

THE SHAPE OF CLOUD KIT

...or, what can we build now?

ABOUT ME

gNAT

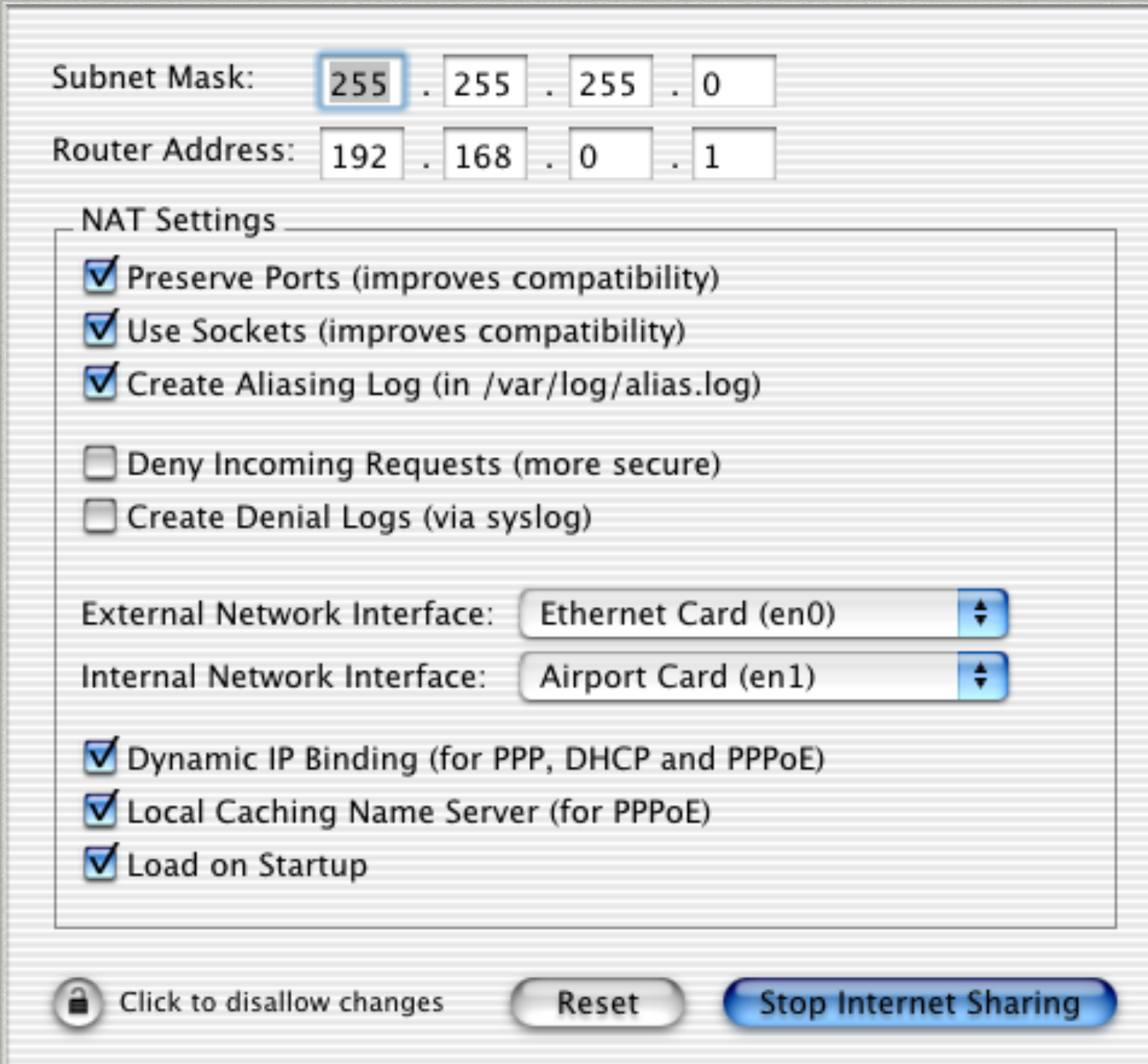
AN AUSPICIOUS START



gNAT

AN AUSPICIOUS START

- * GUI front end for natd
- * Shipped <1 month after 10.0
- * Sold it before freshman year of college (win!)



The screenshot shows the gNAT GUI settings window. At the top, there are input fields for the Subnet Mask (255.255.255.0) and Router Address (192.168.0.1). Below these is a section titled "NAT Settings" which contains several checkboxes: "Preserve Ports (improves compatibility)", "Use Sockets (improves compatibility)", "Create Aliasing Log (in /var/log/alias.log)", "Deny Incoming Requests (more secure)", and "Create Denial Logs (via syslog)". Below the checkboxes are two dropdown menus for "External Network Interface" (Ethernet Card (en0)) and "Internal Network Interface" (Airport Card (en1)). At the bottom of the NAT Settings section are three more checkboxes: "Dynamic IP Binding (for PPP, DHCP and PPPoE)", "Local Caching Name Server (for PPPoE)", and "Load on Startup". At the very bottom of the window are three buttons: "Click to disallow changes" (with a lock icon), "Reset", and "Stop Internet Sharing".

