

A background photograph of four business professionals in an office setting. An older man with glasses and a mustache, wearing a light blue shirt and a dark tie, is leaning over a desk, pointing at a computer monitor with a white marker. He is looking at a younger man with dark hair, who is also looking at the monitor. In the background, a woman with red hair and a man with blonde hair are also looking at the monitor. The scene is brightly lit, suggesting a window with blinds in the background.

Benefits and Perils of Using Open-Source For Your Startup

Elijah Mayfield

About Us

Areas of expertise:

- *Machine learning*
- *Natural language processing*
- *Computer-supported collaborative learning*

Carnegie Mellon



Timeline

2009-2013: Ph.D. Research (CMU LTI)

2012: Independent Consulting

2013-Present: Startup (LightSide Labs)



Founders

Elijah Mayfield, *computational linguist*

David Adamson, *teacher and computer scientist*

Rajiv Enand, *serial technology entrepreneur*

As a company our goal is to
improve student writing,
using machine learning for automated
assessment and feedback.

- Automated high-volume essay scoring, reducing testing and placement costs.
- Programmatic API for automated text assessment, enabling new technologies.
- In-classroom tool for direct support for teachers and formative feedback for students during the writing process.



What We're Building

Automated Essay Scoring API

Basic Capabilities

Upload text data files

Extract NLP features
from text strings

Train optimized machine
learning models

Score new essays,
individually or in batch

```
data = {"corpus": "https://try-  
api.light sidelabs.com/api/corpora/7"}  
headers = {  
  "Authorization": "Token  
ded435f184a304a4d1e3a87c3d9739fc6e2ba1bc",  
  "Content-Type": "application/json"  
}  
r = requests.post("https://try-  
api.light sidelabs.com/api/training-  
tasks/",  
data=json.dumps(data), headers=headers)  
r.status_code # => 201  
r.json() # =>  
#{  
  # "url": "https://try-api.light sidelabs.com/api/training-  
tasks/3",  
  # "process": "https://try-api.light sidelabs.com/api/training-  
tasks/3/process",  
  # "task_id": "2a11b7ad-0f22-4adb-b178-919a5468f10f",  
  # "owner": 1,  
  # "status": "W",  
  # "messages": "",  
  # "corpus": "https://try-api.light sidelabs.com/api/corpora/7",  
  # "trained_model": null,  
  # "created": "2013-08-01T15:42:19.267Z",  
  # "modified": "2013-08-01T15:42:19.267Z"  
#}
```

What We're Building

LightSide Revision Assistant

1

Writing Prompt

2

Student Input

The screenshot displays the 'Revision Assistant' interface. At the top, it shows 'Revision Assistant' with navigation links for 'Home' and 'Profile', and a user greeting 'Welcome, Nickname | Logout'. The main content area is titled 'Letter to the Editor' and includes the teacher's name 'Mr. Adamson' and class 'Eighth Period English'. A writing prompt asks the student to write a letter to a local newspaper about computers. Below the prompt, there are four radio buttons for response length, with the first one selected. The 'Response' section shows a student's letter with several lines of text. A 'Check Signal' button is visible above the response. On the right side, a 'Signal Checks' panel lists 'Clarity', 'Evidence', 'Analysis', and 'Genre', each with a signal strength icon. A legend explains that blue indicates 'Strongest' and orange indicates 'Weakest'. A feedback message from the 'Revision Assistant' says, 'I'm not sure what you mean here. Can you try explaining in more detail?'. A 'Submit' button is at the bottom right.

3

Automated
Essay Scoring

4

Span-Targeted
Feedback

Student View

What We're Building

LightSide Revision Assistant

Revision Assistant Assignments My Prompts Library Profile Welcome, Elijah | Logout

My Prompts

Search My Prompts

Prompts you have saved or assigned from the LightSide Prompt collection are saved in your collection. Click on one to review it or assign it again.

