

# CouchBase

## CouchDB and Erlang: Mobile and Flexible



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# RELAX



@perezd

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This is the CouchDb Gang sign, it's like the rock-n-roll horns, but more relaxed.



# WHAT IS APACHE COUCHDB?

- JSON/Document Oriented Database
- Schemaless/Adhoc data
- RESTful HTTP API
- Javascript Map/Reduce Views
- Peer-based Replication
- Robust and Reliable



# WHAT IS COUCHBASE?

- Our distro of CouchDB
- Easy to Install
- Mobile versions
- GeoCouch bundled



# NAILING MOBILE

- **Extremely Robust Storage Engine**  
*Consumer devices may lose power at any time*
- **Lightweight Runtime**  
*Small install, low memory footprint, easy on battery life*
- **Peer-based Replication**  
*Multi-master synchronization engine*
- **GeoSpatial Index**  
*Mapping and location aware apps*
- **HTML5 Application Server**  
*Easy to add a web view to your mobile data*



# IS THAT A DATABASE IN YOUR POCKET?

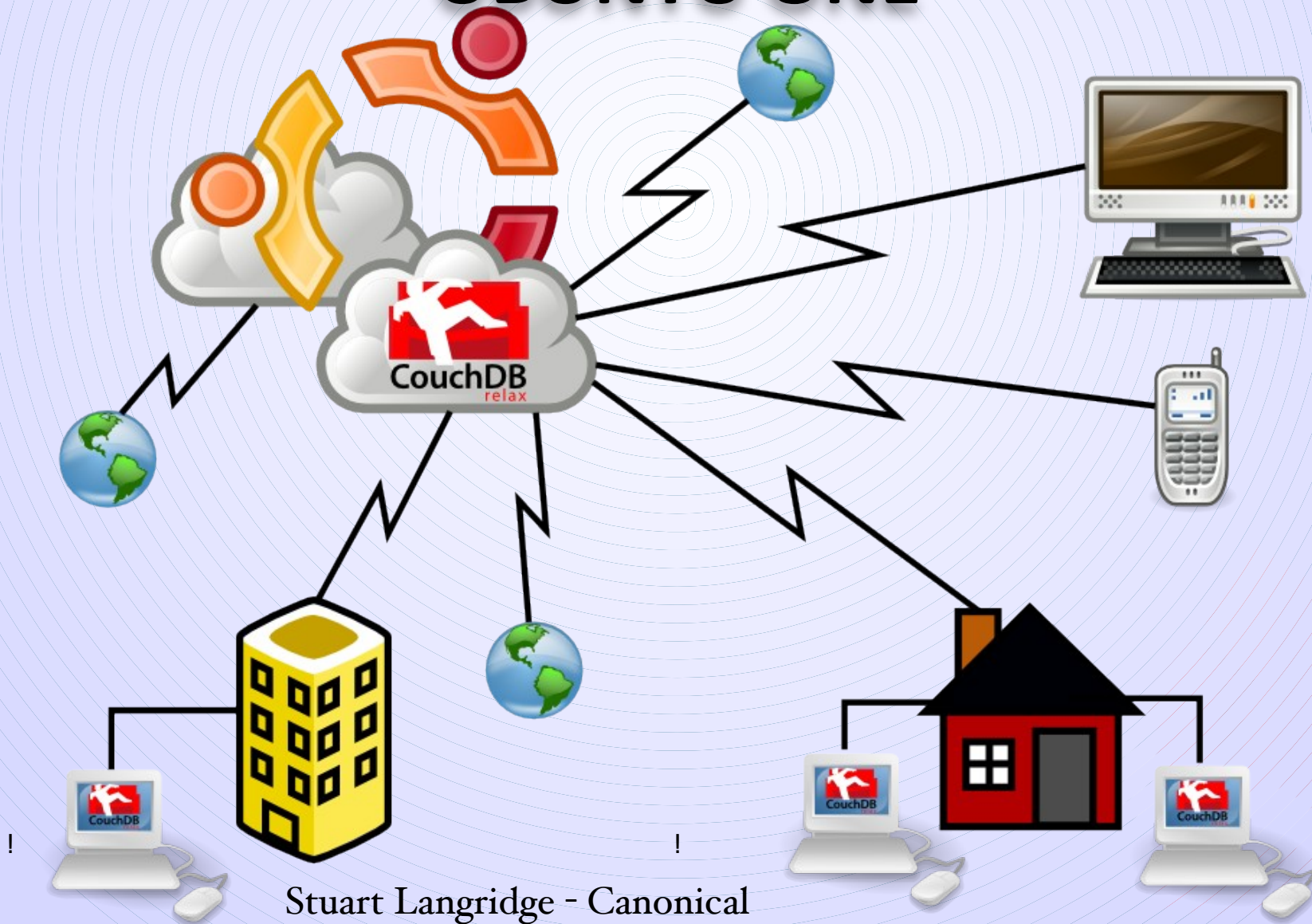
Mobility

<ul style="list-style-type: none"><li>• SQLite</li><li>• BerkeleyDB</li></ul>	<ul style="list-style-type: none"><li>• <b>CouchDB</b></li><li>• SQLAnywhere</li></ul>
<ul style="list-style-type: none"><li>• RDBMS</li><li>• MongoDB</li><li>• Riak</li><li>• HBase</li><li>• Cassandra</li></ul>	<ul style="list-style-type: none"><li>• Lotus Notes</li></ul>

Replication/Sync Capabilities



# PEER-BASED REPLICATION UBUNTU ONE



# CHALLENGES ON MOBILE

- Shrink the download size  
*Removed most of the standard library*  
*Static analysis could create a single optimized beam file*  
*There is much more work to be done*
- Optimize process start time  
*Individual file reads can be slow, so we are considering embedding the contents of compiled beam files as constants defined in header files*
- Further optimize battery life  
