Standardizing Network Freedom

Christopher Lemmer Webber

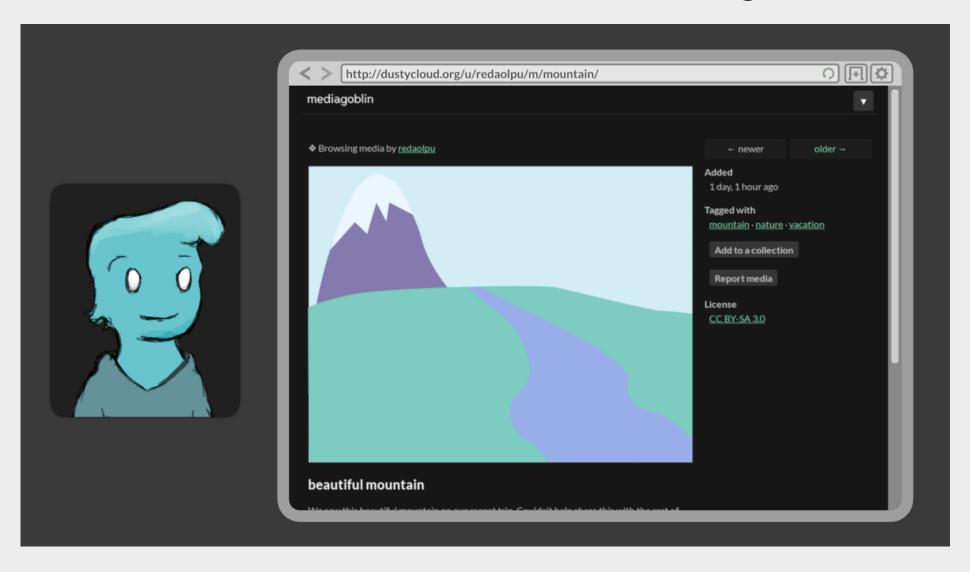
https://dustycloud.org/

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

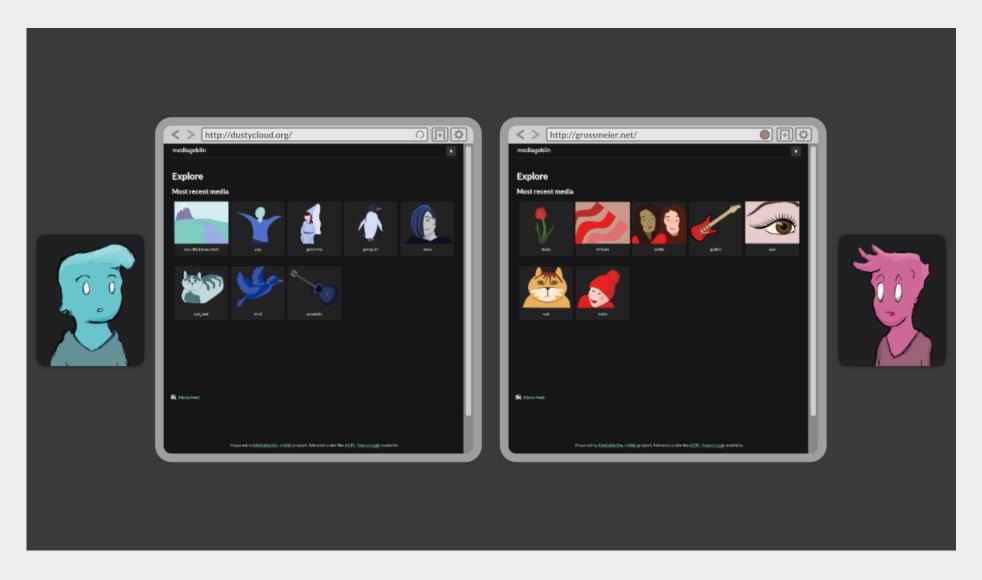
Birdsite: https://twitter.com/dustyweb

* REWIND REWIND *

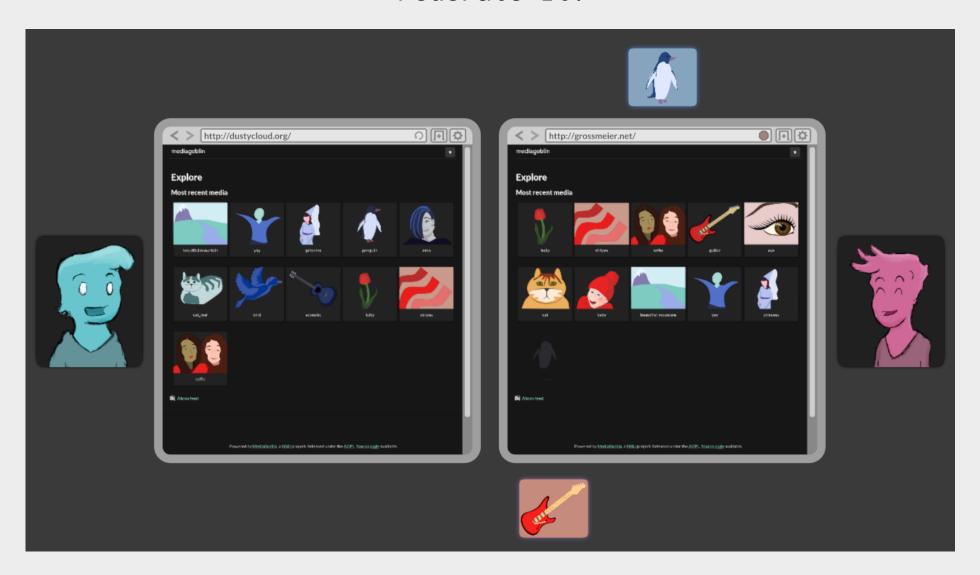
Decentralization comes with a challenge...



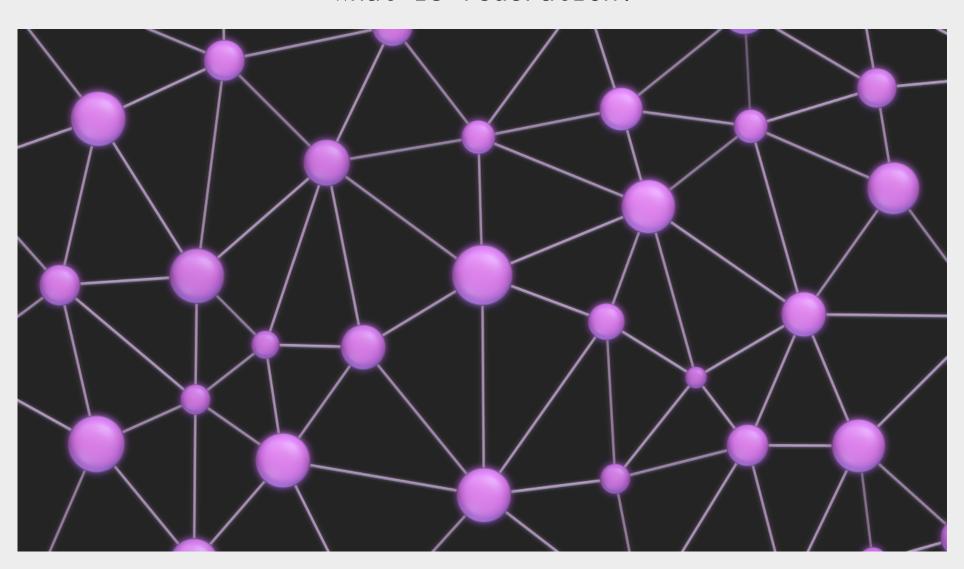
How to share with friends on other servers?