Assigned

- Winter Hibiscus**
Source Essay Winter Hibiscus by Minhng Ho Saeng, a teenage girl, and her family have moved to the United States from Vietnam. Ho Saeng writes home after failing her driver's license tes...
- Patience**
Write about patience. Being patient means that you are understanding and tolerant. A patient person experience difficulties without complaining. #period7 #english
- Patience**
Write about patience. Being patient means that you are understanding and tolerant. A patient person experience difficulties without complaining. #period7 #english

Saved

- Persuasive Essay on Censorship**
"All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work..." #7th #ela
- Persuasive Essay on Censorship**
"All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work..." #ela7
- The Mooring Mast**
Source Essay The Mooring Mast by Marica Ammon Liberman. When the Empire State Building was conceived, it was planned as the world's tallest building, taller even than the new...

Revision Assistant Assignments My Prompts Library Profile Welcome, Elijah | Logout

← Back to LightSide Prompts

Persuasive Essay on Censorship

Text

"All of us can think of a book that we hope none of our children or any other children have taken off the shelf. But if I have the right to remove that book from the shelf -- that work I abhor -- then you also have exactly the same right and so does everyone else. And then we have no books left on the shelf for any of us." — Katherine Paterson, Author

Write a persuasive essay to a newspaper reflecting your views on censorship in libraries. Do you believe that certain materials, such as books, music, movies, magazines, etc., should be removed from the shelves if they are found offensive? Support your position with convincing arguments from your own experience, observations, and/or reading.

Details

Length
350-500 words

Grade Level
Grade 8-9

Subjects
Math

Common Core Alignment

Use this Prompt

Make a copy of this prompt to use with your students. Click "Save" to keep your copy for later or "Assign" to send to the class. Either way, you can access your copy from the "My Prompts" tab.

Add Instructions

Do your best

Choose a Color
This will be the background color for the icon when students view the assignment.

Choose an Icon
This icon will appear next to the prompt title when students view the assignment.

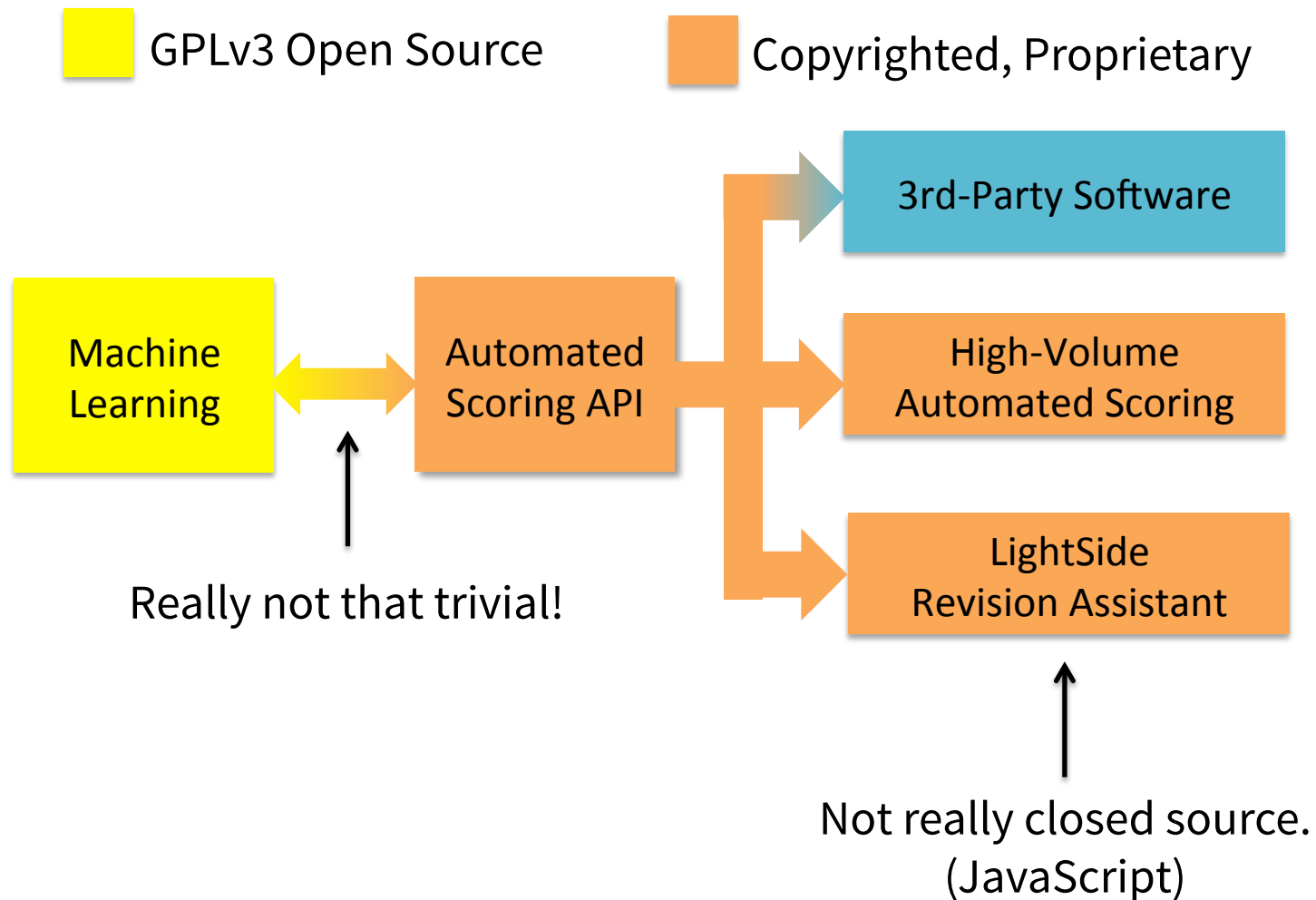
- 1 Curated, CCS-Aligned Content Library
- 2 Assignment Creation/Management
- 3 Student Response Review
(with revision history)
- 4 Good-Faith Detection and Screening
- 5 Classroom Performance Forecasting/Analytics

