# Resources

- http://nosql-database.org/
- http://nosql.mypopescu.com/kb/nosql
- http://www.linuxforu.com/developers/up-close-and-personal-with-nosql/
- http://opensourcebridge.org/events/2011/sessions
- http://jchrisa.net/drl/ApacheCon-Talk-Slides/CouchDB-Intro-EU.pdf
- http://guide.couchdb.org/
- https://github.com/coderoshi/holy-grail-dbs

*Seven Databases in Seven Weeks*, Redmond and Wilson, The Pragmatic Programmers.

# Terms

- Shard
- XML
- HTTP
- JSON
- CURL
- CRUD
- REST
- Horizontal Scaling

# Why?

- Big Data
- Schema-less
- “Programmer friendly”
- Availability
- Scalable
- Low Latency

Blogs
Facebook
Twitter
Web-indexes
….
do you see a pattern?

# Data

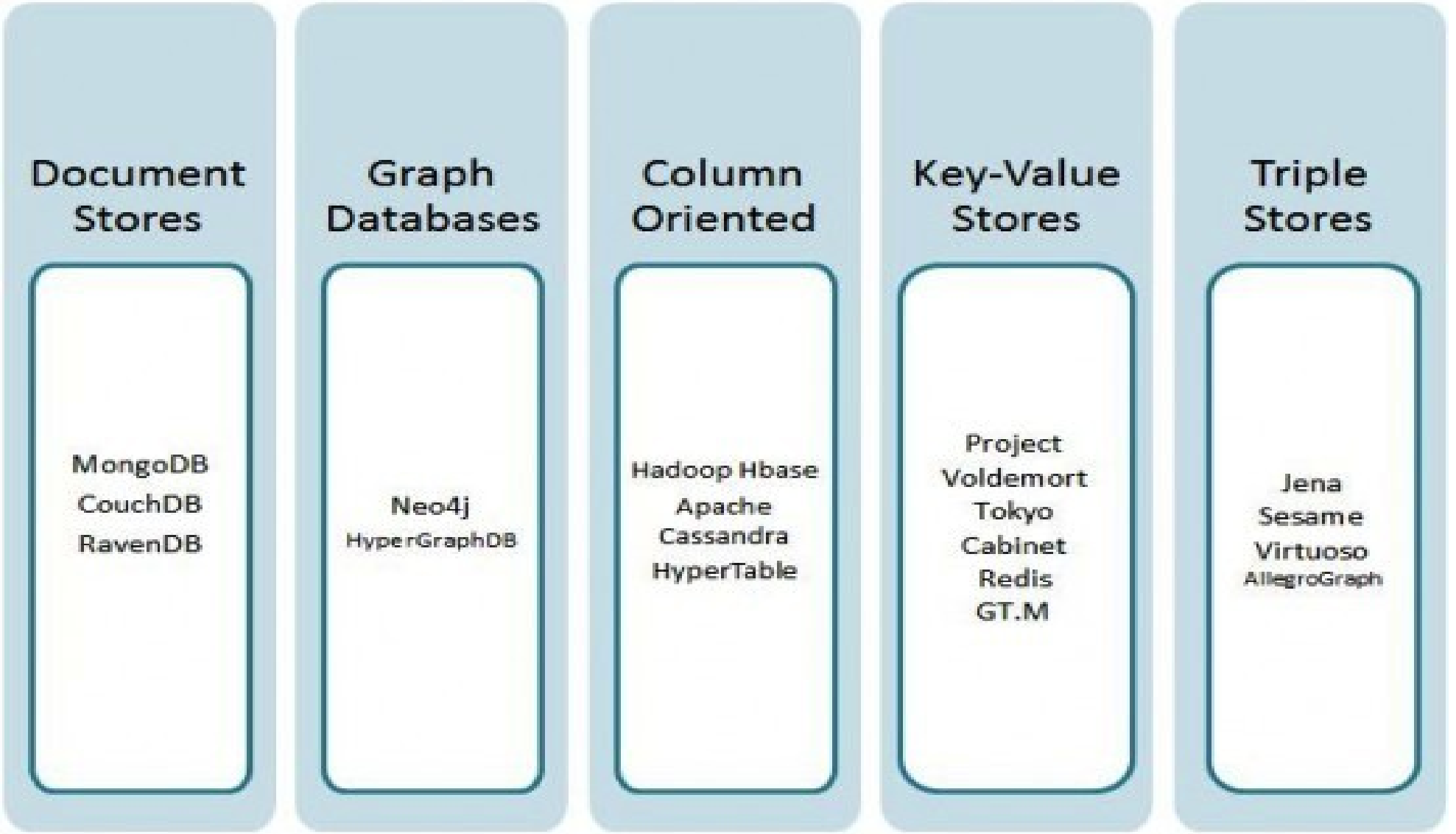
- Document Store
- Spatial/location data
- Graphs
- Column store
- Key/Value
- Triple Store
  - subject-predicate-object

