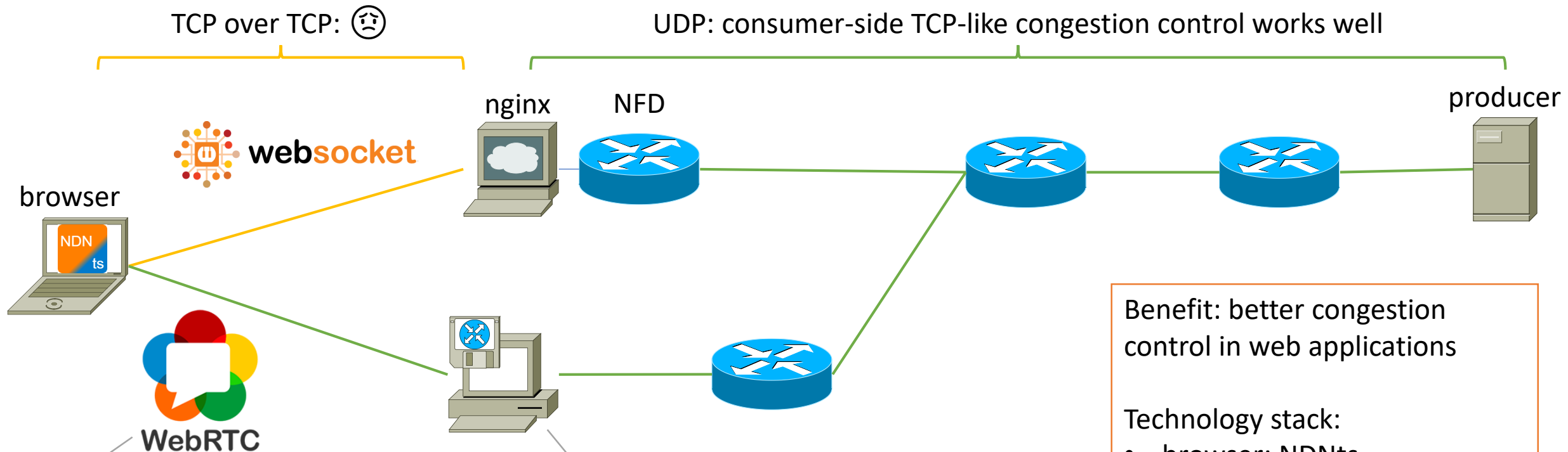


# Sync Protocol Specs

- Write protocol specifications of three sync protocols:
  - PSync FullSync
  - PSync PartialSync
  - syncps (Pollere Inc)
- Precise and unambiguous:
  - ABNF for message formats
  - W3C-style algorithm listing for procedures
  - Spec should match existing reference implementations
- Benefit: enable interoperable implementations of these protocols
- Technology: Markdown, ASCII art, Scalable Vector Graphics (SVG)

# RTCDataChannel Transport for Browsers



## WebRTC DataChannel:

- bidirectional communication
- arbitrary data (not audio/video)
- low latency
- UDP based

## RTCDataChannel gateway:

- establish `RTCPeerConnection`
  - signaling using HTTPS or NDN broadcast Interests
- `RTCDataChannel` ↔ plain UDP proxy

Benefit: better congestion control in web applications

## Technology stack:

- browser: NDNts
- gateway: (any of)
  - JavaScript: wrtc
  - Go: Pion
  - C++: WebRTC Native

# NDN Video using NDNts



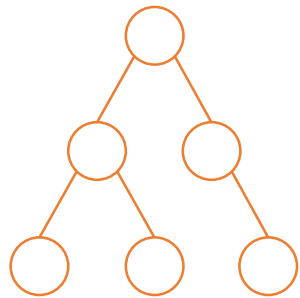
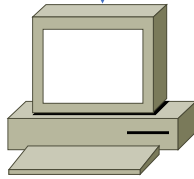
What's wrong with iViSA?

- Huge JS bundle: 287KiB
  - PageSpeed score: 65
- Frequent producer downtime:
  - 86% availability in past 30 days
- Outdated dependency:
  - NFD 0.6.6 (18 months ago)
- To use YouTube fallback,
  - every page linking to the player must be modified.

<https://ivoosh.ndn.today>

- Smaller JS bundle: 131KiB
  - PageSpeed score: 96
- Producer: partial mirror using NDNts embedded repo
  - Lean and stable; no NFD needed
- Hackathon tasks:
  - Add video encoding scripts
  - Embed YouTube fallback on the player page
  - Explore deploying with ndn-python-repo

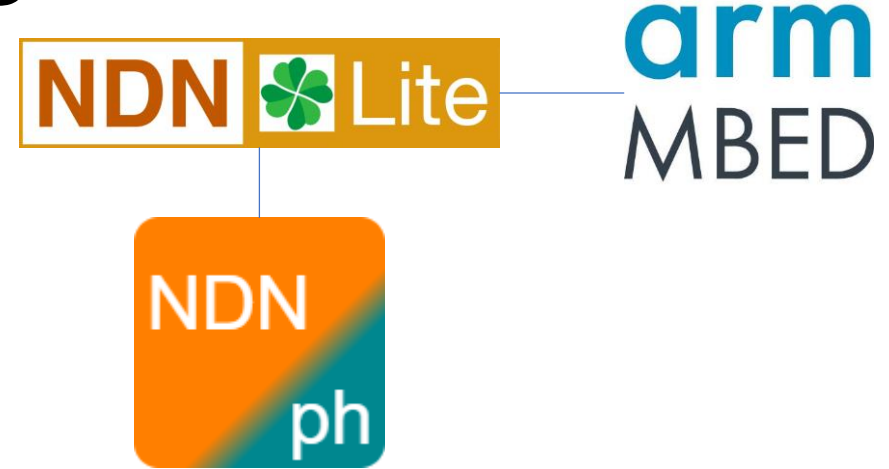
# Passive Name Visualizer



- Read packets from pcap (GoPacket library)
  - Live capture or read from file
- Parse packets (NDNgo library)
- Visualize traffic (d3.js or similar)
  - Traffic volume over time
  - Name hierarchy within selected time period

# NDNph – NDN-Lite Bridge

- Allow NDN-Lite application logic to run on platforms supported by NDNph
  - especially, ESP32
- Approach:
  - NDNph is a `ndn_face_intf_t` on NDN-Lite side
  - NDN-Lite is a transport on NDNph side
- Other tasks:
  - Mbed TLS security backend in NDN-Lite
    - Mbed is the default security library in NDNph, and has hardware acceleration on ESP32



- Technology stack:
  - C and C++11
  - Linux
  - (no ESP32 necessary)