Subnet Mask: 255 . 255 . 255 . 0

Router Address: 192 . 168 . 0 . 1

NAT Settings

- ☒ Preserve Ports (improves compatibility)
- ☒ Use Sockets (improves compatibility)
- ☒ Create Aliasing Log (in /var/log/alias.log)
- ☐ Deny Incoming Requests (more secure)
- ☐ Create Denial Logs (via syslog)

External Network Interface: Ethernet Card (en0)

Internal Network Interface: Airport Card (en1)

- ☒ Dynamic IP Binding (for PPP, DHCP and PPPoE)
- ☒ Local Caching Name Server (for PPPoE)
- ☒ Load on Startup

Click to disallow changes Reset Stop Internet Sharing

SousChef

YOUR DIGITAL COOKING ASSISTANT

- * Originally Mac
- * Later iPhone, and iPad versions
- * 100K+ Users
- * 300K+ User Contributed Recipes
- * Acquired by a UK Company



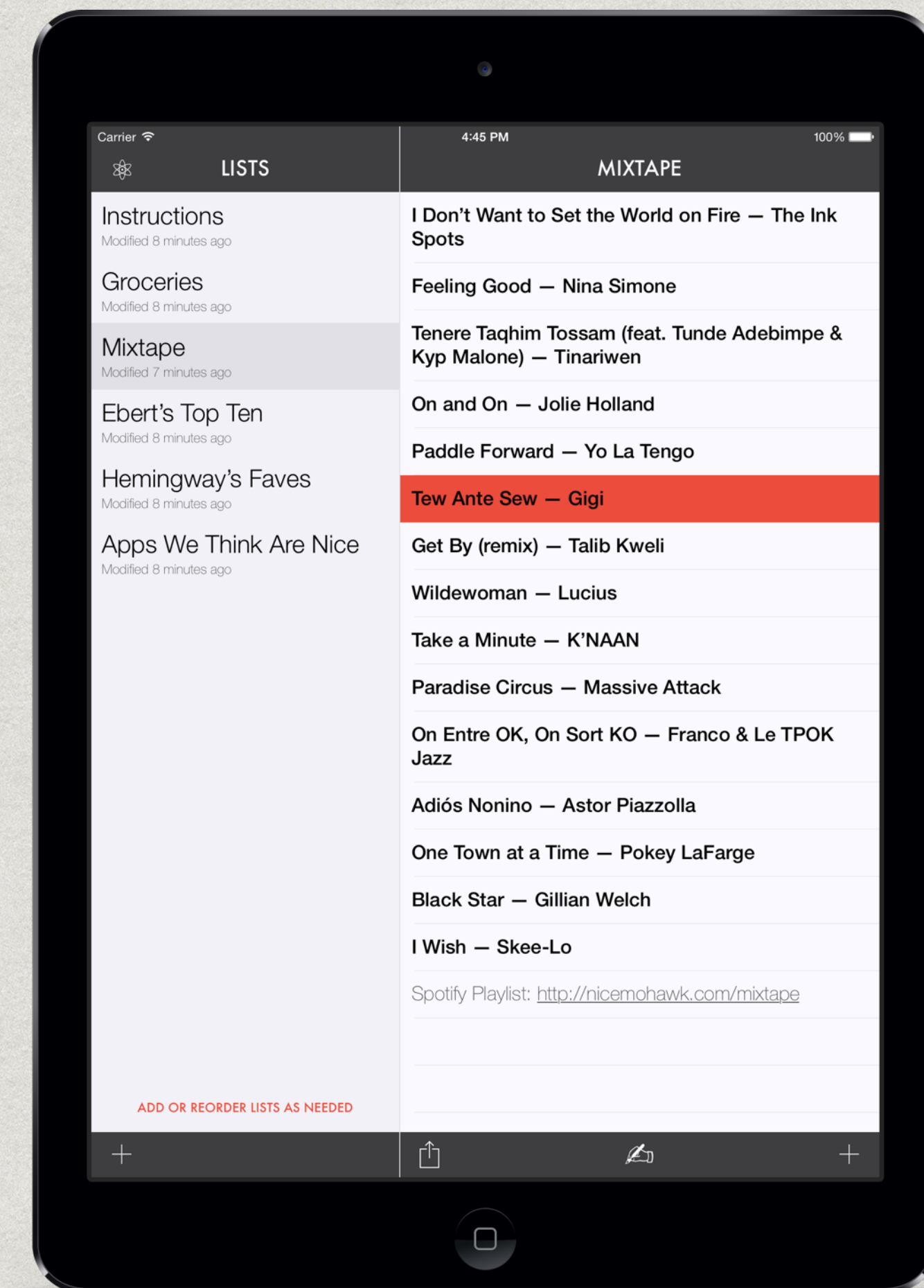


NICE MOHAWK

Ita 2

A FINE LIST-MAKING APP

- * iOS 7/8 redesign
- * Quick “inline editing” interaction
- * Built on Text Kit
- * In-app settings



THE FINE EDGE



nicemohawk.com/blog

CLOUDKIT

What we're talking about today.

- * Quick Overview of CloudKit
- * Case Studies
- * Implementation Demo Attempt
- * Idea time!

Idea Time!

Hey Ben, you said that was going to be at the end!

WHAT IS CLOUDKIT?

