



Syncing
FileMaker Server
to
Google Calendar



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SYNCHRONIZING FILEMAKER EVENTS TO GOOGLE CALENDAR

SYNCING TO GOOGLE CALENDAR

There is frequently a need to sync data from FileMaker to external calendars in order to reach as many users as possible as smoothly as possible. Through a great deal of trial and error we managed to establish syncing FileMaker data to secure Google Calendars. Currently our solution is Mac OS X only, primarily because of the ease of scripting interaction between FileMaker and Mac OS X terminal.

We are using the terminal application cURL to connect with Googles Calendar API. Initially we tested using FileMaker's Web Viewers. This was successful and would have made for a cross platform implementation. However the refresh rate on the viewer was not totally within our control. Web Viewer is, after all, a graphic element of FileMaker. We needed something under the hood, something servers could use.

Our initial solution has been successful but not as seamless as we have wanted it to be. The following presentation highlights our process and makes recommendations for changes that are specific to FileMaker Server 10.

SOME THINGS TO KNOW ABOUT GOOGLE API

The Google API (Application Programming Interface) is not limited to their Calendar service. It is meant to allow developers to connect to all Google services. This includes Docs, Maps, Blogs, and even Gmail (to name a few). There are some aspects of the API that are specific to a given Google service (example: Google Calendar API), and there are some aspects of the API that can be applied across all services (example: Google Data API and Google Query API).

Similarly there are a number of client libraries, AJAX, Java tools, etc. that developers may want to look into if they want to pursue other Google API projects.

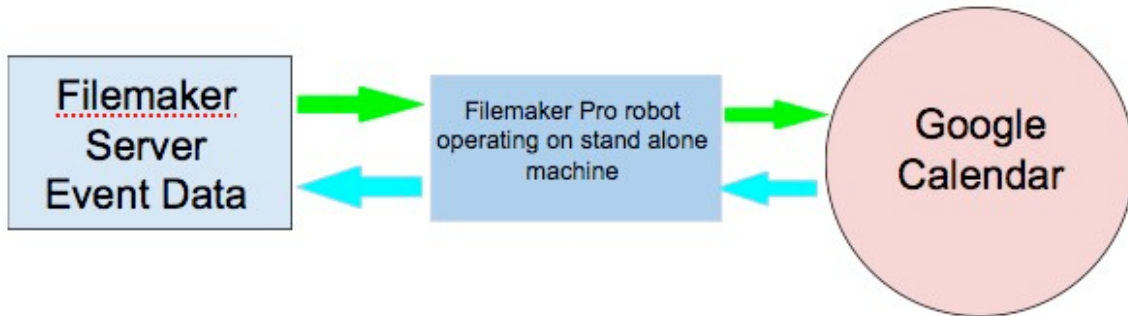
WARNING!!: I've found Google's documentation to be difficult to navigate and not always very clear. Be on your toes!

THE PROBLEM

In order to make use of Google Calendars API - which allows for the exchange of calendar information between Google Calendars and any web-enabled client applications - we had to employ a FileMaker robot. This was due to the need to import calendar information into FileMaker. FileMaker server 9 did not support the import script step as an option in its server based scripting.

The use of the robot greatly increased the chance that FileMaker Data and Google Data would be out of sync. If the robot and the server lost connection a series of cascading errors could lead to system-wide asynchronization.

It should be noted that FileMaker Server 9's ability to execute FileMaker scripts and make use of plugins were great steps forwards in Server based data management for FileMaker developers.



