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# **Interactive Low Latency Video Streaming of Volumetric Content**

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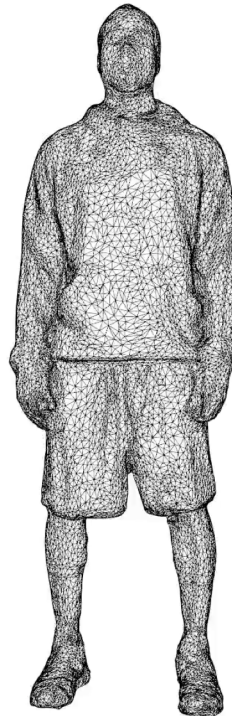
**Presenter: Dimitri Podborski**

# Mesh-based volumetric video

Rendered result



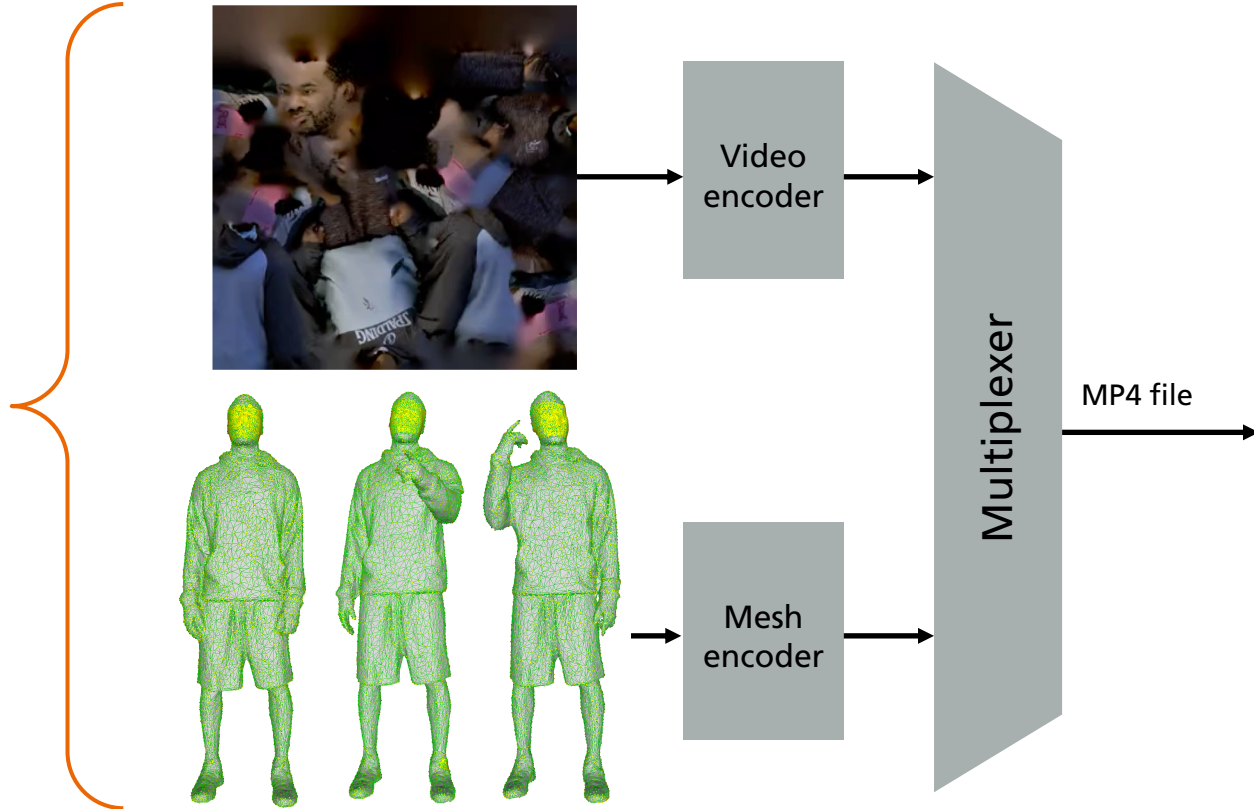
Meshes



Textures



# Volumetric video content preparation

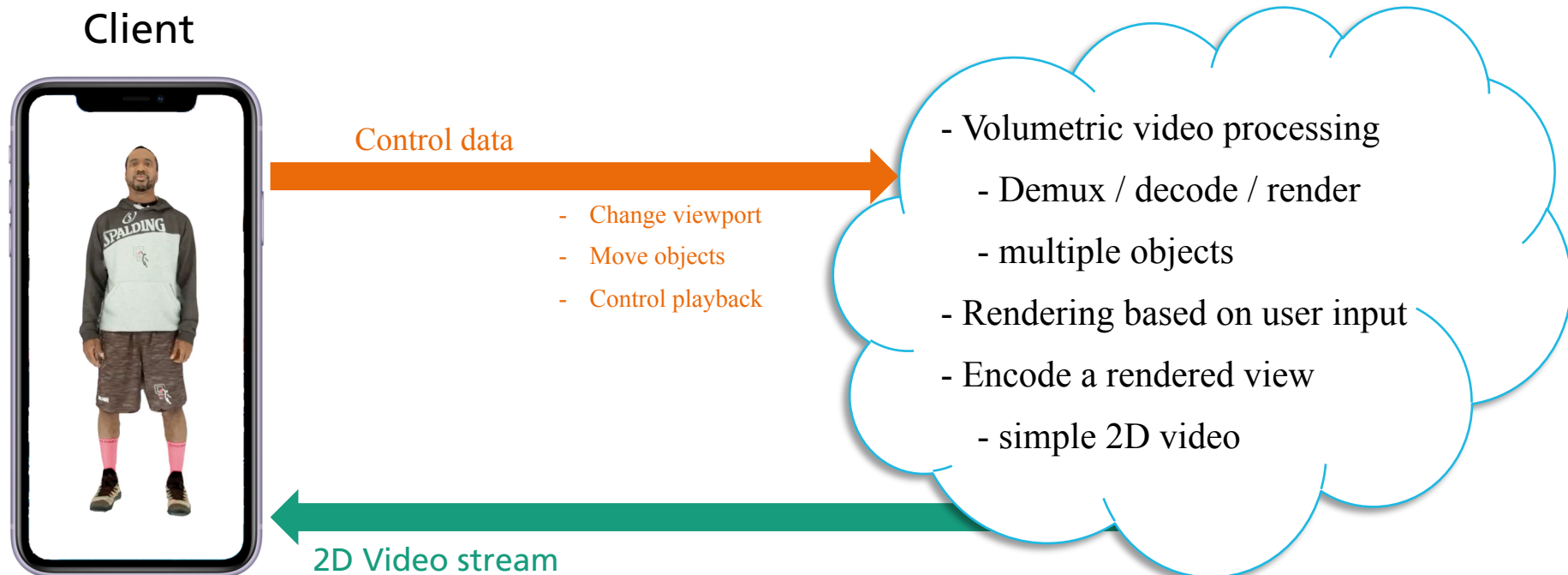


# Processing challenges

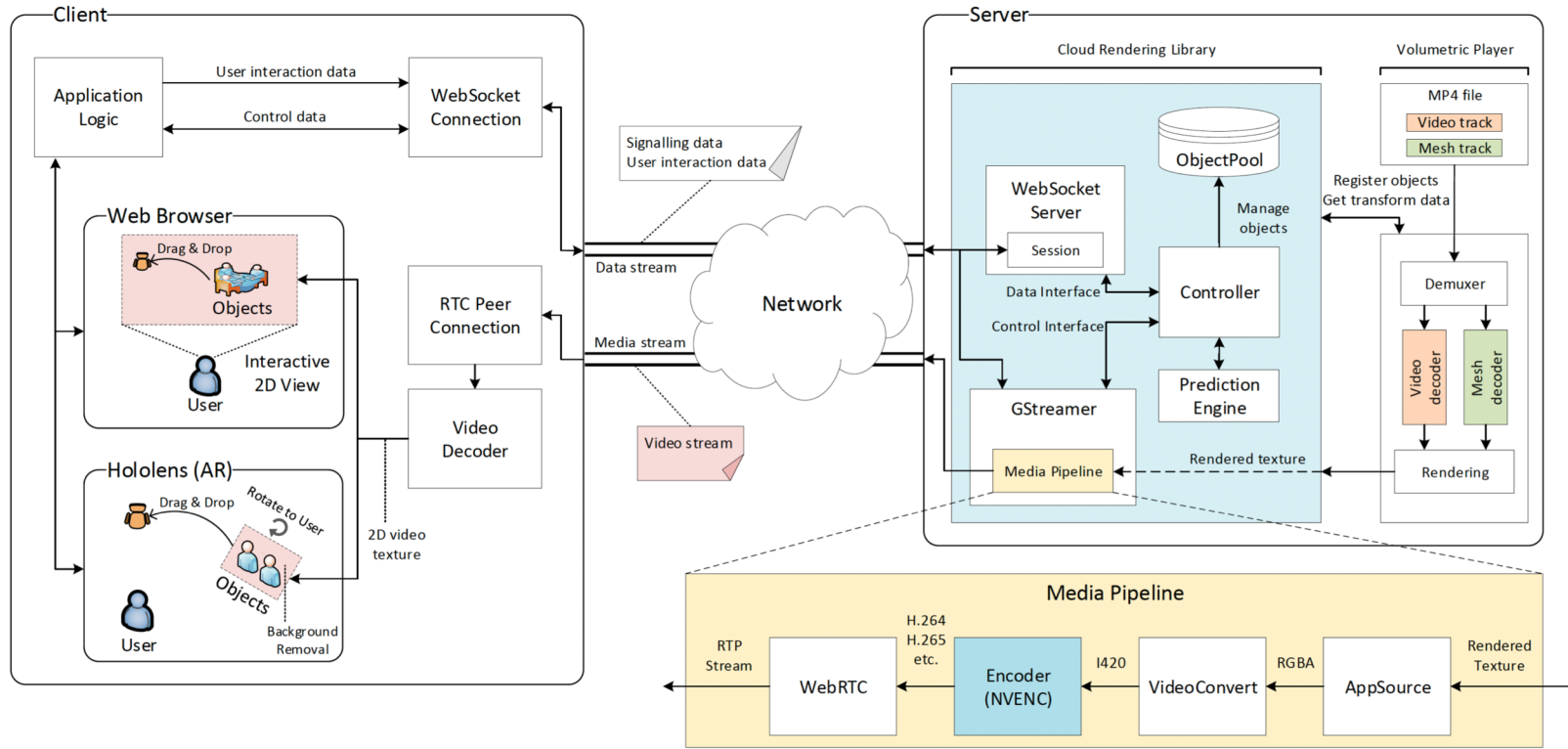
- No hardware decoders available
- Video-based point cloud compression
  - 3 decoder instances have to run in parallel
    - Sync issues
    - Frame drop issue
- Multiple volumetric objects
  - Not enough processing power on mobile devices
- Bitrates are still too high

# Why do we need a cloud?

Cloud gives us “unlimited” power (Volumetric video processing + Cloud rendering)



