

# **Cloud Streaming Services**

## **Product Introduction**

## **Product Documentation**



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# Product Introduction

## Overview

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Cloud Streaming Services (CSS) provides users with fast, stable, and professional cloud-based live streaming services. It offers Live Video Broadcasting (LVB) for large-scale real-time playback and Live Event Broadcasting (LEB) for ultra-low latency live streaming, making it highly suitable for many streaming scenarios. CSS can also be used together with the Mobile Live Video Broadcasting SDK (MLVB SDK) to create a one-stop audiovisual live streaming solution.

## CSS Products

Product	Description	Use Cases
LVB	Backed by Tencent's suite of audio/video platforms, global network of cache nodes, and leading AI technologies in audio and video, LVB offers professional live streaming and distribution solutions that are stable and easy to integrate.	Showroom, live game streaming, live streaming for TV and radio, live shopping
LEB	As a lower-latency version of LVB, LEB provides superb live streaming experience with millisecond playback latency, far lower than that of live streaming using traditional protocols.	Live sports streaming, live quiz, online education, live auction
LVC	Leveraging Tencent Cloud's powerful live streaming capabilities, LVC enables features like live stream switching and multi-screen mixed streaming in the cloud. LVC supports custom screen layouts, standby streams, and audio-video synchronous switching among other features, eliminating the need for heavy traditional director console hardware. This makes directing services convenient and enhances online business scenarios.	Esports games, e-commerce live streaming, online education, event live streaming

