

Content Delivery Network

Product Introduction

Product Documentation



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Product Introduction

Product Overview

Last updated : 2021-11-15 14:05:39

CDN Overview

Content Delivery Network (CDN) is a new layer of network architecture built on the existing internet. It consists of high-performance cache nodes distributed around the globe to accelerate internet content delivery. These nodes store your content based on caching policies. When a user makes a content request, it will be routed to the node closest to the user, reducing access delay and improving availability.

CDN offers an effective solution to the following network issues:

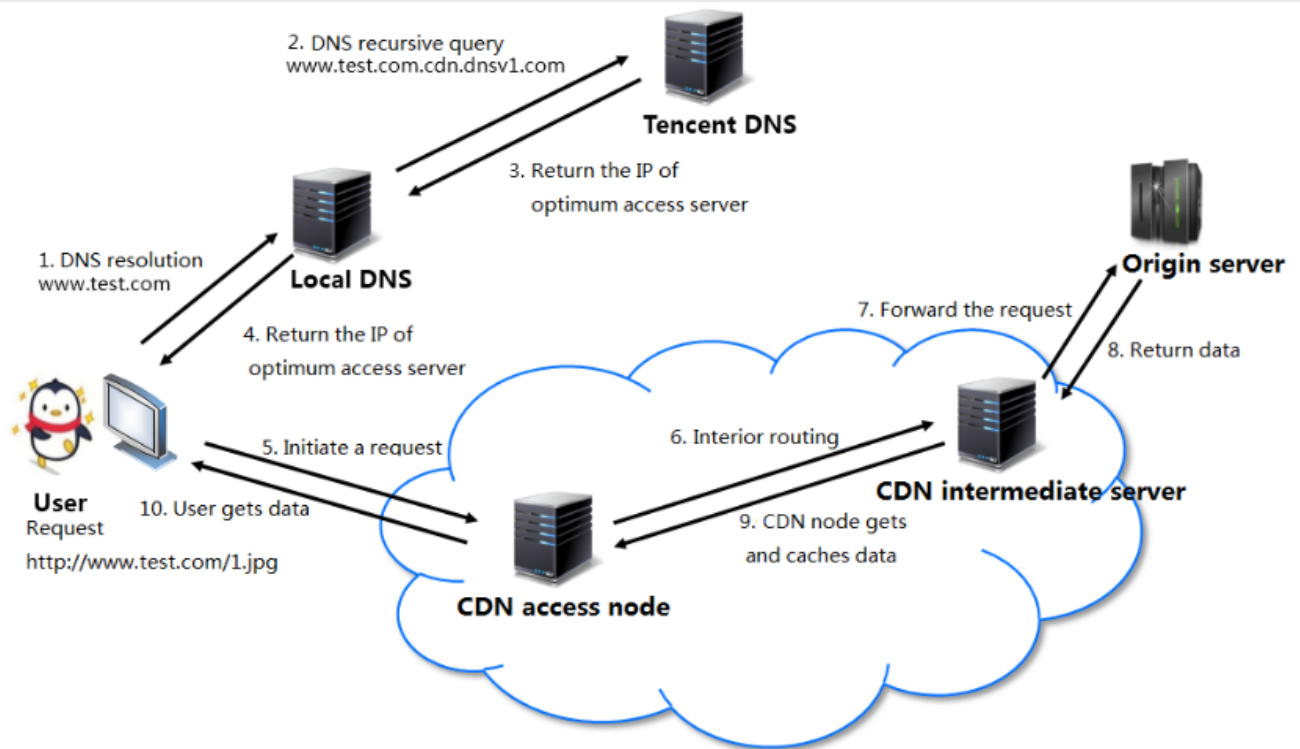
1. The long physical distance between the user and the business server requires the request to be forwarded multiple times, leading to high latency and instability.
2. The ISP used by the user is different from that used by the business server, so the request needs to be forwarded between ISPs after they are interconnected.
3. The business server has limited bandwidth and processing capabilities, resulting in slower response and lower availability when there are massive amounts of user requests.

CDN is easy to use. You do not need to adjust your business structure or manage any complex configurations. For more information, please see [Getting Started](#).

How Acceleration Works

For example, if your business origin server's domain name is `www.test.com` and has been connected with the CDN to activate the acceleration service, when a user makes an HTTP request, the request will be processed as

shown below:



The process is detailed below:

1. When a user makes an access request for an image resource (e.g., 1.jpg) at `www.test.com`, a domain name resolution request will be initiated to the local DNS.
2. When the local DNS resolves `www.test.com`, it will find that CNAME `www.test.com.cdn.dns.v1.com` has been configured, so the resolution request will be sent to Tencent DNS (GSLB), the proprietary scheduling system of Tencent Cloud that will assign the optimal node IP for the request.
3. The local DNS receives the resolved IP returned by Tencent DNS.
4. The user receives the resolved IP.
5. The user makes an access request for 1.jpg to the received IP.
6. If the CDN node corresponding to the IP has already cached 1.jpg, data will be directly returned to the user (10) and the request will end. Otherwise, the CDN node will initiate a request for 1.jpg to the origin server (6, 7, and 8). After receiving the resource, the CDN node will cache it (9) based on the caching policy configured (please see [Cache Expiration Configuration](#) and return it to the user (10) to end the request.

