

Towards peer-to-peer alternatives for code collaboration

@cloudhead

Monadic

Let's talk *git*.

The common ground for code collaboration.

What's missing?

Discovery

Where to find changesets
pertaining to a project?

Where to find peers
replicating a repository?

Canonicity

Where should I pull from?
Who has the latest copy?
Where is it hosted?

Social artefacts

Issue tracking and code
review aren't provided by git.

Mailing lists

solution #1

Where to see all patches?

Mailing list.

Where to pull from?

Linus.

How to discuss changes?

Mailing list!

What about user experience?

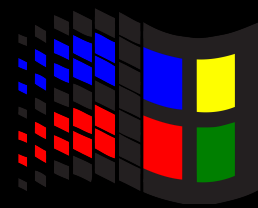
GitHub



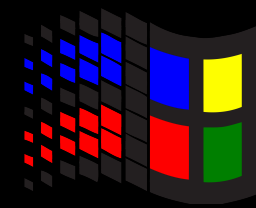
Hosted platforms

solution #2

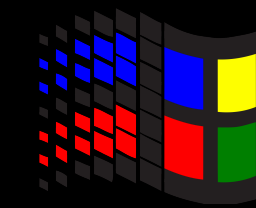
Where to see all patches?



Where to pull from?



How to discuss changes?



<3 Bill

Does **peer-to-peer** have an answer to code collaboration?

sans intermediaries

Why peer-to-peer?

Economic resilience

Peer-to-peer systems don't need to "make a profit" to subside. The burden is distributed evenly.

Political resilience

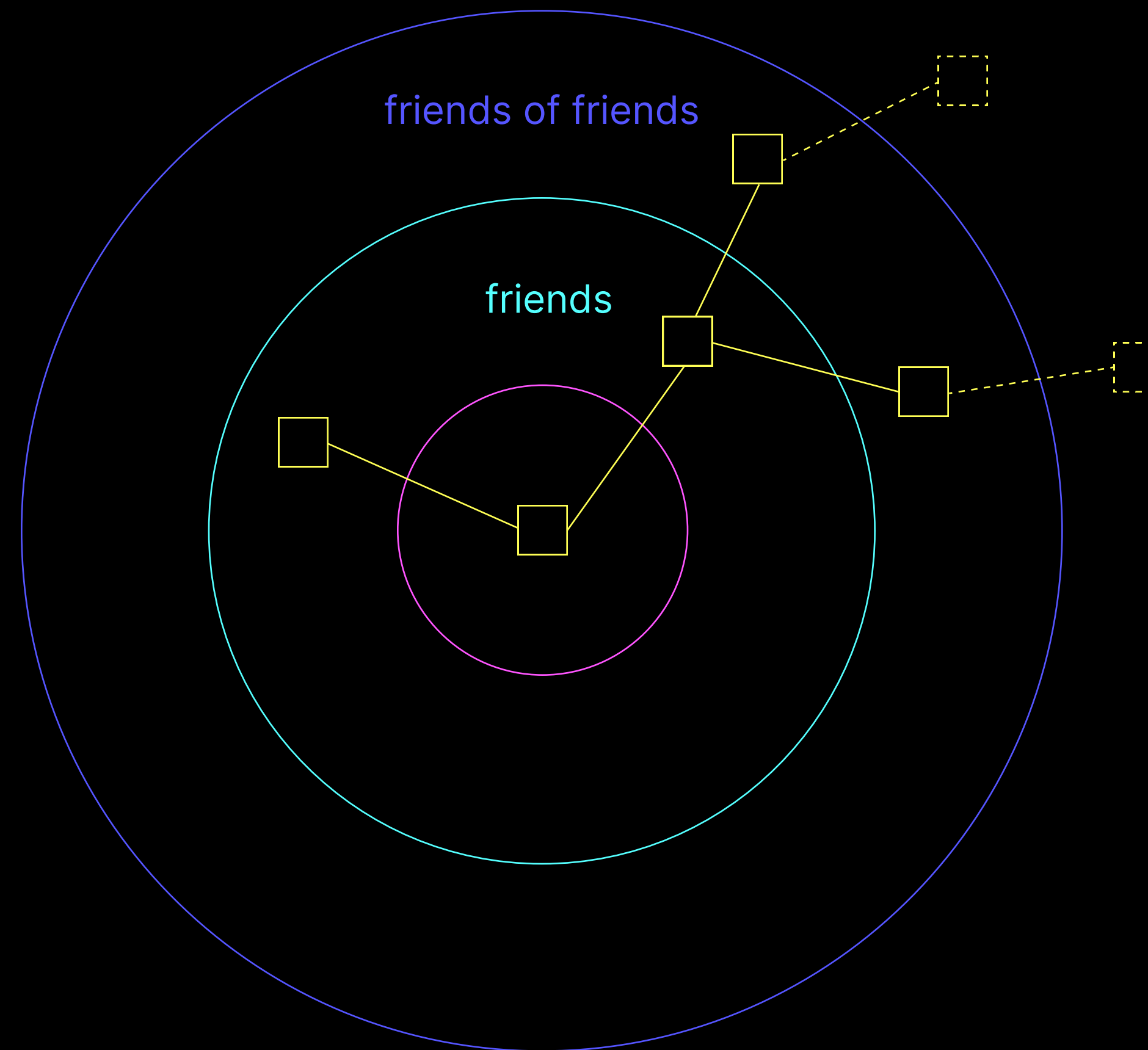
Peer-to-peer systems aren't subject to the will of authorities. They cannot be captured.