Data Storage & Transport Service

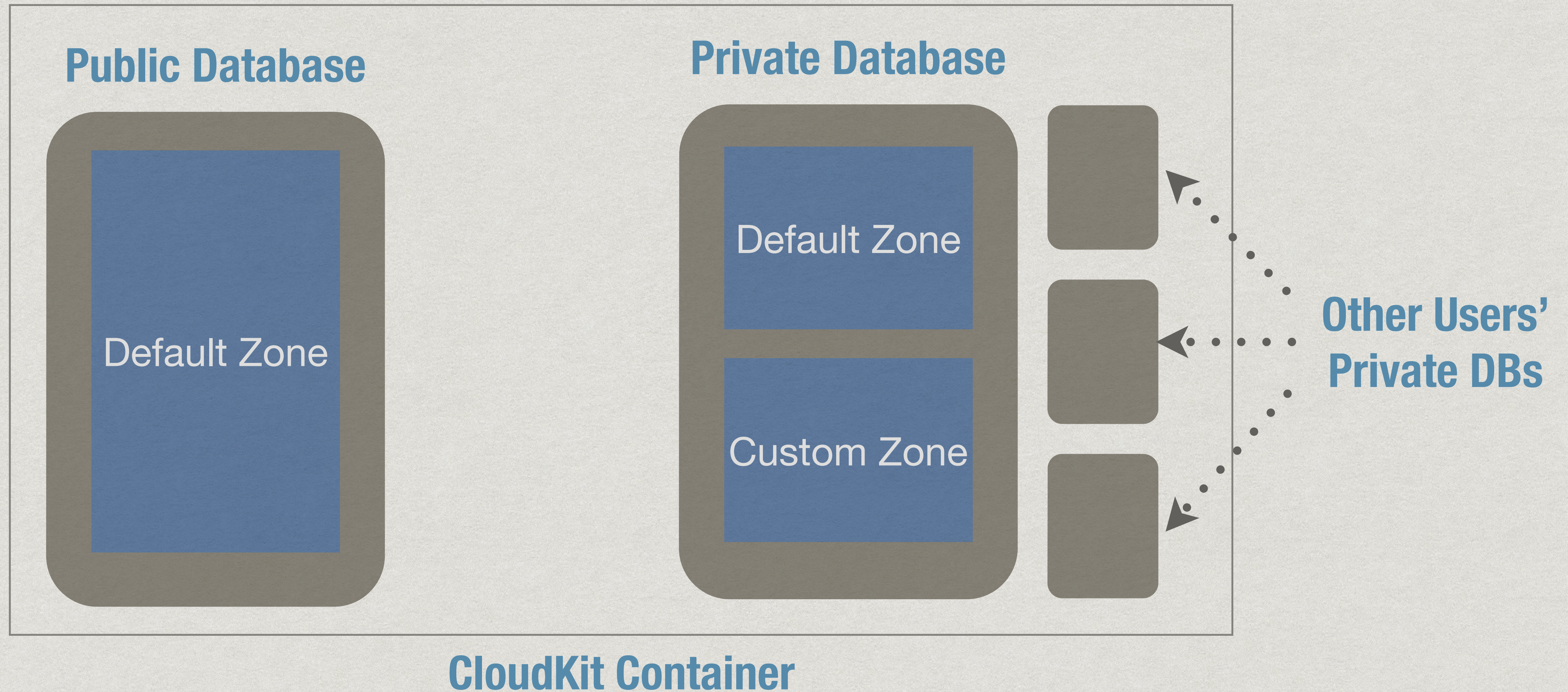
CloudKit Architecture

Records

CKRecord

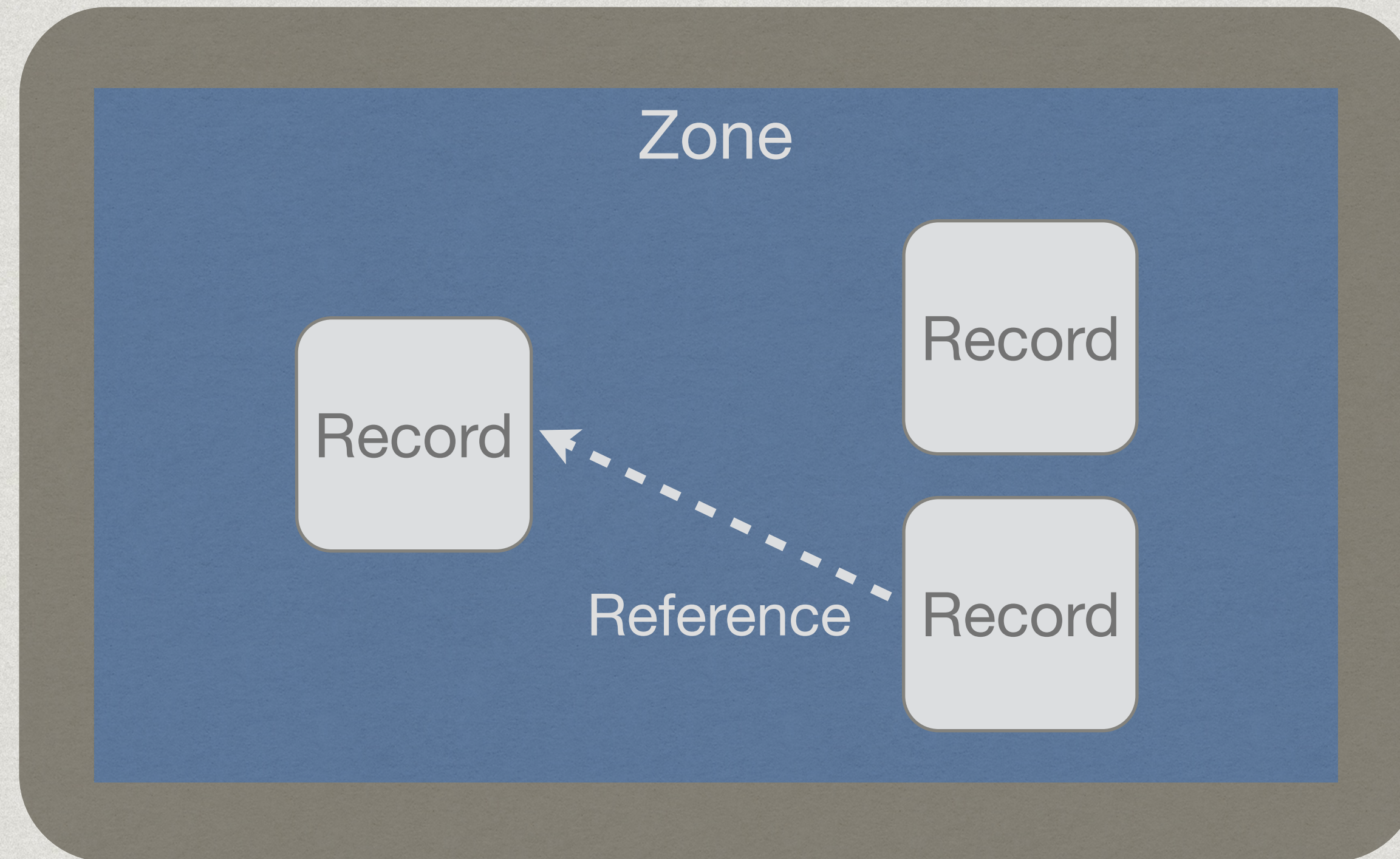
- Metadata
- Key/Value pairs
 - NSNumber
 - NSString
 - NSData
 - NSArray
 - NSDate
 - CLLocation
 - CKAsset
 - CKReference