Strengths

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Vast Resource Reserves

Nodes in mainland China

CDN has over 2,000 cache nodes deployed across all provinces in mainland China, with a total reserved bandwidth of over 110 Tbps. These are all high performance and highly secure Tencent Cloud data centers with quality ISP networks. In addition, Tencent Cloud has strengthened connections with China Mobile, China Unicom, China Telecom, and over 50 small and medium-sized ISPs, and has built four central nodes to significantly improve CDN's acceleration effect.



Region	Distribution
East China	Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Fujian
North China	Beijing, Tianjin, Shanxi, Hebei, Central Inner Mongolia
Central China	Henan, Hubei, Hunan
Northwest China	Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, western Inner Mongolia
South China	Guangdong, Hainan, Guangxi
Southwest China	Chongqing, Sichuan, Guizhou, Yunnan, Tibet
Northeast China	Heilongjiang, Jilin, Liaoning, eastern Inner Mongolia

Nodes outside mainland China

CDN has been working industriously on global acceleration since 2017. As of December 2022, CDN has over 8,00 cache nodes across more than 70 countries and regions with a total reserved bandwidth of over 50 Tbps, helping your business go global with ease and speed.



Region	Distribution
North America	United States, Mexico, Canada

Region	Distribution
South America	Brazil, Colombia, Peru, Ecuador, Chile, Argentina
Asia	Hong Kong (China), Macau (China), Taiwan (China), Japan, South Korea, Mongolia, Vietnam, Laos, Singapore, Thailand, Philippines, Myanmar, Cambodia, Malaysia, Indonesia, India, Bangladesh, Nepal, Pakistan, Kuwait, Kyrgyzstan, Qatar, Israel, Türkiye, Iraq, Saudi Arabia, Oman, United Arab Emirates, Bahrain, Lebanon
Africa	Djibouti, Kenya, Madagascar, Mauritius, Egypt, South Africa
Oceania	Australia, New Zealand
Europe	Italy, Austria, Poland, Finland, Denmark, Belgium, Sweden, Spain, France, Netherlands, Germany, United Kingdom

Global Intelligent Scheduling

When accessing resources, a variety of factors including the ISP network, client region, and the network bandwidth of the IDC origin server might affect the response time and user experience.

Through real-time monitoring of the linkages across the entire network and leveraging Tencent Cloud's self-designed GSLB scheduling system and intelligent routing technology, CDN schedules users' access requests to the optimal edge nodes for acceleration. This ensures quick and stable resource access for users.

Quick Configuration

You can use CDN to accelerate your services through a simple and quick configuration process, with no additional modification required on your end.

After registering your Tencent Cloud account and completing identity verification, you can activate the CDN service. Prepayment is not required. Add your business domain name on the CDN Console and wait for about 5 minutes for the domain name configuration to be distributed to cache nodes across the entire network. During this process, as the acceleration service has not taken effect yet, your business will not be affected.

When enabling the acceleration service, you need to modify the CNAME resolution configuration through your domain name service provider. Acceleration service will take effect when the DNS takes effect.

A Variety of Features

CDN comes with an easy-to-use, full-featured console where you can change the configuration items and view monitoring data as needed:

Domain management

- You can add, delete, activate, and deactivate domain names.
- You can switch acceleration regions and select "Mainland China", "Outside Mainland China", or "Global" for the acceleration scope.
- You can customize the domain name list page to display, filter, and query configuration items.

Domain configuration

- You can configure an external origin server (IP list or domain names) or use COS as an origin server. Round robin, weighted origin-pull, and hot backup of origin server are supported.
- You can configure custom access control policies such as referer blacklist/whitelist, IP blacklist/whitelist, timestamp hotlink protection, and IP access frequency limit.
- You can customize the expiration time of node cache, status code cache, and HTTP header cache.
- CDN supports configuring optimizations for cross-border origin-pull linkage, range GETs, and 301/302 origin-pull follow-redirect.
- CDN supports HTTPS acceleration, HTTP/2 acceleration, and forced request redirection.
- You can configure the bandwidth cap and customize advanced configuration items such as HTTP response header, auto compression, and SEO.

Purge cache

- Self-service purging of the entire network's cache is supported, as well as directory purge and URL purge.

Real-time monitoring

- CDN supports real-time monitoring of the bandwidth, traffic, traffic hit rate, number of requests, and all status codes generated by access requests at a granularity of 1 minute. The statistics can be filtered by project, domain name, province, ISP, and protocol to present a comprehensive view of service status.
- CDN supports real-time monitoring of the origin-pull bandwidth, traffic, number of requests, failure rate, and all status codes generated by origin-pull requests at a granularity of 1 minute. The statistics can be filtered by project or domain name to help you conveniently view the origin server status.
- You can view real-time reports of user distribution by region around the globe or by ISP in mainland China.
- CDN provides daily, weekly, and monthly operational reports to keep you updated on business fluctuations.

Log service

- All logs generated by access requests are grouped by hour and can be downloaded.
- CDN access logs can be collected and published in real time to quickly search and analyze log data.

CDN APIs

CDN provides [APIs](#) for all the supported features listed above to enable customized service usage. You and your team can conveniently manage, monitor, display, and analyze your business through these APIs.

