandbox data.
  - Merge data from HDFS with PostgreSQL stuff.
- Why HBase?
  - HBase tables as Map/Reduce input and output.
  - Thrift interface, allows easy integration.
  - Our PostgreSQL data isn't sparse, but meh.

Getting data to HBase

- Two tasks.
  - Bootstrap a table.
  - Replicate updates.
- Result was hbrep
  - Simple python tool.
  - ini file specifies table mappings.

hbrep

- Bootstrap
  - Copy table columns to file. Send batches to HBase via thrift.
- Update
  - Uses an event queue on the table. Using skytools PgQ (by Skype).
  - Creates queue, creates triggers. Registers itself as a consumer of queue.
  - PgQ ticker sends batches of events to hbrep, hbrep sends batches to HBase via thrift.

Magic

- HBase is full of live up to date data.
- We can play with the data without hurting PostgreSQL.
- Map/reduce on tables. There's the data, do stuff.
- Open source love...