

# Alibaba Cloud CDN

## Product Introduction

Issue: 20191029

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# Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type.
<b>Bold</b>	<b>Bold formatting is used for buttons, menus, page names, and other UI elements.</b>	Click <b>OK</b> .
Courier font	<b>Courier font is used for commands.</b>	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	<b>Italic formatting is used for parameters and variables.</b>	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	<b>This format is used for an optional value, where only one item can be selected.</b>	<code>ipconfig [-all -t]</code>

Style	Description	Example
<b>{}</b> or <b>{a b}</b>	<b>This format is used for a required value, where only one item can be selected.</b>	switch { <i>active</i>   <i>stand</i> }



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# 1 What is Alibaba Cloud CDN?

Alibaba Cloud Content Delivery Network (CDN) is a distributed network built over the transport network and contains edge node clusters deployed in different regions. CDN offloads traffic from origins to prevent network congestion. You can use CDN to accelerate website content delivery in different regions or scenarios.

Alibaba Cloud CDN ingests resources from origins and caches them on CDN nodes deployed across the world. When a user sends a resource request, the system does not need to forward the request back to the origin. Instead, the system automatically retrieves the resources cached on the CDN node closest to the user and returns them to the user. For information about how to connect to Alibaba Cloud CDN, see [Quick start](#).

Currently, some CDN nodes can be accessed through IPv6.

CDN data transfer plans released

Alibaba Cloud CDN supports data transfer plans. For more information, see [CDN Data Transfer Plan](#).



How to use Alibaba Cloud CDN

The following table lists the documents that can help you learn the features of Alibaba Cloud CDN.

Reference	Description
<a href="#">Terms</a>	Provides terms related to Alibaba Cloud CDN.
<a href="#">CDN Learning Path</a>	Helps you quickly get started with Alibaba Cloud CDN.
<a href="#">API Reference</a>	Describes the API operations that you can call to implement Alibaba Cloud CDN features.

## Pricing

The basic services and value-added services of CDN are charged using different billing methods.

- For information about the supported billing methods for basic services, see [#unique\\_6](#).
- For information about the supported billing methods for value-added services, see [#unique\\_7](#).

For more information about CDN pricing, see [CDN pricing details](#).

## Related products

This section describes the CDN-related products to help you understand the position and use of Alibaba Cloud CDN among other Alibaba Cloud products.

Related product	Description
<a href="#">Object Storage Service (OSS)</a>	You can integrate CDN with OSS to accelerate websites and reduce the Internet traffic fees incurred by retrieving data from OSS.
<a href="#">ApsaraVideo Live</a>	You can integrate CDN with ApsaraVideo Live to achieve media feed storage, video segmentation and transcoding, access authentication, and content delivery acceleration.
<a href="#">Alibaba Cloud DNS</a>	You can use the powerful and stable DNS query distribution capability provided by Alibaba Cloud DNS to ensure fast and stable resource access.
<a href="#">Elastic Compute Service (ECS)</a>	You can use ECS to improve website availability, protect origin information, and minimize the bandwidth usage costs.
<a href="#">Server Load Balancer (SLB)</a>	You can set the IP address of an SLB instance as the origin address to minimize the bandwidth required for forwarding requests back to the origin.

## 2 Why choose Alibaba Cloud CDN?

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**This topic describes the major performance indicators that are used to evaluate the performance of content delivery before and after a website is connected to Alibaba Cloud CDN. This topic also describes the benefits of Alibaba Cloud CDN.**

**Using Alibaba Cloud CDN can offload the workloads on origins and accelerate content delivery. The performance indicators that are used to evaluate the performance of content delivery include common indicators and scenario-specific indicators. By referencing these indicators, you can learn how Alibaba Cloud CDN accelerates content delivery and how Alibaba Cloud CDN is applied to your services . This helps you make adjustments and business decisions.**

Common performance indicators

**You can use the following indicators to measure the performance of your website before and after the website is connected to Alibaba Cloud CDN. The indicators include but are not limited to the following:**

- **Latency:** shows the total amount of time it takes for a server to receive a request from a client and then return a response to the client. The lower the latency, the higher the performance.
- **Downloading speed:** data transmission rate, which shows how quickly a client can download data from a server. The higher the downloading speed, the higher the performance.
- **Website content loading speed:** shows how quickly a Web page can be loaded. The faster the loading speed, the higher the performance.
- **Packet loss rate:** shows the number of packets lost during data transmission to the total number of packets.
- **Back-to-origin rate:** includes the back-to-origin request rate and back-to-origin data transfer rate.
  - **Back-to-origin request rate:** shows the number of requests forwarded back to the origin to the total number of requests. Edge nodes forward requests back to the origin when the requested content is not found, has expired, or cannot be cached. The lower the rate, the higher the performance.
  - **Back-to-origin data transfer rate:** shows the amount of data forwarded back to the origin to the total amount of request data. The following formula is used

to calculate this rate:  $\text{Back-to-origin data transfer rate} = \frac{\text{Amount of back-to-origin data}}{\text{Amount of user request data}}$ . The lower the rate, the higher the performance.

- **Cache hit rate:** shows the number of times that the content on a cache node is hit to the total number of visits made by a client to the cache node. The higher the cache hit rate, the higher the performance.



**Note:**

The back-to-origin rate and cache hit rate are indicators used to measure the performance of your website after the website is connected to Alibaba Cloud CDN. If you have not connected your website to Alibaba Cloud CDN, the back-to-origin request rate is 100% and the cache hit rate is 0.

Typically, after you connect your website to Alibaba Cloud CDN, the network latency, packet loss rate, and back-to-origin rate all go down. The download speed, website content loading speed, and cache hit rate rise up. The actual performance of the content delivery acceleration service provided by Alibaba Cloud CDN may vary depending on the scenario and type of your businesses. Therefore, we only provide these common indicators for you to measure the performance of your website.

