

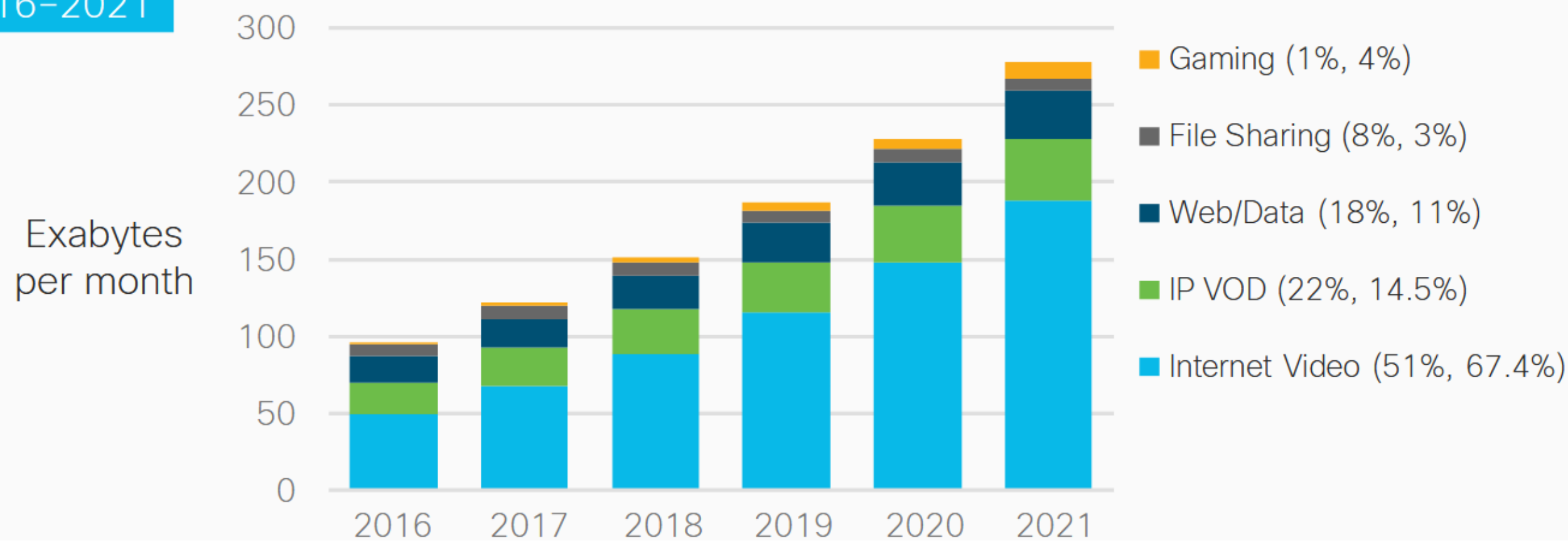
# PRIVA-STREAM: Private Collaborative Streaming

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PROGRESS - Univ. Bordeaux, LaBRI, France

