

Can we make WebRTC easier?

MY BACKGROUND



Pion

Collection of Go RTC libraries

- Building blocks to build your vision
- Designed to be flexible
- Community Owned/Non-Commercial

PeerConnection API in Pure Go

- CreateOffer/AddTrack/....
- User controls media pipeline
- SettingEngine
- Interceptors

Pion

TURN as an API in Pure Go

- Callbacks for authentication
- Bring your own logger
- Run TURN and HTTPS on same port
- Embed TURN in application

Ion

- Cluster based system for building RTC
- SFU Instance
- AVP Instance (Processing real-time media)
- LIVE Instance (SIP/RTMP/HLS Endpoints)

WebRTC for the Curious

Book on how WebRTC really works

- Not just about the public APIs!
- Deep dive on protocols

History of WebRTC

- Interviews with RFC authors

WebRTC in practice

- Debugging every piece
- Teach the sharp edges

QUESTIONS FROM THE FIELD



What is WebRTC?

Most docs are for Javascript (W3C) API

Users can't even find a definition of WebRTC

- Is it the IETF (RTCWEB) protocol?
- Is it the W3C (webrtc-pc) API?
- Is it Google's C++ implementation?

Compare the following

- Wikipedia
- webrtc.org
- MDN Web Docs

Dev don't anticipate production problems

Frustrated devs who thought they were done...

Network Topologies

- Are you running a TURN Server?

Codec Support

- Not all clients support H264

One customer reports bad video

- Congestion Control and Error Correction!?

Where do I ask for help?

Vendor Specific communities are doing well

- GStreamer
- Mediasoup
- Janus
- Jitsi
- Pion

Vendor Agnostic communities not so much...

- discuss-webrtc
- stackoverflow
- video-dev
- IRC

Twitter is great, but takes work to get into

Devs want WebRTC in their language

C/C++ isn't for everyone

- Gives more freedom, at a cost (Memory/Security)
- Doesn't fit into existing code base/build system
- Challenging to build

Some just want to read code

Have to target other platforms

- Embedded (can't use OpenSSL)
- Lots of these corner cases....

Non-standard use cases need a home

Where would you go to talk about?

- Teleoperation
- IoT/Security Cameras
- Filesharing
- Proxys
- Zeroconf/NAT Traversal for DataChannels

Other Protocols and NIH

Devs don't understand what WebRTC can do

- Proprietary ICE clone , made lots of mistakes
- RTP without NACK/FEC/Congestion Control

Other protocols exploiting lack of information

- WebRTC isn't browser only
- WebRTC isn't locked to bitrate/resolution
- WebRTC can be adjusted for latency/loss

WHAT CAN WE DO



Embrace WebRTC implementations

- aiortc (**Python**)
- GStreamer's webrtcbin
- werift (**Typescript**)
- Pion (**Golang**)
- Shiguredo (**Erlang**)
- |pipe| (**Java**)
- rawrtc (**C++**)
- webrtc-rs (**Rust**)
- AWS WebRTC (**C/Embedded**)
- ?

Interop Testing Tools

Tooling to connect two WebRTC Agents

- Assert protocol features/compliance
- Also a WebRTC feature showcase
- Make it easier for new implementations

Teaching Resources

WebRTC for the Curious

- Vendor Agnostic
- Would love your help/feedback

Pion Interceptors

- RTP/RTCP Pipeline outside PeerConnection
- Congestion Control, FEC and NACK etc...

Better video debugging in browser?

- Education issue maybe
- Protocol bridging is painful debugging video

Supportive Communities

Non-Commercial Meetup

- Deep Dive on one WebRTC topic
- Roadmap of WebRTC library
- Demo of one project in the space

Vendor Agnostic Community

- How do we encourage people to give back?