Alibaba Cloud CDN also provides multiple performance indicators for different scenarios. You can use the following indicators to measure the performance of your website in a specific scenario:

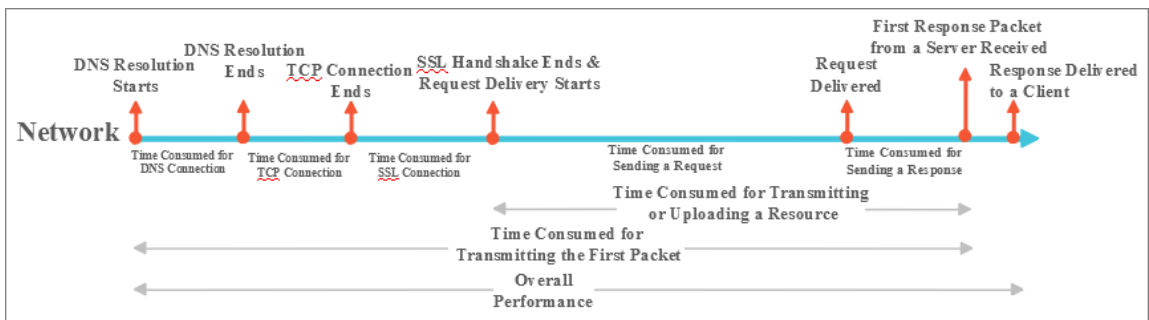
- *Small file downloading and uploading indicators*
- *Large file downloading indicators*
- *VOD service indicators*
- *Live streaming service indicators*

#### Small file downloading and uploading indicators

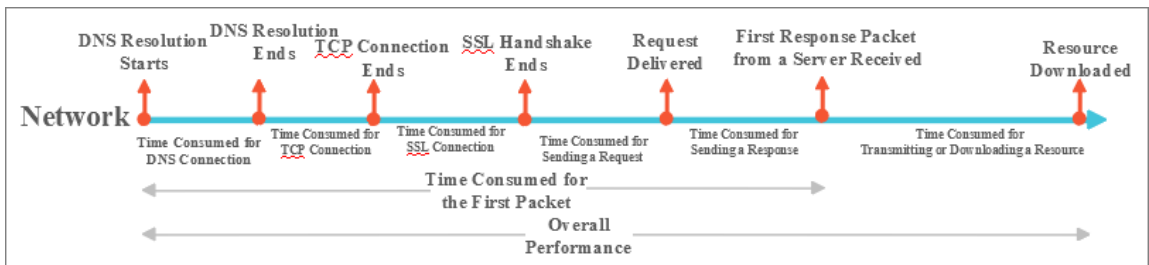
**Small files refer to HTML, JS, JPG, and CSS Web content. The delivery of these types of content requires extremely low latency. It is difficult for slow-loading websites to retain users and this may cause great loss in sales.**

The indicators that are used to measure the content loading latency include connection time, time to first byte (TTFB), and downloading time. Among these indicators, TTFB is the core indicator.

- **Connection time:** shows the amount of time that it takes to establish a TCP connection to the resolved IP address. The connection time can help you learn the number of available CDN nodes and their capabilities for content delivery.
- **TTFB:** shows the total amount of time that it takes for a server to receive the first request sent from a client and then return a response to the client. This indicator is used to measure the performance of the algorithms and applications that CDN nodes use.
- For content uploading, TTFB includes the DNS resolution time, TCP connection time, SSL handshake time, request delivery time, and response reception time.



- For content downloading, TTFB includes DNS resolution time, TCP connection time, SSL handshake time, request delivery time, response reception time, and downloading time.



**Note:**

A newly purchased domain may cost longer time than other domains in DNS resolution. This is irrelevant to the cache retrieval time.

Alibaba Cloud CDN provides a configuration guide for accelerating small file delivery. For more information, see [Images and small files](#).

### Large file downloading indicators

**A large file is a file that is larger than 20 MB. Downloading speed and total downloading time are the core indicators used to measure the performance of large file downloading.**

**Alibaba Cloud CDN provides a configuration guide for accelerating large file downloading. For more information, see [Large file download](#).**

### VOD service indicators

**The types of media files used in video on-demand (VOD) services include FLV, MP4, WMV, and MKV files. Initial loading and stalling rate are the core indicators used to measure the performance of VOD services.**

- **Initial loading:** shows the total amount of time that it takes to complete loading the first frame of a stream. The DNS resolution time, connection time, and TTFB all have impacts on initial loading.
- **Stalling rate:** stalling events may occur when a video or audio stream is played or a resource is loaded. The stalling rate refers to the rate of reviewers that have stalling events among every 100 reviewers. The lower the stalling rate, the higher the performance.

**Alibaba Cloud CDN provides a configuration guide for accelerating VOD services. For more information, see [VOD](#).**

### Live streaming service indicators

**Same as VOD services, the core indicators used to measure the performance of live streaming services are initial loading and stalling rate. For more information, see [#unique\\_15](#).**

### Benefits of Alibaba Cloud CDN

**Alibaba Cloud CDN has more than 2,800 nodes deployed across the world. The throughput of the entire content delivery network is up to 130 Tbit/s. Alibaba Cloud CDN is fast, stable, cost-effective, and easy-to-use. For more information, see [Benefits](#).**

