

ActivityPub, Spritely, and BlueSky

Christopher Lemmer Webber

<https://dustycloud.org/>

Fediverse: <https://octodon.social/@cwebber>

Twitter: <https://twitter.com/dustyweb>

Who am I?

- FOSS activist (CC tech lead, etc)
- Co-chair of W3C Social CG
- Standards author/editor
- ActivityPub co-author

- **Framing**

- ActivityPub: A Success Story

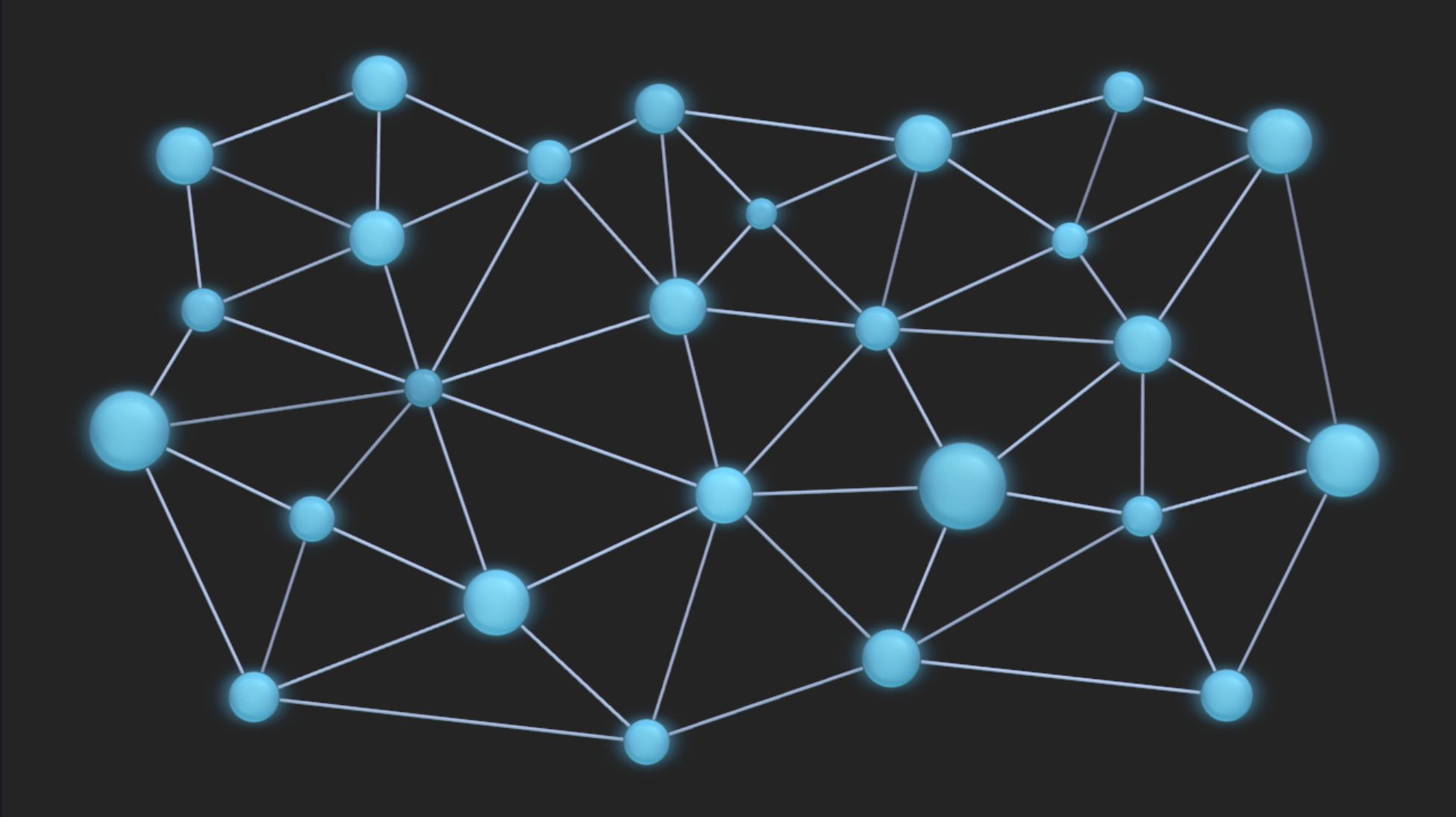
- Identifying Limitations

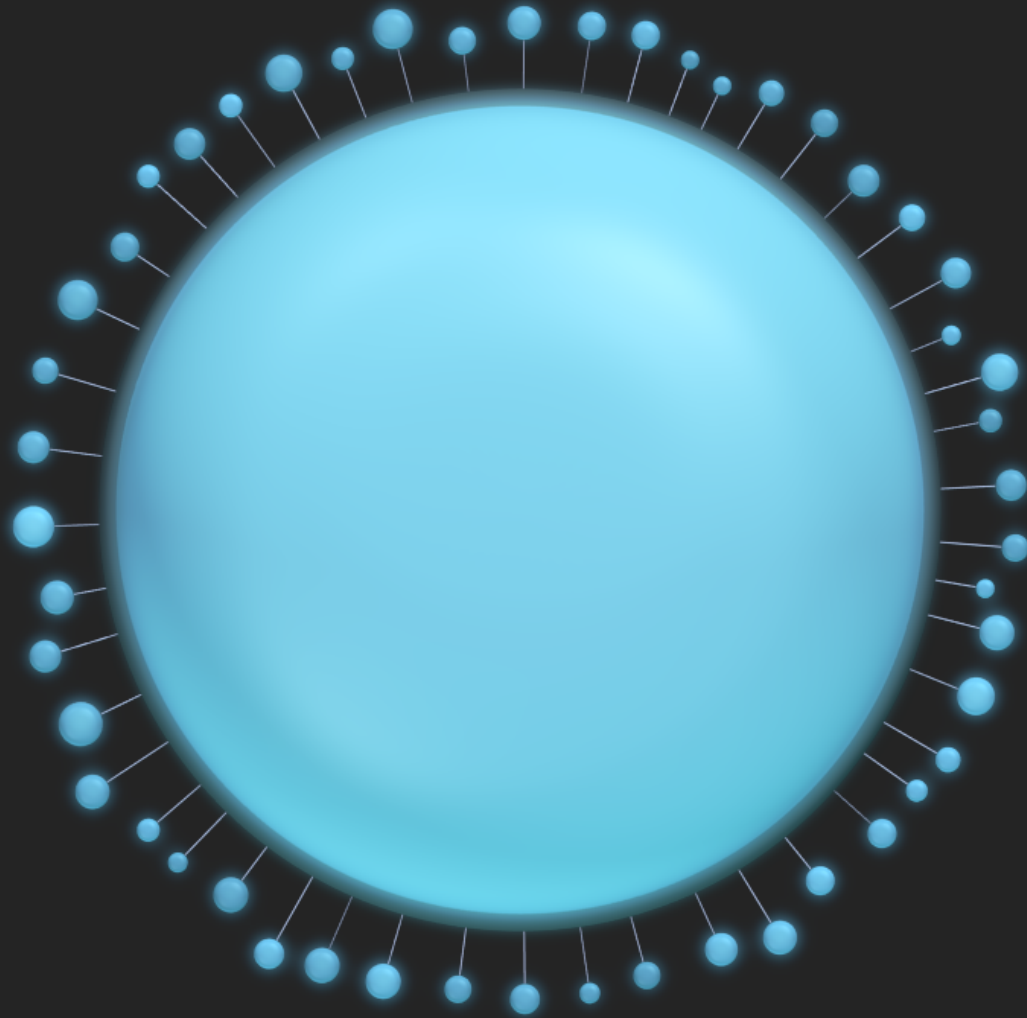
- Finding Solutions in Spritely

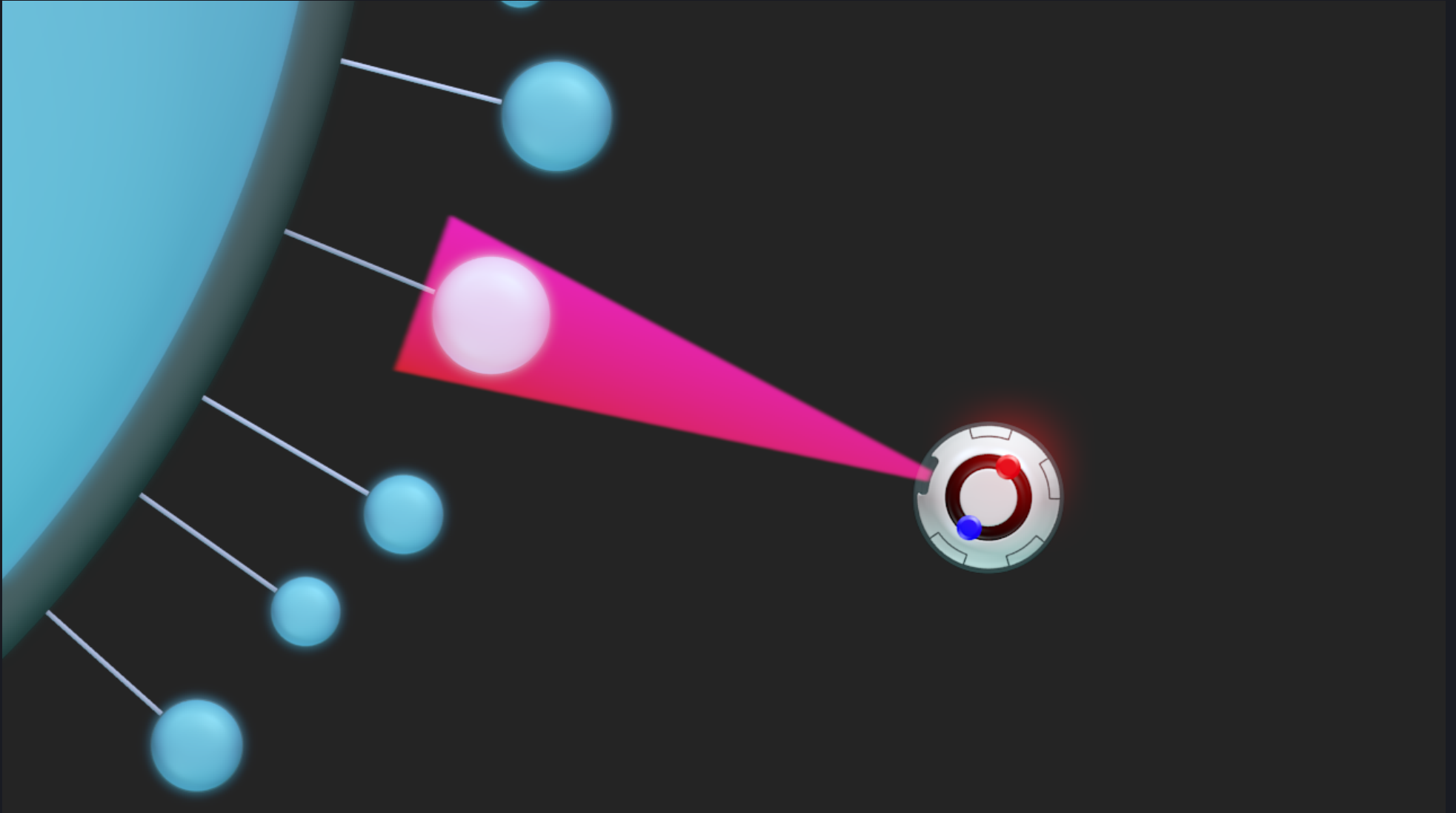
- A Trip to Space

