



Shig

distribute and clone live streams among Fediverse instances



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I am interested in interactive live streaming in the Fediverse.

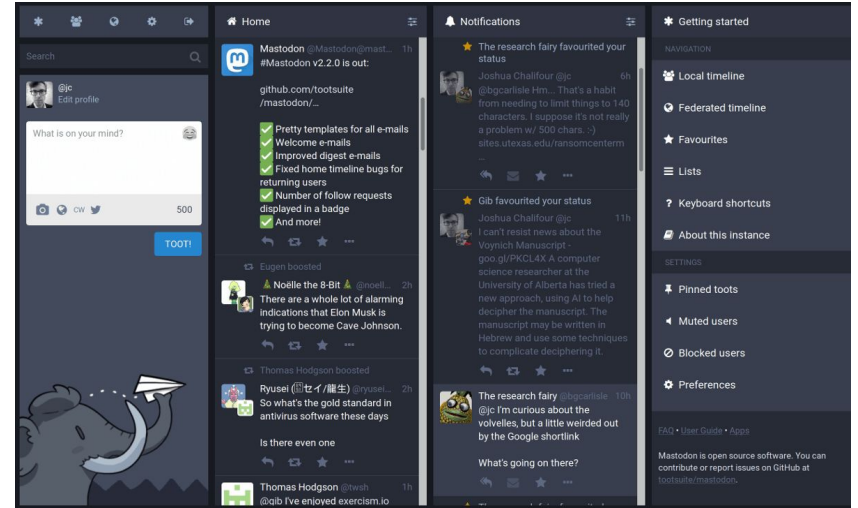
<https://www.linkedin.com/in/enrico-schwendig-51a102290/>

<https://github.com/EnricoSchw>



Fediverse

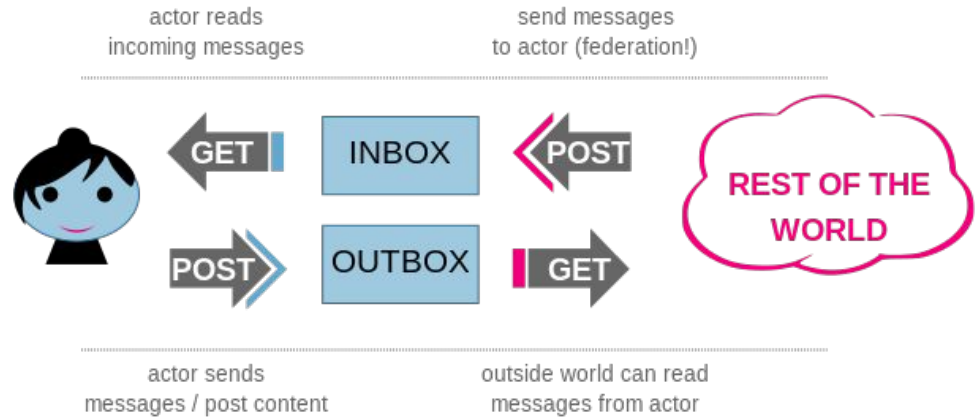
Mastodon The Posts are coming to your App





ActivityPub

Actor

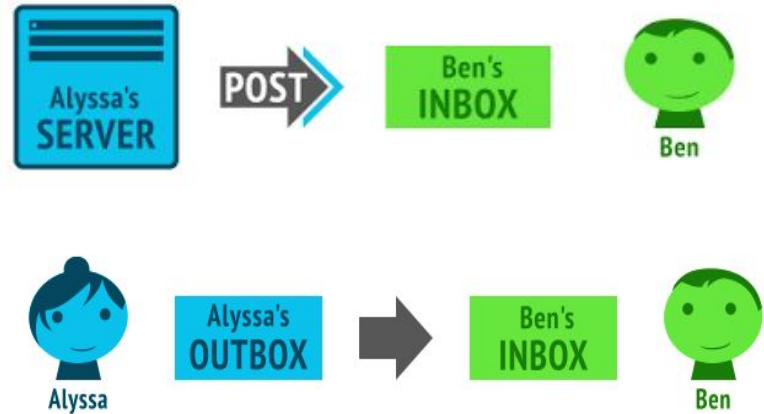


Images: <https://www.w3.org/TR/activitypub/>



Content get cloned via Activities between Instances

- Activities: Subscribe, Follow..
- Content: Posts, Article, Video, Images



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



Activity Pub and Live Streams

Owncast, PeerTube, ..

But: You can not interact without leaving your instance!

Multi User Livestreams

Live Chat

Collaboratives Streaming

...



Live Stream Scale (Fediverse)

Hardware, CDN ,Objectstorage

PeerTube:

- P2P Media Loader (via HLS and BitTorrent over WebRTC)
- WebTorrent
- Remote Runner

Owncast:

- has a Online Dashboard with linked Instances



Interactive Live Streams

We use ActivityPub as a protocol to share.

We want to interact with live streams:

- Add/remove/enable/disable tracks inside the streams
- Tracks from various sources are combined into one stream.



