Google
Developers

Building Polished Drive Apps

How to make your apps rock

June 27, 2012 (Google I/O 2012)

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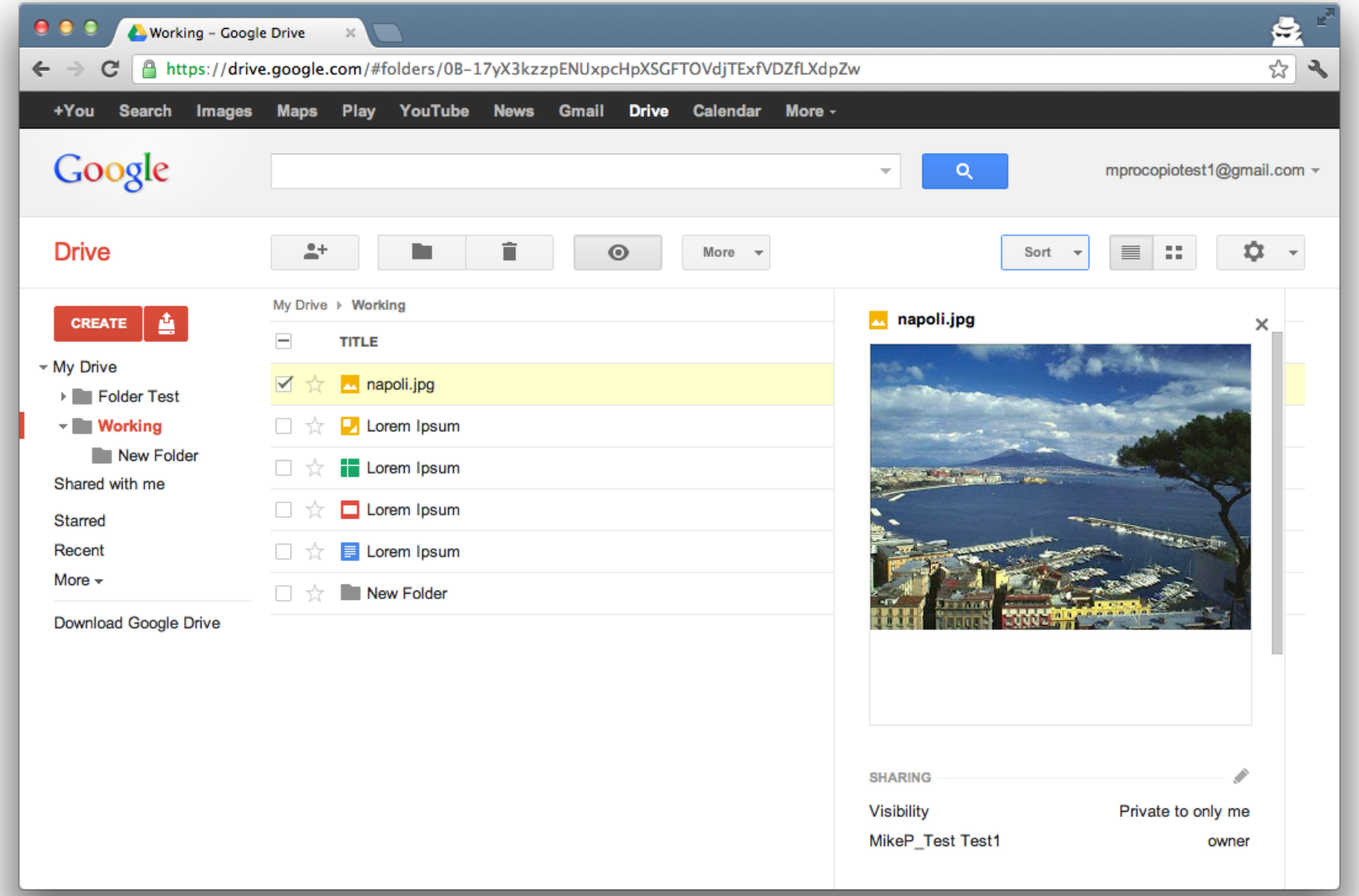
Google Drive

Store files safely in the cloud

Sharing, searching, collaboration, file revisions, OCR, organization...

Keep files in sync across devices

Access files anywhere



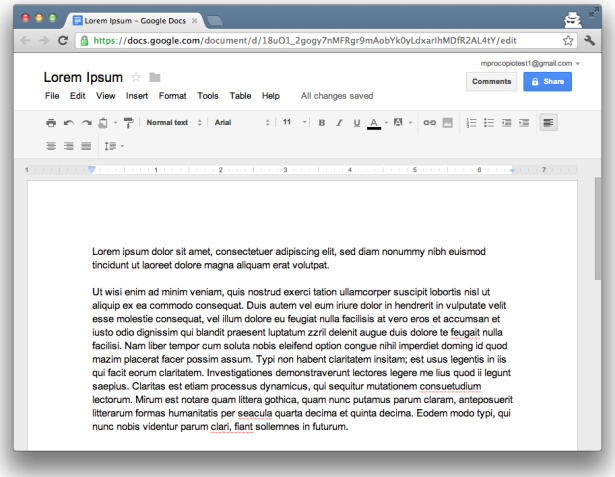
So where are we at today with Drive?

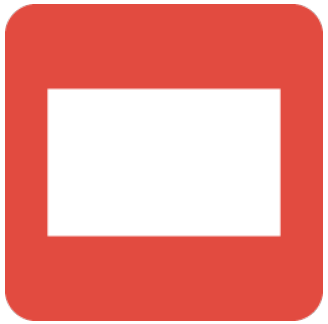
- Millions of users have opted in to drive.
- Access anywhere: on the web, on mobile devices, and using Chrome OS
- Easy-to-use, fully featured SDK with client library support in 8 languages
- 50 third-party Drive apps available in the Chrome Web Store

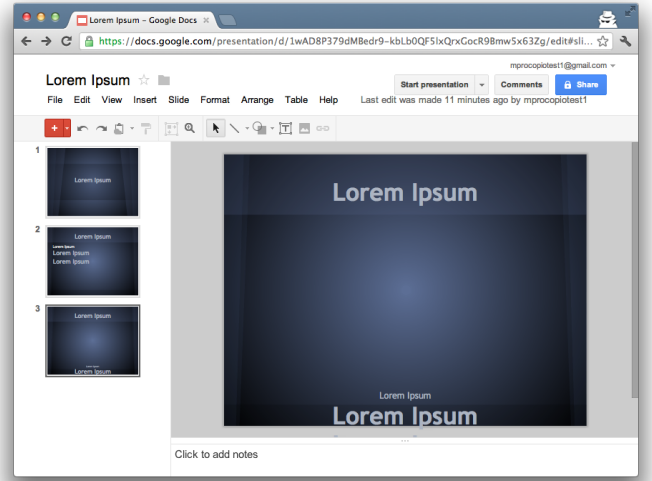
Pretty good foundation. So what's next? You :)

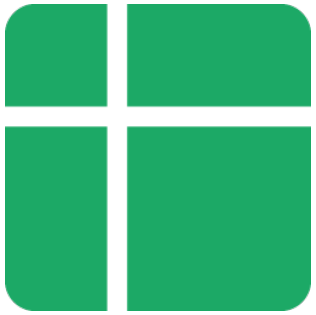
Built-in first-class, collaborative productivity apps

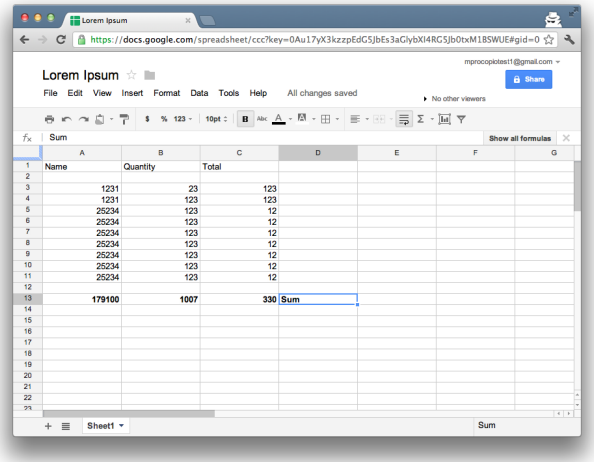
Documents, Spreadsheets, Presentations, and Drawings

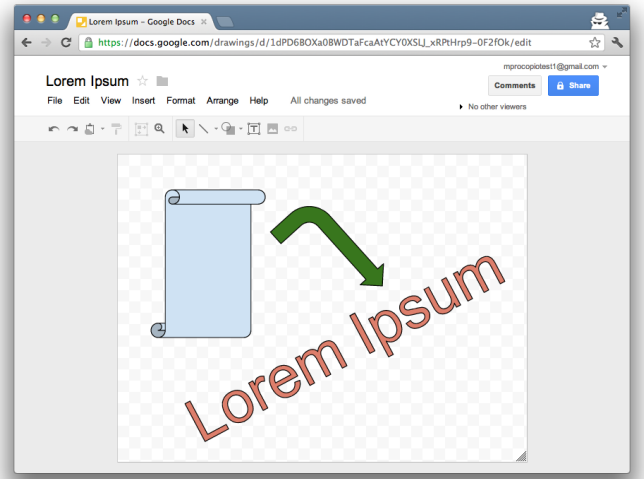










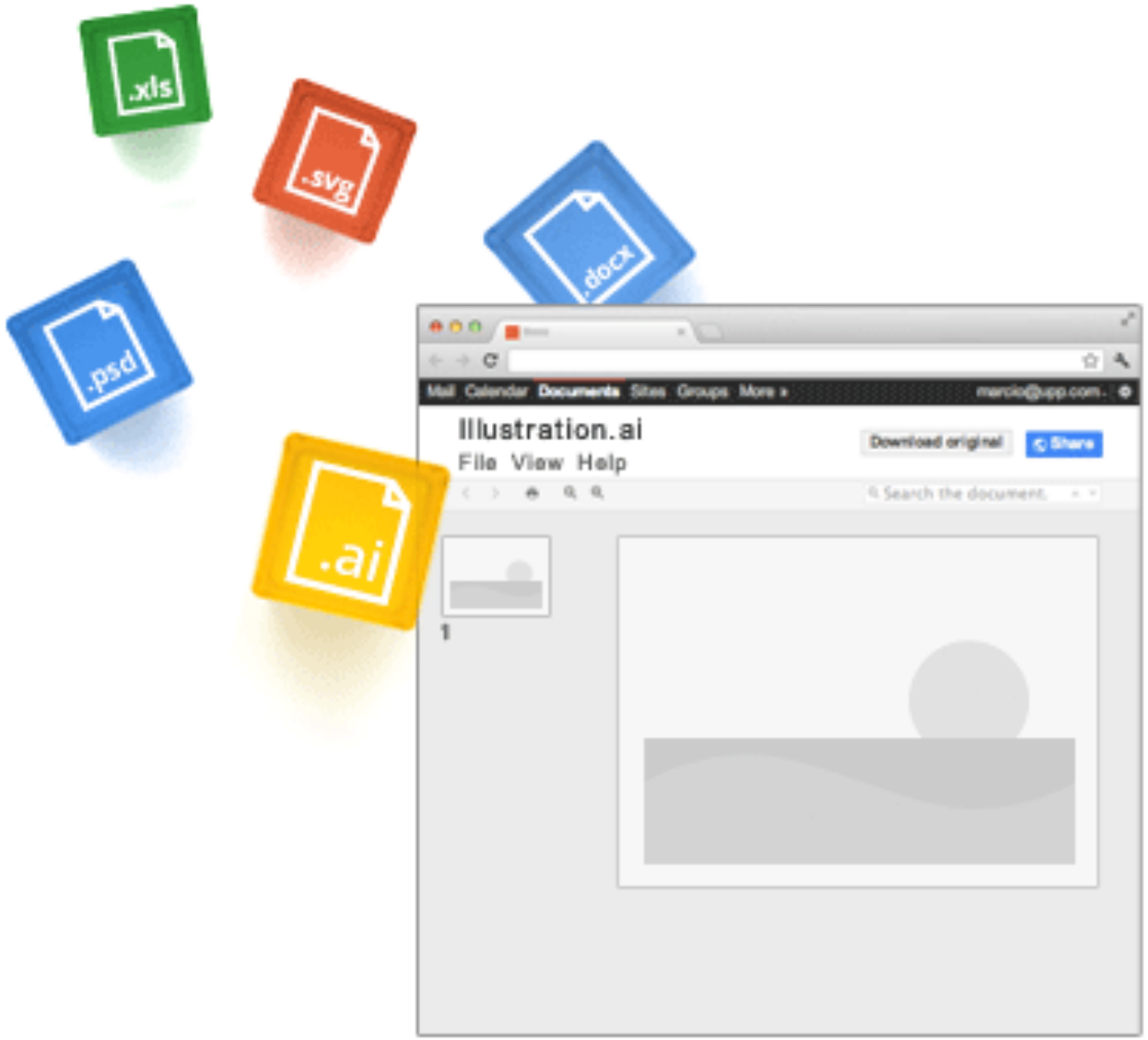


Google Drive Viewer

Built-in previewer for many file types

- PDF
- Images
- Videos
- Text
- Some proprietary formats
  - Photoshop
  - Illustrator
  - Microsoft Office
  - etc.
- But...

Basic preview only!

