Alibaba Cloud
Alibaba Cloud CDN

Product Introduction

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Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	**Danger:** Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	**Warning:** Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	**Note:** Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructio ns, best practices, tips, and other content that is good to know for the user.	**Note:** You can use **Ctrl** + **A** to select all files.
>	Multi-level menu cascade.	**Settings** > **Network** > **Set network type**
Bold	It is used for buttons, menus, page names, and other UI elements.	Click **OK**.
`Courier font`	It is used for commands.	Run the `cd /d C:/windows` command to enter the Windows system folder.
Italics	It is used for parameters and variables.	`bae log list --instanceid` *`Instance_ID`*
[] or [a|b]	It indicates that it is a optional value, and only one item can be selected.	`ipconfig` *`[-all|-t]`*
{} or {a|b}	It indicates that it is a required value, and only one item can be selected.	`swich` *`{stand | slave}`*

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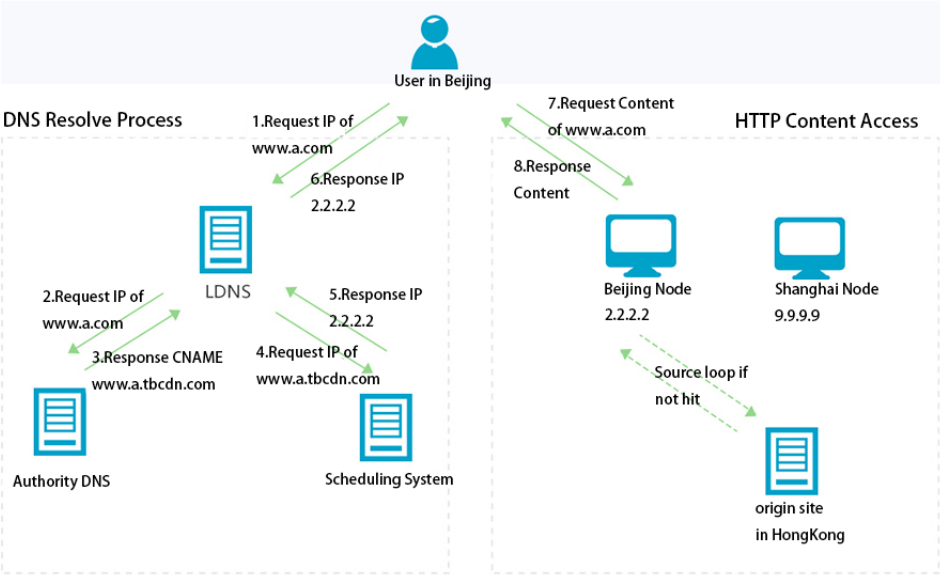
1 What is Alibaba Cloud CDN?

Alibaba Cloud Content Delivery Network (CDN) caches contents at physical nodes, then strategically delivers them to end users. It allows the users to efficiently acquire the resources they need, avoids the possible network congestion, and enhances the user experience.

How it works

Suppose that your origin site is in Hong Kong, and the domain name www.a.com has access to the CDN service. The following steps take place when a user in Beijing requests contents from your site.



1. A user in Beijing requests content from your website or application (with the domain name of www.a.com).
2. The LDNS routes the request to the node that is the shortest geographical distance from the user (steps 2 to 6 in the figure above), which in this case is Beijing Node 2.2.2.2.
   - LDNS resolves the domain name www.a.com, then gets the response of the CNAME (www.a.tbcdn.com).
   - LDNS requests contents from Alibaba Scheduling System. The system then allocates and returns the most suitable node's IP.
3. The user requests content from the routed node, Beijing Node 2.2.2.2 (steps 7 to 10 in the figure above).
   - If the content has been cached at the Beijing node, CDN directly delivers them to the user.

- If the files are not in the cache of the Beijing node, the node requests the content from the origin site. When the content is received, the Beijing node forwards to the user, in the light of his customized caching policy.

Operations

Before your Alibaba CDN trip, refer to *basic concepts*. It will help you understand CDN quickly.

To get started with CDN, go to Quick Start. You can also follow the *CDN Learning Path* to get a complete understanding of CDN.

You can log on *CDN Console* to enjoy all functions.

Moreover, you can check *API documentations* to flexibly realize your business targets.

