Code Navigation & Search Market Research and Product Roadmap

March 2021

Background on our research

- **We interviewed over 30 potential customers over two months** to get feedback on a wide range of ideas. We narrowed down to a focus on code navigation and search — the same market as Sourcegraph.
- **We interviewed several current Sourcegraph customers,** representing nearly 3,000 engineers in total

What is code nav and search?

Code nav and search is a set of tools for reading and browsing code, which developers do often. The main components are:

1. Code display
2. Code navigation, which today is “Jump to Definition” and “Find usages”
3. Code search

Example use cases:

- **Where, in my code, is this interface used?**
  - I want to change it, and I need to know who else depends on it
  - I want to use it, so I’d like to see examples of how it’s used
- **Where, in my code, is this error coming from?**

Code search products

	Kite Search	Sourcegraph	Github Enterprise	Editor / IDE
Scalability				
Fast with GB's of code	✓	✓	✓	✗
Indexing thousands of repos	✓	✓	✓	✗
Ways to navigate				
Powerful search (e.g. regex)	✓	✓	✗	✓
Semantic code navigation	✓	✓	✗	✓
AI-powered navigation	✓	✗	✗	✗
Usability				
Browser tabs > IDE tabs	✓	✓	✓	✗
Easier context management	✓	✓	✓	✗
Adoption				
Viral link sharing	✓	✓	✓	✗
Use without server	✓	✗	✗	✓
Bottoms-up dev presence	✓	✗	✓	✓
Cross-platform integrations	✓	✓	✗	✗

What matters to users: Scalability

	Kite Search	Sourcegraph	Github Enterprise	Editor / IDE
Fast with GB's of code	✓	✓	✓	✗
Indexing thousands of repos	✓	✓	✓	✗

Editor / IDE search does not scale

- Companies that use ***mono-repos*** keep all their code is in one large repo. Searching this code is slow, and semantically analyzing it does not scale.
  Example: Dropbox uses Sourcegraph to search their 6 GBs and 400k files of code.
- Companies that use ***microservices*** keep their code spread across many repos. Devs don't have all of them on their local machine, so IDEs cannot search them.
  Example: Lyft uses Sourcegraph to search their 3,000 repos.

What matters to users: Ways to navigate

	Kite Search	Sourcegraph	Github Enterprise	Editor / IDE
Regex search	✓	✓	✗	✓
Semantic code navigation	✓	✓	✗	✓
AI-powered navigation	✓	✗	✗	✗

Today's tools lack intelligence

- Code navigation is limited to "go to definition" and "find usages"
- Developers resort to regex searching when looking for some other kind of relationship
- AI can build 10× better maps of code, making navigation easier

Examples of AI-powered code navigation

No tool supports these use cases today. We are unlocking them using ML.

youtube_channels.tmpl.sql

```
10  LOCATION
11    's3://kite-youtube-data/channels/'
```

See 8 references to S3 bucket

See 2 references to S3 directory

main.css

```
20        .indent-subsection {
21          margin-left: 2
22        }
```

See 2 usages in React

See 2 usages in Jinja

kite_status_1d.py

```
288         query='athena/queries/kite_status_1d.tmpl.sql',
289         output_location='s3://kite-metrics-test/athena
```

Open filepath

See 3 references to file

What matters to users: Usability

	Kite Search	Sourcegraph	Github Enterprise	Editor / IDE
Browser tabs > IDE tabs	✓	✓	✓	✗
Easier context management	✓	✓	✓	✗

Reading code is often easier in browsers than editors

- A Sourcegraph user told us “I prefer reading code in my browser because when I’m done it’s easy to close the browser tabs and my editor state remains unchanged”
- It’s also easier to explore information in browsers because each tab has its own history stack, whereas code editors only have one history stack, similar in nature to web browsers from the ‘90s that did not have tabs.

What matters to users: Ease of adoption and spread

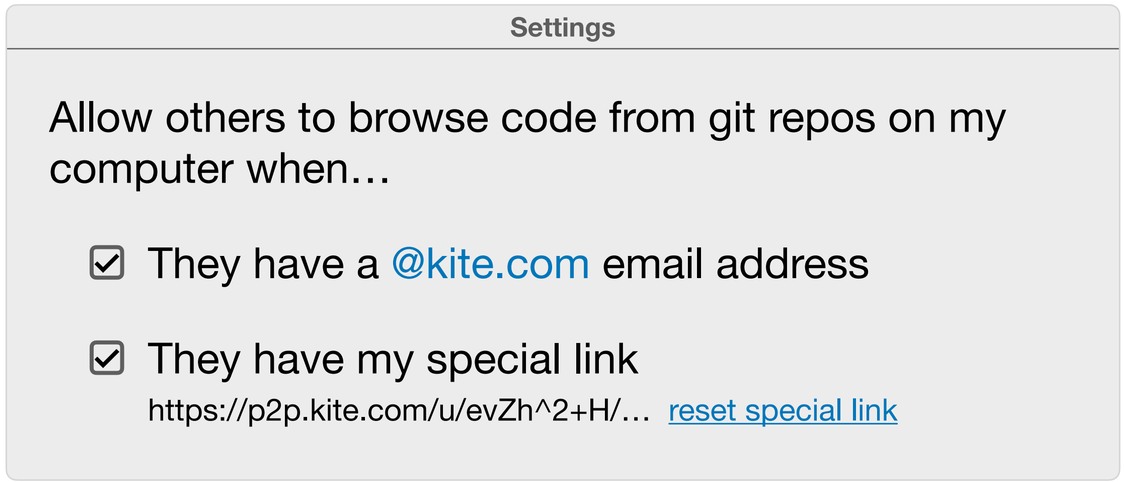
	Kite Search	Sourcegraph	Github Enterprise	Editor / IDE
Viral link sharing	✓	✓	✓	✗
Use without server	✓	✗	✗	✓
Bottoms-up dev presence	✓	✗	✓	✓
Cross-platform integrations	✓	✓	✗	✗

- Sourcegraph gets high uptake within dev orgs because **devs share hyperlinks** to code. Over 70% of Dropbox developers use Sourcegraph daily.
- Kite will have a **unique combination** of (1) sharable hyperlinks, and (2) no server deploy to get started — see next slide
- Github, Microsoft, and Jetbrains have a **strategy tax**: they will never integrate with tools from other vendors like Gitlab, CodeCov, Chrome, etc — Sourcegraph has a lot of success with these integrations, and Kite will too

Peer-to-peer Kite

Kite will have the virality of sharable links without the need to deploy a server

Kite Desktop will be able to serve Kite code nav and search to their coworkers' browsers, implemented with WebRTC



Once Kite gets uptake, companies will still want to deploy the server to get SSO, etc.

What matters to users: In review...

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Fast timeline

We already have the core tech, so we can launch quickly. Also 82% of Sourcegraph is open source under a permissive license.