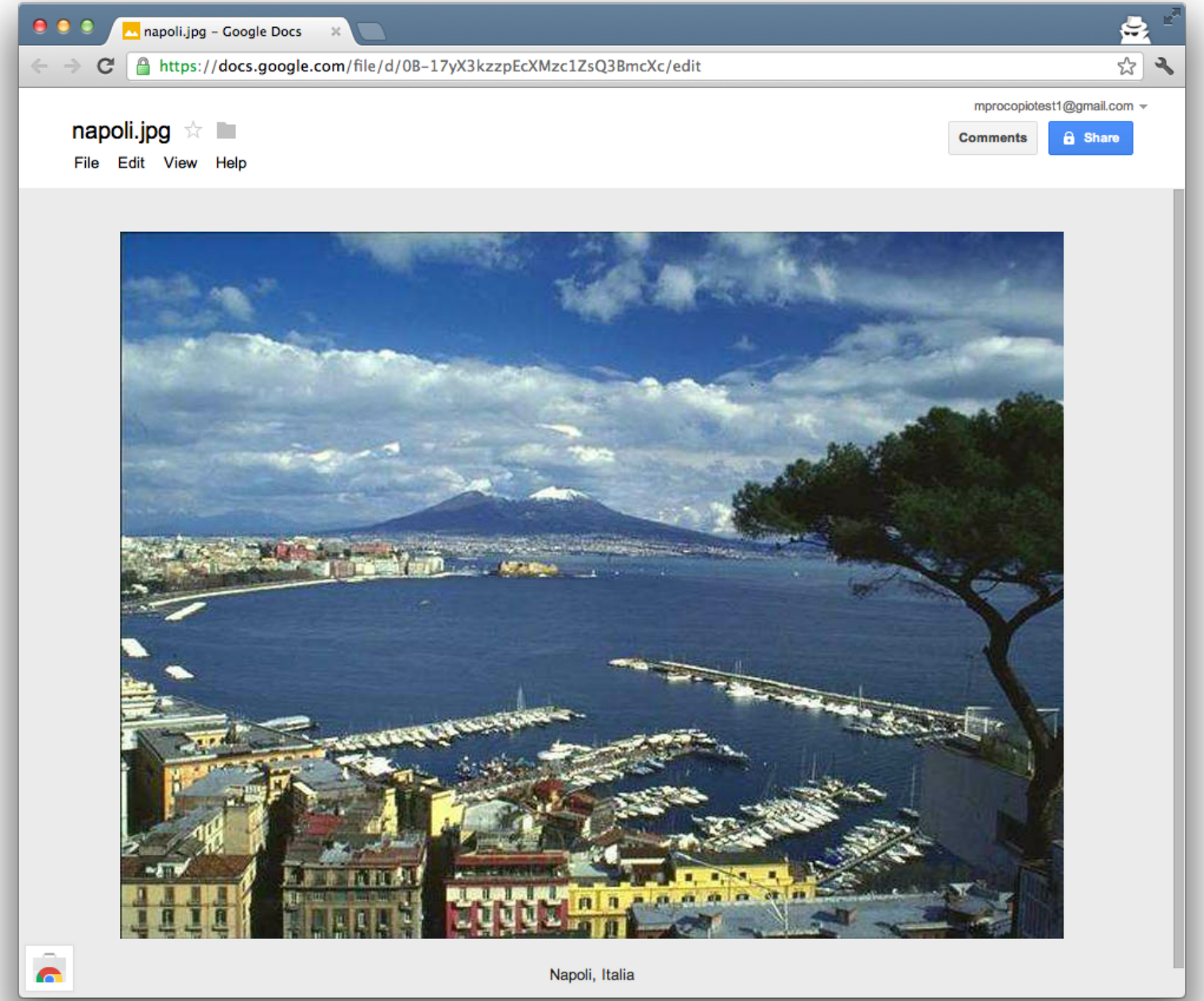


Google Drive Viewer

Read scintillating scientific publications (PDFs).

Google Drive Viewer

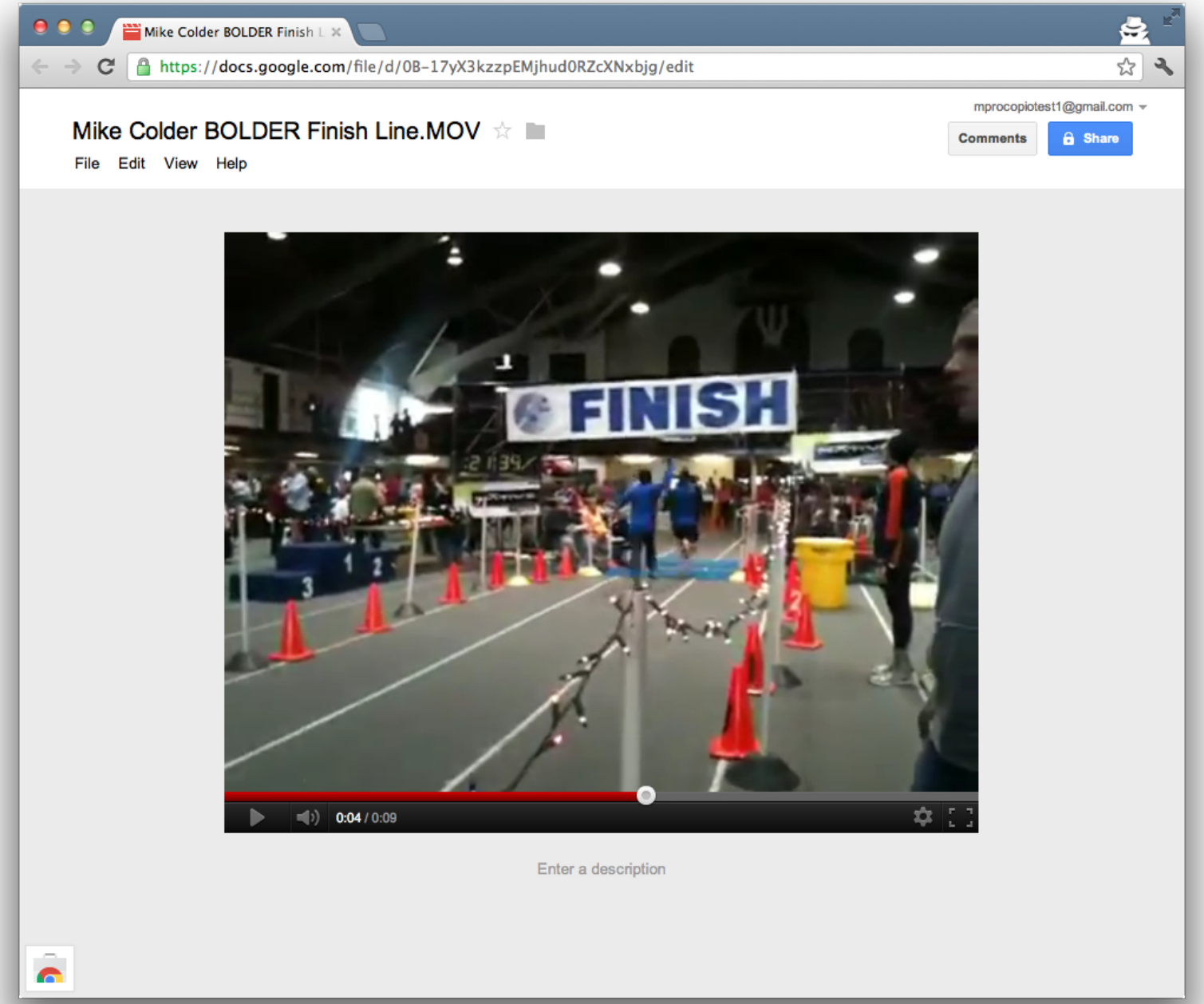
Preview photos of places you wish you were visiting on vacation.



Google Drive Viewer

Watch that video of you getting second place in that 5K over and over.

(But not because you're bitter or anything.)



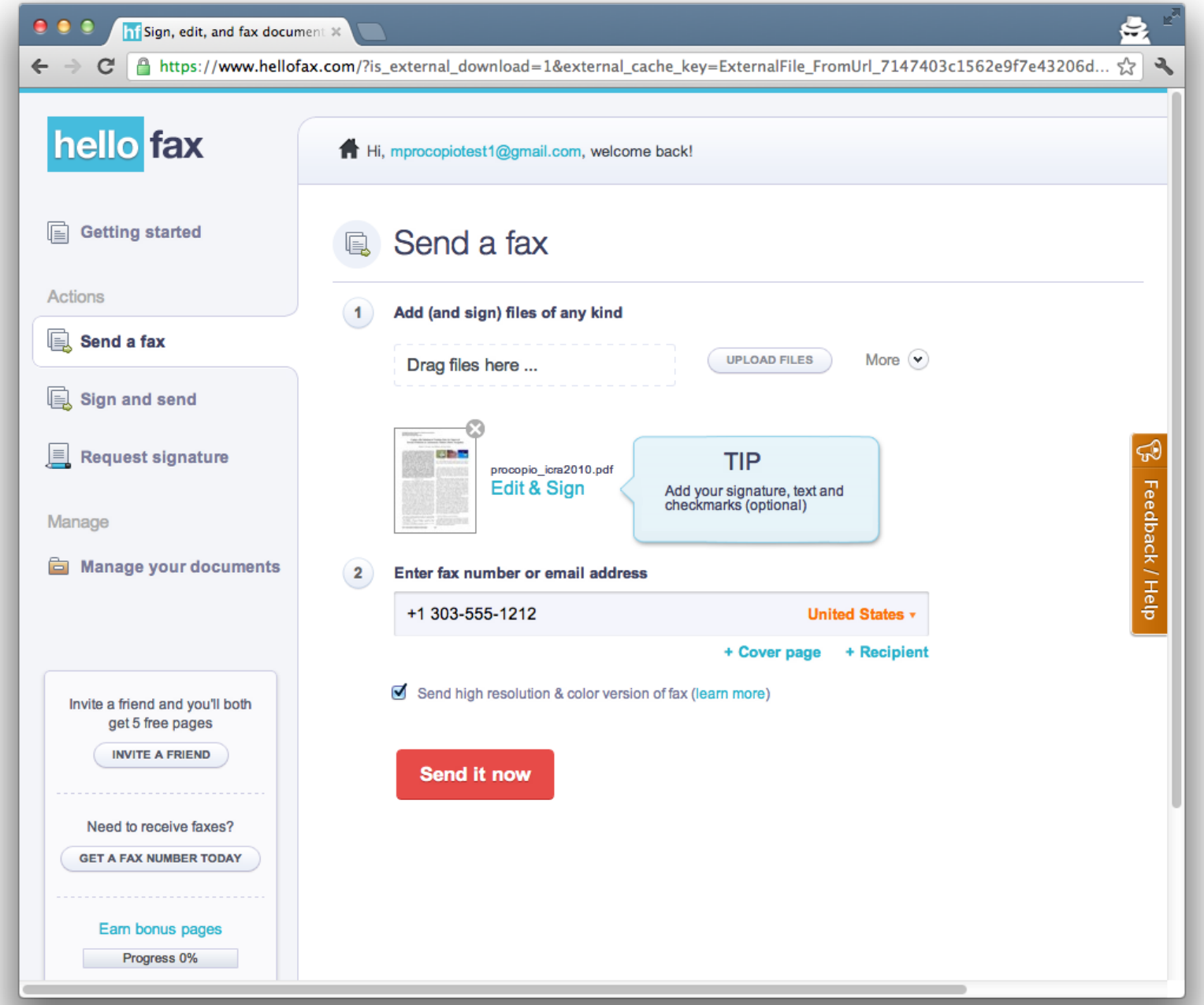
Built-in Apps and File Previewer - Just a Start

As an ecosystem, we can do better for the user.

HelloFax

Do something useful with that PDF.

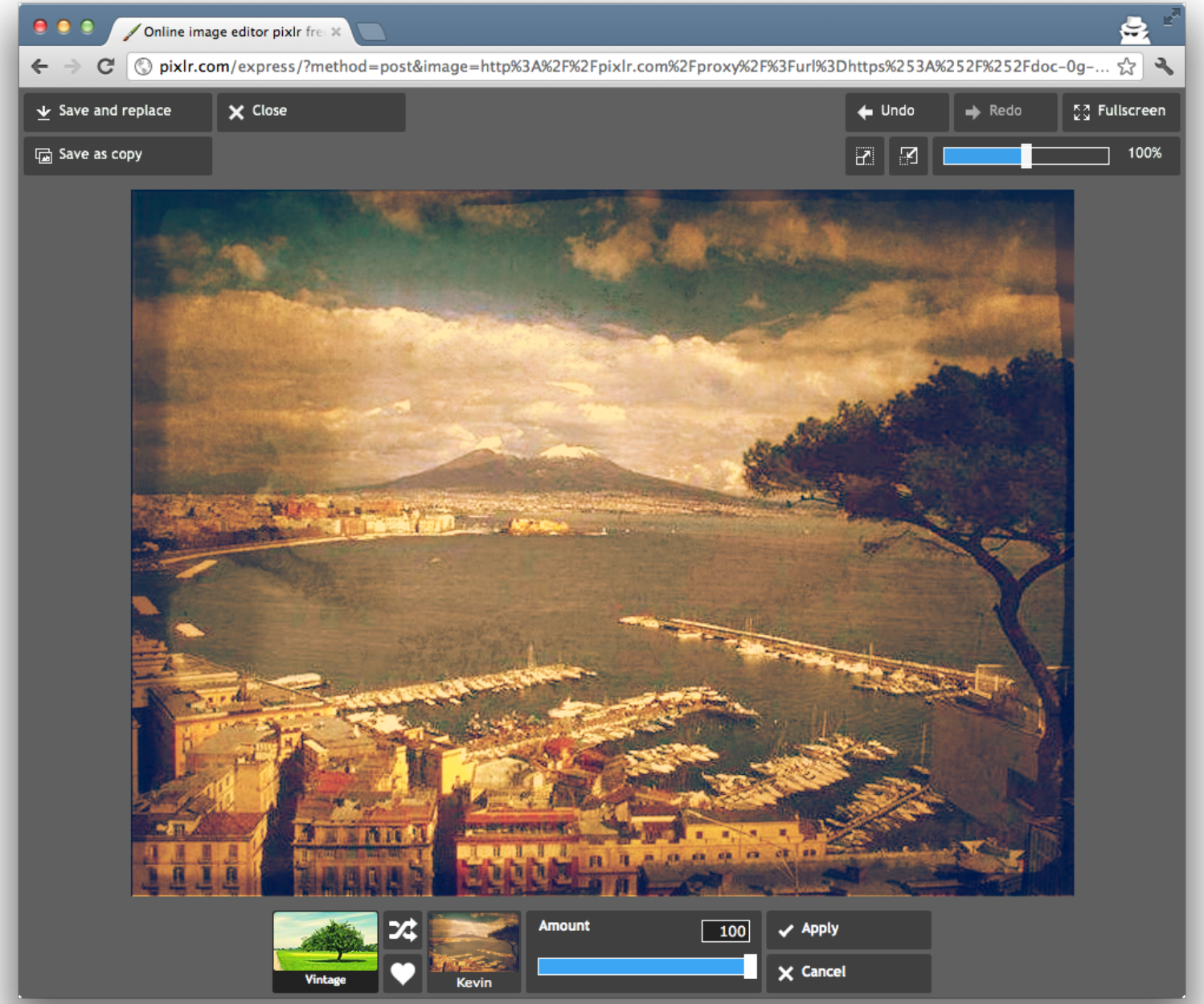
Fax your PDFs to all your friends for that ultimate "offline" consumption experience.



Pixlr Image Editor

Give your photos that vintage look.

(And instantly boost your social networking street cred.)