Federate it!



What is federation?



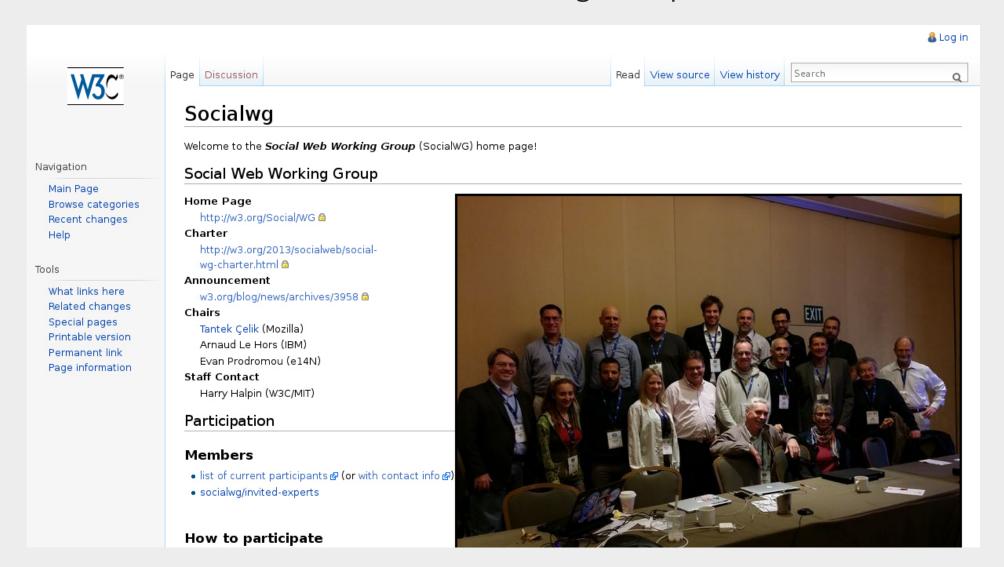
A fractured federation

We now have a smattering of incompatible protocols:

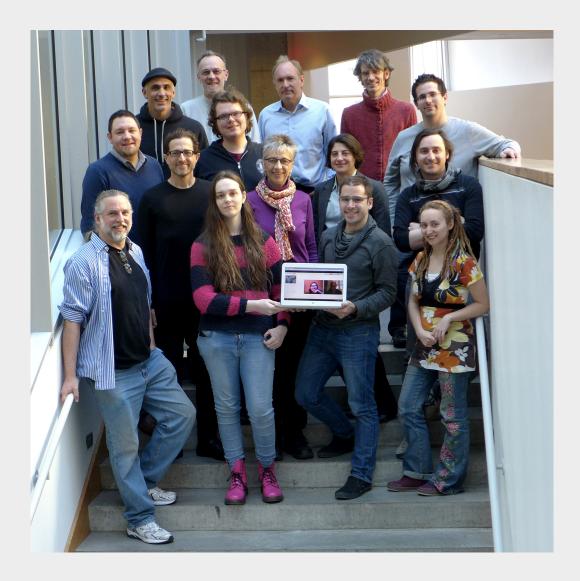
- OStatus
- Zot
- XMPP
- Pump
- Tent

Even GNU does not "agree"

W3C Social Working Group!



Let's make this official, yo



Chris and Jessica: "We'll just show up an hour a week to make sure things are on track..."

• Chris and Jessica become ActivityPub co-editors...

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- Implementor feedback..
- Lots of issues closed...
- Test suite and implementation reports...
- First Public Working Draft, Working Draft, Candidate Recommendation...

* FAST FORWARD THREE YEARS *



MAIL, NEWS, BLOGS, PODCASTS, AND TUTORIALS

News

Weekly Newsletter

W3C Blogs

Mailing Lists

Podcasts and Video

Tutorials and Courses

Team Submissions

Views: desktop mobile print

STANDARDS PARTICIPATE MEMBERSHIP ABOUT W3C

Participate » Mail, News, Blogs, Podcasts, and... » W3C News W3C »

ACTIVITYPUB IS NOW A W3C RECOMMENDATION

23 January 2018

The Social Web Working Group has published ActivityPub as a W3C Recommendation.

ActivityPub is a decentralized social networking protocol based upon the ActivityStreams 2.0 data format. It provides a client to server API for creating, updating and deleting content, as well as a federated server to server API for delivering notifications and content.

ActivityPub is already implemented and deployed to a number of projects and a wide userbase, including over 1 million registered users across thousands of Mastodon instances. ActivityPub allows software projects both small and large to build social network offerings into their systems. Adding ActivityPub support allows interoperable social networking between applications with entirely different codebases. For example, Mastodon and PeerTube users are able to use ActivityPub to allow users to share videos and comment across different servers.

Whoohoo!

(it was a lot more than an hour a week...)





• Server-to-Server protocol (federation!)



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- Client-to-Server protocol (mobile, desktop, web clients)



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- Choose one, or choose both! Once you have one, the other is easy.

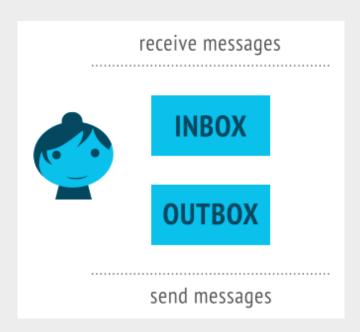


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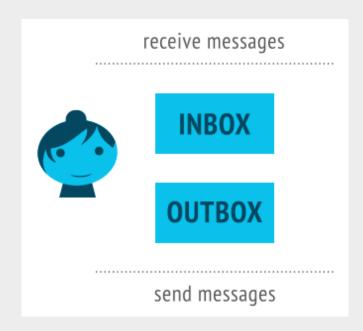


- Server-to-Server protocol (federation!)
- Client-to-Server protocol (mobile, desktop, web clients)
- Choose one, or choose both! Once you have one, the other is easy.
- Uses ActivityStreams as its vocabulary
- Uses JSON-LD as its serialization

This is Alyssa, an actor!