Teacher View

Everything is anecdotal.

What We're Building

Our Open Source Model



Product of abundant summer 2013 lawyer conversations:

1. Open Source/Proprietary Connection
2. Open Source Package List
3. Appraisal of License Compatibility
4. Third-Party Distribution/Licensing Strategy
5. Advisory Letters from Lawyers

Input directly from lawyers was **incredibly** heartwarming to wary investors and high-end consulting clients.

Total cost of open source legal advising: **\$5,000-10,000**

Distinctions in Terminology

Free/Gratis

“Free as in beer”

No financial cost.

Free/Libre

“Free as in speech”

No restrictions on what you can and can't do, see, or change.

Permissive

BSD/MIT/etc.

“Easy” open source software.

Viral

GPL/copyleft

Complicated.

Easy Licenses: BSD, MIT, Apache

Copyright (c) <year>, <copyright holder>
All rights reserved.

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- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
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Easy Licenses: BSD, MIT, Apache

Anyone can take your code and use it for any purpose.

Only restriction: Acknowledgement with copyright notice.

You can use **others'** BSD code with no limits.

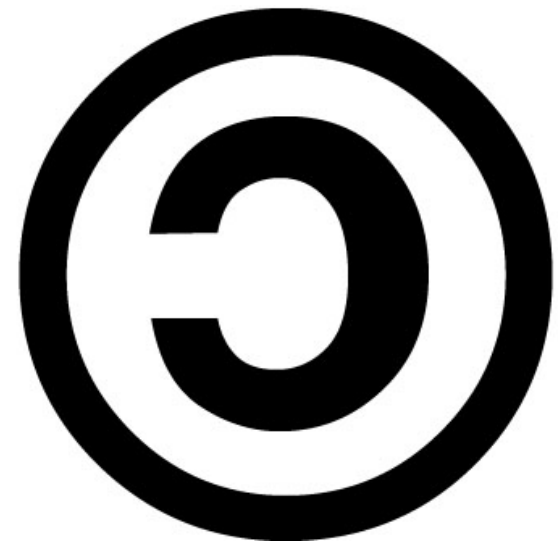
Others can use **your** BSD code with no limits.