Pixlr Image Editor

Give your photos that vintage look

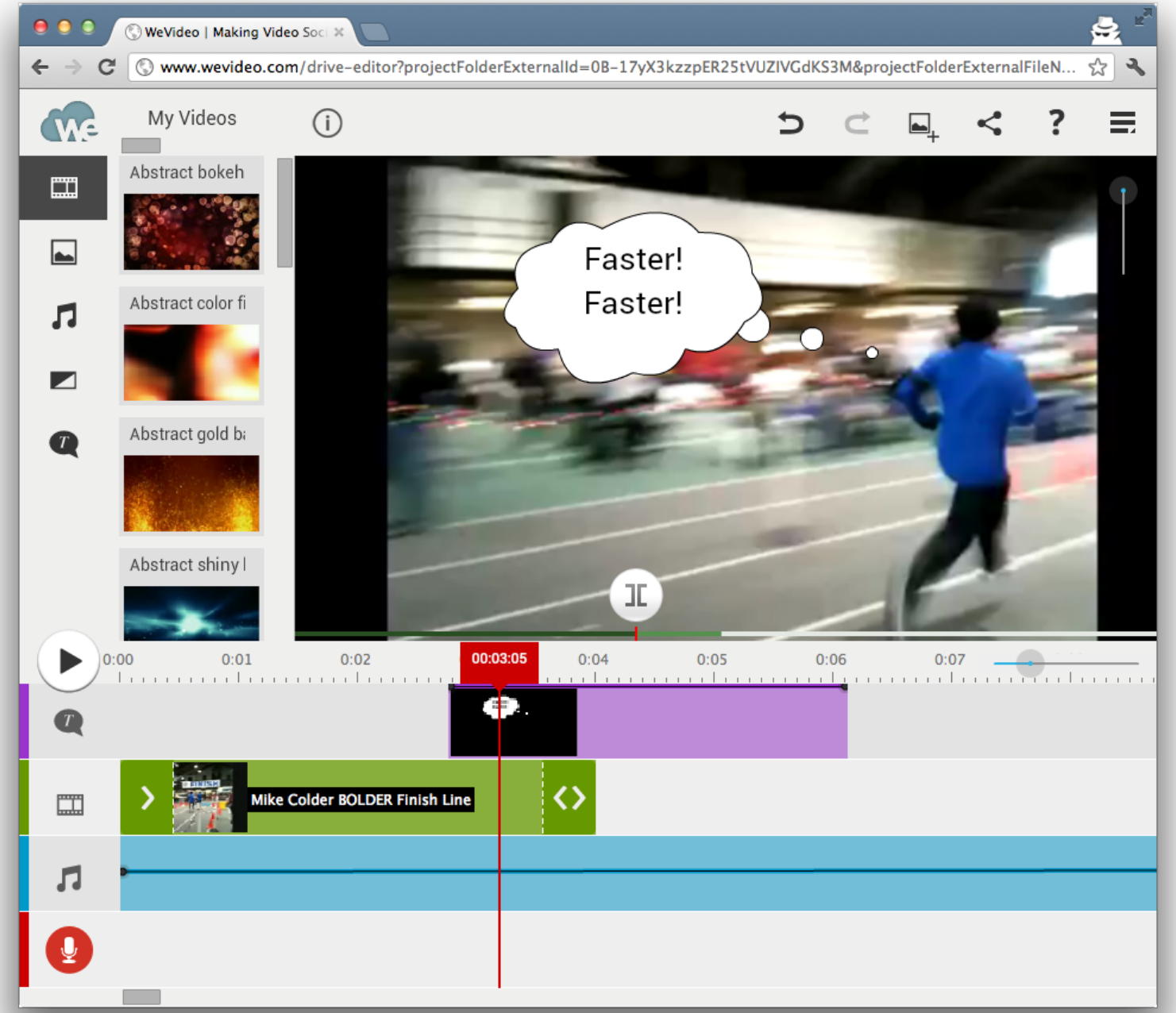
(And instantly boost your social networking street cred.)

Or make lolcat memes. Your choice.

WeVideo

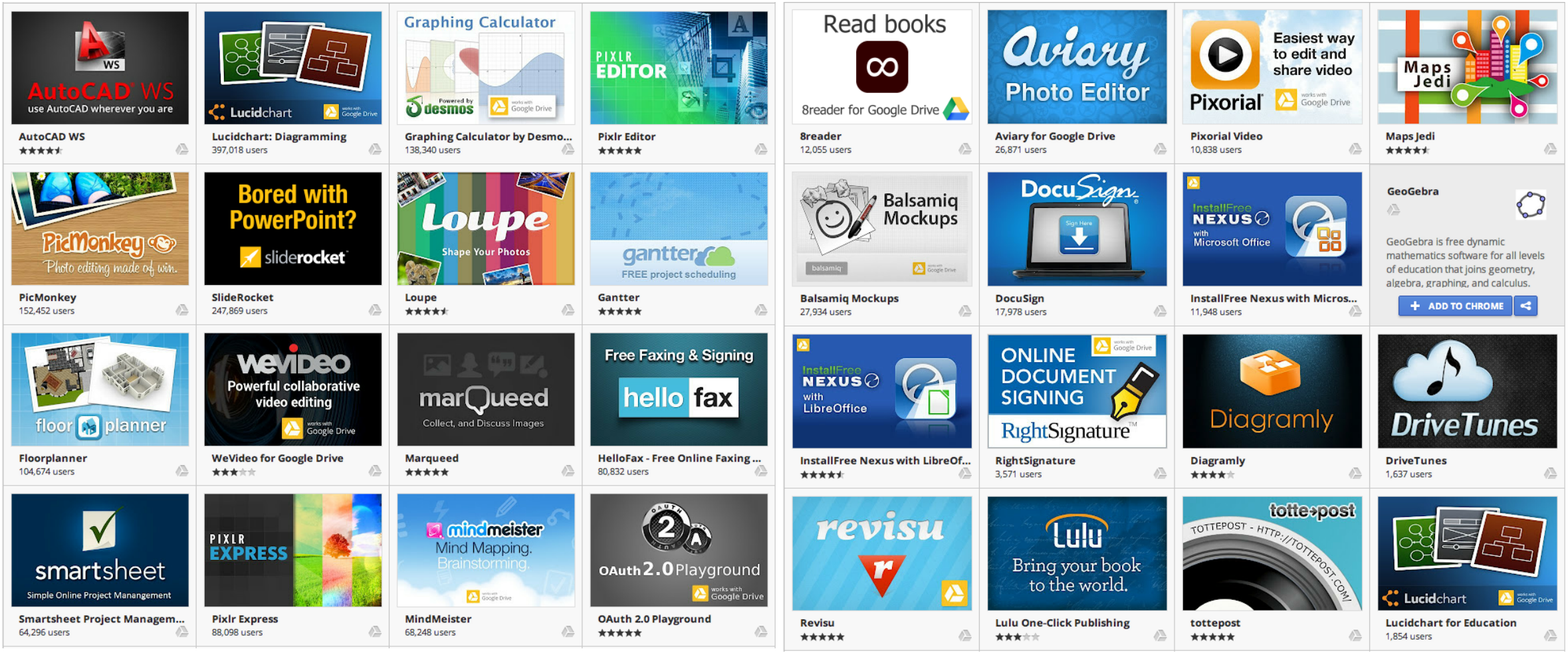
Don't just watch video. Edit it.

(Your friends don't need to know you only got second place...)



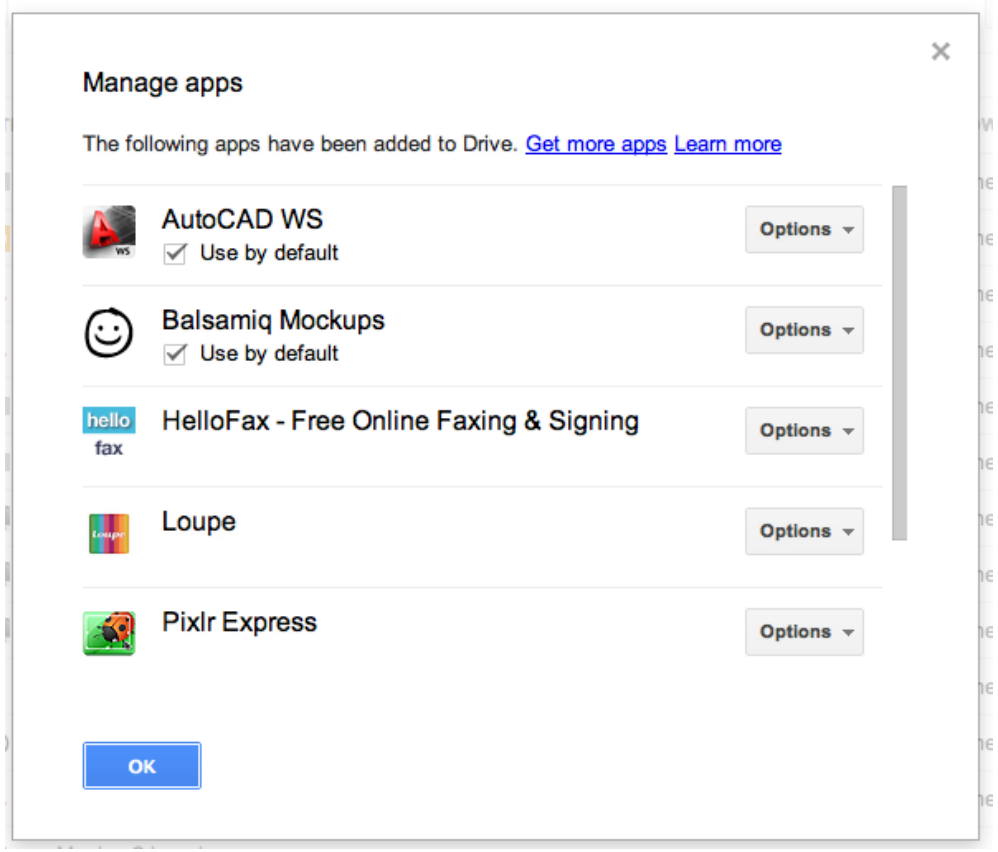
Apps bring life to the ecosystem

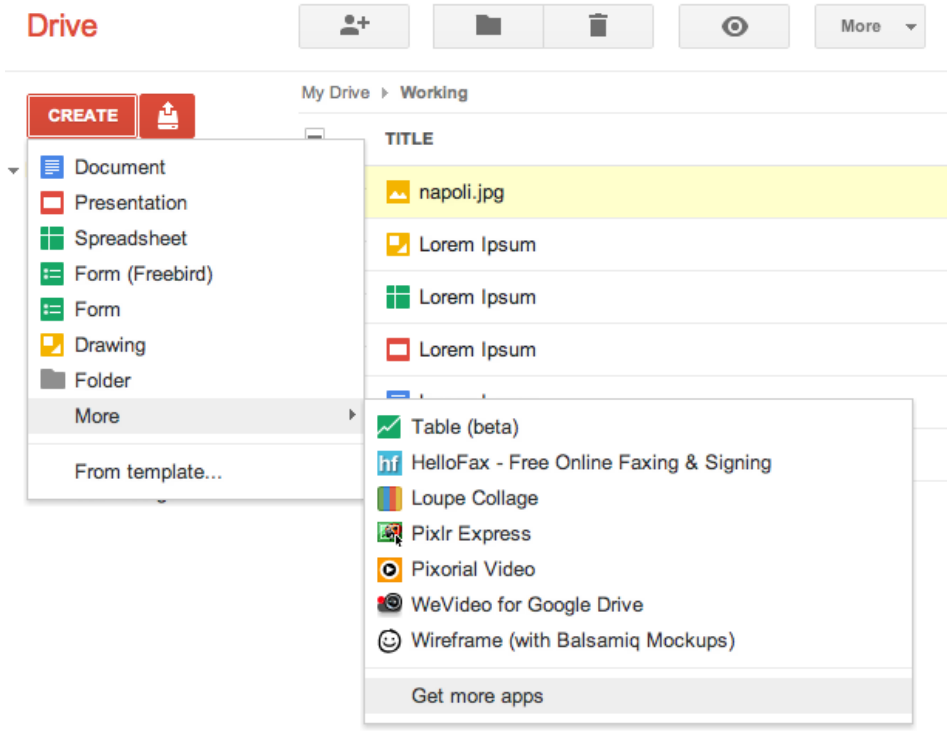
Fax | Edit | Render | Graph | Draw | Diagram | Sign | Publish | Map | Chart | Listen | Mock | Plan

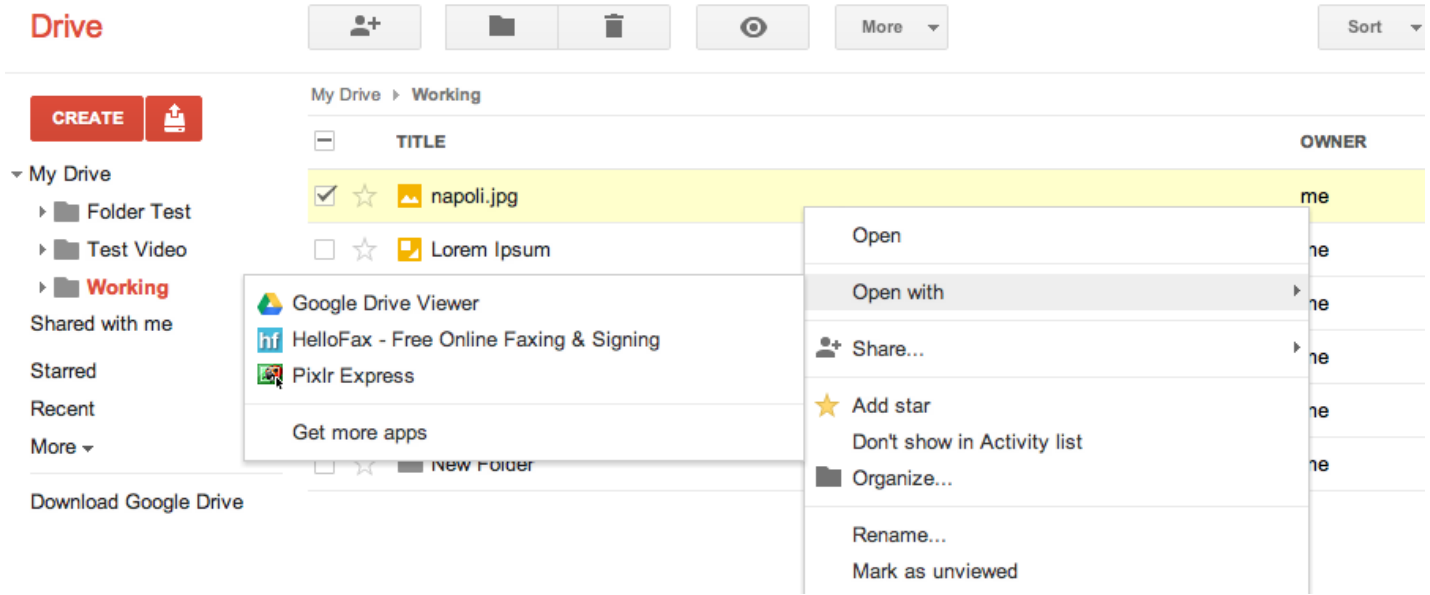


Integrate with the Google Drive SDK

Create | Open | Manage | Search | Share | Add Revisions







Build Awesome Apps

Vibrant and Polished

- Apps that:
  - Are secure
  - Put the user first
  - Integrate well with Drive

- Let's look at 9 things you can do to get there.

