

## CASE STUDY: The London Olympics

---

### The Challenge

Enable smaller and regional broadcasters to reach an online audience and maximize their rights package for the London games.

### The Solution

The “Go Live Package” from iStreamPlanet and Haivision, a complete, turnkey live streaming solution targeting multiple platforms, powered by iStreamPlanet’s London Broadcast Operations Center.

### Making the Most of Olympic Broadcast Rights

The London Olympic Games, as with all Olympics, presented a tremendous opportunity for broadcasters. What set the 2012 games apart is that for the first time there was a massive audience tuning in on devices other than TVs: PCs, Macs, tablets, phones and connected TVs. According to the BBC, its website alone had 12 million video requests throughout the games.

Other broadcasters around the world saw this online viewing opportunity as well, but streaming live video from an event as large as the Olympics is a complex undertaking, especially for smaller or regional broadcasters who don’t have millions to spend on the highly specialized infrastructure required to pull this off.

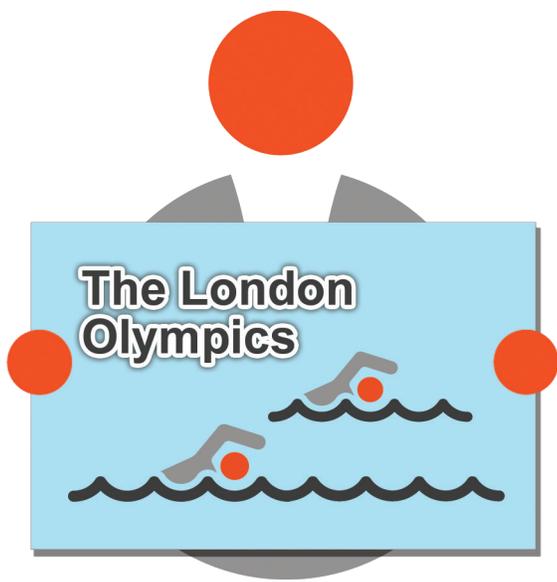
iStreamPlanet and Haivision teamed up to provide a solution that would open up this opportunity to any broadcaster, enabling them to maximize their rights to reach the largest audience possible.

The end-to-end, turnkey service required an ecosystem of technology providers, each providing integral pieces of the workflow, as well as their many years of live streaming expertise. iStreamPlanet’s London-based Broadcast Operations Center powered the live video workflow using Haivision’s KulaByte™ encoding technology and multistream player environment, providing the ability to stream up to 24 live events simultaneously for all 18 days of the Games, across all popular devices and platforms.

### LONDON OLYMPICS VIDEO WORKFLOW

#### Production

The International Olympic Committee (IOC) has an agency that takes on the role of host broadcaster, which is known as OBS (Olympic Broadcasting Services). OBS centralizes the broadcast production and provides a core broadcast package, referred to as World Feeds, to all RHBs (Rights Holding Broadcasters). The OBS mandate is to facilitate the entire production to ensure a high standard is maintained



between each Olympic games. Most broadcasters will supplement these World Feeds with their own production crews to further customize their Olympic programming. These are called unilateral feeds. Some broadcasters will take the World Feeds and simply create their own commentary in their native language.

## iStreamPlanet Powered Acquisition

OBS subcontracted the distribution of the feeds to satellite provider EBU (European Broadcast Union), a major provider out of Geneva. EBU took the feeds and provided a variety of packages with different audio to support multiple languages. When broadcasters purchase the live TV and digital rights, they get rights to a certain number of feeds. The “Go Live Package” was preset to deliver 12 feeds, which would cater to the majority of countries interested in supplementing their TV coverage with an online offering. However, iStreamPlanet was also able to add to these 12 if the RHB was specifically interested in a specific feed or if they had their own unilateral feed, as was the case with SportsMax.

iStreamPlanet and Haivision then worked with the RHBs to gain authority to access the neutral feeds through EBU, who then provided all the necessary telemetry and encryption codes to facilitate the acquisition via several EBU satellites.

iStreamPlanet downlinked the twelve neutral feeds from two satellites, and five additional unilaterals from another satellite. The neutral feeds were all in 1080i/50p HD, with international sound (background effects) and no commentary, so the feeds were perfect for RHBs to use with their own talent to provide the commentary.