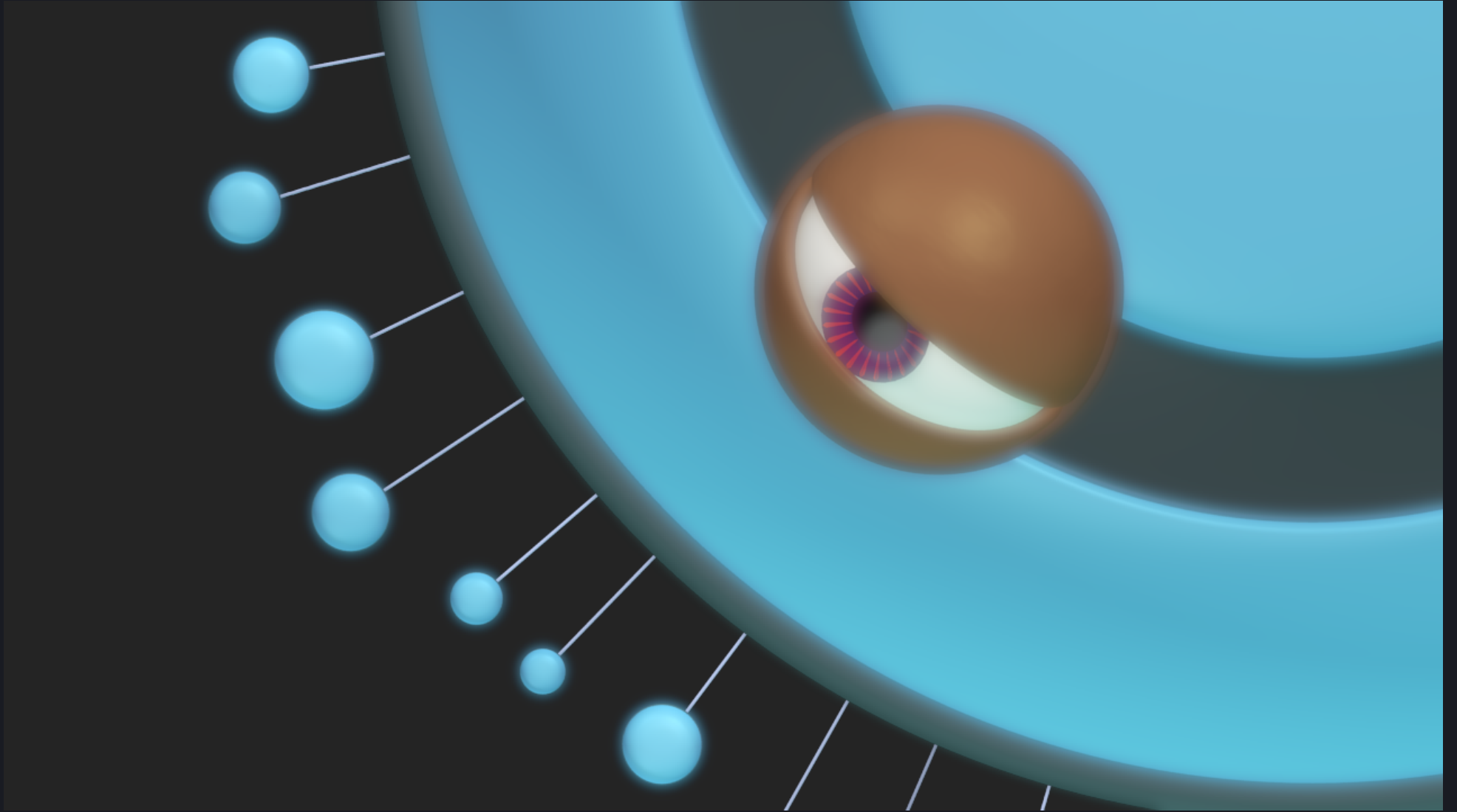
- Back on Earth

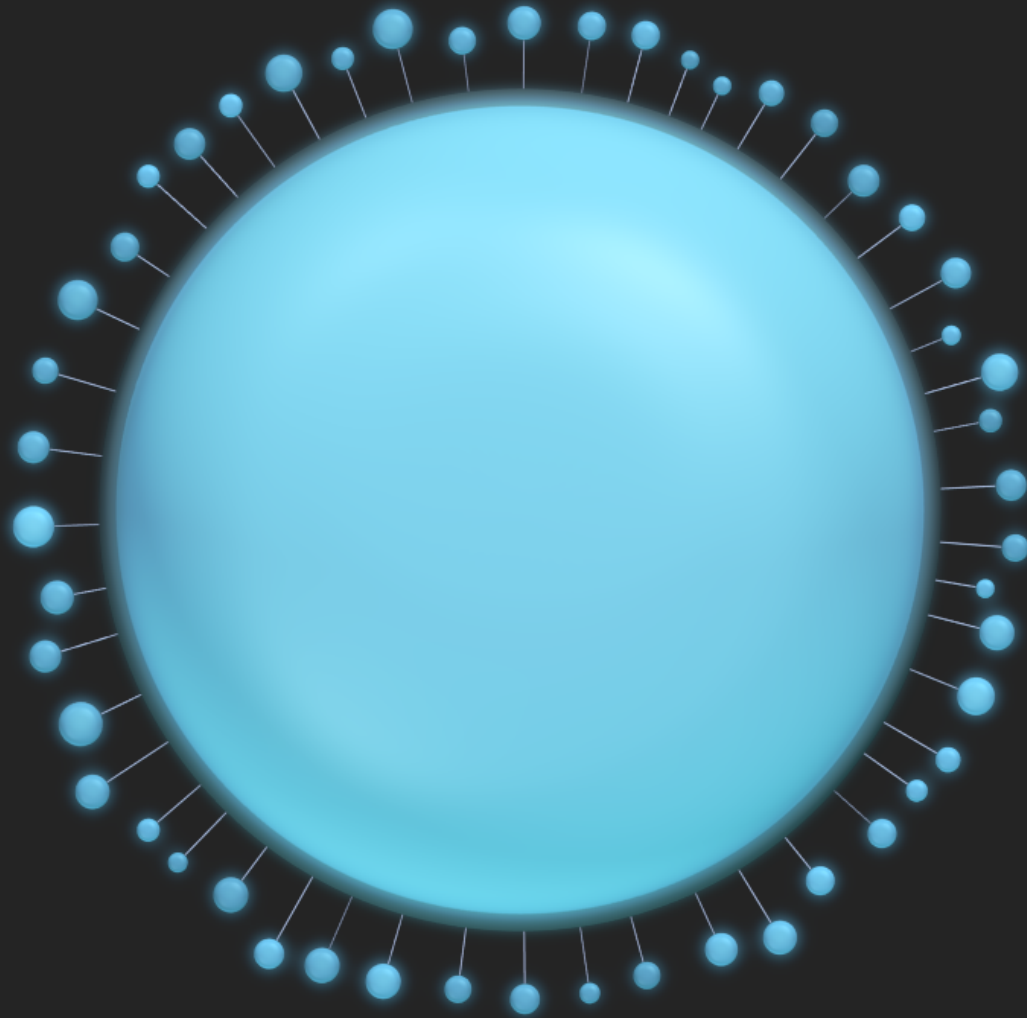
- Blue Skies Ahead

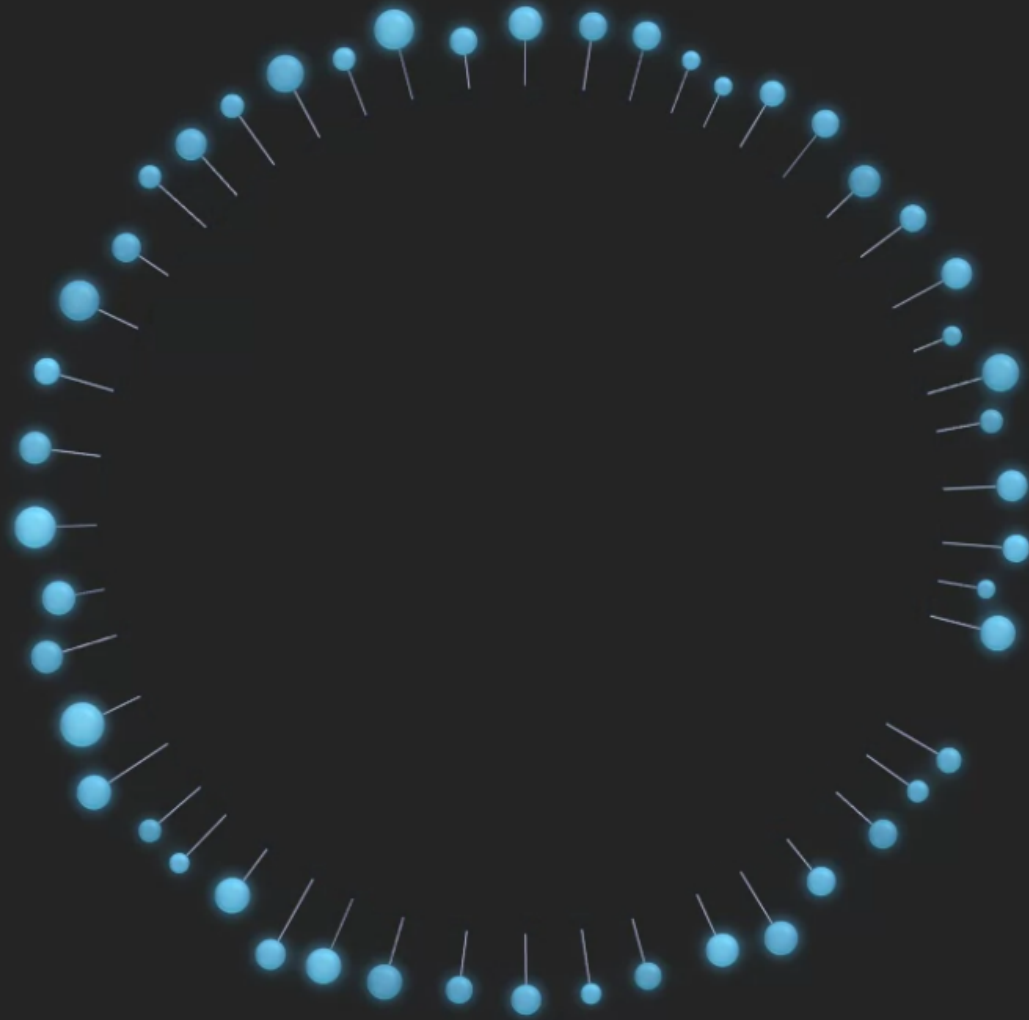


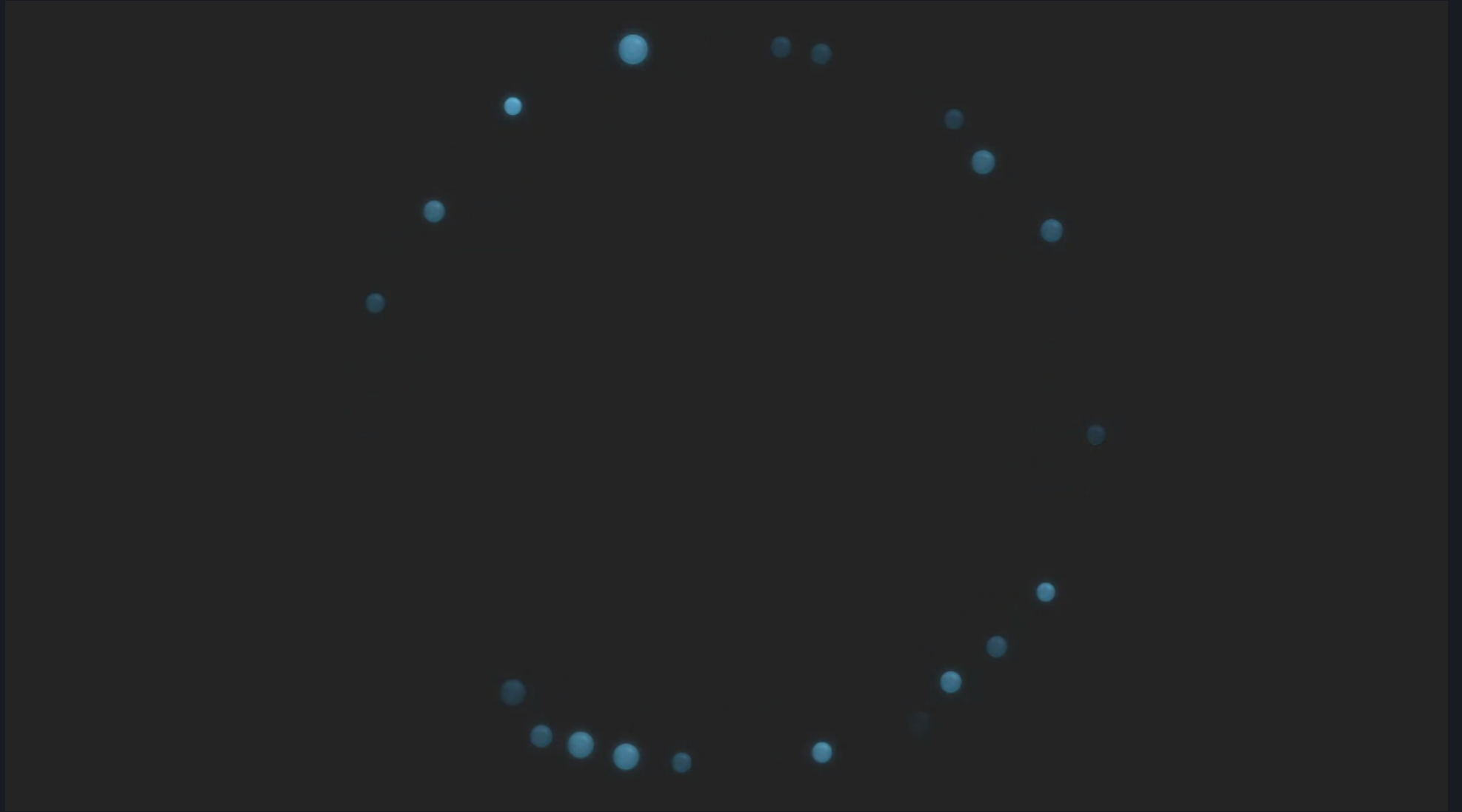




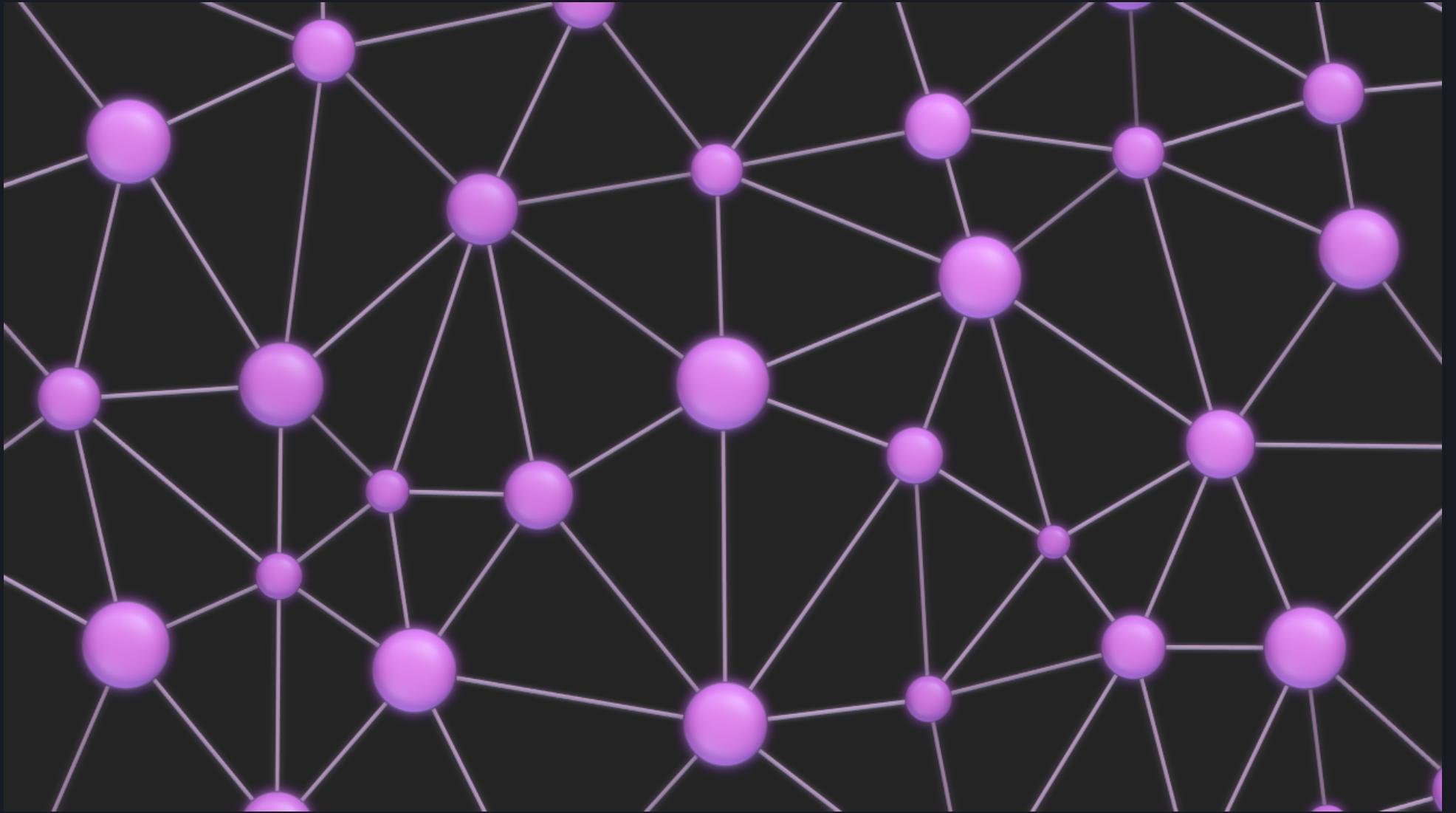












- Framing
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- Identifying Limitations
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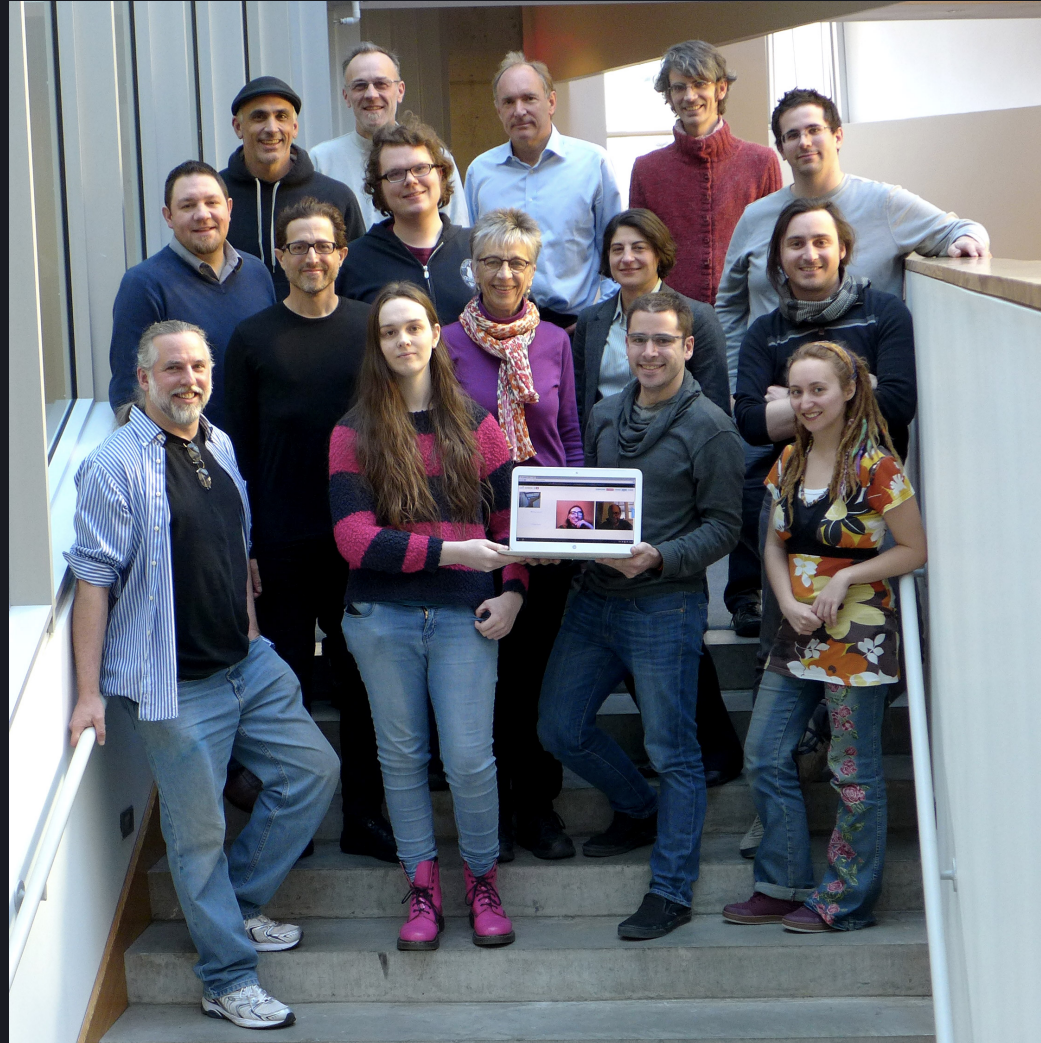


ActivityPub

Healing a fractured federation

- OStatus
- Zot
- XMPP
- Pump
- Tent
- Diaspora

About 3 years of standardization efforts...