Here's how to make your app rock

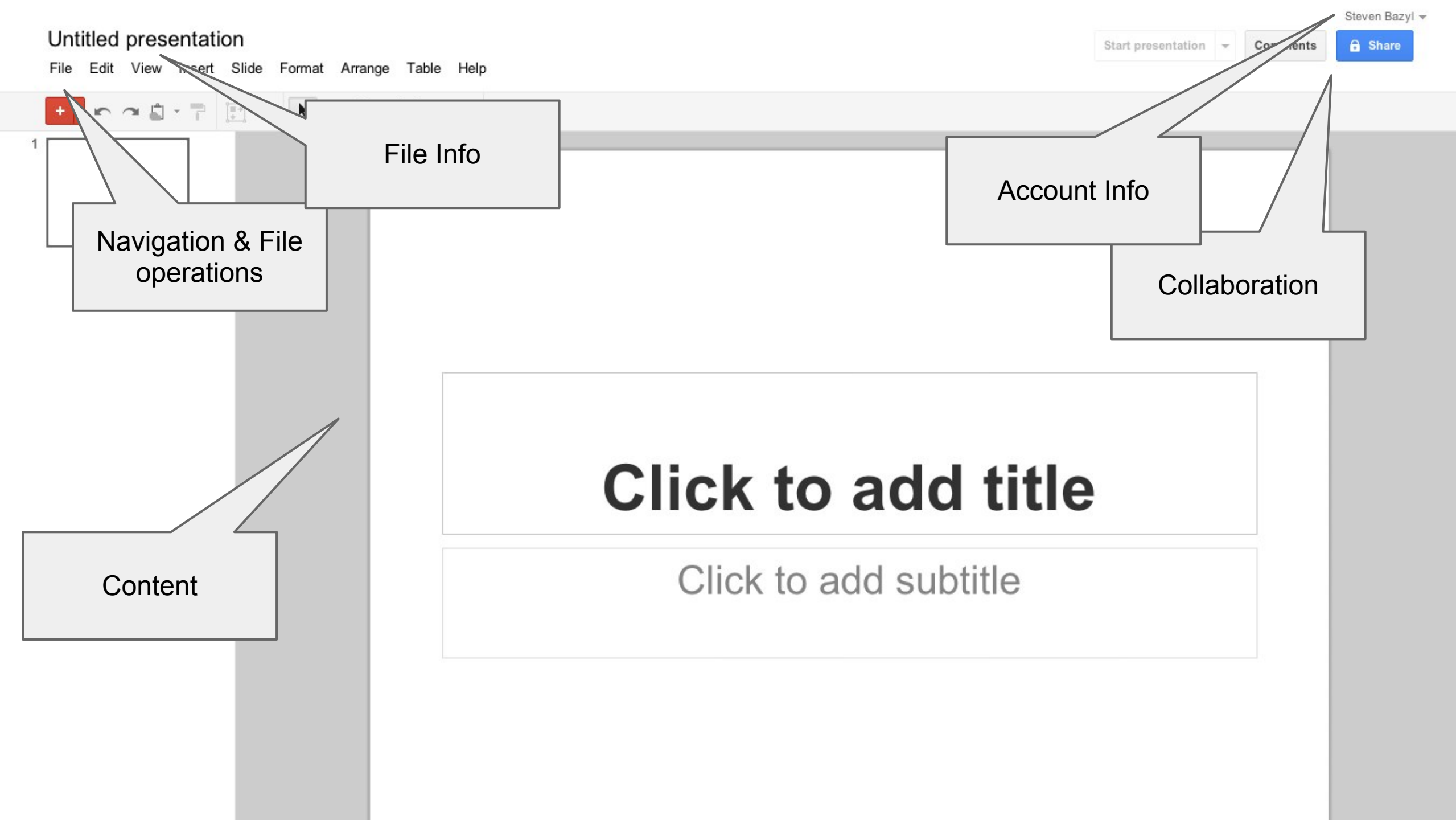
UX matters

“A *foolish* consistency is the hobgoblin of little minds”

Ralph Waldo Emerson

2/3 users struggled with basic tasks like renaming files!

Source: Google Internal UX study on Drive Apps


Untitled presentation
File Edit View Insert Slide Format Arrange Table Help
Steven Bazyl
Start presentation
Share
1
File Info
Navigation & File operations
Account Info
Collaboration
Content
Click to add title
Click to add subtitle

Lucidchart

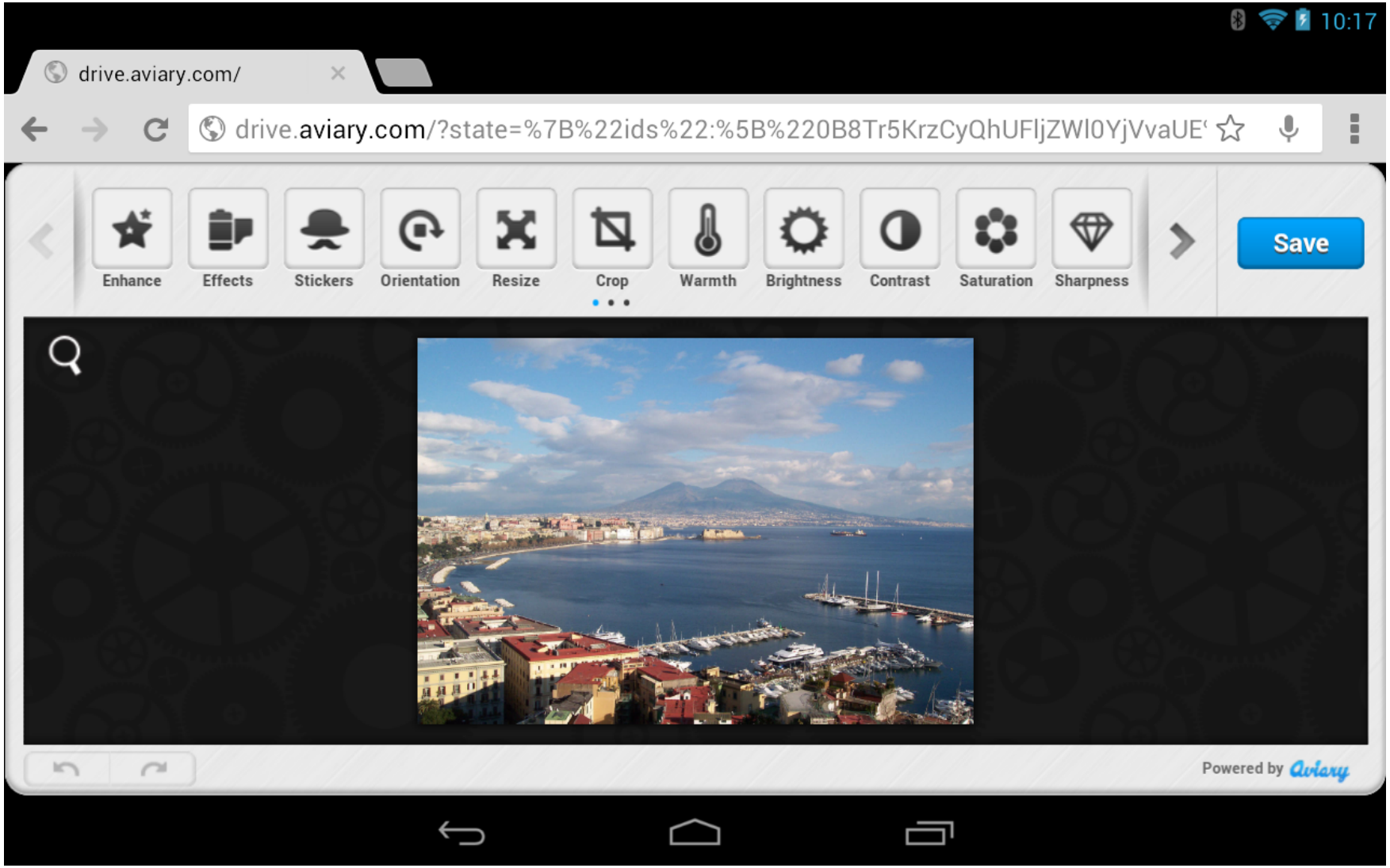
Go mobile

Drive is mobile

Access anywhere. Web, phone, tablet, Chrome OS.