CloudKit Architecture



CloudKit Architecture

Database



Private Database

- * Multiple Zones for logical partitioning of data
- * Custom Zones
 - * Atomic writes for graph subtrees
 - * Delta downloads
- * No cross-zone references

Public Database

- ✱ No atomic writes, so be careful with assumptions when writing multiple objects at once.
- ✱ Public is really Public. Data is world readable by your app, no iCloud account necessary
- ✱ Seems like a good place for large seed data among other things

Data Storage & Transport Service

- * NSOperation based API is the normal way to interact with CloudKit
- * Convenience API for single record interactions
- * Block/Closure based API looks super nice in Swift

```
database.deleteRecordWithID(thingToDelete.recordID) { (deletedRecord, error) in
    if error != nil {
        ...
    } else {
        ...
    }
}
```



SO WHAT'S IT GOOD FOR?

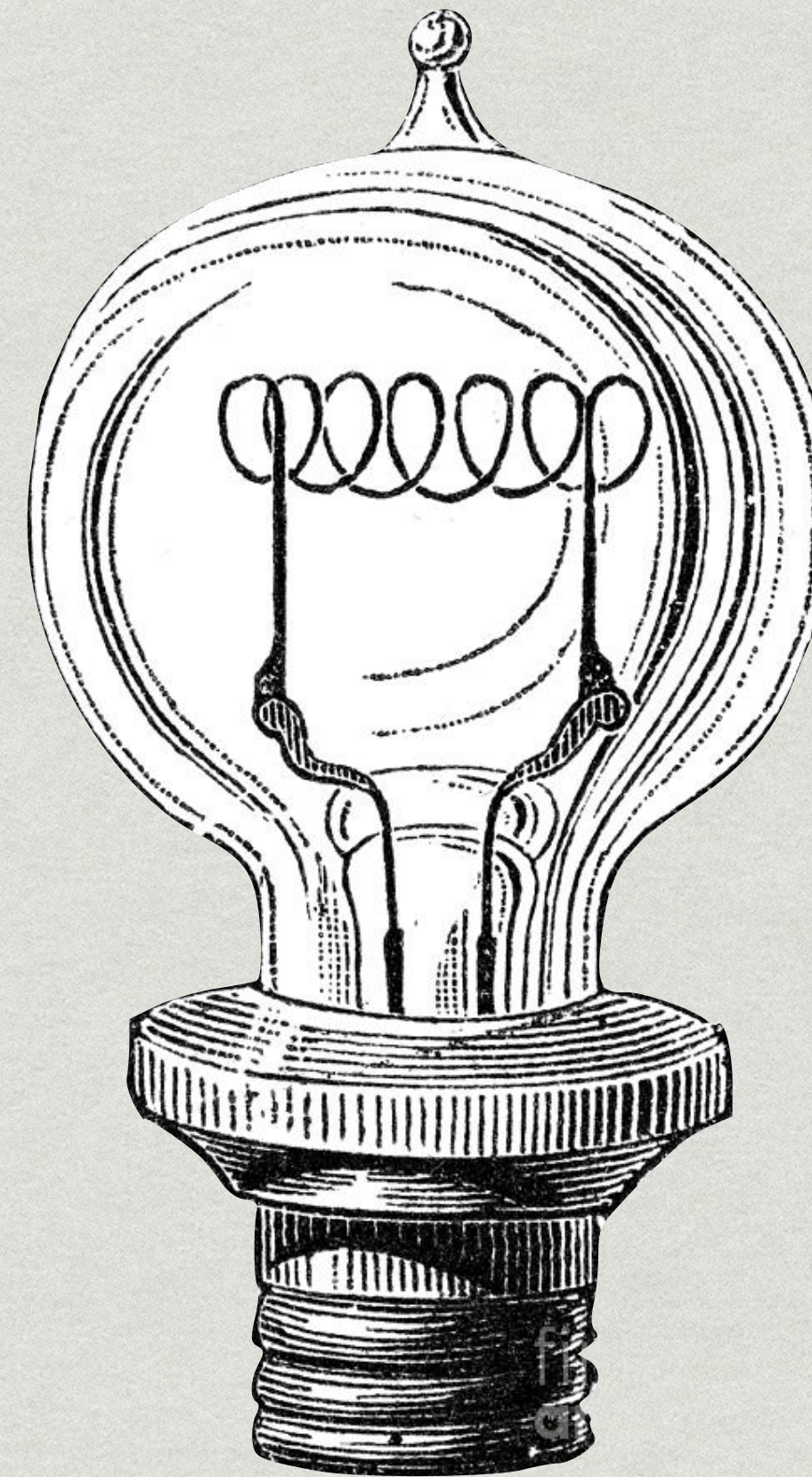
CASE STUDIES IN CLOUDKIT

WattsApp

Chat with friends about light bulbs

- * No clear sense of groups
- * All public database records are really public
 - * Hot 1-on-1 electricity chats aren't secure!
- * Doesn't make sense to layer custom encryption on top of CloudKit

Suitability for CloudKit?



Instapram

For sharing photos of strollers

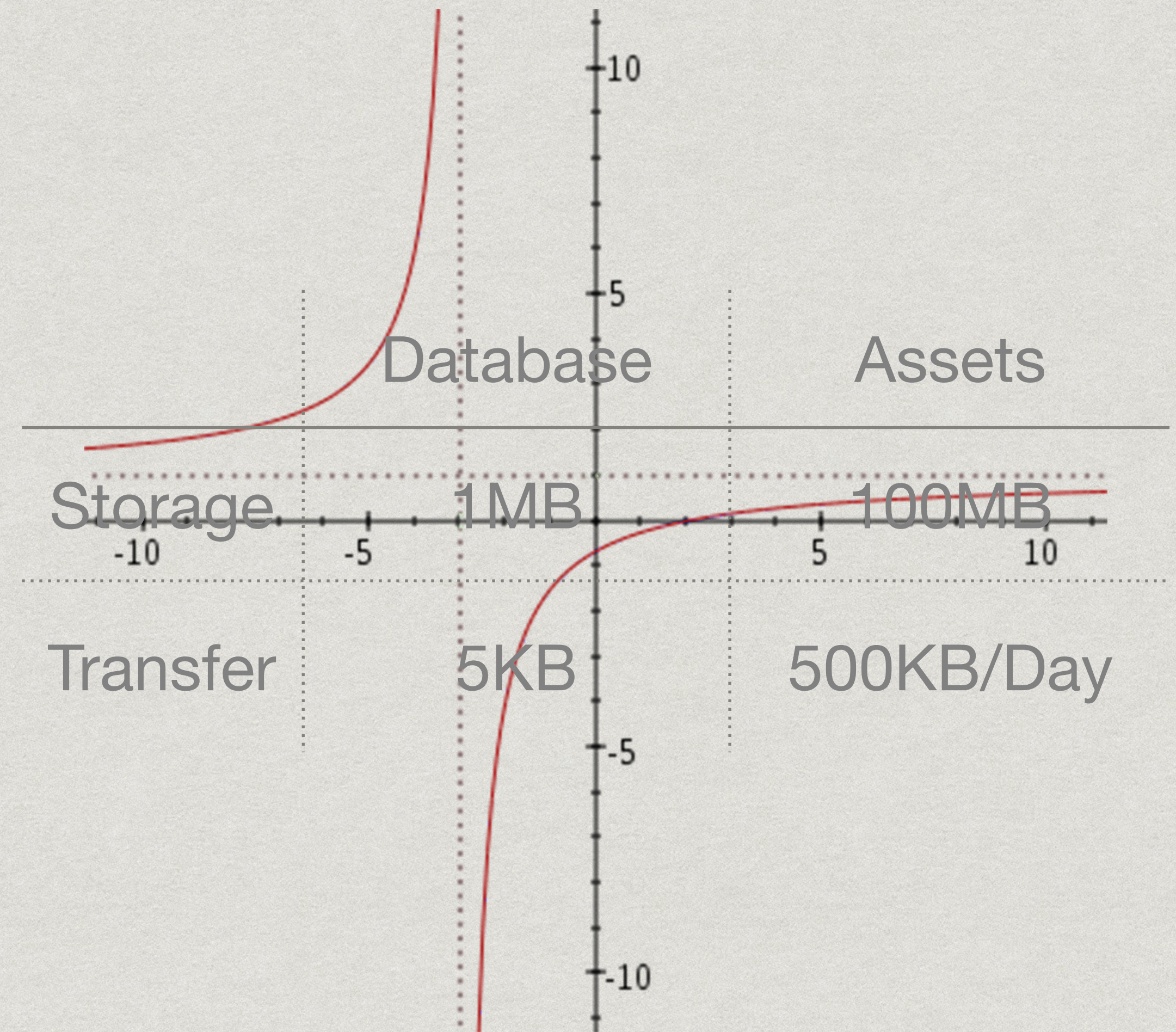
- * No asset URL sharing
- * Favoriting problematic in public database
- * Might bump up against asset limits

Suitability for CloudKit?



