Egocentric Architecture

You are so worth it!
Me

• bigbluehat@apache.org (woot!)
• Apache CouchDB committer
• 7 years in the CouchDB community
• 15+ years doing open source
  • built 6k+ page Apache Cocoon site in 2000-2001
  • fell in love with pipelines
  • lost appetite for XSLT
  • kept love for document centric development
• Building Annotation Awesomeness at Hypothes.is
Egocentric Architecture
You in the Middle

• Data spirals away from us
• Leaving us spread across the planet
• With little hope to “pull yourself together”
That panicky feeling when you realize...
THERE’S NO WIFI?!!!
No WiFi. No me.

Really?!
I’m elsewhere

My photos live...

My contacts live...

My documents live...

...somewhere else...
Bringing it back

My Powers
- Make anything
- Always keep a copy close
  - By default
- Send *copies* elsewhere
- Store multiple places *(optional)*
  - My phone
  - My laptop
  - That Cloud thing

Cloud Powers
- Backup
- Sharing
- Connecting
- Collaborating
- Conferencing
- Communicating
- Processing super powers
Wait?!
Did you just describe Email?!

Yes....yes I did.
Work locally. Sync globally.

Everything else is just skipping the most important first step.
Egocentric

For the good of all.
Doing this now

More have than you might think.
Dimagi CommCareHQ
solution for community health and extension workers that provides case management, data collection, and data management
MedicMobile.org
Mobile & web tools that help health workers reach everyone
Military

Wait on WiFi? Not if my life depends on it.
Application Areas

- Airplanes
- Rural
- Disaster Relief
- Mountains
- Valleys
- Oceans
- Planets
- Pluto

- Privately
- Ad hoc
- At home (sans Internet)
- Airstream Trailers (not a joke)
- Anywhere ^.^
Remember

**My Powers**
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**Cloud Powers**
- Sharing
- Collaborating
- Conferencing
- Communicating
- Processing power
- Backup
The Problem Space

• Data movement / Replication

• Identification
  • Of you
  • Of your stuff
  • Of your storage
  • Of your friends (storage)

• Conflict resolution & consistency

• Data Shape / Format
Some Solutions

• Email
• Linked Data Web *(getting there!)*
• Lotus Notes o.O
• ipfs.io *(early days, but promising)*
• CouchDB, PouchDB, & Friends
Decentralized Information Group

http://dig.csail.mit.edu/
Redecentralize.org

Quietly, some geeks are decentralizing the net. Again.
Unhosted.org

freedom from web 2.0's monopoly platforms
OfflineFirst.org
See also: hood.ie and noBackend.org

“offline is not an error” -- @caolan
Cozy.io

a Personal Cloud you can host, customize and fully control
Apache CouchDB

• Why CouchDB? Because replication.

• PouchDB
• Couchbase Mobile (formerly TouchDB)
• Cloudant Sync
• Drupal Replication module

• Find others at replication.io
Gettin’ Practical

Sync Sans Login (sort of)
done.gd demo
done.gd app user flow

1. Load app
2. Use it—it’s offline first!
3. When ready....click “sync”
4. Enter email address
5. Click “validate” link
6. (re)open’s app in your browser
7. Now it auto-syncs with the server
pouch.host

- Creates token in `token-storage database`
- Sends email with single use validation link
  - ?token=...
  - &user={email}
  - &host={origin}
- `/validate/`
  - Stores cookie associating the current browser with the correct db
  - DB name is a hash of e-mail address + origin of the app
- `/logout/`
  - Removes that cookie
done.gd HTML5 Offline App

• Simple Single Page App
• Uses Appcache Manifest
  • Lists files for the browser to cache
  • Reload the app takes change to `manifest.appcache`
    • ...and Shift+R
  • Shipping stuff the browser already knows? >.<
• Uses PouchDB for client-side storage
  • Via IndexedDB or WebSQL
Packaged apps

• Mobile
  • Cordova
  • Ionic

• Desktop
  • nw.js
  • Breach.cc?
The future?

• You and your data. Together again (at last)!
• Send out content when it needs to get to someone else
• Get “Cloud Powers” as needed
• Keep what you need on hand
How do we get there?

• Lots of love for the ideas
• But lots of rough edges
• Time goes to “the old way” of doing things
• And not to the future

• Showing the promise.
• Smoothing out the mountains.
• Shipping the simple super sauce.
Thanks!

- bigbluehat.com
- @bigbluehat
- github.com/BigBlueHat
- bigbluehat on irc.freenode.net
  - #couchdb #pouchdb #hypothes.is
- bigbluehat@apache.org
- byoung@bigbluehat.com
- bigbluehat@hypothes.is
HTTPie Example Requests
GET /login/

http --verbose -j --session='pouchhost' POST http://127.0.0.1:3030/login/ email='byoung@bigbluehat.com'

POST /login/ HTTP/1.1
Accept: application/json
Accept-Encoding: gzip, deflate
Connection: keep-alive
Content-Length: 34
Content-Type: application/json
Host: localhost:3030
User-Agent: HTTPie/0.9.2

{
  "email": "byoung@bigbluehat.com"
}

HTTP/1.1 200 OK
Access-Control-Allow-Credentials: true
Access-Control-Allow-Headers: Content-Type, Content-Length
Access-Control-Allow-Methods: GET,PUT,POST,DELETE
Access-Control-Allow-Origin: undefined
Connection: keep-alive
Content-Length: 11
Content-Type: application/json; charset=utf-8
Date: Sun, 12 Apr 2015 20:11:38 GMT
ETag: W/"b-a7d45f90"
X-Powered-By: Express

{
  "ok": true
}
GET /validate/?...