Use Cases

Last updated : 2020-07-08 10:15:44

Use Cases

The table below lists the use cases of CDN. You can click to view the details.

Use Case	Description
Website acceleration	CDN provides accelerated delivery capabilities for static contents such as webpages, images, and small files in business scenarios like web portals, ecommerce, and UGC communities, significantly improving user experience.
Download acceleration	CDN provides stable and high-quality download acceleration for game, app, or ROM installation packages.
Audio/Video acceleration	Supported by Tencent's profound experience in online video operation, CDN can sustain massive volumes of concurrent requests for online audio and video playback during peak hours, effectively ensuring high service availability and media transfer speed while providing a stable, smooth and enriched viewing experience.
ECDN	Enterprise Content Delivery Network (ECDN) is a standalone product of Tencent Cloud for one-stop acceleration of dynamic or dynamic-static resources. It can automatically identify dynamic and static resources while implementing simultaneous acceleration for all types of resources on one single platform.
SCDN	Tencent Cloud SCDN provides powerful security protection capabilities in addition to all acceleration strengths of CDN. It can defend against high-traffic DDoS attacks and large-scale CC attacks and provide WAF against website intrusions. You can quickly connect to and enable SCDN in CDN.

Use Cases Description

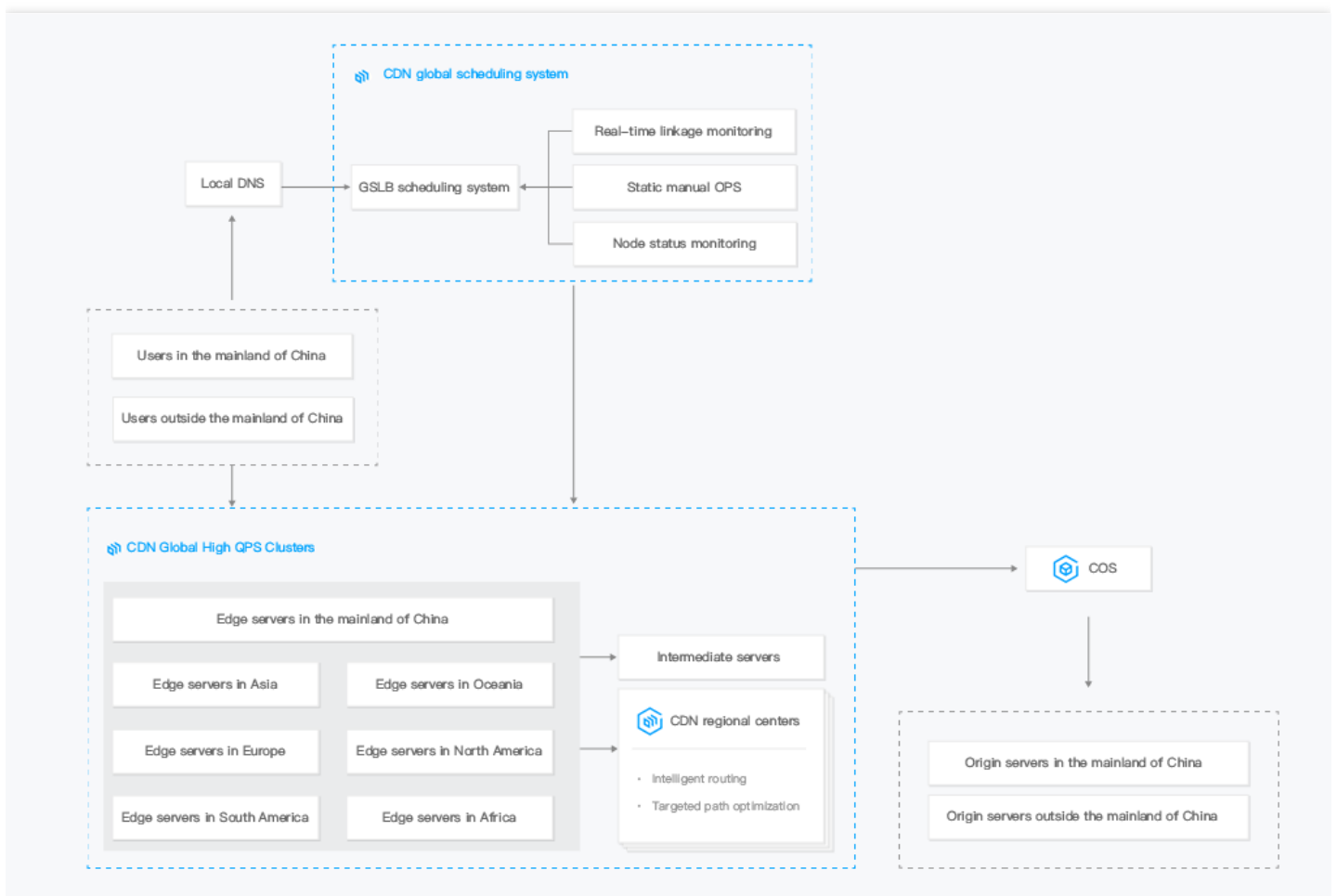
Website acceleration

Website acceleration suitable for all types of websites, such as web portals, ecommerce platforms, and UGC communities. CDN can cache and accelerate the delivery of static contents on your websites. To accelerate dynamic contents, use [ECDN](#).