# CAP

- Consistency, Availability and Partition Tolerance
  - Eric Brewer, 2000
  - distributed databases can choose two.
  - eventual consistency

http://www.cs.berkeley.edu/~brewer/cs262b-2004/PODC-keynote.pdf

# Software




http://www.linuxforu.com/developers/up-close-and-personal-with-nosql/

# Consistency

- A request to any connectable node in the system returns the same data
- Strong Consistency
  - aka: Strict, Linearizable or Atomic
  - When an update completes, subsequent access returns the new result
- Weak Consistency
  - For most NoSQL purposes, we mean Eventual
    - When an update completes, subsequent access will eventually return the new result

https://github.com/coderoshi/holy-grail-dbs

# Availability

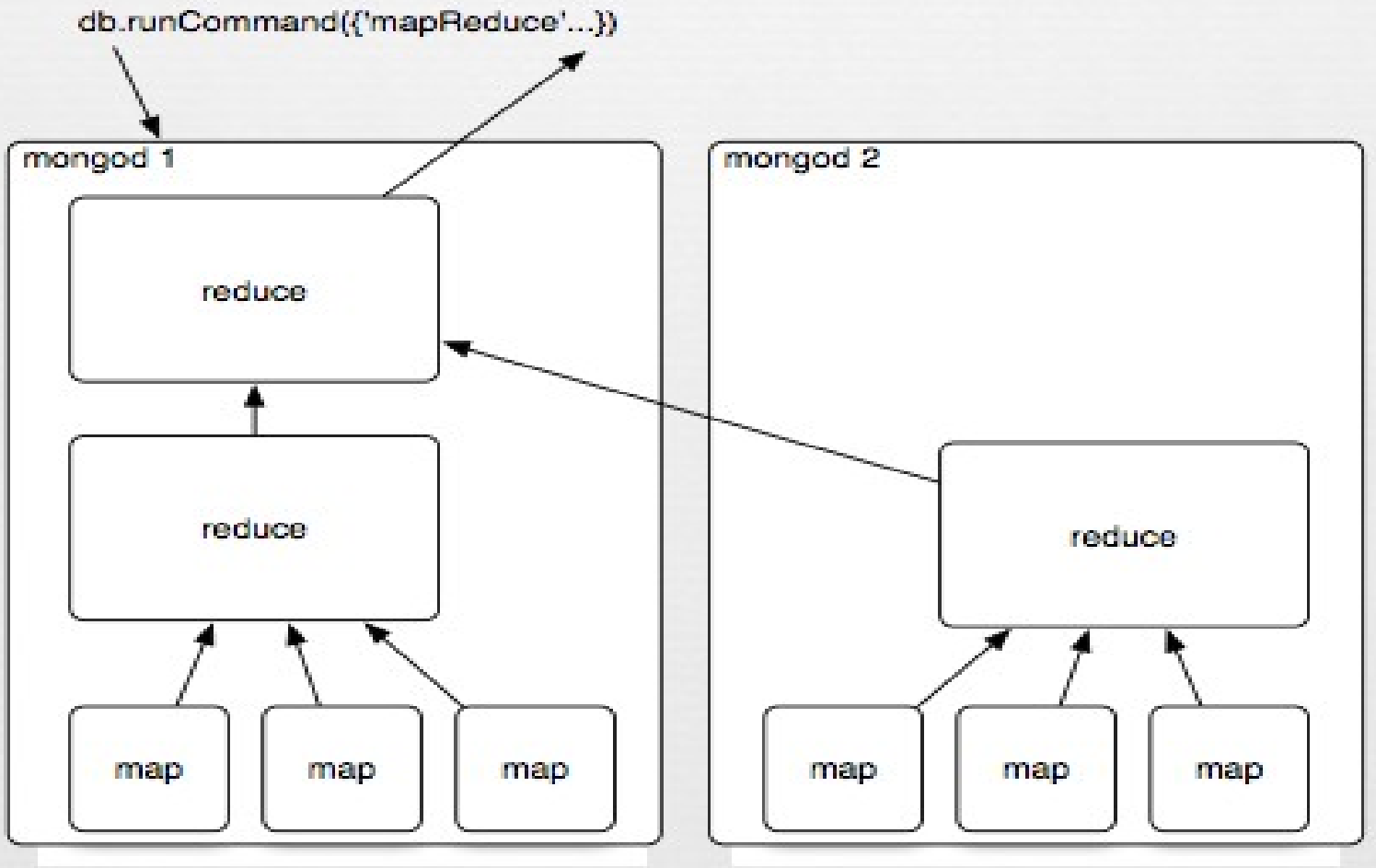
- Colloquial definition
  - The data is available when I want it.
  - Wrong! (latency) It could take forever
- "Technical-er" definition
  - Nodes which may sustain pack-loss continue serving requests.
  - Or: Is it possible to be ***un***available?