EBU encoded six of these feeds as MPEG-4/4:2:0 and six as MPEG-4/4:2:2, which guarantees a very high-quality source picture; a must-have to ensure all the streaming formats are crisp and sharp. Once iStreamPlanet downlinked all 12 feeds, the video was normalized by cross-converting it to 720i/50 fps, and then pushed to Haivision’s Kulabyte™ encoders.

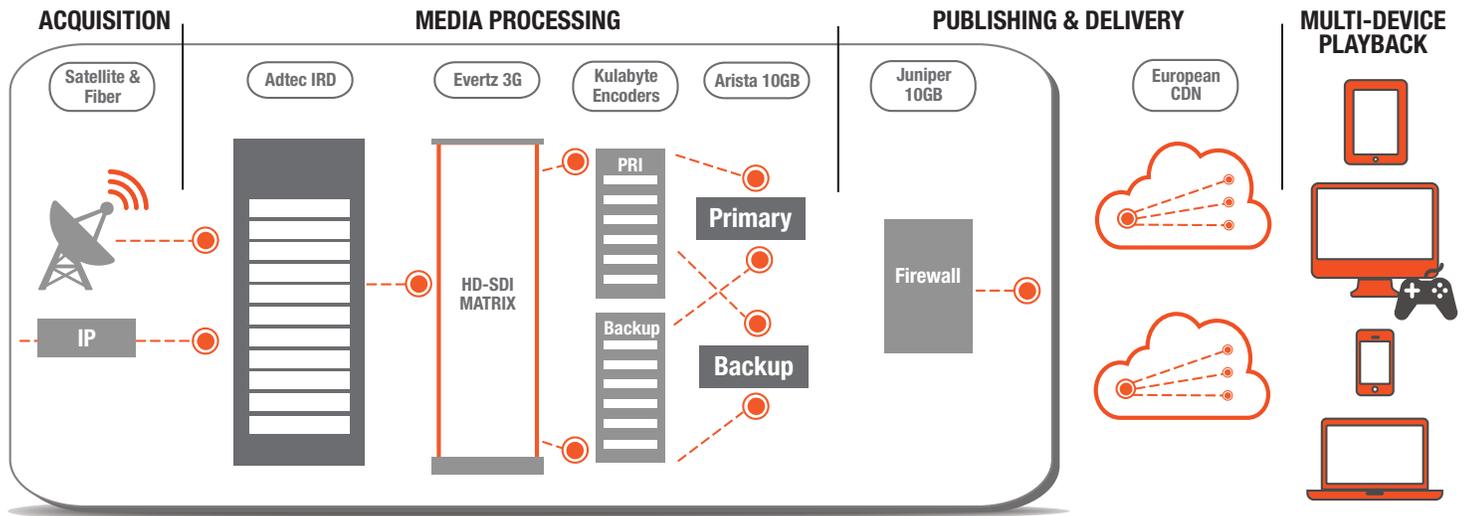
“iStreamPlanet architected our acquisition platform around the requirements we gathered from the RHBs and EBU. It’s very hard to adjust for changes late in the game with this kind of technology, so you have to over-engineer your solution to be able to handle whatever comes at you. With an event that comes around every four years, there’s no silver medal for missing the opening ceremony or the 100 meter finals.” said Khurram Siddiqui, VP & GM Europe for iStreamPlanet.

“We’ve developed a very open architecture over the years, which really helped us to enable the solution with Haivision and the KulaByte™ encoding platform with very little development and customization. Our teams were also able to work with the RHBs to customize the video player around their requirements. Ultimately, we relied on our experience and best practices developed over years of live streaming of sporting events, to ensure that we were able to deliver on time, on budget and with excellence,” said Siddiqui.