## 3 Nodes

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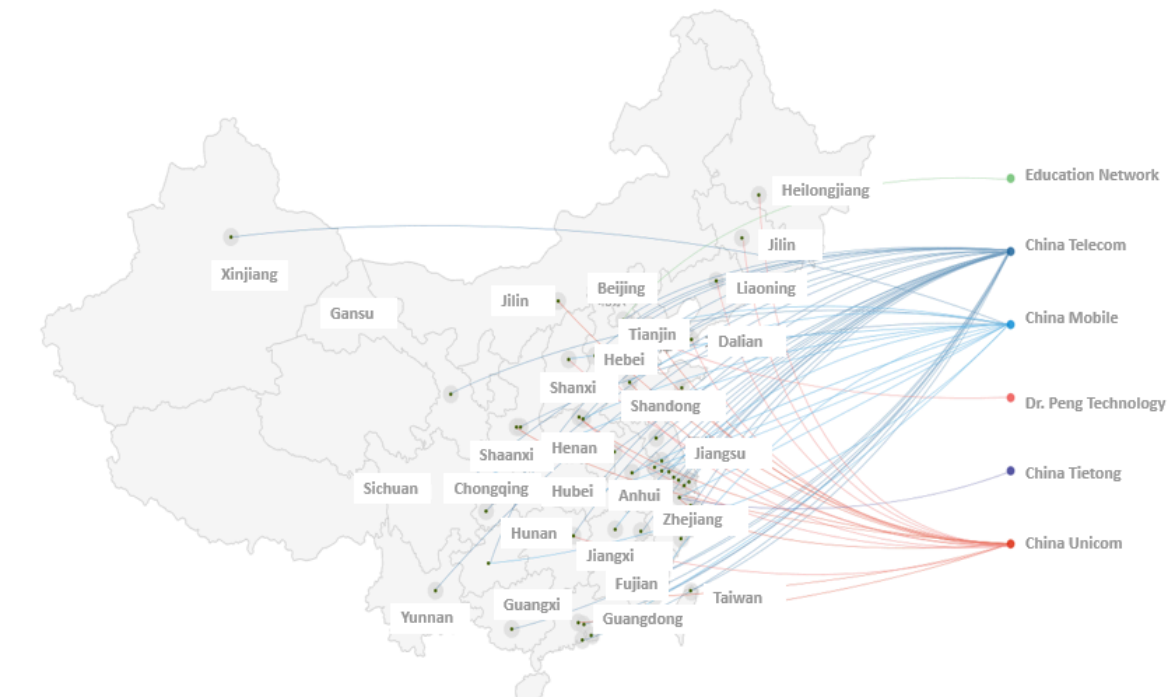
Alibaba Cloud has over 2,800 nodes worldwide. More than 2,300 nodes are deployed in Mainland China, covering 34 provincial regions. A large number of nodes are deployed in first-tier cities such as provincial capitals. More than 500 nodes are deployed across 70 countries and regions outside Mainland China, including China (Hong Kong), China (Macao), and China (Taiwan).

Alibaba Cloud CDN supports a total of 130 Tbit/s reservable bandwidth. Each node supports 10 Gbit/s optical NICs, 40 TB to 1.5 PB storage, and 40 Gbit/s to 200 Gbit/s operational bandwidth.

The widely distributed high-performance CDN nodes help to accelerate data transmission and cope with emergencies.

Geographical distribution

- Nodes in Mainland China



- Nodes outside Mainland China, including China (Hong Kong), China (Macao), and China (Taiwan)





## 4 Benefits

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**This topic describes the benefits of Alibaba Cloud CDN.**

### Stability and high speed

- **Advanced distributed system architecture:** covers six continents by providing over 2300 nodes in Mainland China and over 500 nodes outside Mainland China including China (Hong Kong), China (Macao), and China (Taiwan). Alibaba Cloud CDN provides the largest number of nodes in Mainland China among all CDN providers.
- **Adequate bandwidth and storage resources:** more than 40 Gbit/s of bandwidth per node and 130 Tbit/s of total bandwidth.
- **Stable and efficient performance indicators:** greater than 95% hit rate and video fluency rate, and millisecond-level response time.
- **Comprehensive monitoring and service systems:** 24/7 network-wide monitoring, and intelligent monitoring and scheduling based on service quality.

### Cost-effectiveness

- **Resources can be elastically expanded and paid based on actual usage.** You can achieve network-wide coverage across providers and regions.
- **Alibaba Cloud CDN provides two billing methods:** Pay by Traffic and Pay by Bandwidth to meet different business requirements. Both methods use a pay-as-you-go policy.
- **Alibaba Cloud CDN automatically responds to site traffic spikes and makes adjustments without user intervention,** which effectively relieves pressure on the origin server.

