



Towards a Decentralized Alternative to GitHub

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Decentralized web, year 5. We still don't have a viable decentralized GitHub.



Alex Skidanov @AlexSkidanov · Jul 26

Evidently @github has banned all the Iranian users without an ability for them to download their repositories.

A service like Github must be a public good and must not be controlled by a centralized entity. Another great example of why we as a society need to make web3 a reality

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3:45 PM · Jul 27, 2019 · [Twitter for Android](#)

10 Retweets 21 Likes



radicle^{alpha}

*A peer-to-peer stack for code
collaboration*

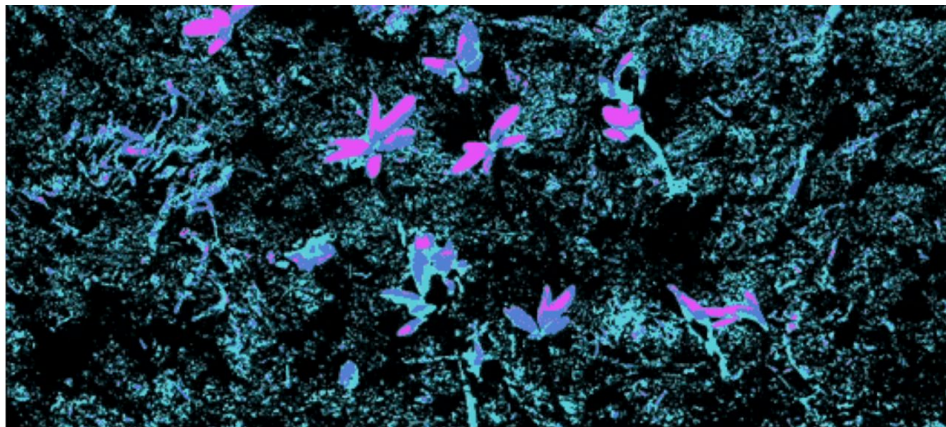
WARNING: experimental software, not for production use

Peer-to-peer

The Radicle stack builds on IPFS, and works without a centralized server. No hassle with setting up your own hosting, and no need to trust companies with your data.

Terminal-first

A Radicle project contains a git repository, plus the associated issues and proposals. Access all the issues and proposals associated with your codebase right from your terminal.



Collaborate with Radicle

Setup a project

`rad project` allows you to create, checkout, manage, and publish a project, comprised of issues, patch proposals, and a git repo.

```
$ rad project init
? What's the name of your project? radicle-garden
? Briefly describe your project? A community garden
=> Creating git repository
=> Adding "origin" remote: ipfs://ipns/12D3KooW...
```

<http://radicle.xyz>

A secure and decentralized network for code collaboration and value exchange in FOSS communities.

Why should you care?

Trust beyond theoretical arguments



Peter Todd

@peterktodd



Core is transparent about the list that matters: the PGP keys who can sign merge commits.

The lesson to be learned here is to not trust GitHub! Even Bitcoin Core doesn't know the full list of people who can change the repo, as that extends to probably dozens of GitHub employees.

4:23 PM · Oct 4, 2018 · [Twitter for Android](#)

7 Retweets 36 Likes





By [Cormac Bracken](#)
Tuesday, August 6, 2019



In a sign of the far-reaching impact of US sanctions, [GitHub](#), the open-source software hosting service, has begun restricting the accounts of developers in regions subject to the trade restrictions including Iran, Syria and Crimea.



Alex Skidanov
@AlexSkidanov



Evidently [@github](#) has banned all the Iranian users without an ability for them to download their repositories.

A service like Github must be a public good and must not be controlled by a centralized entity. Another great example of why we as a society need to make web3 a reality

11:10 PM · Jul 26, 2019 · [Twitter Web App](#)

383 Retweets **1.6K** Likes



Platforms dictate economics



Zed

@zedshaw

Following

The simple buttons break down to:

Buy A License: Purchase a commercial license and long term support. This is MRR for the project.

Buy Support: Get help on a single problem or bug you need solved now. This is a one time payment.

2:44 AM - 21 Feb 2018

14 Retweets 184 Likes



5



14



184



And what about GitLab?

Current state of the space

“Control or convenience”

The screenshot shows the GitLab Community Edition (CE) project page. The header includes the GitLab logo and navigation links: Projects, Groups, Snippets, Help. A search bar and a 'Sign in / Register' button are also present. The main content area features the GitLab logo and the text: 'GitLab Community Edition (CE) is an open source end-to-end software development platform with built-in version control, issue tracking, code review, CI/CD, and more. Self-host GitLab CE on your own servers, in a container, or on a cloud provider.' Below this, there are several status badges: 'pipeline passed', 'coverage 75.47%', 'ci best practices passing', 'maintainability B', and 'chat on gitlab'. A 'Star' button shows 4786 stars. The URL 'https://gitlab.com/gitlab-org' is displayed. The left sidebar contains navigation icons. The bottom section shows a list of files and a commit history table.