# CSS Products

## LVB

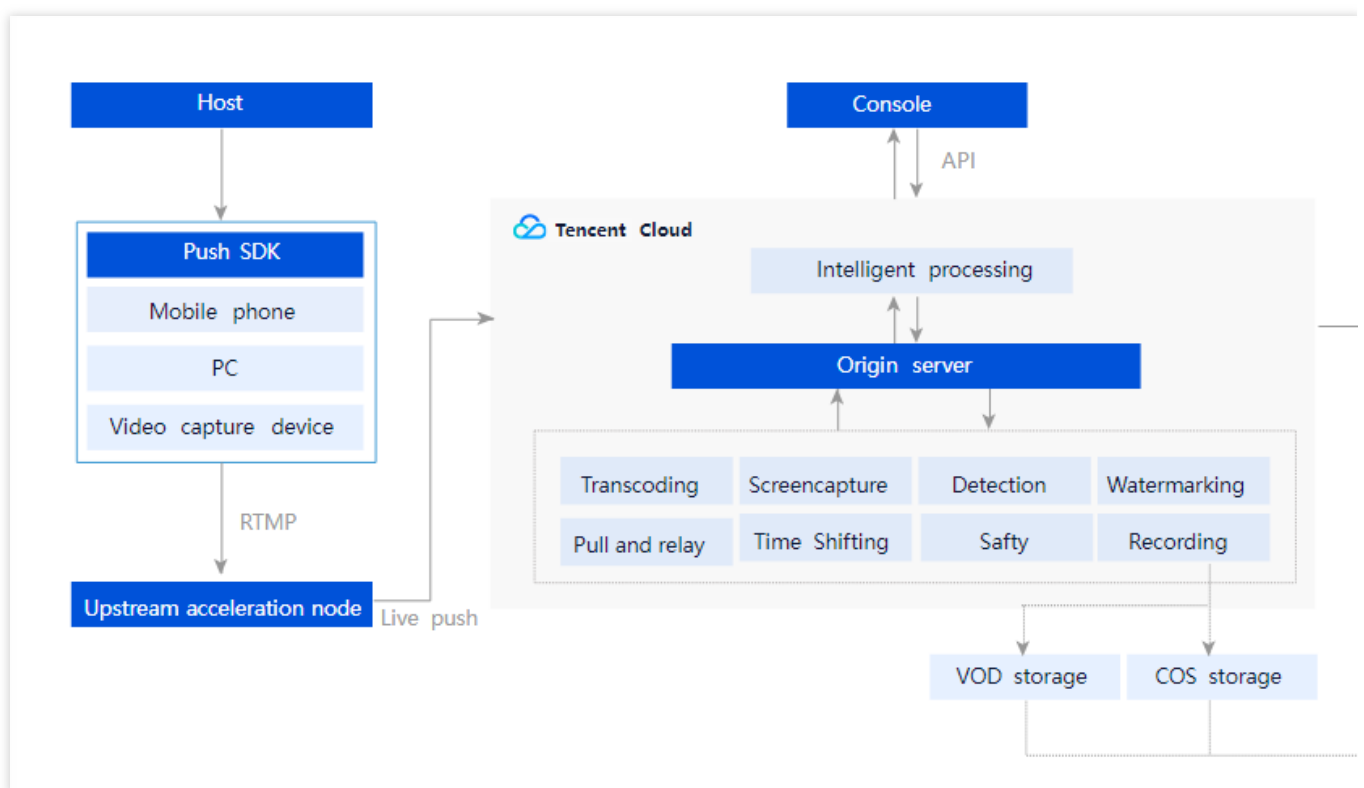
Last updated : 2023-10-30 11:20:43

Leveraging Tencent's suite of audio/video media platforms, global network of cache nodes, and leading AI technologies in audio and video, Live Video Broadcasting (LVB) delivers Tencent's core live streaming capabilities to users. With professional, stable, and agile features such as live push, transcoding, distribution, and playback, LVB meets virtually all requirements for ultra-low latency, ultra-high image quality, and ultra-high performance while sustaining huge volumes of concurrent requests.

### Note

You can use LVB after you activate the CSS service. For more information, see [LVB - Getting Started](#).

## Product Architecture



## Features

## Full suite of features

LVB supports RTMP push, HLS origin servers, and other live streaming sources. It provides a multi-platform live streaming SDK and supports adaptive bitrate streaming, beauty filters, audio processing, instant streaming, stutter reduction, screen recording, and seamless definition switching. Playback is supported on all platforms, and you can also customize your own player.

## Global acceleration

Tencent Cloud has over 2,000 CDN cache nodes across all regions of the Chinese mainland, covering not only major internet service providers, but also over a dozen small- and medium-sized ISPs. Outside the mainland, it operates more than 800 cache nodes in over 70 countries and regions across North America, Europe, and Southeast Asia.

## Professional video processing

LVB provides cloud-based transcoding and processing services that can handle vast amounts of multimedia data. It can transcode audio and video files to different formats suitable for OTT services or playback on PC and mobile devices. It also offers features such as thumbnail generating, editing, content moderation, and encryption.

## Security safeguarding and hotlink protection

LVB provides all-round protection to prevent unauthorized playback of your videos, including IP blocklists, referrer blocklists, secure HTTPS acceleration, URL encryption, and other live streaming encryption technologies. It also offers a professional digital rights management (DRM) solution to safeguard your video assets.

## Intelligent learning

With powerful AI-based recognition technology, LVB can learn and analyze the content of images or videos. With this technology, LVB can intelligently automate image recognition, speech recognition, content moderation, subtitling, and other video tasks.

## Statistics analysis

Based on big data analysis covering different scenarios of various industries, LVB enables real-time control of push quality and identification of playback issues. It monitors metrics such as bandwidth, traffic, requests, and concurrent connections in real time and provides detailed statistical results to help you scale your business.