WHIP/ WHEP & Webrtc

WHIP/WHEP

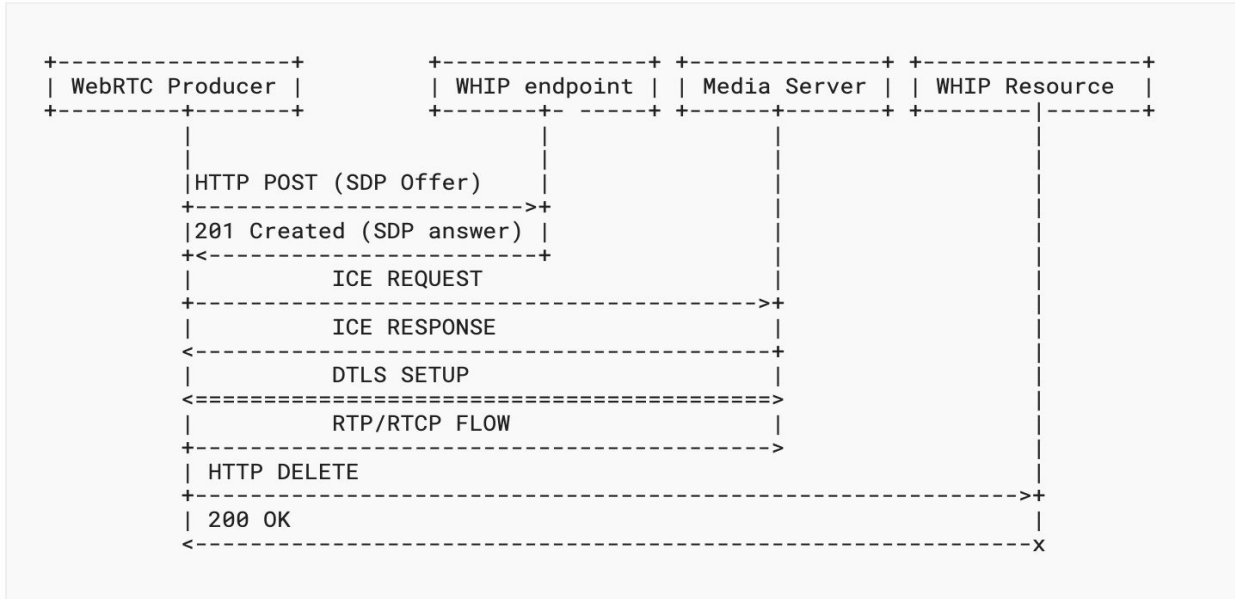
The main idea is to create or subscribe to a live stream resource via an HTTP request.

WebRTC

Because we need a real-time protocol.



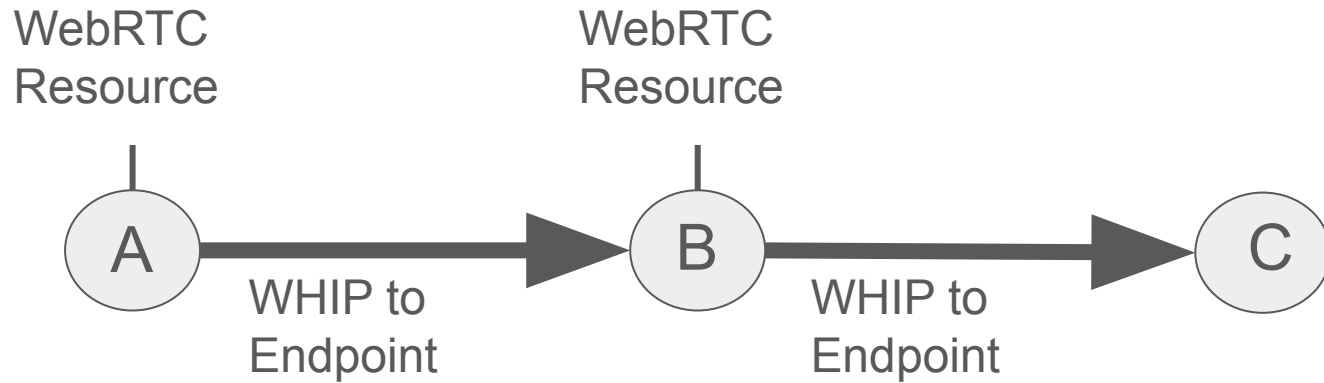
WHIP



Images: <https://www.ietf.org/archive/id/draft-ietf-wish-whip-01.html>



WHIP Pipes





Sounds like streams can be cloned!



However!

WHIP/WHEP is static, and a resource cannot be updated!

And interactive live streams are dynamic,
constantly adding, removing, enabling, and disabling tracks.





How Shig solve this?

1. Data Channel for Egress Endpoints
2. SDP i-attribute (media title) on each media type:

i=1 1 A-STRING

3. ActivityPub relies on HTTP requests for Subscribe and Create



Shig

- **Instance:** <https://github.com/shigde/sfu>
- **Javascript sdk:** <https://github.com/shigde/shig-js-sdk>
- **PeerTube Plugin:** <https://github.com/shigde/peertube-plugin-shig-live-stream>



GEFÖRDERT VOM

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und Forschung



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FOUNDATION
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Shig Demo