Name	Last commit	Last update
.github	Address feedback about wording.	2 years ago
.gitlab	Merge Templates updates	2 days ago
app	Merge branch 'frozen-string-enable-apps-servi...	9 hours ago
bin	Truncate filenames created by bin/changelog to ...	1 week ago

The screenshot shows the GitLab Enterprise Edition (EE) project page. The header includes the GitLab logo and navigation links: Projects, Groups, Snippets, Help. A search bar and a 'Sign in / Register' button are also present. The main content area features the GitLab logo and the text: 'GitLab Enterprise Edition (EE) is an open source end-to-end software development platform with built-in version control, issue tracking, code review, CI/CD, and more. Self-host GitLab EE on your own servers, in a container, or on a cloud provider.' Below this, there are several status badges: 'pipeline passed', 'coverage 75.47%', 'ci best practices passing', 'maintainability B', and 'chat on gitlab'. A 'Star' button shows 4786 stars. The URL 'https://gitlab.com/gitlab-org' is displayed. The left sidebar contains navigation icons. The bottom section shows a list of files and a commit history table.

Federated GitLab

Problem to solve

Teams want their own private instances of GitLab for various reasons, yet may need to interact with multiple private and public instances, including GitLab.com.

Further details

Make it easy to connect private instances of GitLab together, and to GitLab.com so that users can log into a single interface and see *all* of their projects. Note, there's another proposal to mirror information between instances, but this proposal is specifically about federating the data so it's presented in a single interface, but the single-source-of-truth remains on the distributed GitLab instances.

Specifically:

1. A company could have multiple self-managed instances of GitLab, each with different users and different licenses
2. An admin could connect the self-managed instances together, and to GitLab.com
3. Users could log into a single private self-managed instance and see all projects they have access to across all self-managed instances, and the entirety of GitLab.com
4. Caching may improve performance, but should not rely on a mirroring or synchronizing mechanism to see all the data consistently.

Other interesting benefits:

1. Companies that want different licenses for different teams could segregate that team's projects into a higher-tier instance, while still allowing others to access the projects (with less features).
2. There can be a deeper understanding of identities. e.g. when commenting on GitLab.com, we could understand what other instances that person has access to, and what licenses that person has access to, to better evaluate their comments.

VALUE EXCHANGE

REPUTATION

DECENTRALIZED NAME REGISTRY

P2P CODE COLLABORATION

Desired properties

1. It must protect anonymity.
2. It must be open and public.
3. It must be convenient and easy to use.
4. It must not rely on trust.
5. It must work offline.

Current state of Radicle

- **Offline first:** all data, including issues, comments and other social artifacts is yours & lives on your machine
- **Peer-to-peer:** with no central server or intermediary in control
- **Cryptographically secure:** user data that is tamper-proof & unforgeable, using public key cryptography
- **Programmable:** developers can program the way in which they collaborate
- **Interoperable & open:** reflecting the values of the open source community

So how does it work?

Setup a project

`rad project` allows you to create, checkout, manage, and publish a project, comprised of issues, patch proposals, and a git repo.

```
$ rad project init
? What's the name of your project? radicle-garden
? Briefly describe your project? A community garden
=> Creating git repository
=> Adding "origin" remote: ipfs://ipns/12D3KooW...
=> Adding issues to your project
=> Adding patches to your project
=> Project created with id: 12D3KooW...
```


Manage issues

`rad issue` allows you to view, create, and comment on issues directly from your project directory.

```
$ rad issue list
#  state  title                                author  updated
1  open   Patch not accepted                    celia   2019-01-25 13:27
0  closed  How do I contribute?                  alex    2019-01-25 09:14

$ rad issue comment 1 "probably the wrong dimensions"
Added comment to issue #1
```

Propose changes

`rad patch` provides a simple system for proposing and discussing changes to a git repository.

```
$ rad patch list
#  state      commit                                author   updated
1  pending    Make docs friendlier  vera     2019-01-25 13:27
0  accepted    Typo fixes            jules    2019-01-25 09:14

$ rad patch accept 1
Merging proposal #2 with master
```

Welcome! This is a community space where you can add a garden by trying the Radicle tutorial.

Follow the tutorial

onur@onr-xps-00:~\$

Current Limitations

- Can't send *writes* to a project when the owner is offline
- Reliance on IPNS makes things slow
- IPNS entries need a refresh every 24 hours
- Arbitrary state-machine replication is hard to scale
- End-user experience still lacking
- No canonical way to discover other projects

VALUE EXCHANGE

REPUTATION

DECENTRALIZED NAME REGISTRY

P2P CODE COLLABORATION



A decentralized name registry

- **Canonicity** / Accessibility. Example: canonical human-readable names
- **Security** / Immutability: Example: On-chain maintainer list and checkpointing

MAR 2019

APR 2019

MAR 2020

Q2 2020

Q4 2020

radicle
alpha

oscoin
whitepaper
release

oscoin
testnet
name registry

radicle
beta

oscoin
mainnet

Thank you 🙌

@onurakpolat