Building Web3's Video Infrastructure Layer
Why Openness and Decentralization Matter

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Coming up in this talk...

1. Introduction
   • Who am I?
   • Who is Livepeer: a collection of open source projects
   • Why we do what we do

2. Explain components of Livepeer
   • Public permissionless protocol
   • Open source video software

3. Livepeer and you
   • Opportunities to contribute/get involved
Who is Jaron?

- Project lead for MistServer
- VP engineering Livepeer
- Fixed RTMP reconnect bug in OBS
- acpatterns.com
- Bumblebee
- FOSDEM team 2016
Livepeer

- Mission statement
  - Create the world’s open video infrastructure
- Livepeer Protocol
- Livepeer Token
- Livepeer Inc
- Software projects
Creator Economy Walled Garden

Web2 App
+ Web2 Infra

- YouTube
- Instagram
- Twitch
- AWS
- Azure
- Google Cloud
Livepeer Projects

1) Protocol and Node Software
2) MistServer
3) Adjacent Software
Why open source and Web3?

1) Overlap between core values of open source and web3/blockchain/decentralization

2) Open source in Web3 is a motivator to contribute, which is core to ecosystem growth
Shared Values

- Security
- Transparency
- Composability
- Contribution
- Consensus
Open Source at Livepeer

Past: All code repositories are public, some organic contribution and occasional bounties; grants to support open source ecosystem projects

Today: Confluence security audit and bug bounty; creating clear pathways to contribute and better systems

Future: Enablement of broad contribution and more robust grants program
The projects
Livepeer Protocol & Node software
Livepeer Protocol

On-chain / Off-chain

1. Orchestrator Advertise Capability / Price
2. Application Creates Deposit
3. Application Sends Micropayment / Video / Signature to Transcoder
4. Application Checks for Micropayment Validity, Sends Transcode Result / Signature Back
5. Application Verifies Transcode Result, Challenge if Verification Fails
6. Transcoder Cashes Micropayment
Global Network of Orchestrators

Livepeer Network

(load balance streams across orchestrators)

Broadcast

Discovery Protocol

Global registry of Orchestrators

O1
O2
O3
GPU miner revenue at zero opportunity cost

- Video transcoding ASICs sit idle
  - Can transcode 2 1080p videos for $0.14 in electricity and $0.60 in bandwidth/day

- Cloud providers charge $144/day for transcoding 2 HD videos

- Miners can capture this opportunity without disrupting their existing mining through Livepeer

Decode HW
- Formats: MPEG-2, VC-1, VP8, VP9, H.264, H.265, Lossless
- Bit Depth: 8 bit, 10 bit, 12 bit
- Color: YUV 4:2:0
- Resolution: Up to 8K

Encode HW
- Formats: H.264, H.265, Lossless
- Bit Depth: 8 bit, 10 bit
- Color: YUV 4:4:4, YUV 4:2:0
- Resolution: Up to 8K

CUDA Cores hash crypto currencies at 100% capacity are earning $1.50/day
Check out livepeer.org for more on the crypto-related stuff.

Check out livepeer.com if you want an easy way to use the network without needing to bother with crypto.
Protocol Explorer

Estimated Usage (7d)
2,435,071 minutes
January 2, 2022-January 8, 2022
MistServer
MistServer

- Streaming media toolkit
- Focus on protocol and format compatibility, ease of integration
- Made by developers, for developers!
- Project active since 2007
- Maintained by DDVTech B.V., based in the Netherlands
- A Livepeer subsidiary since October 2021
MistServer

Check out mistserver.org for documentation, downloads, etc!

Who needs more than one slide, anyway! 😛
Adjacent software
Adjacent software

- CLI transcoder tool
- Web-based streaming tool
- Metrics-collecting tools
- ...etc
- Fan projects! ❤
Contribution Opportunities
How do you get started?

• Organic Contribution: find something and fix it

• Bounties: compensation with a known scope

• Grants: financing for your own project
More about the grants program

- Adjacent Software
- Applications or tooling
- Projects that help people interact with the Livepeer network
- Improves the experience, not part of the core code
Become a Contributor!

1) The Go-Livepeer Contributor Guide is available at [github.com/livepeer/go-livepeer](https://github.com/livepeer/go-livepeer)

2) The Docs Contribution Guides is available at [https://docs.livepeer.org/contributing/overview](https://docs.livepeer.org/contributing/overview)

3) Join the Livepeer Discord, #core-dev and #video-dev
MistServer - Even open sourcererer!

To show how much we love the open source community, we’re planning to release all of MistServer, including previously closed-source components, under a much more free license around valentines’ day 2022*! (Yes, that’s in a bit over a week.)

* ) Date subject to change. Please don’t hate us if we miss this. Our love may be unconditional, but releases need time sometimes. ❤
We are hiring - livepeer.com/jobs