

## Livestream Acceleration



### Introduction

The livestream acceleration service is designed to reduce freezes, lags, latencies and protect content security during livestreams. The service supports a variety of customizations including real-time transcoding, content broadcast control, time-shifted viewing and more.

ChinaCache's Smart Media Server (SMS) streaming media acceleration system consists of three module: upstream, origin and edge. Upstream supports content pull based on RTMP protocol and content push based on RTMP, HLS and FLV protocols, and downstream supports the output in protocols including RTMP, HTTP, HTTPS and DASH.

The SMS is a centralized management system that serves as the information center, recording center and command center for livestreams. Multiple active origins ensures the service continuity. Customers can choose from pre-defined solution package or customized solutions based on their needs.

### Product Advantages

- **GOP Cache**

GOP cache can be set up between key frames to prevent new users get black screen upon connection.

- **Accurate HTTP-DNS Scheduling**

Intelligent global load balancing ensures streams are delivered to end users from optimal servers based on user locations.

- **Time-Shifted Look-Back**

Time-shifted look-back is supported both during and after the live stream. FLV, MP4 and HLS are among the protocols supported for post-livestream look-back.

- **Intercommunication between CDN**

Streaming content can be transferred between CDNs to reduce pressure on customers' origins.

- **High-Density Transcoding**

The service transcodes and streams to be adaptable on any devices and supports concurrent transcoding of thousands of live stream requests.

- **Stream Management System**

Concurrent online viewers, total visitors, real-time bandwidth usage and traffic situation can be monitored in the stream management system.

## Product Features

- **Intelligent Load Balancing**

The service support DNS, GHR, HTTP-DNS load balancing strategies.

- **Access to Streams**

The services supports both pull request and push request (in RTMP protol) to get access to streams from customer origins.

- **Livestream Distribution**

The service support distribution of streams of RTMP, HLS, MGEP-DASH and FLV protocols.

- **Access Control**

The service supports regional IP-restricted access.

- **Stream Information Review**

Stream information, including streaming start time, end time, streaming duration, number of concurrent views, cumulative playback times and user IP information can be viewed during or after the stream.

- **Recording and Time-Shifted Look-Back**

The service supports customized recording and time-shifted look-back of MP4 and FLV files. In case of stream interruption, the system can identify stream segments and splice the content into one complete recording file.



- **Transcoding and Transmuxing**

The system uses a distributed transcoding system that supports flexible expansion of resources and multi-resolution and multi-bitrate transcoding to meet the customization requirement of different streaming scenarios

- **Hotlink Prevention**

The system prevents unauthorized hotlinking using token authentication, referer header, or customized authentication method provided by customers.

## Product Architecture

