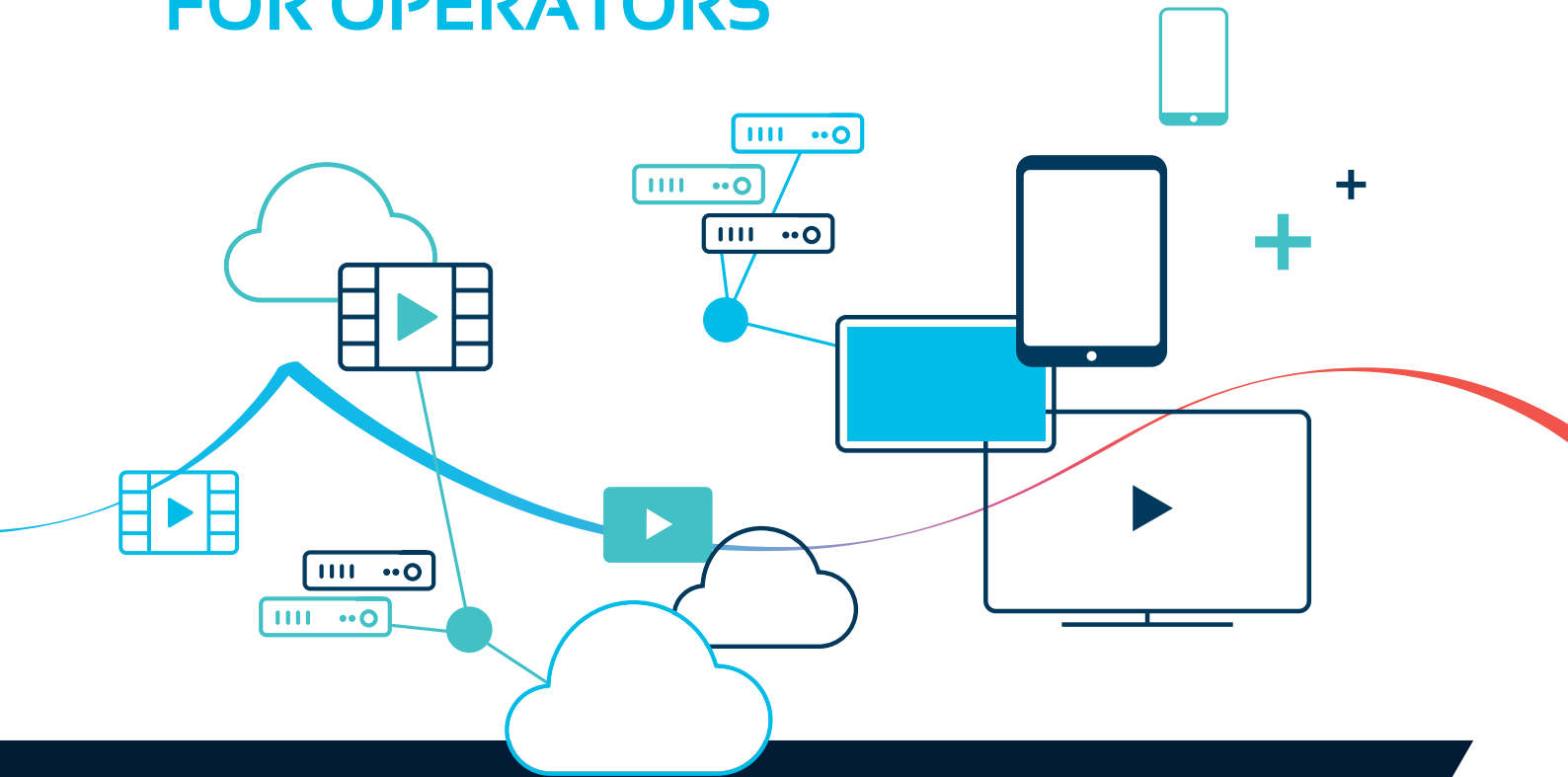


# ADVANCED CDN SOLUTION

## FOR OPERATORS



### A video content delivery network solution prepared for the upcoming challenges of streaming

With the spectacular increase of video traffic in networks, the Content Delivery Network (CDN) is more than ever at the heart of an operator's distribution system. By bringing video streaming closer to the end-users, a CDN secures the best possible quality of experience (QoE) to the video service and optimizes infrastructure costs.