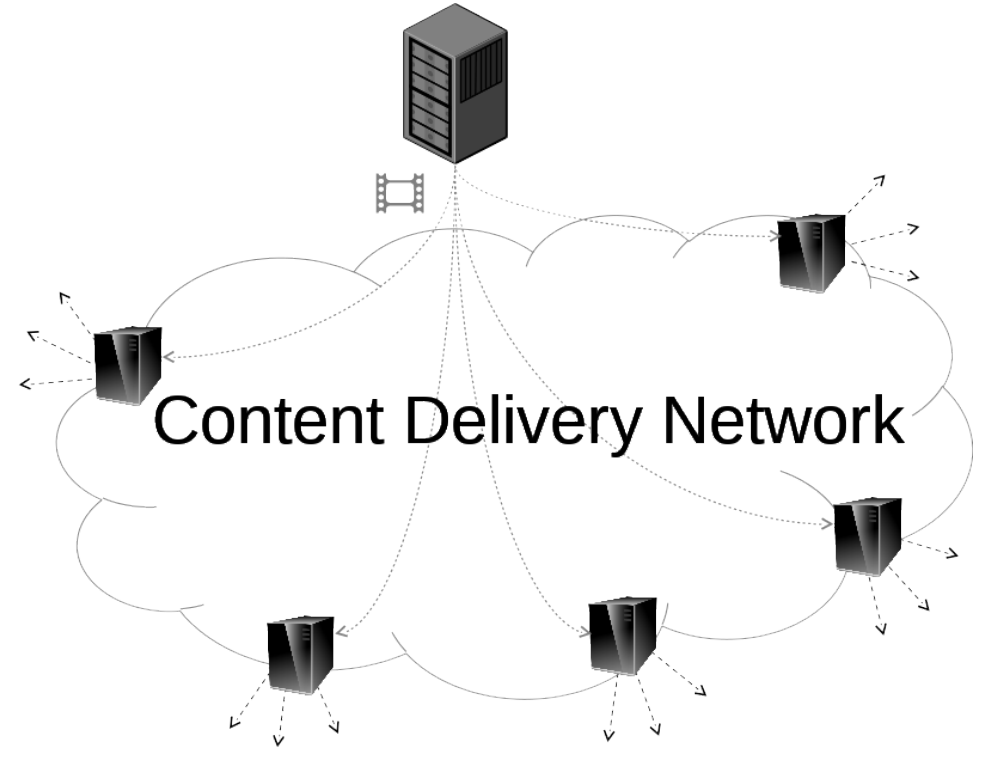
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## Video content consumption