ActivityPub

W3C Recommendation 23 January 2018



This version:

<https://www.w3.org/TR/2018/REC-activitypub-20180123/>

Latest published version:

<https://www.w3.org/TR/activitypub/>

Latest editor's draft:

<https://w3c.github.io/activitypub/>

Test suite:

<https://test.activitypub.rocks/>

Implementation report:

<https://activitypub.rocks/implementation-report>

Previous version:

<https://www.w3.org/TR/2017/PR-activitypub-20171205/>

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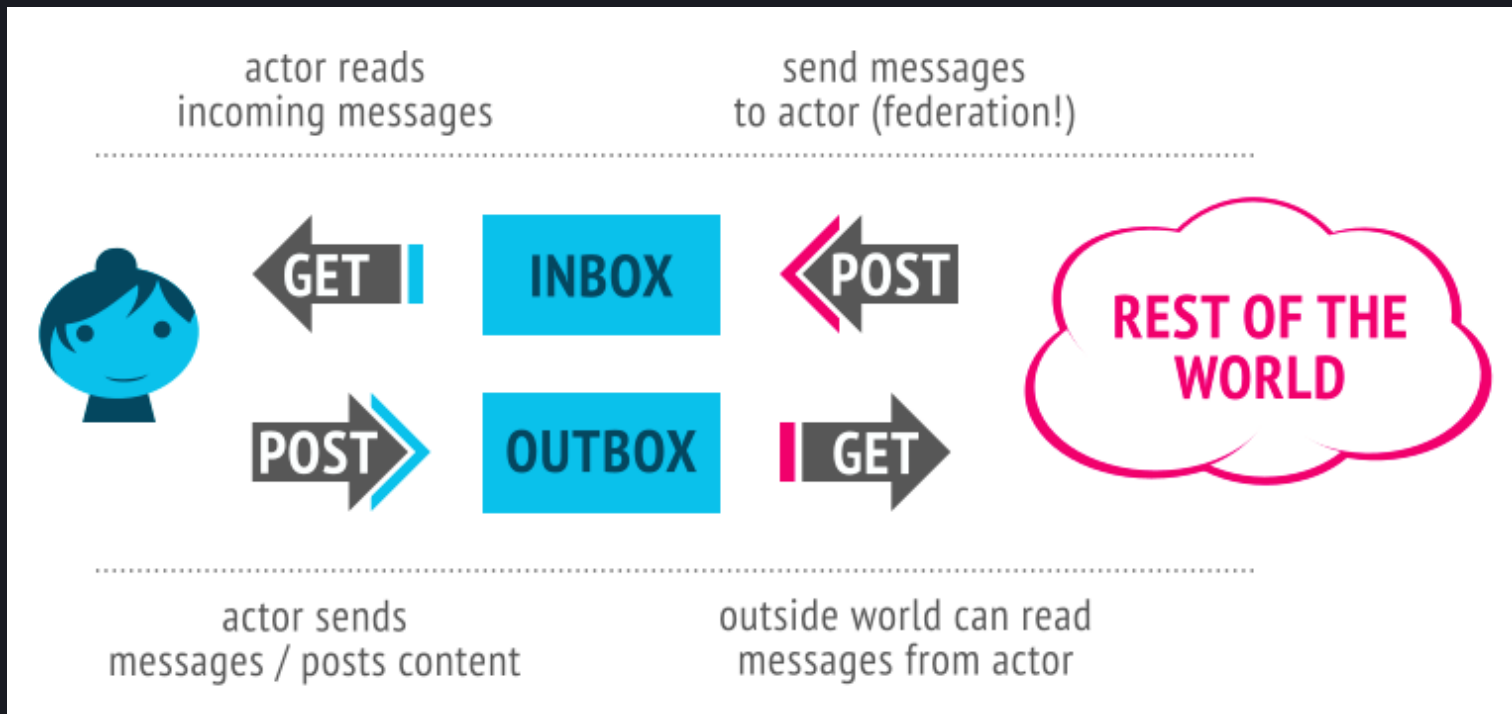
receive messages



INBOX

OUTBOX

send messages







Alyssa

Alyssa's
OUTBOX



Ben's
INBOX



Ben

Widely implemented...

- Mastodon
- Pleroma
- Peertube
- Funkwhale
- Pixelfed
- Wordpress plugin
- ... too many to track anymore

Not bad, ActivityPub!

~50-100 implementations

Thousands of servers

Millions of users

Login

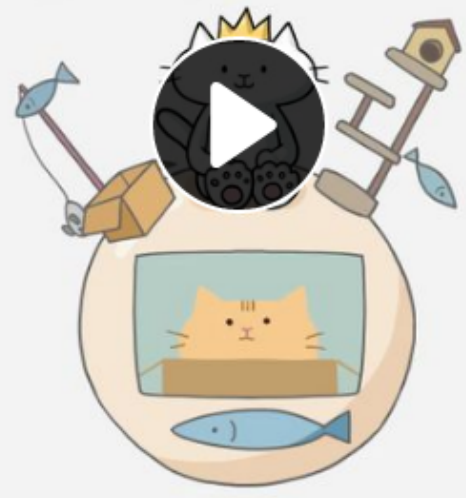
ON FRAMATUBE

- Discover
- Trending
- Most liked
- Recently added
- Local videos

- My settings
- About



PeerTube



What is PeerTube?

Published 2 years ago • 82K views

235 likes, 1 comment, SHARE, DOWNLOAD

Navigation icons: Home, Profile, Friends, Globe, Settings, Share

Search


@cwebber Edit profile

Framasoft @framsoft@fr...
What is PeerTube?
framtube.org/videos/watch/9c9...

@framsoft@framtube.org
Horray! PeerTube!

471

OOT!



Notifications

All Mentions

ArneBab favoured your toot

Christopher Lemmer Webber ... 1d
I think Daft Punk breaking up is the most emotional I've ever seen my entire social network feed.

Thanks for all the good tunes, and good luck with combing out all that helmet hair.

El Gabo favoured your toot

Christopher Lemmer Webber ... 1d
I commented in my FOSDEM talk that FOSS is necessary but insufficient for security, and that we need an OCap/PoLA foundation; some recent malware examples like the event-stream takeover might be arguably still FOSS.

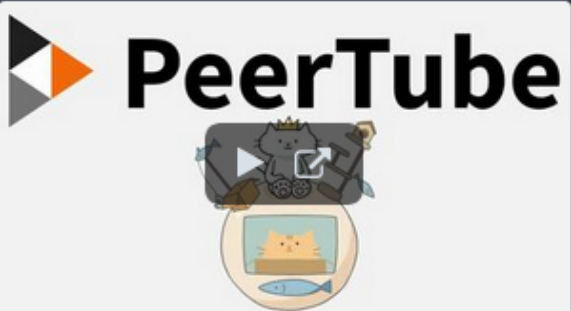
Well, here's more examples: malware appearing in FOSS browser extensions lwn.net/SubscriberLink/846272/...

Back

Framasoft @framsoft@framtube.org

What is PeerTube?

framtube.org/videos/watch/9c9...



What is PeerTube?

PeerTube

Oct 01, 2018, 06:52 · 19 · 0

Chameleon Scales ... Nov 14, 2018
@framsoft Before translating, let's buy an actual mic and an english accent (no offense @Pouhiou, you're just french, it's normal 😊)

Julien Deswaef @ju... May 10, 2019

Login

ON FRAMATUBE


- Discover
- Trending
- Most liked
- Recently added
- Local videos
- My settings
- About


Interface: English


Language English
 Tags framasoftware, peertube
 Duration 1min 53sec

26 Comments SORT BY

Add comment... M↓

 Christopher Lemmer Webber cwebber@octodon.social 1 min ago
 @framasoftware Horray! PeerTube!

 ももつきゆきや Yukiya@fedibird.com 1 month ago
 @framasoftware cool!!!!!!

 Miguel / ミゲル MiguelX413@pleroma.miguelcr.me 2 months ago
 Glad to see this, commenting from Pleroma!



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Unmet needs in present AP ecosystem

- Content survival
- Identity survival and migration
- Better privacy and security (E2EE, P2P)
- Stronger anti-abuse / anti-harassment
- Richer interactions

Unmet needs in present AP ecosystem

- Content survival
- Identity survival and migration
- Better privacy and security (E2EE, P2P)
- Stronger anti-abuse / anti-harassment
- Richer interactions ...?!?!?!?





Heath Park Burnham
Aug 21st

My dear Eric

Do you remember the little mouse which you saw at Bollon Gardens

I have got another one now with a white mark on its head

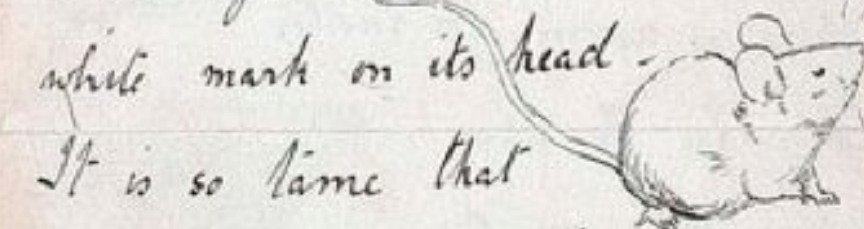
It is so tame that

it will sit on my hand and

eat hemp seeds.

He was very ill once and I gave

him some medicine and now he is quite well again.



Hi Terry!

Hi Cathy.

Nice day for a quest!

It's always a nice day for treasure hunting.



```
Aardwolf - Mudlet 2.1
Connect Triggers Aliases Timers Buttons Scripts Keys Help Chat Map Manual Settings Notepad
Lambdanoo Aardwolf
[*Daily Blessing*] [261/261hp 339/339mn 639/639mv 0qt 916tnl] >
Barside at the Finishing Blow
The long bar has only a single customer. He does not look like someone
you could easily sit next to and strike up a conversation. There is a foggy
glass mirror behind the bar, customarily covered by a series of large kegs
that support the typical dwarven specialties and elven wines. The Finishing
Blow... It seemed like a silly name for a bar, but in reality, it seems as
though this place has seen its fair share of brawls.

  . .
  |!|  | [ ]
  | . [!] <#|
  ---
  !- +-|
  [!>

[ Exits: north west down ]
(Glow) (Hum) A large bag has been thrown here.
This beautiful bar has been carved from mahogany.
(White Aura) Nerthers, the barkeep, wipes down the bar.

[*Daily Blessing*] [261/261hp 339/339mn 639/639mv 0qt 916tnl] >
look bag
The bag is large enough to carry several items inside.

[*Daily Blessing*] [261/261hp 339/339mn 639/639mv 0qt 916tnl] >
take bag
You get a large bag.

Search ... <no GA> S:0.000
```

> inv

You are carrying:
• a glowing disc

j1mc wanders west.

> read sign

Sorry, I didn't understand that? (type "help" for common commands)

Aeva pulls on the shield of the statue, and a glowing copy of it materializes into their hands!

You hear a voice whisper: *"Share the software... and you'll be free..."*

> read map

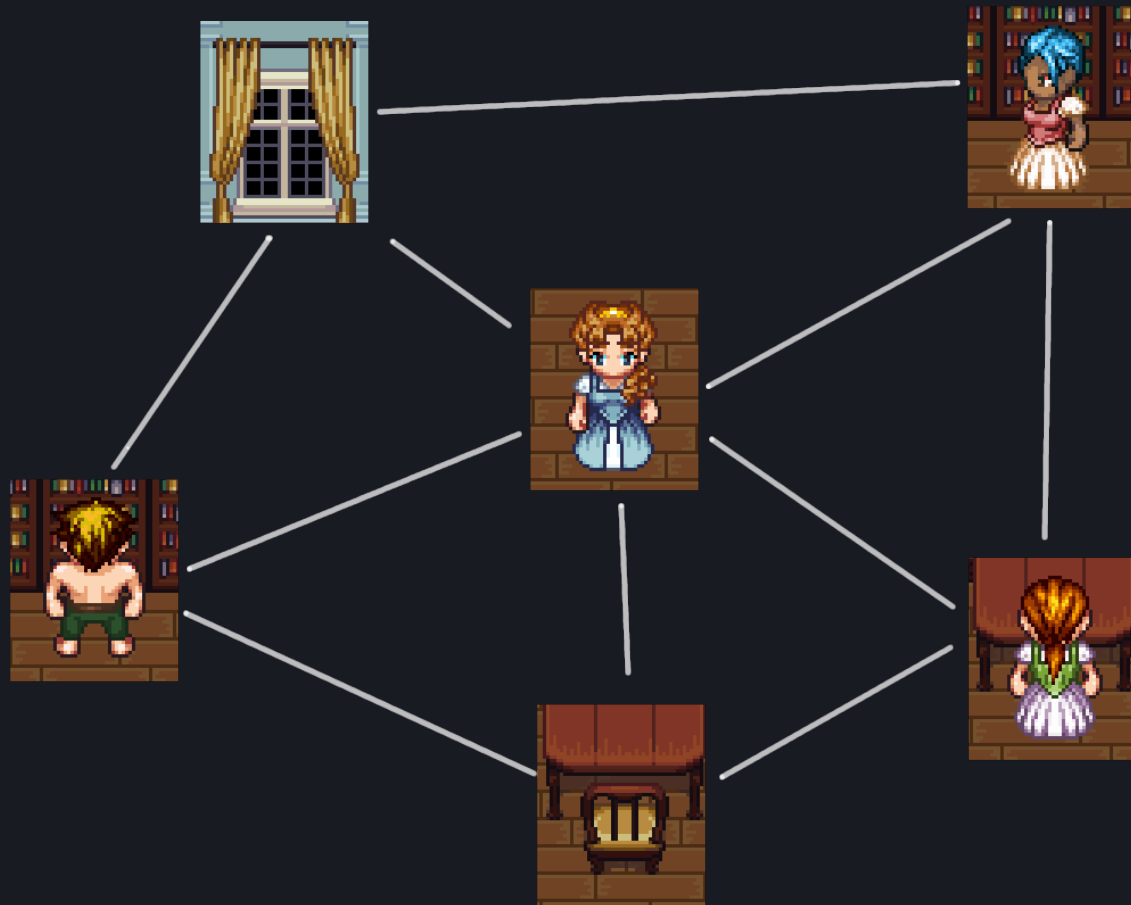


j1mc enters the room.

go east|

[connected]





ELECTRIC COMMUNITIES

280 SECOND STREET
LOS ALTOS, CA 94022
415.917.5640
ELECTRIC@COMMUNITIES.COM

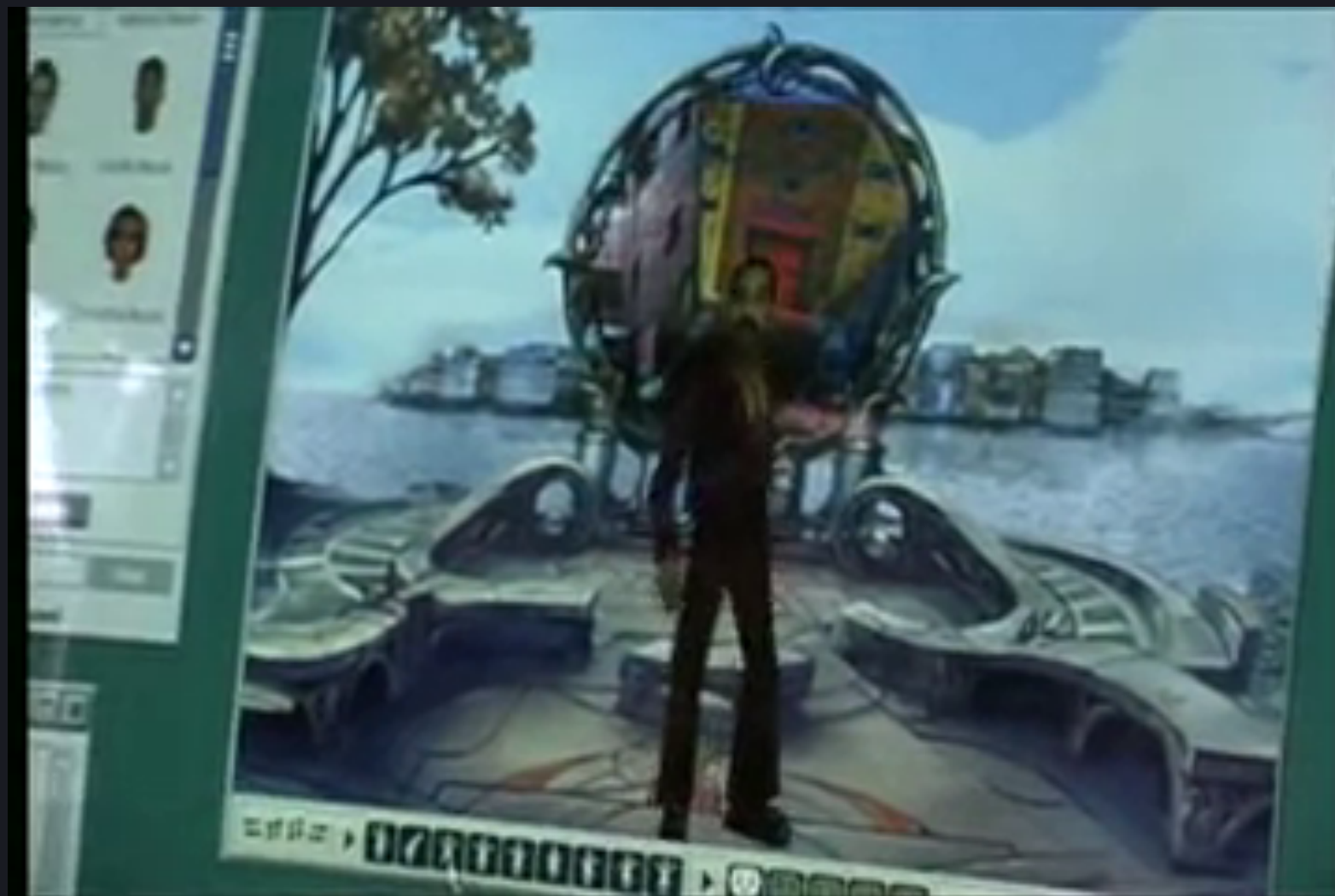
Cyberspace Protocol Requirements

Version 27-February-1995

©1994, 1995 by Electric Communities, all rights reserved.
Proprietary and confidential.

