



## More than fun and games

CCTV.com uses the Adobe® Flash® Platform to bring the 2008 Beijing Olympics to tens of millions of viewers, on-demand

CCTV International Networks Co., Ltd. is China's primary television broadcaster. The company produces 500 hours of video every day and provides 250,000 hours of video-on-demand (VOD) programs for users to search and watch. Via its online division, CCTV.com, the company also publishes a wealth of content to the web, including 400 TV columns, hundreds of interactive events, more than 700 blogs, and over 20,000 TV series episodes.

CCTV.com chose the Adobe Flash Platform, including Adobe Flash Professional, Adobe Flex, Adobe Flash Player, and Adobe Flash Media Server software to deliver the Beijing Olympics to Internet users. Adobe Flash Media Server played a key role in delivering a large-scale distribution system for streaming media.



With 3,800 hours of live broadcasting of Olympic competition matches, CCTV.com was the official Internet and mobile broadcaster for the 2008 Beijing Olympic Games. CCTV.com enabled tens of millions of Olympic fans in mainland China and Macau to vividly experience Olympic videos through the Olympic Network TV Station, CCTV.com's next-generation online experience based on the Adobe Flash Platform. The online station gave fans a uniquely tailored experience by allowing them to view the Olympic sports, athletes, and country teams of their choice over the Internet.

### Overcoming the technical hurdles

To bring the exciting and intense Olympic competitions to Internet users, CCTV.com had to solve several technical challenges. First, it had to meet International Olympic Committee (IOC) guidelines for protecting content distributed by regional broadcasters.

Because of the popularity of the games, CCTV.com also had to support large-scale centralized VOD requests from network users during the Olympic events. To help ensure uninterrupted, high-quality delivery, CCTV.com required a highly flexible, robust solution capable of balancing massive streaming media loads. CCTV.com also wanted to ensure

high-quality video delivery with stream rates from 400 to 500 kilobits per second (Kbps) to provide a smooth viewing experience to users. Further improving the user experience, CCTV.com needed to rapidly synchronize its own Content Delivery Network (CDN) with third-party CDNs involved in streaming the games.

To add to the challenge, CCTV.com's Internet programming varied widely. It included 5,000 hours of video clips involving 10,500 athletes, 302 competition items, and 28 competition categories. In addition to 3,800 hours of competition video, there were 1,200 hours of interviews. The size of the video clips ranged from 5-minute clips to 90-minute reports.

In addition to supporting large-scale concurrent streaming media, CCTV.com wanted to reach its audiences via a client player that would provide seamless, instant, and reliable playback of Internet video content—without requiring users to download any specialized software.

### An end-to-end Adobe solution

After in-depth discussions and testing, CCTV.com chose the Adobe Flash Platform, including Adobe Flash Professional, Adobe Flex®, Adobe Flash Player, and Adobe Flash Media Server software to deliver the Beijing Olympics to Internet users. The interface of the

*“CCTVOlympics supported a huge number of page views by combining Adobe Flash Media Server with Flex technology to allow Internet users to vividly experience the venues, matches, and visual effects. The Adobe Flash Platform really contributed to the great success of the 2008 Beijing Olympic Games online broadcast.”*

**Mr. Li Xiang, technical director, CCTV Olympic Network TV Station**

Olympic Network TV Station was designed using Adobe Flex and Flash Professional software, enabling CCTV.com to create compelling user experiences, including a 3D TV wall and seamless integration of viewing with live chat functions.

Adobe's user experience designers, Adobe Flex architecture consultants, and technical teams from the United States, Europe, and China conducted comprehensive and in-depth technical discussions and initial preparation work with CCTV.com and its new media technology partners, Augmentum, ChinaCache.com, and 21vianet.com. The goal was to integrate the world's most advanced network media technologies into the Olympic Network TV Station as quickly as possible.

Adobe Flash Media Server played a key role in delivering a large-scale distribution system for streaming media. Based on input from Adobe, CCTV.com, and Augmentum technical teams, CCTV.com adopted an innovative architecture that included multi-city node origin/edge distribution mechanisms. This enabled users in different cities to choose their closest service node to improve the viewing experience. The origin and edge servers of all nodes could be evenly loaded to help ensure around-the-clock operation. In addition, this architecture

enabled CCTV.com to automate web and video production, from editing to streaming video broadcasting. The architecture also enabled CCTV.com to protect regional video, meeting the IOC's regulations.

“CCTVOlympics supported a huge number of page views by combining Adobe Flash Media Server with Flex technology to allow Internet users to vividly experience the venues, matches, and visual effects,” says Mr. Li Xiang, technical director of the CCTV Olympic Network TV Station. “The Adobe Flash Platform really contributed to the great success of the 2008 Beijing Olympic Games online broadcast.”