Hard Licenses: Viral Open Source

Copyleft proponents argue for “viral” open source.

All **derivative works** of open source software should also be open.

- Modifications
- Extensions
- Improvements/Bug Fixes



Hard Licenses: Viral Open Source

GNU Public License:

Any new software that requires this code to be present in order to compile and run, must also be licensed with GPL.

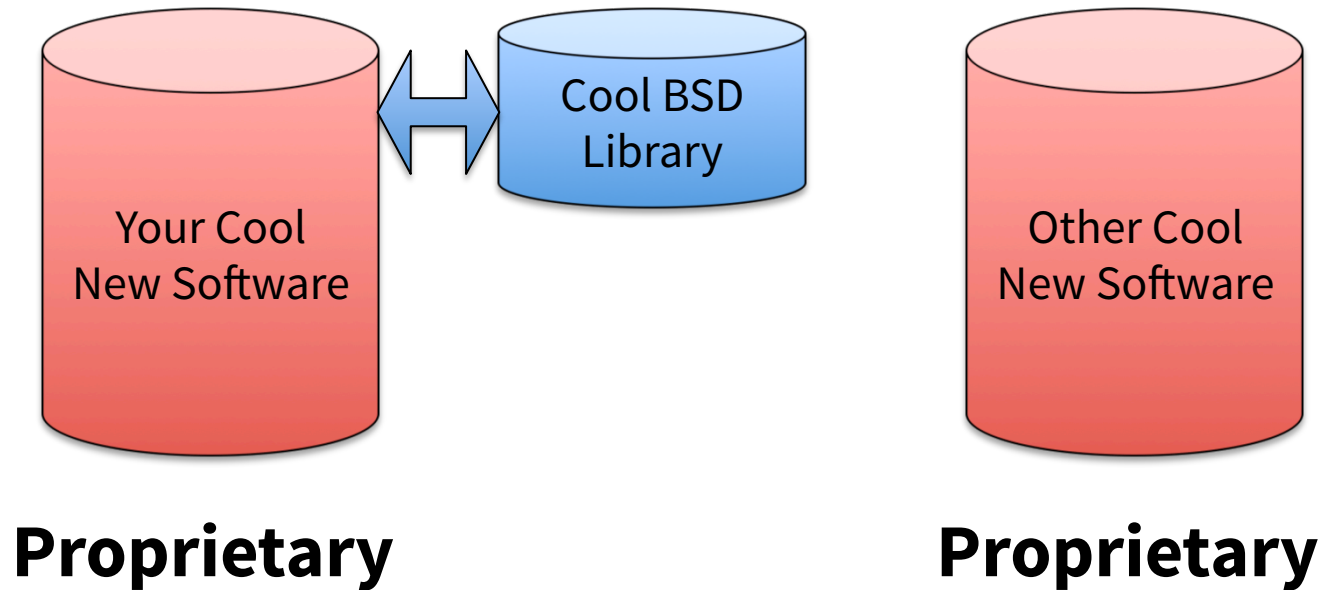
Lesser GPL:

Any modifications to this source code must also be licensed under LGPL (*but integrating this code's methods does not trigger LGPL*)

Affero GPL:

GPL + Anyone that communicates with this code programmatically must be able to download its source.