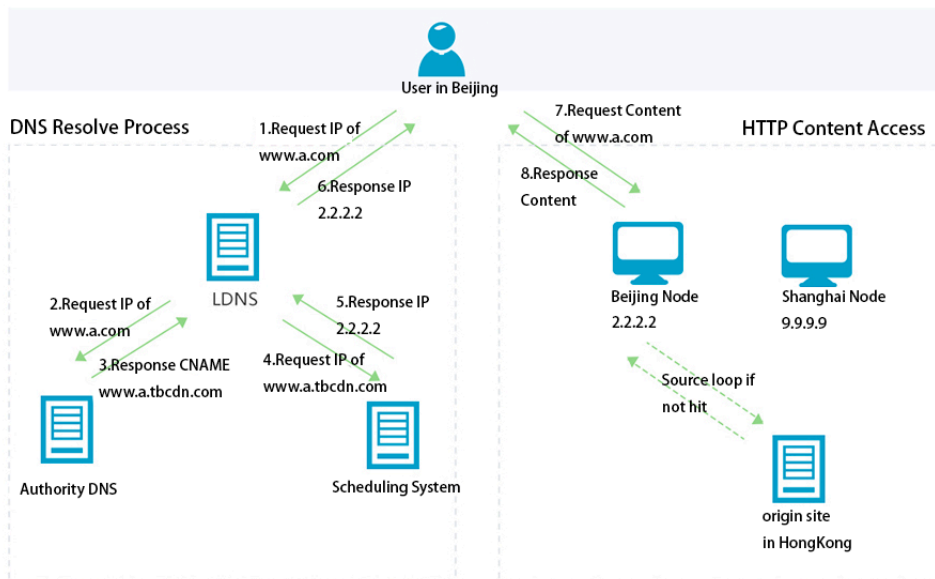
### Ease of use

- **Alibaba Cloud CDN provides a wide range of simple custom configuration options to allow you to add, delete, modify, and query domain names.** CDN also allows you to customize hotlinking protection rules, cache policies, HTTP response headers, and other features.
- **Alibaba Cloud provides a wide array of API operations.** You can call these API operations to use the CDN features including service activation, content refresh, monitoring, and log download and distribution.

## 5 How CDN works

The topic describes how CDN works by using an example.

In this example, your CDN domain is `www.a.com` and you have enabled the CDN domain. The following figure shows how CDN works after receiving an HTTP request from a user in Beijing.



1. Before the user in Beijing sends a request to query a specific resource under `www.a.com`, it first initiates a domain name resolution request to LDNS.
2. LDNS checks whether the cache contains an IP address record corresponding to `www.a.com`. If yes, LDNS directly returns the IP address to the user. If no, LDNS queries the IP address from the authorized DNS.
3. After the authorized DNS resolves `www.a.com`, it returns the IP address of the corresponding CNAME `www.a.tbcdn.com`.
4. LDNS sends the domain name resolution request to the Alibaba Cloud DNS scheduling system. Alibaba Cloud DNS assigns the IP address of the optimal node.
5. LDNS receives the resolved IP address returned by Alibaba Cloud DNS.
6. The user receives the resolved IP address.

**7. The user initiates an access request to the received IP address.**

- **If the CDN node corresponding to the IP address (Beijing node in this example ) has cached the requested resource, the resource is directly returned to the user, as shown in steps 7 and 8 in the figure. The request then ends.**
- **If the CDN node corresponding to the IP address (Beijing node in this example) has not cached the resource, the CDN node requests the resource from the origin server. After the CDN node retrieves the resource, it automatically caches the resource according to the user-defined cache policy and also returns the resource to the user, as shown in the figure. The request then ends. For more information about how to configure a cache policy, see [Configure caching](#).**

## 6 Scenarios

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### 6.1 CDN application overview

This topic describes the application scenarios of Alibaba Cloud CDN.

CDN application scenarios consist of static content acceleration, dynamic content acceleration, and secure content delivery. Alibaba Cloud CDN serves to accelerate the distribution of static content.

The following table describes CDN application scenarios.

Service	Scenario
<i>Images and small files</i>	Your websites or applications mostly host images and small files in such formats as HTML, CSS, and JavaScript.
<i>Large file download</i>	Your websites or applications mostly host large files greater than 20 MB, such as gaming apps, client apps, or app stores.
<i>VOD</i>	Your websites or applications mostly host VOD or short videos in formats such as MP4 and FLV.
<i>Live Streaming</i>	Your websites or applications mostly host live streams.

### 6.2 Images and small files

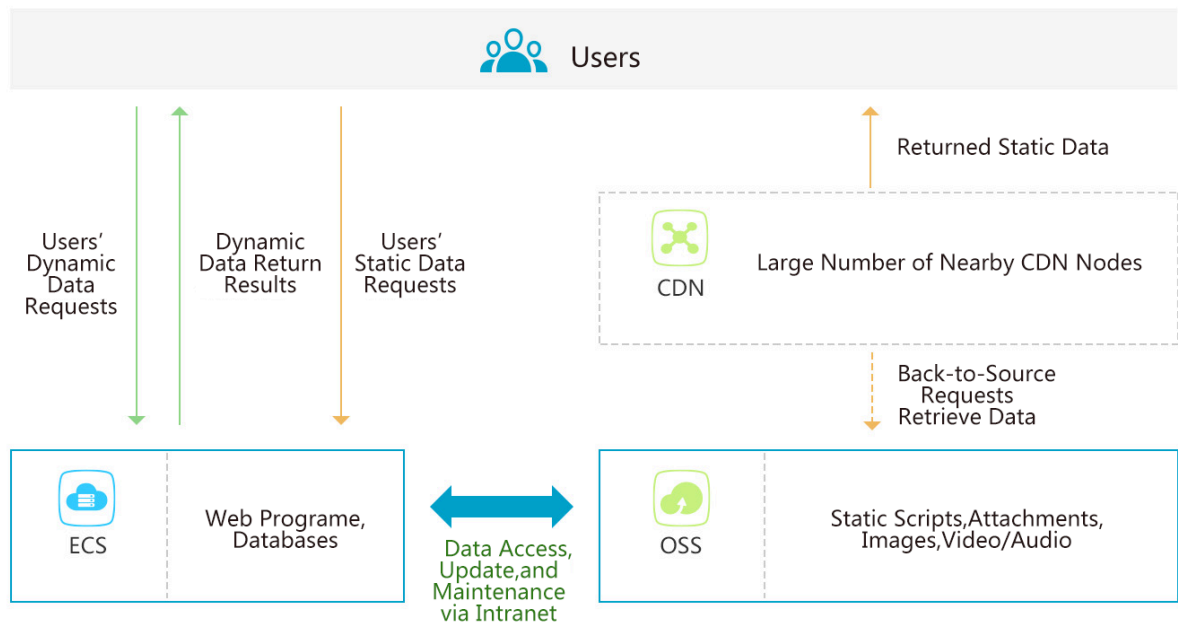
If your business requires the distribution of small static web pages or application files, such as images and files in such formats as HTML, Flash, CSS, and JavaScript, you can use CDN to accelerate the distribution of images and small files.