Technical resilience

Peer-to-peer systems are harder to attack. There is no single point of failure.

Let's look at Secure Scuttlebut

a resilient, peer-to-peer social network

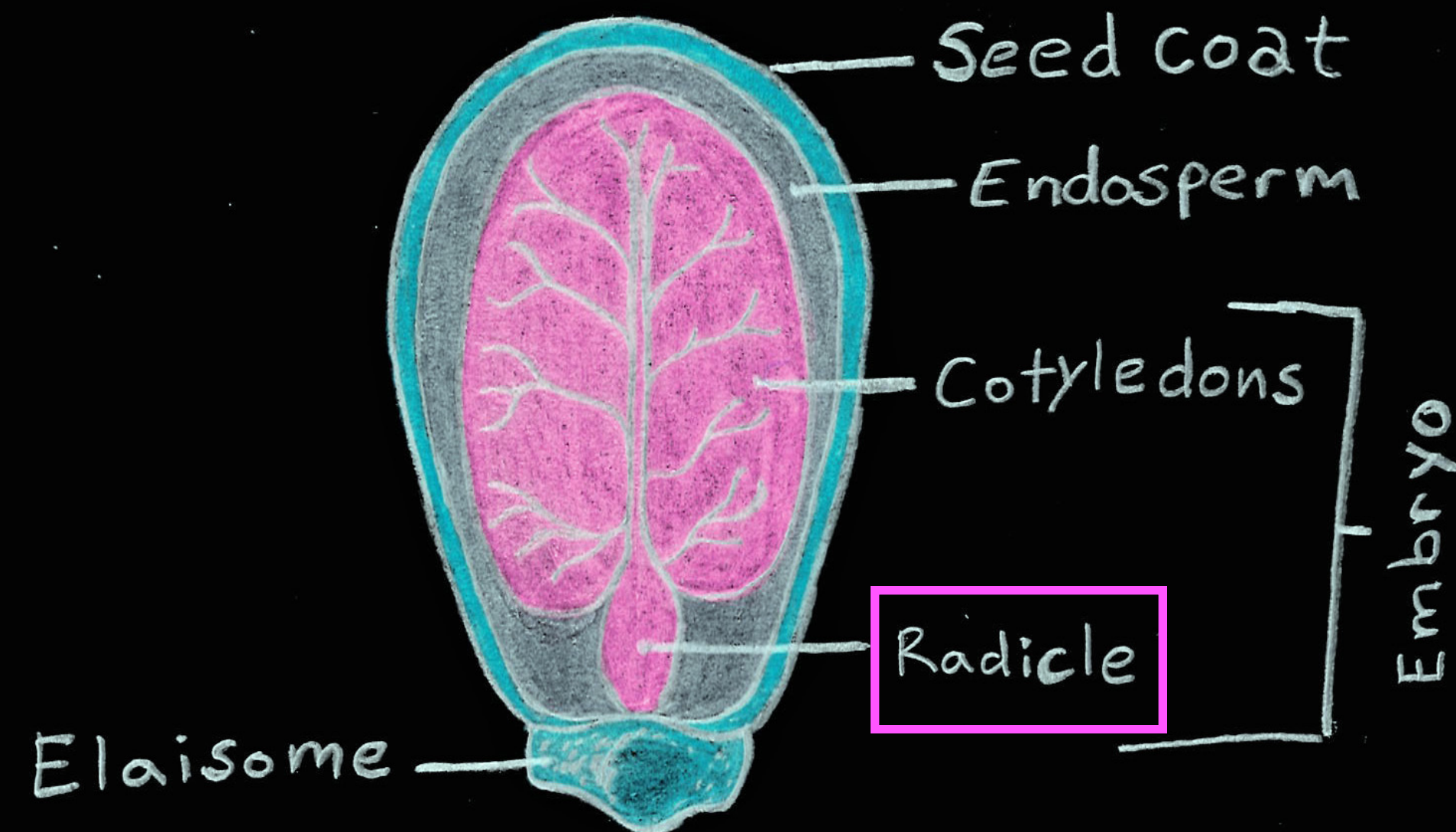


What about code collaboration?

git + p2p = ?