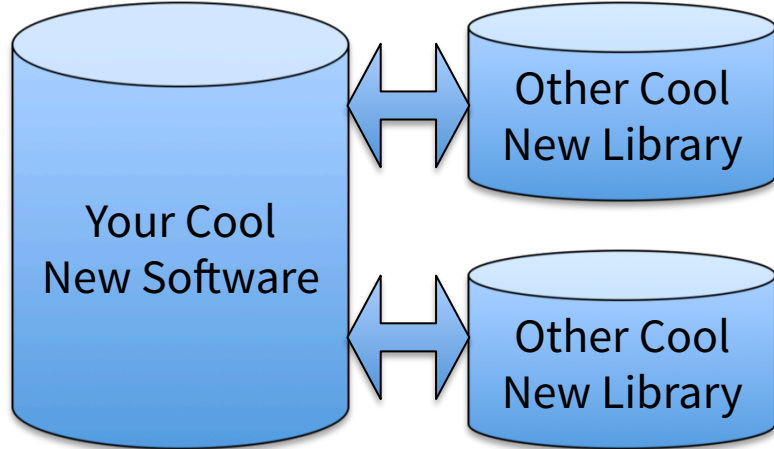
Example 1: Everything is Proprietary



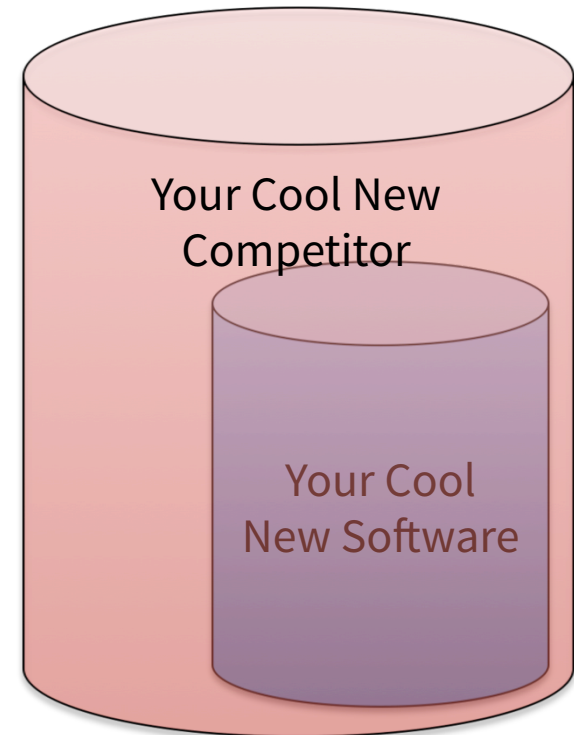
No collaboration. No transparency. Less risk of IP theft.

Example 2: Everything You Do Is Free

BSD



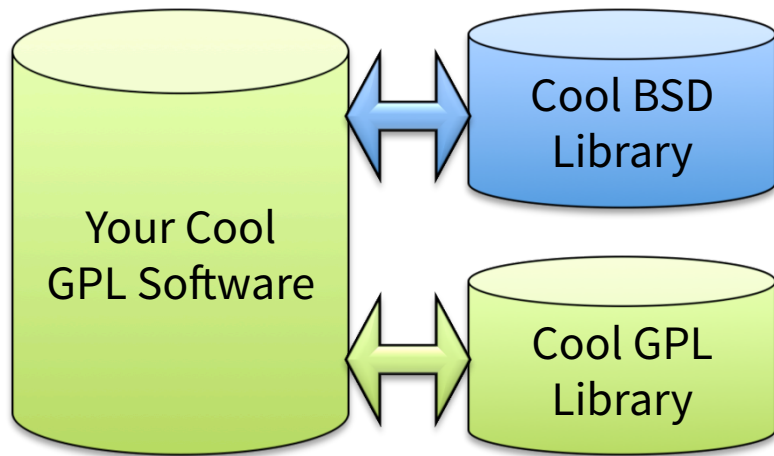
Proprietary



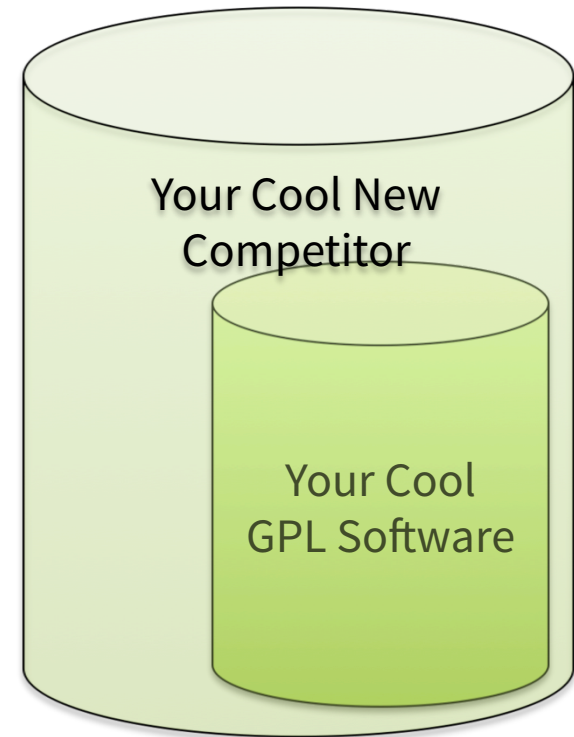
Easy Integration & Collaboration. No Protection.

