

POWERING GLOBAL MEDIA CLOUD OPERATORS

A WHOLESALE WHITELABEL PRIVATE CDN & E-COMMERCE PLATFORM

Enabling multi-regional MVNE, ISP and TELCO operators

to expand into any-media cloud operation:

GAMING, SOCIAL MEDIA, TV ENTERTAINMENT & TV-COMMERCE

Perception TVCDN™ cloud solution was designed from the outset to empower global Content Brands, Telcos, ISPs, and MVNE wholesale operators. It provides them with centrally or regionally controlled service instances, powered from the same cloud infrastructure. This design allows for easy scaling at the industry's best price-to-performance ratio.



SUSTAINABLE CDN SOLUTION

- "One streaming hour equates to about 100 grams of CO2 equivalent and we're streaming for almost 12 hours a day, that's still extensive: 1,200 grams of CO2 equivalent per day. That's the equivalent of driving three miles or charging 146 smartphones"
- Perception's advanced data algorithms reduce data replication by over 50% while increasing delivery efficiency by over 25%, thereby consuming less energy and significantly reducing our carbon footprint.
- Legacy CDNs are constructed with outdated server technology, consuming over 50% more power and cooling electricity. Perception TVCDN, initiated its cloud operation in November 2022, is powered exclusively by the latest green server and network switch equipment.
- Perception's CDN streaming operates at port wire speeds and is approximately 25% more efficient than competing servers, resulting in around 25% less energy consumption. This efficiency enables the most sustainable CDN operation available in the global media cloud marketplace.

USER TV FEATURES

- 14-day interactive EPG
- 7-day automated catch-up with Live TV rewind
- Ultra fast channel change time
- Live TV player timeline preview
- Cloud PVR
- Video on demand
- Platform wide search
- Multi-lingual
- Multiple user profiles
- Friendly TV-commerce



Perception TVCDN

NEXTGEN UNIFIED WHOLESALE IPTV CLOUD PLATFORM

Isolated private service instances running on private cloud

WHOLESALE B2B SERVICE OPERATOR powering whitelabel multiregion B2C clients: MVNOs, HOTELS, CONTENT BRANDs, ...

- All global service instances can be centrally controlled
- Each whitelabel client can run unlimited number of custom branded subservices
- Colocated CDN servers inside each whitelabel partner's home network

MULTI-TENANT PRIVATE TVCDN



When user in home network video streaming from on-network servers

When user in roaming video streaming from Perception CDN servers

Data requests to whitelabel instance in our private cloud



Smart TVCDN MW selects best delivery servers



WHITELABEL CUSTOMISATION

- UI branding
- 3rd party app integration
- Content line up
- Content packaging
- Commercial models
- Global Payment integrations
- Global Ad serving partners



ALL MAJOR APP STORES SUPPORTED



















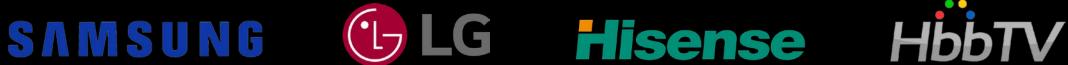
















ADDING VALUE TO WHOLESALE PARTNERS

- Offer branded HDMi STB stick
- Runs customized Android TV OS
- Enables operators to create their own internet TV app store ecosystem
- Build loyalty and revenue
- Perception can organize supply

PERCEPTION SUPER-APP EVOLUTION

- Liner TV channel AI playout
- 3rd party app launcher
- Digital TV commerce
- Targeted ads with interactive contextual TV commerce overlays

Custom Options:

- User content and live streaming uploads
- Integrated social messaging via Mastodon Fediverse ActivityPub or other frameworks
- Al generated personalized channels



PERCEPTION TVCDN PRIVATE CLOUD END TO END SERVICE PLATFORM

Perception TeslaTrans™ in-house integrated encoder/transcoder is default model used for new headend installations; however any make multibitrate transcoder can be used

Perception MW provides complete OSS/BSS functionality as required to run standalone IPTV/OTT service; in case platform is configured as telco triple-play service than inbuild SMS is controlled by external OSS/BSS

Perception API provides easy integration with MVNE providers enabling out-ofthe-box triple-play deployments; MVNO BSS includes 'user loyalty management' store points program (token currency) Files and live streams are dynamically encrypted at the point of serving Files and live streams are decrypted at the point of playback; DRM key is only served if user authentication checks OK

Satellite DVB MPTS/SPTS UDP Multicast

Live Stream

SRT, RTMP

Unicast

TeslaTrans™

Adaptive Multibitrate Transcoding MPEG2, H264, HEVC

VOD

TS, MP4 Secure FTP File Ingest

Unified

Back

Office

Perception

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 CMS - Content Management
 System with flexible packaging, promotions and pricing templates

Perception

Unified Middleware

• SMS - Subscriber Management

UMW - Universal Multi-Wallet;

unified PPV and e-store user

wallet with multi-currency

System including payment

processing and billing

support

- CVL Content Video Library with support for Al driven recommendations and global search across VOD and live TV channels
- LCP Linear TV Channel Playout
 with auto EPG generator

Mastodon is a fast-growing Twitterlike federated social network; also Friendica, a Facebook-style social network, can be integrated