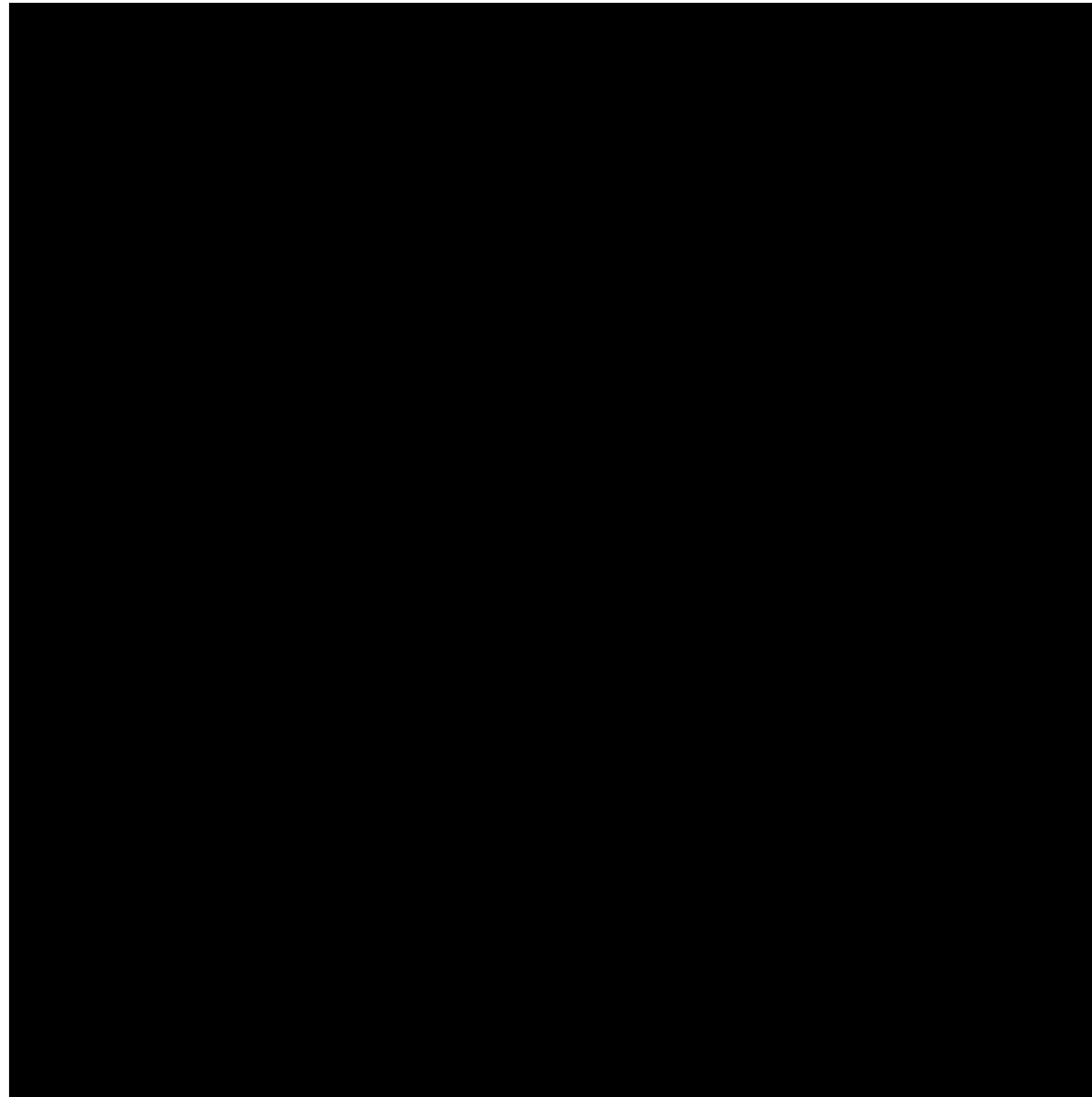
Individual Ownership

- A robust WebRTC community has many owners
- We don't want WebRTC to have a CentOS moment