Example 3: Using Copyleft

GPL

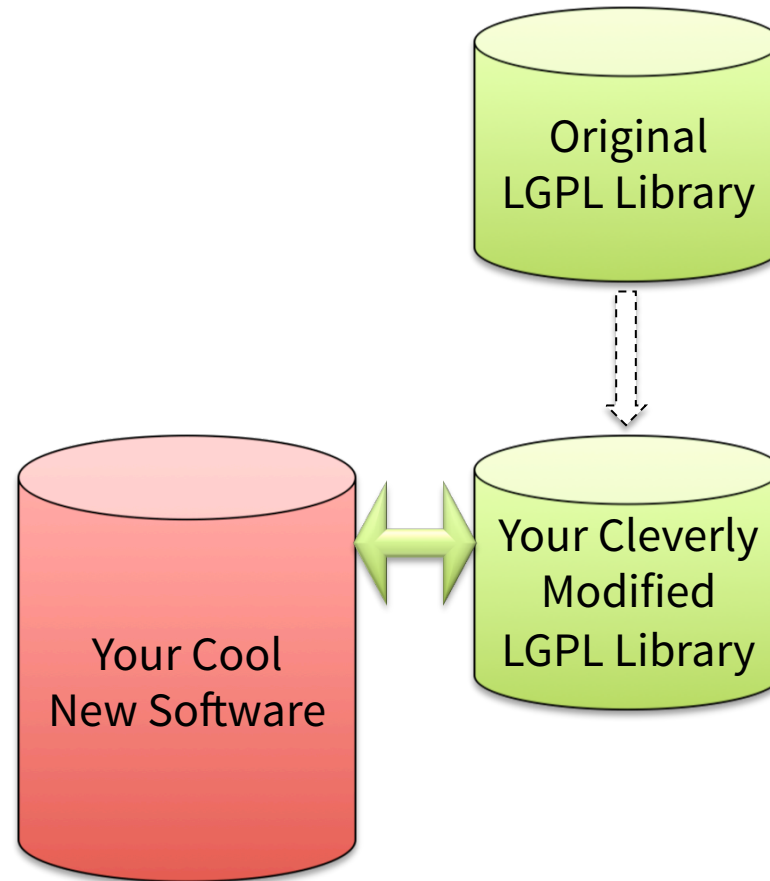


GPL



Easy Collaboration – for other free software, only.