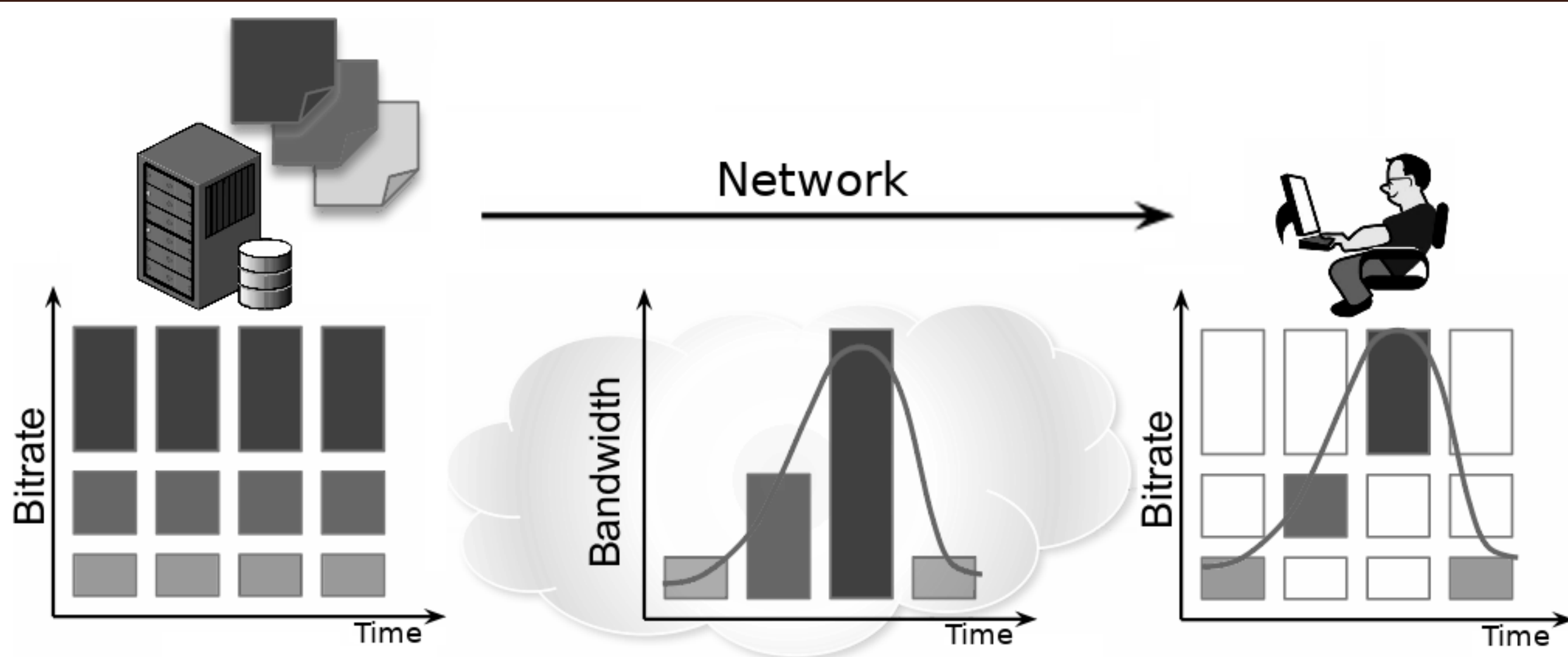
24% CAGR  
2016-2021



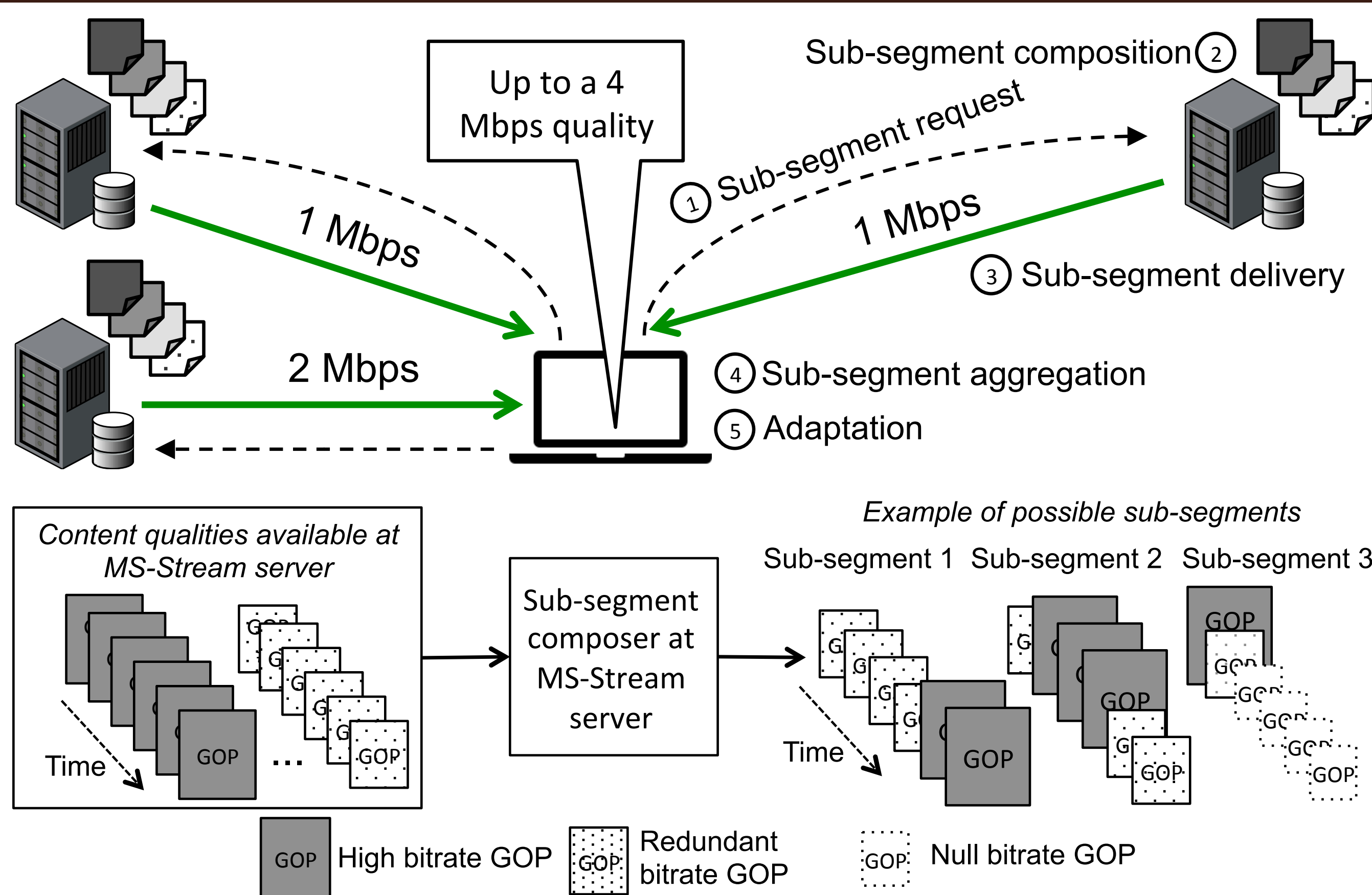
## Content Delivery Networks (CDN)