Feature: Limits

- * Grows with your user base.
- * Transfer limits are unclear as to how they will be enforced.
- * Likely via rate limiting
- * Seems to be built for high download apps.



Gulp

Crowdsourced reviews of local watering holes

- * Is it ok for your data to be siloed with only Apple?
- * No sharing reviews on the web
- * You might want to let users gain admin roles.



Suitability for CloudKit?



Feature: Roles

- * Only accessible via iCloud Dashboard
- * Creation
- * Assignment
- * General permissions control access rights on a record type level



Digress

A sequential location based multiplayer game

- * Support for location-based queries
- * Limits: Mostly database queries + subscriptions.
- * iCloud Identity for easy community and growth potential

Suitability for CloudKit?



Feature: Location

- * CloudKit supports CLLocation as a first class value
- * You can query on location
 - * Currently only support radius based queries

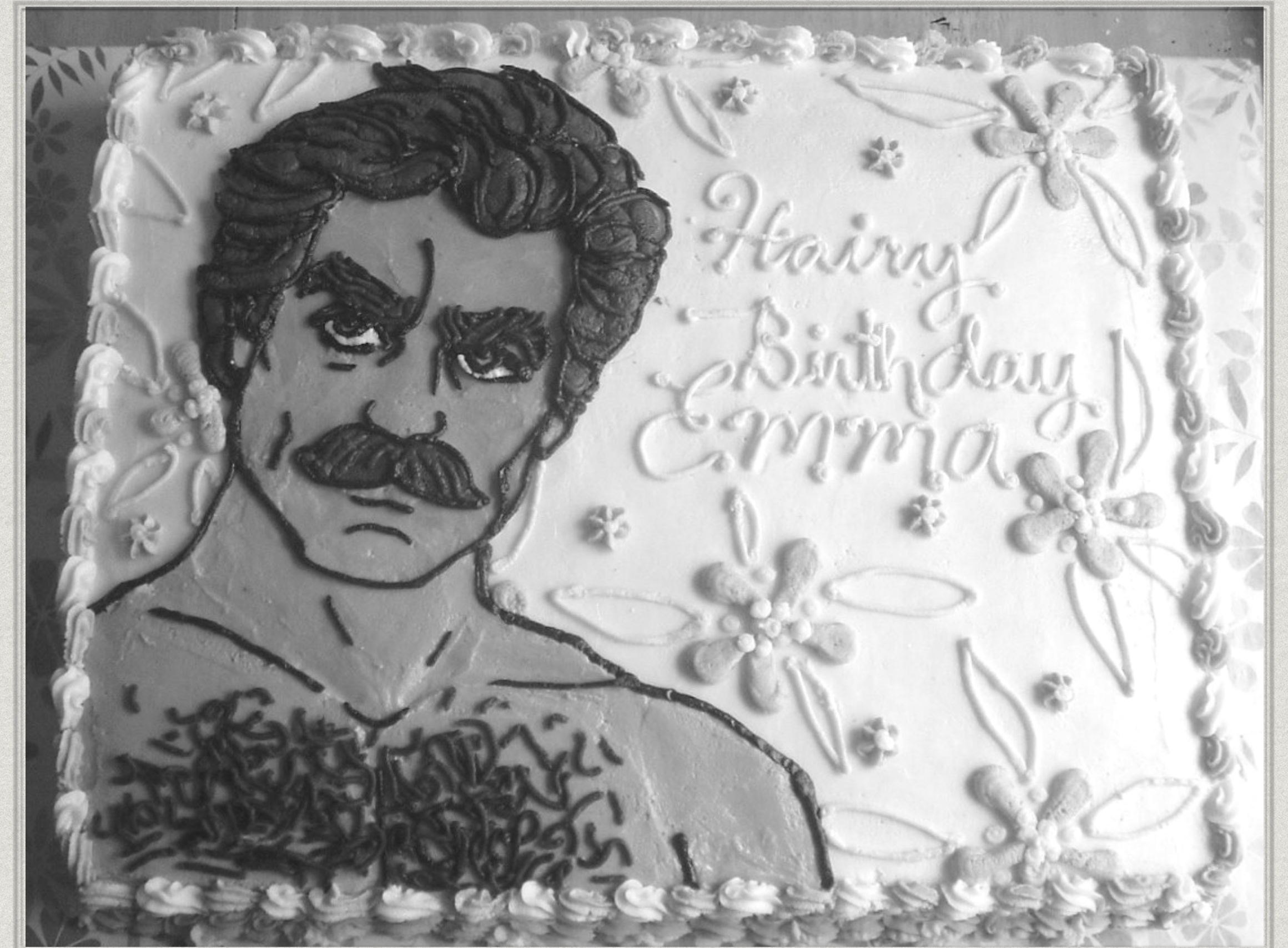


SourChef

A place to share your cooking failures

- * Limits good fit. Database + Images (but not a huge number).
- * Data generally not sensitive.
- * Identity makes sharing easy within app context.

Suitability for CloudKit?