Companion Mobile Apps: Use your app anywhere

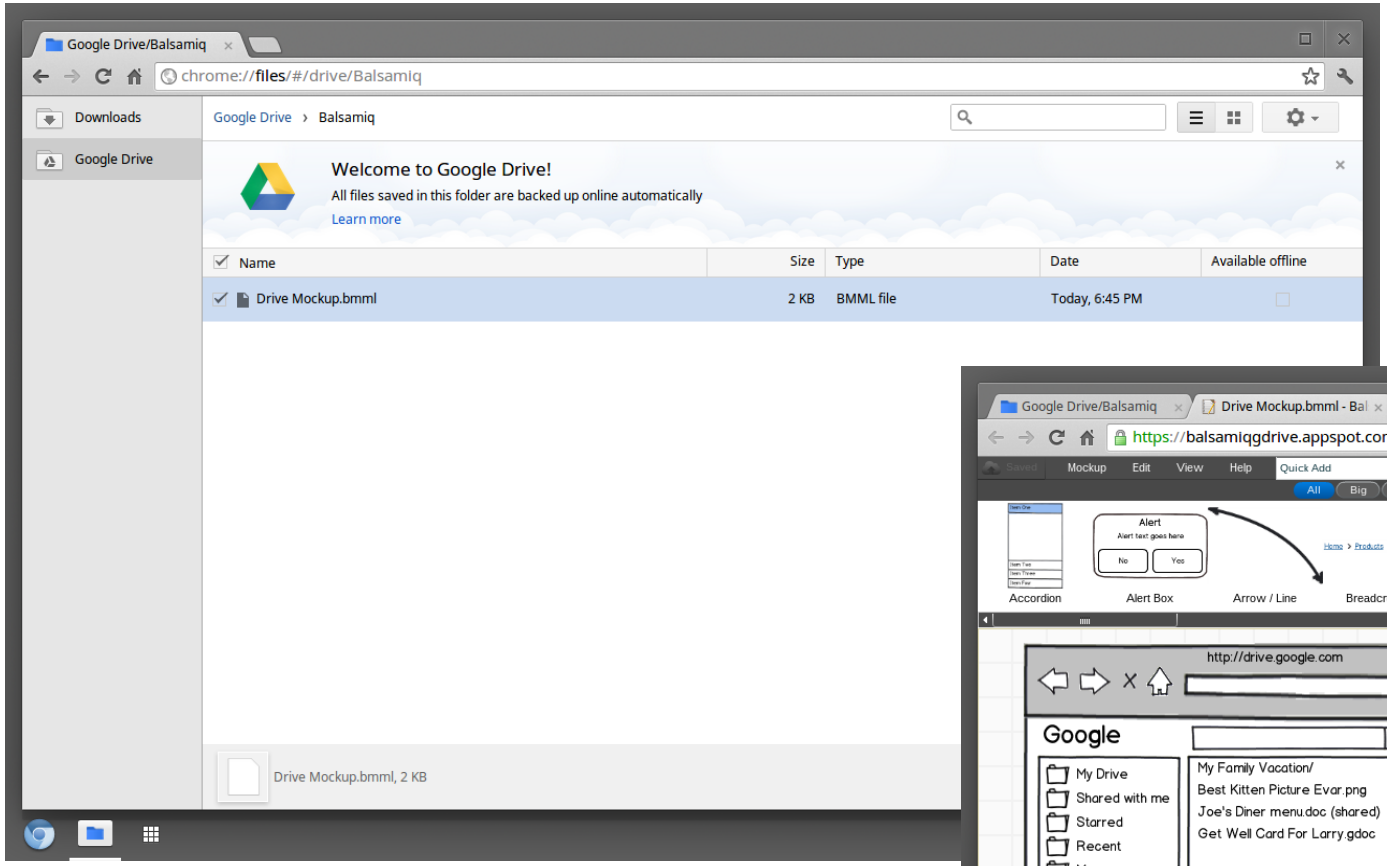
Web-based experience on mobile device

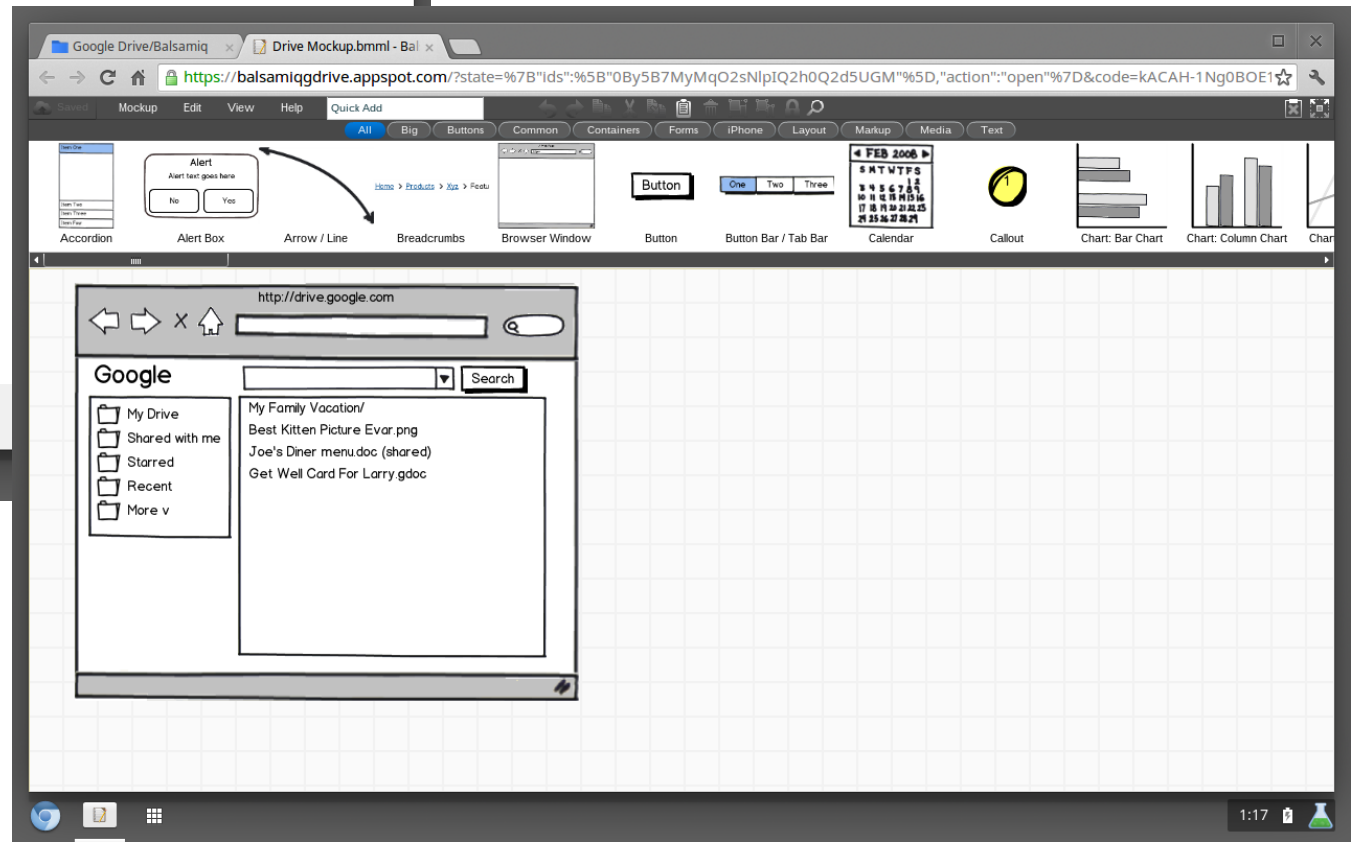


Companion Mobile Apps: Use your app anywhere

Native App experience

Full Drive App integration with Chrome OS



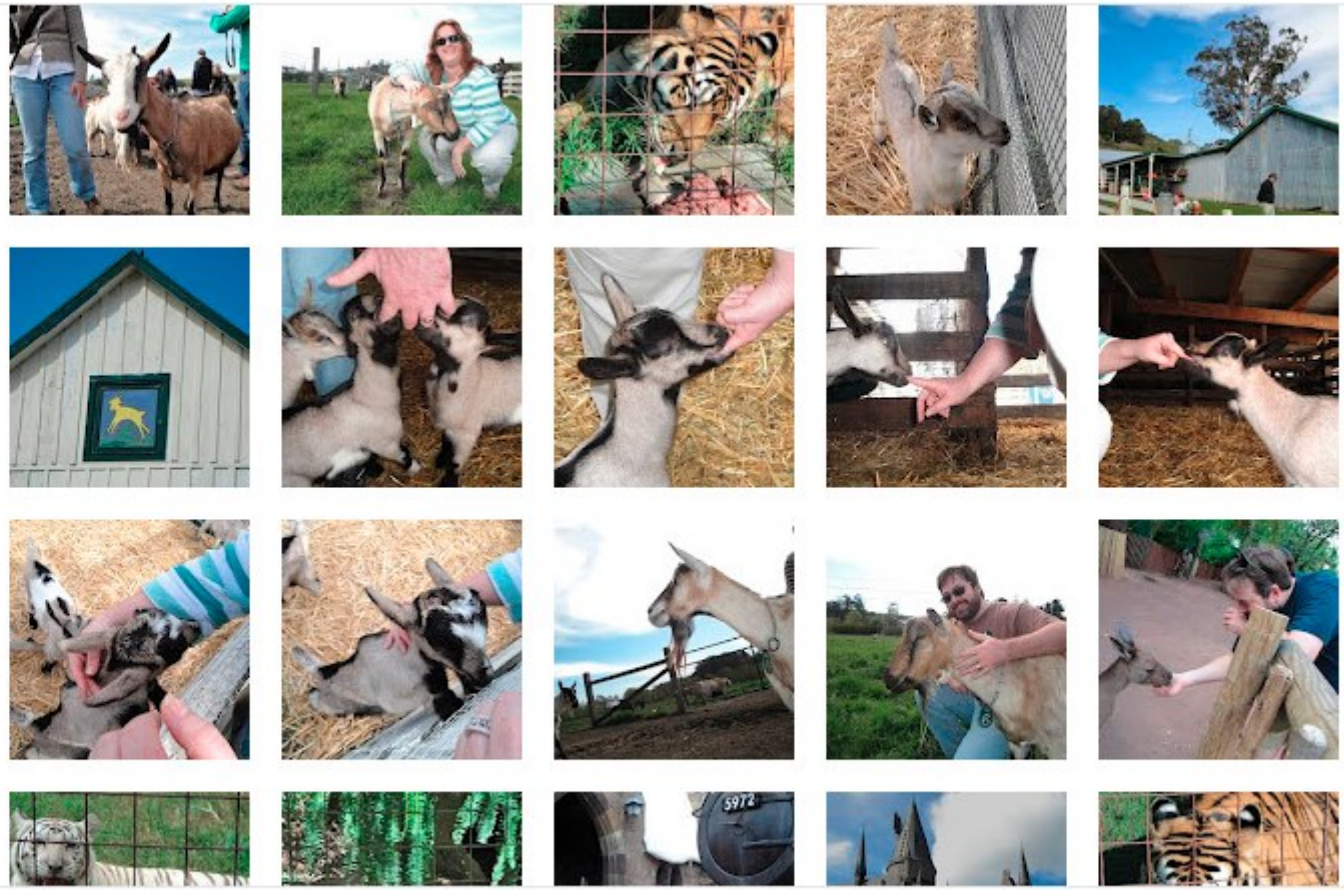


Open anywhere

Select a file

Google Docs

Upload



Select

Cancel

Picker

HTML

```
<script src="http://www.google.com/jsapi"></script>
```

JS

```
google.setOnLoadCallback(initPicker);
google.load('picker', '1');

function initPicker() {
  ... // Library ready
}

function showPicker() {
  var picker = new google.picker.PickerBuilder()
      .addView(new google.picker.DocsView())
      .setCallback(pickerCallback)
      .setAppId(YOUR_APP_ID)
      .build();
  picker.setVisible(true);
}
function pickerCallback(data) {
  if (data[google.picker.Response.ACTION] == google.picker.Action.PICKED) {
    // Do something!
  }
}
```

Be secure

Scopes with the Google Drive SDK

Full, file-specific, apps, read-only

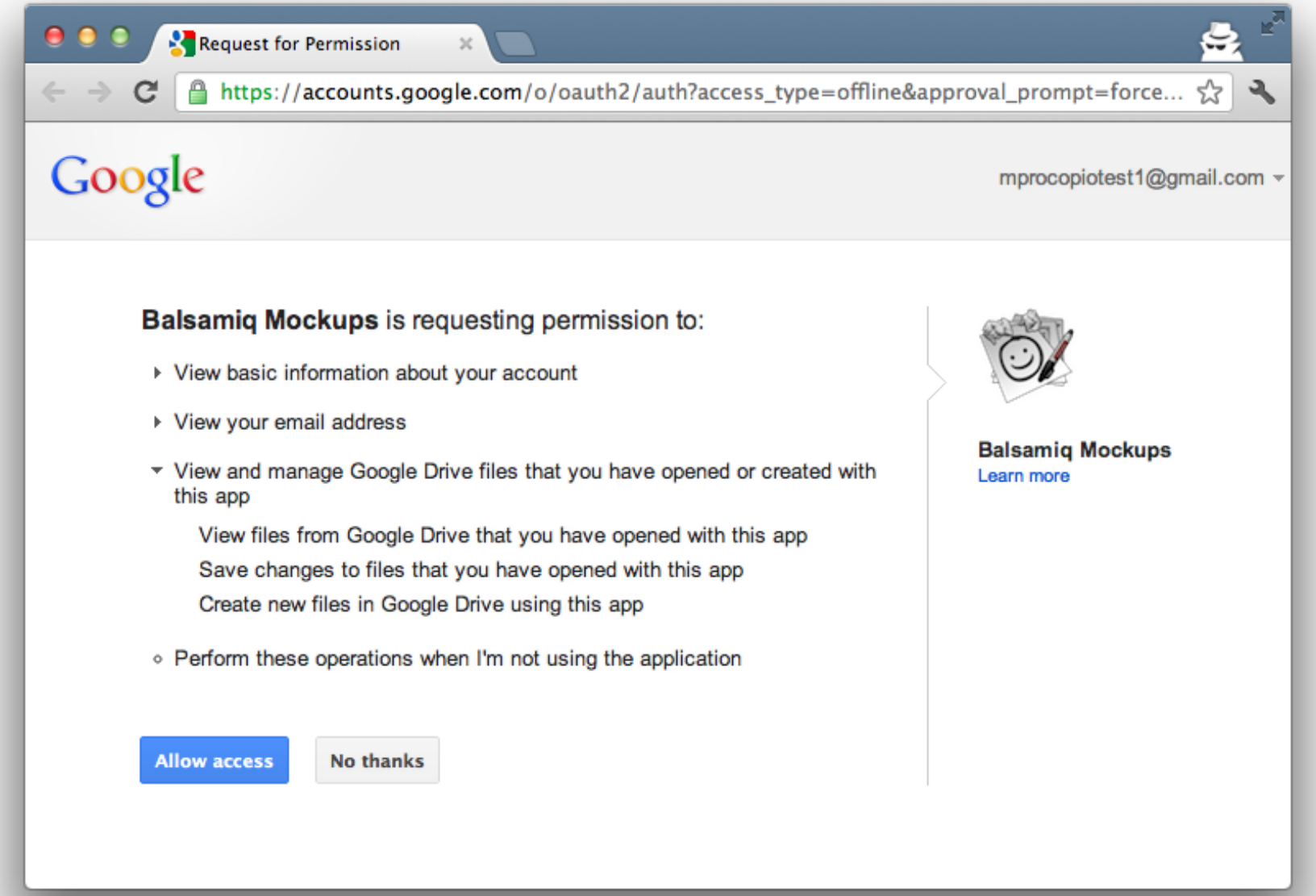
Scope	Meaning
https://www.googleapis.com/auth/drive.file	Per-file access to files created or opened by the app
https://www.googleapis.com/auth/drive	Full, permissive scope to access all of a user's files. Request this scope only when it is strictly necessary.
https://www.googleapis.com/auth/drive.apps	Allows apps access to the list of Drive apps a user has installed.
https://www.googleapis.com/auth/drive.readonly	Allows read-only access to file metadata and file content
https://www.googleapis.com/auth/drive.readonly.metadata	Allows read-only access to file metadata, but does not allow any access to read or download file content

Scopes with the Google Drive SDK

Narrow File-Specific Scope is best for you and your users

Scope	Meaning
https://www.googleapis.com/auth/drive.file	Per-file access to files created or opened by the app
https://www.googleapis.com/auth/drive	Full, permissive scope to access all of a user's files. Request this scope only when it is strictly necessary.
https://www.googleapis.com/auth/drive.apps	Allows apps access to the list of Drive apps a user has installed.
https://www.googleapis.com/auth/drive.readonly	Allows read-only access to file metadata and file content
https://www.googleapis.com/auth/drive.readonly.metadata	Allows read-only access to file metadata, but does not allow any access to read or download file content

Example Authorization Flow



New File-Specific Scope

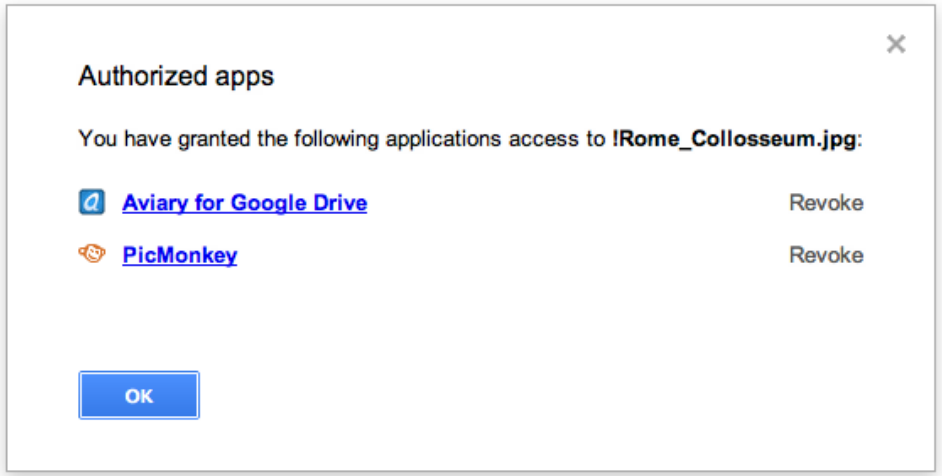
Authorization text

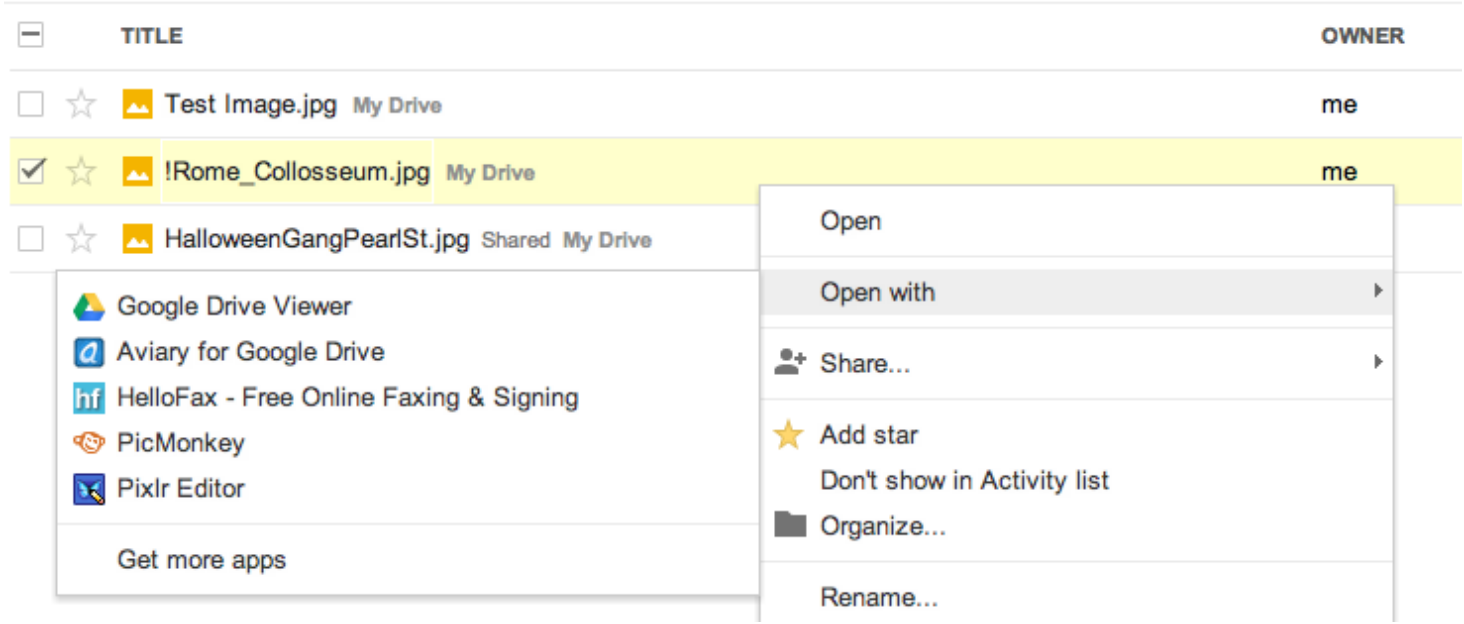
Google OAuth 2.0 Playground is requesting permission to:

- View and manage Google Drive files that you have opened or created with this app
  - View files from Google Drive that you have opened with this app
  - Save changes to files that you have opened with this app
  - Create new files in Google Drive using this app

New File-Specific Scope - Demo

Demo (Backup)


Authorized apps
You have granted the following applications access to !Rome_Collosseum.jpg:
Aviary for Google Drive
Revoke
PicMonkey
Revoke
OK


TITLE
OWNER
Test Image.jpg My Drive
me
!Rome_Collosseum.jpg My Drive
me
HalloweenGangPearlSt.jpg Shared My Drive
Google Drive Viewer
Aviary for Google Drive
HelloFax - Free Online Faxing & Signing
PicMonkey
Pixlr Editor
Get more apps
Open
Open with
Share...
Add star
Don't show in Activity list
Organize...
Rename...