By leveraging the Adobe Flash Platform, the Olympic Network TV Station was instantly accessible to Internet users in China via Adobe Flash Player software, available on 98% of Internet-connected desktops worldwide. “We chose to align ourselves with Adobe because Adobe technologies enable us to deliver a compelling Web 2.0 experience consistently to people across platforms,” says Mr. Wang Wenbin, general manager for CCTV.com.

#### **Company**

##### **CCTV**

Beijing, China  
[www.cctv.com](http://www.cctv.com)

##### **21Vianet (China), Inc.**

Beijing, China  
[www.21vianet.com](http://www.21vianet.com)

##### **Augmentum, Inc.**

Foster City, California  
[www.augmentum.com](http://www.augmentum.com)

##### **China Cache**

Beijing, China  
[www.ChinaCache.com](http://www.ChinaCache.com)

#### **Challenge**

- Deliver high-quality video-on-demand viewing experience for thousands of hours of Olympic coverage on the Internet
- Deploy a flexible, robust solution capable of balancing massive streaming media loads
- Meet International Olympic Committee content protection requirements

#### **Solution**

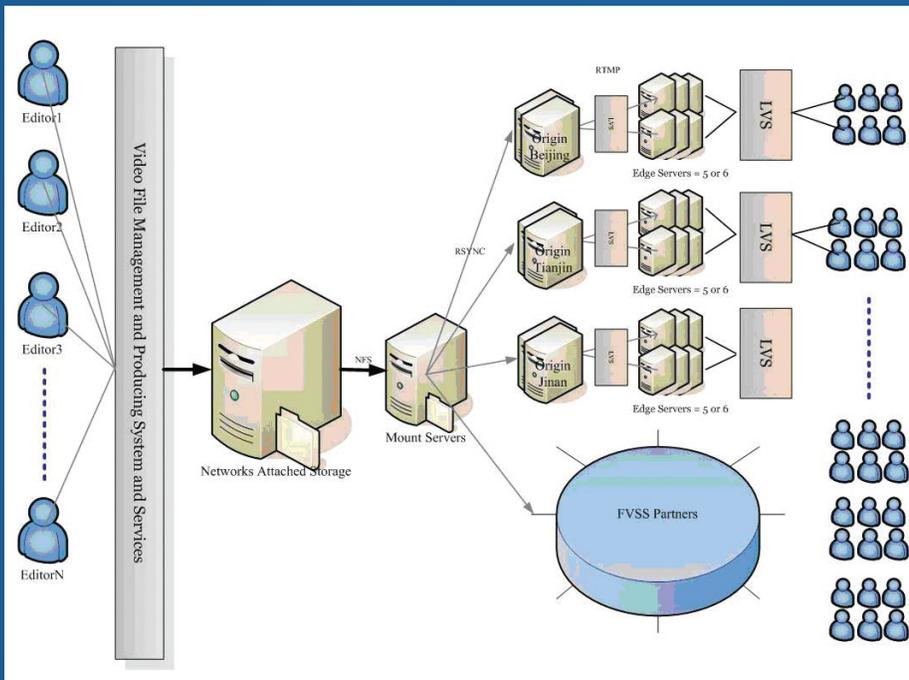
Use the Adobe Flash Platform, including Adobe Flash Media Server, Adobe Flex, and Adobe Flash Player software to broadcast thousands of hours of Olympic video to tens of millions of Olympic fans in mainland China and Macau

#### **Benefits**

- Delivered thousands of hours of coverage reliably
- Handled more than 832 million visits and 46.6 million VOD requests
- Offered reliable, hassle-free playback for users
- Maintained exceptional quality

#### **Toolkit**

- Adobe Flash Media Server
- Adobe Flash Player
- Adobe Flash Professional
- Adobe Flex



The CCTV.com architecture combines Flash Media Server with various CDN distribution methods to deliver a hierarchical content delivery, disaster-tolerant backup, and an administrative monitoring tool.

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#### **Millions flock to the games, online**

During the course of the games, there were over 832 million visits to CCTVOlympics.com, with over 46.6 million on-demand video playbacks streamed via Flash Media Server. The maximum number of concurrent live chat users reached 90,000. Video clips numbered more than 10,000, with playback time exceeding 5,000 hours. Customers ordered more than 100,000 videos, including entire matches, highlights, extra news, and interviews. In addition, CCTVOlympics.com successfully integrated advertisements from top companies such as Coca-Cola and Haier with Internet video into a single application environment.

Overall, CCTV.com became one of the most popular websites worldwide for the 2008 Summer Olympic Games.

Using Flash Media Server and Flex, CCTVOlympics.com has become a well-established, rich, and dynamic Internet media platform. Leveraging the platform, CCTV.com will deepen its relationship with Adobe to establish a joint laboratory based on new media communication technologies, employ resources from the two parties, develop more new media applications, and deploy even more innovative solutions.



**Adobe**

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