OPEN SOURCE SHOWCASE




ns-remote




15

kerberos.io

**KERBEROS.IO**


PROFILE





Miniso
owner

0% - 1.08/200GB


OVERVIEW

 Dashboard


 Livestream

 Media

2 days

 Devices

10 cameras


 Patterns

+1


 Counting

+0


 Queue


 Vault

MANAGEMENT

 Accounts

ALERTS

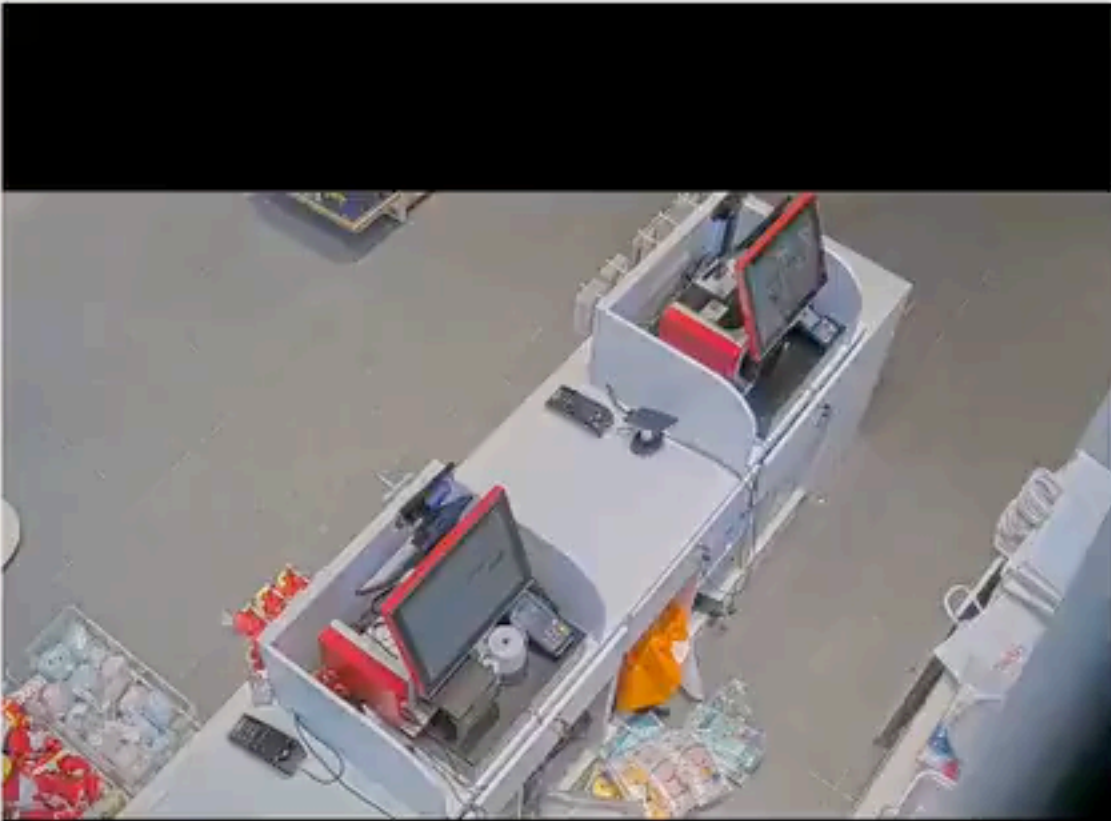
 Notifications




 Channels

SUBSCRIPTION


Dashboard

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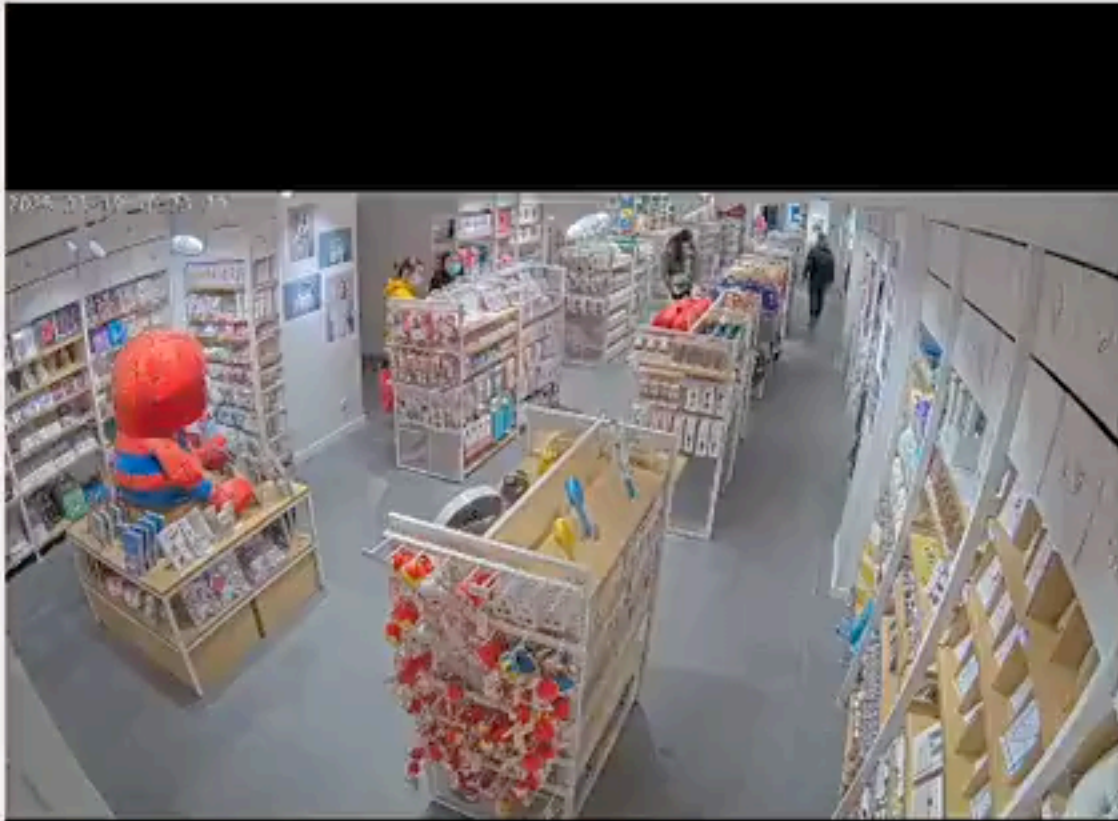







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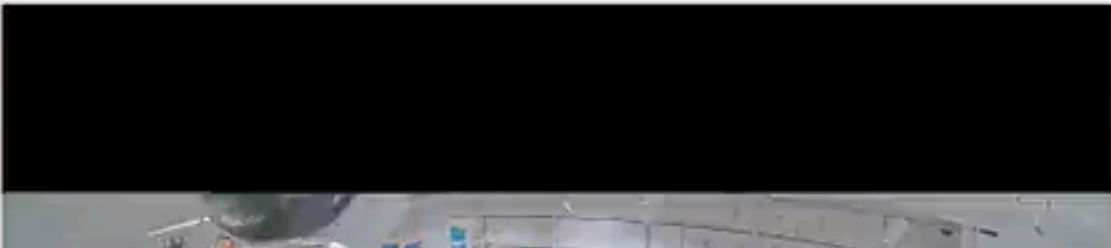


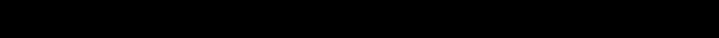




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


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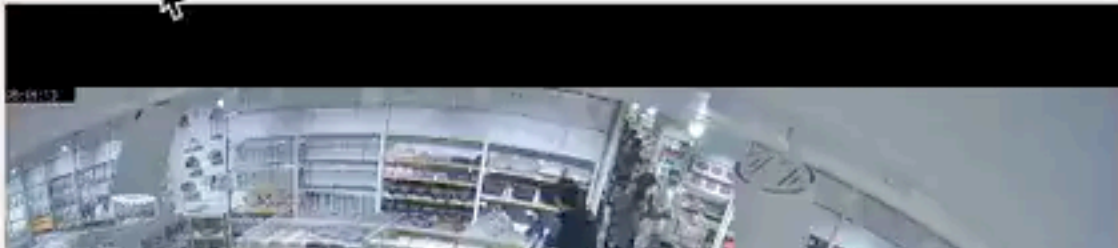