We begin with the overall system goals. We have identified eight high-level characteristics that the Global Cyberspace Infrastructure architecture must possess:

- 🌐 Scalable The technological and institutional components should be sufficient for a system that includes every person and computer in the world.
- Open Cyberspace is open to new providers of services without regulation and at low cost.
- ✳ Decentralized There exists no singular privileged technical or administrative nexus.
- ↔ Traversable Data and objects can move between users, between services, and between machines.
- 💰 Commercial Cyberspace contains a complete foundation for economic activity of all kinds.
- 👥 Social Cyberspace contains the components necessary to support community life.
- 🔒 Secure The technology facilitates making good decisions about which entities can be trusted and protects users from the untrusted ones.
- 👜 Portable Protocols and service features are logically independent of the technical details of the physical network.

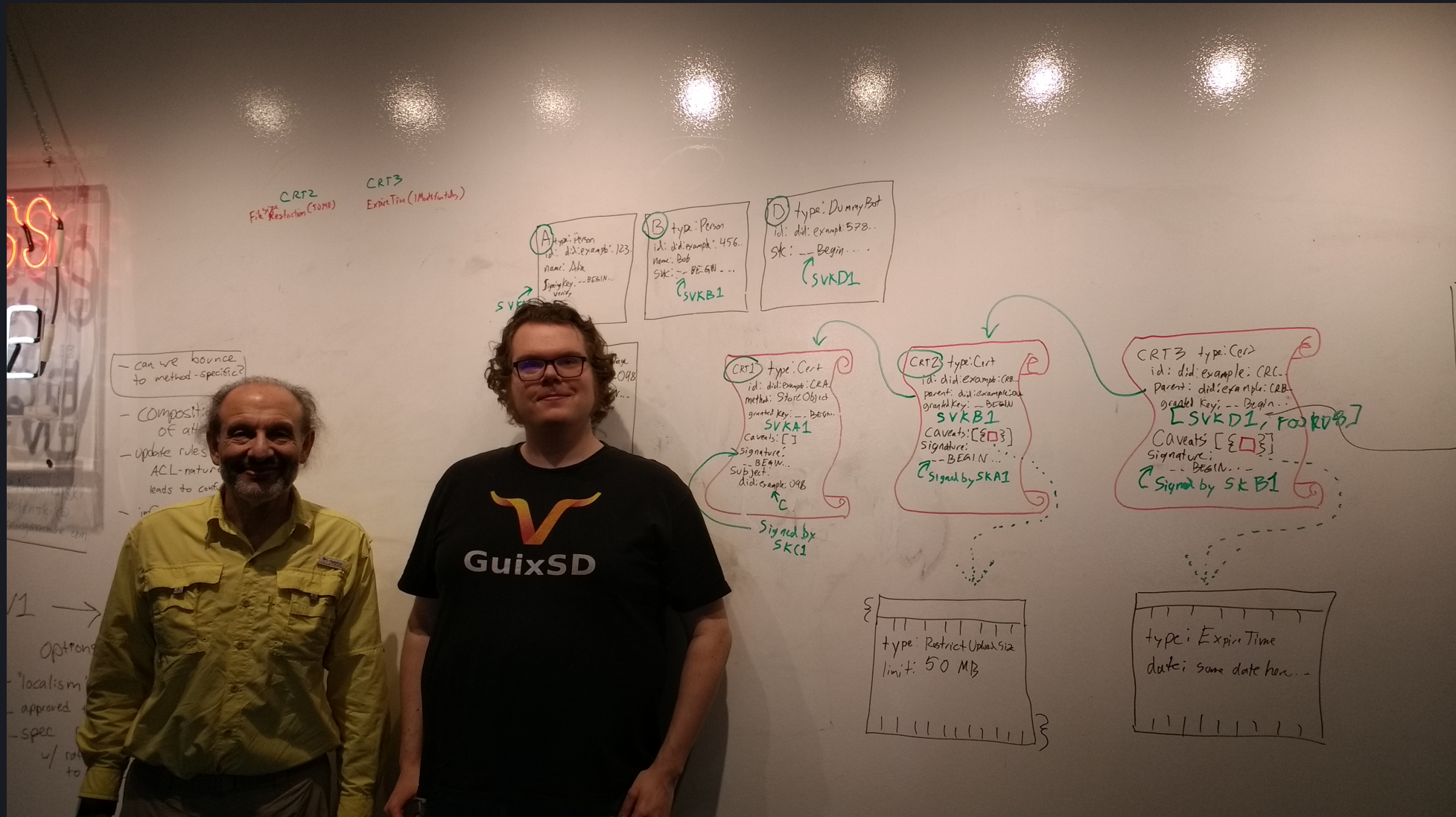




Open Source Distributed Capabilities

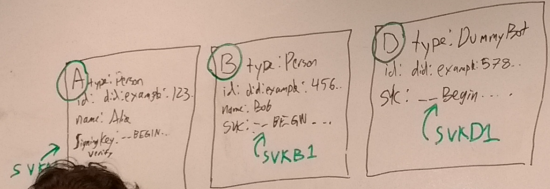
Welcome to *ERights.org*, home of **E**,
the secure distributed persistent language
for capability-based smart contracting.

[Quick Start](#) | [What's New?](#) | [What's **E**?](#)
[Smart Contracts](#) | [History & Talks](#) | [Feedback](#)



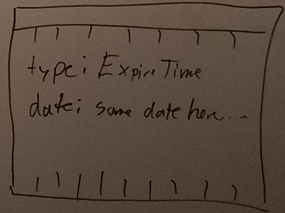
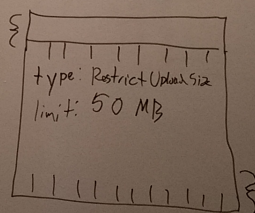
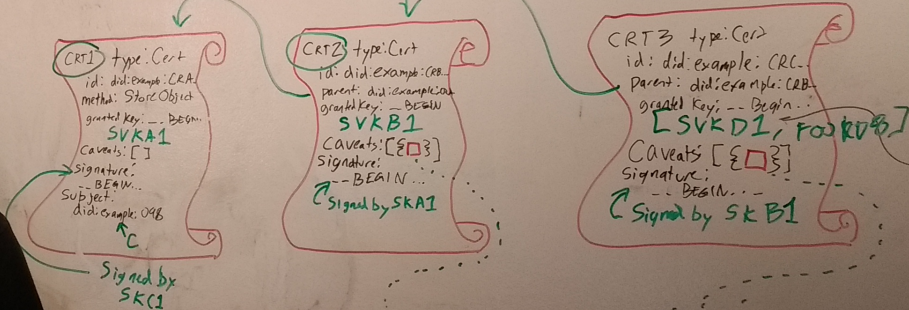
CRT2
Fk² Restriction (some)

CRT3
ExpireTime (1Auth/1Auth)



- can we bounce to method-specific?

- Composition of att
- update rules
- ACL-nature leads to confi



Options
- localism
- approved
- spec
w/ rdn to

Object-Capability Security in Virtual Environments

Martin Scheffler

Jan P. Springer

Bernd Froehlich

Bauhaus-Universität Weimar

ABSTRACT

Access control is an important aspect of shared virtual environments. Resource access may not only depend on prior authorization, but also on context of usage such as distance or position in the scene graph hierarchy. In virtual worlds that allow user-created content, participants must be able to define and exchange access rights to control the usage of their creations. Using object capabilities, fine-grained access control can be exerted on the object level. We describe our experiences in the application of the object-capability model for access control to object-manipulation tasks common to collaborative virtual environments. We also report on a prototype implementation of an object-capability safe virtual environment that allows anonymous, dynamic exchange of access rights between users, scene elements, and autonomous actors.

Keywords: Object Capabilities, Security, Virtual Environments

Index Terms: D.1.5 [Programming Techniques]: Object-Oriented Programming; I.3.7 [Computer Graphics]: Three-Dimensional Graphics and Realism—Virtual Reality; K.6.5 [Computing Milieux]: Management of Computing and Information Systems—Security and Protection

1 INTRODUCTION

The rise of a new category of virtual environments could be observed in recent years: virtual worlds that allow thousands of users to interact and shape their surroundings. The premier example of this kind of virtual world is Second Life (<http://www.secondlife.com>). In Second Life, a number of tools can be used to add virtual objects to the world. Using a scripting language, users can program their objects to let them interact with other users or objects. It is possible

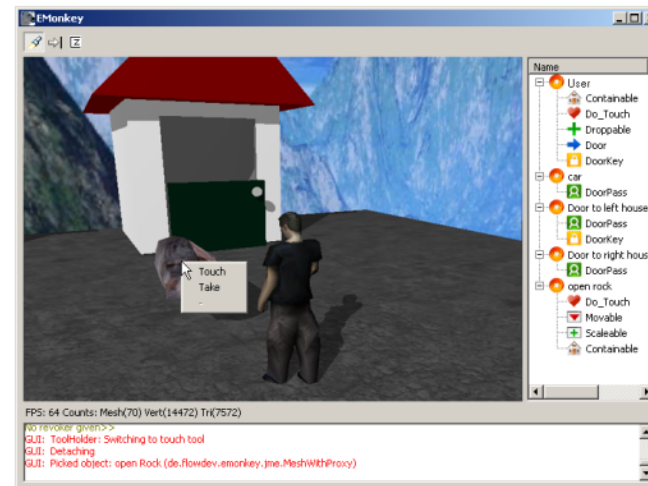


Figure 1: Screenshot of a prototype virtual environment using object-capability security.

that allow for dynamic assignment and revocation of fine-grained access rights in an anonymous way.

We created a prototype virtual environment using the capability-secure programming language E (cf. figure 1). In our system, capabilities define how actors can be accessed and manipulated (e. g. how they can be moved or how to change their appearance). Capabilities can be attached to the visual representation of their actors to make them publicly available and they can be exchanged

- Framing
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The word "Spritely" is written in a stylized, rounded font. Each letter is filled with a dark blue color and contains a glowing network of light blue nodes connected by thin lines, resembling a social network or a molecular structure. The letters are set against a light purple, textured background that looks like a piece of paper or a canvas.

Spritely

The tagline "Social Worlds Await" is written in a simple, hand-drawn black font. It is enclosed in a white, rounded rectangular box with a black outline. Two yellow, five-pointed starburst icons are positioned on either side of the text, one at the beginning and one at the end.

* Social Worlds Await *

<https://spritelyproject.org/>



Avoiding vaporware avoidance
by demo-centric approach



Porta & Bella

portable encrypted storage

Spritely Golem: Secure, p2p distributable content for the fediverse

Prerequisite reading: (none)

Recommended reading: [Magenc](#)

This is a demo for Golem, one of the [Spritely](#) demos. Each Spritely demo tries to demonstrate a key idea on how to “level up” the fediverse.

The problems this demo is trying to address is:

- Nodes go down, and their content tends to go with them. How can we have content that survives? Content which is distributable over a peer to peer network seems like it would help.
- Except if an entire network is helping hold onto and distribute content, how do we keep private content private?
- How to do this in a way that is compatible with the [ActivityPub](#) specification?

By encrypting the file and splitting it into chunks distributed through the network and only sharing the decryption key with the intended recipient, and by using a URI scheme that captures the appropriate information, we can accomplish all the above. Golem uses the [magenc](#) extension of the [magnet URI scheme](#) to accomplish the above.

Why the name “Golem”? In folklore and fantasy literature (the name here can apply to either but borrows more from the fantasy literature tradition, but the idea originates in Jewish folklore), a Golem is assembled from inanimate parts, and only through the casting of magic words is it brought to life. Likewise, here encrypted chunks are distributed inanimately through the network, and the magic words uttered are the decryption key, known only to the intended recipients (and, well, anyone they choose to pass them on to).

NOTE: This demo is not intended for production deployments. The purpose of this demo is to explain its core ideas to federated social web implementors. As such, the demo takes many shortcuts for the sake of brevity. It is intended to be simple enough to

Why Johnny Can't Encrypt: A Usability Evaluation of PGP 5.0

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Abstract

User errors cause or contribute to most computer security failures, yet user interfaces for security still tend to be clumsy, confusing, or near-nonexistent. Is this simply due to a failure to apply standard user interface design techniques to security? We argue that, on the contrary, effective security requires a different usability standard, and that it will not be achieved through the user interface design techniques appropriate to other types of consumer software.

1 Introduction

Security mechanisms are only effective when used correctly. Strong cryptography, provably correct protocols, and bug-free code will not provide security if the people who use the software forget to click on the encrypt button when they need privacy, give up on a communication protocol because they are too confused about which cryptographic keys they need to use, or accidentally configure their access control mechanisms to make their private data world-readable. Problems

Not One Click for Security

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ABSTRACT

Conventional wisdom holds that security must negatively affect usability. We have developed SCoopFS (Simple Cooperative File Sharing) as a demonstration that need not be so. SCoopFS addresses the problem of sharing files, both with others and with ourselves across machines. Although SCoopFS provides server authentication, client authorization, and end-to-end encryption, the user never sees any of that. The user interface and underlying infrastructure are designed so that normal user acts of designation provide all the information needed to make the desired security decisions. While SCoopFS is a useful tool, it may be more important as a demonstration of the usability that comes from designing the infrastructure and user interaction together.

Categories and Subject Descriptors

H.1.2 [User/Machine Systems] Human factors; H.5.2 [User Interfaces]: User-centered design; H.5.3 [Group and Organization Interfaces]: Computer-supported cooperative work; K.4.3 [Organizational Impacts]: Computer-supported cooperative work

for SCoopFS¹, a system for Simple Cooperative File Sharing.

Even the people who never use anything but email for sharing work on documents voiced the same complaint. “You’ve got to remember to send the latest version and apply the updates when they come in.” In addition, most of them reported resorting to convoluted conventions to avoid losing work due to edit conflicts. A few even mentioned the lack of security, since almost nobody bothers to encrypt email. Several people wanted to share files between Windows and Linux machines. We designed SCoopFS to address these requirements. This paper discusses the interaction design of SCoopFS. Details of its implementation will be reported separately.

SCoopFS demonstrates two points. First, it shows that managing rights at a fine granularity is easier than dealing with them in large chunks. Second, SCoopFS shows that, at the very least, security need not impede usability and can be largely invisible to the user. The degree to which this view is counter to people’s intuitions forced us to change the name of our project. The first “S” in SCoopFS originally stood for “Secure”, but several prospective



Brux

identity / contact management

Zooko's Triangle

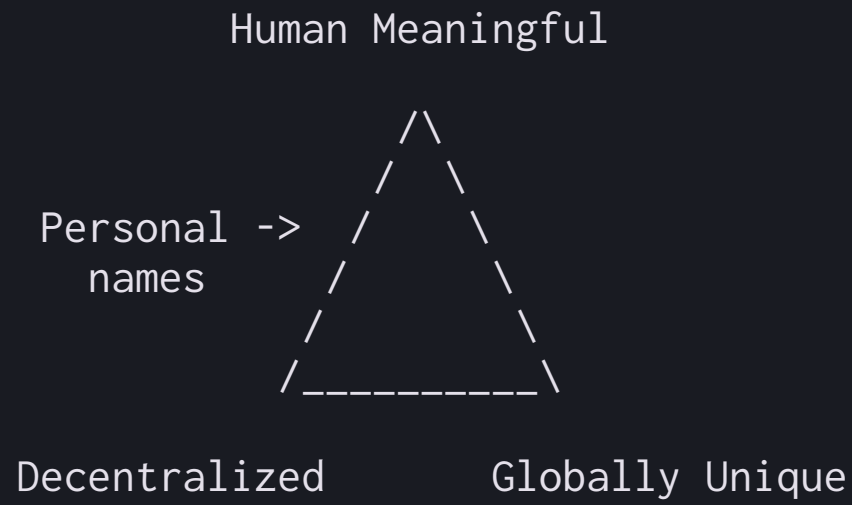
Human Meaningful



Decentralized

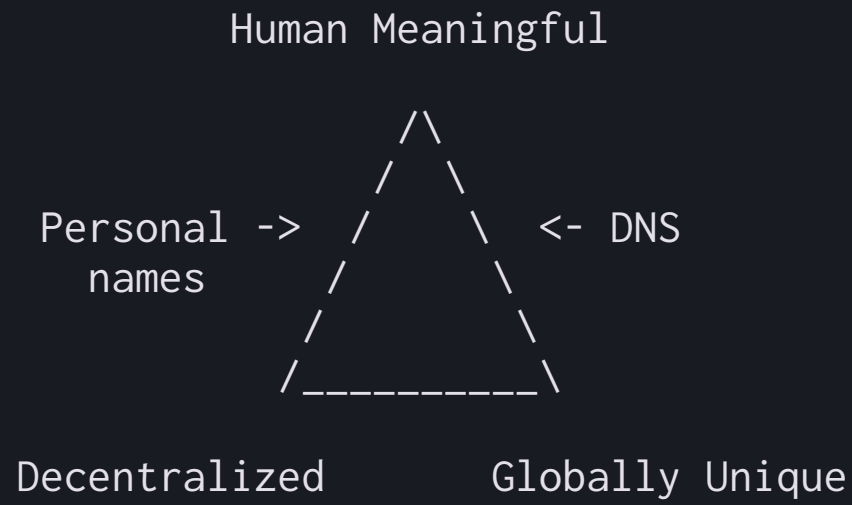
Globally Unique

Zooko's Triangle



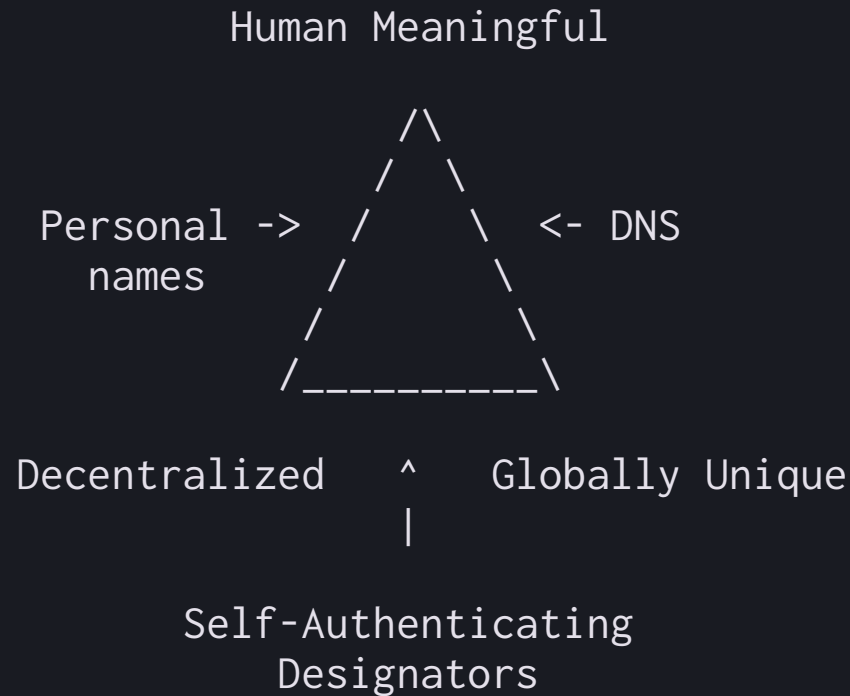
Eg: "Chris Webber"

