



# What is possible with the Google Drive SDK

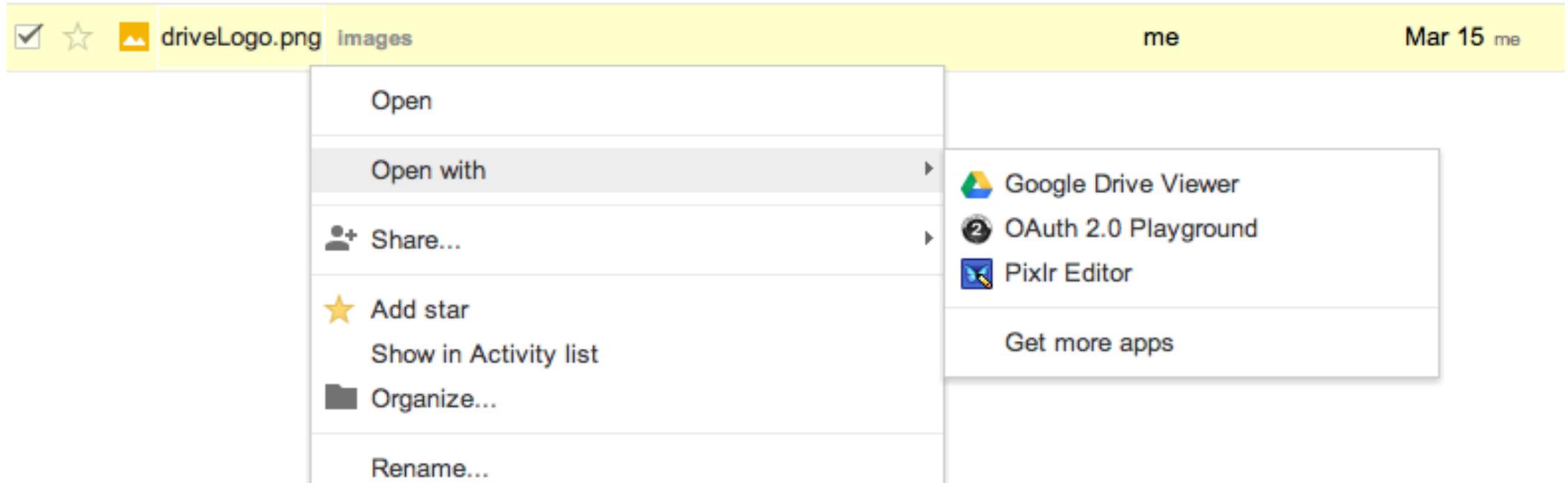
Nicolas Garnier  
Developer Advocate

# Google Drive & the Google Drive SDK

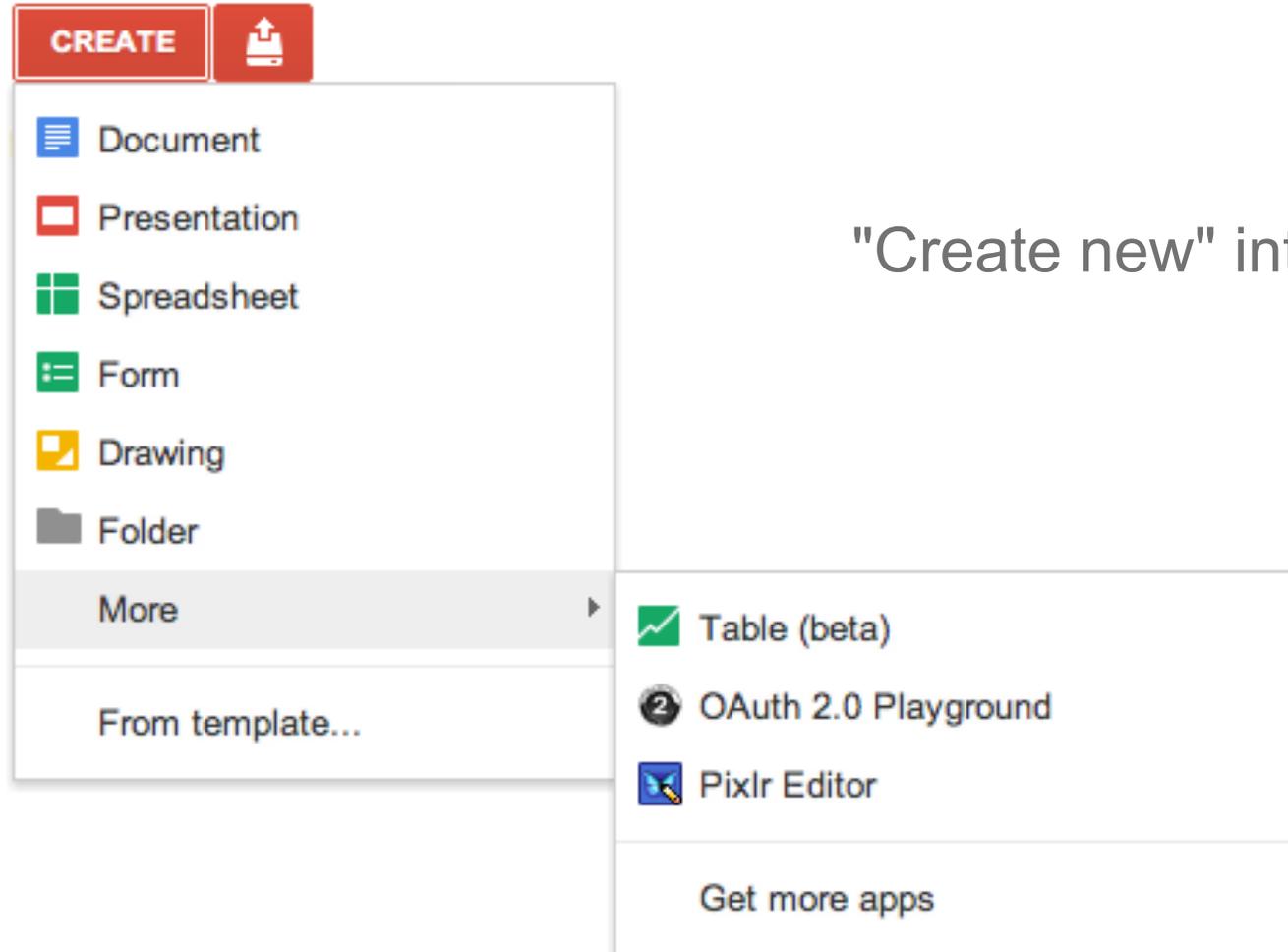


# Google Drive Web UI integration

"Open with" integration



# Google Drive Web UI integration



"Create new" integration