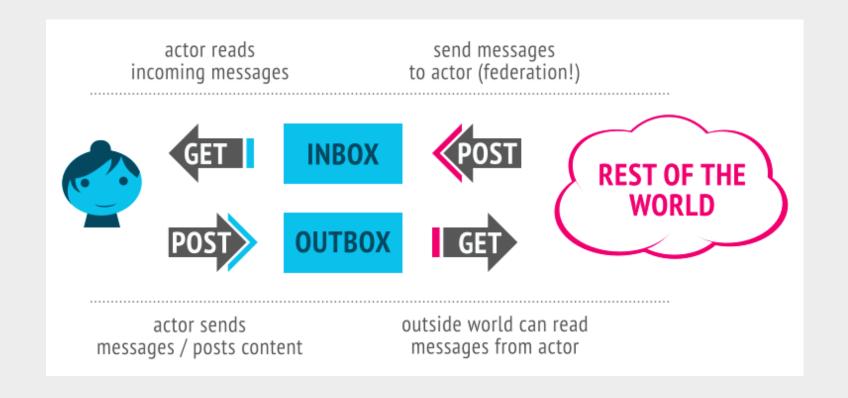


This is Alyssa, an actor!



```
{"@context": "https://www.w3.org/ns/activitystreams",
  "type": "Person",
  "id": "https://social.example/alyssa/",
  "name": "Alyssa P. Hacker",
  "preferredUsername": "alyssa",
  "summary": "Lisp enthusiast hailing from MIT",
  "inbox": "https://social.example/alyssa/inbox/",
  "outbox": "https://social.example/alyssa/outbox/",
  "followers": "https://social.example/alyssa/followers/",
  "following": "https://social.example/alyssa/following/",
  "liked": "https://social.example/alyssa/liked/"}
```

An overview of ActivityPub



Alyssa's client =POST=> Alyssa's outbox



Alyssa's client =POST=> Alyssa's outbox



```
{"@context": "https://www.w3.org/ns/activitystreams",
  "type": "Note",
  "to": ["https://chatty.example/ben/"],
  "attributedTo": "https://social.example/alyssa/",
  "content": "Say, did you finish reading that book I lent you?"}
```

Server wraps it in a Create...

Server wraps it in a Create...

An actor always performs an activity on an object...







Server wraps it in a Create...

An actor always performs an activity on an object...







... with email-like addressing.



Federation: Alyssa's server POSTs to Ben's Inbox



Take note!

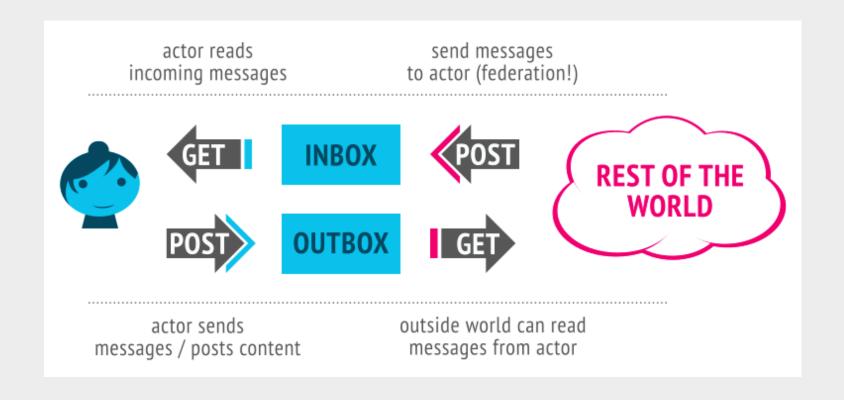
Federation *is* POSTing to an inbox!

A simplified view



And Ben can GET from his inbox to see recent posts!

Let's see that again!



ActivityStreams is AP's social vocabulary



Application
Group
Organization
Person
Service



Like Accept Add Listen Move Announce Offer Arrive Block Question Create Reject Delete Read Dislike Remove Flag TentativeReject Follow TentativeAccept Ignore Travel Invite Undo Join Update View Leave



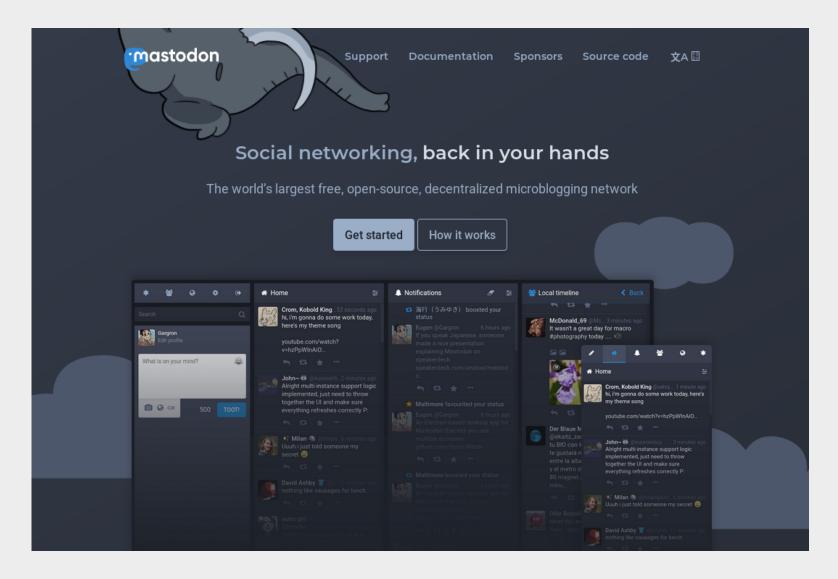
Article
Audio
Document
Event
Image
Note
Page
Place
Profile
Relationship
Tombstone
Video

Extensible with JSON-LD, too!

Read the Overview section of the ActivityPub spec!

This stuff is easier than you think!

Mastodon picks up ActivityPub!



Over 1 million registered ActivityPub users through Mastodon alone!

And not just Mastodon...

ActivityPub implementors:

Aardwolf
Bridgy Fed
distbin.com
dokieli
Hubzilla
Kroeg
Mastodon
Nextcloud

PeerTube
places.pub
Pubstrate
Smilodon
tags.pub
Pleroma
Rustodon

And not just Mastodon...