Feature: Identity

- * CKUserRecord can store arbitrary user metadata.
- * User info is anonymized such that you can't harvest identifying information.
- * Supports a full Address book search
- * Do get First & Last names*
- * WWDC14 Session 208, Introducing CloudKit

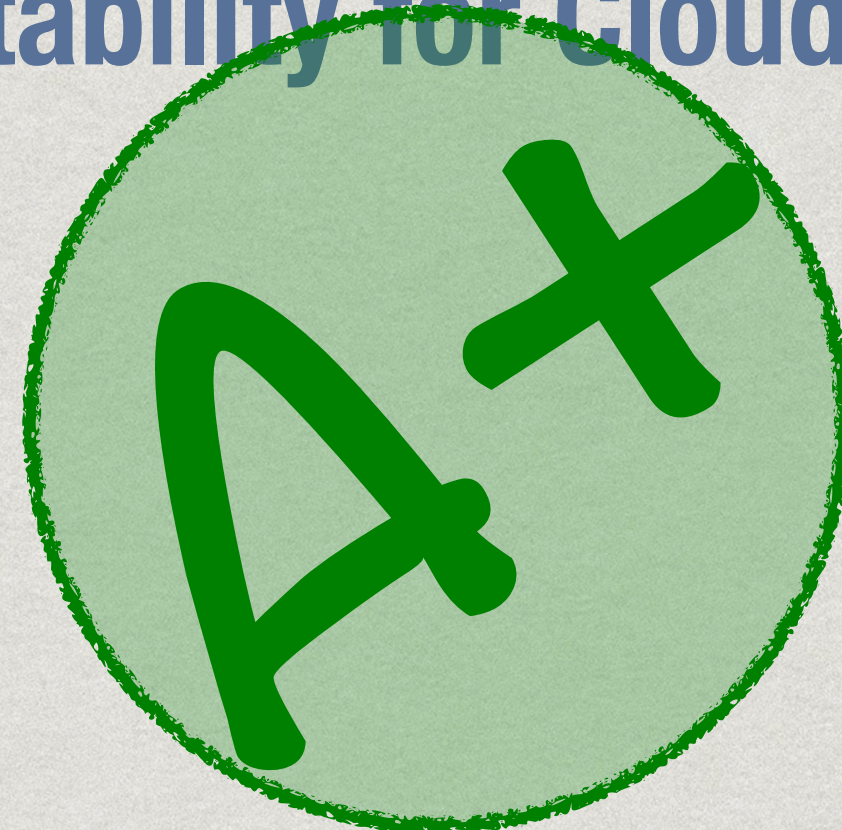


Jam

Ask Questions, get annoying Answers. It's fun!

- * Can you guarantee a large enough user base to make your community work on a single siloed platform
- * Works well with Back References (Answers -> Questions)

Suitability for CloudKit?



Feature: Back References

- * [Many] to One relationship
- * Cascades deletes from “parent” to “child”
- * Important for shared data in the public database
- * Can’t traverse zone boundaries.

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DEMO



Idea Time!

Idea Time!

- * Think of an idea.
- * Write it down.
- * Share it and we'll talk it through.
- * Everybody ready?

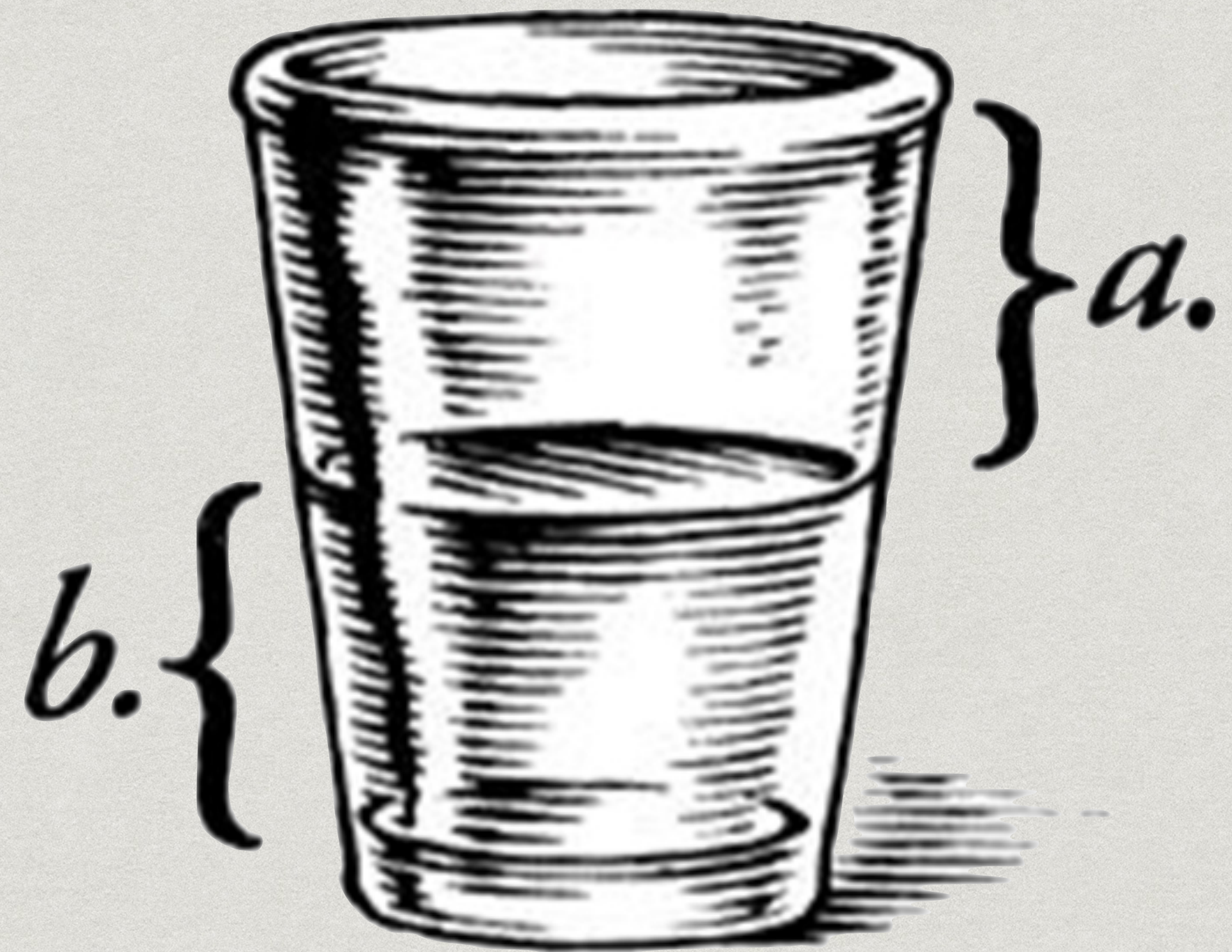
Idea Time!