# Pricing

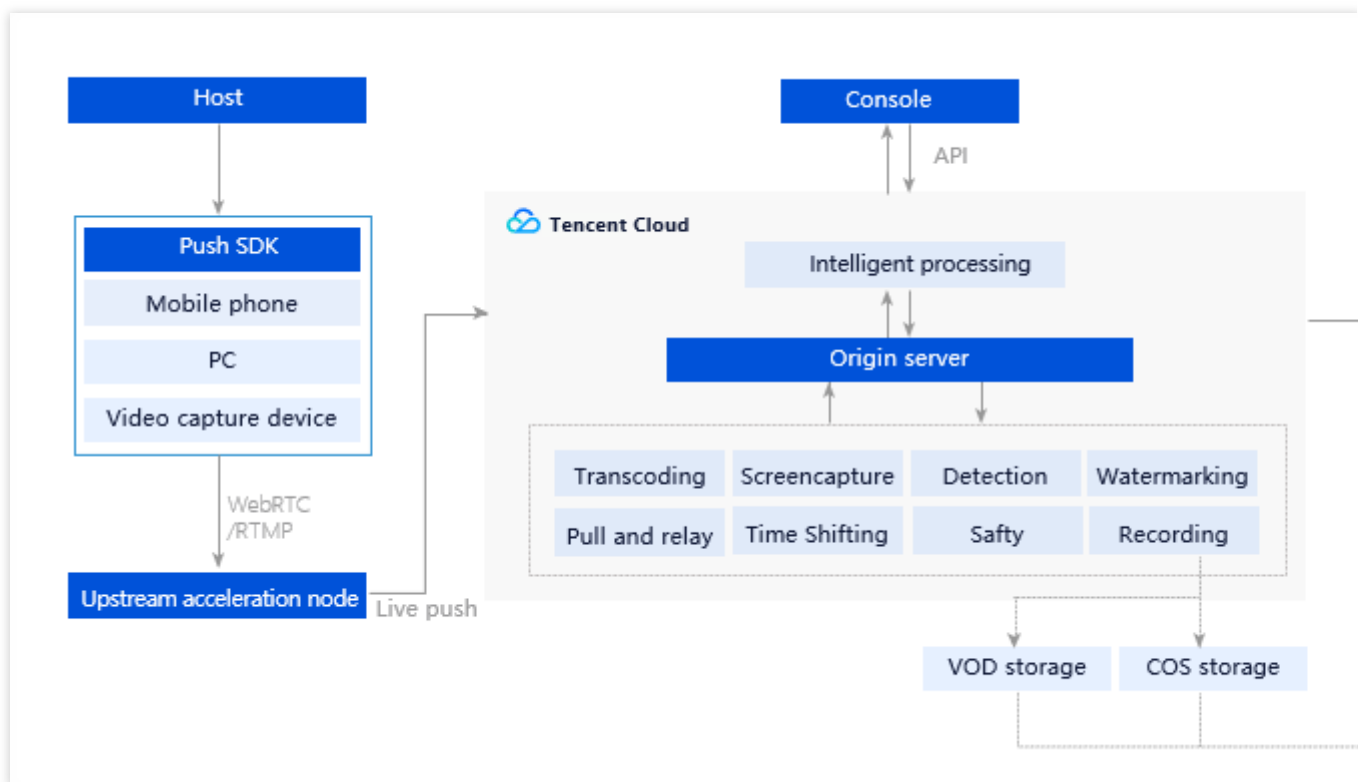
LVB services are billed in daily pay-as-you-go mode based on the traffic/bandwidth consumed for push and playback (upstream and downstream usage). For details, see [Pricing Overview](#).

# LEB

Last updated : 2023-10-30 11:21:26

Live Event Broadcasting (LEB) is the ultra-low-latency version of CSS. It delivers superior playback experience with millisecond latency, making it well suited for scenarios with high latency requirements, such as online education, sports streaming, and online quizzes.

## Product Architecture



## Features

### Playback with millisecond latency

Implementing millisecond-level latency live streaming capabilities in high-concurrency scenarios using the UDP protocol, improving the drawbacks of 3-5 second latency in traditional live streaming, while taking into account core indicators such as instant start and stutter rate, providing users with an ultra-low latency live streaming experience.

### **Various features and smooth migration**

LEB integrates a wide range of LVB features including live push, transcoding, recording, screencapture, porn detection, and playback. It also allows smooth migration from LVB.

### **User-friendly, secure, and reliable**

You can easily integrate LEB as it uses standard protocols. You can use it for playback on Chrome and Safari without installing any plugins. Moreover, its protocols encrypt streams by default for improved security and reliability.

## Pricing

LEB billable items include basic services and value-added services. Basic services are billed by upstream and downstream traffic/bandwidth. Value-added services such as live transcoding, recording, screen capture, and porn detection are billed by resource usage. For details, see [Pricing Overview](#).