Zooko's Triangle



Eg: dustycloud.org

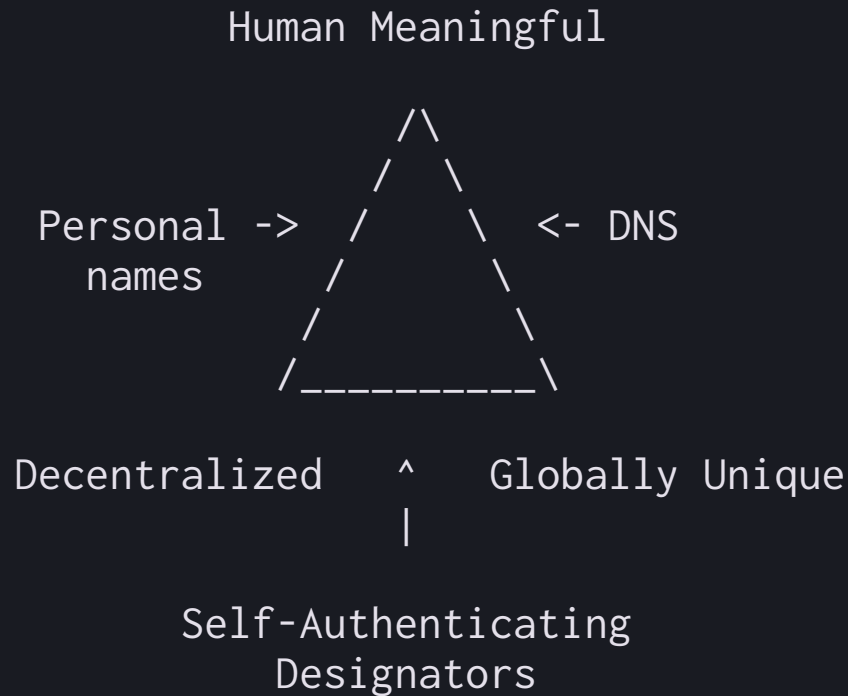
Zooko's Triangle



4acth47i6kxnvkewtm6q7ib2s3ufpo5sqbsnzjpbj7utijcltosqemad.onion

did:foo:a249761a1c90454a865c228b2caff17edbe94b2d7c3443391b82856b5c0fca9

Zooko's Triangle



Self-Authenticating Designators:

"My name is how you'll know it's me."

-- Mark S. Miller

Zooko's Triangle



4acth47i6kxnvkewtm6q7ib2s3ufpo5sqbsnzjpbj7utijcltosqemad.onion

did:foo:a249761a1c90454a865c228b2caff17edbe94b2d7c3443391b82856b5c0fca9

Uh....



Mom

accept

decline

Search:

Personal contacts:

 Ben Grossmeier

 Benjamin Gonwick

Network contacts:

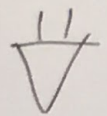
 Alyssa → Ben Bitdiddle

- Petnames ("local contacts")
 - @mom
 - @chriswebber
- Edge names (petnames as "naming hubs")
 - @chriswebber>markmiller
 - @katesills>markmiller
 - @twitter>dustyweb
 - @dns>dustycloud.org

contact list search indicator
→ [input field]

Hello @emacs
@emacs -
EM & Co. makes

composition of message



emacs [input field]

- [8] @emacs
- [8] @emacs MANAGER

[3] cwebber => @emacs
dns => @emacs.net

[http://scid.cmu.edu]

[8] Alice

[input field] → [input field]

Inbox

@emacsomancer 35
I sure love emacs!

@emacs => +marble
I had a gje time hanging out with mark last night

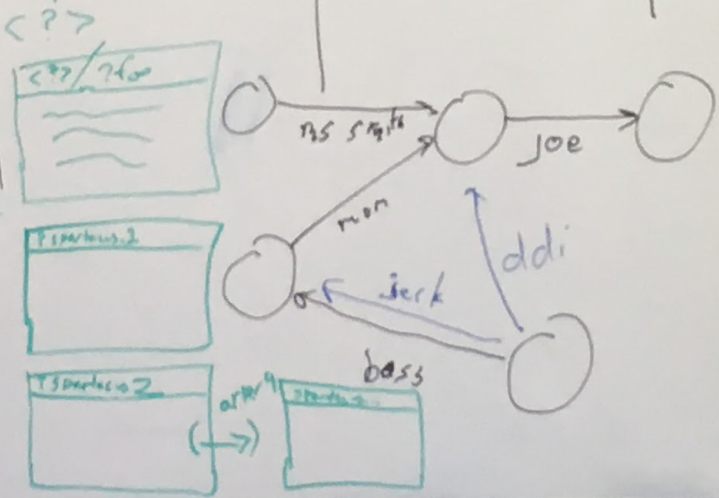
more info
emacs -> 70M

proposed name
B. Slade
@emacsomancer

my pet name for emacsomancer

followers / following
I like emacs... a lot!

edge names here?

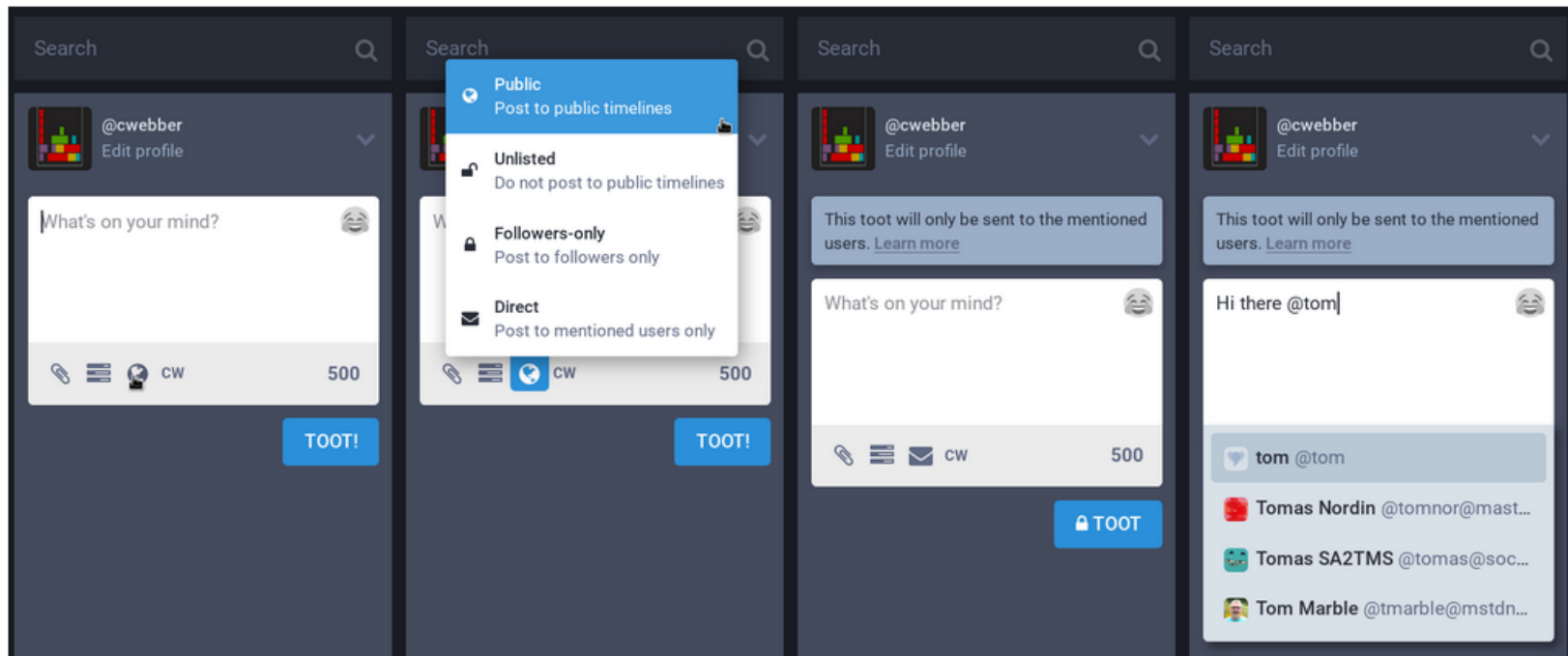


- GUI details
- Antars
 - User Names
 - Images (P. Pathak)

- GUI 'rules'
- Only render messages if integrity verified.
 - meta/familiarity.

- new GUI element
- add contact button
 - edge names => more connection by default

- Userflows / actions
- onboarding
 - Viewing profile
 - Composing message
 - Searching for Users
 - Contacts management
 - Adding connections (P. name @Edge names)
 - Receiving message (P. name @Edge names)



Switching from public to private is done by clicking on the "world" icon, which represents public posting, and selecting the "envelope" icon, which represents private posting. Between the envelope and a header that gives more information about private messaging, these are the primary indicators that the user is in private messaging mode. The same interface of targeting another user with @ and typing characters through completion suggestions exists in private mode, but now takes on different implications: rather than merely mentioning other users, we are now also indicating that they are the sole intended recipients of the message.

Proposed changes

- Changes: maybe none!
 - Consider changing default from private mode vs. public mode -- perhaps this could be made obvious by a change from light mode to dark mode.
 - NOTE: private by default is like e-mail (may start with To: box on top), public by default is like twitter (make it look like a tweet box)..
 - NOTE: movies sometimes use different color balance to guide the viewer to understand when multiple timelines are interleaved.

The primary risk that comes from this interface is that it may be difficult for the user to identify when they are in "public posting mode" versus "private posting mode". Posting a message publicly that was intended to be private can have consequences ranging from mere embarrassment to a violation of confidentiality to serious disclosure of personally identifiable information.

How can we help users move between these two worlds safely? The world of cinema give us some help: in many movies, users are presented

OcapPub: Towards networks of consent

This paper released under the Apache License version 2.0; see [LICENSE.txt](#) for details.

For a broader overview of various anti-spam techniques, see [AP Unwanted Messages](#), which is in many ways informed this document but currently differs in some implementation rollout differs. (These two documents may converge.)

Conceptual overview

The federated social web is living in its second golden age, after the original success of StatusNet and OStatus in the late 2000s. A lot of this success has been around unification of adoption of a single protocol, [ActivityPub](#), to connect together the many different instances and applications into a unified network.

Unfortunately from a security and social threat perspective, the way ActivityPub is currently rolled out is under-prepared to protect its users. In this paper we introduce OcapPub, which is compatible with the original ActivityPub specification. With only mild to mildly-moderate adjustments to the existing network, we can deliver what we call “networks of consent”: explicit and intentional connections between different users and entities on the network. The idea of “networks of consent” is then implemented on top of a security paradigm called “object capabilities”, which as we will see can be neatly mapped on top of the actor model, on which ActivityPub is based. While we do not claim that all considerations of consent can be modeled in this or any protocol, we believe that the maximum of consent that is *possible* to encode in such a system can be encoded.

Intentional, Granted, Accountable, Revokeable

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The complement to freedom of speech
is the freedom to filter

Alice's Worlds

High school math teacher

Tabletop games with friends

Fanfiction author



Goblins

Distributed, transactional programming

Carol: Let's chat!

#socialparty

Welcome to the chat! Enjoy your stay

<Carol>: Sure would be nice to have friends

<Carol>: hm

<Carol>: who will join me

<Carol>: hey look it's alice

<Alice>: yes, it is I alice

<Alice>: talking here over tor + captp

<Alice>: it's kinda slow because tor onion services are slow

<Carol>: yeah but also because chris hasn't cached anything

<Carol>: literally every message received re-fetches usernames

<Alice>: what, that's terrible

<Alice>: chris

<Alice>: fix it

<Carol>: it's just a proof of concept

<Alice>: what's cool is that no network code was written

<Alice>: it just works over captp

Sup? Send

```
7009a70 Export keys and values methods from ^hash
d8a8c68 Add support for async wardens (untested tho...)
404aaf8 Let actormap-run! return multiple values to its continuation
```

captp.rkt

Alice: Let's chat!

#socialparty

Welcome to the chat! Enjoy your stay

<Carol>: hey look it's alice

<Alice>: yes, it is I alice

<Alice>: talking here over tor + captp

<Alice>: it's kinda slow because tor onion services are slow

<Carol>: yeah but also because chris hasn't cached anything

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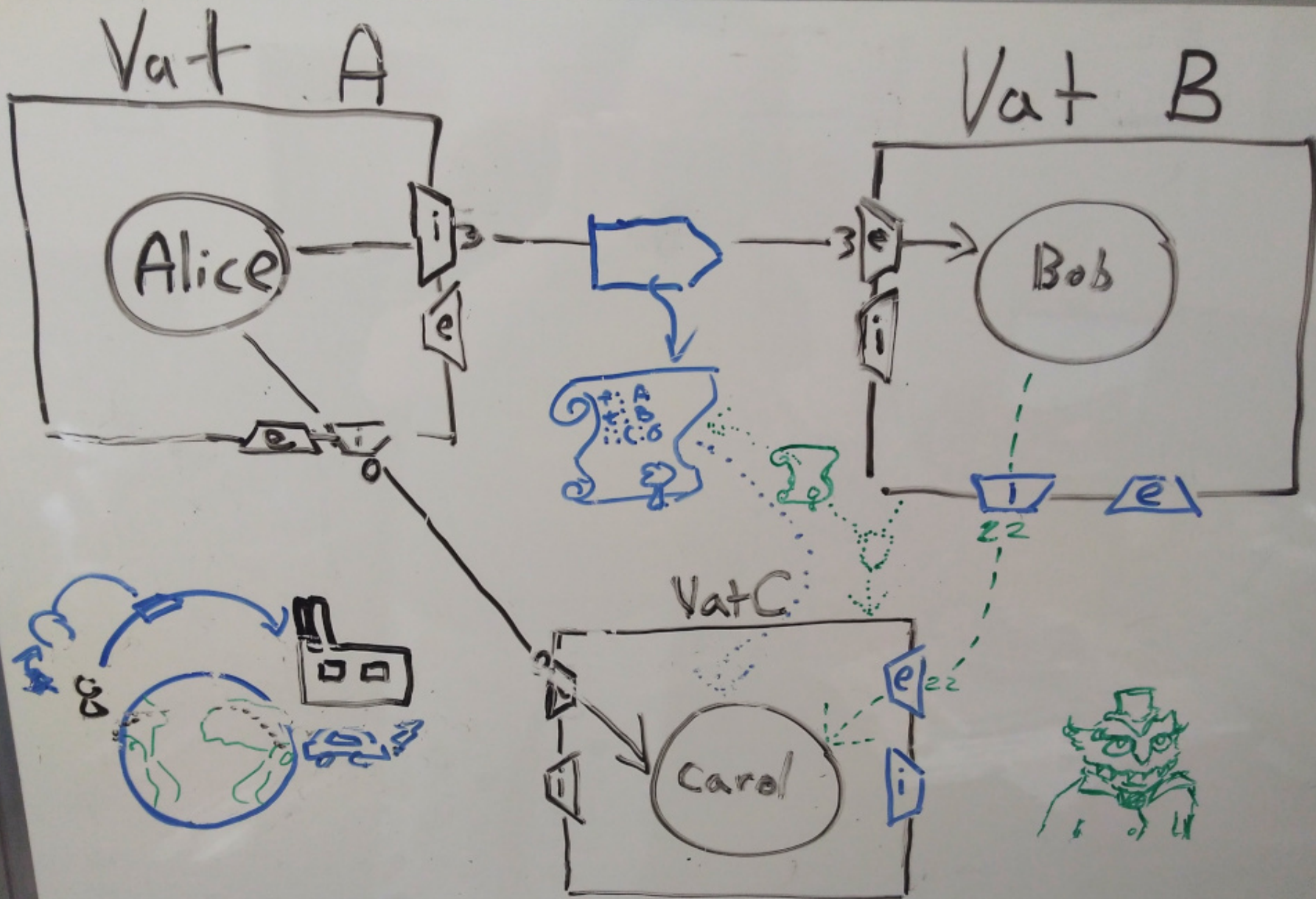
<Carol>: it's just a proof of concept