Radicle

git + peer-to-peer replication and discovery



Ricinus communis

Radicle

'tis the root

Offline-first

Your issues, comments and reviews live on your machine. Everything is always available, even offline.

~~Secure~~

SHA-1 is broken

Secure peer identities (EdDSA). All artefacts are cryptographically signed, including code review.

Peer-to-peer

No hassle setting up your own hosting, and no trusted third-parties.

Radicle

foundations & inspiration

SSB

Secure Scuttlebut's "social overlay" protocol. Replication is based on a *follow graph*.

TUF

The Update Framework. Secure software updates even when keys are compromised by an attacker.

Git

The foundation upon which Radicle is currently built.

Git as a foundation for peer-to-peer

git gossips well

Offline-first

Optimized for *full* replication.
Git doesn't assume an always
online server.

Designed for the *bazaar* model

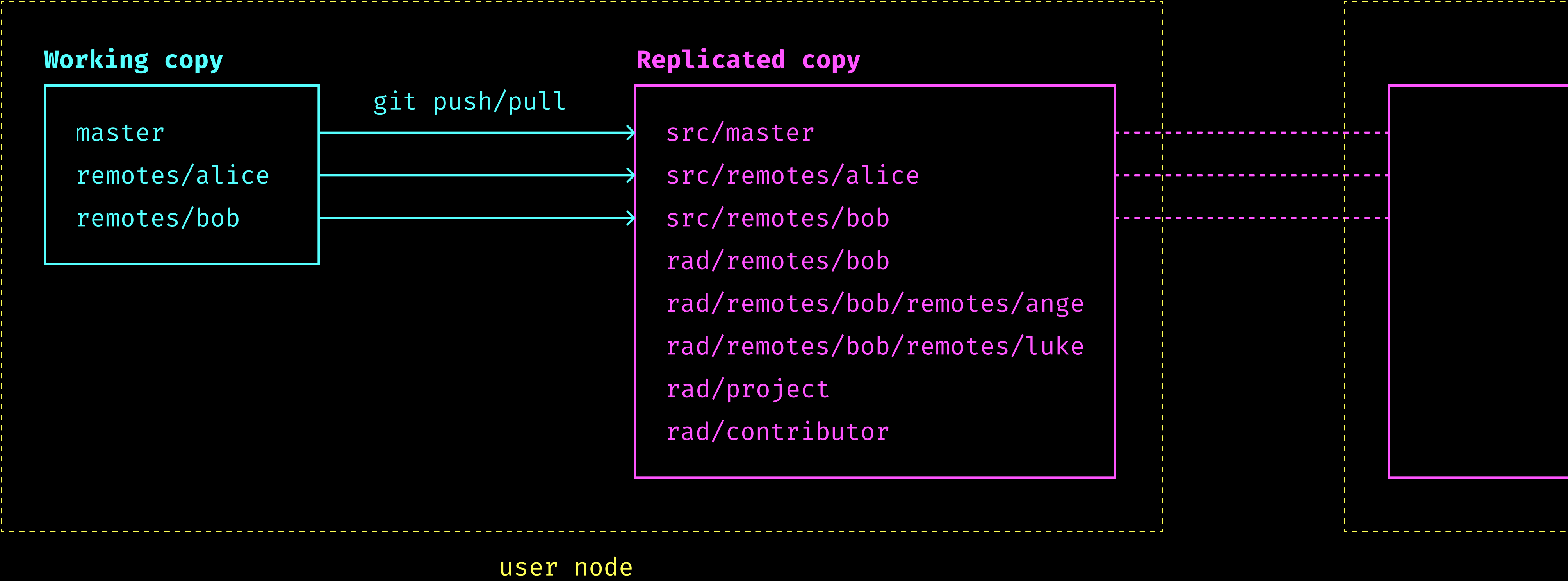
Which is awfully similar to
how peer-to-peer networks
are structured.

Packfiles

An interactive protocol that
makes synchronization *fast*.

Radicle

architecture (briefly)



Radicle

rad://bf0c3d41b54fb7b98aada9ee1df5fa6bb6adc08c

refs/rad/project

```
[project]
name = radicle
maintainers = [ ... ]
rel = [ ... ]
```

TUF

refs/rad/contributor

```
[contributor]
profile = did:..
signing_key = ...
refs = ["fa7381.."]
```

commit bf0c3d41b54fb7b98aada9ee1df5fa6bb6adc08c (rad/project)

Author: Alexis Sellier <alexis@monadic.xyz>

Date: Tue Nov 26 11:16:24 2019 +0100

Initialize project

Radicle

replication



<https://radicle.xyz>

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<https://cloudhead.io>