## Getting Started

For details about how to use the demo and how to integrate LEB, see [Getting Started](#).

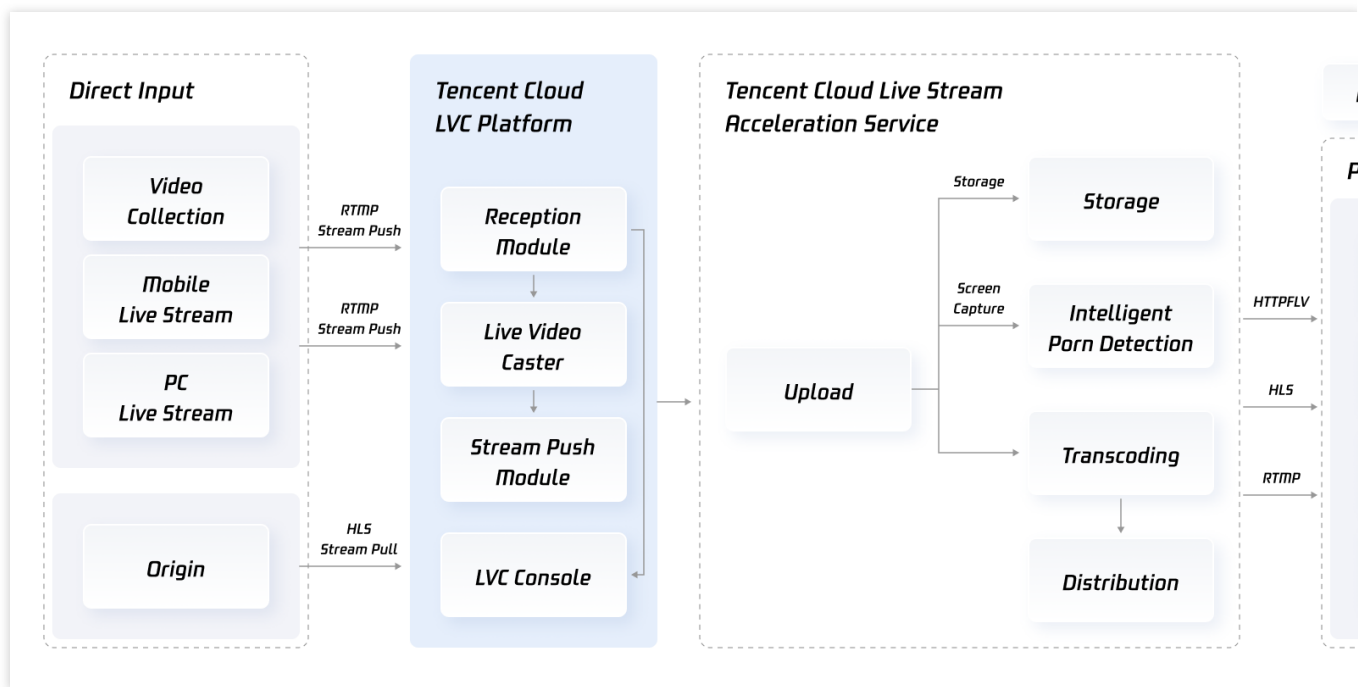


# Live Video Caster

Last updated : 2024-07-29 15:50:49

Live Video Caster (LVC) leverages the powerful live video capabilities of Tencent Cloud to implement cloud stream switching, stream mixing, etc. The LVC supports custom screen layouts, standby mechanisms, synchronized audio and video switching, and so on. It lets you compose live content easily without the cumbersome equipment of traditional studio control rooms, helping you expand your online business presence.