# Architecture overview



# Everything comes with a price

## Motion to photon **latency!!!**

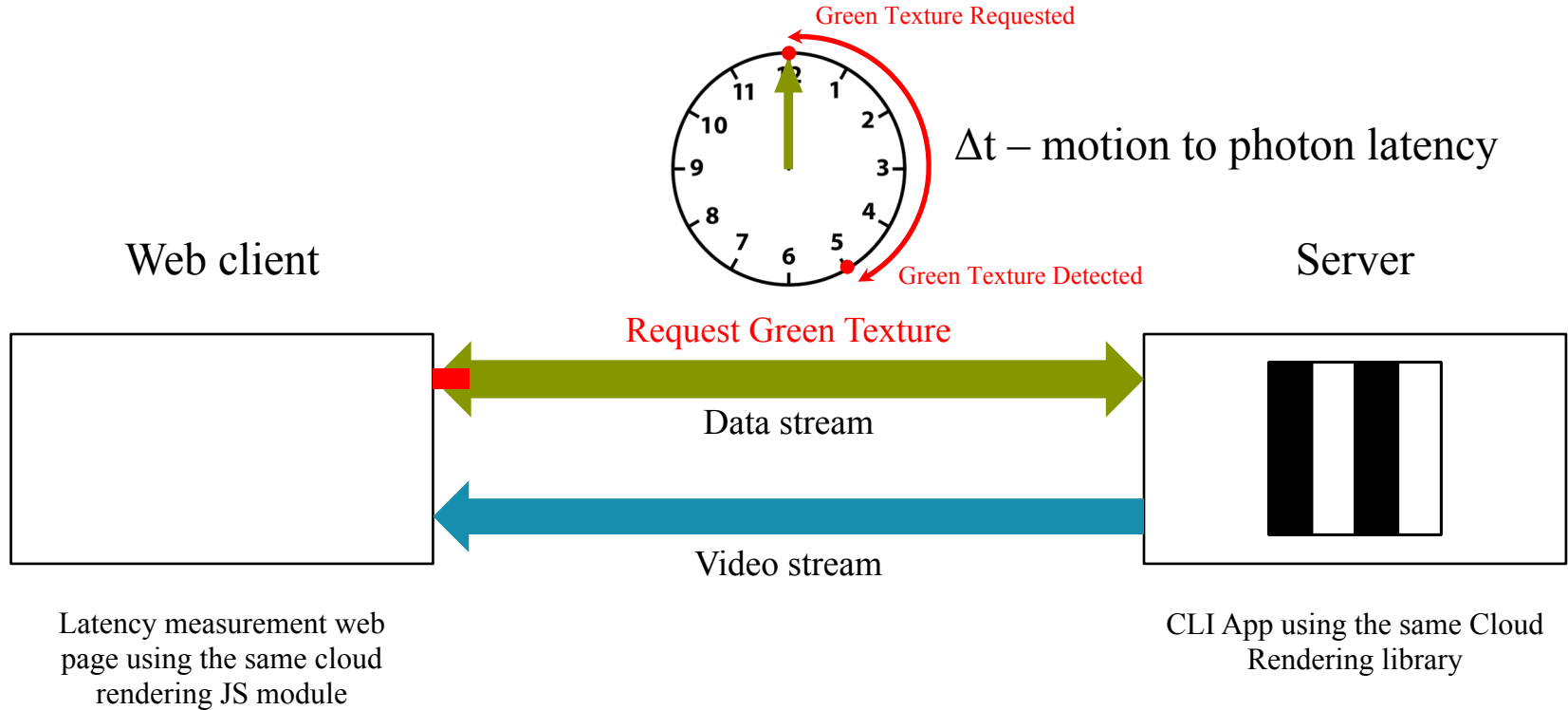
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- Send control data to the server
- The desired frame is rendered on client's device

## Our good friends

- Hardware video encoding (NVIDIA Encoding API)
- WebRTC (ultra low latency streaming)
- 5G
- Viewport prediction
- Post-rendering correction

# How to measure motion to photon latency

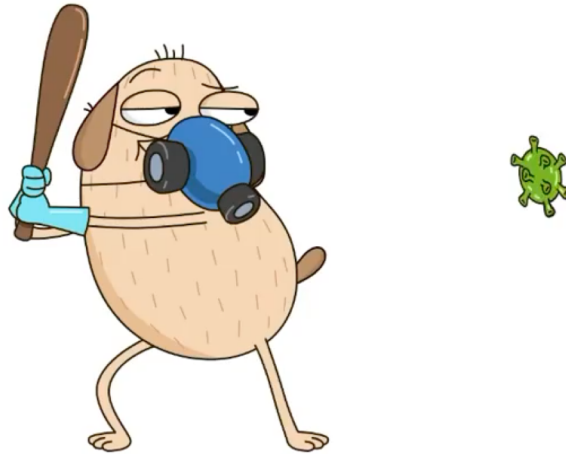




Demo time

Show the demo

# Stay healthy...



<https://www.instagram.com/p/B-jxFXBqOnj>