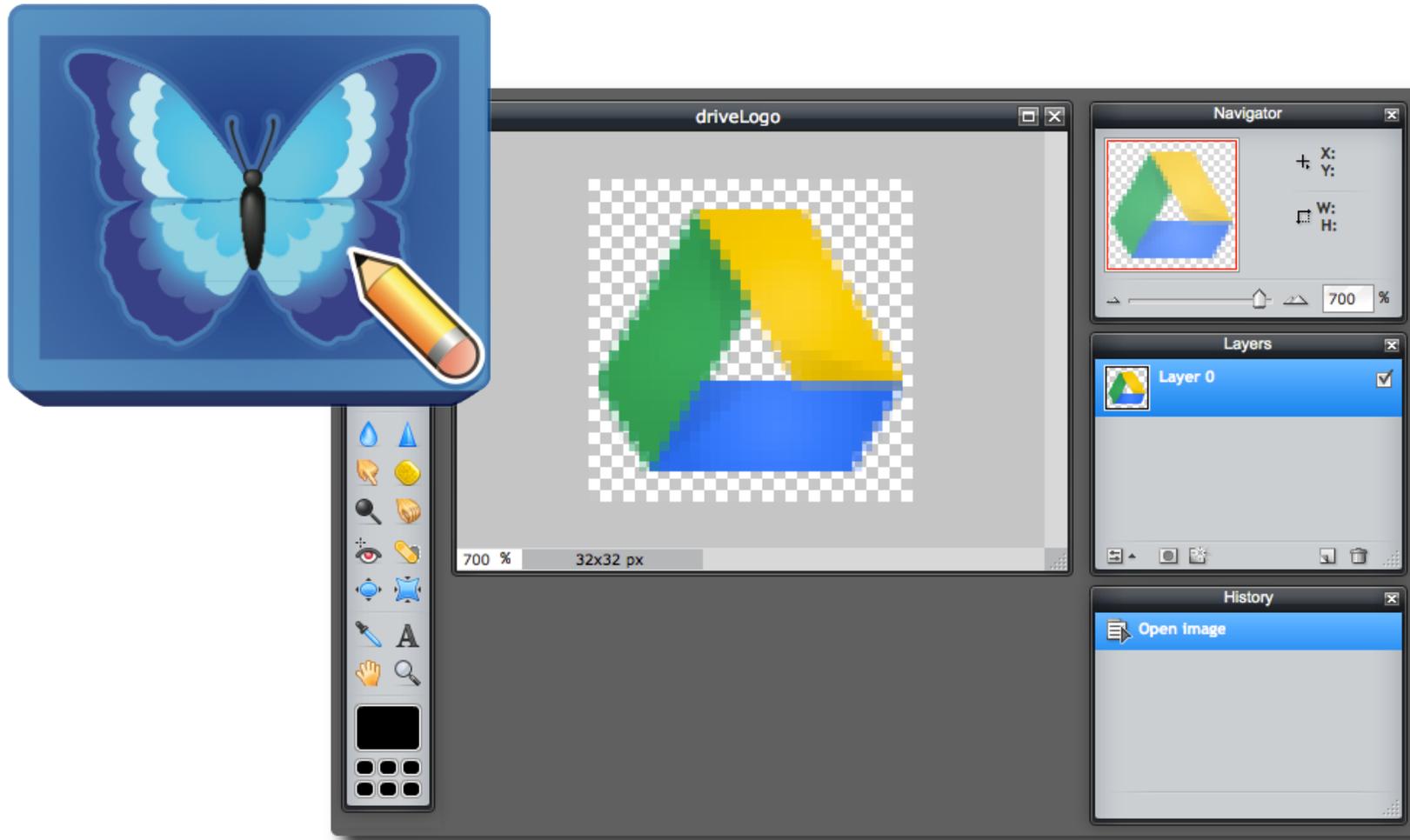
# Lots of Drive apps



40+ Drive Apps on the  
Chrome Web Store



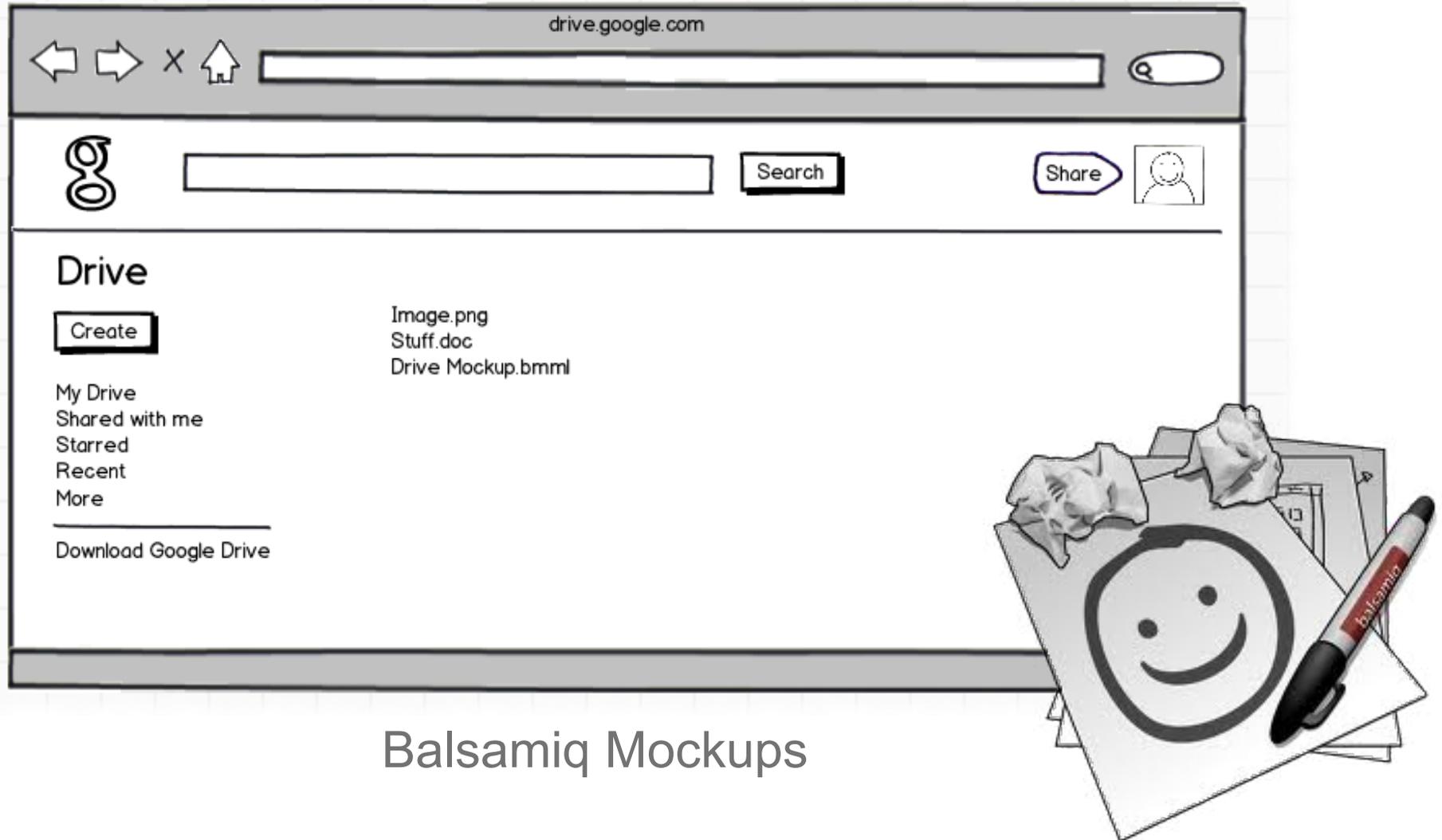
# What you can do with Drive apps



Pixlr Editor



# What you can do with Drive apps



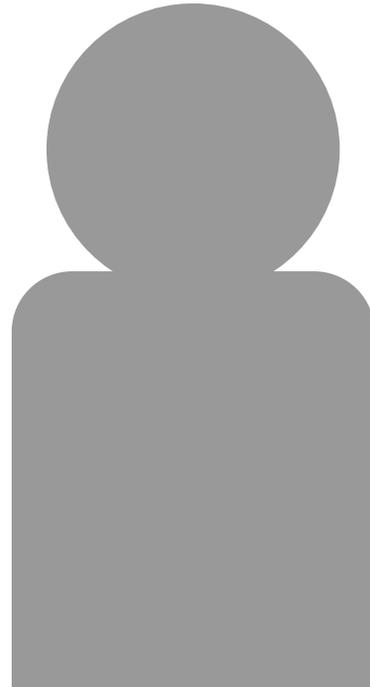
Balsamiq Mockups