WHAT IS CLOUDKIT?

Half a BaaS (Backend as a Service)

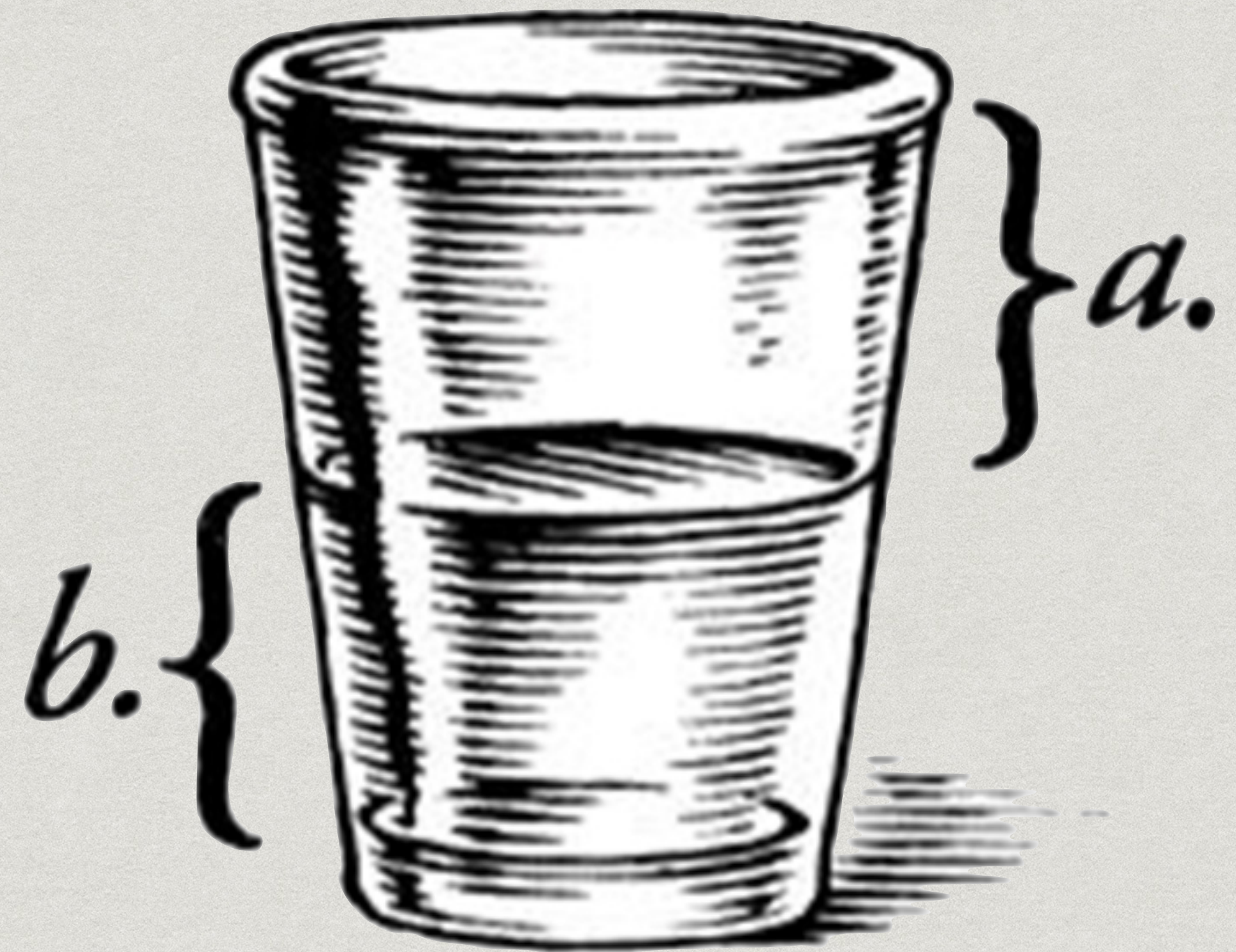
- * No multi-platform support
(*Web, Android, Windows Phone*)
- * No server-side code
(*Node.js or Swift*)
- * No flexible push notification support
(*a la Azure, Urban Airship, Parse*)

Hey. Remember, this is a 1.0



But is it at least half Full?

- * Subscriptions: Server-side ongoing queries
- * Lots of good features when working with the Private Database:
 - * Multiple Zones
 - * Delta Downloads
 - * Atomic Writes
- * Free!



Q&A

Talk notes: <http://nicemohawk.com/talks/cloud-kit>



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