<Alice>: what's cool is that no network code was written

<Alice>: it just works over captp

Sup? same demo as local-onl Send

```
($ registry 'fetch swiss-num]]))
```



Transactions

+

OCap Security

+

Distributed Programming

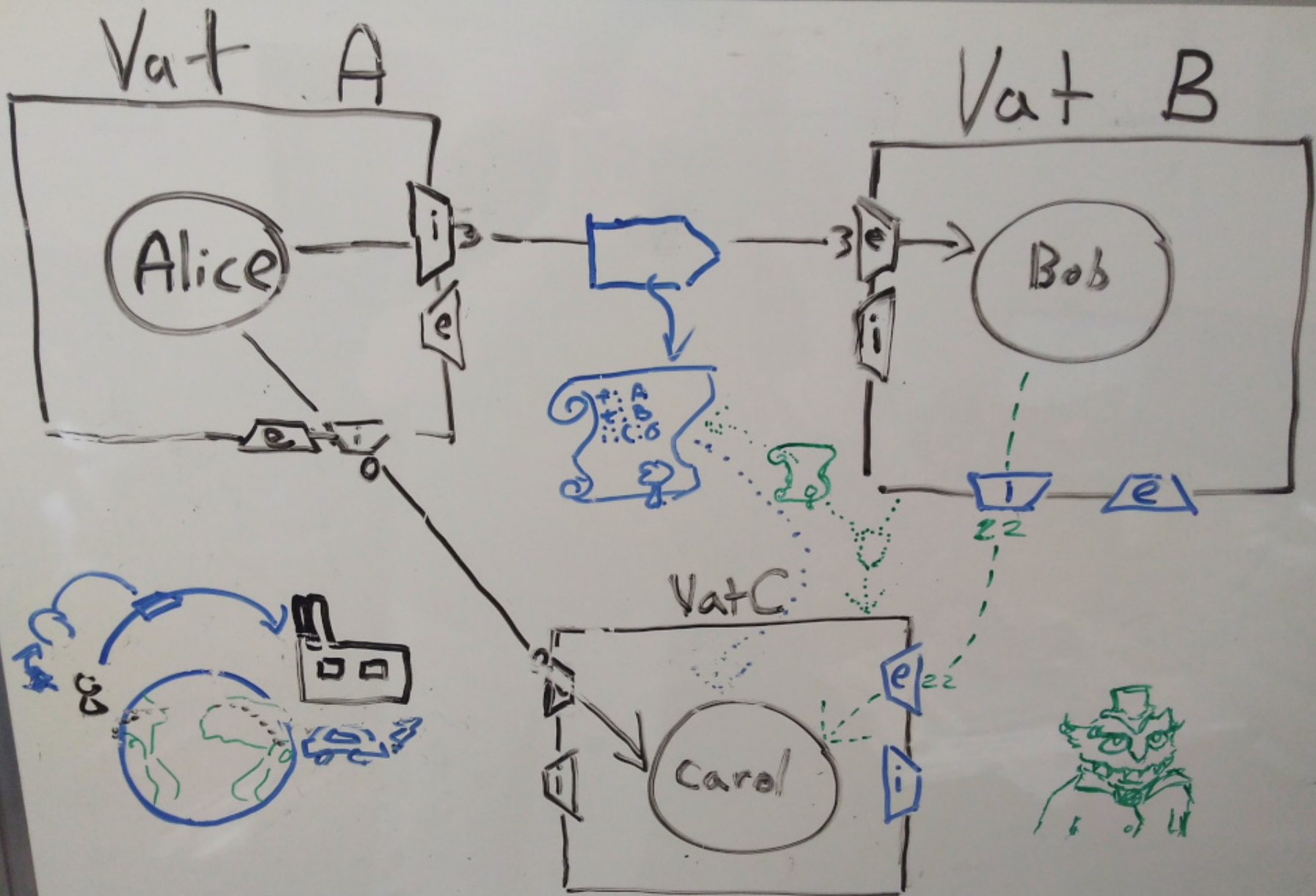
We're inviting you to build, deploy and operate dApps and DeFi Markets.

Get started with the Agoric alpha by tapping into our
JavaScript smart contract platform. DeFi is right around the
corner.

TRY ALPHA



Secure Smart
Contracts



- Framing
- ActivityPub: A Success Story
- Identifying Limitations
- Finding Solutions in Spritely
- **A Trip to Space**
- Back on Earth
- Blue Skies Ahead



Fantasy

decentralized virtual worlds



Fantasy

Is this a distraction?

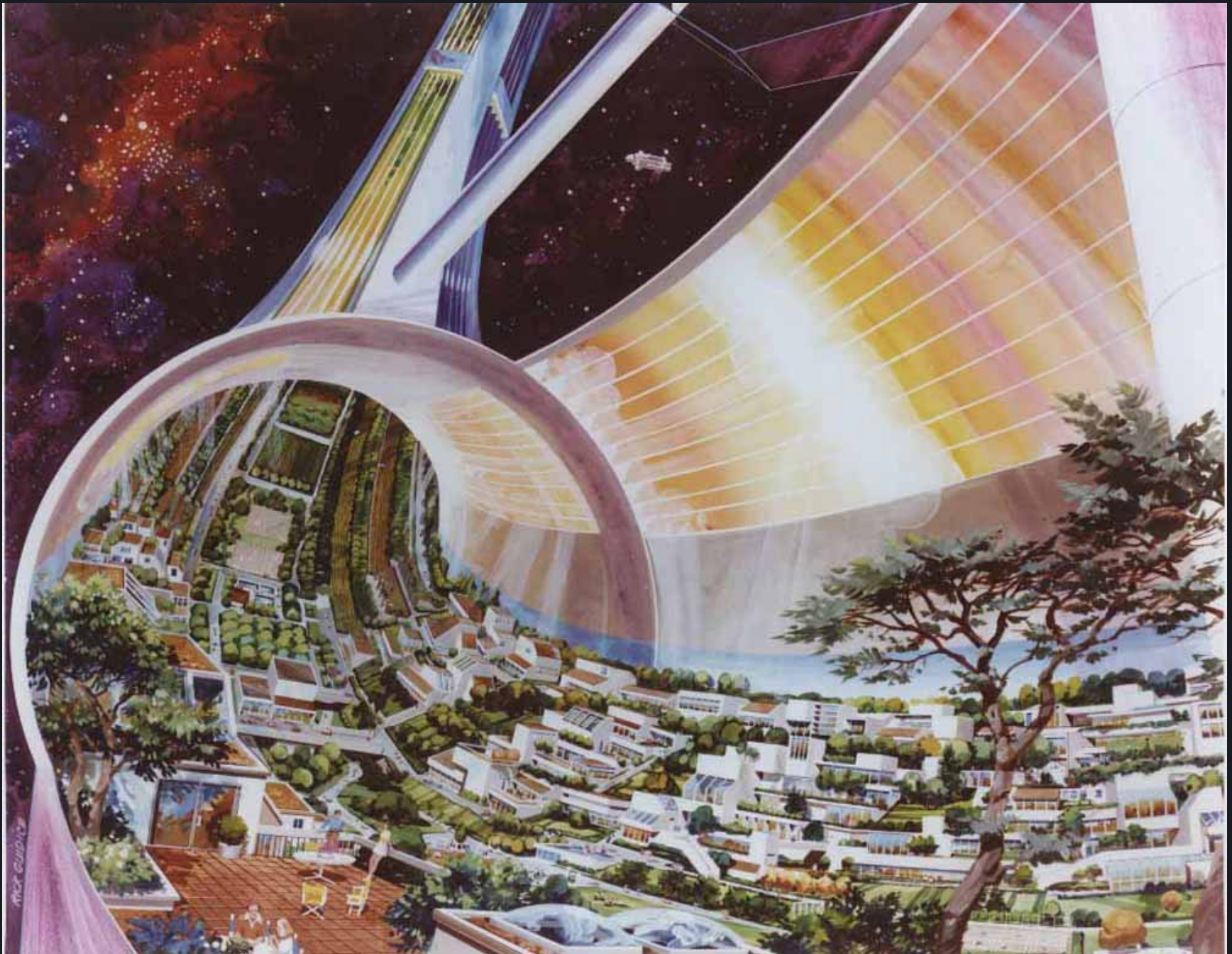
This... would be a distraction.*



* For our goals, not Mozilla Hubs'

Less distracting?







Contents [\[hide\]](#)

- 1 [History of the *Spinoff* publication](#)
- 2 [Health and medicine](#)
 - 2.1 [Infrared ear thermometers](#)
 - 2.2 [Ventricular assist device](#)
 - 2.3 [LASIK](#)
 - 2.4 [Cochlear implants](#)
 - 2.5 [Artificial limbs](#)
 - 2.6 [Light-emitting diodes in medical therapies](#)
 - 2.7 [Invisible braces](#)
 - 2.8 [Scratch-resistant lenses](#)
 - 2.9 [Space blanket](#)
 - 2.10 [3D foods printing](#)
- 3 [Transportation](#)
 - 3.1 [Aircraft anti-icing systems](#)
 - 3.2 [Highway safety](#)
 - 3.3 [Improved radial tires](#)
 - 3.4 [Chemical detection](#)
- 4 [Public safety](#)
 - 4.1 [Video enhancing and analysis systems](#)
 - 4.2 [Landmine removal](#)
 - 4.3 [Fire-resistant reinforcement](#)
 - 4.4 [Firefighting equipment](#)
 - 4.5 [Shock absorbers for buildings](#)
- 5 [Consumer, home, and recreation](#)
 - 5.1 [TEMPUR foam](#)
 - 5.2 [Enriched baby food](#)
 - 5.3 [Portable cordless vacuums](#)
 - 5.4 [Freeze drying](#)
 - 5.5 [Space age swimsuit](#)
 - 5.6 [CMOS image sensor](#)
 - 5.7 [Air-scrubbers](#)
 - 5.8 [Bowflex](#)
- 6 [Environmental and agricultural resources](#)
 - 6.1 [Water purification](#)
 - 6.2 [Solar Cells](#)

Virtual Worlds: the right thing to aim for

- Flickr
- Slack
- Twisted Python
 - Informing Node.js, etc
- E programming language
 - Secure smart contracts, pre-blockchains, even!*
 - Javascript Promises

* Though not alone, see also Szabo et al

Extensibility



Unanticipated Collaboration

- Framing
- ActivityPub: A Success Story
- Identifying Limitations
- Finding Solutions in Spritely
- A Trip to Space
- **Back on Earth**
- Blue Skies Ahead

Timeline

- 0-6 months
 - Goal: Minimal functional distributed social network
 - Secondary: Minimal virtual world demo on top
 - Audience: Hardcore Enthusiasts

Timeline

- 6-12 months
 - Goal: Usable enough to dogfood
 - Secondary: Get Agoric + Spritely talking over CapTP
 - Audience: Mastodon users, Twine developers

Timeline

- 12-24 months
 - Goal 1: Usable enough for general audience
 - Goal 2: Direct integration work
 - Audience: Everyone

We begin with the overall system goals. We have identified eight high-level characteristics that the Global Cyberspace Infrastructure architecture must possess:

- 🌐 Scalable The technological and institutional components should be sufficient for a system that includes every person and computer in the world.
- Open Cyberspace is open to new providers of services without regulation and at low cost.
- ✳ Decentralized There exists no singular privileged technical or administrative nexus.
- ↔ Traversable Data and objects can move between users, between services, and between machines.
- 💰 Commercial Cyberspace contains a complete foundation for economic activity of all kinds.
- 👥 Social Cyberspace contains the components necessary to support community life.
- 🔒 Secure The technology facilitates making good decisions about which entities can be trusted and protects users from the untrusted ones.
- 👜 Portable Protocols and service features are logically independent of the technical details of the physical network.

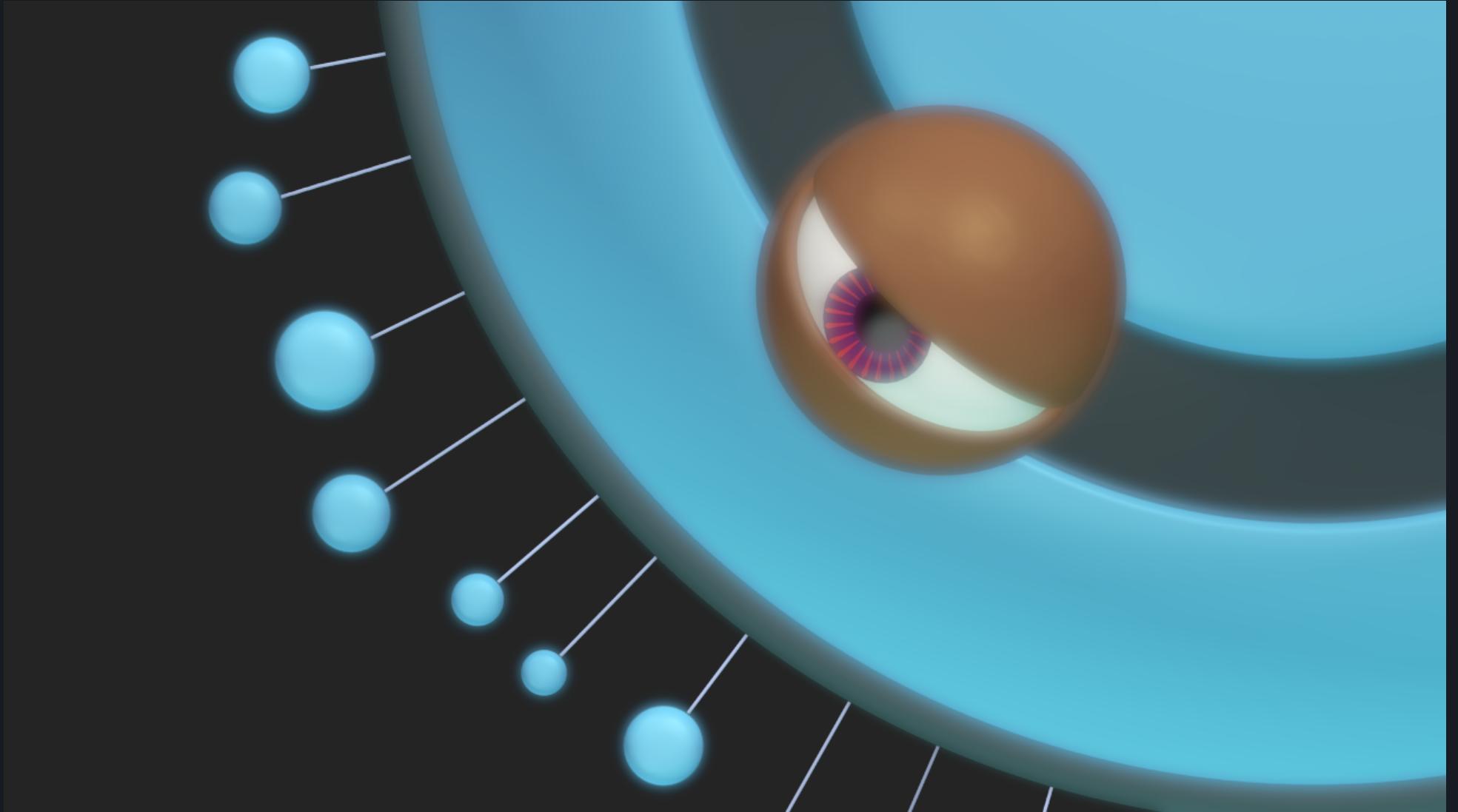
Am I the right fit for Bluesky?