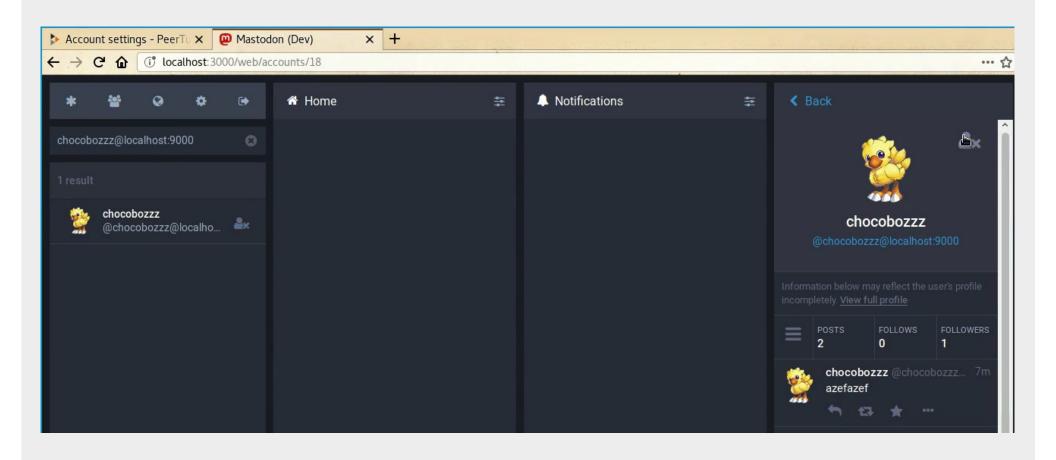
ActivityPub implementors:

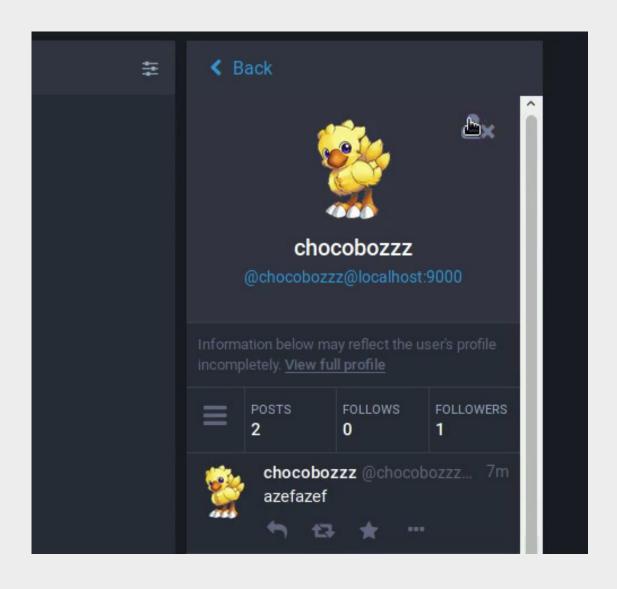
Aardwolf
Bridgy Fed
distbin.com
dokieli
Hubzilla
Kroeg
Mastodon
Nextcloud

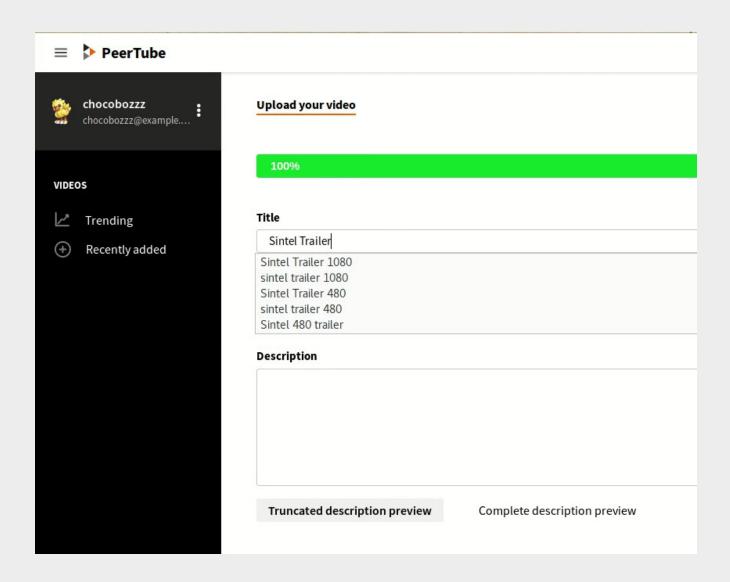
PeerTube
places.pub
Pubstrate
Smilodon
tags.pub
Pleroma
Rustodon

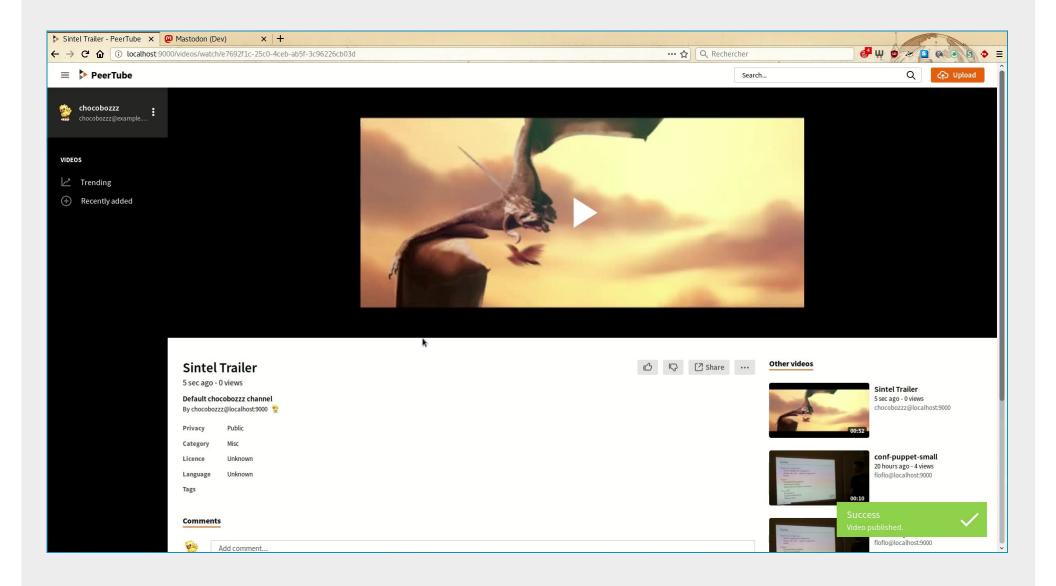
Coming soon?