What are static and dynamic contents?

- Static content refers to content that stays the same when requested.
Examples: .html, .css, and .js files, images, videos, software installation packages, APK files, and compressed files.
- Dynamic content refers to content that varies when requested.
Examples: APIs and .jsp, .asp, .php, .perl, and .cgi files.

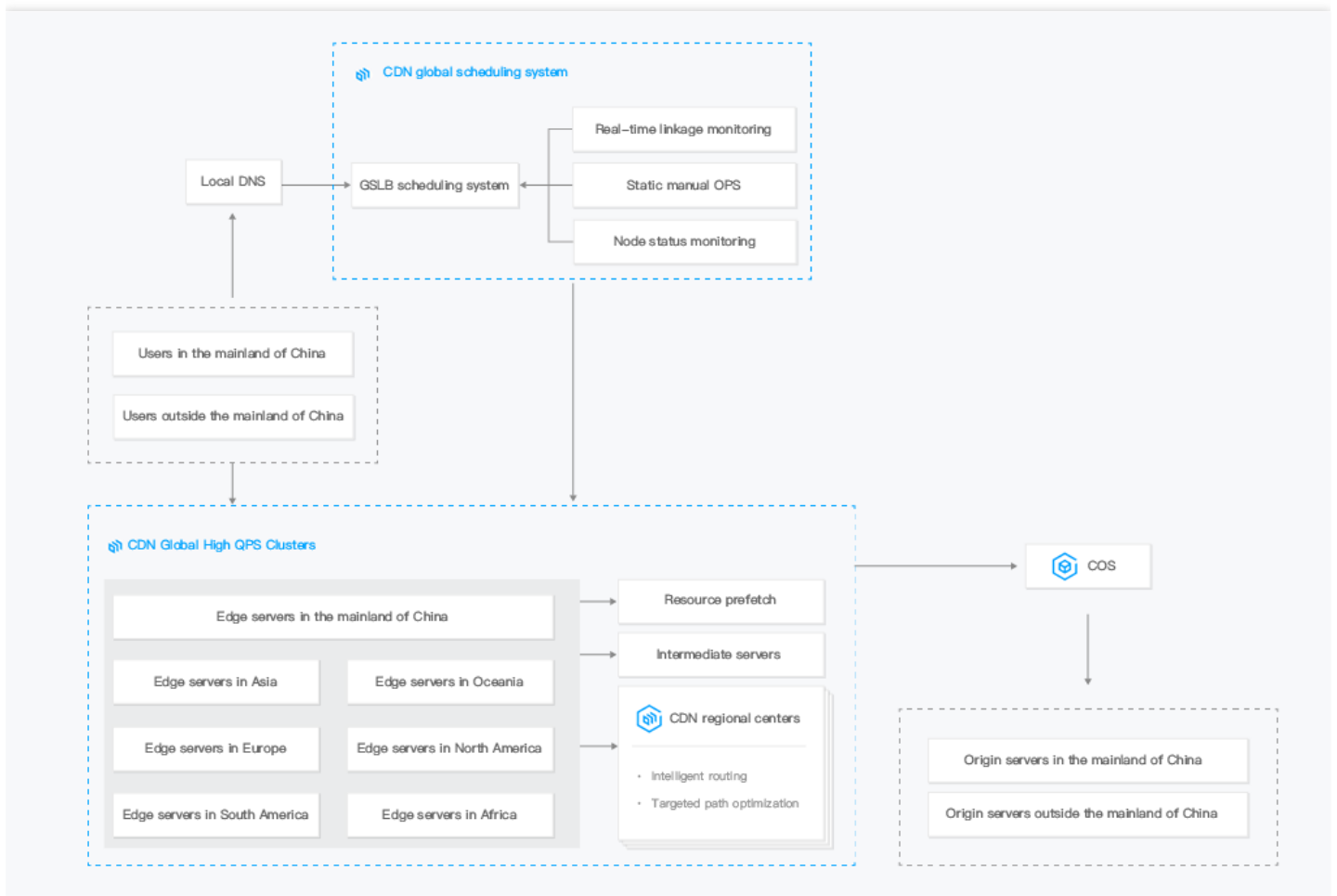
CDN provides powerful static content delivery capabilities, significantly speeding up page loading and offering a smooth and fast browsing experience for geographically dispersed end users. During service peaks when there are a large number of concurrent users, it can alleviate the pressure on origin servers to ensure stable and smooth access to services and webpages.



Download acceleration

Download acceleration is suitable for speeding up the download of various files such as game, app, and ROM installation packages.