https://github.com/coderoshi/holy-grail-dbs

# Partition Tolerance

- Despite message loss, the DB continues to operate.
- A DB is either P or not.
- "…the choice is almost always between sequential consistency and high availability"
  - http://www.cloudera.com/blog/2010/04/cap-confusion-problems-with-partition-tolerance

# Mapreduce




https://github.com/coderoshi/holy-grail-dbs

# Document


```
{
    "_id" : ObjectId("4db7ca268e236e5bf9a52224"),
    "_rev" : "2612672603",
    "name" : "Sant Julià de Lòria",
    "country" : "AD",
    "timezone" : "Europe/Andorra",
    "population" : 8022,
    "location" : {
        "latitude" : 42.46372,
        "longitude" : 1.49129
    }
}
```


https://github.com/coderoshi/holy-grail-dbs

# Sites

- http://nosql-database.org/
  - A great list
- http://sevenweeks.org/
  - The book website (it's a wiki!)
- https://github.com/coderoshi/holy-grail-dbs
  - The project
  - The slides

Overview › blogexample › _design/date_title

Save Document | Add Field | Upload Attachment... | Delete Document...

Fields | Source

| Field | Value |
|---|---|
| **_id** | "_design/date_title" |
| **_rev** | "36-d3c4e7734d5fdafc8e2c6e1b91f80f33" |
| **language** | "javascript" |
| **lists** | **showall** "function(head,req) { var row; while(row = getRow()) { send(row.value);} }"<br>**showsome** "function(head,req) { var row; var res; var query = req.query.value; send('Content-Type:text/html');while(row = getRow()) { res = row.value...."<br>**showsomeF** "function(head,req) { var row; var res; var query = req.query.value; var body = ''; start({'headers': {'Content-Type': 'text/html'}});whi..." |
| **shows** | **title** "function(doc, req){ return '<h1>' + doc.title + '</h1>';}" |
| **views** | **date_title**<br>**map** "function(doc) { emit(doc.date, doc.title); }"<br>**sum**<br>**map** "function(doc) { emit(doc.date,1); }"<br>**reduce** "function(keys, values, rereduce) { return sum(values) }"<br>**findIt**<br>**map** "function(doc) { if(doc.title) { emit(doc.title, doc.title); } }"<br>**titleContainsB**<br>**map** "function(doc) { if(doc.title) { var v = doc.title.match(/B/); if( v) { emit(doc.title, null);} } }" |

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