

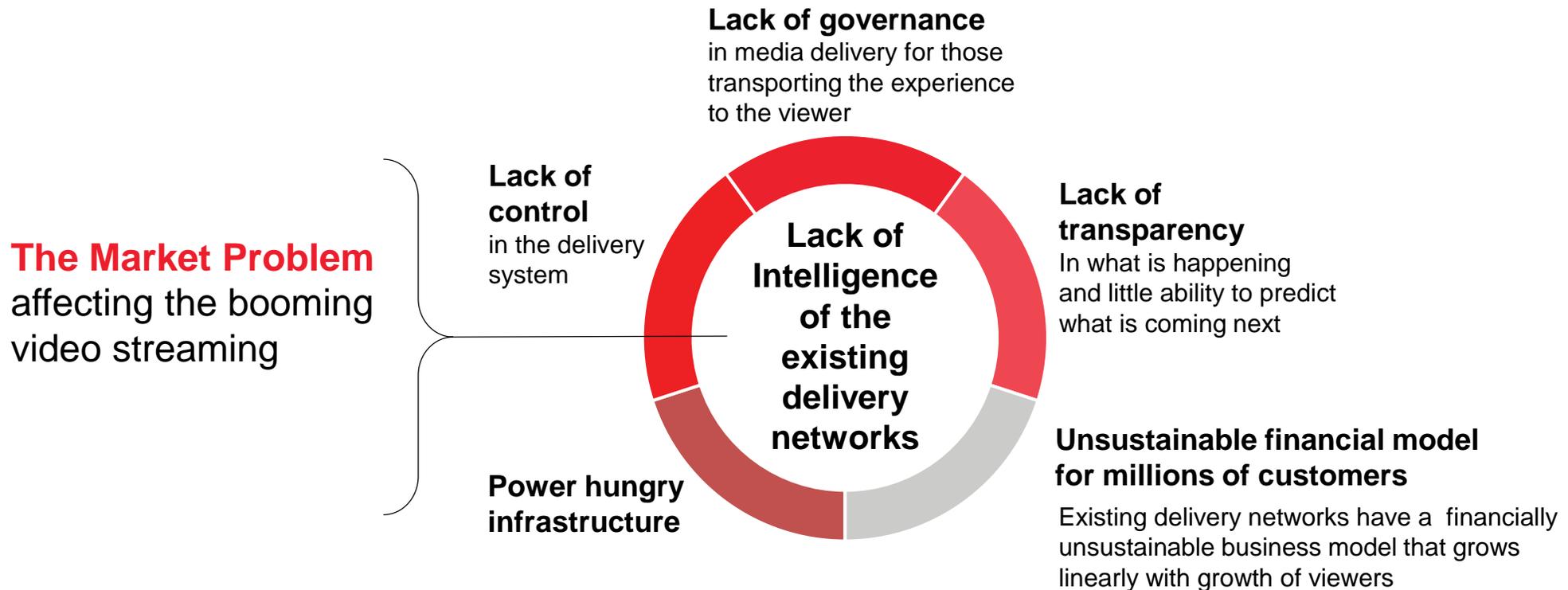


MAINSTREAMING[®]

The Intelligent Media Delivery Company

The market problem

The problem is the **lack of intelligence in the current delivery system**. Today's systems are not very smart
The **control** has been taken away from the Content Owner, and he's no Governance over the streaming process
As more content owners transition to online delivery this problem is going to get so much worse than it is today



NETFLIX

the leading streaming on demand leading market player, is supporting its fast growth with its own **highly expensive and power hungry** proprietary infrastructure, and it is constantly growing

| Limits of current video delivery

Traditional CDN infrastructures, were built for web acceleration in the '90s and adapted overtime for online streaming, are based on legacy technology and “non smart networks”, developed over caching and multi-hop

The results for broadcasters are lack of **transparency**, **control** and **governance** over the delivery system

This translates into:

Lack of Governance and financial impact on streaming business

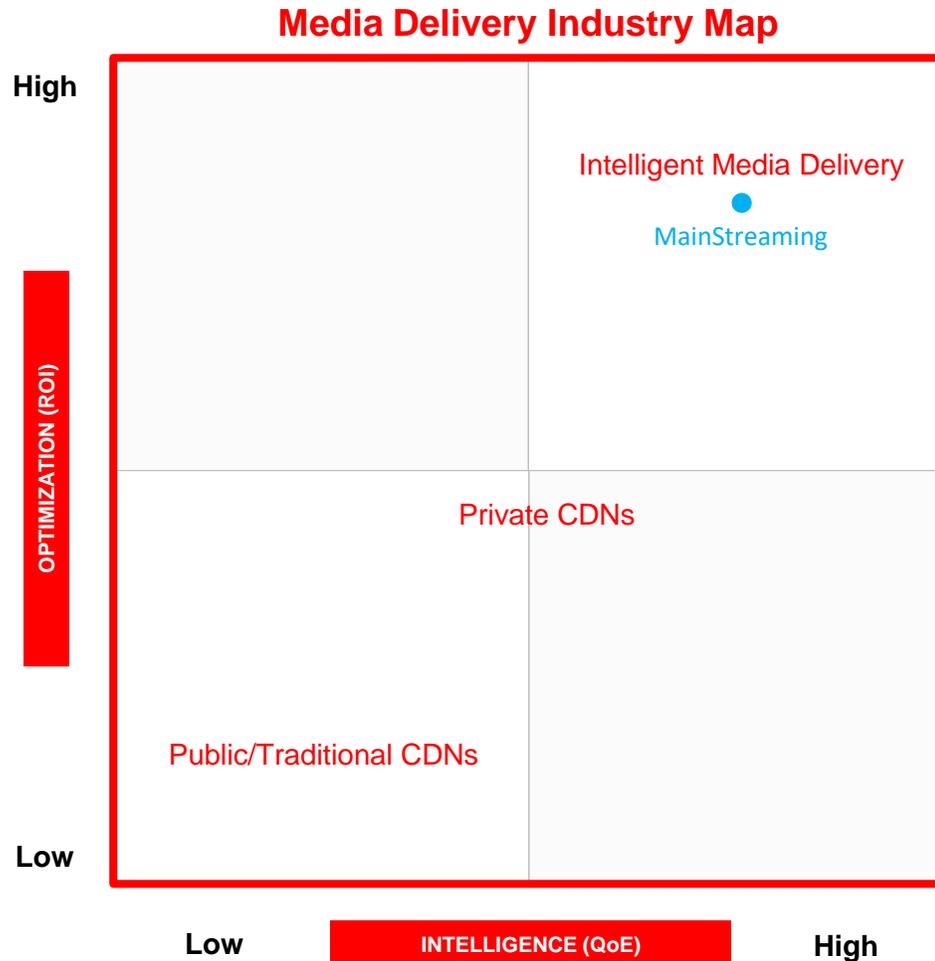
- **network saturation**
- **unpredictable latency**
- **degradated content quality**
- **incapacity to predict what's coming and act**
- **lost of viewing hours**, resulting in revenue losses
- **unsustainable financial model** for new streaming services
- increase in **power consumption** and environmental impact



Reference CONVIVA 2018 annual state: [Conviva's Continuous Measurement Annual Census Report](#)

A new market category

Dominating the **Intelligent Media Delivery Category**, broadening beyond video to include esports and gaming, where content owners are fully enabled to manage and control the entire streaming workflow supported by AI



MainStreaming is creating a different category defined by:

- **Optimization (Highest ROI):**
 - **scalable and flexible** solution
 - **financially sustainable**
 - **optimizes the consumption of energy resources**
- **Intelligence / Governance (Best QoE):**
 - Realtime AI powered **full process governance**
 - **full control and transparency**
 - enabling to **react and take decision** on the delivery workflow
 - highest **QoE**

MainStreaming® Intelligent Media Delivery Platform

PRODUCTS



Media Manager

An all-in-one user-friendly platform that gives you complete control over the streaming process and the ability to upload, encode, manage and publish the content



Smart Origin

Reduce origin traffic, prevent congestion, decrease costs, monitor stability and increase stream efficiency with our proprietary AI powered technology that protects your origin