#### Scenarios

The Images and Small Files function is suitable for accelerating the distribution of large numbers of static resources on websites or applications, such as Web portals, e-commerce websites, news websites and apps, and gaming and other entertainment websites. You can separate static and dynamic content. We recommend that you use CDN to accelerate the distribution of static content, such as images and small

CSS and JavaScript files. We recommend that you use CDN together with OSS to accelerate resource loading, and improve the efficiency of distributing images and short videos on websites.

The following figure shows typical application scenarios of image and small file distribution.



Challenges that the Images and Small Files function can solve

- **Websites respond slowly because they contain a large number of small files.**
- **The access speeds and output quality of media files on websites differ across regions.**
- **During high concurrency of promotions, origin servers are more likely to break down due to heavy traffic and services become unavailable.**
- **Images cannot be compressed or optimized to fit the requirements of the destination client.**

Required Alibaba Cloud products and functions

The following table describes Alibaba Cloud products and functions required for the distribution of images and small files.

Product or function	Description
<i>Nodes</i>	Alibaba Cloud CDN has more than 2,000 nodes in Mainland China, and over 500 nodes spread outside Mainland China, including China (Hong Kong), China (Macao), China (Taiwan), and overseas. The nodes provide up to 120 Tbit/s bandwidth, and serve all major carriers in China and six continents.
<b>Intelligent scheduling</b>	An advanced distributed system schedules traffic in all regions and responds to requests within milliseconds.
<b>Elastic capacity expansion</b>	Each node responds to and adjusts traffic to prevent origin servers from overloading. Using the pay-as-you-go billing method helps to increase cost-effectiveness of services in the cloud.
<i>Intelligent compression</i>	Images in various formats and resolutions are compressed to fit a wide range of clients, improving overall performance while maintaining the image quality.

Related operations

Before adding an accelerated domain name in the CDN console and selecting a service type, you need to learn about the application scenarios of different service types. For more information about specific operations, see [#unique\\_24](#).

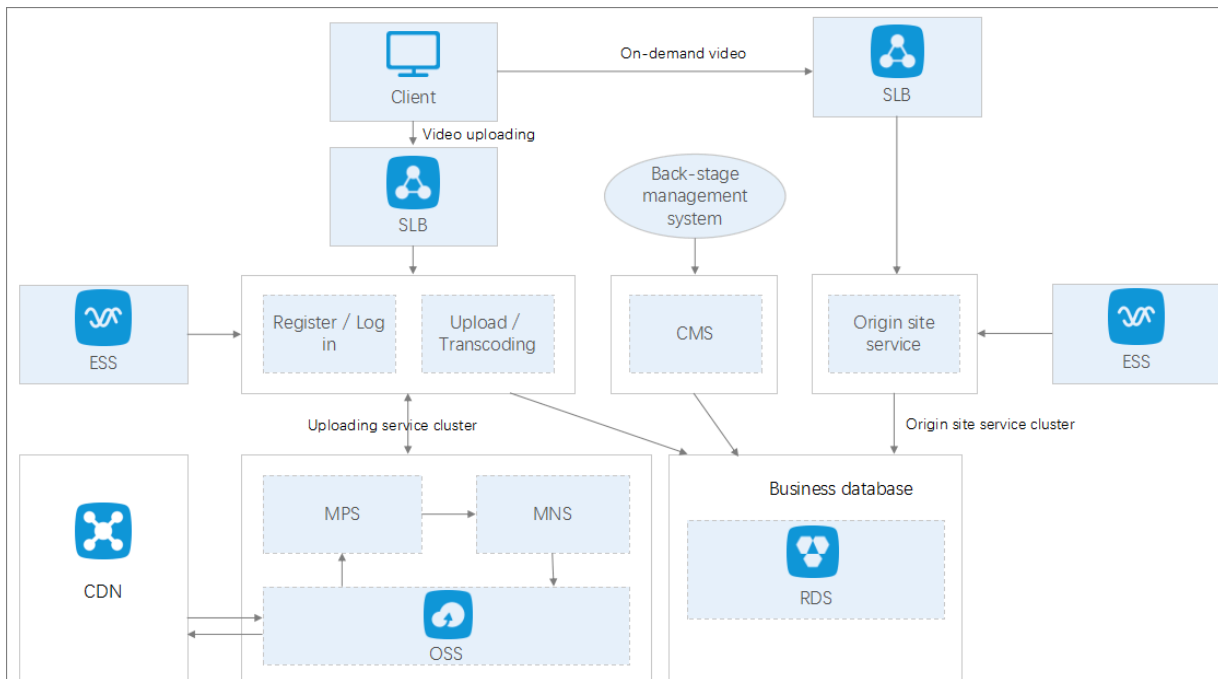
## 6.3 Large file download

If your business requires the distribution of large static web pages or application files, such as `.apk` game installation files, `.rar` application update files, patch files, and audio and video files, you can use CDN to accelerate the download of large files.

Scenarios

The Large File Download function is suitable for downloading and distributing files that are greater than 20 MB in various formats. We recommend that you use CDN together with Object Storage Service (OSS) to accelerate the back-to-origin process, which can save up to two-thirds of the back-to-origin bandwidth costs.

The following figure shows typical application scenarios of the Large File Download function.



Challenges that the Large File Download function can solve

- End users cannot download files, or the download speed is too low.
- Downloads are easily interrupted when the network environment is unstable. Re-downloads can cost extra resources.
- Website content is insecure and easily hijacked.
- File storage costs and performance requirements for the origin site are high.