# What you can do with Drive apps



# Who is here?





# MindMeister

Till Vollmer, CEO and Founder

# Product MindMeister

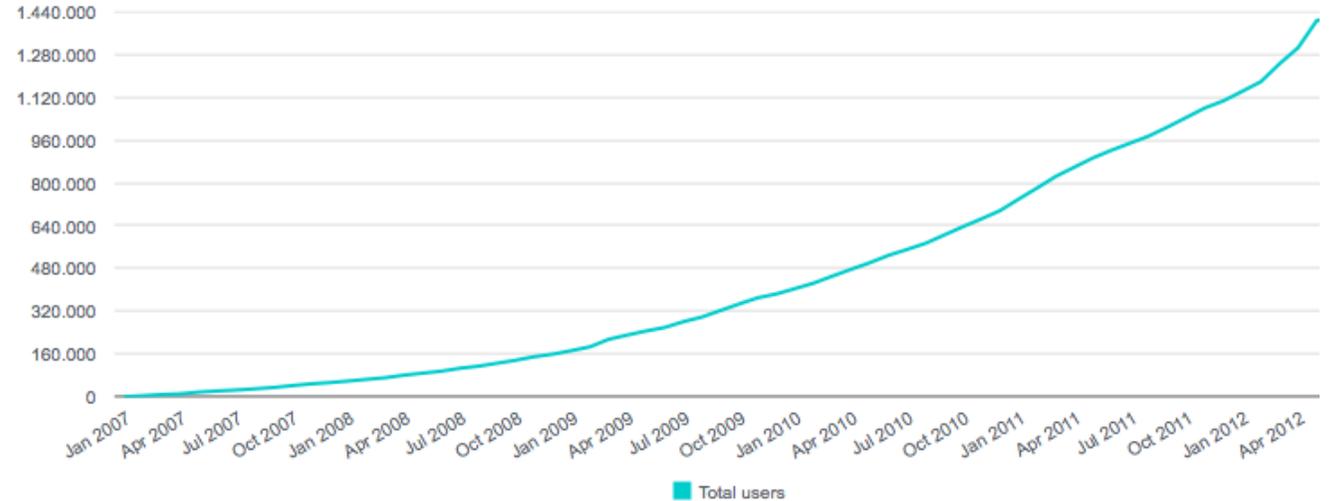
Collaborative web-based mind mapping

- Using modern web technologies
- Use Cases
  - Innovation Management
  - Project Planning
  - Meeting Efficiency