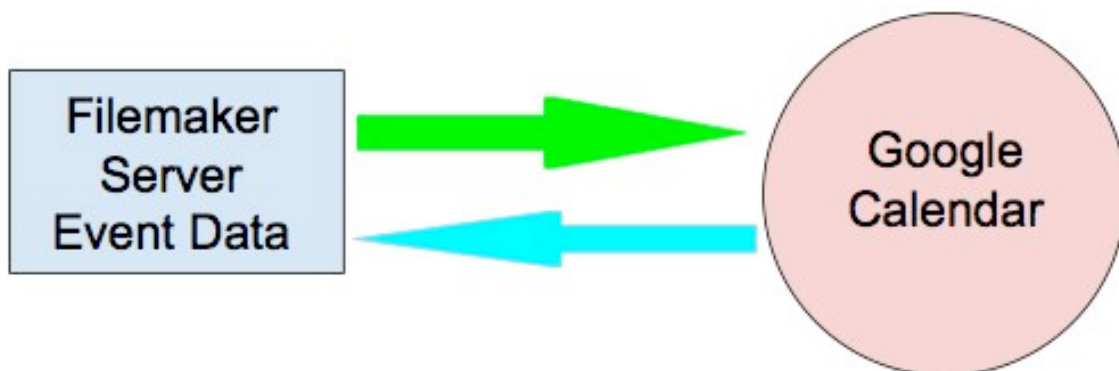
THE SOLUTION & A FRESH LOOK

The solution is to move to an FM Server 10 based syncing solution that will ensure the databases and syncing scripts are up at the same time - always. This transition is also an opportunity to take a look at the existing syncing solution and improve it. Some initial steps have already been taken in that direction:

Created new API - call scripts that use zippshell instead of Applescript to talk to Google API.

Made use of terminal command "cmp" to compare external xml documents to check to see if FileMakers picture of a google calendar was out of sync. Saves time by NOT importing new data into FileMaker unless absolutely necessary.

The real opportunity for improvement is in looking at the flow of data between FileMaker and Google Calendar so that we can simplify and tighten the process. Ideally the resulting solution will be portable, reliable, and impact the server speed in the least amount.



THE SCENARIO

KEEPING POWERSPEAKING IN SYNC

PowerSpeaking provides public speaking training to some of the best known companies in the world. Their client list reads like a "Who's Who" of successful High Tech companies. They provide training with a variety of focus's from Technology presentations to "Speaking To The Big Dogs." They refer to these training sessions as "Programs." A program can last anywhere from 1-3 days and can happen anywhere in the world where corporations and their staff exist.

To accomplish this feat of global education, PowerSpeaking has a cadre of highly skilled coaches, or "Trainers" as they're referred to by staff. Trainers may also live anywhere in the world, making use of web pages, email and telephones to schedule their participation in PowerSpeaking Programs.

ENTER THE HIVE ORGANIZER

PowerSpeaking makes extensive use of The Hive Organizer, a FileMaker based solution developed at Beezwax Datatools. They use the Hive to manage programs, make proposals for new programs, perform all contact management tasks, and track finances which they ultimately sync with Quickbooks. This makes the Hive their primary data source for just about everything they do.

Both FileMaker and The Hive Organizer are great solutions for the highly PowerSpeaking staff. This small team of dedicated workers needs to be instantaneously responsive to the needs of their clients. Their work flow turns on a dime. They need tools to match their agility.

MOVING TO THE WEB

As soon as information at PowerSpeaking starts to involve their training staff, that means moving FileMaker data to the web. We do this in several ways:

EMAIL:

Trainers are sent solicitation emails with links asking them if they'd like to participate as a trainer in a program.

Selected staff are sent notification emails when trainers accept or decline participation in a program.

Selected staff are sent regular digest emails listing all of the trainer confirmations or declines during any given day.

FILEMAKER PHP:

When trainers click the link in their solicitation emails they are brought to a php web page with a simple yes/no checkbox and notes field. It's here they alert staff to their willingness to participate in a program.

Info page: Once data has been moved to a trainers Google Calendar a hot link provides them up to the second info on a programs details.

Submitting expenses: That same info page allows trainers to submit expenses to FileMaker, as well as uploading scanned versions of their receipts. These receipts

are attached to Hive Organizer financial records which are then synchronized with Quickbooks.

GOOGLE CALENDAR:

Each trainer is given a free Google Calendar account if they don't already have one. This calendar is secure and trainers are free to use it for other purposes. We only ask that their "PowerSpeaking" calendar is their default calendar. This is not absolutely required for Google syncing, but it greatly simplifies the process.

Importing non-PowerSpeaking calendar events. In order to be certain a trainer is available for a program, we ask that they add in any unavailable dates to their Google Calendar. This allows us to import them into the Hive and mark them as unavailable dates for consideration.

Creating Programs as Google Events: When a trainer has accepted the job of leading a program the Hive creates a new calendar item on their Google Calendar. It also keeps a record of their participation both as a Hive Event, and as a google record with Google Calendars XML and other relevant details. It should also be noted that the Google Event also is tagged with IDs from within the Hive. The "gd:extend" element allows one to send IDs to events for later tracking.