Price and billing

See *Pricing overview* to quickly know how Alibaba Cloud CDN charges. Basic services and value-added services are the main two parts. You can choose PayByTraffic or PayByBandwidth for basic services.

For more information, see *Product Pricing*.

Related services

Dynamic Route for CDN: Distinguishes dynamic and static resources and accelerates both separately.

Object Storage Service (OSS): Improves website access speed and reduces the data charges that may be incurred on the external network.

ApsaraVideo Live service: Delivers an integrated solution including media asset, slice transcoding, visiting authentication, and content delivery acceleration.

Alibaba Cloud DNS: Provides powerful but stable resolutions and dispatches services, ensuring a smooth experience for visiting users.

Elastic Compute Service (ECS): Enhances website availability, protects the information on a server’s source station, and lowers the cost of bandwidth use.

Server Load Balancer: Sets the server's IP address to the source site, which relieves the bandwidth pressure.

2 Node Distribution

Discover Alibaba Cloud nodes

Alibaba Cloud Content Delivery Network (CDN) uses a global network of 1500+ nodes to accelerate content delivery for websites and applications. In mainland China, supported by all major operators, it has over 1300 nodes that covers major cities in 34 provinces, with 100 Tbps bandwidth capability reserve. It also has over 200 nodes in over 70 other countries and regions across 6 continents, with 20 Tbps bandwidth capability reserve.

CDN continues to reliably serve businesses thanks to its ever-advancing technical specifications, including a 10 G optical network card, 40 TB to 1.5 PB storage space, and 40 Gbps to 200 Gbps bandwidth load capability.

High-performance nodes enhance information delivery compared with traditional methods, accelerating distribution and boosting reliability. With CDN, businesses are able to continue to provide a high-quality services in even the most demanding of situations.

Configure nodes

- The system automatically configures and adjusts nodes for the domain name you have added. For more information, see the following Search nodes chapter.
- The system also adds nodes automatically based on the access conditions.
- You can choose the acceleration zone: Mainland China, Hong Kong, Macao, Taiwan, and Outside-China, and Global Acceleration.

Search nodes

The list of Alibaba Cloud CDN nodes is below in the image. Beyond Mainland China, over 300 nodes are distributed across the globe.
Mainland China

In Mainland China, there are over 1200 edge nodes in 34 provinces.

Hong Kong, Macao, Taiwan and Outside-China

3 Benefits

Stable and fast

- Advanced distributed system architecture: 1500+ globally.
- Adequate bandwidth and storage resources: a single node provides a bandwidth of more than 40 Gbps and a storage capacity of 40 TB to 1.5 PB.
- Stable and efficient performance indicators: greater than 95% hit rate and video fluency rate, as well as millisecond-level response time.
- Mature monitoring and service systems: 24/7 network-wide monitoring, smart monitoring and scheduling based on service quality.

Cost-effective

- With scalable resources, you are charged only for resources you use, and can achieve cross-carrier, cross-region network-wide coverage.
- Two billing methods are provided, PayByTraffic, and PayByBandwidth, to satisfy different business needs.
- The service automatically responds to site traffic spikes and makes adjustments without user intervention, reducing pressure on the origin site.

Easy to use

- You can add, delete, modify, and query domain names on your own by using a wide range of simple custom configuration options. CDN supports customizing anti-leech measures, cache policies, HTTP request headers, and other functions.
- The open API interfaces provide functions such as service activation, content refreshing, monitoring data retrieval, and distribution log downloads.

4 Limits

Restrictions on the use of CDN

1. Real-name registration must be performed for accounts on the Alibaba Cloud official website.
2. A CDN domain must have an *ICP license* and be connected to Alibaba Cloud.
3. The origin site content of a CDN domain must be stored on Elastic Compute Service (ECS) or Object Storage Service (OSS). If the origin site content is not stored on Alibaba Cloud, access must be reviewed.

Domain Name reviewing standards

All domains attempting to access CDN must be reviewed. CDN access is not allowed in any of the following scenarios:

- The CDN domain cannot be accessed or the content does not include any substantive information.
- The CDN domain is for a private game server.
- The CDN domain is used for role playing games or card games.
- The CDN domain name is for website that has no download rights such as pirate software
- The CDN domain is for a P2P website.
- The CDN domain is for a lottery website.
- The CDN domain is for an illegal hospital or pharmaceutical website.
- The CDN domain is for a site involving porn, gambling, drugs, etc.