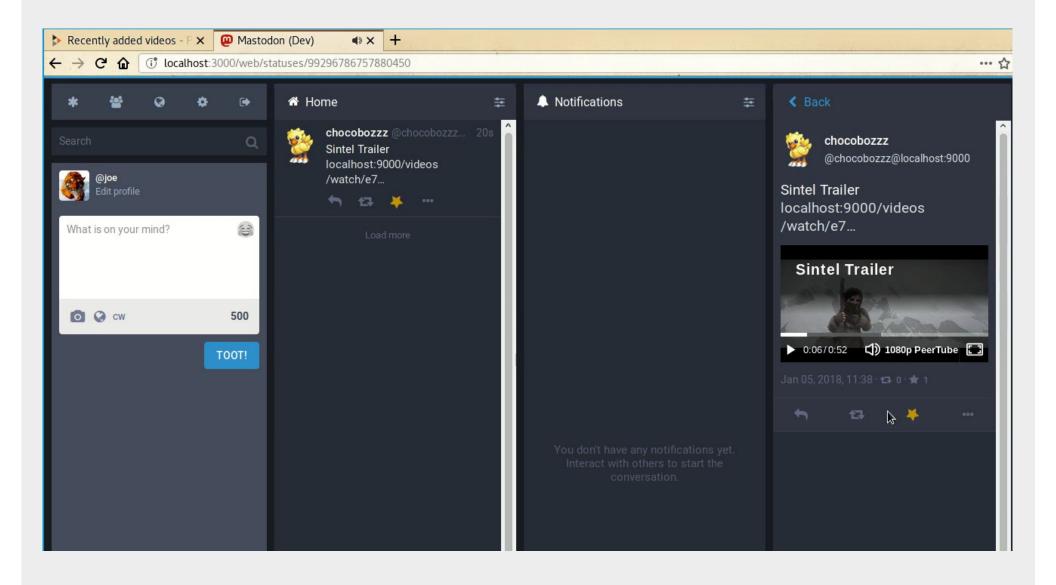
MediaGoblin Pump.io

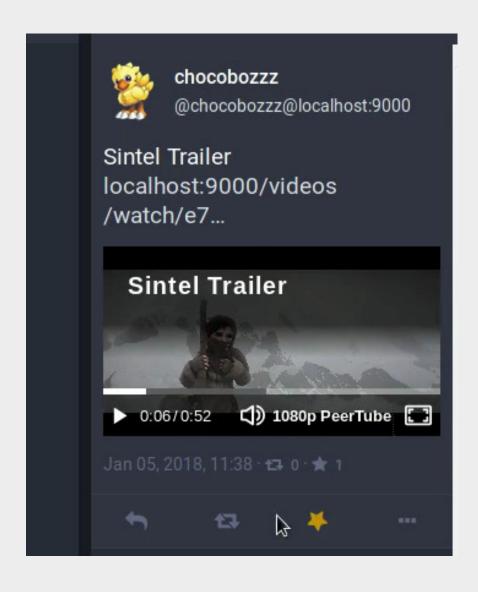


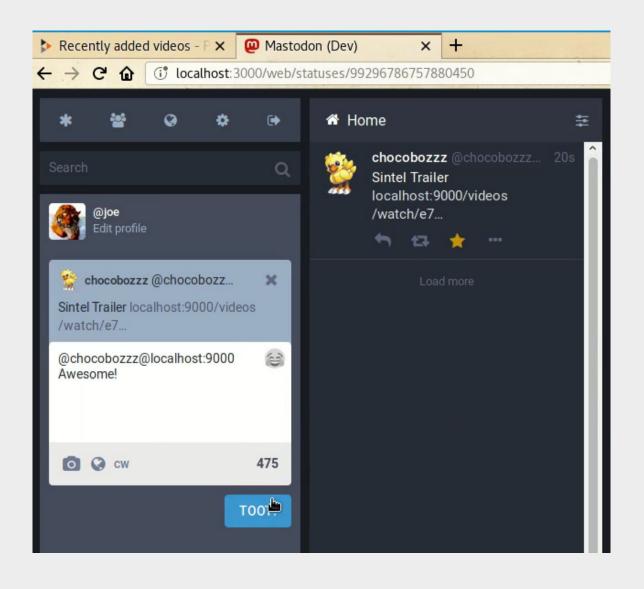


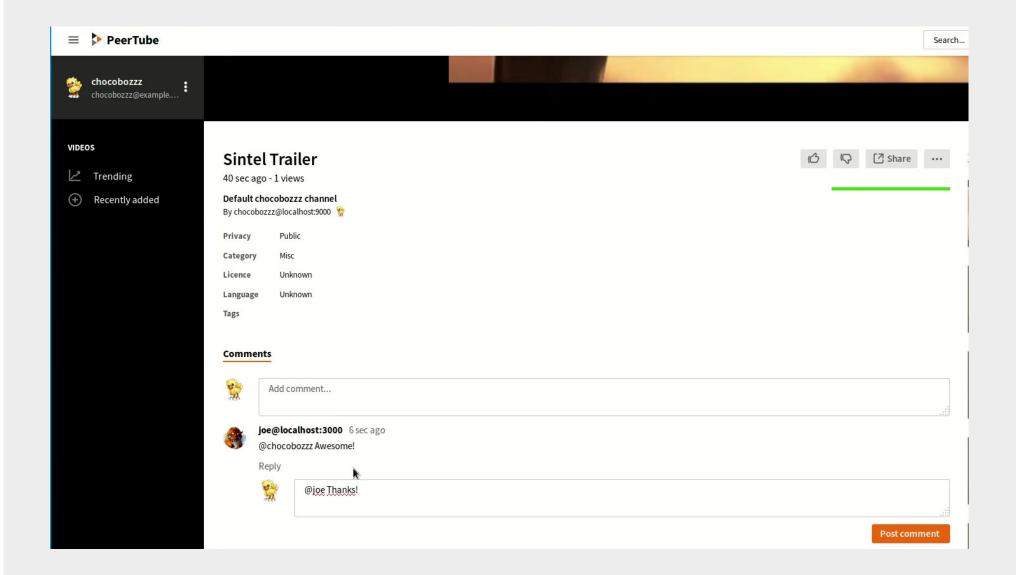


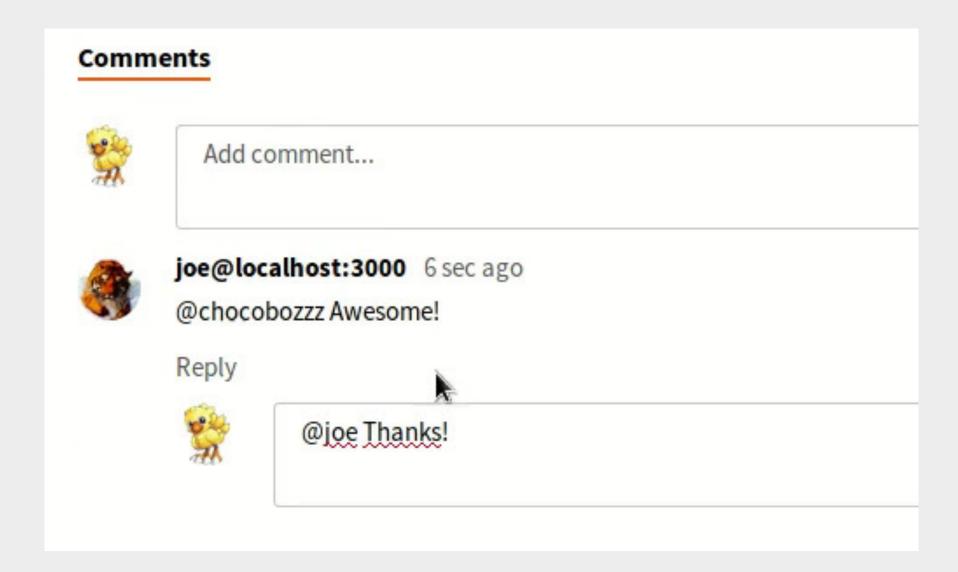












Yay! A working, interoperable federated social web! But we're not done!