  - Brainstorming
  - Visual Thinking
- Technical: Ruby on Rails, Apache, MySQL



# Company MeisterLabs/MindMeister

- Established 2006
- Product launched in 2007
- 1.4 Mio registered users
- Profitable
- Freemium Model

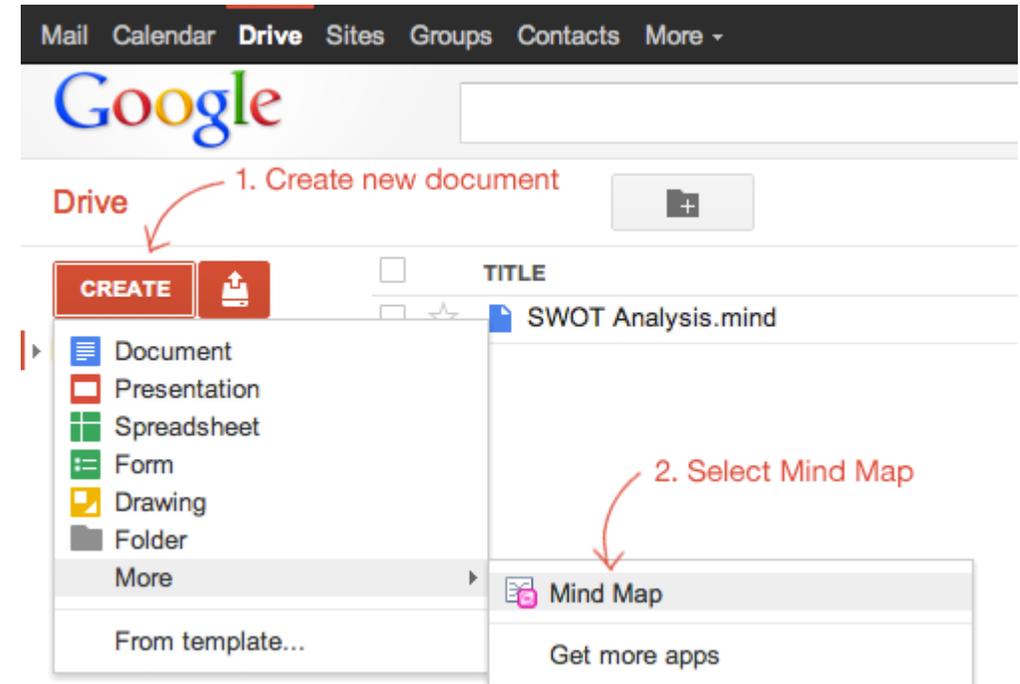


Google Chrome Web Store, Google Drive and Google Apps Integrations



# Integration Goals

- Create new mind map
- Edit mind maps
- Import mind maps to Drive
- Indexing of mind mapping content
- Export mind maps to Drive
- Adding attachments from Drive
- Realtime Collaboration
- Sync mind maps with Drive
- Backup mind maps to Drive
- Invite Google contacts