AI Media Delivery

AI powered real-time media delivery network infrastructure that increases delivery reliability, lowers latency and prevents congestion, guaranteeing the highest quality of experience for your audience



AI Orchestrator

Coordinates all resources between our HyperNodes and/or other CDNs in the streaming workflow to deliver the best quality of experience in the most efficient way



Ultra Fast Encoding

Up to 15x faster than other solutions, fully compatible with current and legacy file formats for on-demand video



Meta View Analytics

Advanced analytics for real time performance and engagement analysis to visualize quality of experience KPIs

HTULL ENGINE

HTULL Protocol

Created to move large quantities of data in the shortest possible time, our high-speed Media Datagram Control Protocol, with UDP-like performance and TCP-like resilience, is optimized for ultra-low latency content distribution

HTULL Parallel Computing

Our system efficiently utilizes innovative parallel computing technology to send out packets to multiple locations, where they are encoded and then brought back together to generate the complete video

HTULL AI Cache Filling

AI Cache Filling Architecture requests every single content only once from the origin server. The AI algorithm transfers the content to one edge server and identifies the most efficient propagation pattern to the other edge servers

ADP Adaptive Delivery Path

To avoid congestion and to have a strong resilience, the Adaptive Delivery Path uses an intelligent algorithm capable of predicting possible congestions of the ISP and finds new paths to reach the end user, without creating service interruption or loss of quality

Dynamic Packaging and AD Insertion

Just-in-time packaging integrable with different streaming protocols, includes advanced security features to reach all devices with Server-Side Ad Insertion and allows for a flawless delivery in ABR

DELIVERY

Global

All-inclusive, as-needed media delivery service for low-volume or peak distribution needs, that gives you complete governance over the streaming workflow

Private

Custom implementation and management of high-volume, private distribution networks for large-scale customers. Deployment of dedicated nodes within ISP infrastructure or through peering

Hybrid

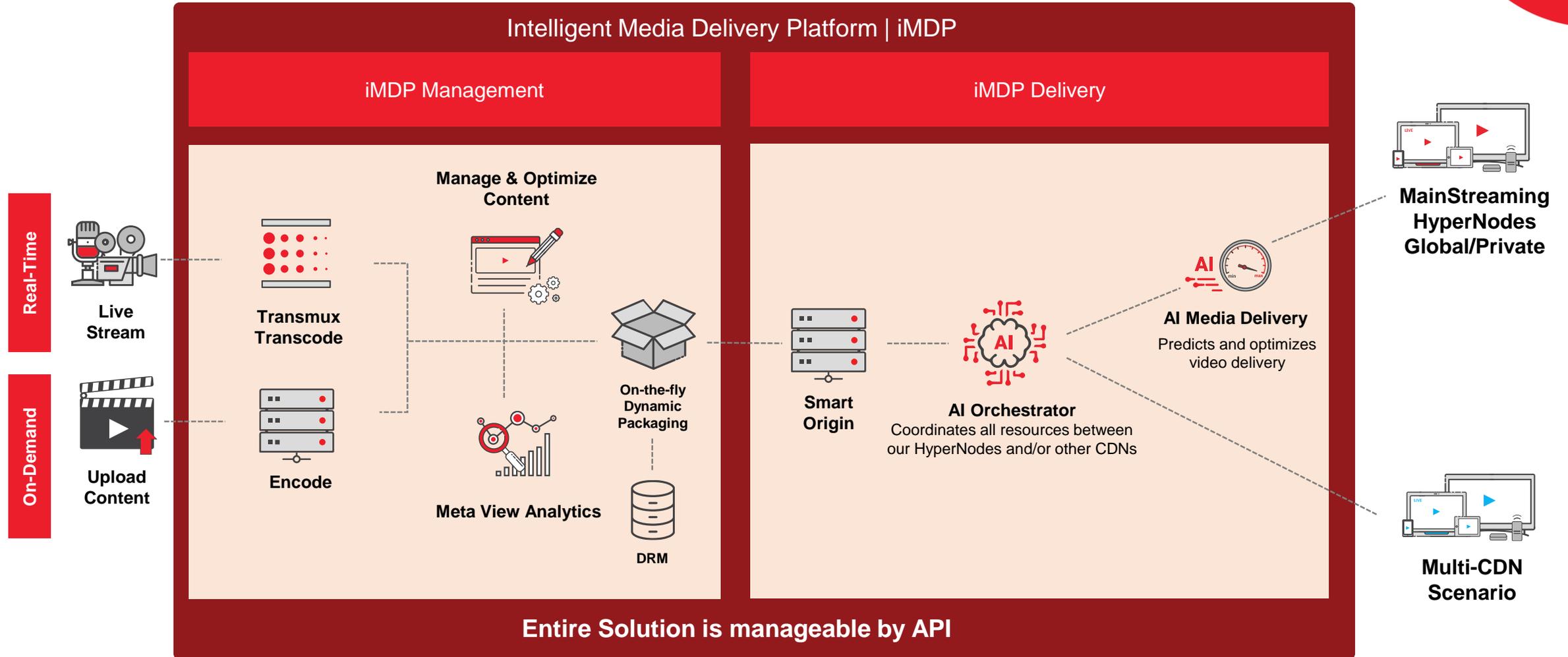
Mix private and global services according to your users' location, and manage it all from one platform