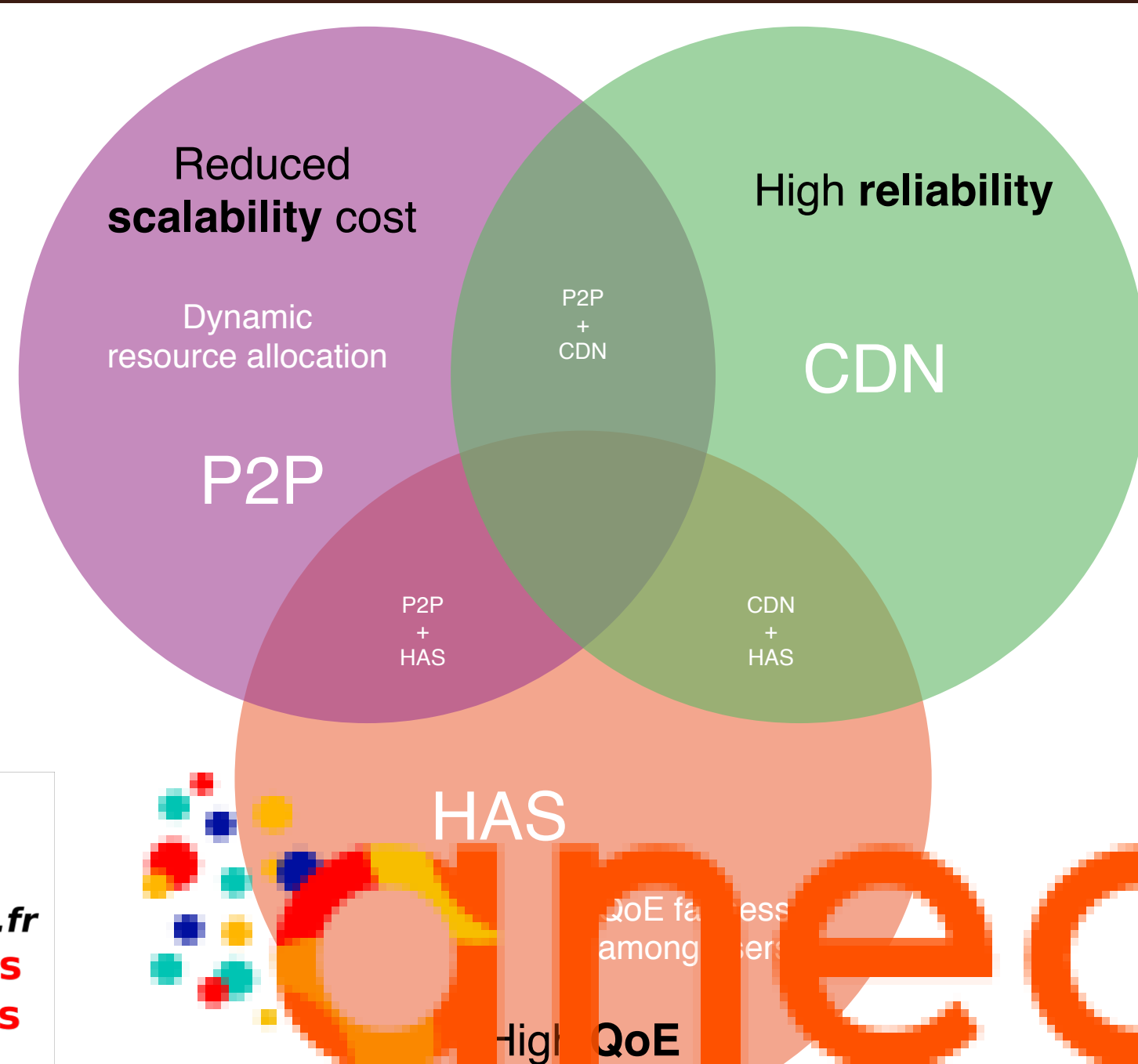
## HTTP Adaptive Streaming (HAS)