# Google Drive API used

Google provides a Ruby binding

- OAuth 2.0
- OpenID Connect
- <https://www.googleapis.com/auth/drive.file> (Drive)
- <https://www.google.com/m8/feeds/> (Contacts)
- <https://www.googleapis.com/auth/userinfo.profile> (User information)
- <https://www.googleapis.com/auth/userinfo.email> (User email)
- Picker API



**Demo**

**DEMO**





**Thank you**



# Cloud9 IDE

Rik Arends, CTO and Founder



# What is Cloud9 IDE?

- Complete IDE in the cloud
- Collaborative editing
- Run Python, Ruby, PHP, and debug Node.js. Even compile C/C++!
- Code completion for JavaScript
- Every workspace is your own dev box in the cloud

The screenshot displays the Cloud9 IDE interface. The main editor shows JavaScript code for a module that uses UglifyJS to minify code. A pink highlight is visible on line 20. On the right side, there is a 'Members' panel showing a list of users: Me, Mike de Boer, Daniela Gavidia, and Rik Arends. Below that is a 'Group Chat' panel with a list of messages and a text input field containing 'Absolutely! Can't wait!'. The top of the interface shows a menu bar with options like File, Edit, Selection, Find, View, Goto, Tools, Help, Preview, and debug. The status bar at the bottom right indicates '198:29' and a gear icon.

Collaborative editing in your workspace



# Your workspace online

- Own hard drive and memory capacity
- Teams avoid configuration differences and software management by being on the same OS and software stack (linux)
- Terminal tied directly to the box
- workspace URL = Shareable collaboration URL

```
javruben@ace:~/3$ ls
build/  demo/  editor-build.html  index.html  LICENSE  package.json  support/  tool/
build.js  doc/  editor.html  lib/  npm-debug.log  Readme.md  test.js

javruben@ace:~/3$ cat Readme.md
ACE (Ajax.org Code Editor)

ACE is a standalone code editor written in JavaScript. It can be easily embedded in any web page and JavaScript application. It is currently used as the editor component of the [Cloud9 IDE](http://cloud9ide.com).

Checkout the [demo](http://ajaxorg.github.com/ace/editor-build.html)
javruben@ace:~/3$ npm install coffee-script
npm GET https://registry.npmjs.org/coffee-script
npm 200 https://registry.npmjs.org/coffee-script
npm GET https://registry.npmjs.org/coffee-script/-/coffee-script-1.3.3.tgz
npm 200 https://registry.npmjs.org/coffee-script/-/coffee-script-1.3.3.tgz
coffee-script@1.3.3 ./node_modules/coffee-script
javruben@ace:~/3$
```

Terminal connected directly to the workspace



# Cloud9 is powered by Node.js

---



Node.js is a platform for building fast, scalable network applications.