MainStreaming iMDP

Complete AI streaming solution, based on HTULL proprietary technologies, that enables and manages the entire media origination and distribution process

- Overcomes the greatest challenges that come with large audiences during live streaming, maintaining extremely high quality of video and audio with no delay or disruptions.
- Integrable with existing infrastructures and media generation/distribution flows via APIs
- Offers full visibility, control and governance over the entire workflow and distribution process
- Minimizes energy consumption and management costs

MainStreaming® Intelligent Media Delivery Workflow



MainStreaming® iMDP innovation pillars

MainStreaming iMDP solution is based on proprietary AI technology, that prevents congestion, monitor stability and stream seamlessly with the highest Quality of Experience. MainStreaming's platform is based on three innovation "pillars"

Smart Origin

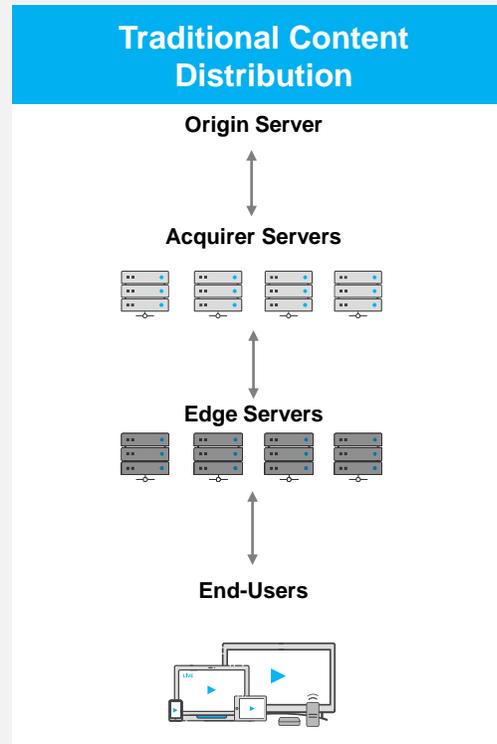
Based on our proprietary AI powered technology protects the Origin Server, **sending only one request for each content**.
Reduces origin traffic, prevents congestion, decrease costs, monitors stability and increases stream efficiency

AI Orchestrator

Coordinates all resources between our HyperNodes and/or other CDNs in the streaming workflow to deliver **the best quality of experience** in the most efficient way