Note:

The losses incurred by attacks or malicious download because the CDN domain name does not comply with the previous rules will be born on you, and Alibaba Cloud CDN carries no responsibilities.

- Domains that have accessed Alibaba Cloud CDN will be reviewed regularly. If any of these violations are detected, the system immediately terminates the CDN acceleration of the domain name, and stops the CDN service for all your domain names at the same time.
- If your CDN domain name cannot be accessed normally or is denied due to reason which does not contain any substantive information, and your business is a compliance business , you can submit a ticket, and send the screenshots of the web site business content(which

contains the domain name) through the ticket. After the ticket is reviewed separately, you will be informed of the results of the second audit.

Restriction

Quantity	Limit quantity
Quantity	Limit quantity
Domain Name	The maximum number of CDN domains for each Alibaba Cloud account is **50** .
IP origin site	The maximum number of IP origin sites for each CDN domain is **10**.
Cache refresh and push operations	**refresh:**2000items/day/account. **Directory refresh:**100100 items/day/account.

If you have a large number of domain name acceleration needs, submit a ticket for special support .

CDN domain name reclaiming rules

If your CDN domain name...	The system will...	To continue using CDN acceleration, you must...
not access traffic for more than 90 days (including "normal operation")	Automatically deactivate the domain name to save the CDN domain name related records	Enable CDN domain names.
Is in the disabled state for more than 120 days (including auditing failed)	Automatically delete the domain name related records.	Re-add the domain name.

5 Scenarios

To accelerate the distribution of resources for websites, or applications,

with a large volume of static resources. We recommend that you separate the dynamic and static contents. You can use Alibaba Cloud CDN to accelerate the static content, and use cloud server ECS to accelerate dynamic content. For large volumes of static resources such as image, css , and small js files, we recommend that you store them on OSS. This can accelerate content download speeds and make it easy to perform distribution for images, videos, and other media content.

Architecture

Acceleration of on-demand audio and video/large file downloads and distribution

Alibaba Cloud CDN supports the downloading and distributing of various types of files. It also supports the acceleration of online on-demand streaming services, for example, MP4 and FLV videos, or scenarios where the average size of a single file is greater than 20 MB. The primary service scenarios are on-demand video/audio and large file downloads (for example, installation packages). You can combine CDN with OSS to increase origin retrieval speeds to reduce origin retrieval bandwidth cost by 2/3.

Architecture

Live acceleration

Alibaba Cloud *ApsaraVideo Live* service has been released on-line separately. ApsaraVideo Live is an audio-video platform based on the latest accessible content, CDN network and largely distributed real-time transcoding technology. It offers high-definition, live audio-video feed services that are fluent and easily accessible with low latency rate and are high in concurrency. It supports multiple live scenarios, with all-round data statistics and a wide array of perspective analysis. It also provides multiple lives features, such as recording playback, real-time covers, real-time transcoding, and connected-microphone multiplexing.

Architecture

Mobile application acceleration

For the distribution of mobile app update files (APK files), CDN delivers optimized and accelerated distribution of in-app images, pages, short videos, UGC, and other media content. The http DNS

service prevents DNS hijacking and retrieves precise DNS resolution results in real time, effectivel y reducing user access time and improving user experience.

Architecture

6 Terms

Acceleration domain name

An acceleration domain name, specified by you, can be a website, an email address, or an FTP server. In Alibaba Cloud CDN documentation, acceleration domain name refers to domain name.

Origin site

The origin site is the server where your actual business and service is. Origin sites can be one of three types: OSS back-to-origin domain, IP, or custom.

CNAME record

A Canonical Name (CNAME), another domain name, can be used to resolve one domain name to another.

For example, a large amount of information is stored on your server, which can be accessed through `docs.example.com`. Now, you want to be able to access the same information through `documents.example.com` too. You can add a CNAME record at your DNS service provider, pointing`documents.example.com`to`docs.example.com`. Then, all requests to access `documents.example.com` are transferred to`docs.example.com`, giving access to the required information.