**switch  
inputs**



**Thank you**

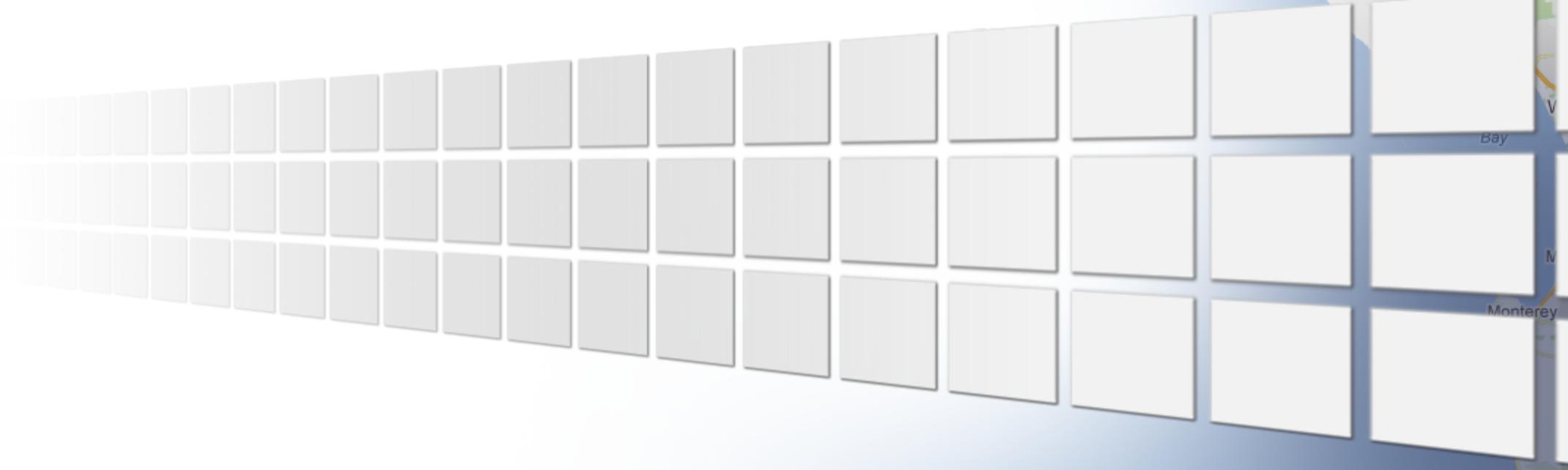
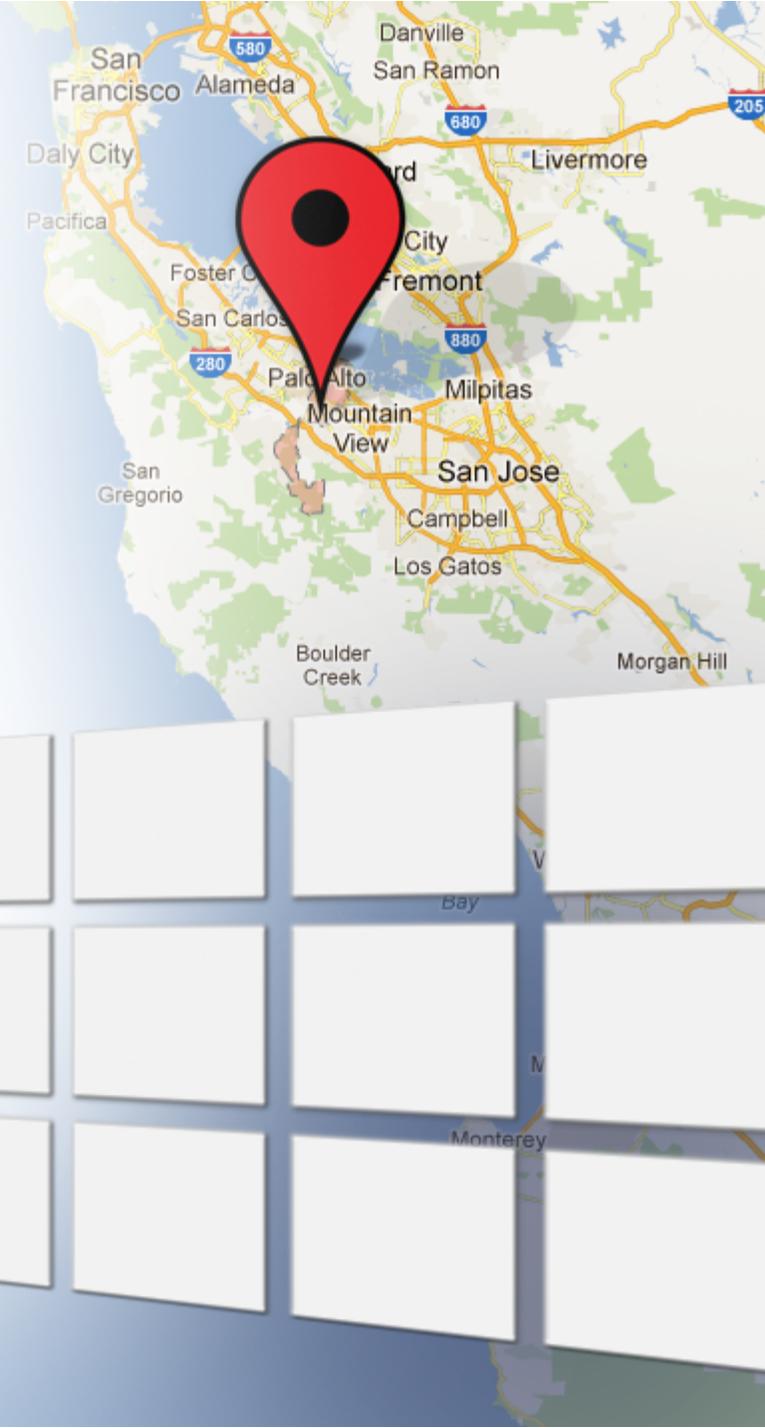