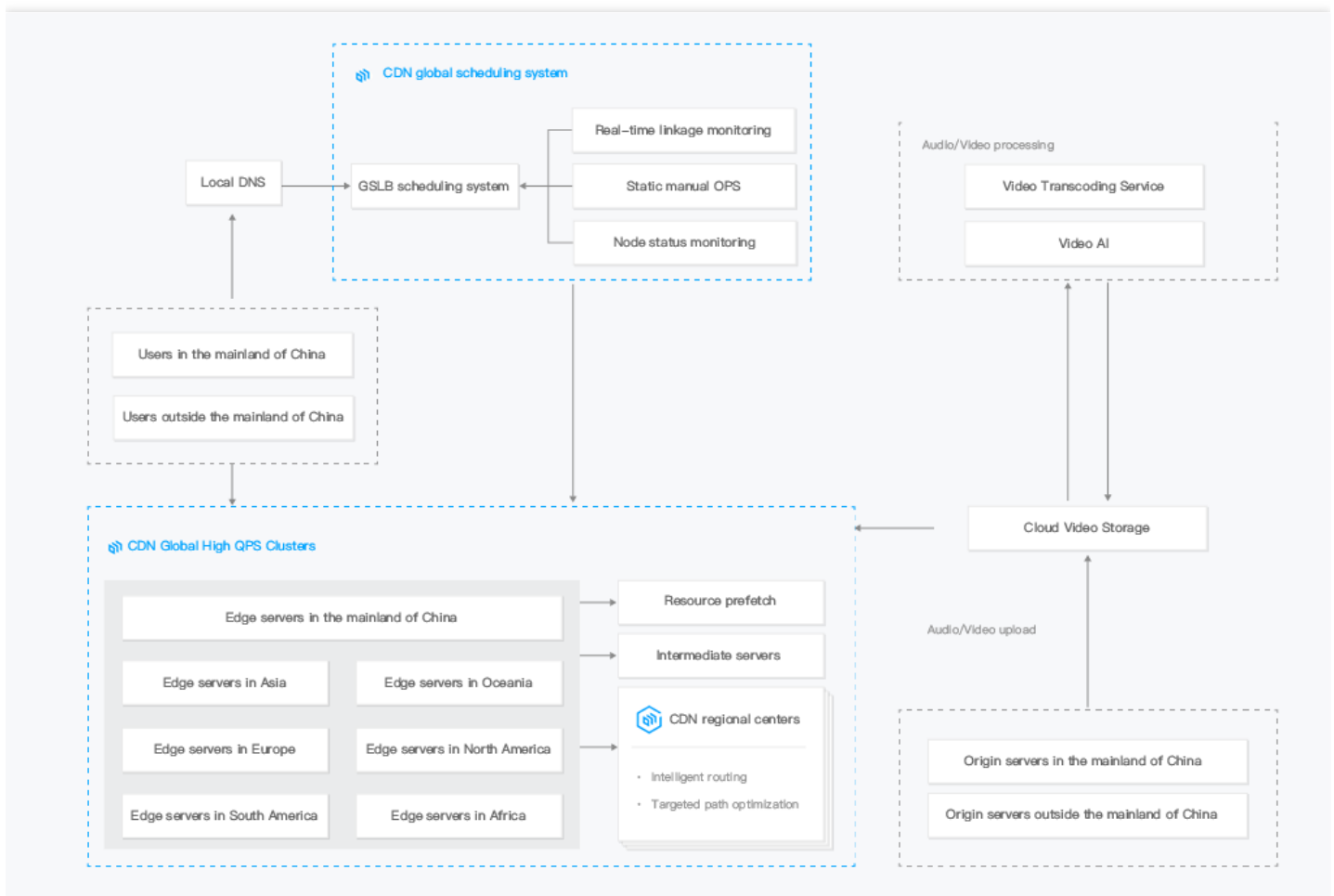
Backed by a massive amount of reserved elastic bandwidth, CDN can sustain traffic surges and speed up the download of large files, ensuring service stability and providing an efficient download experience for all end users.



Audio/Video acceleration

Audio/video acceleration is suitable for different types of audio/video on-demand websites and applications such as audio/video apps, online audio/video platforms, and IPTV. With enhanced content delivery capabilities and supported by Tencent's profound experience in online video operation, Tencent Cloud CDN can effectively ensure smooth

audio/video playback for all end users during peak hours with massive volumes of concurrent requests.

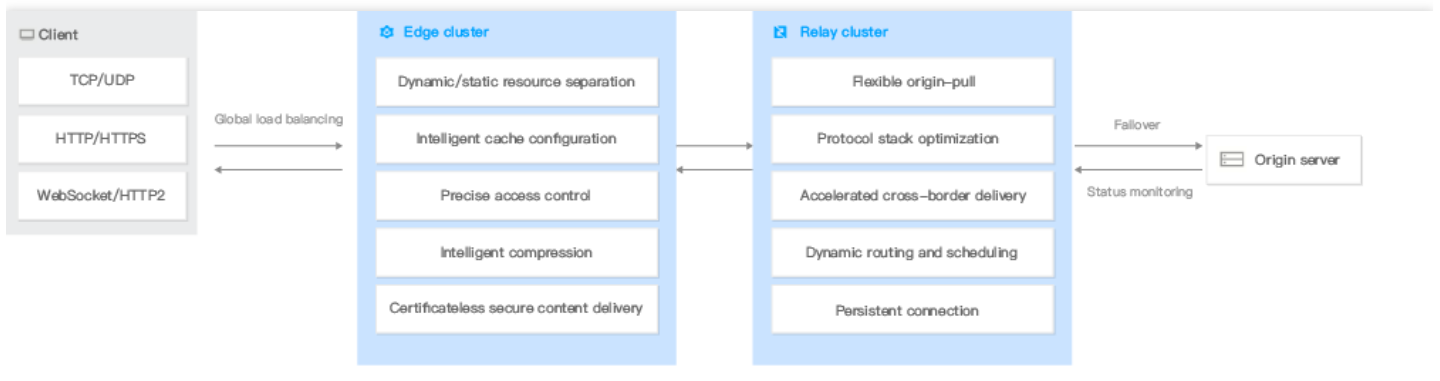


ECDN

ECDN is suitable for websites and applications with dynamic/static hybrid resources or a large number of dynamic resources, such as .asp, .jsp, .php, .cgi., and .perl files, APIs, and database interaction requests.