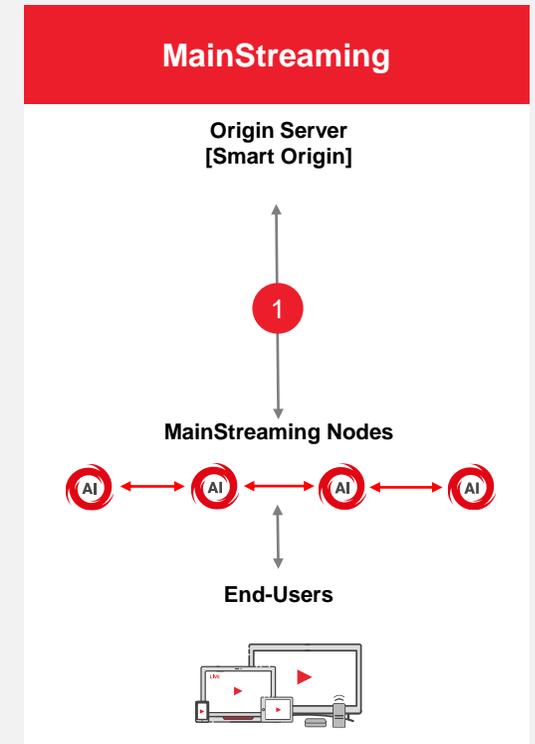
AI Media Delivery

AI powered real-time media delivery network infrastructure that increases delivery reliability, lowers latency and prevents congestion, guaranteeing the highest quality of experience for your audience. The **AI** is consistently **monitoring each streaming session**, predicting and optimizing video delivery



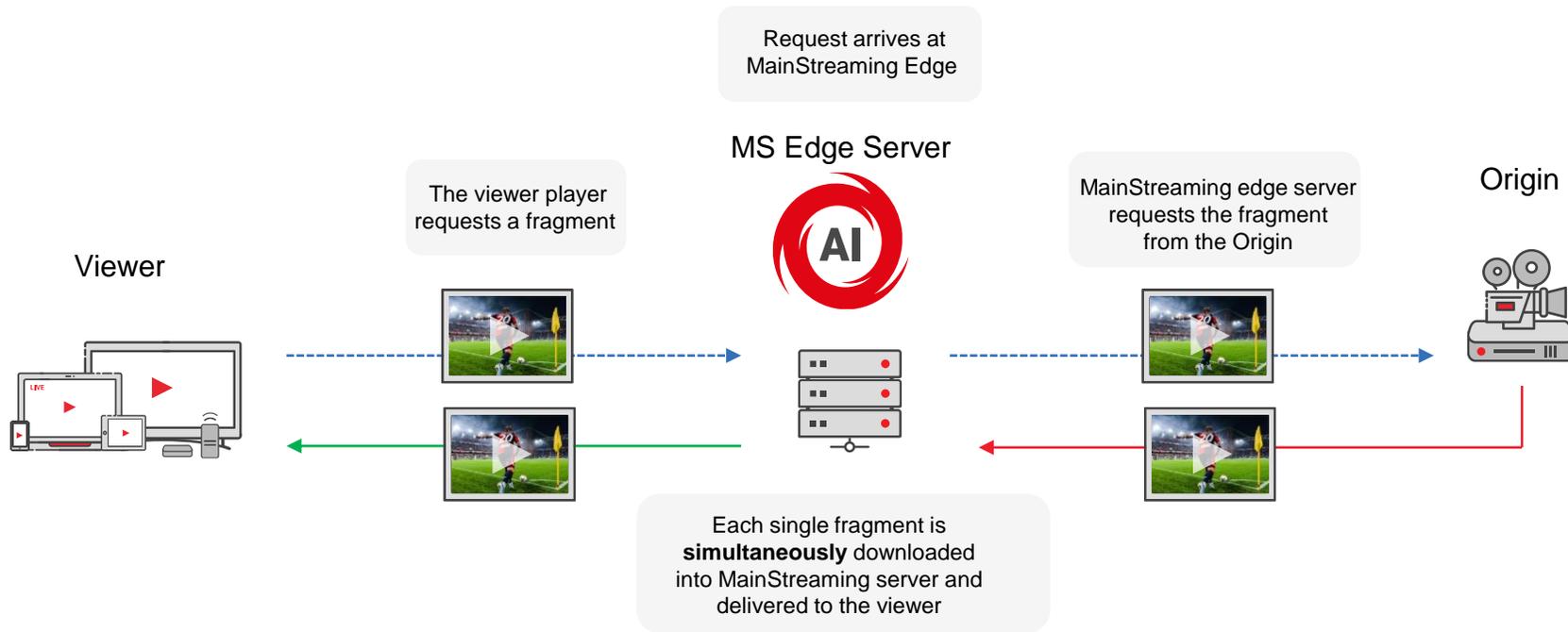
AI Media Delivery

- Operator Governance
- Resources optimization
- AI powered
- Network congestion
- Content distribution
- Highest QoE
- Highest ROI