Required Alibaba Cloud products and functions

The following table describes Alibaba Cloud products and functions required for large file downloads.

Product or function	Description
<i>ENS</i>	Alibaba Cloud has a large network of CDN nodes, which can help users acquire nearby resources, intelligently schedule traffic among all regions, reduce response latency, and relieve pressure on the origin site.
<i>OSS</i>	The Alibaba Cloud ecosystem can be used with OSS to save storage costs and back-to-origin bandwidth, and ensure the high availability of the origin site.
<i>Resumable upload</i>	This function allows resumable upload through all kinds of protocols on the client side, saving downstream bandwidth.

Product or function	Description
<a href="#">HTTPS acceleration</a>	<b>This function supports various authentication methods to prevent link hijacking.</b>

Related operations

**Before adding an accelerated domain name in the CDN console and selecting a service type, you need to learn about the application scenarios of different service types. For more information about specific operations, see [#unique\\_24](#).**

## 6.4 VOD

**This topic describes the VOD function of Alibaba Cloud CDN. If your website or application distributes audio and video content in formats such as MP4 and FLV, you can use the VOD function to accelerate the content distribution.**

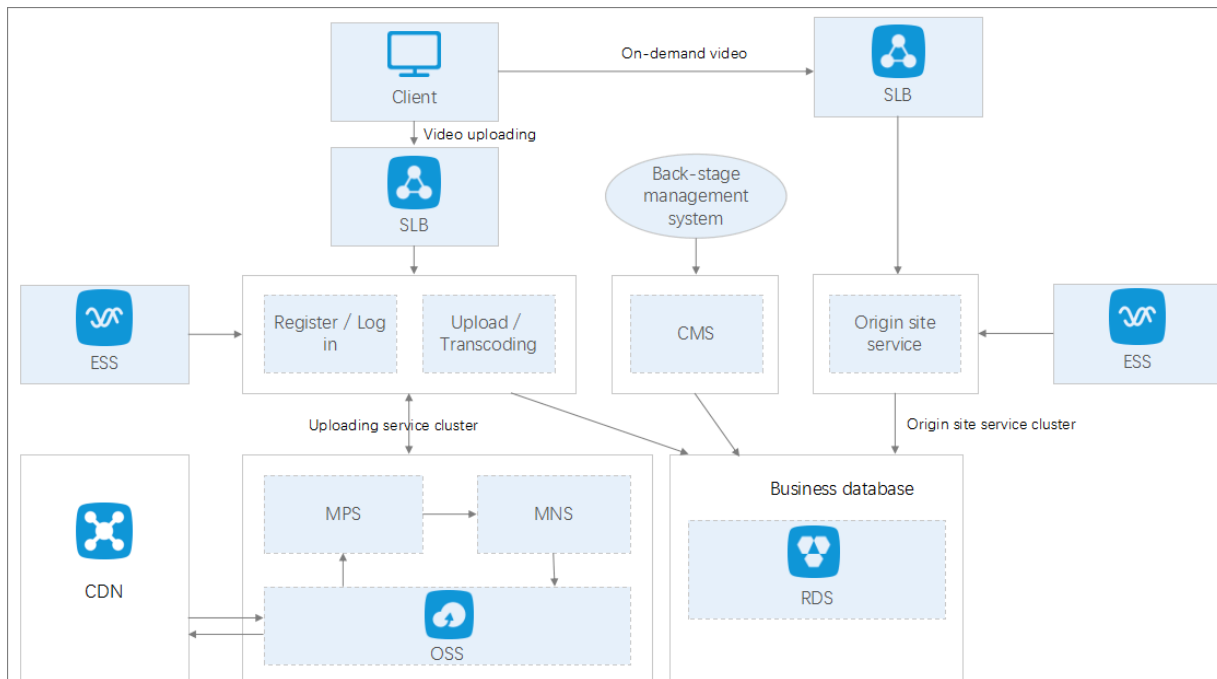
Background information

**The VOD service is suitable for websites and applications that provide audio and video content such as movies, online education, news, and social networking.**

**VOD has become an independent, all-in-one solution that provides a portfolio of services including audio and video upload, automatic encoding, media resource management, and distribution acceleration. You can purchase this solution and Alibaba Cloud CDN in a service package, which reduces the overall cost by 30%. We recommend that you use CDN with OSS to increase the back-to-origin speed while reducing the operational bandwidth for directing back-to-origin traffic by two thirds. For more information, see [What is ApsaraVideo for VoD](#).**

**The following figure shows the typical application scenarios of VOD.**





## Solutions

The VOD service helps you to resolve the following issues:

- Videos cannot be played or freeze from time to time.
- Complex uploading, encoding, storage, and distribution processes.
- Video resources are susceptible to hijacking or theft.
- Small-sized videos uploaded by users cannot be reviewed quickly.

## 6.5 Live Streaming

This topic describes the Live Streaming function of Alibaba Cloud CDN. If your website or application provides live streaming content in RTMP, HLS, or FLV format, you can use this function to accelerate the content distribution.

### Background information

Live Streaming is suitable for websites and vertical industry portals that provide live streaming content such as interactive online education and live game, show, or event broadcasts.

Live Streaming has become an independent Alibaba Cloud product named *ApsaraVideo Live*. ApsaraVideo Live provides a wide range of functions and services including uplink bitrate adaptation, narrowband HD encoding, screenshot, recording, and time-shifting to streamline stream ingest, encoding, distribution, and playback.