By integrating static edge caching with dynamic origin-pull route optimization, intelligently scheduling requests to the optimal service nodes, automatically identifying static and dynamic resources, and utilizing Tencent's proprietary optimal route calculation algorithm and TCP optimization technology, ECDN, currently a standalone product, can

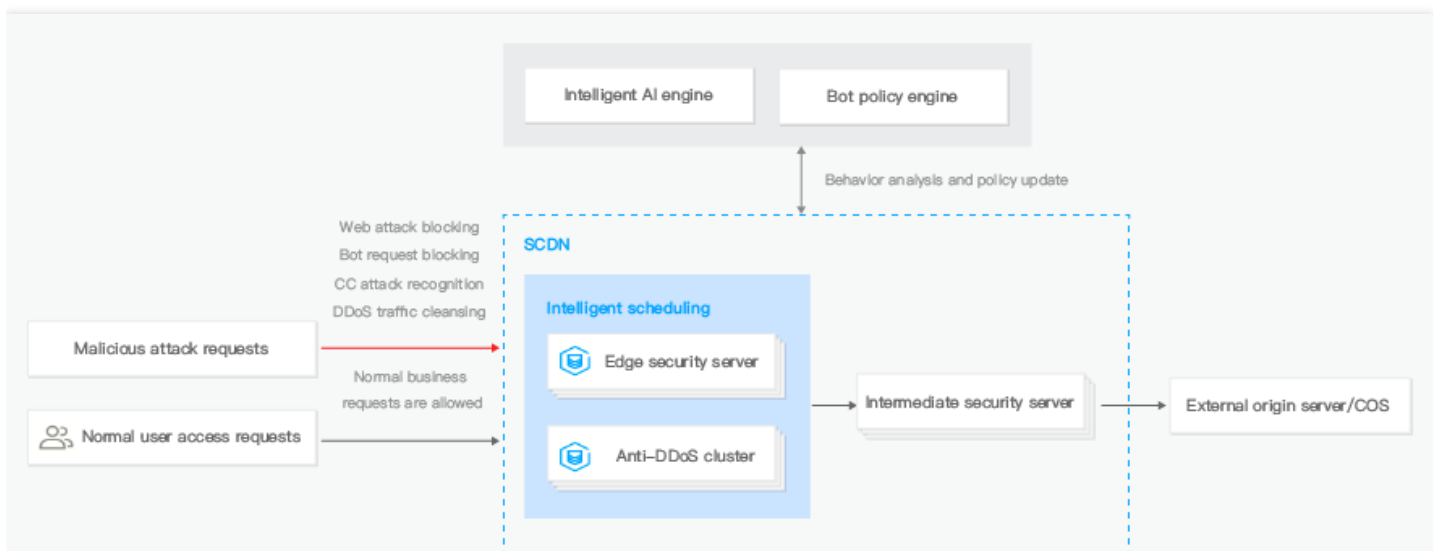
provide end users with a high-performance and one-stop acceleration experience.



SCDN

SCDN By integrating static edge caching with dynamic origin-pull route optimization, intelligently scheduling requests to the optimal service nodes, automatically identifying static and dynamic resources, and utilizing Tencent's proprietary optimal route calculation algorithm and TCP optimization technology, ECDN, currently a standalone product, can provide end users with a high-performance and one-stop acceleration experience.

SCDN is built upon CDN and you do not need to re-do DNS configuration. Network security protection can be quickly enabled for domain names accelerated by CDN.



Term

Last updated : 2021-11-24 15:09:10

Origin server

This refers to your stably running business server. On the CDN Console, you can select an external server or COS as the origin server.

External origin

This refers to a server where your own web service is deployed. When connecting to an acceleration domain name, you can enter the server's public IP address as the origin server.

COS origin

If resources have already been stored in COS, a bucket can be selected as the origin server.

Edge server

This refers to a network node that CDN uses to cache the content of your origin server in order to quickly respond to user requests from different regions.

CNAME Record

A CNAME (Canonical Name) record refers to the alias record in a domain name resolution.

For example, a server named `host.example.com` provides both WWW and MAIL services. To make it easier for users to access those services, two CNAME records (`www.example.com` and `mail.example.com`) can be added for this server at its DNS service provider, and all requests to access these two CNAME records will be forwarded to `host.example.com` .

CNAME Domain Name

This refers to a domain name suffixed with `.cdn.dnsv1.com` that is assigned by the system to the connected acceleration domain name configured on the CDN Console. You need to configure a CNAME record at your domain name service provider. After the record takes effect, CDN will take care of domain name resolution, and all requests made to this domain name will be forwarded to the edge servers of CDN.