The expectations in terms of robustness, scalability, security or support are growing accordingly and tend to already disqualify any kind of homemade solution that could have been considered in the early years. Moreover, the success of direct-to-consumer platforms as well as the on-going migration of all traditional broadcast to adaptive bitrate streaming will only accelerate the video traffic growth in the near future, forcing CDN architectures to re-invent themselves and significantly gain in efficiency. This will only be possible by integrating new requirements such as opening to content of any origin, dynamicity of the streaming processes and elasticity of the infrastructure.

This is streaming at its peak

# FLAWLESS VIDEO STREAMING

## ■ REFERENCE CDN

Broadpeak Advance CDN is a reference solution in the market, distributing every day thousands of programs to millions of users in parallel while meeting all requirements from most demanding tier-1 network operators in the world. Associated with a high level 24/7 support, it is the guarantee of a totally safe operation.

## ■ ROBUSTNESS

Broadpeak CDN ensures service continuity and seamless failover in case of failure at different levels.

- Built-in redundancy on all components.
- A **double back-up** for each server can be configured and taken into account in the CDN topology.
- **Disaster recovery** through site synchronization is fully supported.
- **Offload to third-party CDN** service in case of exceptional traffic peaks or based on other defined criteria.

## ■ PERFORMANCE & SCALING

The CDN is optimized to deliver the highest bitrates through advanced structural mechanisms, including:

- **Per-session streamers allocation**, based on criteria, such as the user location, the content affinity, the load of the servers and various network metrics.
- **Distributed CDN access points**, streaming requests can be routed directly (via DNS, BGP Anycast,...) to local front-offices and managed directly at PoP or edge level.
- **Cache tiering**, allocating the most adequate type of storage to a content according to its popularity.
- **Modular scaling** architecture based on microservices, to grow each function independently from the others.

## ■ SECURITY & ANTI-PIRACY

Securing the content and the access to the CDN is one major point of focus of the solution, this includes:

- **Multi-DRM** protocols support and pre-integration with all reference content protection systems.
- **TLS HTTPS** and certificate management.
- **URL signing** to ensure that only entitled clients can make requests to the system.
- **Anonymous users blocking**, access through VPN, public proxies or Tor can be blocked to prevent illegal access to services.
- Session-based server-side **watermarking**, providing a unique and identifiable sequence of chunks to every viewer, based on ABR standards recommendations.



# OPEN – DYNAMIC – ELASTIC ARCHITECTURE

In order to cope with the technical challenges expected in a very near future, Broadpeak CDN has engaged into major architecture updates around 3 principles that can interact between each other.

## ■ OPEN

Access to CDN optimizations is no longer limited to the content managed by the network operator itself and can now benefit also the ever-growing number of external content providers. Broadpeak's solution exposes a set of abstract APIs so that any **third-party content** can be individually managed and monitored thanks to a native multi-tenant approach.

## ■ DYNAMIC

Relying on real-time analytics collected at every tier of the system and on **A/B testing**, automated and individualized streaming rules can dynamically be added and fine-tuned through the **CDN Steering Center™**, a centralized and operation-friendly user interface.