## Product Architecture



## Product Features

Feature	Description
Robust cloud capabilities	Based on the powerful live streaming capabilities of Tencent Cloud, LVC offers convenient and easy-to-use casting services to help you expand your online business scenarios.
Low costs	The LVC solution requires no hardware. The on-demand usage and pay-as-you-go

	billing mode significantly reduce the investment for director equipment.
Standby mechanism	Standby videos and images and other emergency mechanisms allow automatic stream switch in case of stream interruption, ensuring reliable live streaming.
Stream mixing with custom video layout	LVC supports adding over 20 live/on-demand video and image inputs, which can be mixed into 4 streams with a custom layout.
Multi-view live streaming	In scenarios such as e-commerce, online education, game streaming, large conferences, performances, and shows, LVC can switch among streams to achieve multi-view live streaming.
Real-time score display for sports events	With LVC, you can edit text and images online and display them at the specified time, just like those one sees on TV.
Cross-region co-screen live stream	Unlike traditional studio control rooms, LVC doesn't use cables for signal transmission and therefore can merge signals from multiple regions and deliver the mixed signal at low costs.
Seamless switching among promotional videos, commercials, and demonstrations	With LVC's capability to switch seamlessly among streams, you can play intro videos before an event starts and switch to ads or demonstrations any time during a live stream.

## Pricing

Billable items for LVC include charges for output duration and for pushing streams to a third party. Fees are charged in the pay-as-you-go mode. For related billing documents, see [Live Video Caster Pricing Overview](#).

# Concepts

Last updated : 2024-07-30 17:07:34

## Push

Refers to the process in which the host pushes local video and audio sources to Tencent Video Cloud servers. It is also known as "RTMP push" in some cases.

## Playback

Refers to live playback in which the source video and audio are pulled from the Tencent Video Cloud servers and played back at the specified address after live push is implemented. The video source is generated in real time. It is only meaningful if someone pushes a live stream. Once the host stops streaming, the live streaming URL will become invalid, and since the live streams are played back in real time, no progress bar will be displayed on the player during the playback.

## Push domain name

The domain name used to push live streams, which is a required setting. You must register the domain name before you can use it for live streaming. After a push domain name is configured, CSS will generate the corresponding push URL. For details, see [Splicing Live Stream URLs](#).

## Playback domain name

The domain name used to play back live streams, which is a required setting. You must register the domain name before you can use it for live streaming. After a playback domain name is configured, CSS will generate the corresponding playback URL. For details, see [Splicing Live Stream URLs](#).

## Domain CNAME

A domain name that is suffixed with `.liveplay.myqcloud.com` and is assigned by the system to the acceleration domain name configured in the CSS console. You need to configure a CNAME record with your domain name service provider. After the record takes effect, CSS will be responsible for the domain name resolution, and all requests made to this domain name will be forwarded to the edge servers of CSS.

## StreamName

The ID of a stream. `StreamName` and the domain name together are used to uniquely identify a stream.

## AppName

The live streaming application name used to identify the storage path of a live streaming media file. The application name is `live` by default and is customizable.

## Transcoding

Transcoding is an offline task that converts one video bitstream into another. It changes the codec, resolution, bitrate, and other parameters of the bitstream for playback on different devices in varying network environments. This feature can achieve the following:

**Increase compatibility:** Transcode a source video to formats that are compatible with multiple types of devices for smooth playback.

**Increase bandwidth adaptability:** Transcode a source video to outputs in Smooth, SD, HD, and UHD. End users can select the bitrates as needed for their network conditions.

**Reduce bandwidth usage:** Use advanced codecs for transcoding to substantially reduce the bitrate of a video with the original quality retained, thus lowering the playback bandwidth usage.

### H.264

A codec standard for highly-compressed digital video. H.264 is developed by ITU-T Video Coding Experts Group (VCEG) and ISO/IEC Moving Picture Experts Group (MPEG). It has the following advantages in transcoding:

It allows SD digital image (at a resolution below 1280 x 720) to transfer at a speed below 1 Mbps.

It delivers better image quality than other video codecs under the same bandwidth.

### H.265

H.265 is optimized based on the H.264 video codec while still having some of the same features as H.264. It has the following advantages in transcoding:

It allows general HD audio/video (720p at a resolution of 1280 x 720) to be transferred at 1-2 Mbps.

It achieves the optimal balance between the bitstream, encoding quality, latency, and algorithm complexity.