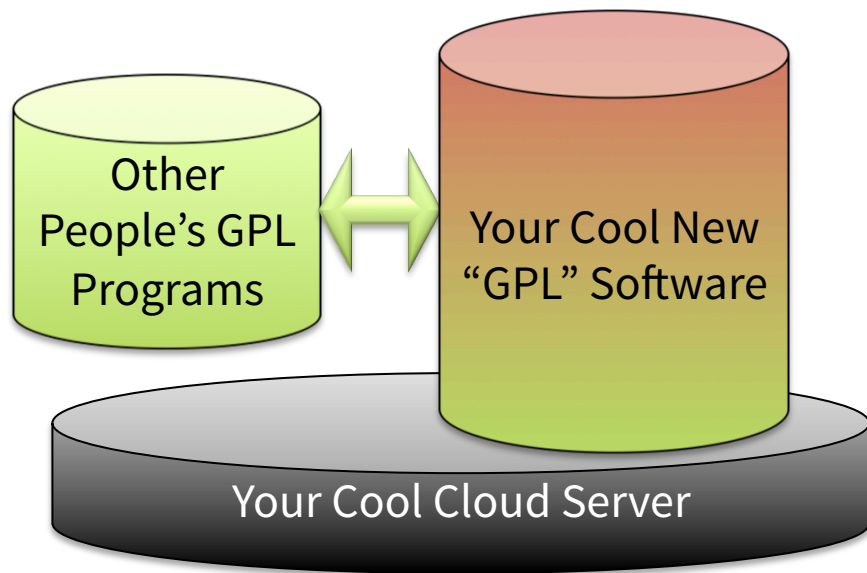
Example 4: Changes with LGPL



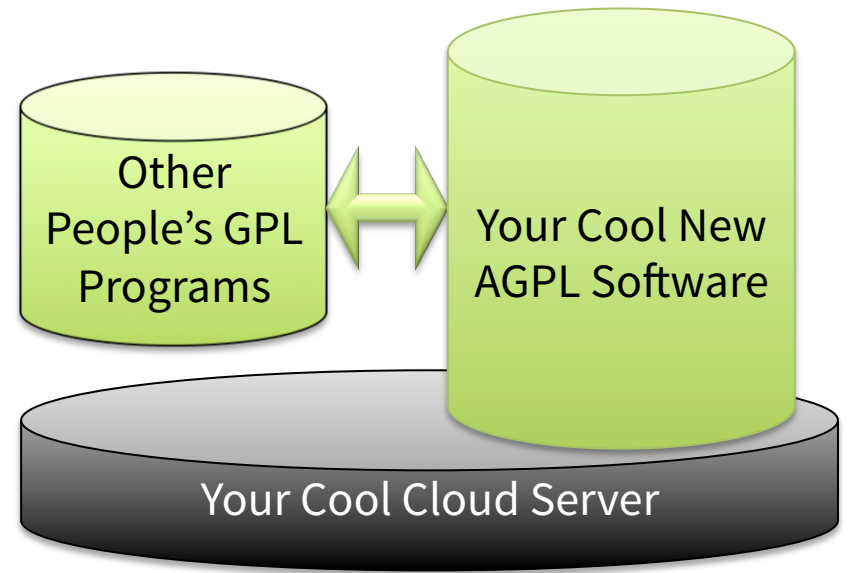
Encourages sharing of improvements; not as restrictive.

Example 5: The “service loophole”

Sharing source code is only necessary with a “distribution” of the program – so just never distribute it.