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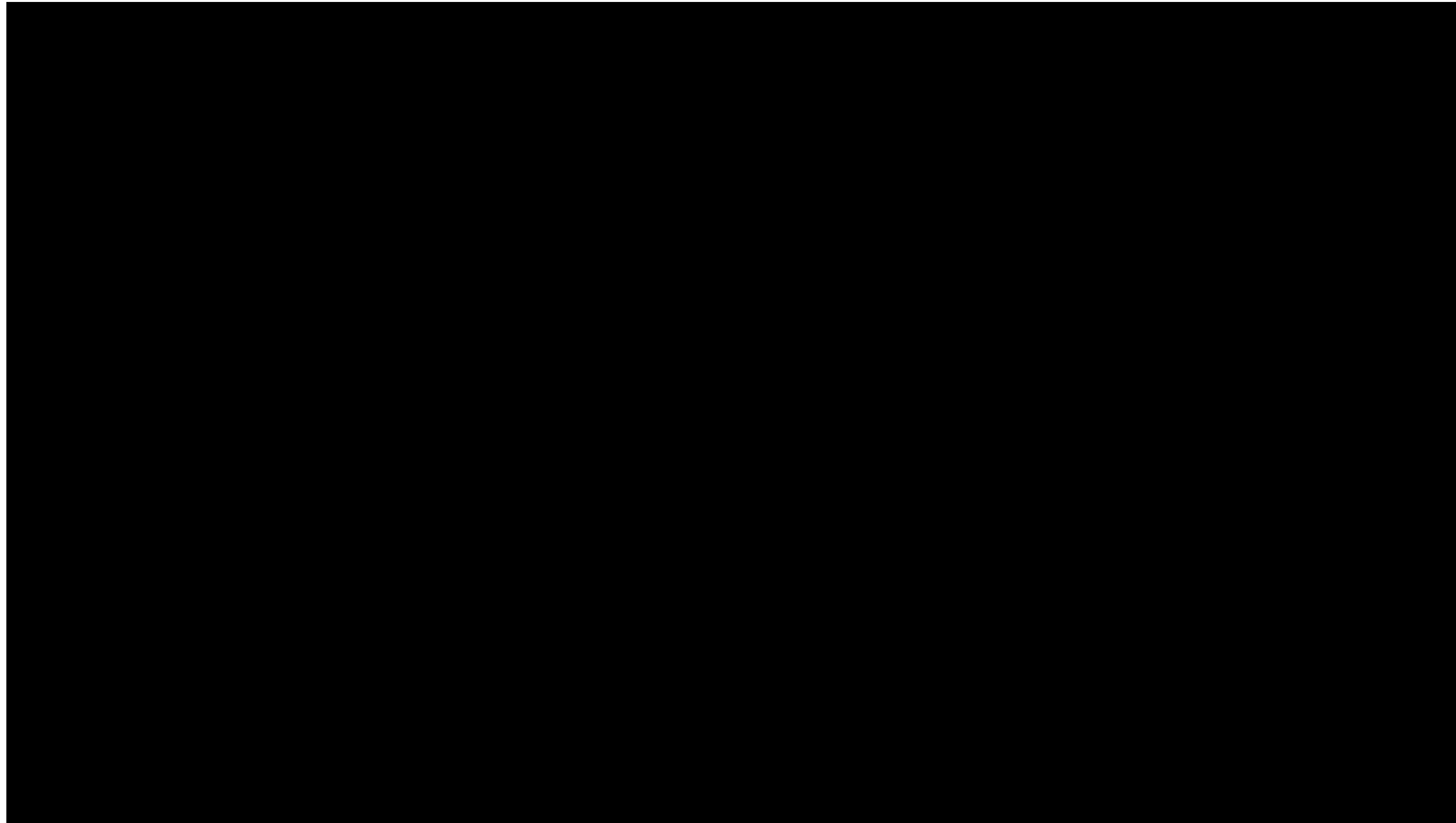




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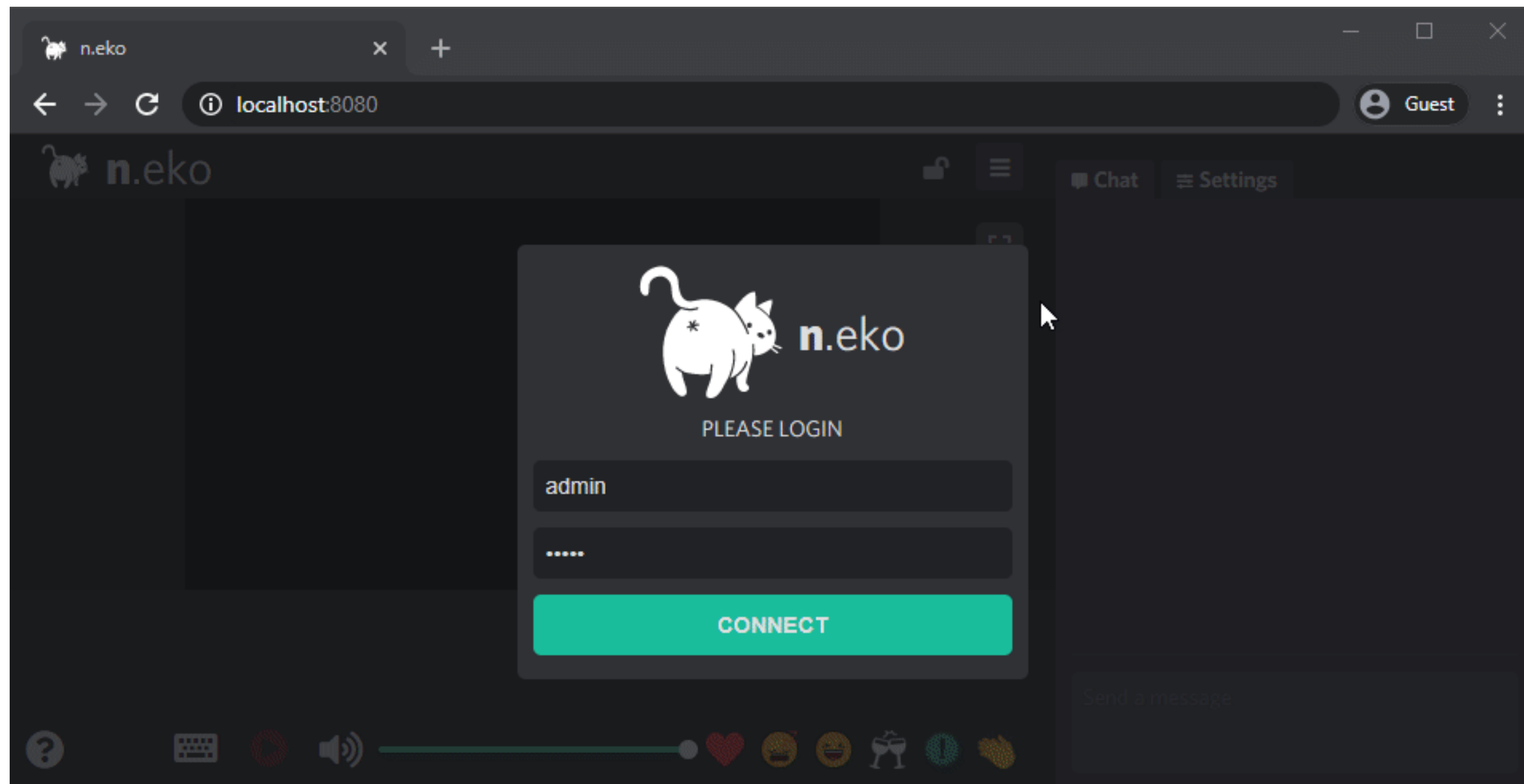
CloudRetro.io