Static Content

This refers to content that stays the same in the responses to multiple requests for the same resource.

Examples include html, css and js files, images, videos, software installation packages, APK files, and compressed files.

Dynamic Content

This refers to content that varies in the responses to multiple requests for the same resource. Examples include APIs and .jsp, .asp, .php, .perl, and .cgi files.

Origin-pull

In CDN, an origin-pull means that when a user sends a request from a browser, the server that responds to the request is the server of the source website rather than a cache server on a CDN node. Generally, if the content is not cached on the cache server or is modified on the origin server, it will be pulled from the origin server.

Origin domain

This refers to the site domain name accessed on the origin server by a CDN node during origin-pull. For more information, please see [Origin Server Configuration](#).

Domain name

This refers to a set of server addresses that users can easily remember and use, and can be a website, email, FTP, etc. It is used to identify a computer's electronic location (sometimes referred to as geographic location) during data transfer.

Bucket

In COS, a bucket is for storing a object or multiple objects. A bucket name is a user-defined string connecting a system-generated numeric string with dash, thus ensuring that this bucket name is unique. For more information, see [Bucket Overview](#).

Use Limits

Last updated : 2020-10-28 17:38:52

ICP Filing for Domain Name in Mainland China

When connecting your domain name to Tencent Cloud CDN for acceleration, if you select Chinese mainland or global as the acceleration region, the ICP filing for services in Mainland China should be obtained from the MIIT for your domain name.

Credibility Check

1. Tencent Cloud CDN will conduct an **account credibility check** when you activate the CDN service. If your Tencent Cloud account has too many violation records, your account will have low credibility and will be blocked. Tencent Cloud CDN will prohibit service activation for these accounts.
2. Tencent Cloud CDN will conduct a **domain name credibility check** when you connect your domain name after activating the CDN service. If there exist records of the following behaviors for your account, your account will have low credibility and will be blocked. Tencent Cloud CDN will not allow domain name connection for these accounts.
 - The acceleration domain name has published content through Tencent Cloud CDN that severely violates regulations.
 - The account to which the acceleration domain name belongs has incurred a large amount of outstanding fees.
 - The acceleration domain name is listed as a malicious domain name by Tencent PC Manager.

Content Check

When you use the Tencent Cloud CDN service in Chinese mainland, you are responsible to stay in compliance with applicable local laws, regulations, and policies for your contents, qualifications, capabilities, and behaviors.

If the following contents, among others, appear under your domain name, we will block the non-compliant contents and terminate acceleration services in severe cases:

- Unauthorized gaming server
- Pirated game/software/video websites
- Unauthorized hospital and pharmaceutical websites
- Pornographic contents

- Drug-related contents
- Gambling advertisements and games

Acceleration Service

Type	Limit
Acceleration domain name	Wildcard domain names can be connected Up to 100 ones are supported
Data statistics	Statistics generated in the last 90 days can be queried by default
Content purge	URL purge: 10,000 per day Directory purge: 100 per day
Access log	Access logs are retained for 30 days by default

Domain Name Repossession

If your domain name does not generate any website access traffic within three months after connection, CDN will automatically close the acceleration service. If you want to use the service again, log in to the CDN Console to enable it manually.

CDN Performance Descriptions (Spot-check)

Last updated : 2019-12-02 14:20:38

Test Descriptions

Test Tools

CVM instance (1-core, 1 GB memory) and Tencent Cloud CDN

Test Method

We used the benchmark test method commonly used in the industry. The service provider is TingYun.

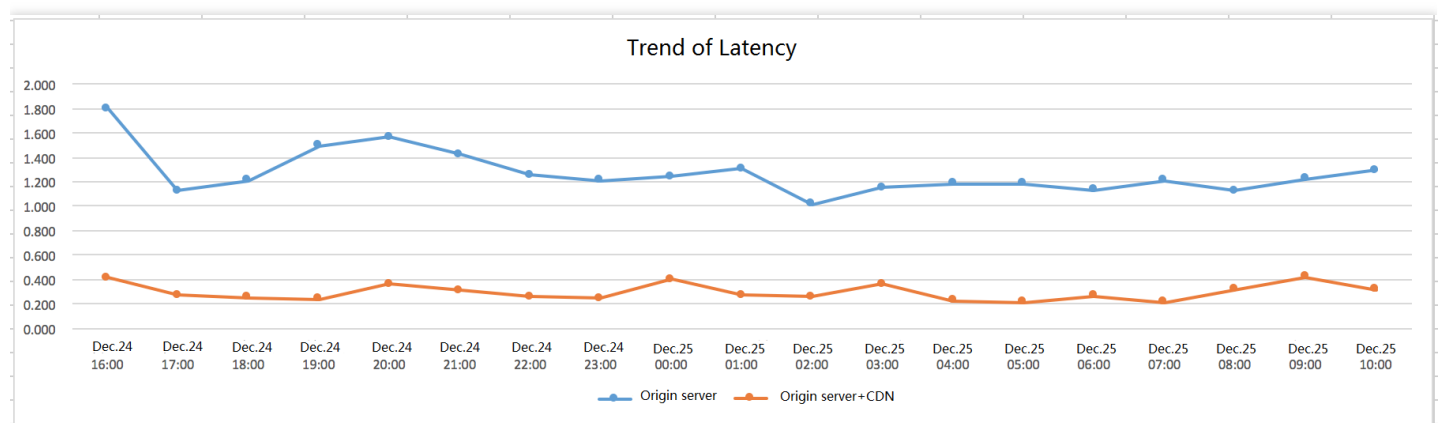
Test Parameters

Tested period	May 21, 2019 07:45 - 19:15
Tested city	All
Tested ISP	China Unicom, China Telecom, China Mobile
Origin server link	http://*/simptab-wallpaper-20190520181120.png
CDN link	http://*/simptab-wallpaper-20190520181120.png