## Event message notification

When an event notification is triggered during a live push, Tencent Cloud sends the request to your server according to the configured message template, and your server authenticates and responds to the request. For more information on the response protocol, please see [Event Message Notification Protocol](#). After the authentication is passed, your server will obtain a JSON packet containing the callback information to parse and record.

## Referer

The `txSecret` field in the push and playback URLs. Referer is used to prevent attackers from forging your backend to generate push URLs and from stealing your playback URLs.

## Live recording

During the push, video files generated by muxing original streams (without modifying information such as audio and video data and corresponding timestamps) can be stored on the VOD platform. To use this feature, you need to activate [VOD](#) first.

## Watermark

To avoid your video copyright from being infringed during live push, you can add a watermark to the video stream during transcoding. The watermark can be either text or an image.

## Screencapture

This feature captures video images of pushed live streams at specified intervals and then stores generated image files in COS. To enable screencapture, you must first grant CSS the permission to write to your COS bucket. For more information, see [Authorizing CSS to Store Screenshots in a COS Bucket](#).

## 95th percentile bandwidth

During the billing period, the peak bandwidth every 5 minutes is taken as a sample point. All sample points of the current month are sorted in descending order, and the top 5% are removed. The highest value of the remaining sample points is used as the 95th percentile of the monthly peak bandwidth.

# Features

Last updated : 2023-03-29 14:46:38

This document provides a list of what you can do with CSS. You can find more information about each feature by reading their documents.

## Push

Feature	Description
<a href="#">Push protocol support</a>	Supports push over RTMP and WebRTC.
<a href="#">Push tool support</a>	Supports Tencent Cloud's MLVB SDK (which comes in iOS, Android, and web editions) or third-party streaming software such as OBS, XSplit, and FMLE.
Push device support	Supports common third-party RTMP streaming devices, encoders, and set-top boxes.

## Playback

Feature	Description
<a href="#">Playback protocol support</a>	Supports playback over RTMP, FLV, HLS, and UDP.
<a href="#">Playback tool support</a>	Supports Tencent Cloud's MLVB SDK (which comes in iOS, Android, and web editions) or third-party FLV, RTMP, or HLS players.
Playback control	Plays the original stream or a stream transcoded in real time.

## Live Streaming Management

Feature	Description
Management	Manages live streams graphically in the console or using APIs.

## CSS console

Section	Description

Overview	Displays data such as traffic package usage or real-time bandwidth and traffic usage.
Domain Management	Supports adding, modifying, disabling and deleting push and playback domains, as well as configuring CNAME, HTTPS certificates, and push and playback authentication.
Stream Management	Supports querying live streams in real time as well as querying historical streams.
Scenario-Specific Services	Supports viewing and modifying recording, transcoding, screencapturing, porn detection, watermarking, and callback configurations.
Data Center	Supports querying usage statistics including bandwidth, traffic, requests, concurrent connections, screenshots, push channels, and recording channels.

## Security

Feature	Description
Push authentication	Generates hotlink protection push URLs (you can use your own key and specify the expiration time).
Playback authentication	Generates hotlink protection playback URLs using IP allowlist/blocklist or the referer field; supports remote playback authentication.
DRM encryption	Encrypts videos based on DRM schemes including Widevine, FairPlay, or NormalAES to prevent unauthorized recording and hotlinking.

## APIs

API Category	Description
Domain management APIs	Add, delete, query, enable, and disable push and playback domains, as well as modify playback domains.
Delayed Playback management APIs	Delay playback, query delayed playbacks, and resume real-time playback.
Recording management APIs	Create, delete, and end recording tasks, create, delete, query, and modify recording templates, as well as create, delete, and query recording rules.
Screencapturing	Create, delete, and query recording rules, as well as create, delete, query, and modify