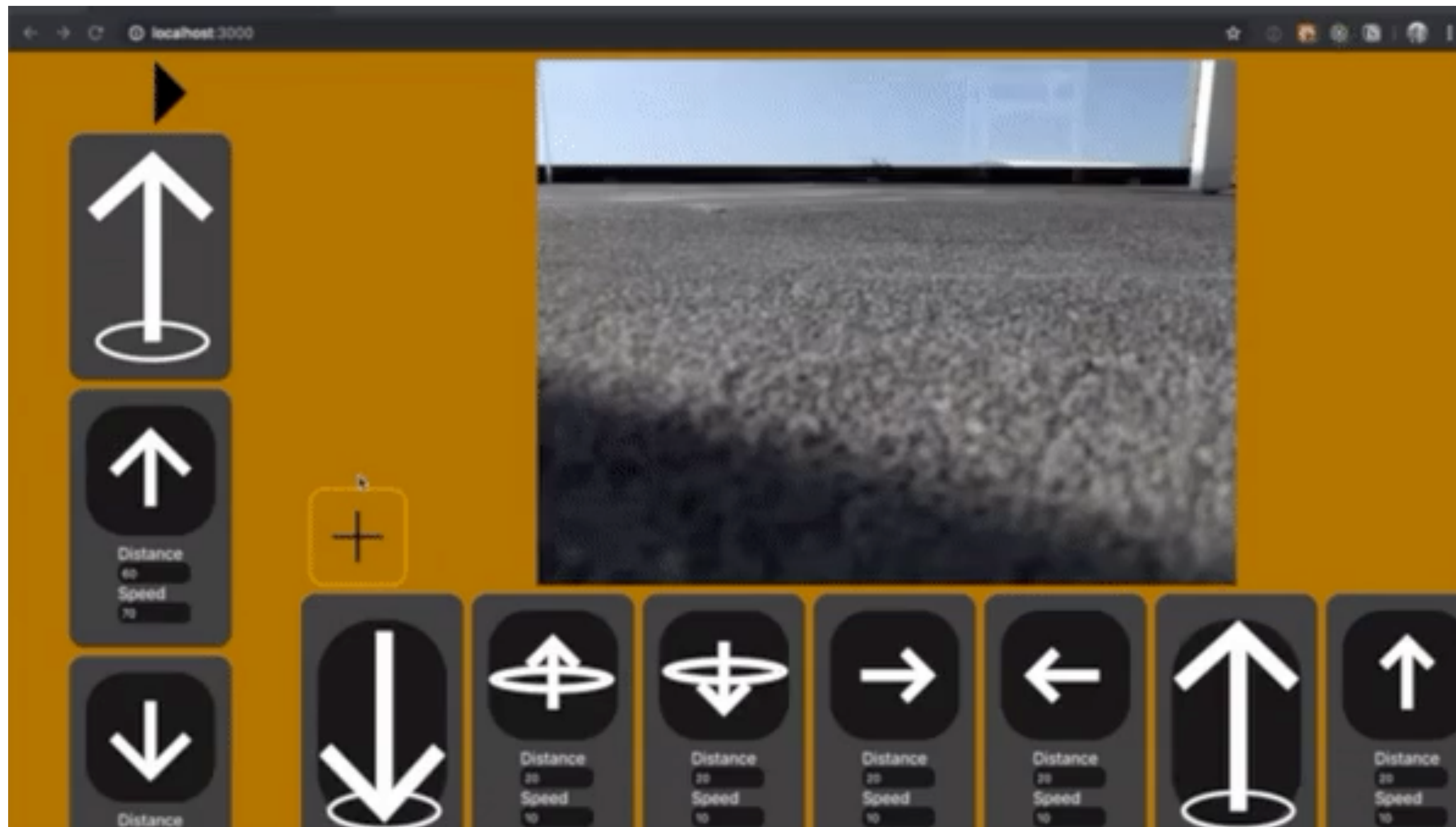
17

Neko

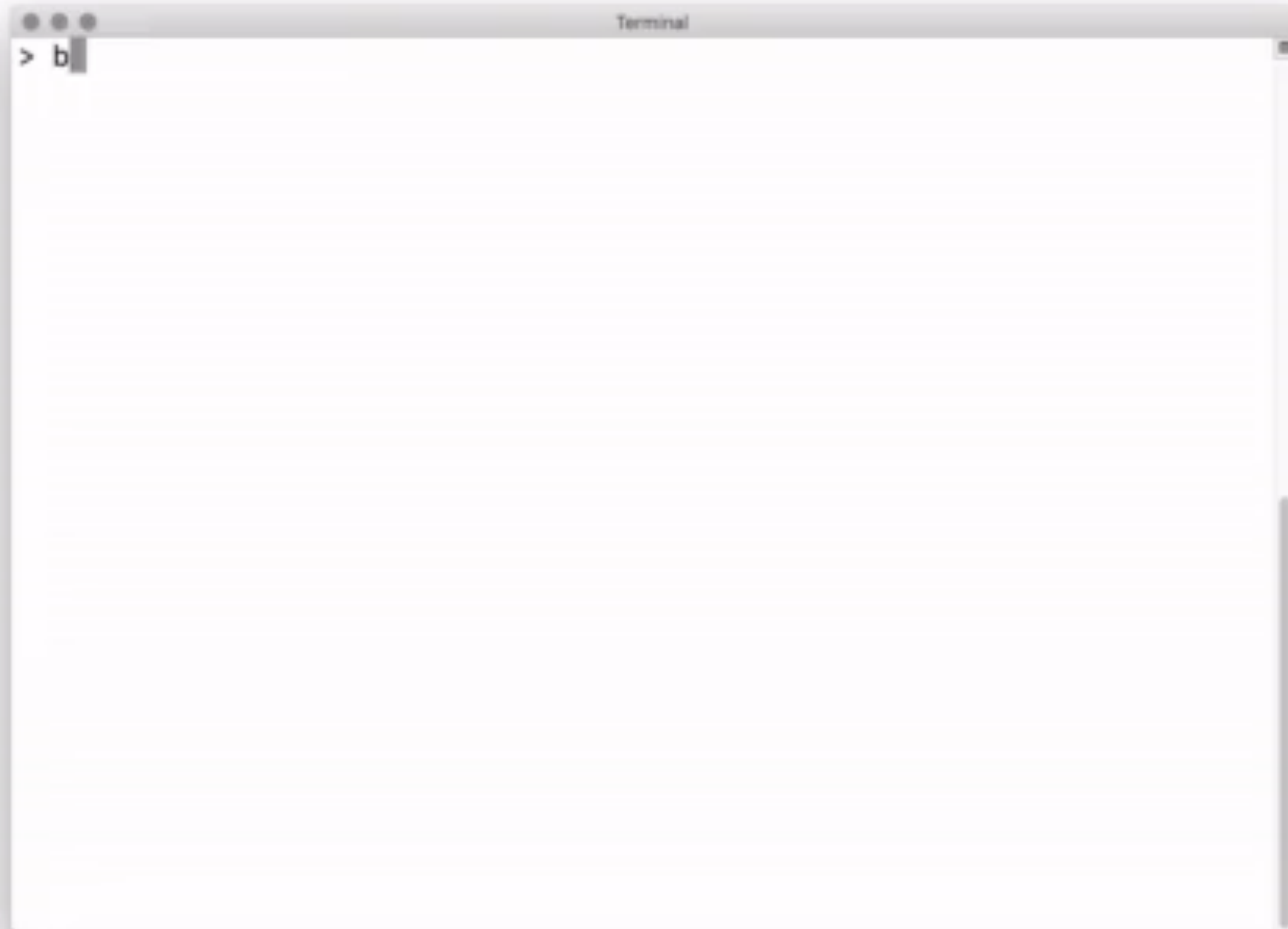
github.com/nurdism/neko