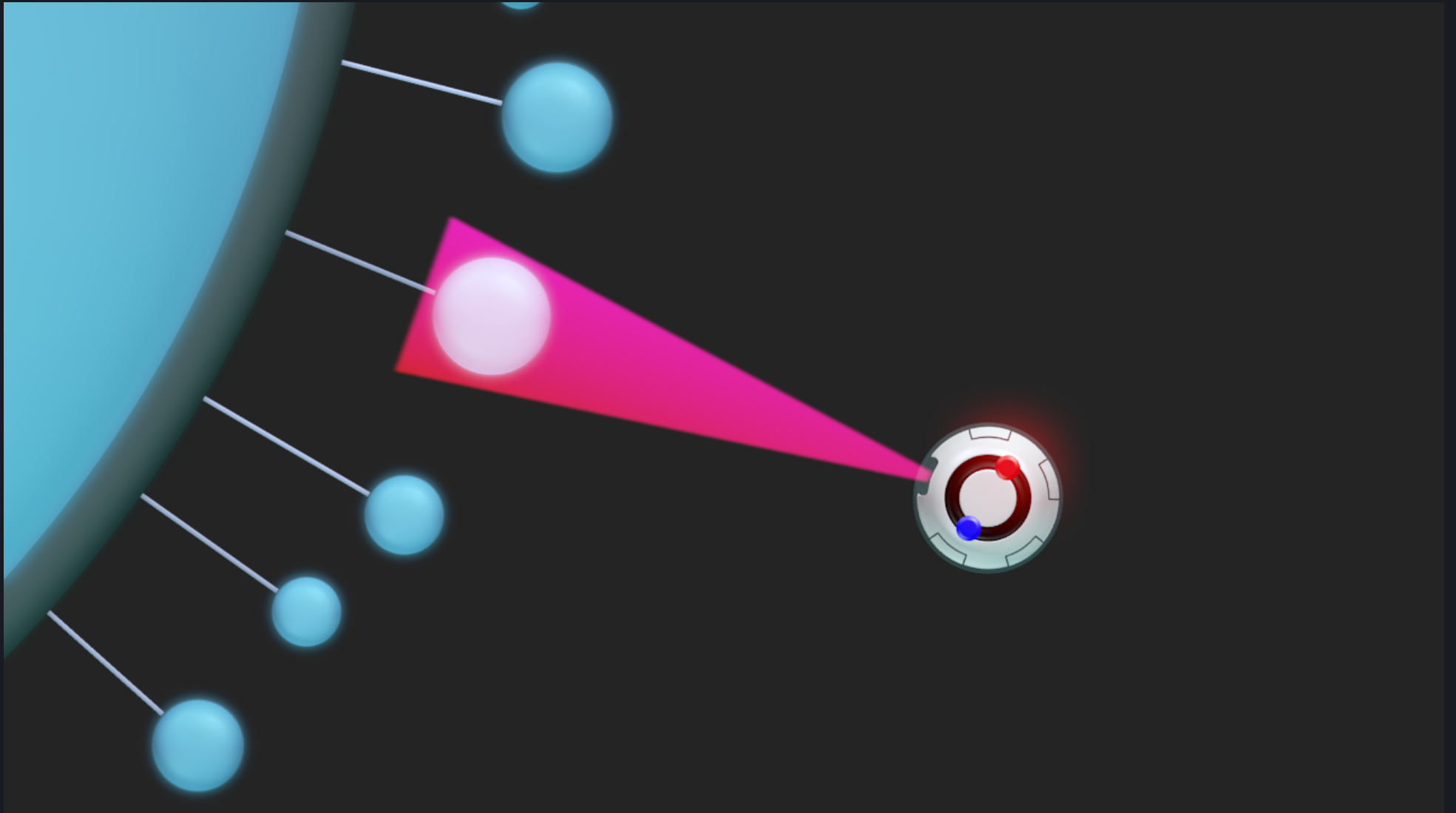
- Well known for fediverse work
- Experienced with standards and consensus-making
- Managed teams, built communities
- I've done the work and research

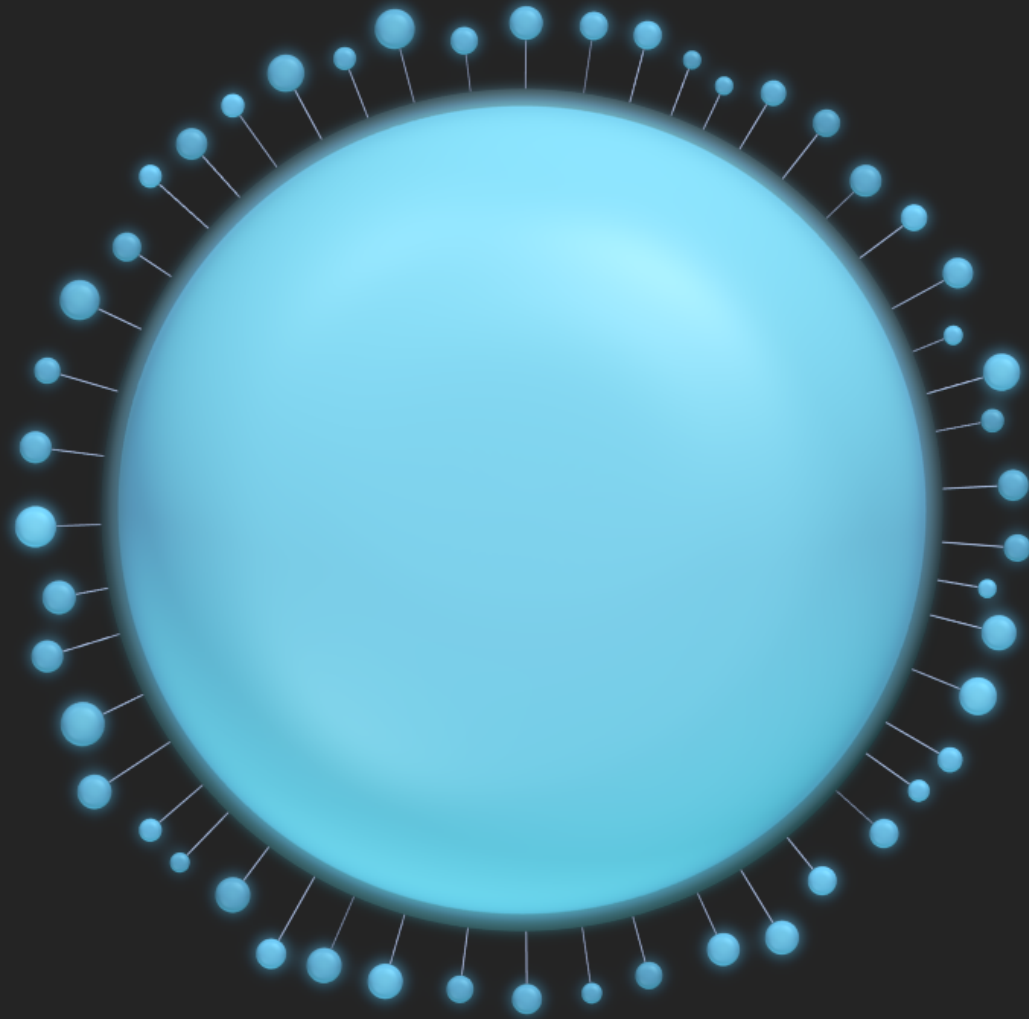
Making Bluesky work

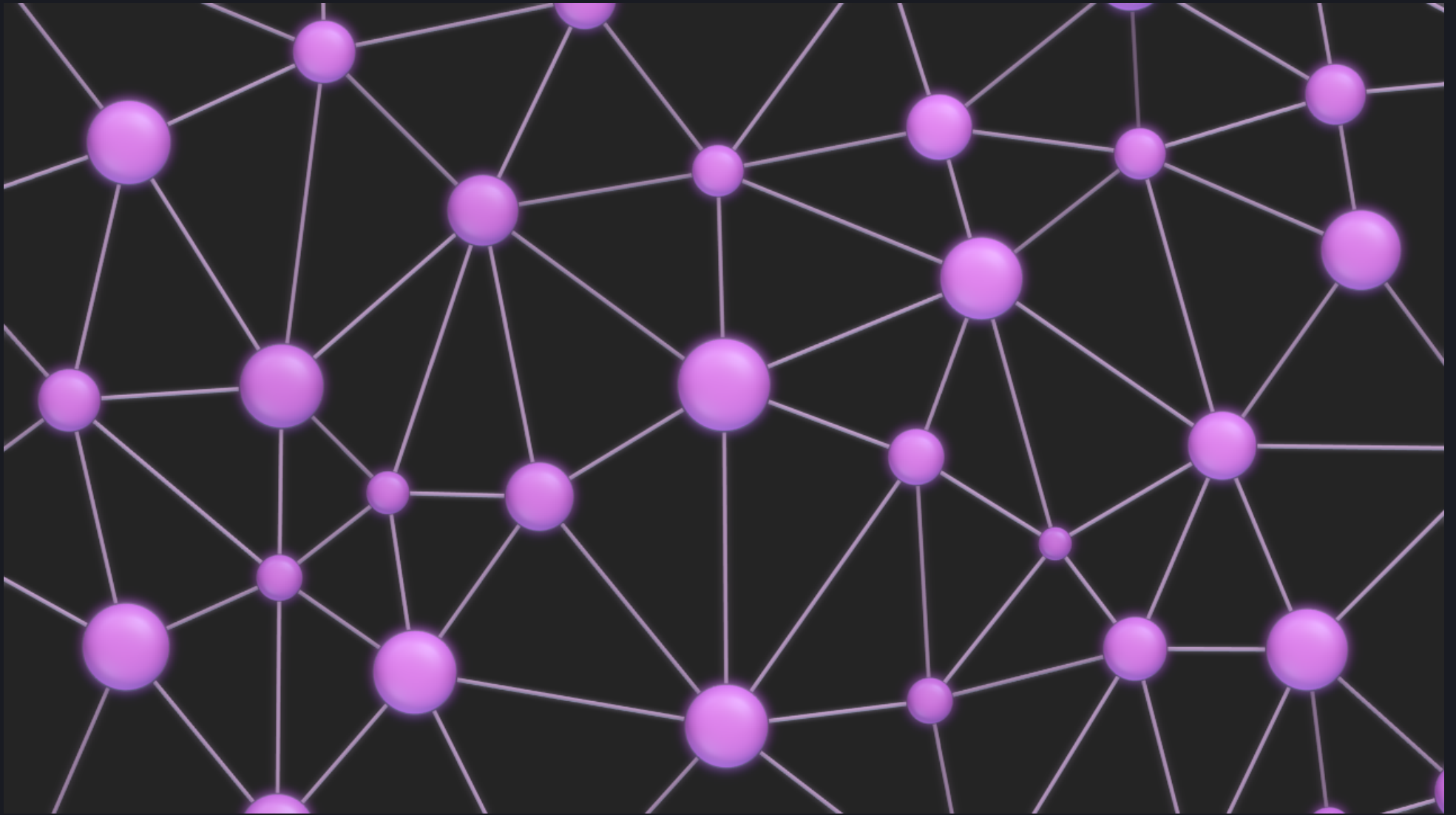
- Technical foundation
- Who's on the team?
- Encoding principles

- Framing
- ActivityPub: A Success Story
- Identifying Limitations
- Finding Solutions in Spritely
- A Trip to Space
- Back on Earth
- **Blue Skies Ahead**









So... what's Twitter's role?

- Naming hub: @twitter>dustyweb
- Inter-Commodity Exchange
- Recommendations & Discovery
- Storage Option
- Plenty to be done ...

Ready? Set? Go!



Spritely

✿ Social Worlds Await ✿

I hope we can work together!



Questions?

** BONUS SLIDES **

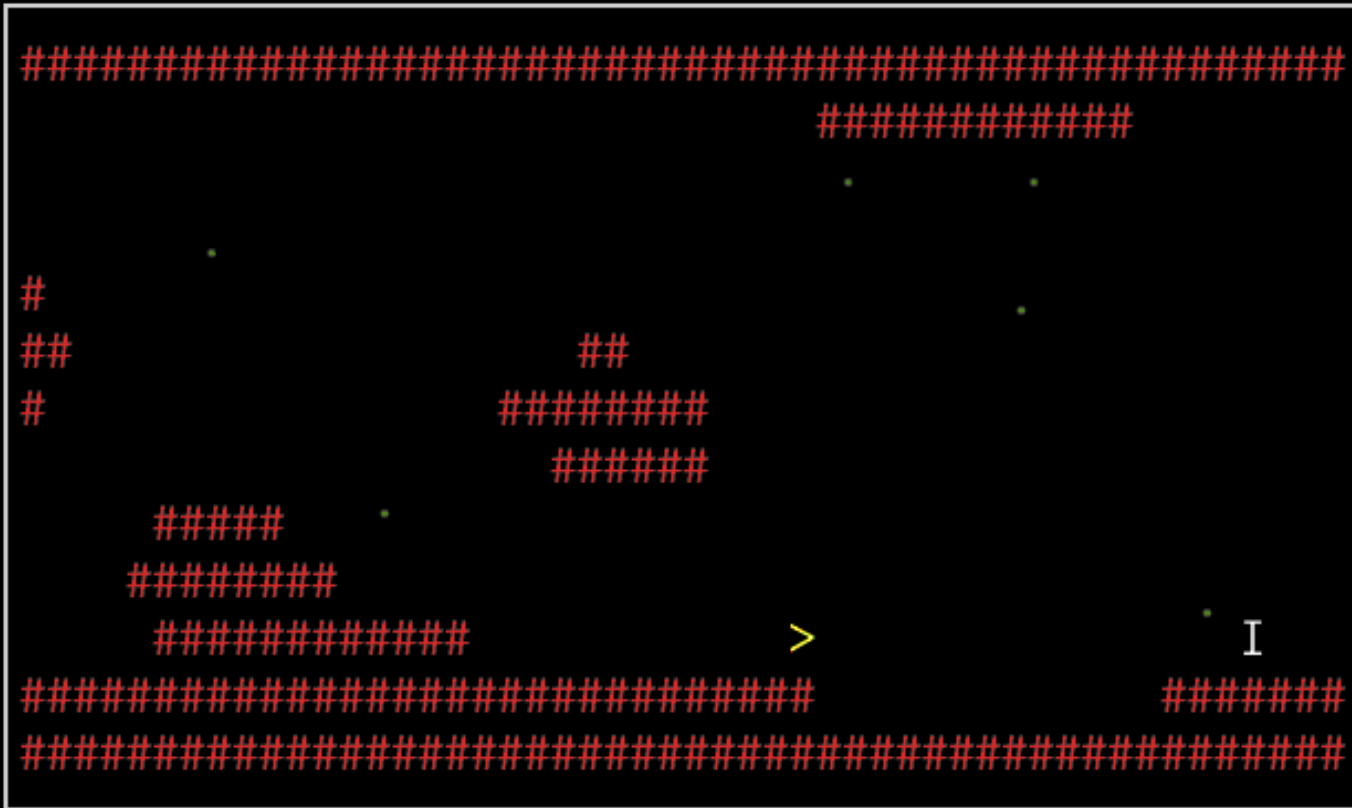
.-*[TERMINAL PHASE]*-. .



LIVES: 3
LEVEL: 1

SCORE: 0000010
HI-SCORE: 0000010

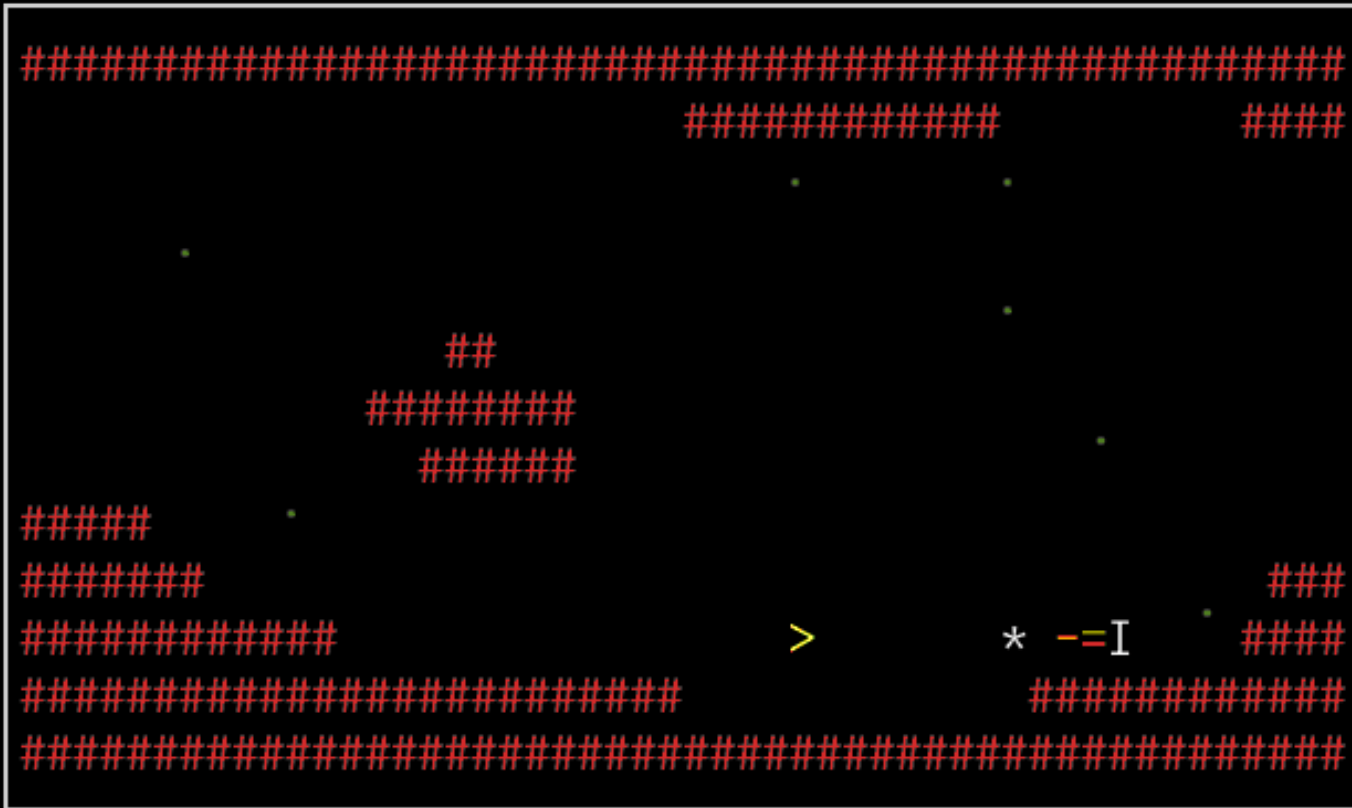
.-*[TERMINAL PHASE]*-.



