

Couchio

TweetMy311 – Ease of Development with CouchDB

Situation

The City/County of San Francisco recently deployed a new API for their backend 311 system. San Francisco uses the FCC-designated abbreviated dialing code 3-1-1 to take non-emergency complaints and requests for information from citizens.

Mark Headd had been participating in open discussions about San Francisco's 311 API and wanted to build an application that citizens could use to submit 311 requests. But there were some challenges. First, Mark needed to identify a communication channel for the application that would be easy to use, and also support the types of information that are required to create a new 311 service request — specifically, the location of the issue being reported. With the announcement late last year of geolocation support in Twitter, he realized a Twitter-based application would work nicely. The second challenge was that he needed to build the application on a foundation that supported rapid development, since he was the only developer on the project.

Solution

CouchDB turned out to be the perfect technology for the 311 application. Since CouchDB documents are stored in JSON format and are identified by a UUID, it is an ideal repository for storing Twitter status messages (tweets). The Twitter API is a RESTful API that returns content in JSON format, and each tweet is identified by its own unique identifier. The 311 application needed to process these messages through a series of steps that happen in sequence — e.g., access the Twitter API and search for 311 tweets, validate the information in the tweet (lat/lon, service code, etc.), submit a 311 service request based on the tweet, send a response tweet back out to the citizen through the Twitter API. The CouchDB `_changes` API makes this extremely easy.

When you need to perform an operation on a CouchDB document, the `_changes` API makes it simple. Each step in the process mentioned above results in a change to a CouchDB document. These changes feed the `_changes` API and let the application know when a document is ready for the next stage of processing. The handler for each step simply watches the `_changes` API (specifically, the continuous feed using a custom filter for each step, and some of the valid parameters like “heartbeat”) and acts on those documents it is designed to handle.

Results

CouchDB allowed Mark to quickly and easily build a sophisticated application that empowers citizens to use Twitter to improve their communities. CouchDB and open government APIs are a potent combination that can help governments work more efficiently.

About Mark Headd — Creator of TweetMy311

Mark J. Headd is an experienced voice, mobile and web application developer who has been certified as a VoiceXML Application Developer by the VoiceXML Forum. He currently works as a Senior Application developer for Tele-Works, Inc., which develops IVR solutions and software for local government across the country. Mark has built open source solutions using open government data and APIs for the District of Columbia, the Sunlight Foundation, the New York State Senate, and the cities of New York, San Francisco and Toronto. <http://www.voiceingov.org/blog/>

Quote

Mark Headd, Developer of TweetMy311, says “CouchDB is a powerful tool that can be used to build cutting edge communication applications, regardless of the modality chosen by the end user. CouchDB can be used to build applications that are accessed through the ordinary telephone, or through cutting edge social networking services like Twitter.”

Who we are



About CouchDB

Apache CouchDB bridges the cloud and the local network by making it simple to write web apps that can scale up to the datacenter and scale down for local use on a smartphone. The synchronization engine (inspired by Lotus Notes) allows sharing of data and applications across ad-hoc groups. Offline replication gives mobile devices better performance (lower latency) while saving battery life by avoiding radio usage. With offline replication solved in a simple way, application developers are free to focus on the code that matters

CouchDB is popular with developers because its document model is a closer fit for many domains, leading to less overall complexity. The JSON HTTP API allows developers to write dynamic database-backed applications without a middle tier: 2-tier CouchApps require only a web-browser and a CouchDB, and can be written by anyone with Ajax / jQuery experience. We firmly believe that empowering people to share data and custom applications at the edge of the network will lead to a more humane web.

Apache CouchDB is currently deployed by the BBC, Meebo, Assay Depot, Engine Yard, (among others) and is an integral part of the Ubuntu operating system.

Couchio

About Couchio

Couchio <http://couch.io> (founded by 3 CouchDB core committers) offers support, hosting, and professional training for CouchDB.

Contact CouchDB

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