## Haivision Kulabyte™ Encoding

The encoding was done through Haivision’s KulaByte™ Internet encoding system, which encoded each HD feed to a very high-quality HTTP Live Streaming (HLS) and Dynamic Flash® adaptive bit rate (ABR) stream. The turnkey solution also included a customizable, high-performance player for all PCs and mobile devices. The player supported a complete channel listing and event guide, active DVR playback and controls, as well as dynamic ad insertion.





London Olympics Video Workflow

## Delivery and Playback

Haivision built its customizable player to take advantage of some of the advanced features of the Akamai Secure HD2 network. The player can be used on any CDN, but in this case leveraged the live DVR functionality, which requires the CDN to cache a portion of the content if the DVR feature is used. In this case a viewer could pause the live stream for up to 12 hours. This is, in effect, like a short-term VOD archive, but entirely held in cache.

The live, online video could be viewed on all popular connected devices such as PC, Mac, iOS and Flash, with the latest adaptive bit rate streaming.

## Juniper Networks

iStreamPlanet's US and UK broadcast operations centers are built with redundant ingress/egress pipes that exceed 10Gb. To manage these effectively and securely, iStreamPlanet used premier router and switch provider, Juniper Networks for the firewall, IP routing, and load balancing in iStreamPlanet's Broadcast Operations Center.

"The firewall and the IP router are strategic components in the signal flow and need to function without adding any undue latency to the streaming segments, which is critical to the delivery of high bandwidth, live video," according to Siddiqui. "We needed the firewall and routing engines to process the content in the most efficient manner, and Juniper provided that."

## Arista

Within the iStreamPlanet Broadcast Operations Center literally hundreds of devices that require IP connections or multiple connections, including encoders, servers, time code generators, and more. Any complex IP-enabled system requires high-performance, lossless, carrier-grade switches at its epicenter. "iStreamPlanet has used Arista 10Gb L2/3/4 switches since 2009 and we've never regretted it. Despite provisioning redundant switches throughout our data center, we never had a switch failure or failover scenario surface, but it was reassuring to know that our video traffic would have made it out to the CDN had one occurred," Siddiqui says.

## Conclusion

By partnering with best-in-class technology providers, iStreamPlanet was able to bring a cost-effective and efficient live streaming solution to help rights holding broadcasters reach the broadest possible audience, on multiple devices, in multiple countries, ultimately delivering over 60 Terabytes of video traffic.

## About iStreamPlanet

iStreamPlanet is a multiplatform managed broadcast solutions provider committed to bringing high-quality video experiences to connected audiences around the world. With over a decade of managed broadcast experience, iStreamPlanet has built a comprehensive offering of video workflow and content management products and services. iStreamPlanet's innovative approach has been chosen by the world's leading sports, entertainment, and technology brands including NBC, Turner Broadcasting, AMC Networks, the United States Olympic Committee, AT&T, Microsoft, and others. Founded in 2000, the privately held company is headquartered in Las Vegas, NV with offices in Redmond, WA and London, UK. More information can be found at [www.istreamplanet.com](http://www.istreamplanet.com).

## iStreamPlanet Managed Broadcast Services

Onsite and offsite acquisition	Satellite Fiber IP
Encoding	Adobe Flash and HTTP Streaming Apple HLS Microsoft Windows Media Microsoft IIS Smooth Streaming Multi-camera angles Still or animated on screen graphics
Publishing	Origin services Multiple platforms and devices: PCs, Macs, iOS, Android, game consoles, connected devices, and OTT devices including Apple TV, Google TV, Roku and Boxee Tightly partnered with all leading CDNs
Custom Player and App development	Custom video players and applications Silverlight SD/HD players for Live video content, Flash and HTML 5 players Full DVR controls Data visualizations, overlays and metadata Custom applications for iPad, iPhone, Xbox LIVE, Sony PlayStation and other platforms



For more information on delivering  
live, live linear or on demand video  
to multiple platforms, visit  
[www.iStreamPlanet.com](http://www.iStreamPlanet.com).