Home / Social Web Incubator...

SOCIAL WEB INCUBATOR COMMUNITY GROUP

The purpose of the Social Web Incubator Community Group is to continue and extend the development of vocabularies, formats and protocols to support the distributed / federated social web, as well as related technologies (such as anti-abuse and anti-spam techniques suitable for an open web). This group continues the work of the W3C Social Web Working Group. As proposals gain support and become more stable and mature, they will be considered for migration to a W3C Working Group where they can be put on the Recommendation track with appropriate status and Intellectual Property (IP) considerations.

Note: Community Groups are proposed and run by the community. Although W3C hosts these conversations, the groups do not necessarily represent the views of the W3C Membership or staff.

No Reports Yet Published (i)

Chairs, when logged in, may publish draft and final reports. Please see report requirements.

PUBLISH REPORTS

Social Web Incubator Community Group kick-off call

Christopher Webber | Posted on: May 1, 2017

Hello everyone,

We're planning the first call for the SWICG. This will be on Friday, May 5th of 2017 at 4PM

Tools for this group (i)





RSS

Contact This Group

Get involved (i)

Anyone may join this Community Group. All participants in this group have signed the W3C Community Contributor License Agreement.

JOIN OR LEAVE THIS GROUP



Aaron Parecki





Christopher Webber

Participants (63)









Peter Alexander



• Lots more exciting applications to build!

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- More robust anti-abuse tooling

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- Complimentary work happening at Rebooting Web of Trust

Standards work: a pain but worth it



How could the W3C betray its mission?



How could the W3C betray its mission?

• Conway's Law but for funding



How could the W3C betray its mission?

- Conway's Law but for funding
- Fear of irrelevance
 - Or They'll abandon the web!!!
 - WHATWG



Should we start a hacker-centric standards org?



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• Probably! Though...



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- I can't: A finite number of yaks to shave in life (but happy to advise)



Should we start a hacker-centric standards org?

- Probably! Though...
- I can't: A finite number of yaks to shave in life (but happy to advise)
- Got to work where collaborators are

Remember this slide?

Coming soon?

MediaGoblin Pump.io

• ActivityPub is (largely) derived from Pump.io's API

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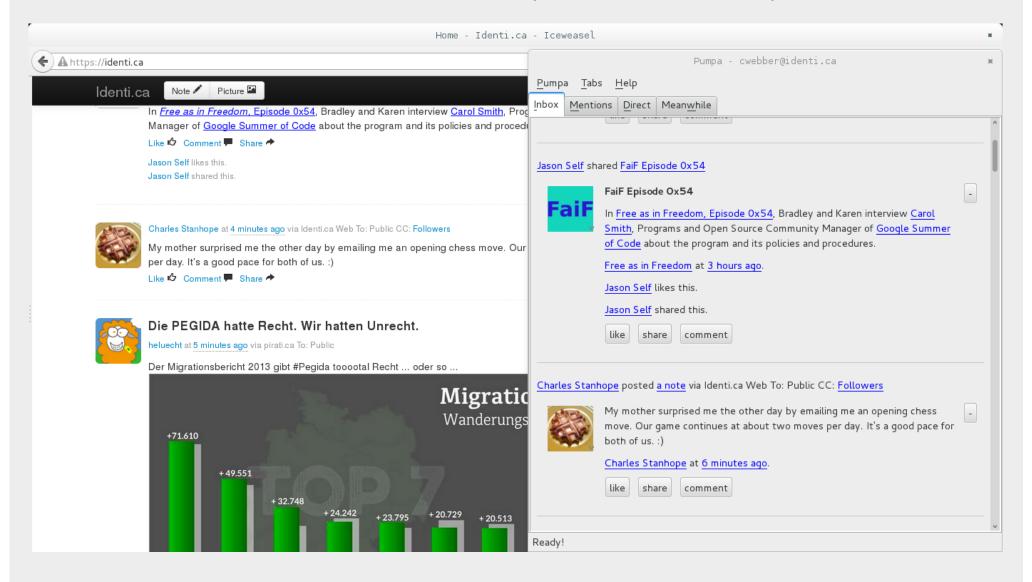
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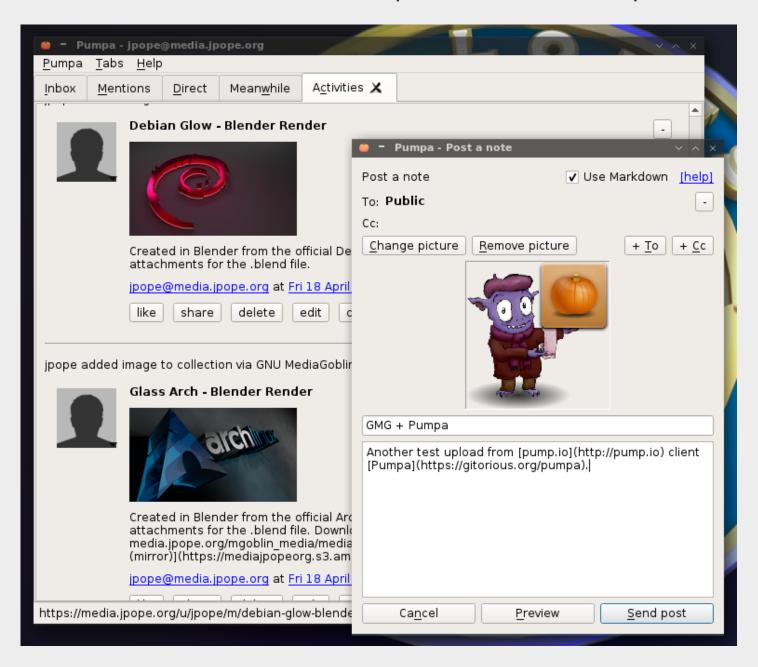
- ActivityPub is (largely) derived from Pump.io's API
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ActivityPub wouldn't have happened without Pump.IO and MediaGoblin