1 Eliminates acquirers

MainStreaming® “Zero Latency” Delivery



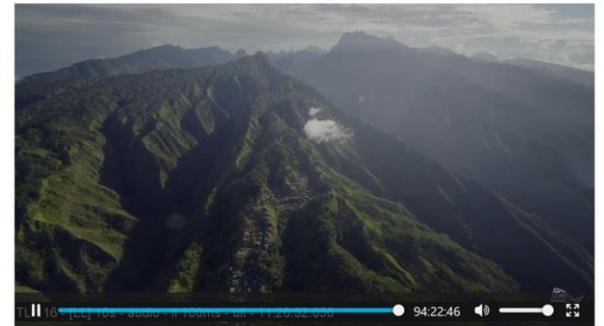
Each single fragment of the video is delivered to the final viewer without having to wait for the content to be completely downloaded from the Origin Server

MainStreaming Zero Latency (v3.1.1)

Url: cdnf11.mainstreaming.tv/aterme/cmaf/live-ull/2009571/cmaf-ll-10s-ull/manifest.mpd

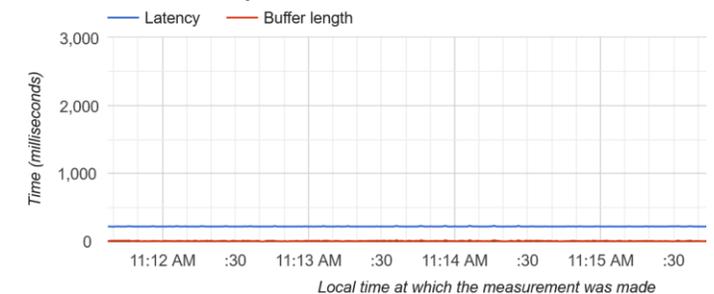
Target latency: 0.2
Catch-up rate (%): 8

START



Latency estimate: 0.240 secs
Buffer level: 0.013 secs
Playback rate: 1
Video resolution and bitrate: 1920x1080 at 8000 kbps