LIVES: 3
LEVEL: 1

SCORE: 0000090
HI-SCORE: 0000090

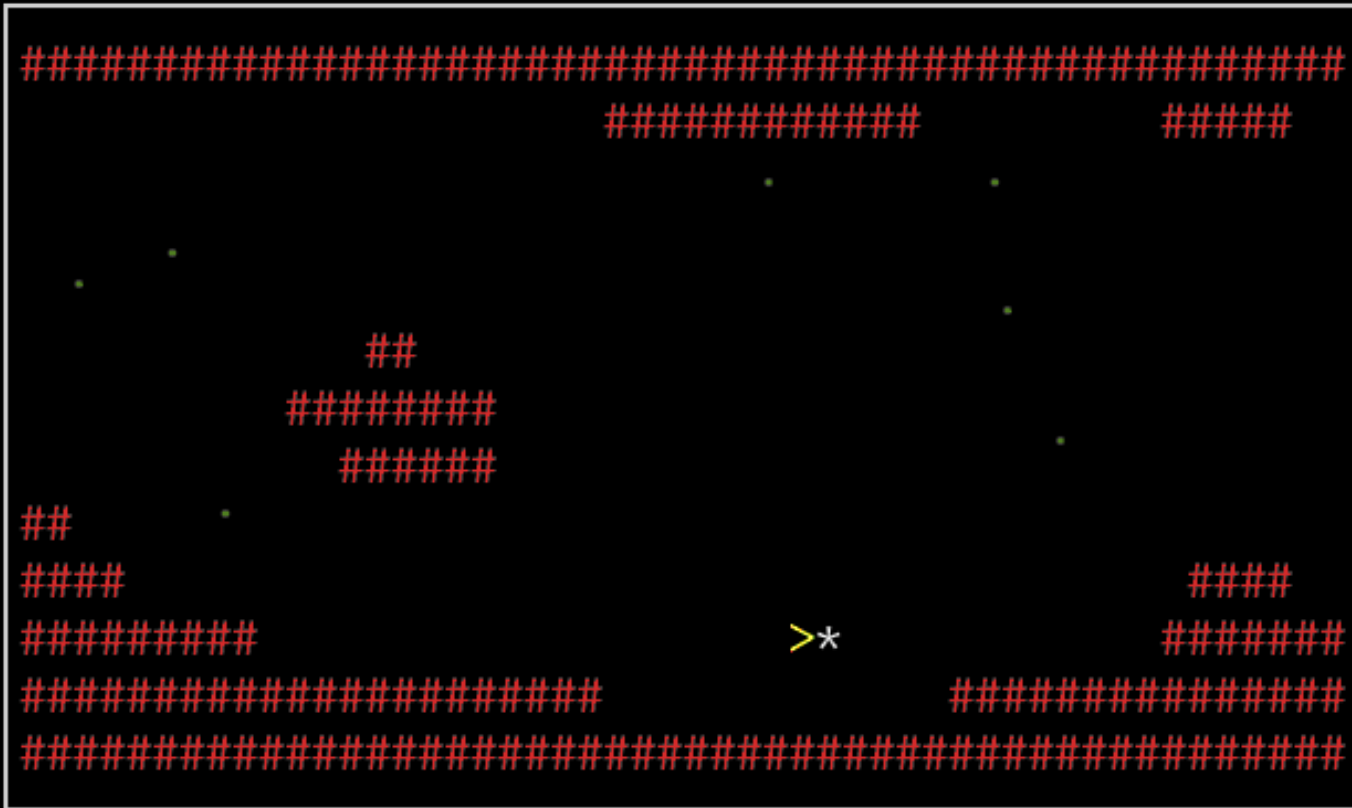
.-*[TERMINAL PHASE]*-.



LIVES: 3
LEVEL: 1

SCORE: 0000090
HI-SCORE: 0000090

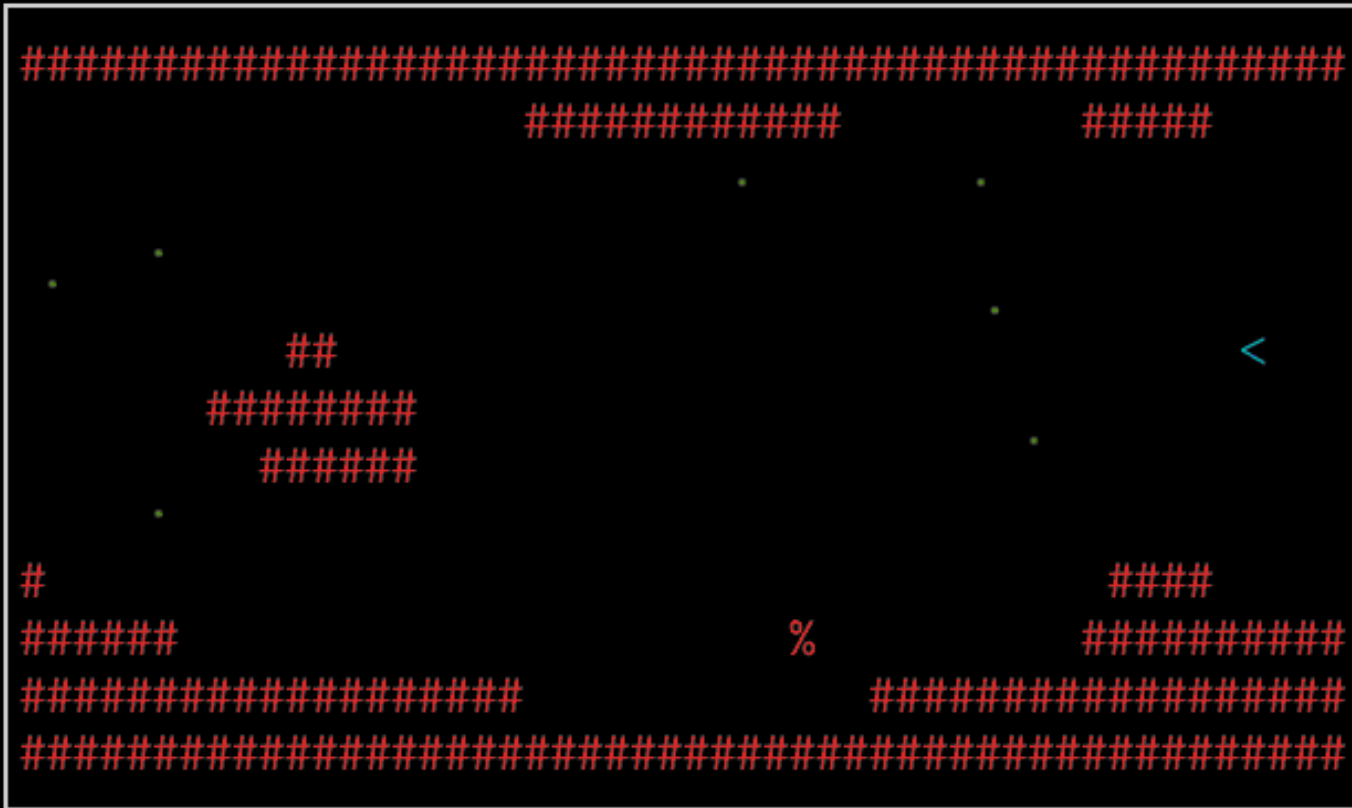
.-*[TERMINAL PHASE]*-.



LIVES: 3
LEVEL: 1

SCORE: 0000130
HI-SCORE: 0000130

.-*[TERMINAL PHASE]*-.

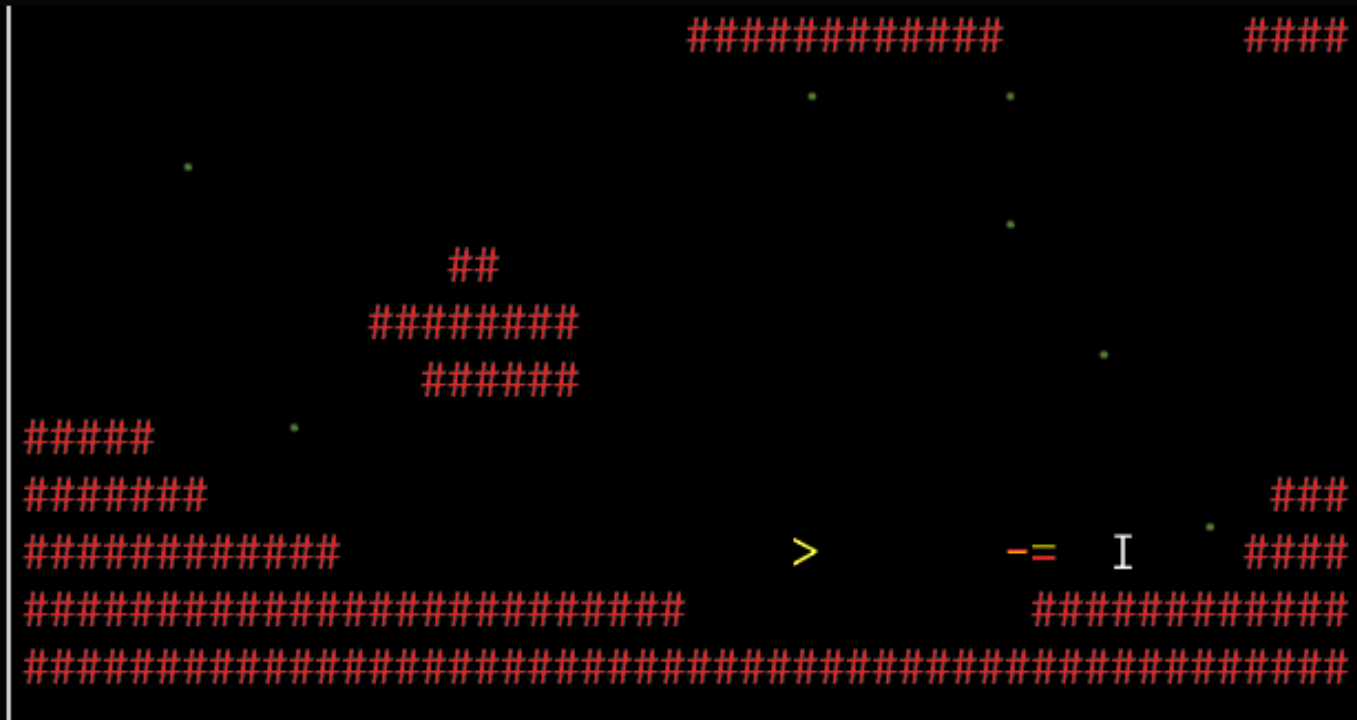


LIVES: 3
LEVEL: 1

SCORE: 0000130
HI-SCORE: 0000130

Restore Snapshot:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----



LIVES: 3
 LEVEL: 1

SCORE: 0000090
 HI-SCORE: 0000090

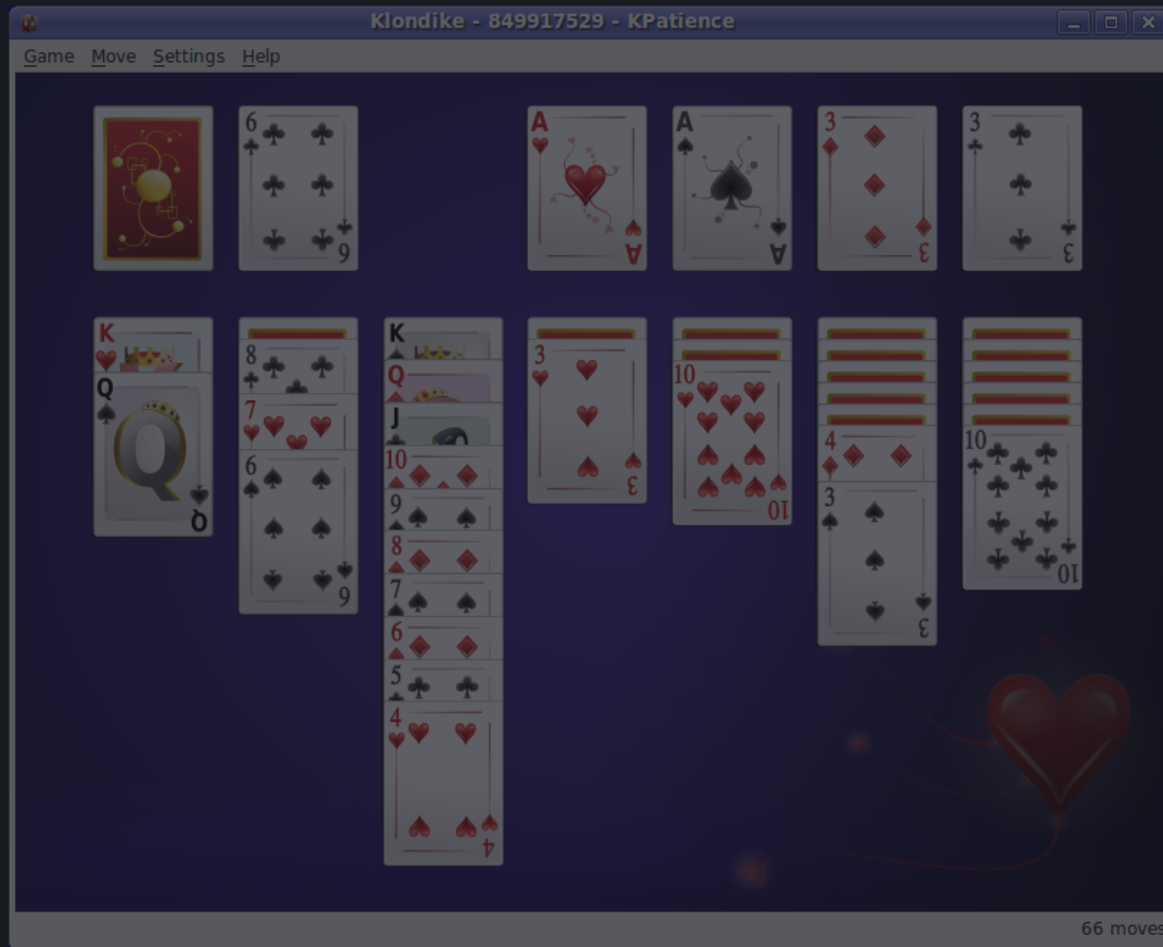
Windows-style window titled "Klondike - 849917529 - KPatience" with a menu bar containing "Game", "Move", "Settings", and "Help".

The game board consists of the following elements:

- Stock:** A red decorative icon with a yellow sphere and circuit-like lines.
- Waste:** A 6 of Clubs.
- Tableau (7 piles):**
 - Pile 1: King of Hearts, Queen of Spades, and a large "Q" with a crown.
 - Pile 2: 8 of Clubs, 7 of Hearts, 6 of Spades.
 - Pile 3: King of Spades, Queen of Hearts, Jack of Clubs, 10 of Diamonds, 9 of Spades, 8 of Diamonds, 7 of Spades, 6 of Diamonds, 5 of Clubs, 4 of Hearts, 4 of Spades.
 - Pile 4: 3 of Hearts.
 - Pile 5: 10 of Hearts.
 - Pile 6: 4 of Diamonds, 3 of Spades.
 - Pile 7: 10 of Clubs.
- Foundation (4 piles):**
 - 1. Ace of Hearts.
 - 2. Ace of Spades.
 - 3. 3 of Diamonds.
 - 4. 3 of Clubs.

A large red heart with a trail of smaller hearts is positioned in the bottom right area of the game board.

66 moves



> solitaire()



```
> solitaireWin = makeWinCanvas()  
> solitaire(solitaireWin)
```



```
> solitaireWin = makeWinCanvas()  
> scoreFile = openFile("~/solitaire-hs.txt", "rw")  
> solitaire(solitaireWin, scoreFile)
```



Hyptis

distributed finance...?



Context Collapse vs Community Norms