## MS-Stream: Multi-Source Streaming over HTTP



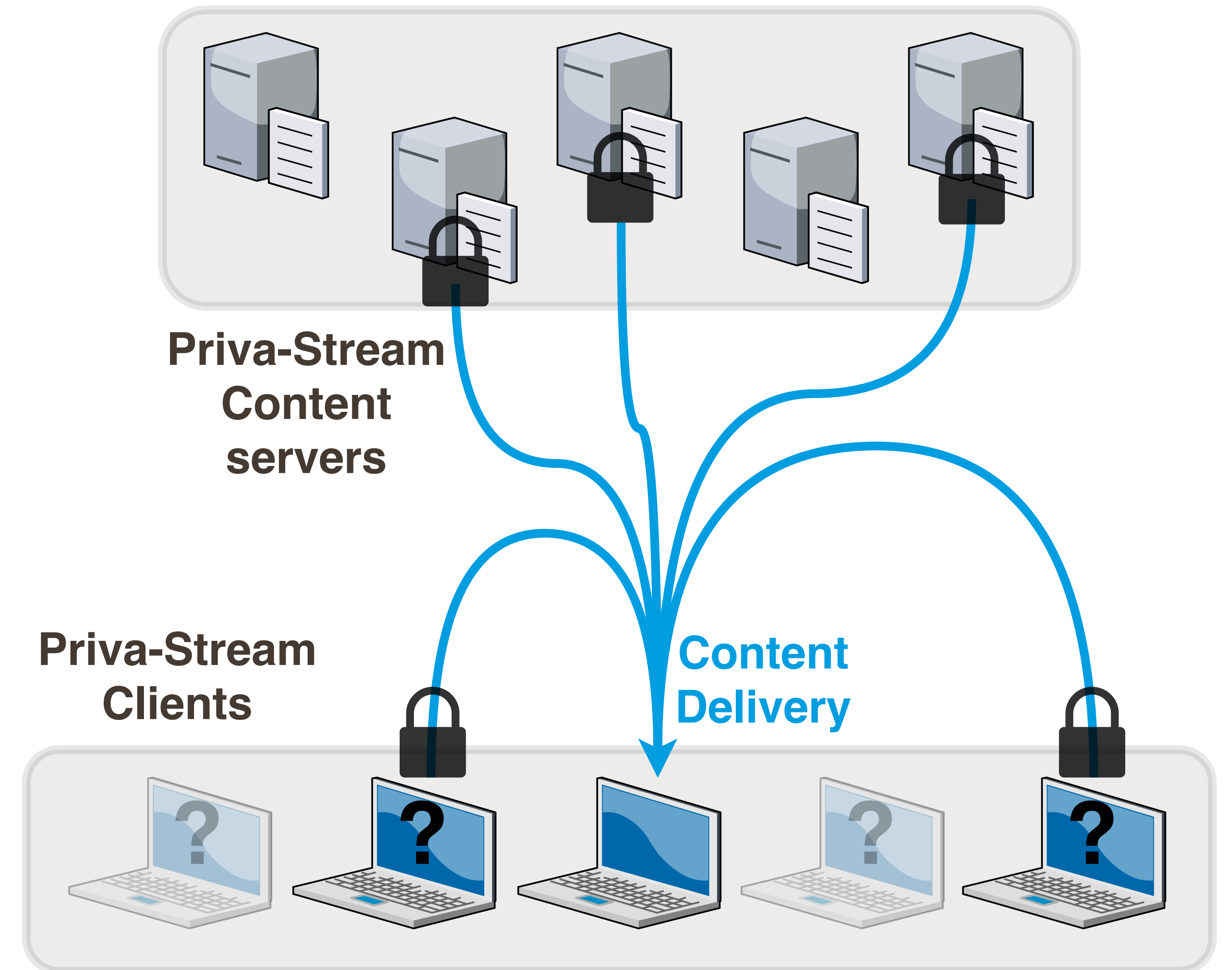
## Problem statement



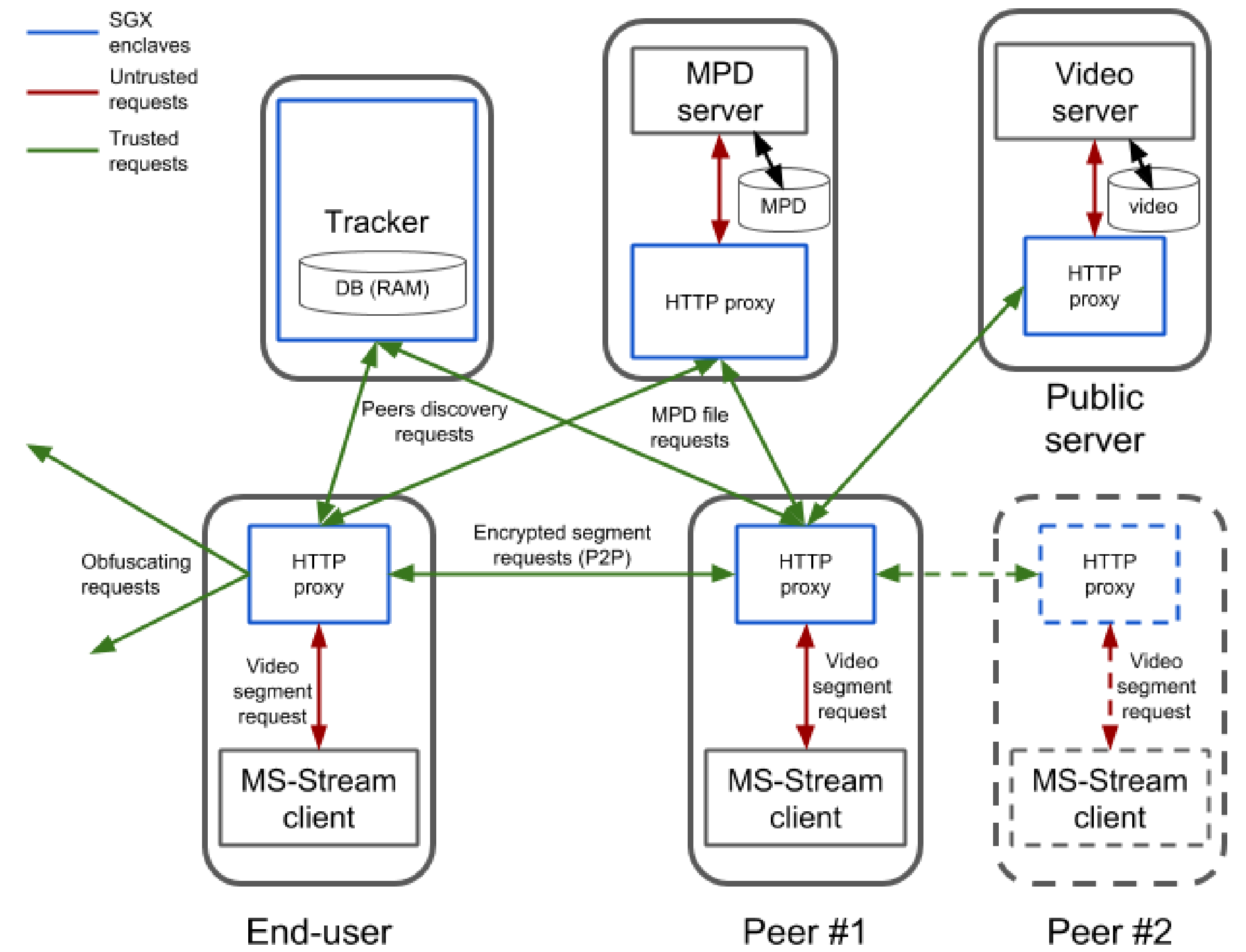
## PRIVA-STREAM idea

- Reliability, QoE and scalability  
MS-Stream: Multiple-Source adaptive streaming over HTTP
- Incentive to contribute  
Rewarding: contributing users get a higher quality
- End-users privacy  
TEE (SGX): encryption, NAT and anonymity