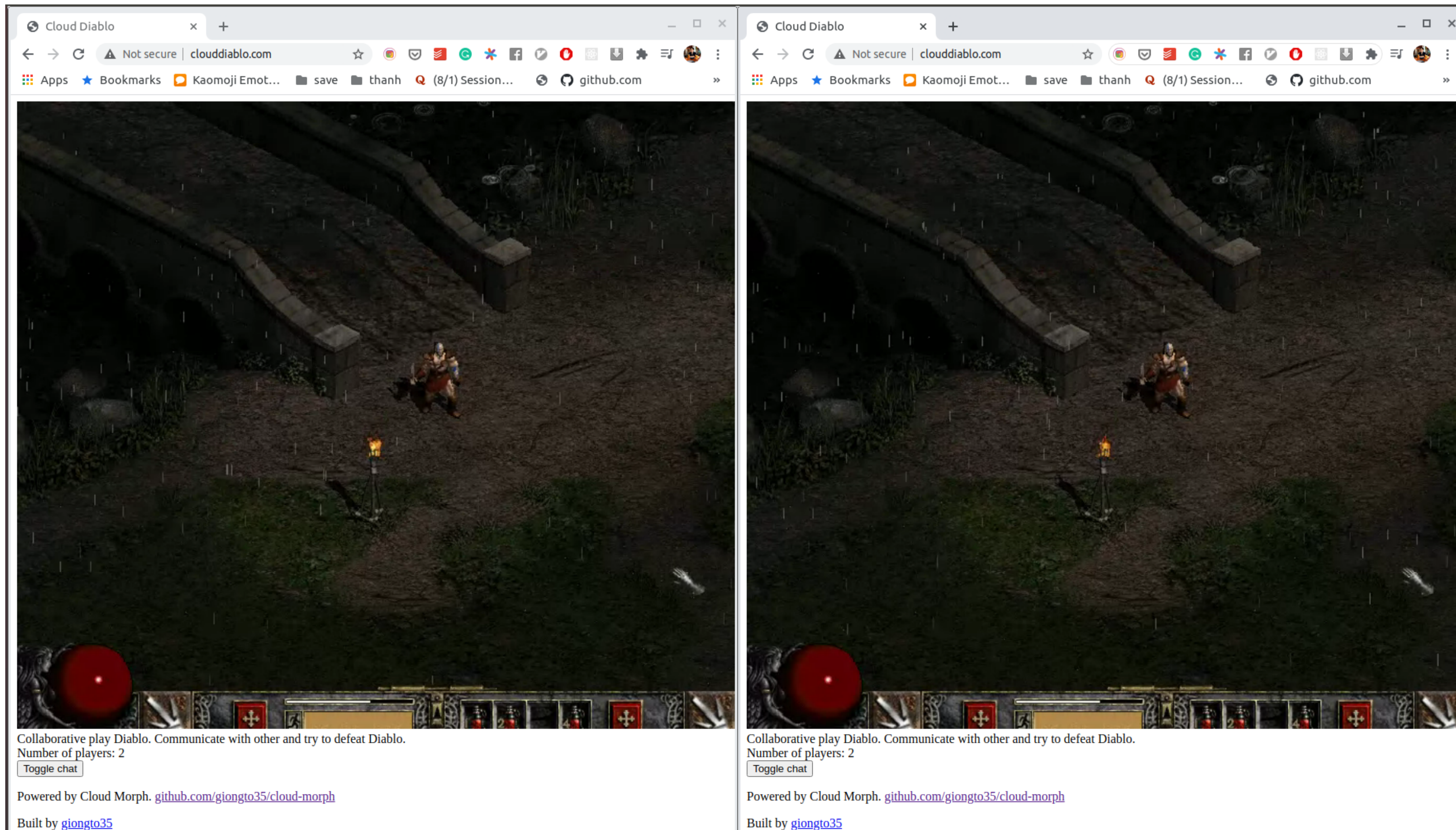
TelloGo



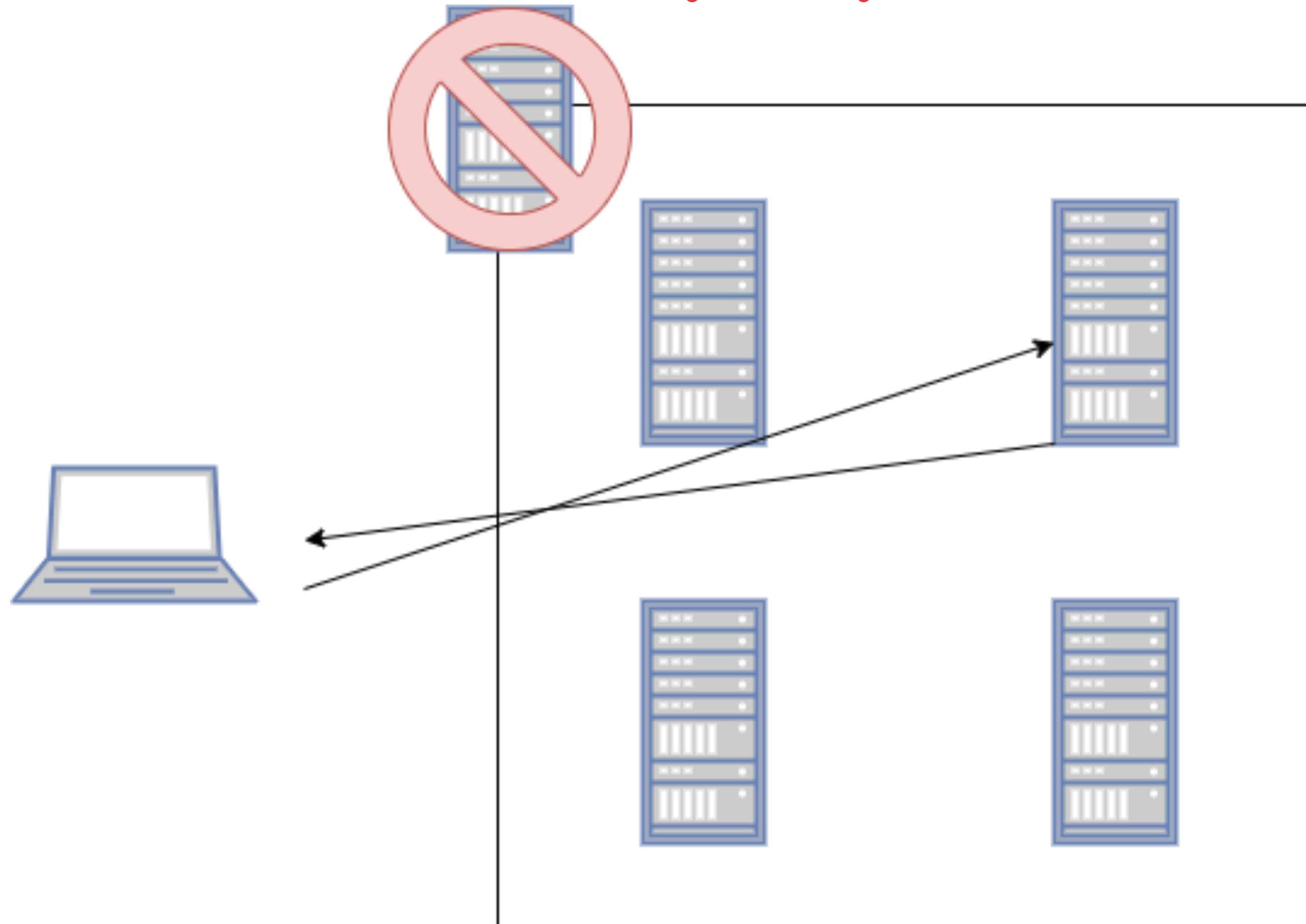
ascii



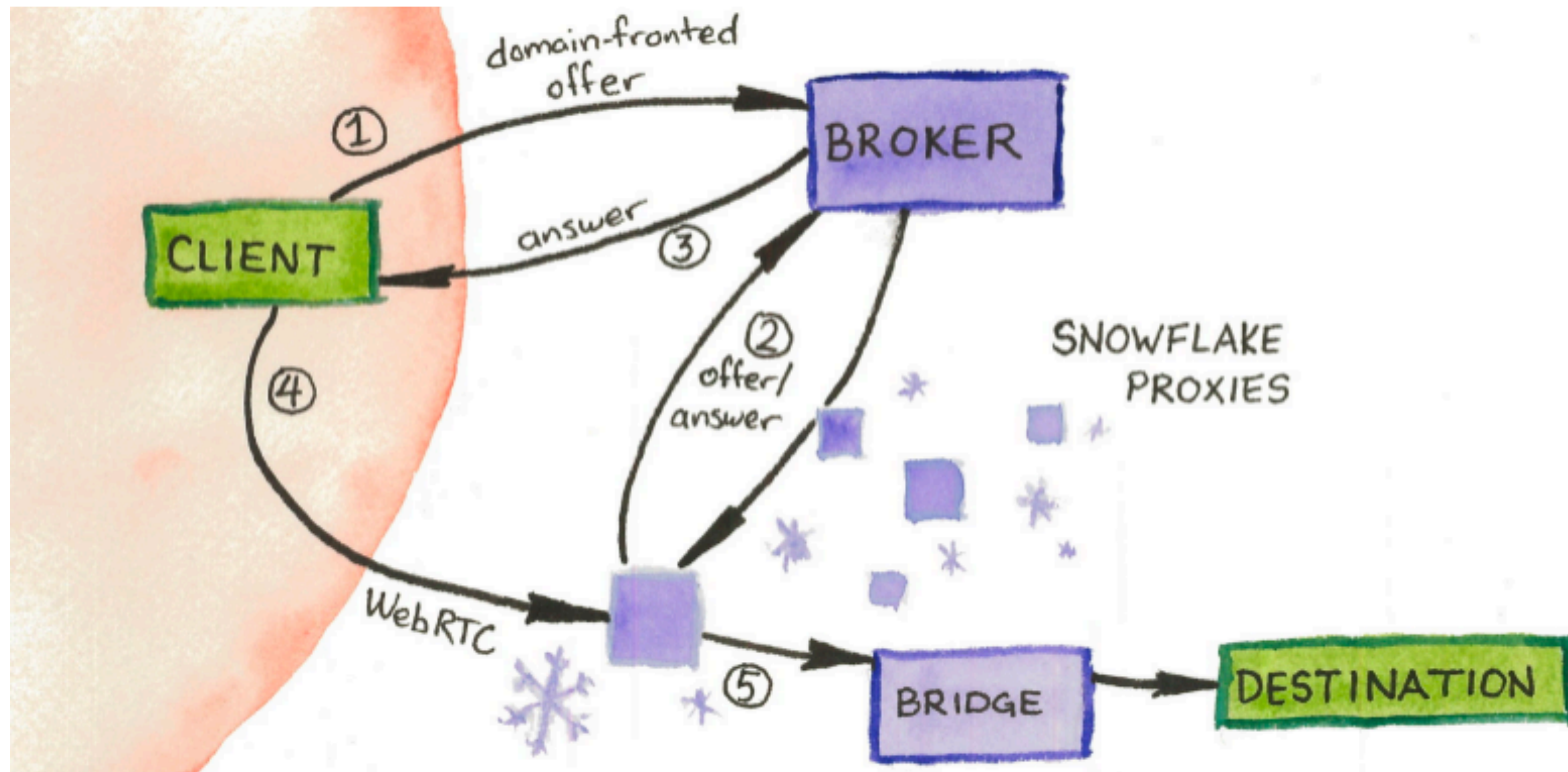
cloud-morph