MNO/MVNO OSS/BSS*

(Operator's in-house solution or third party MVNE/MVNA PaaS)

Internet Payment

Gateway*
(Stripe preconfigured as default)

Recommendations Al Engine*

(<u>Think Analytics</u> preconfigured as default)

Social Media Platform*

(Mastodon

Custom-integrated as default; configured as private node instance)

Perception TVCDN™ Private Cloud

HLS, DASH, SRT, RTSP, UDP, Progressive Streaming

Next gen TVCDN based on multicast mesh grid design; all CDN servers are multirole; each server can provide:

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- Live rewind recording
- Network PVR
- Linear TV channel playout
 Live TV streaming
- with EPG support
 VOD streaming and download
- Ad serving

DRM*

(<u>Axinom Cloud DRM</u> preconfigured as default)

TVCDN POP

Perception CDN edge streaming point of presence

Ad Serving third party networks* (Double Click

(<u>Double Click</u> preconfigured as default)

Multi-CDN Load Balancer*

(IP transit offloads Gateway)

DNS backup routing to public CDNs like P2P, Akamai, etc. for handling of unexpected traffic peaks

Perception Apps

14 White-label

Multiscreen Apps:

- Fire TV
- Apple TV
- Samsung TV
- LG TV
- Android TV
- Google TV
- Hisense TV
- Android, iOS, Huawei, Xiaomi Mobile with Chromecast support
- Web Browser with Chromecast support
- Linux and Android Custom STB

Unified TVCDN API provides developer friendly platform enabling rapid app development or operator can simply rebrand Perception

Operator friendly AI module monetizing VOD library with TV channels SVOD and ad insertion sales

> Head-end and Stream Monitoring

Content Ingest and Packaging Platform Admin and Delivery Operations Revenue and Streaming Reports

INDICATIVE COMMERCIAL STRUCTURE

Global multi-tenant core platform set-up

Whitelabel client # 1

Whitelabel client # 2

Whitelabel client # n

One-time set-up fee

One-time set-up fee

- Sub-instance branded service set up
- Content ingest via SRT or FTTP
- App customization
- Optional private CDN setup on client's network

Monthly recurring fees

- INGEST AND TRANSCODING SERVICE:
 - MBR transcoding for Live TV, Gaming, VOD and Podcast
 - TV EPG and VOD metadata processing
 - Al assisted TV channel playout
- MANAGED PaaS CHARGE WITH SEVERAL OPTIONS:
 - Revenue share
 - Per user fee
 - Per IP transit fee

PRIVATE AND SUSTAINABLE CDN CLOUD

it is equally important for governments as it is for large multinational private enterprises

For the first 100 years of television, sovereign states played a crucial role in TV through their control and licensing of limited spectrum for terrestrial, satellite broadcasting, and more recently, mobile data networks. This control not only provided financial benefits to the state but also enabled governments to exert influence over media distribution within their borders.

However, this model is being challenged by the rapid growth of "over the top" internet TV and video delivery. Users have transformed into broadcasters, utilizing platforms that exist in the cloud, beyond the reach of any single government's jurisdiction. Viewers can now access content on any connected device from any service willing or able to stream to them.

In this new landscape, Perception offers governments an opportunity to regain control by establishing their own sovereign TV content distribution network (TVCDN) platform, both domestically and internationally, to cater to the needs of expatriate communities.

In essence, a private TV CDN platform equips states with cutting-edge video streaming infrastructure and in-built software for the orchestration and delivery of ultra-advanced TV services. These services include linear TV channel delivery, automated provision of catch-up TV, a full interactive electronic program guide, cloud PVR services, video on demand, podcasts, games, and e-commerce solutions integrated with video. The infrastructure supports streaming across the internet and direct peering with in-country telcos or ISPs via layer 2 connections, eliminating the need and cost of public internet streaming. It also features in-built monetization platforms for advertising and subscription, along with APIs for integration with existing telco and mobile money services.

The strategic benefits of this platform are significant:

- **Control:** Instantly, a state-owned, neutral TV delivery platform emerges, offering control over content availability and business models to cater to the local population online. With Perception, there's no need to rely on major American streamers. The technology surpasses that of most international service providers. For free-to-air channels, IP delivery costs are much lower, and targeted video adverts replace the traditional one-size-fits-all model. The platform can also host third-party premium content and app operators, offering various subscription or payment options.
- Communication and Digital Service Delivery: Beyond entertainment, governments can utilize the platform for communication via video. Integration of interactive services like telemedicine and e-learning is possible, and pairing such content with a robust free-to-air TV service ensures higher visibility and engagement.
- Freedom: Much of the world's internet TV infrastructure, including CDN or cloud infrastructure, is American-owned. By expanding the private TV CDN globally, governments can transmit content without fear of "cancellation" on a network under their physical control.
- Environmental: Data center operations, especially for video delivery, are significant electricity consumers, with every streaming hour estimated to produce 100 grams of CO2. Perception's advanced data algorithms reduce data replication inside the CDN by up to 50%, and our proprietary video servers are at least 25% more efficient than the market leader, making Perception the greenest CDN solution available.

For any addition information, please contact John Mills, CEO – john@perception.tv