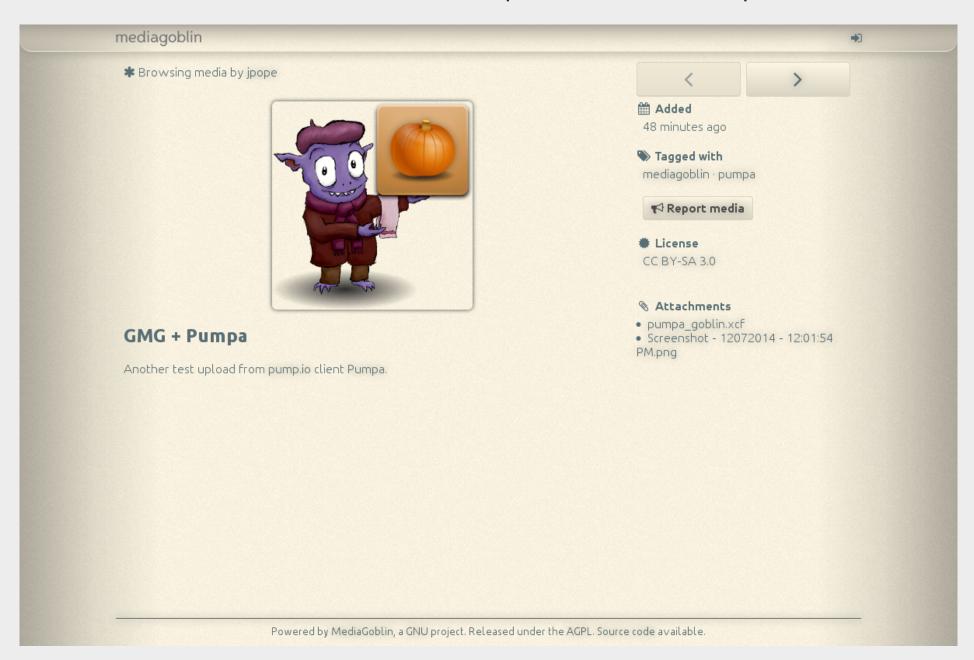
MediaGoblin and Pump.IO had interop:



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MediaGoblin and Pump.IO had interop: Federation also worked (in a branch)...

Thank you Jessica Tallon!

Addressing the obvious irony

So where the heck is MediaGoblin???

Excuses, excuses, excuses

• ActivityPub ate up most of my last three years

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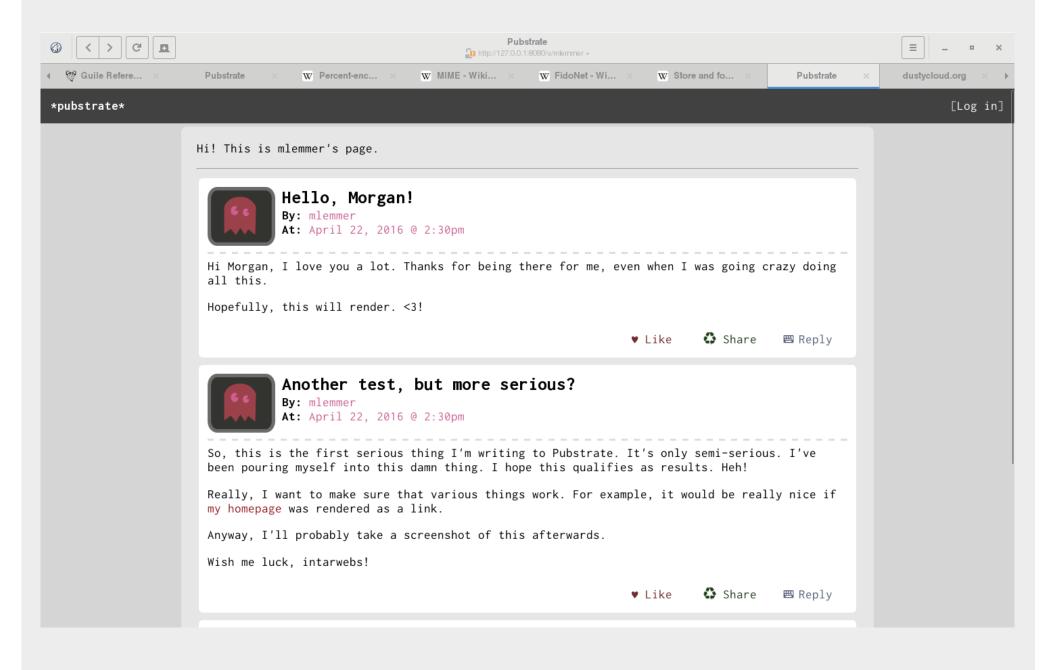
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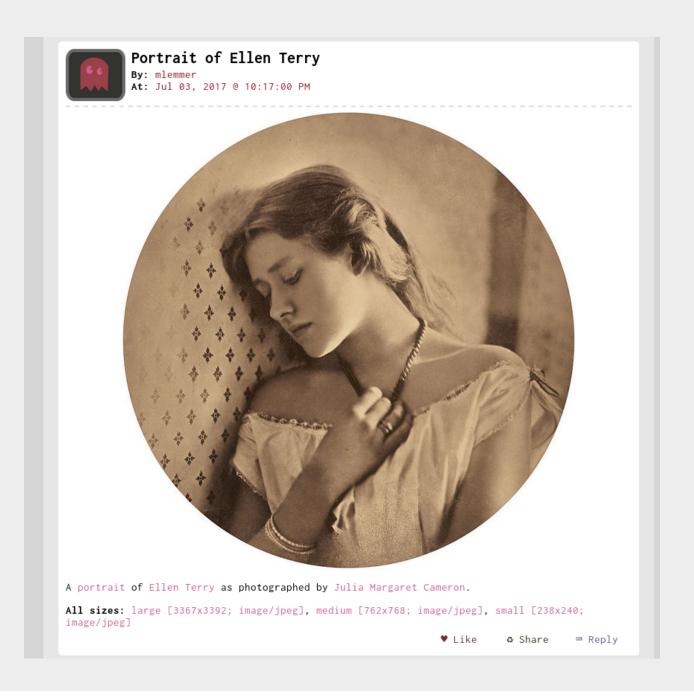
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- While we've been busy, other projects like Peertube have been able to build on our work with ActivityPub, and have done some new and interesting things
- In the meanwhile, I've done some experimentation:

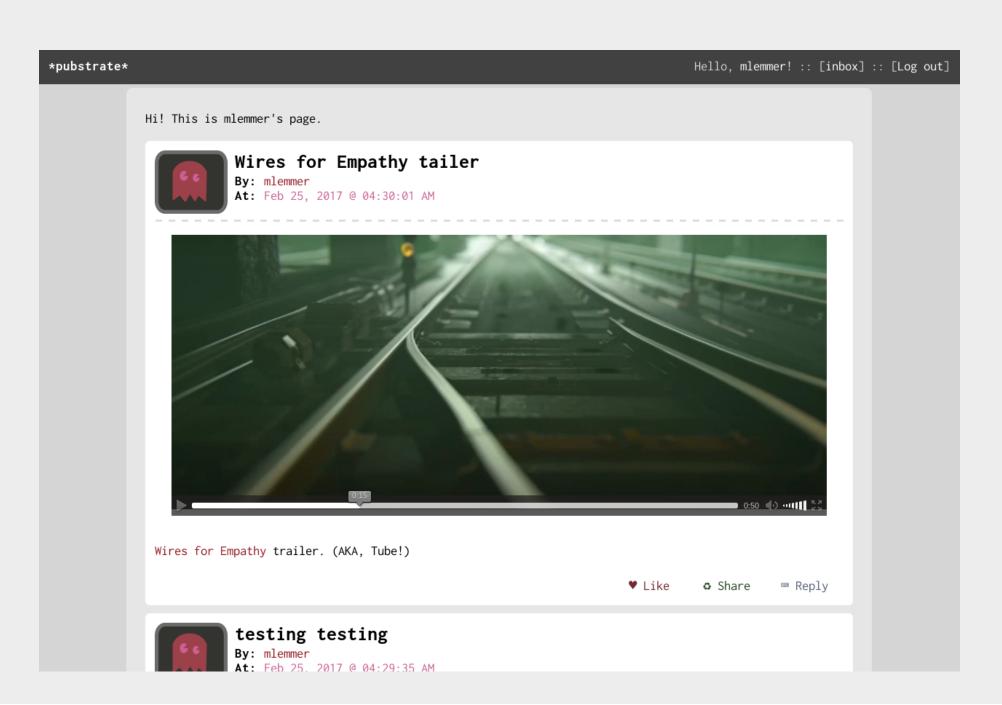
Pubstrate



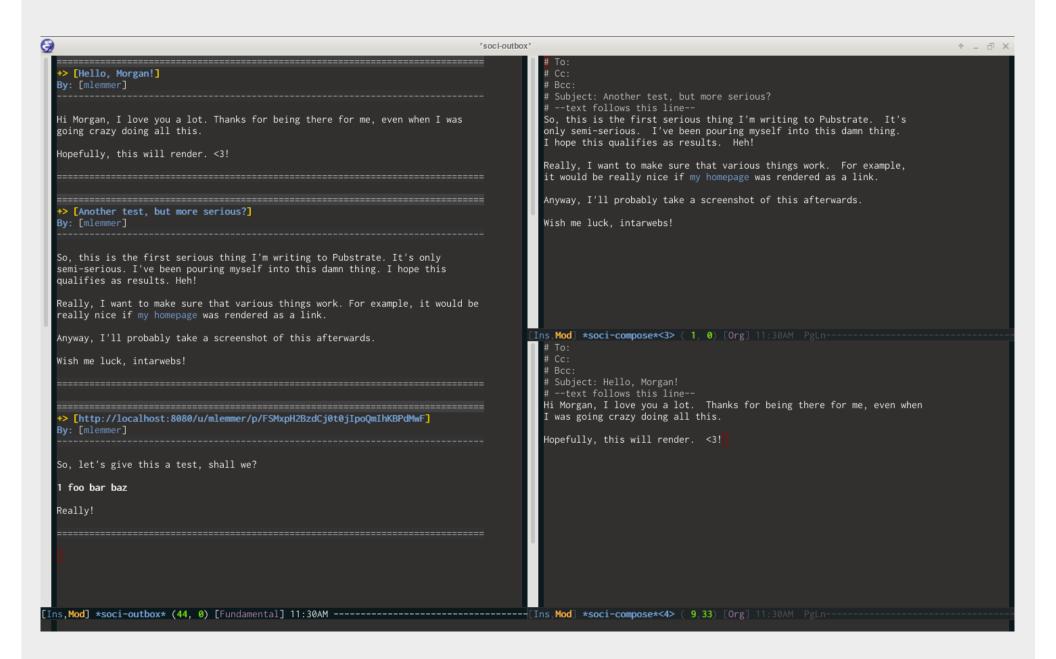
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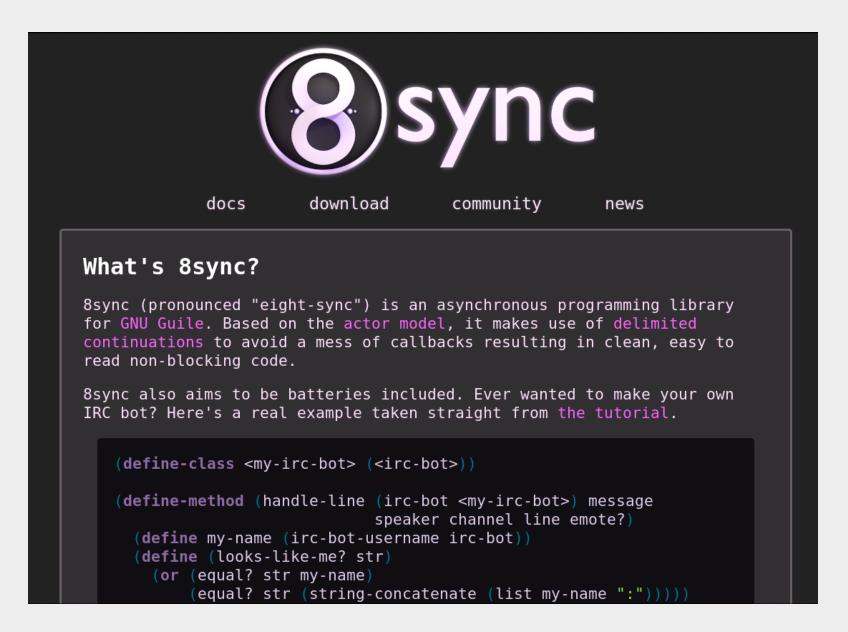
Pubstrate



I also wrote an emacs client...



I also experimented with async models...



MediaGoblin's community has continued work in my absence!

Thanks especially to Boris Bobrov (breton) for stepping up as maintainer

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I'm interested in your thoughts! Talk to me in the hallway or at soon-to-come MediaGoblin contributor meetings

• Standard for an interoperable fediverse? Success!

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- Major rollout of said standard? Success!

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The next exciting ActivityPub application could be yours!

Thanks!

Image credits:

MediaGoblin federation images: (CC BY-SA 4.0)

Christopher Lemmer Webber and Morgan Lemmer Webber

Defective By Design march: (CC BY 3.0)

https://media.libreplanet.org/u/zakkai/tag/no-drm-in-web-standards/

Alyssa and Ben ActivityPub examples (CC0 1.0)

By mray, part of the ActivityPub spec

ActivityPub logo (CC0 1.0)

Also by mray!

Pump.io and MediaGoblin interop pics (CC BY-SA 4.0)

By jpope, from the MediaGoblin blog

Anything else by Christopher Lemmer Webber (CC BY-SA 4.0)

BONUS TOPICS

- Joining the SocialCG and why you should
- Possible paths for anti-abuse tooling
- What does it take to write an ActivityPub application?
- DIDs (Decentralized Identifiers) and identity with self-control
- Linked Data Capabilities for secure interactions
- Better async programming paradigms
- Bridging ActivityPub and P2P networks
- Why the retrofuture of social networks is cyberpunk games