Deleting: If a trainer changes their mind, or a client cancels, staff can delete Google Calendar items at the click of a button from within the hive.

Editing: As updates to program information occur (limited only to date, time, location and title), it is possible to run scripts from within the Hive to update Google Calendar Items.

Links for Info Page: When we create an event on Google we can also link a comment to it. A comment can act as a link, connecting to whatever web resource you're interested in. We use this to pop up an info page linked to the Hive via PHP. Its the best way to get our trainers the latest info on their programs.

Submitting Expense Requests: From that info page trainers can click a link to submit a record (via php) to the Hive of their expenses relating to the program they're working on. Through that form they can also upload scanned images of receipts to folders on the PowerSpeaking server.

Gadgets: At one time we also populated trainers calendars with Google Gadgets. A Gadget is a web application (could be something as simple as a .jpg or as complex as a web app) that is assigned to a calendar day. It appears as an icon on that day and when clicked opens a window within the calendar targeted to the gadgets url. We originally used these for our info pages, but the API was changed and one day they just stopped working. We didn't have the time to troubleshoot as much as we wanted to. We moved on to comments as mentioned above.

AN OUTLINE OF HIVE GOOGLE SYNCING PROCESSES

Below is a listing of the core processes required for syncing the Hive to Google Calendars.

Authentication. Since our calendars are private we must first authenticate using a google login and password. If our authentication is successful we'll receive an authorization ID and a session ID necessary for the remaining processes.

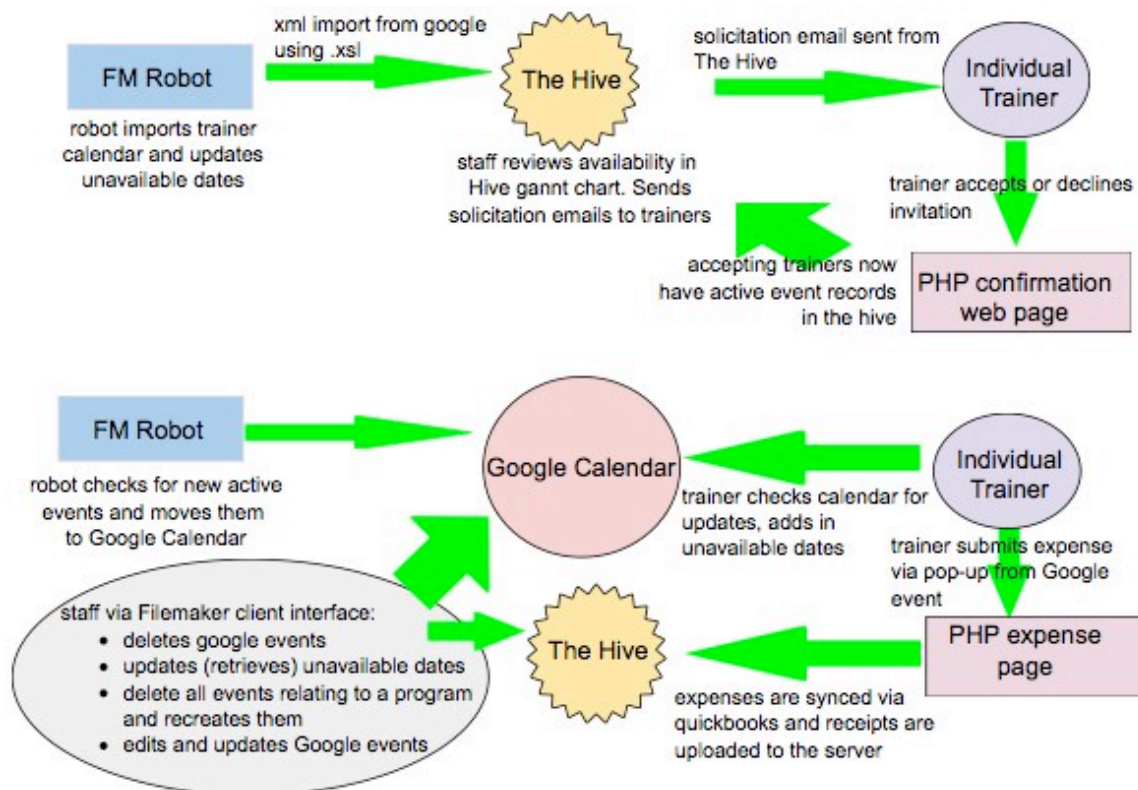
Creation. Using cURL we POST event data using the following string:

Editing. Editing requires the modification of existing xml that we've stored when we first created our calendar event. We first modify the xml then repost it with an Edit call. This step also requires the use of the edit url handed to us by google when the event was first created.