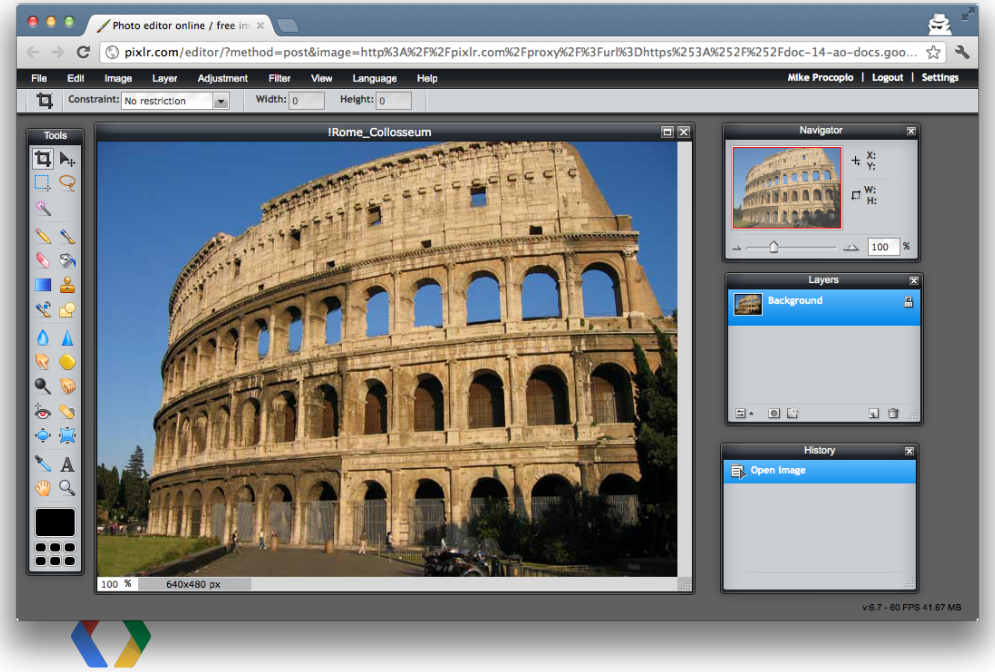
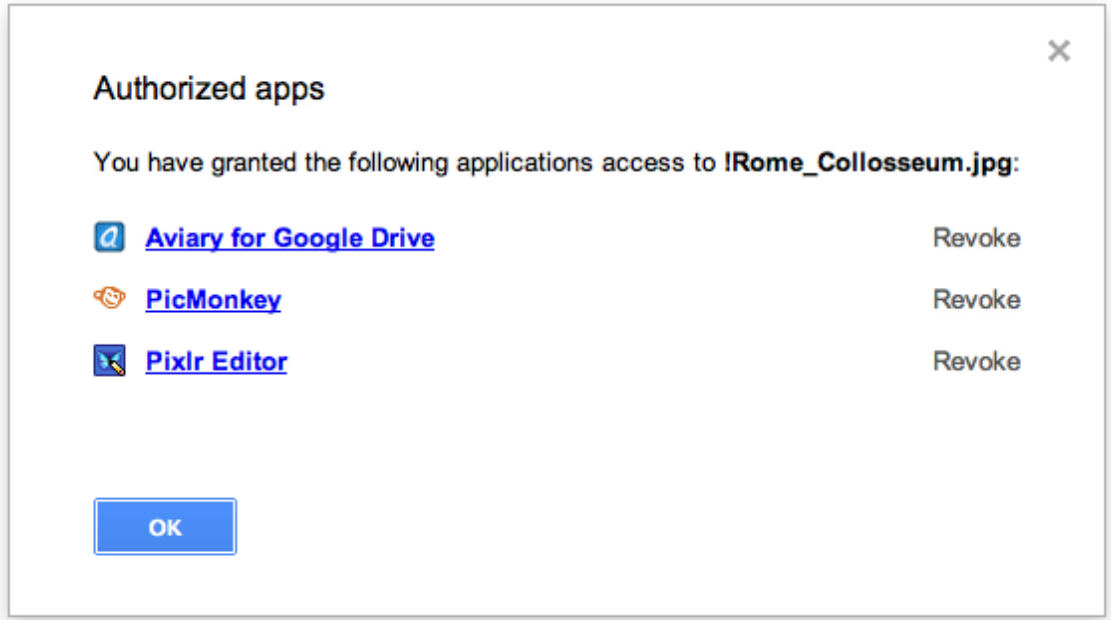
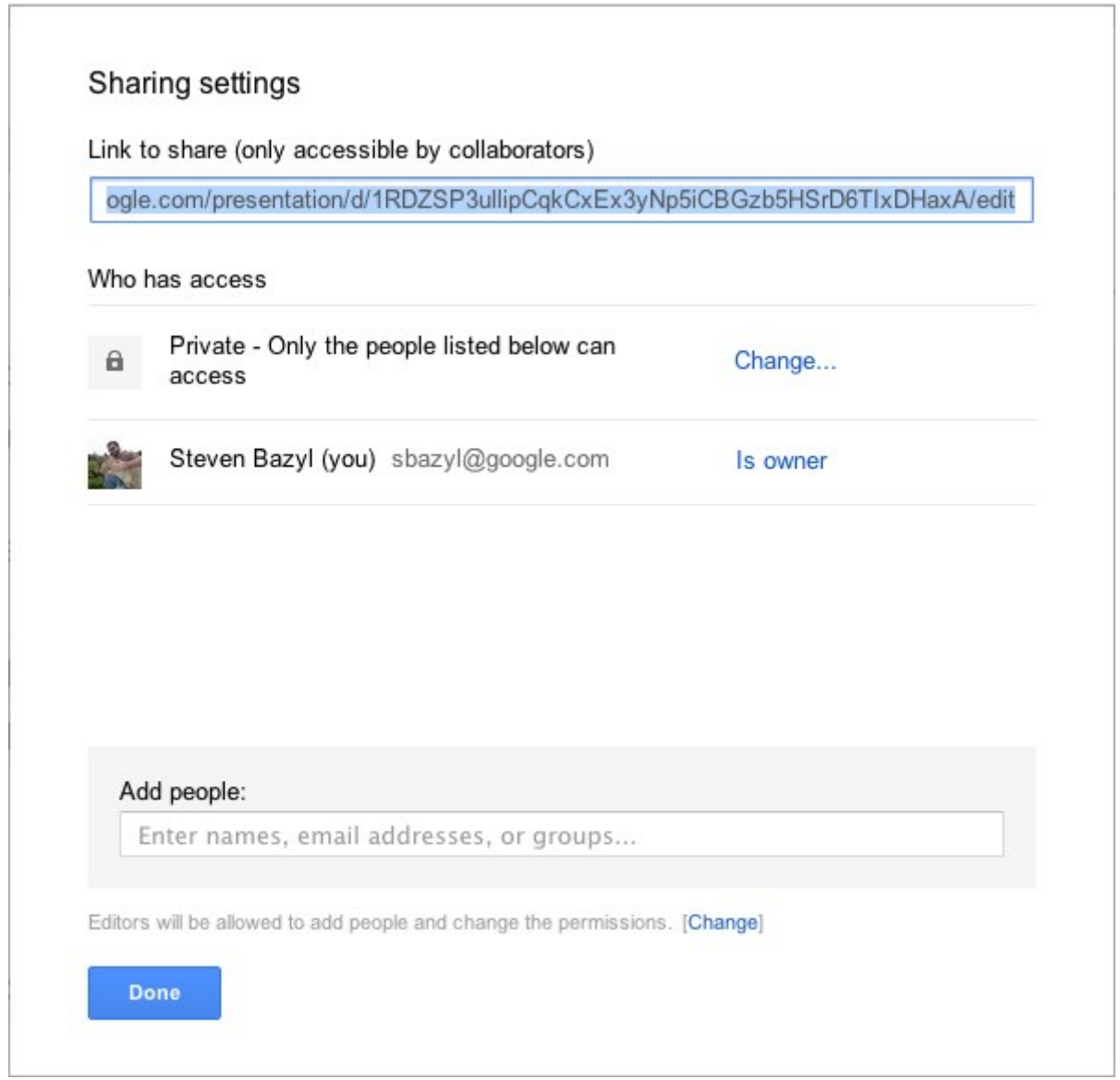


Photo editor online / free
pixlr.com/editor/?method=post&image=http%3A%2F%2Fpixlr.com%2Fproxy%2F%3Furl%3Dhttps%253A%252F%252Fdoc-14-ao-docs.goo...
File Edit Image Layer Adjustment Filter View Language Help
Mike Procopio | Logout | Settings
Constraint: No restriction
Width: 0
Height: 0
Tools
!Rome_Collosseum
Navigator
Layers
Background
History
Open Image
100 %
640x480 px


Authorized apps
You have granted the following applications access to !Rome_Collosseum.jpg:
Aviary for Google Drive
Revoke
PicMonkey
Revoke
Pixlr Editor
Revoke
OK

Make sharing *easy*


Sharing settings
Link to share (only accessible by collaborators)
ogle.com/presentation/d/1RDZSP3ullipCqkCxEx3yNp5iCBGzb5HSrD6TIxDHaxA/edit
Who has access
Private - Only the people listed below can access
Change...
Steven Bazyl (you) sbazyl@google.com
Is owner
Add people:
Enter names, email addresses, or groups...
Editors will be allowed to add people and change the permissions. [Change]
Done

Loupe

Sharing

HTML

```
<script src="https://apis.google.com/js/client.js" ></script>
```

JS

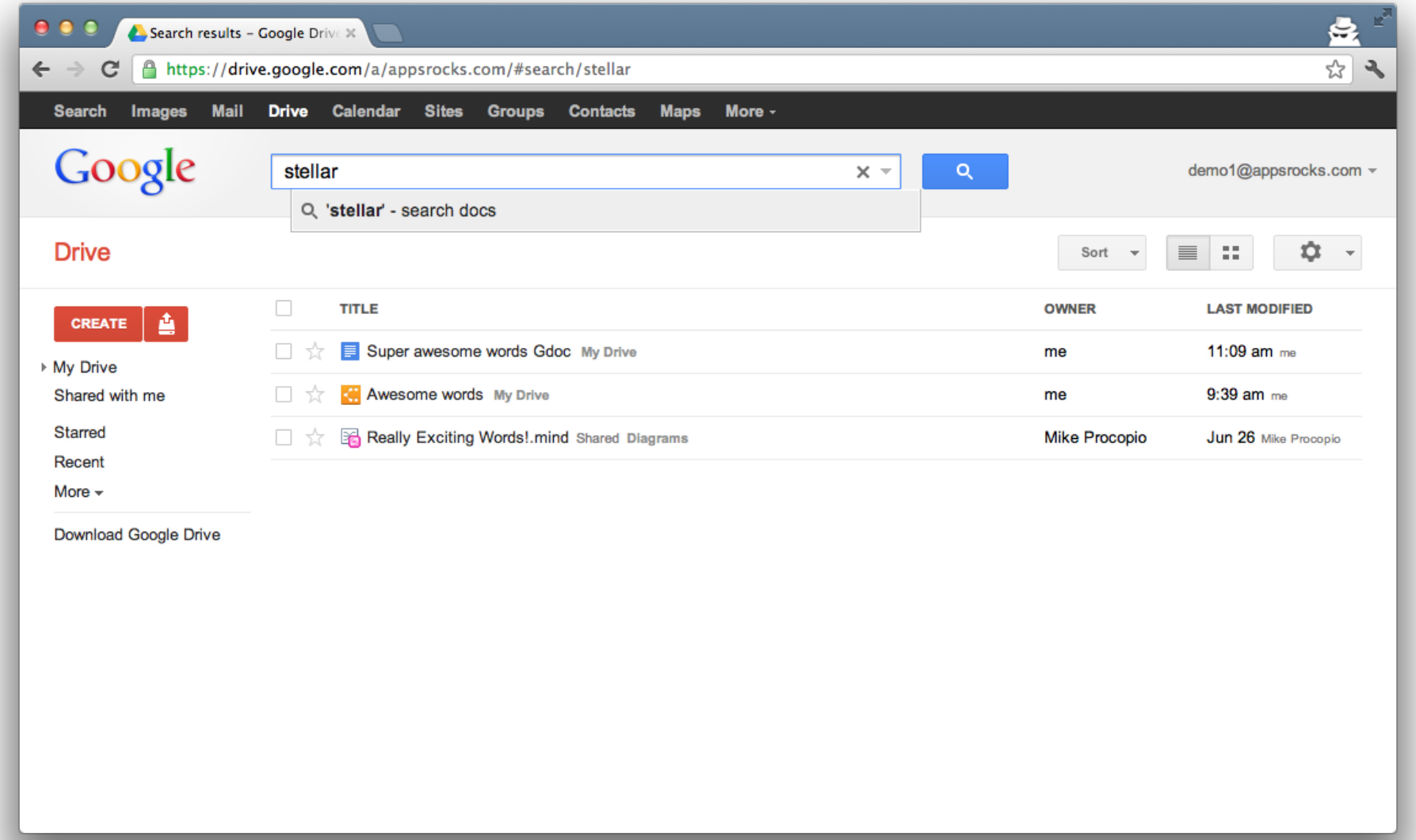
```
gapi.load('drive-share', initSharing);

function initSharing() {
 .. // Library loaded
}

function share(docId) {
      var client = new gapi.drive.share.ShareClient(YOUR_APP_ID);
      client.setItemIds([docId]);
      client.showSettingsDialog();
}
```