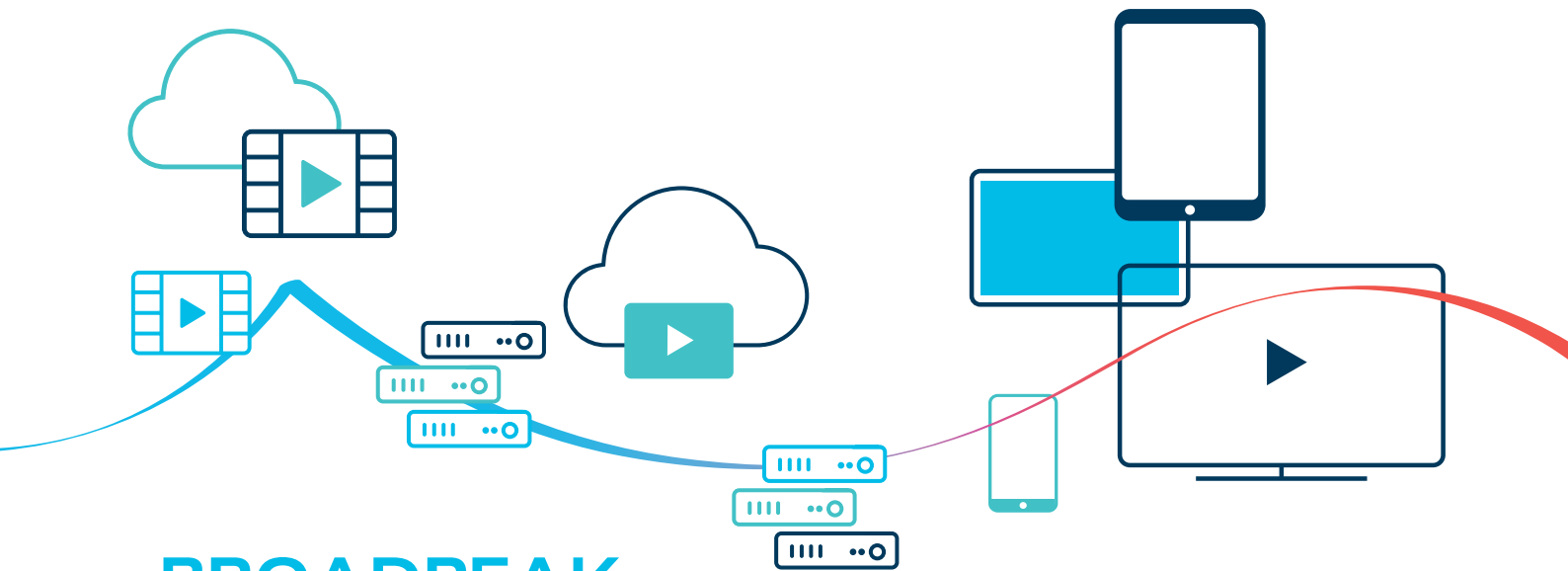
## ■ ELASTIC

Based on the 3GPP multi-access edge computing (MEC) standard, all CDN instances can be deployed as **orchestrated containers**, in PoPs or at the edge for better granularity and deep caching, to mobilize infrastructure resources where they are most needed in the network.

# ADVANCED PROCESSING

The solution can be completed with a number of add-ons to increase further its delivery efficiency and its functional scope

- **nanoCDN™** Multicast-ABR solution, streaming directly from the user's Home Network, nanoCDN™ provides a virtually unlimited capacity and video resolution (UHD, VR) even on high peak events.
- **S4Streaming™** server-side video layer selection gives back control to the delivery system on network usage and content priorities, which is especially relevant whenever network segments are undergoing overload or congestion episodes.
- **BkS350™** Origin Server efficiently and reliably packages all types of content (Live, Vod, Catchup, StartOver, cPVR) and formats (all ABR protocols, subtitles, DRM, Ad markers,...) before making them available to the CDN distribution downstream.
- **BkYou™** and **BkT100™** for ad insertion manifest management and ad media transcoding can be added and interfaced to any standard ad decision system, allowing monetization while integrating in parallel the optimization of ad media delivery.



# BROADPEAK SOLUTION KEY BENEFITS

## ■ RELIABLE & SCALABLE

Reference CDN, providing top performances and guaranteeing safe operations even when coping with steep traffic increase.

## ■ ADAPTATIVE AND FUTURE-PROOF ARCHITECTURE

Innovative dynamic and context-adaptive architecture, focusing resources where they are most needed at any given moment, in order to address the general growth of traffic expected in a near future.

## ■ OPEN TO 3RD PARTY CONTENT PROVIDERS

Set of simple tools and API allowing operators to lend their CDN capacity to content providers, offering them an unmatched level of QoE in particular on high popularity content and major live events.

## ■ MOST COMPLETE FEATURE SET

Full featured solution integrating video processing & encryption, multicast-ABR, ad insertion, complete security suite and a number of exclusive streaming features.