# Cooliris

Austin Shoemaker, CTO and Founder

# Company Introduction

- Palo Alto based team of 14
- Product highlights
  - Makers of the 3D wall (45M+ installs on desktop browsers)
  - Makers of the Android Gallery app



# Social Discovery for Media



# Google Drive Integration

- Visual timeline for all your media
- Search by name or text in the images (OCR)
- Instant upload from our camera app
- Real-time media updates



# Demo



# Using the API

- Objective-C client library
- OAuth 2.0
  - Access to all of a user's files  
<https://www.googleapis.com/auth/drive>
  - User email and profile information, used for single sign-on  
<https://www.googleapis.com/auth/userinfo.email>  
<https://www.googleapis.com/auth/userinfo.profile>
- Google Drive API v2



# Browse and Search Images

Request [/files](#) with an optional query parameter.

The `q` parameter is a conjunction of search terms:

fullText contains 'sunset' and mimeType = 'image/jpeg' and trashed = false

Use [nextLink](#) or [nextPageToken](#) to load more pages.

## Performance notes

- Partial responses: `fields = items(id,modifiedDate,thumbnailLink),nextLink`.
- Reduce page size: `maxResults = 20`.
- Gzip responses.
- <https://developers.google.com/drive/performance>



# Synchronize Changes

1. Get the `largestChangeId` from `/about`.
2. Get `/files`. Include `items(id, modifiedDate)` in the projection.
3. Get `/changes` with `startChangeId={ largestChangeId + 1 }` and `includeDeleted=true`. Include `items(deleted, file/id, file/modifiedDate)`, `largestChangeId` in the projection.
4. Merge inserts, updates, and deletes using `id` for correspondence and `deleted` to detect deletions.
5. Save the new `largestChangeId` for the next request.

<https://developers.google.com/drive/manage-changes>

Frequent polling is resource-intensive. Fortunately, a push channel is in the works.



# Upload to Drive

<https://www.googleapis.com/upload/drive/v2/files?uploadType=multipart>

**media** is limited to 2MB and cannot include metadata.

**multipart** is a single request and can include metadata. The camera app uses this.

**resumable** is better for large uploads, especially on unreliable networks.

<https://developers.google.com/drive/manage-uploads>



# Final Thoughts

Using the API has been a great experience so far.

Search powered by OCR and image recognition is tremendously useful.

Looking forward to:

- Push notifications for changes
- More metadata
  - Image dimensions, EXIF, ...
  - Recognized text and object tags





**Thank you**

# What's next?

image/gif (animated)



audio/wav

message/rfc822 (emails)



text/x-vcard

application/x-font-ttf



# <Thank You!>

+Nicolas Garnier

Developer Advocate, Google

+Rik Arends

CTO & Founder, Cloud9 IDE

+Till Vollmer

CEO & Founder, MindMeister

+Austin Shoemaker

CTO & Founder, Cooliris





Google  
Developers