**You can purchase ApsaraVideo Live and Alibaba Cloud CDN in a service package to reduce the overall cost.**

#### Benefits

**Live Streaming helps you to resolve the following issues:**

- **Live videos freeze from time to time.**
- **Video resources are susceptible to theft.**
- **No mechanisms are provided to review video content.**

#### Required Alibaba Cloud functions

- **Stream ingest acceleration: This function enables videos to be ingested to the CDN nodes in the best conditions, ensuring uplink transmission performance and hence reducing issues such as freeze and slow stream distribution.**
- **Video acceleration: Massive CDN nodes comprise a top-ranking multiline BGP network that features low latency, low freeze rate, 98% smoothness, and PB-level storage capabilities in the event of tens of million concurrent requests.**
- **Content encryption: A wide range of URL authentication and HTTPS protocols are used to protect video content against theft.**
- **Video AI: This function automatically reviews video content to identify images and audios that violate local laws or regulations.**

## 6.6 DCDN

**This topic describes the DCDN function of Alibaba Cloud CDN. You can use DCDN to enhance network performance and user experience. The slow response and packet loss may be caused by issues such as a combination of dynamic and static resources, cross-provider operation, network instability, dependence on single-line origins, traffic spikes, and network congestion.**

#### Background information

**By default, DCDN accelerates only dynamic resources. That is, all static resource requests are directed to their origins through optimal routes. You can specify static content types or paths so that the system can automatically distinguish between dynamic and static resources. As a result, static resources are cached on edge CDN nodes and dynamic resources are distributed in acceleration to expedite the overall content distribution at full speeds.**

DCDN integrates dynamic acceleration and static acceleration. It has become an independent Alibaba Cloud product named *DCDN*, which is widely used for e-commerce, social networking, government, enterprise, gaming, and finance platforms.

#### Benefits

By using DCDN, you can resolve the following issues:

- Diverse, complex dynamic content lowers page loading speeds.
- Issues such as dependence on single-line origins, traffic spikes, and network congestion cause page loading latency and content distribution failures.
- Traditional communications protocols cannot ensure gaming users' access to real-time, highly concurrent dynamic content while maintaining stable network performance.
- Load imbalance incurs pressure on origins in the event of traffic spikes.
- Content is susceptible to hijacking and unauthorized changes, therefore service providers require network links and content distribution mechanisms that are more secure and efficient than HTTP.

#### Required Alibaba Cloud functions

- **Separate acceleration of dynamic and static content:** Dynamic content is accelerated by using intelligent routing, transmission protocol optimization, and link multiplexing, whereas static content is cached on edge CDN nodes to increase the overall resource loading speed.
- **Real-time detection and smooth internetworking:** process heavy traffic loads while ensuring round-the-clock network availability.
- **Back-to-origin load balance, primary/secondary backup, connection multiplexing, and ordered back-to-origin processes:** reduce pressure and fault risks on origins.
- **Full-link HTTPS secure acceleration, anti-leech, and IP-based traffic policing:** make origins secure.
- **Rule customization, information monitoring, and alarming:** You can define dynamic or static acceleration rules and cache rules, monitor data, and receive alarms in case of exceptions.

## 7 Terms

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**This topic introduces common terms used in Content Delivery Network (CDN).**

### CDN domain

**A CDN domain is a domain that uses CDN to accelerate content distribution. A domain is the address of a group of servers, such as web servers, email servers, and FTP servers.**

### CNAME record

**A Canonical Name (CNAME) is an alias used to resolve a domain to another domain that provides an IP address. The following example shows you how to use a CNAME record:**

- 1. You can use the domain `docs.example.com` to access the data stored on your server. However, you also want to access the data by using the domain `documents.example.com`.**
- 2. You can add a CNAME record at your Domain Name System (DNS) hosting provider to map `documents.example.com` to `docs.example.com`.**
- 3. Afterward, all requests sent to `documents.example.com` are redirected to `docs.example.com` to access the required data.**

### CNAME domain

**After you log on to the CDN console and add a CDN domain, Alibaba Cloud CDN team will assign a CNAME domain to the CDN domain. The CNAME domain is provided in the format of `*.*kunlun*.com`. You must add a CNAME record at your DNS hosting provider to map the CDN domain to `*.*kunlun*.com`. After the CNAME record takes effect, all requests sent to the CDN domain are redirected to the corresponding CDN node to accelerate content distribution.**

### DNS

**Domain Name System (DNS) is used to translate domain names into IP addresses that the Internet can recognize. A dedicated DNS server is used to automatically translate domain names into IP addresses. One domain name corresponds to one IP address. For example, if you enter `www.baidu.com` in your browser, the DNS server automatically translates the domain into `220.181.112.143`.**

## SSL/TLS

**Secure Sockets Layer (SSL) is a TCP-based secure communications protocol. This protocol helps to ensure the integrity and security of data when the data is being transmitted over the Internet. After SSL is standardized, its name is changed to Transport Layer Security (TLS). Therefore, SSL and TLS are collectively known as SSL/TLS.**

## Edge node

**In the documentation of CDN, an Alibaba Cloud edge node is also described as an edge node, CDN node, cache node, accelerating node, Alibaba Cloud node, or node. The concept of an edge node is proposed to simplify the complex network structure. Edge nodes are located near end users on the network. Therefore, compared with origin servers, edge nodes can respond to requests more efficiently. CDN caches frequently accessed content to edge nodes to improve user experience.**

## Origin server

**An origin server is the server that provides services. Specifically, an origin server specifies the IP address that CDN redirects back-to-origin requests to. You can specify an origin type such as the OSS domain, IP, origin domain, or Function Compute domain when you add a CDN domain in the CDN console.**

## Back-to-origin

**When a CDN node has not cached a resource that a client requests or the cached resource has expired, a back-to-origin process is triggered. CDN redirects the request to the corresponding origin server to obtain the requested resource for the client.**

**For example, when you access a URL, if the edge node that CDN assigns to your request has not cached the requested resource, CDN redirects your request directly to the origin server to obtain the resource that the URL points to. The origin server returns the resource both to the edge node and to your client.**

## Origin host

**An origin host specifies the host that CDN redirects back-to-origin requests to.**

**Example 1:**

If your origin server is the domain `www.a.com` and your origin host is `www.b.com`, CDN redirects back-to-origin requests to the IP address that is translated from `www.a.com`. The IP address belongs to the `www.b.com` host.