ssh-p2p



Snowflake



webwormhole.io

WEB WORMHOLE LETS YOU SEND FILES FROM ONE PLACE TO ANOTHER

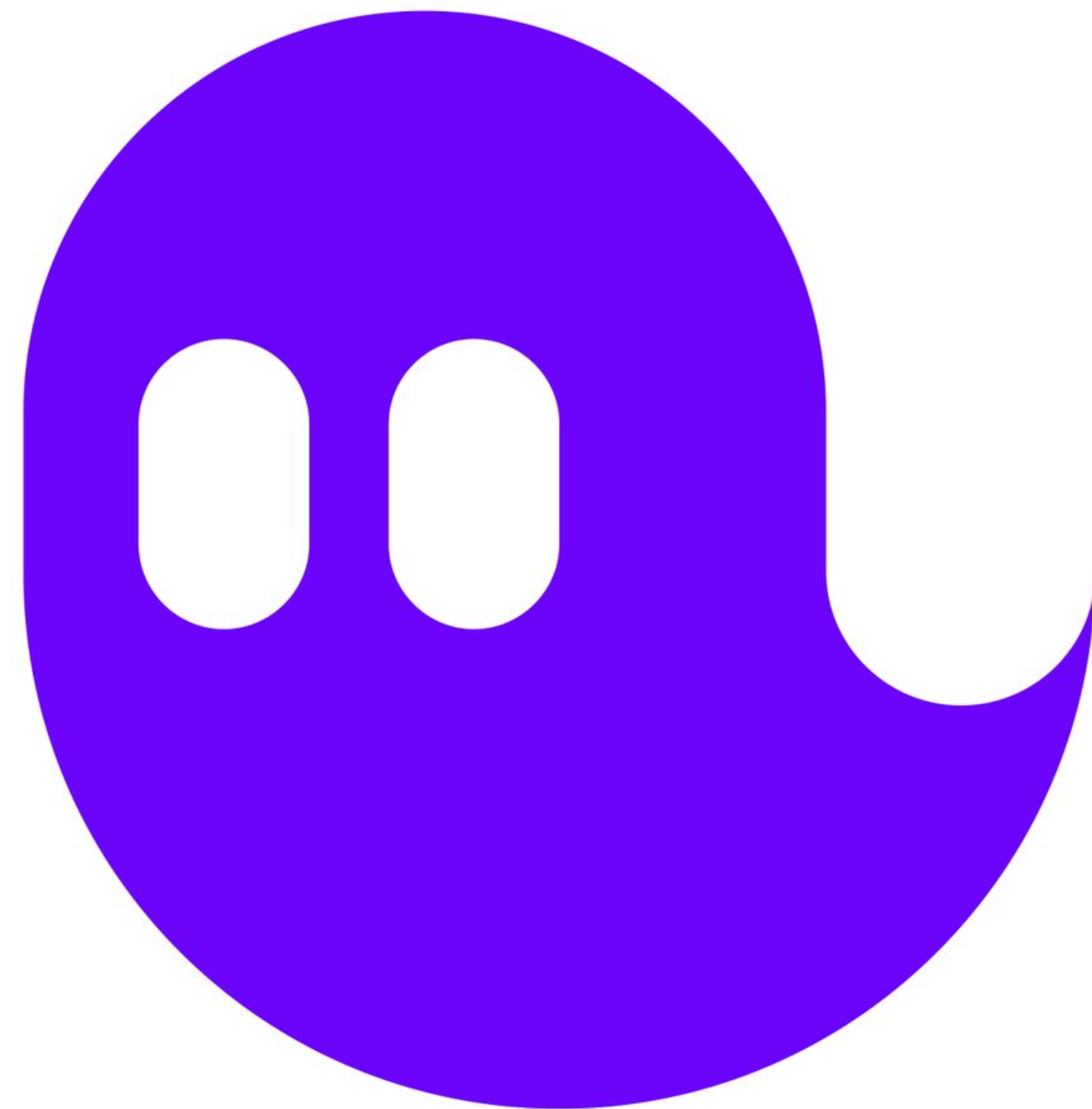
NEW WORMHOLE

GOT A CODE? TYPE HERE

s4y/space



Project Lightspeed



github.com/pion

pion.ly/slack

twitter.com/_pion

sean@pion.ly