Result Analysis

Latency Performance Curve

Unit: second



Availability Curve

In %

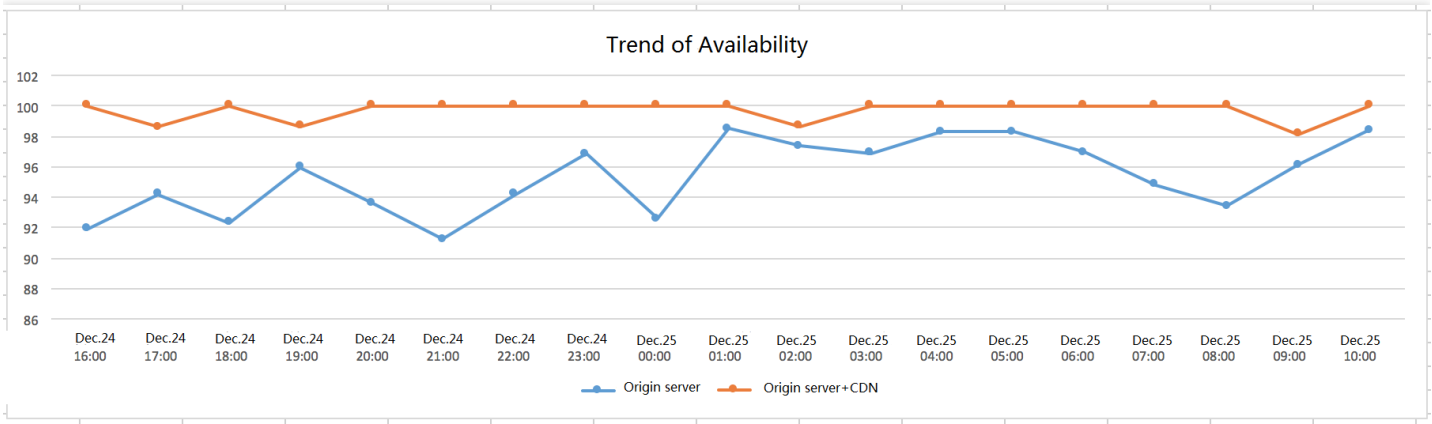


Chart Analysis

Monitoring Task	Monitoring Points	Performance (in seconds)					Availability (%)		
		Average	Best		Worst		Average	Best	
CDN	2235	0.196	May 21 07:45	0.117	May 21 12:15	0.313	99.996	May 21 07:45	100.00
Origin Server	2177	0.933	May 21 10:45	0.635	May 21 08:15	1.827	99.035	May 21 07:45	100.00

Data Details

Time	CDN			Origin Server		
	Performance (in seconds)	Availability (%)	Monitoring Points	Performance (in seconds)	Availability (%)	Monitoring Points
May 21 07:45	0.117	100.00	98	0.945	100.00	98
May 21 08:15	0.160	100.00	91	1.827	98.86	88
May 21 08:45	0.135	99.91	92	0.645	100.00	88
May 21 09:15	0.240	100.00	97	0.821	98.95	95
May 21 09:45	0.190	100.00	95	1.315	98.80	83

May 21 10:15	0.158	100.00	95	0.745	98.95	95
May 21 10:45	0.170	100.00	90	0.635	100.00	89
May 21 11:15	0.123	100.00	90	0.692	97.65	85
May 21 11:45	0.246	100.00	96	0.653	100.00	98
May 21 12:15	0.313	100.00	89	0.763	97.83	92
May 21 12:45	0.258	100.00	92	1.181	100.00	93
May 21 13:15	0.175	100.00	95	1.122	97.67	86
May 21 13:45	0.173	100.00	97	1.148	98.89	90
May 21 14:15	0.257	100.00	81	1.083	100.00	81
May 21 14:45	0.214	100.00	103	1.044	100.00	97
May 21 15:15	0.240	100.00	92	0.737	97.98	99
May 21 15:45	0.169	100.00	94	0.969	98.85	87
May 21 16:15	0.146	100.00	93	0.769	98.86	88
May 21 16:45	0.269	100.00	91	0.724	100.00	86
May 21 17:15	0.181	100.00	91	1.072	98.02	101
May 21 17:45	0.208	100.00	96	1.000	100.00	90
May 21 18:15	0.219	100.00	94	0.744	98.86	88
May 21 18:45	0.119	100.00	81	0.841	98.84	86
May 21 19:15	0.212	100.00	102	0.981	97.87	94
Average/Summary	0.196	99.996	2235	0.933	99.04	2177
Excluded points	0			0		