

Why CouchDB?

aka



built rebuilding on



contribute to



hack at



work at



So...

Why CouchDB?

because...

Data is Lonely

Lonely Data?

- ⦿ data access depends on (often API-less) app (esp. desktop)
- ⦿ web apps are a little better, but not always
 - ⦿ API's are not generally meant for replication/backup
- ⦿ app may be open source, but data's still tangled up (RDBMS)

Enter...



Time to Relax.

Meet CouchDB

- coSQL Document Storage Database
 - JSON Documents + attachments
- HTTP/REST (you already know the API)
- Map/Reduce Views
- Portable Standalone Applications
- Replication for Freedom

JSON Documents

```
{"json": "key/value pairs",
  "_id" : "some uuid",
  "_rev": "mvcc key",
  "string keys":
    [1,2,3,"four",null],
  "schema free": "flexible"}
```

Your programming language supports JSON!
Adapt data as your application changes.

Attachments

- text/html
- image/png
- application/ogg
- application/pdf
- text/javascript
- text/css
- etc...

HTTP / REST

you already know the API

GET	read
PUT	create or update
DELETE	delete
POST	bulk operation

Map/Reduce Views

Some sample docs

```
{"docs": [ {"user": "Chris", "points": 3}, {"user": "Joe", "points": 10}, {"user": "Alice", "points": 5}, {"user": "Mary", "points": 9}, {"user": "Bob", "points": 7}, {"user": "Alice", "points": 3} ]}
```

Map function

```
function(doc) {  
  if (doc.user && doc.points) {  
    emit(doc.user, doc.points);  
  }  
}
```

Reduce function

```
function(keys, values, rereduce) {  
    return sum(values);  
}
```

```
// output  
{"key":null,"value":37}
```

```
// output (?group=true)  
{"rows": [  
    {"key": "Alice", "value": 8},  
    {"key": "Bob", "value": 7},  
    {"key": "Chris", "value": 3},  
    {"key": "Joe", "value": 10},  
    {"key": "Mary", "value": 9}]]
```

Built-in Reducers

- `_sum`
- `_count`
- `_stat`
- massively faster than JS reducers

Map/Reduce Queries in CouchDB...

- run over every document in the db
- are views that create indexes
- use keys and view collation for lookups
- can do simple JOINs (?include_docs=true)
- are typically written in JS
 - but can also be written in Erlang, Ruby, Python, and other languages

Portable, Standalone, Applications

- CouchApps live inside CouchDB
- application server style features in addition to map/reduce views:
 - `_rewrite` – URL rewriting
 - `_show` – output rendering
 - `_list` – output rendering of views
 - `_update` – document validation
 - `.js, .css, .png` – AJAX app assets

Replication for Freedom

triggered, incremental, filtered,
peer-based, interruptible, fabulous



Replication

- append-only file format – MVCC
- stateless HTTP API
 - “built of the Web” – Jacob Kaplan-Moss
(of Django fame)
- n-master replication
- filterable with JS functions
- can run continuous (on change)

so...

Why CouchDB?

because it replicates!!

Web 2.5?

Web 2.0 Gave Us...

- ⦿ Cloud Powers!!1!
 - ⦿ data-center sized processing & storage for all my junk
- ⦿ Crowd Powers
 - ⦿ sharing stuff with everybody, all the time from anywhere, hurray

for that, we traded

- ⦿ ownership
- ⦿ privacy
- ⦿ security
- ⦿ safety
- ⦿ stability
- ⦿ sanity...?

Next, we need...

- those things back

to get that, we need

- ➊ replication
 - ➋ (saw that coming, probably)
- ➋ closer data
- ➋ closer apps
- ➋ without the loss of our Cloud & Crowd Powers
 - ➋ big data storage & processing (as needed)
 - ➋ sharing with the world (as needed)
 - ➋ or via peer-based replication

Hop on CouchDB!

- <http://iriscouch.com/>
- <http://couchbase.com/>
- <http://cloudant.com/>
- <http://couchdb.apache.org/>

Apache CouchDB and friends

- Iris Couch – single CouchDB “node” hosting; fast & simple setup
- Couchbase Server or Cloudant’s BigCouch for big data
 - more “typical” cluster architectures
- Couchbase Mobile for your iOS & Android Devices
- PouchDB for browsers – IndexedDB CouchDB

So...

Let's Replicate... ...EVERYTHING!!1!

- take full advantage of CouchDB
- the future is distributed
 - not just data, but...
 - queries
 - output formats
 - attachments
 - whole applications
 - and everything else in between

CouchDB
does replication
you get to do the other stuff

Thanks!
any questions?

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