*Plan to disable stats collection, heartbeat, and other timer-based code*  
*Goal is to achieve true idle*



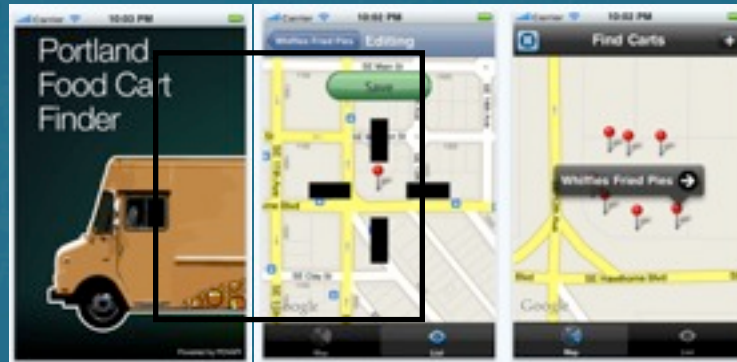
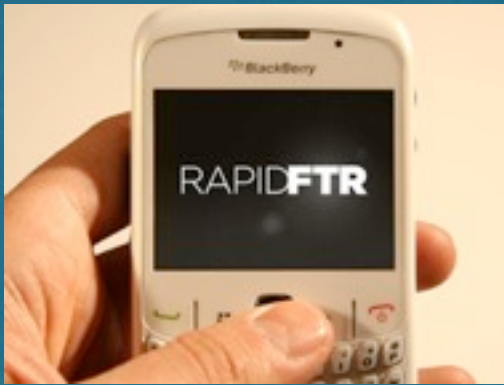


# CHALLENGES ON IOS

- **No Dynamic Linking**  
*iOS Erlang is statically linked, breaking the NIF system*
- **No Subprocesses**  
*Erlang VM is spawned inside a thread*  
*Query server uses emonk, not `couchjs`*  
*DNS lookups can't use a separate OS process.*
- **OS can kill the VM at any time**  
*Luckily, Couch and Erlang are already designed for this*  
*Ideally synchronization could happen in the background...*
- **Writeable memory can't be executed**  
*This means no JIT compilers*  
*Spidermonkey isn't that fast without JIT*



# (JUST A FEW) MOBILE USERS



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Rapid Family Tracing and Reunification (a UNICEF and NYU-ITP project) customizes forms for different disaster relief efforts. They collect data on mobile devices, replacing a paper based process.

Group Complete is a dynamic data collection app (aka custom forms and workflows) on Android.

the World Wildlife Foundation has an iPhone app that uses CouchDB in the cloud as its server

Palm announced that future versions of webOS will be capable of syncing with Couch in the cloud

Portland Food Card Finder is one of many location-based mobile apps that use PDX-API government geodata

A stealth Oil and Gas startup plans to use CouchDB to provide access to data even in remote wilderness areas

Real Estate Tomato gives agents fast, reliable access to listings, while they are on the road showing properties

Tweet my 311 allows San Francisco residents to alert city government about potholes, etc, via Twitter hashtags, photos, and geo coding.



# THANK YOU!

- <http://www.couchbase.com>
- Twitter: @CouchDB
- <http://guide.couchdb.org/>
- #couchdb on irc.freenode.net