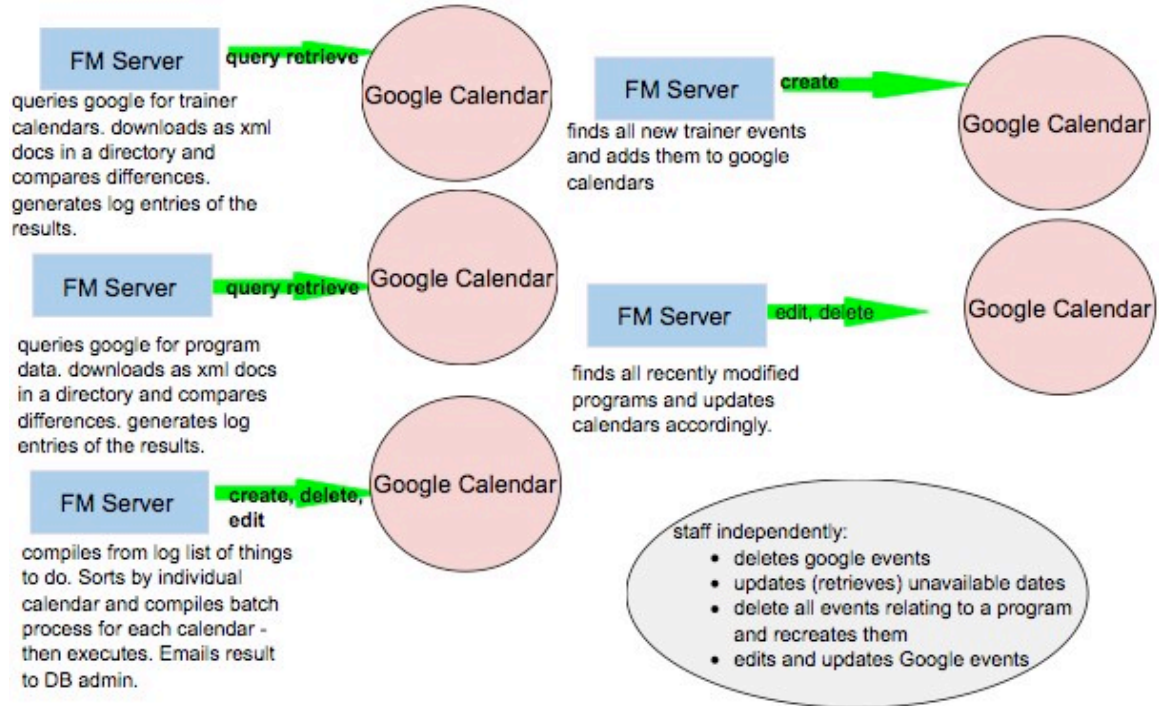
Deleting. Similar to an edit call, after authentication the edit link is posted with a DELETE call.

Retrieving. Using a combination of Google Calendar API and Google Data API we query a calendar for either a specific event or a date range of all events on the default calendar. We then import these into FileMaker using an .xsl. Once imported we check for new unavailable dates and verify program information. Note - this has been the most time consuming and buggy part of the process. Some issues have been - all day events presenting themselves as two day events, event IDs changing after updating, and the sheer time it takes to import, loop through and purge events. We hope to avoid many update moments in our next implementation.

POWERSPEAKING HIVE WORKFLOW (CURRENT)



PROPOSED SERVER WORK FLOW



CONCLUSIONS

By moving to a server based syncing model with the release of FileMaker Server 10 we'll be able to automate the updating of Google Calendars with greater precision. We'll run schedules during off work times for the most rigorous tasks, and provide greater error processing.