Be searchable

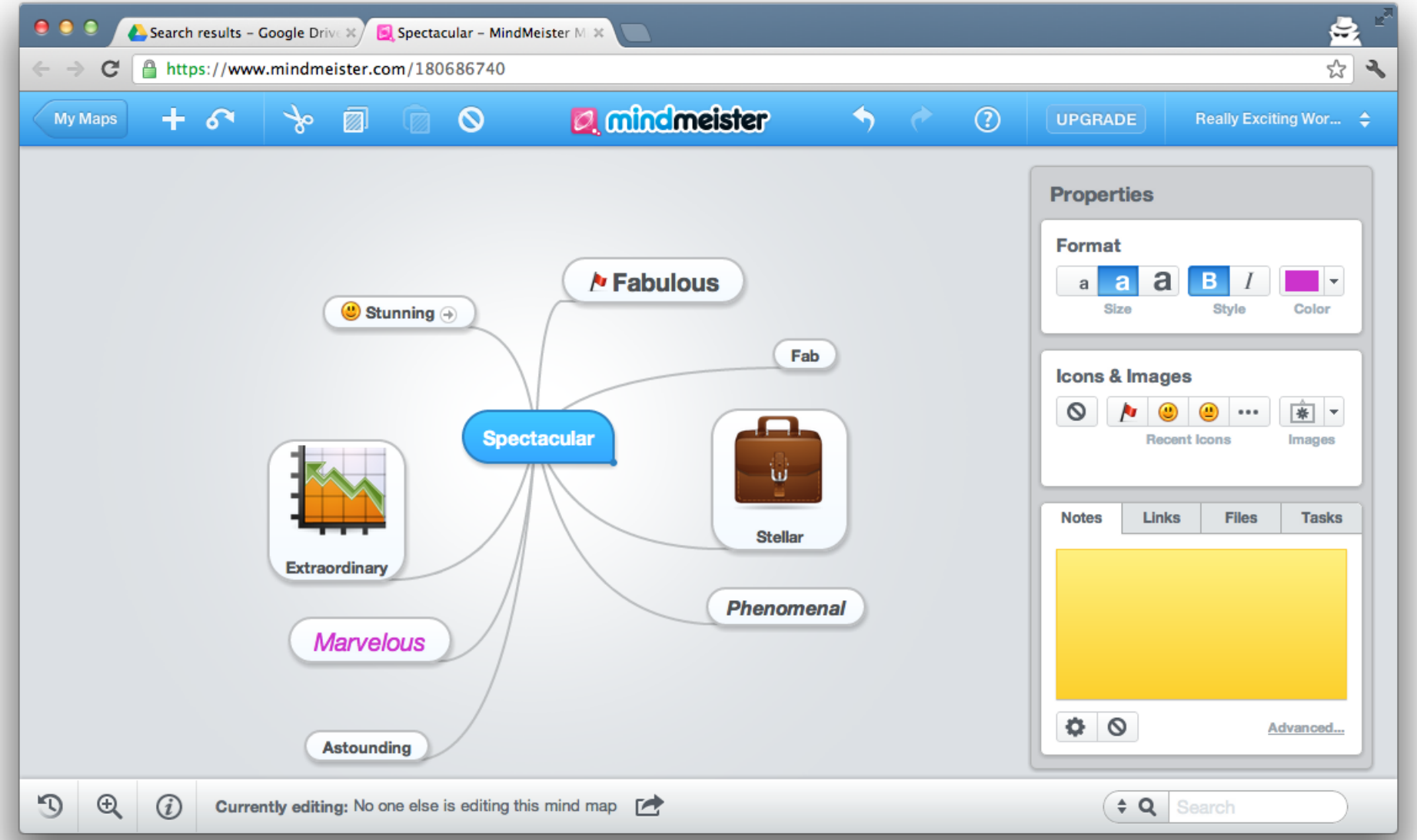
Setting IndexableText - Demo

Make the files created with your app discoverable with search!

Setting IndexableText - Demo (Backup)



Setting IndexableText - Demo (Backup)



Save early, save often

4/5

users **assumed** their work was auto-saved

Source: Google Internal UX study on Drive Apps

Autosave complexities

Mutations vs. Blobs
Quota vs. Timeliness
Frequency vs. History

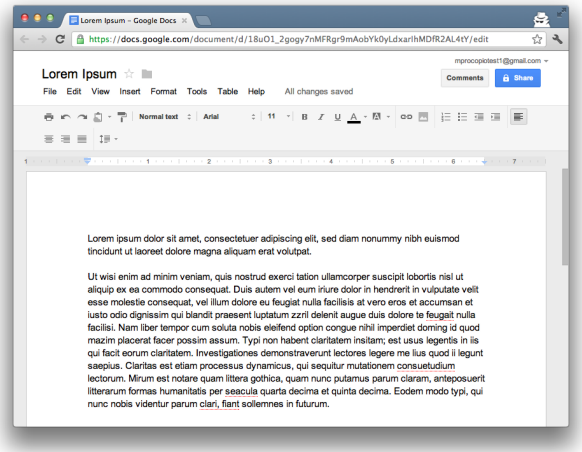
Autosave psuedocode

JS

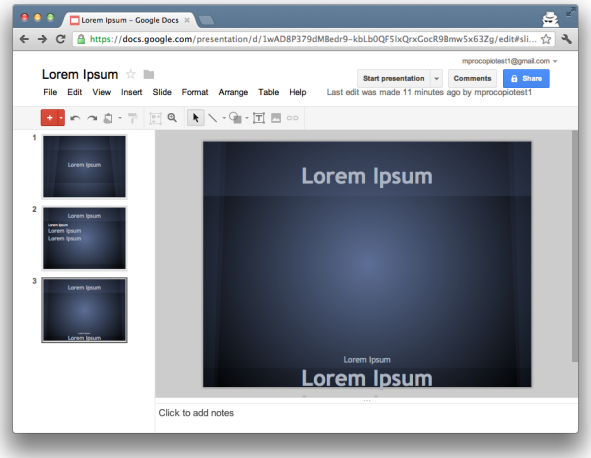
```
var autosaver = setInterval(function() {
  if (dirty()) {
    var newRev = timeSinceLastSave() > HOUR; // Been a while...
    save(newRev); // New revision
  }
}, 30000); // Autosave every 30 seconds if dirty

$('#saveButton').click(function() {
  save(true); // Explicit save, create new revision
});
```

Open Google Docs Types

Directly Open Google Docs with your App



fax

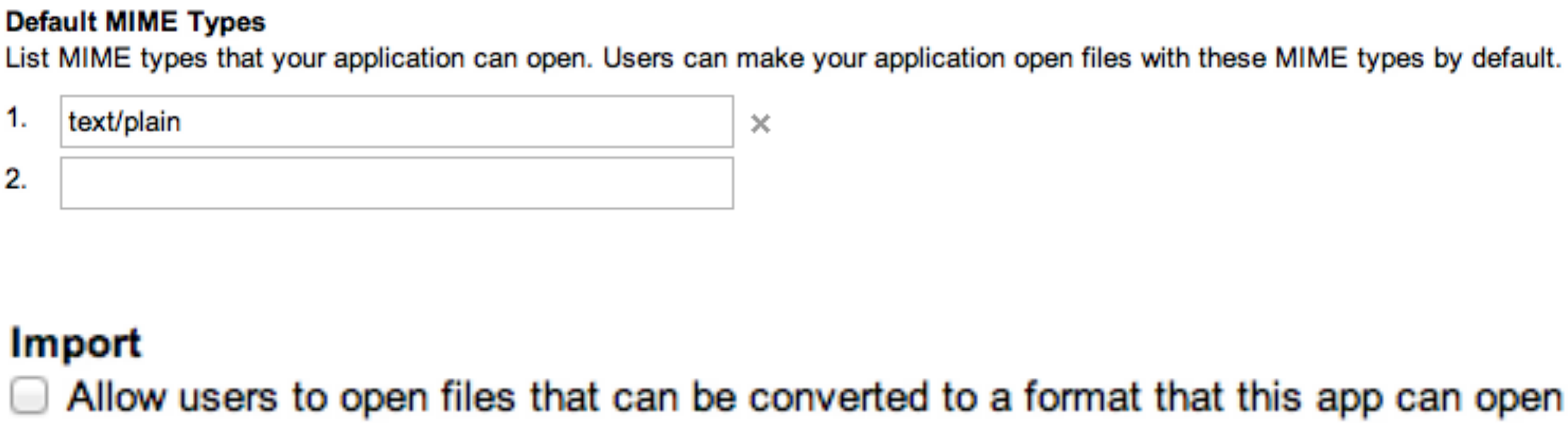


Example Export Formats

Google Doc Format	Conversions Format	Corresponding MIME type
Documents	HTML	text/html
	Plain text, Rich text	text/plain, application/rtf
	Open Office doc	application/vnd.oasis.opendocument.text
	PDF	application/pdf
Spreadsheets	MS Excel	application/vnd.ms-excel
	Open Office sheet	application/x-vnd.oasis.opendocument.spreadsheet
Drawings	JPEG, PNG, SVG	image/jpeg, image/png, image/svg+xml
	PDF	application/pdf
Presentations	MS PowerPoint	application/vnd.openxmlformats-officedocument.presentationml.presentation
	Open Office, PDF	application/pdf