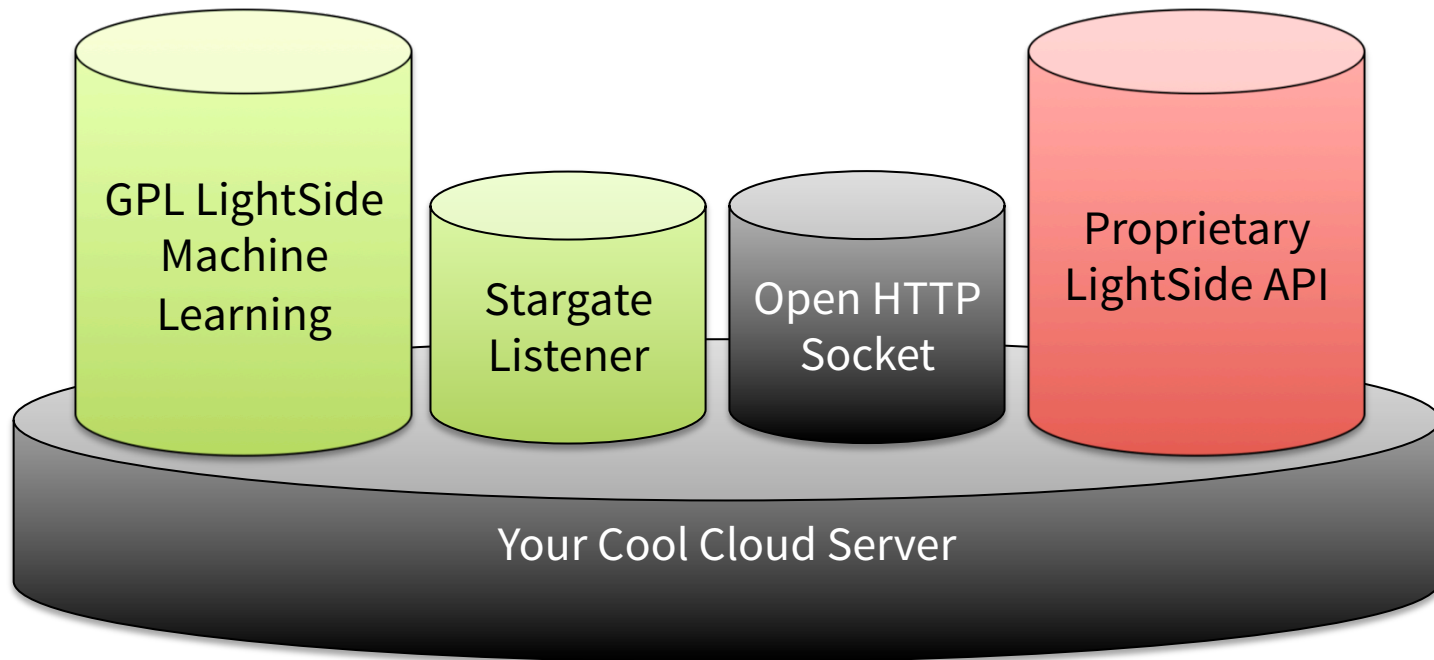


Regular GPLv3



Affero GPL

LightSide's "Stargate" Strategy



Impact on Sales

You will **lose** customers because of open source software.

- Cheap companies with clever developers
- Sensitive, firewalled companies with restrictive policies.
- Faster adoption and awareness from competitors.

You will **gain** customers because of open source software.

- Transparency-oriented organizations will ask for it.
- Faster adoption and word-of-mouth through easy access.
- Extensions/collaborations from other open source projects.

Impact on Development

The relationship with developers changes:

- Easier recruiting – developers generally support OSS.
- **Potential** for “free development” – but not likely.
- Faster development cycles through code reuse.

Consider **culture** of an open source community:

- Web-oriented projects (Ruby, Python) tend to prefer permissive.
- Desktop and server projects (Java, C) tend to prefer viral.

Impact on Customers

Luckily, little of this is visible to your users.

- Customers/users generally don't read your licenses anyway.
- Moreover, they won't be doing development in the first place.

Exceptions!

- Sometimes you're selling your product to developers.
- Potential for derivative products to confuse market.

Other considerations

- Web projects are a harder to keep hidden (client-side execution)
- Hardware may play by different rules (audience?)

Impact on Research

Academic research on proprietary, corporate software is **really hard**.

Many view OSS as **necessary but not sufficient** for collaboration.



Peer-reviewed research behind a sales pitch is **incredibly effective** in education (white papers, on the other hand, are trash).

Impact on Intellectual Property

Transfer of code from CMU did not require royalties.

Letter from CTTEC to LightSide asserts that:

- CMU owns the copyright on your software. (different for Masters?)
- That work is under an open source license and downloadable.

Patents are still possible (and encouraged!)

- Specific implementations are not the domain of a good patent.
- Combination of algorithms, domain, use case, and prior art.

Most Important Message of the Day

Very few early-stage companies should really be considered about IP theft.

Your code is not as valuable as your execution.

- **Fit:** Empathy for customers, ability to solve needs, strong UX.
- **Relationships:** Vendors/customers/strategic partners/investors.
- **Team:** Cofounders/employees/advisors and nearby ecosystem.
- **Sales:** Marketing/advertising/distribution networks.
- **Stack:** Development/integration/deployment/uptime.

Open Q&A

Thanks!



www.light sidelabs.com

Hiring a full-time frontend web developer (AngularJS) *today*.
Summer internships are possible for great candidates.
Collaborators and comments desired, *always*.

elijah@light sidelabs.com