<a href="#">and Porn Detection APIs</a>	recording templates.
<a href="#">Watermark management APIs</a>	Add, delete, query, and modify watermarks, as well as create, delete, and query watermark rules.
<a href="#">Live callback APIs</a>	Create, delete, and query callback rules, as well as create, delete, query, and modify callback templates.
<a href="#">Stream pulling APIs</a>	Add, delete, query, and modify pull configurations.
<a href="#">Live stream management API</a>	Query disabled, ongoing, and historical streams, query push interruptions and stream status, stop streams, block streams, and resume streams.
<a href="#">Live transcoding APIs</a>	Create, delete, and query transcoding rules, as well as create, delete, query, and modify transcoding templates.
<a href="#">Billing data query APIs</a>	Query billable bandwidth and traffic usage, query playback data by region and ISP, query HTTP status codes for playback requests, query domain-level playback data in real time, and query packages.
<a href="#">Certificate management APIs</a>	Add, delete, bind, unbind, and query certificates, as well as query and change the domains bound with a certificate.
<a href="#">Authentication management APIs</a>	Query and modify authentication keys for playback and push.
<a href="#">Time shifting APIs</a>	Create, delete, query, and modify time shifting templates, create, delete, and query time shifting rules, as well as query time-shifted streams.
<a href="#">Live stream mix APIs</a>	Mix streams and cancel stream mixing.

## Value-added services

Feature	Description
<a href="#">Live transcoding</a>	Transcodes a stream into different specifications.
<a href="#">Live recording</a>	Records live streams (by calling an API) and saves the recording files to Tencent Cloud VOD or COS.



Live screencapturing	Takes screenshots of a live stream (by calling an API) and saves them to Tencent Cloud VOD or COS.
Porn detection	Recognizes pornographic content in live streams.
RTC-based communication	Supports communication among participants with ultra-low latency (powered by Tencent Cloud TRTC).
Time shifting (new)	Plays ongoing streams from earlier time points.
Standby stream	Shows a video or image that becomes active automatically when a live stream is interrupted (CSS will automatically switch back to the primary stream after it is recovered).

## SDKs

SDK	Description
MLVB SDK	Offers capabilities including stream pushing, basic beautification, filters, playback, and time shifting.
Tencent Effect SDK	Offers capabilities including filters, beautification, stickers, and gesture recognition for different shooting scenarios (the SDK is a video processing solution developed jointly by Tencent Cloud, Pitu, and YouTu).

# Use Cases

Last updated : 2024-07-30 17:07:34

## Live Show Streaming

By combining the MLVB SDK and room management capabilities of IM, CSS provides features including instant streaming, color filters, and mic connect, which are ideal for live shows. Its out-of-the-box ease of use helps you easily boost the buzz around live shows.

## Video Surveillance

CSS allows you to upload massive volumes of video content. It also provides live recording, transcoding, time shifting, and other features which meet the requirements of a wide range of security and video surveillance scenarios.



## Online Education

You can use the Tencent Cloud console or APIs to upload or download videos for remote teaching, which are protected by player passwords and dynamic hotlink protection. In addition, the ultra-low latency LEB offers the capability of real-time mic connect.

## Live Shopping

CSS helps ecommerce platforms grow by enabling merchants to display items with more details and assisting consumers in making informed decisions, which helps to reduce marketing costs and boosts sales.

# Strengths

Last updated : 2022-05-11 17:57:33

## End-to-End Device Support

CSS supports RTMP push, HLS origin server, and other methods for live streaming source access. RTMP push SDKs are provided to enable custom development for different devices in different scenarios.

## Video Use Cases

CSS supports live streaming with high numbers of concurrent access requests requiring ultra-low latency and ultra-high image quality, helping satisfy your diverse live streaming needs.

- CSS covers all live streaming uses cases and provides live streaming solutions for various industries such as gaming, sports, ecommerce, media, and education.
- For different live streaming scenarios such as high-concurrency playback and push and ultra-low latency, CSS provides different tailor-made solutions for specific use cases, which ensures a higher cost performance.

## Global Distribution

With over 2,000 cache nodes deployed globally, CSS can ensure high service availability and media transfer speed even during peak hours with high concurrency.

## Video Data Analysis

By collecting data such as live streaming traffic consumption, requests, and concurrency in real time, CSS controls push quality and identifies playback issues with ease. It provides detailed statistical results to help you expand your business rapidly.