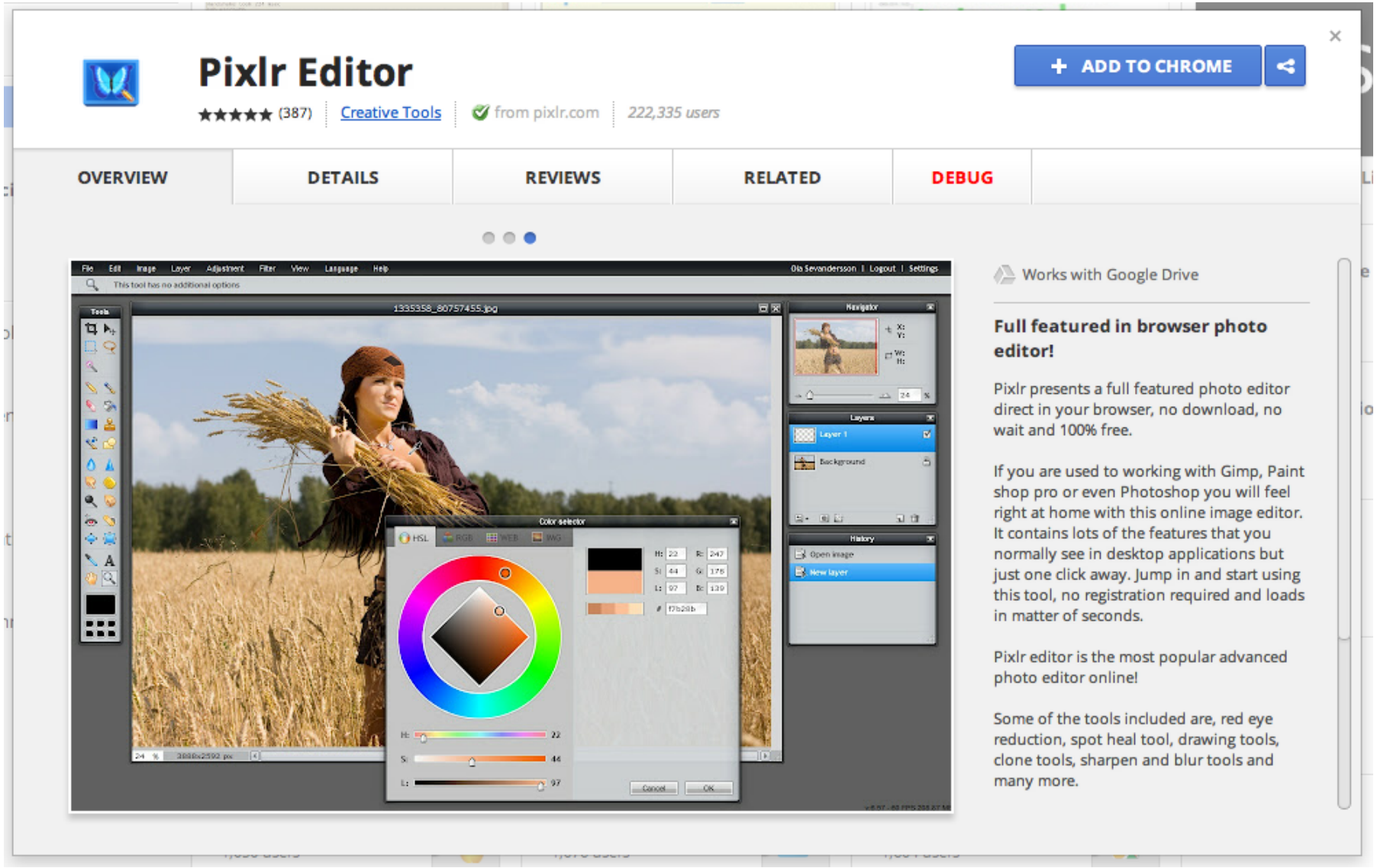
Setting up your app for this is simple

In APIs Console, Specify your MIME types, check the "Import" checkbox

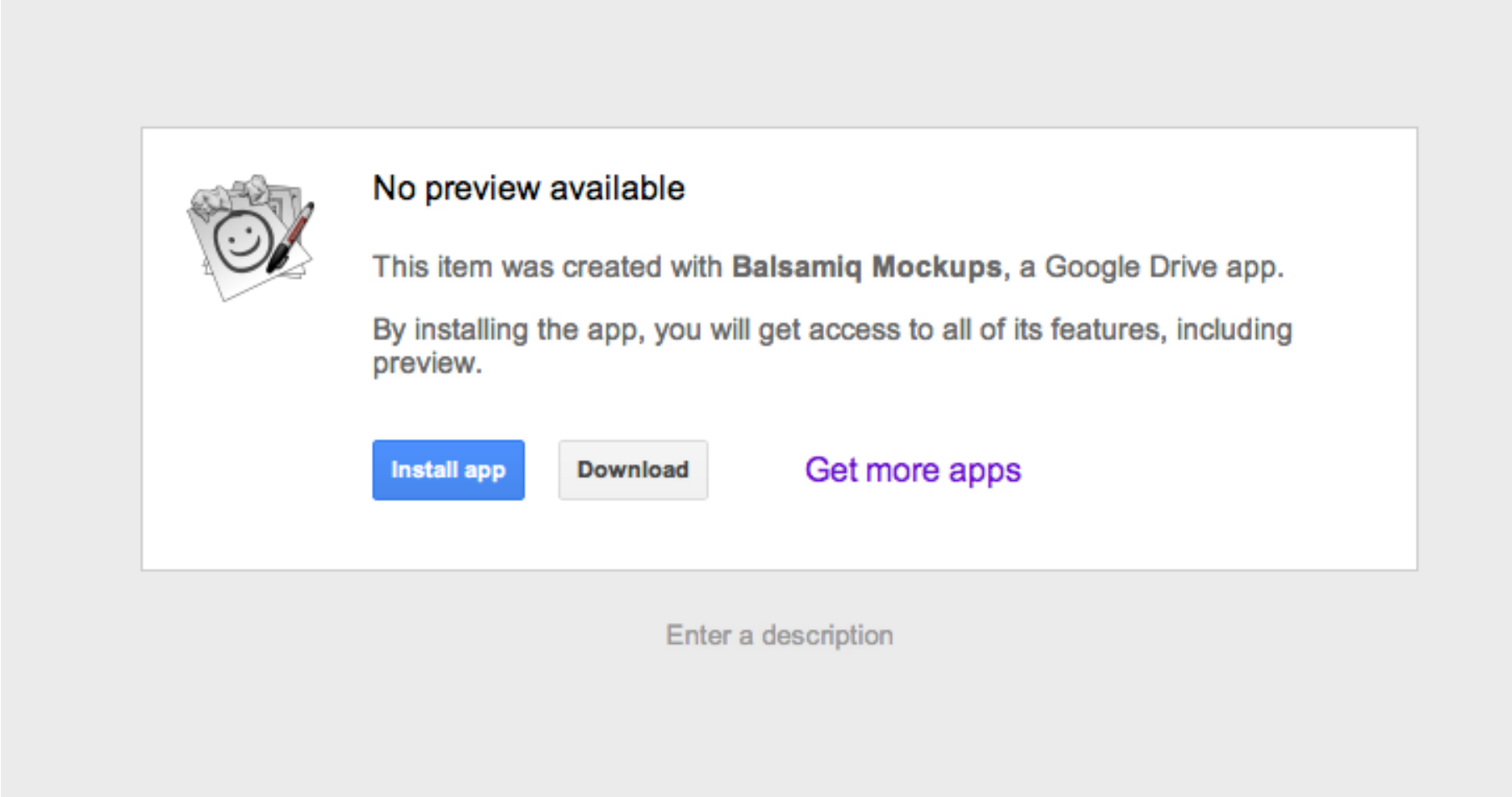


Be discoverable

The CWS page is your chance to sell your app!



Viral adoption



Declaring file types

Chrome Web Store Manifest Example

HTML

```
"intents": {
    "http://drive.google.com/intents/opendrivedoc": [
      {
        "type": ["text/plain",
                 "application/vnd.google.drive.ext-type.txt"],
        "href": "https://www.yourapp.com/",
        "title": "Open",
        "disposition" : "window"
      }
    ]
  },
  ...
```

Quick Recap

Recap

Nine things you can do
to make your app rock:

1. Be consistent (UX matters)
2. Go mobile
3. Make sharing easy
4. Be secure
5. Open anywhere
6. Be searchable
7. Save early, save often (autosave)
8. Open Google Docs types
9. Be discoverable

Opportunity

What are you going to build?

Zillions of files stored in Drive...

Files of all types

Images
Videos
PDFs
Documents, Spreadsheets, and Presentations
Text and RTF files
HTML, XML and CSS
ZIP and RAR archives
Source code: JS, Java, PHP, Python, C#

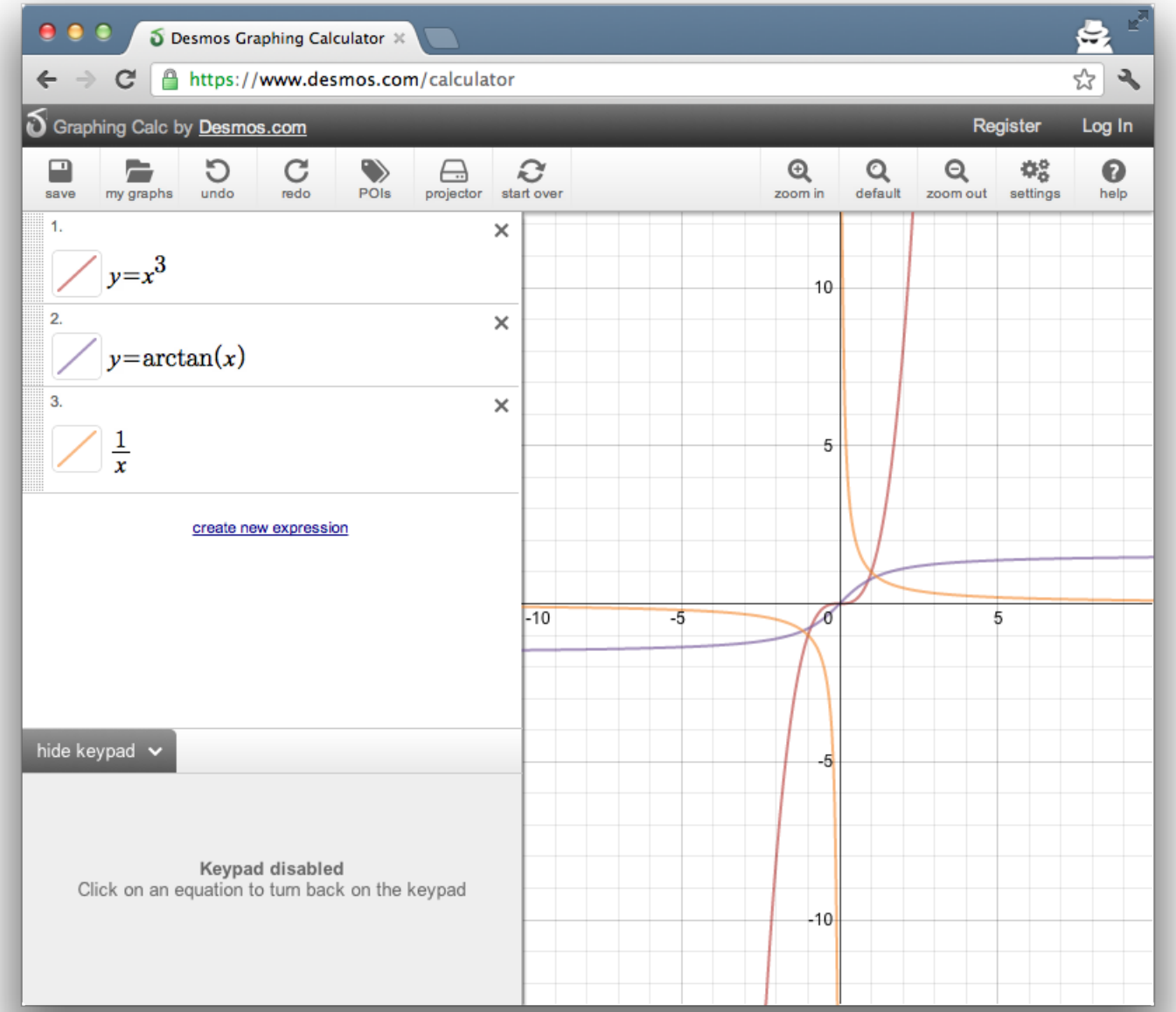
How can we bring life to these files?

If we needed an app in the desktop days... we need it now in the cloud!

Add your own file type

Build new types of apps

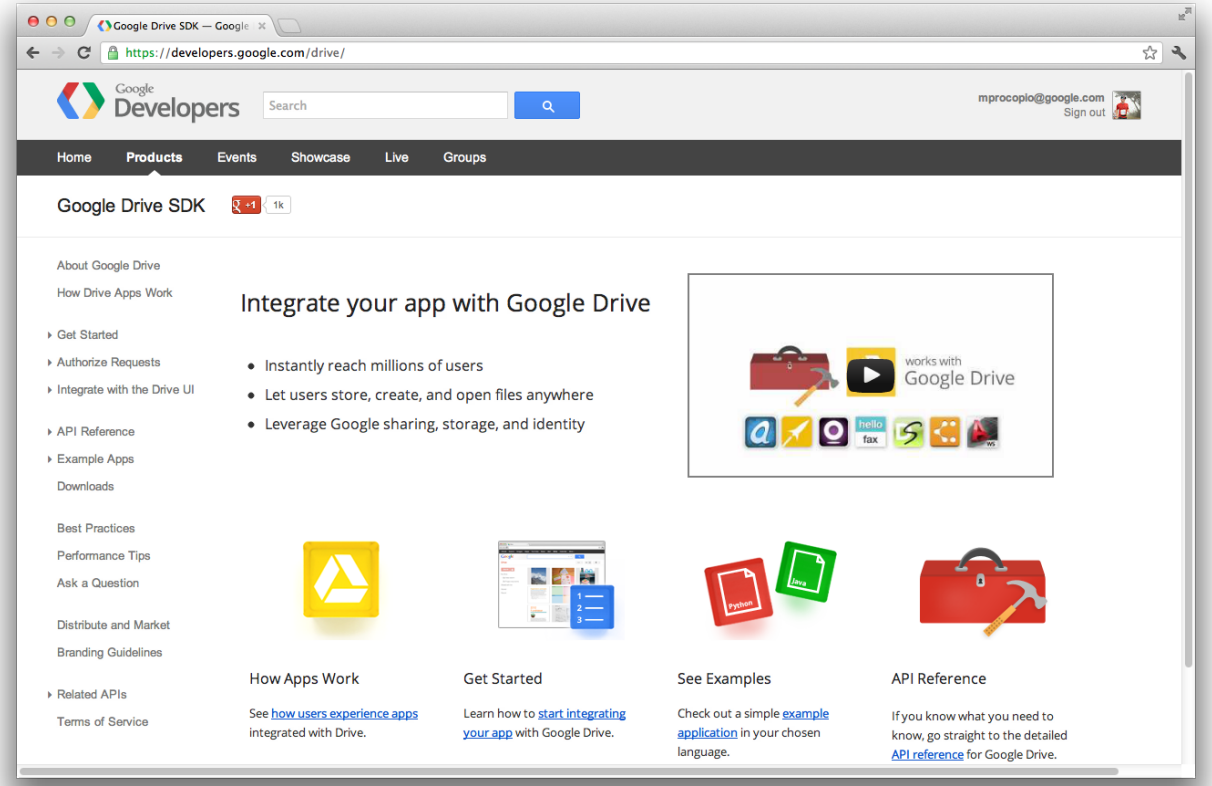
- These apps are more about the capability, the experience...
- And less about the actual file (although state is stored in Drive).



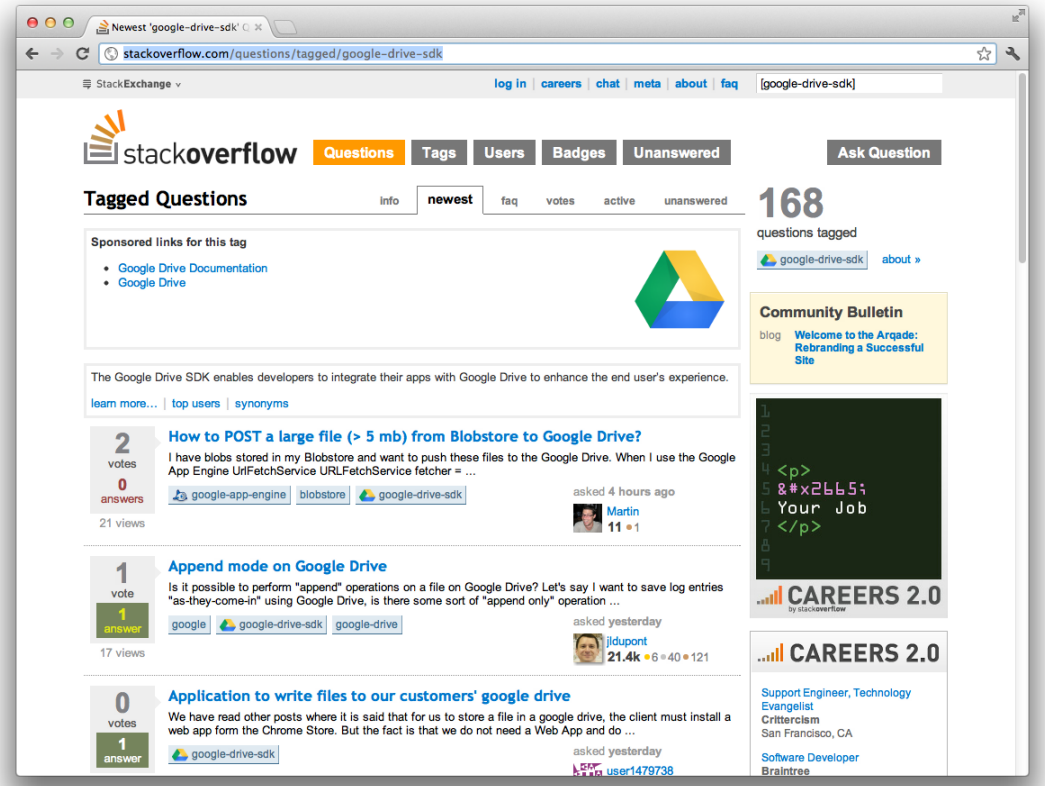
We're here for you

Developer advocates & engineers standing by to accept your ~~donation~~ **feature request**

developers.google.com/**drive**



google-drive-sdk on Stack Overflow



<Thank You! />

Get started with the SDK:
developers.google.com/drive

Get help on the Stack Overflow forum:
http://stackoverflow.com/questions/tagged/google-drive-sdk

Discover and install apps:
https://chrome.google.com/webstore/category/collection/drive_apps

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