## PRIVA-STREAM overview

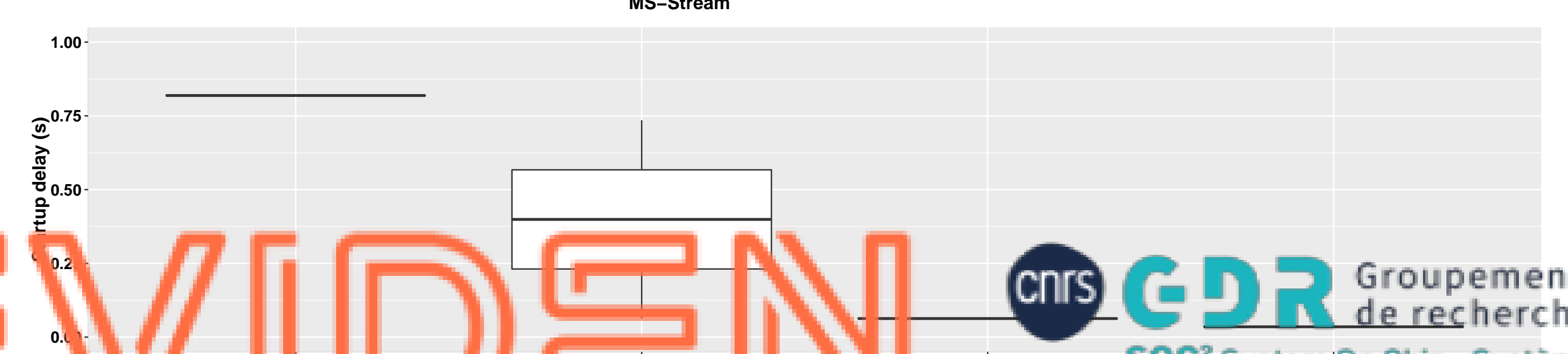
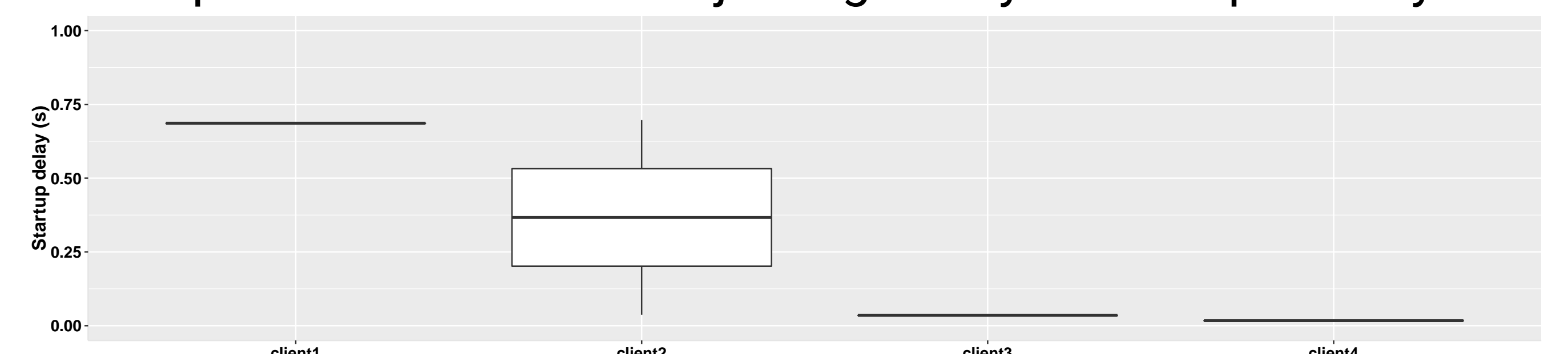


## PRIVA-STREAM technical description



## PRIVA-STREAM early results

Experiment: Four clients joining the system sequentially



Startup delay (s) - MS-Stream (top) vs Priva-Stream (bottom)

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