## Video AI Empowerment

With Tencent Cloud's video AI recognition technology, CSS can effectively identify live streaming content and give you access to advanced features such as intelligent porn detection and subtitling based on machine learning and image analysis.

## Content Security

With hotlink protection, URL authentication, IP blocklists/allowlists, and HTTPS-based secure acceleration, CSS can protect your videos to help eliminate piracy. It also features a more specialized digital rights management (DRM) solution to fully protect the security of your video assets.

## Video Ecosystem

When used with MLVB SDK, IM, VOD, and Tencent YouTu, CSS supports customized development and allows you to implement various features such as MLVB mic connect, CSS recording, beauty filters, and CSS screen sharing.

# Use Limits

Last updated : 2024-03-14 14:27:50

Before using CSS, you need to know the following use limits:

Item	Description
CSS domain name	<p>Multiple playback and push domain names can be created under an account. If the acceleration region of a domain name is the Chinese mainland or global, the domain name must have an ICP filing from MIIT, and the filing information must be currently valid and available.</p> <p>You can manage up to 100 domain names under one account by default. If your business scale is large, you can <a href="#">submit a ticket</a> to apply for increasing the maximum number of domain names.</p> <p>We recommend you keep the length of a domain name no more than 45 characters. If you want a longer domain name, you need to <a href="#">submit a ticket</a> for assistance.</p> <p>A domain name managed by CSS can be used to push or play back live streams normally only after the domain name is resolved. For more information, see <a href="#">Configuring CNAME for Domain Name</a>.</p>
Live push	<p>The CSS service does not limit the push bitrate and supports common resolutions and corresponding bitrates.</p> <p>To avoid push lag, we recommend you keep the bitrate below 4 Mbps.</p> <p>The length limit for StreamName is 255 characters.</p>
Live playback	<p>A stream can be played back only when the `StreamName` of the playback address is the same as that of the push address.</p> <p>The default bandwidth limit is 20Gbps. If there is a need to lift this limit, you can <a href="#">submit a ticket</a> for application.</p> <p>If you need additional support for a large-scale surge in live streaming traffic, you need to <a href="#">submit a ticket</a> or contact your Tencent Cloud rep three business days in advance for assistance. Such surges mainly include the following two types:</p> <p>The sudden daily peak bandwidth exceeds 200 Gbps, and the surge is 200% of the daily peak.</p> <p>The sudden daily peak bandwidth exceeds 500 Gbps.</p>
Template configuration	<p>After a template is successfully bound, it takes 5–10 minutes for it to take effect.</p>
Daily billing mode switch	<p>You can select bill-by-traffic or bill-by-bandwidth for daily billing. You can switch the billing mode only once per day, and the switch will take effect on the next day.</p>
Supported push protocols	<p>CSS supports the RTMP and SRT protocols. For more information, see <a href="#">Live Streaming Basics</a>.</p> <p>When using the WebRTC protocol for push streaming, each push domain has a default limit of 1,000 concurrent streams.</p>

Supported playback protocols	Standard Live Video Broadcasting (LVB) supports the RTMP, FLV, and HLS playback protocols. For more information, see <a href="#">Live Streaming Basics</a> . Live Event Broadcasting (LEB) supports the WebRTC playback protocol.
Relay	<p>A maximum of 200 relay tasks can be created. If your relay business requires a larger number of tasks, please contact us by <a href="#">submit a ticket</a>, or contact your account manager for assistance.</p> <p>The relay feature only provides content pulling and pushing services. Please ensure that the content is authorized and complies with relevant laws and regulations regarding content distribution. If there are copyright issues or content violations, CSS will stop the related services and reserve the right to pursue legal responsibilities.</p> <p>To use the relay recording function, you can bind it with the CSS recording template, which will incur <a href="#">recording fees</a>. The recording template bound to the relay task only supports templates that record the original stream. To modify the recording template during the ongoing pull task, you need to stop the current pull task for 30 seconds, then restart the pull task for the new recording template to take effect.</p>