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

- aiorrtc (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
Neko

github.com/nurdism/neko
ssh-p2p
Snowflake
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