Live stream latency in milliseconds

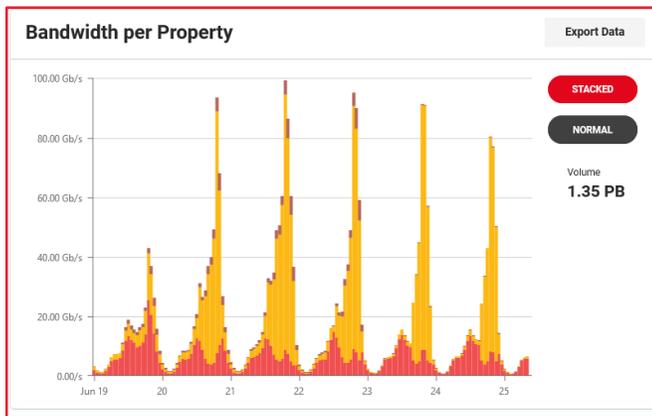


MainStreaming® Media Manager & Meta View



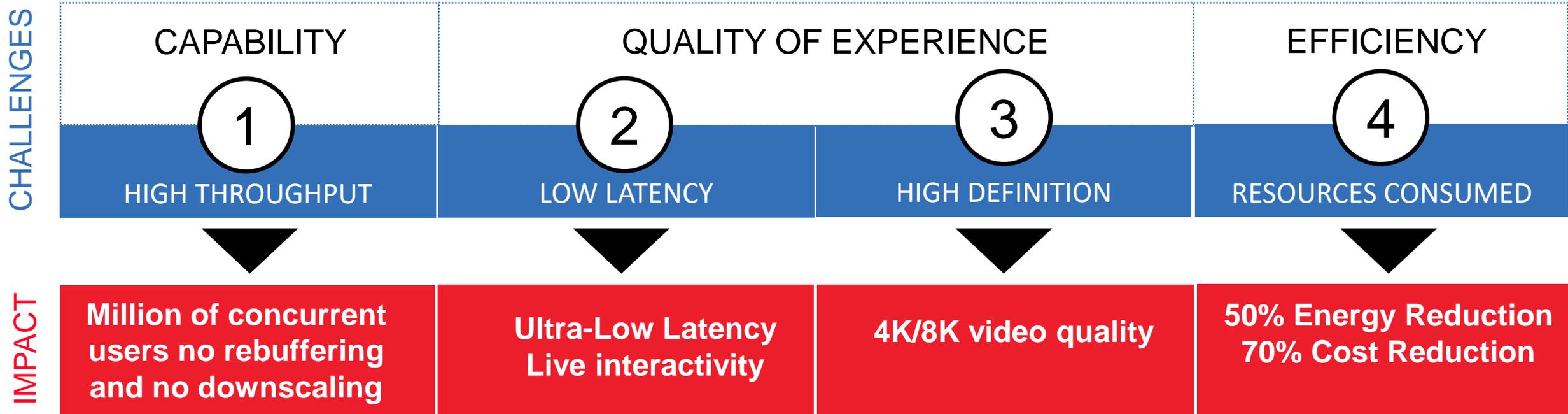
End-to-end complete **governance** and **visibility** over the Video Delivery Network

- **Unified control panel** for global configuration
- **Real-time configuration deployment** (including content purge)
- **Authoritative DNS management**
- Complete API set for **integrated management and monitoring**
- **SSL management**
- **Origin authentication**
- Configurable **content security** (geo, tokenization, ASN, etc.)
- **Real-time cloud log analysis**, with custom log exporting (push, pull, S3, etc.)
- **Real-time analytics** and alerts



	Usage	CPU
REGION - Italy HyperNode	12%	12% (no limit)
DATACENTER	15%	15% (no limit)
CHASSIS - CH1	0%	0% (no limit)
HOST	9%	0% (no limit)
HOST	7%	1% (no limit)
HOST	9%	1% (no limit)
HOST	8%	1% (no limit)
HOST	16%	1% (no limit)
HOST	9%	1% (no limit)
HOST	7%	1% (no limit)
CHASSIS - CH2	0%	0% (no limit)
HOST	3%	1% (no limit)
HOST	3%	1% (no limit)
HOST	3%	1% (no limit)
CDN - 3. MainStreaming Global	5%	5% (no limit)
HYPERNODE - EU HyperNode	5%	6% (no limit)
REGION	2%	1% (no limit)
CHASSIS - CH3	2%	1% (no limit)
HOST	4%	4% (no limit)
HOST	4%	2% (no limit)
HOST	5%	2% (no limit)

MainStreaming Overcomes the Sector Challenges



| Use Cases

Fabrizio Capobianco

Chief Innovation Officer
Minerva Networks Inc.



Alex Braga

Founder A-LIVE
DJ e Musicista



| About MainStreaming®



Founded in 2016, MainStreaming® is headquartered in Milan (Italy)

The team is a winning mix of young developers and experienced business development and marketing managers.

Founders and experienced executives form a vibrant management team, that includes experienced entrepreneur, streaming expert and media industry executives, leading company's expansion and growth execution plan.



Antonio Corrado

Founder
and CEO

Serial Entrepreneur
and Tech Expert



Giovanni Proscia

Founder
and CTO

15+ years of Tech
experience in IT and
Telecommunications



Philippe Tripodi

Founder and
COO Product

Serial Entrepreneur
and Innovation Expert



Alessandro Tucci

COO Business
Development

Media Executive, Former Senior VP
Corporate Development Europe &
Asia at 21st Century Fox



MAINSTREAMING®

**A new way of thinking.
A new kind of company.**

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