#### Example 2:

If your origin server is the IP address `1.1.1.1` and your origin host is `www.b.com`, CDN redirects back-to-origin requests to the `www.b.com` host corresponding to the IP address `1.1.1.1`.

#### Origin protocol

An origin protocol is the protocol that CDN uses to redirect back-to-origin requests. If you set Redirect Type to Follow in the Alibaba Cloud CDN console, CDN redirects back-to-origin requests by using the same protocol as used by your client to request resources. In such case, if your client requests resources by using HTTPS (or HTTP), your CDN node redirects the requests to the origin server by using HTTPS (or HTTP) when the requested resources are not cached on the node.

#### Parameter filtering

Parameter filtering enables you to filter out the parameters that follow a question mark (?) in each requested URL based on your business needs.

- If you enable this feature, your CDN node ignores the parameters that follow a question mark (?) from each URL when the CDN node receives a request. In addition, if the same resource is requested with the same URL but with different parameters, the CDN node maintains only one cached copy of this resource.
- If you disable this feature, your CDN node caches a copy of each URL.

If URLs with different parameters point to the same resource, we recommend that you enable this feature to increase the cache hit ratio.

## 8 Customer Cases

Typical Customer	Descriptions
Tmall	Tmall' s use of our distributed system architecture has contributed to a significant reduction in their bandwidth usage and overhead. Users around the world can now access to the Tmall website more quickly, and the website is now able to cope with traffic spikes such as shopping festivals.
Taobao	Alibaba Cloud CDN supports Taobao' s content distribution to PCs and mobile devices, allowing Taobao to respond in milliseconds and load images in seconds while facing masses of image processing requests, providing users with superior experience.
Alipay	Alibaba Cloud CDN provides financial services for Alipay. The encrypted HTTPS access not only improves user experience but also keeps the security of users' personal and banking information from theft and tampering.
Sina Weibo	By virtue of Alibaba Cloud CDN, Sina Weibo enhances images downloading experience for their users. It optimizes underlying TCP protocol to accelerate image download speed by 20%. Alibaba Cloud CDN is now the main CDN provider for Sina Weibo.
Xiami.com	Alibaba Cloud CDN' s innovative approach and 99.9%+ availability play a significant role in improving the business stability of Xiami.com. Alibaba Cloud' s after-sales team also guarantees customers quick online response and solution to any problem.

Typical Customer	Descriptions
<b>Zhihu</b>	<b>Zhihu uses Alibaba Cloud's multi-media solution. Response time has been reduced by one-third. Users' access experience is greatly improved. Response time has been reduced by one-third. Users' access experience is greatly improved.</b>
<b>Momo</b>	<b>With massive processing requests for images and short videos, Momo chose Alibaba Cloud CDN. With faster image loading and downloading speed, Momo's provides users with a superior experience.</b>
<b>UC</b>	<b>Alibaba Cloud CDN helps UC Web reduce its bandwidth consumption significantly across the whole business . By using the OSS storage service, UC has reduced required IT hardware investment, making development and O &amp;M much easier.</b>



## 9 Limits on domains

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**This topic describes the limits that Alibaba Cloud CDN imposes on domains.**

### Domain filing

**We recommend that you use Alibaba Cloud ICP Filing to file domains. If you select a region outside Mainland China, you do not need to file domains.**

### Content moderation

**All domains connected to CDN must go through content moderation. The unauthorized content that CDN does not allow includes but is not limited to the following:**

- **Content that is inaccessible or does not have any substantial information**
- **Unauthorized games**
- **Legendary and card games**
- **Unauthorized applications**
- **P2P financial websites**
- **Lottery websites**
- **Illegal hospital and pharmaceutical websites**
- **Explicit content**



#### **Note:**

- **If any of the preceding unauthorized content is detected in a domain, CDN immediately stops and forbids the domain. In certain circumstances, CDN even may forbid all domains under your Alibaba Cloud account forever. In such case, you shall bear any possible risks that may arise.**
- **If you connect a wildcard domain (for example, \*.example.com) to Alibaba Cloud CDN and a specific domain (for example, a.example.com) contains unauthorized content, Alibaba Cloud CDN stops and forbids the wildcard domain.**
- **If a domain is rejected due to content moderation, you can view the cause of rejection in the instance list on the CDN console, make modifications accordingly, and then re-submit the domain to CDN for review.**

## Limits on domains

Item	Limit
Domains	Each Alibaba Cloud account supports up to 50 domains. If the average daily bandwidth required in your domains during peak hours exceeds 50 MB and adding domains to your Alibaba Cloud account does not incur business risks, you can <a href="#">open a ticket</a> to apply for an increase in the number of domains that are allowed.
IP origins	By default, each domain supports up to 10 origins that use IP addresses.
Cache and refresh operations	<ul style="list-style-type: none"> <li>• URL refresh: 2000/day/account</li> <li>• Directory refresh: 100/day/account</li> </ul>

## Domain recycling rules

Scenario	Action	Solution
If your domain has not been visited for over 90 days (including the situation where the domain runs properly)	CDN automatically stops the domain but retains the records related to the domain.	Enable the domain.
If your domain has been stopped for more than 120 days (including the situation where the domain fails the content moderation)	CDN automatically deletes the records related to the domain.	Re-add the domain.