## ■ END-TO-END CORRELATED ANALYTICS

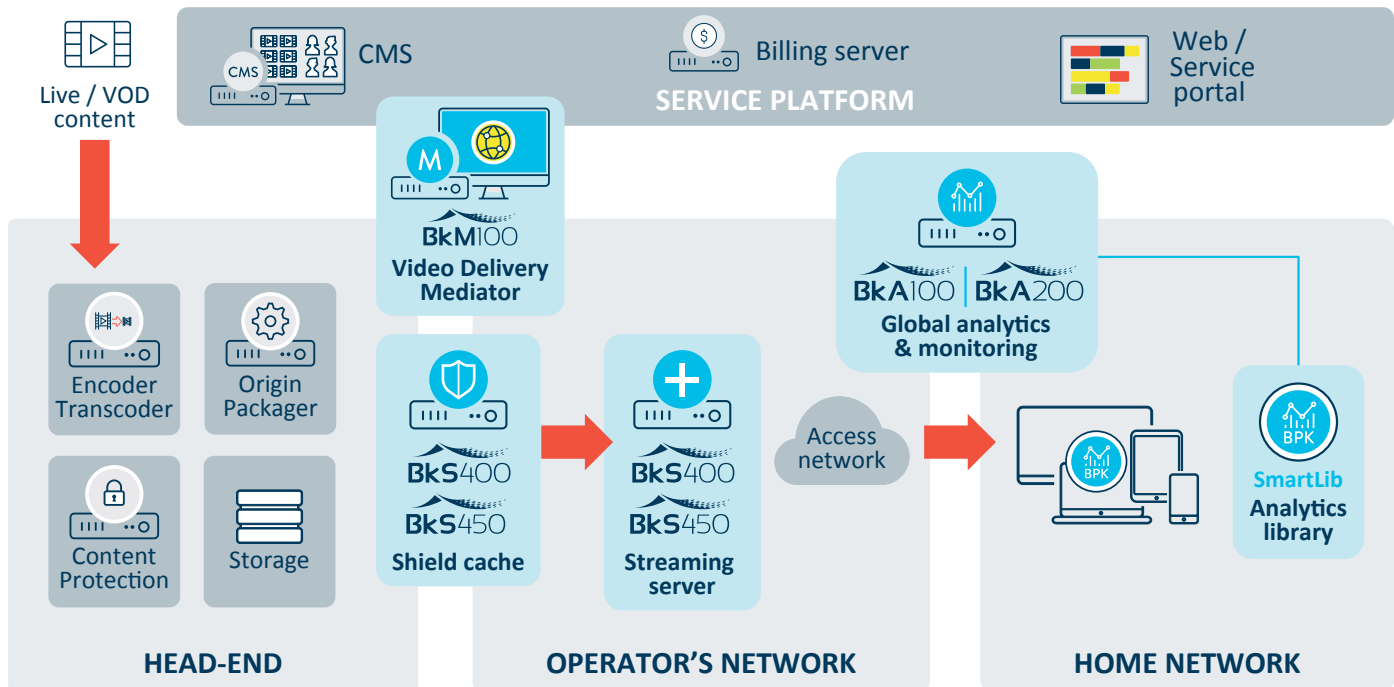
In-depth aggregated feedbacks from video players and from all delivery components, to further optimize delivery and to help make the right strategic decisions.

## ■ FULL FLEXIBILITY DEPLOYMENT

The elements of the solution are available as containers, virtual machines or bare-metal software, and can adapt to any kind of environment, whether public or private Cloud, or on-premises on COTS servers.



# PRODUCTS AND ROLES



## BkM100

The Video Delivery Mediator is in charge of the centralized configuration, creation and monitoring of services. It also allocates the streamers to the session requests, interfaces with the CMS and implements bandwidth management policy.



## BkS400 / BkS450

The Caching Server is located in edge points to serve the end-users from a close access point.



## BkA100 / BkA200

The Analytics Server gathers reports from servers and players, computes metrics, and displays them as graphs.



## SmartLib

The library is embedded on an application that runs on local devices (i.e. smartphones, tablets, STBs, connected TVs). It feeds the BkA100 analytics platform with video player statistics focusing on ad video consumption.