CNAME domain name

After you open CDN and add your domain name on Alibaba Cloud Console, you will receive a CNAME domain name, in the format `*.*kunlun*.com`. Then, you can add a CNAME record on your DNS provider, directing your acceleration domain name to the domain name `*.*kunlun*.com`. When the CNAME record is activated, DNS, all requests to access the acceleration name can be transferred to CDN nodes.

SSL/TLS

SSL (Secure Sockets Layer) is a TCP-based secure communication protocol. It efficiently helps applications and software guarantee the completeness and security of data transfers over the Internet. TLS (Transport Layer Security) evolved to the SSL after standardization. As a result, SSL and TLS are collectively known as SSL/TLS.

DNS

DNS stands for Domain Name System. It provides a domain name resolution service, converting a domain name to an IP address, so that it can be recognized by the network. People tend to

remember domain names, while machines remember IP addresses. In fact, domain names and IP addresses are synonymous with each other. Domain name resolution requires a dedicated domain name resolution server, and runs automatically. For example, the domain name `www.baidu.com`is automatically converted to the IP address `220.181.112.143`. You can use Alibaba Cloud DNS or other DNS products.

Edge nodes

In this document, the terms edge node, CDN node, cache node, acceleration node, and Alibaba Cloud node refer to Alibaba Cloud edge node, sometimes shortened to node. Edge nodes form a network of servers, and are located in areas across the globe. When a user requests content, the content is cached in the nearest edge node to the user, and then distributed to the user. In this way, edge nodes allow users to more efficiently acquire resources.

Back-to-origin Host

The origin site determines the IP address to which a back-to-origin request is sent. The Back-to-origin Host determines the specific site of the IP address to which a back-to-origin request is sent.

Example 1: The origin site is a domain name. If the origin site is`www.a.com` and the back-to-origin host is`www.b.com`, the actual back-to-origin request is sent to the IP address resolved from`www.a.com` corresponding to the site `www.b.com`on the host.

Example 2: The origin site is an IP address. If the origin site is1.1.1.1, and the back-to-origin host is `www.b.com`. Then, the actual origin retrieval request is sent to`www.b.com` on the host corresponding to 1.1.1.1.

Back-to-Origin Protocol

The protocol used during a back-to-origin request is consistent with the protocol used when the user accesses the resource.

- When an end user requests the resource by using HTTPS, CDN nodes will access the uncached resources from the origin site by also using HTTPS.
- When an end user requests the resource by using HTTP, CDN nodes will access the uncached resources from the origin site by also using HTTP.

Filter parameters

With Filter Parameter, you can control whether to filter out the section of a URL after the “?” (question mark) when caching contents to nodes based on your business needs.

- If you enable this function, CDN nodes will filter out the part of the URL after the "?", then cache only one copy of each URL if the part of the URL before the “?” is the same.
- If you disable the function, CDN nodes will cache a copy of each URL.

We recommend that you enable the Filter Parameter function if different parameters in your URL indicate the same content, which will efficiently improve the caching hit rate.

7 Change History

Time	Description
2008 ~ 2011	Taobao CDN was initiated, providing technical support for Taobao.
2011 ~ 2014.02	Taobao CDN evolved into Alibaba CDN, providing technical support for all subsidiaries of the Alibaba Group.
2014.03.21	Alibaba Cloud CDN service officially launched, beginning its commercialization progress.
2015.05.22	Following the State Council's proposal, Alibaba Cloud CDN reduced the price by 21%.
2015.06.04	Alibaba Cloud CDN released Custom 404 Page feature.
2015-06-18	Alibaba Cloud CDN released the OpenAPI to support adding, deleting, modifying, and querying CDN domain names.
2015-07-31	Alibaba Cloud CDN released the acceleration solution for live streaming, with the Video-on-Demand authentication function.
2015-08-27	Alibaba Cloud CDN released the Set HTTP Request Header function.
2015-09-24	Alibaba Cloud CDN added support to exporting traffic report of resource monitoring, safeguarding your resource delivery in a mulch -dimensional level.
2015-10-13	Alibaba Cloud CDN added support to setting caching policy and priorities for multiple origins.
2016-12-29	Alibaba Cloud CDN established its complete OpenAPI system and released APIs for domain name configuration and resource monitoring.
2016-02-02	Alibaba Cloud CDN added its pricing policy , making prepay CDN resource package available.
2016-03	Alibaba Cloud CDN released video, big data, HTTPS, and many other functions.

Time	Description
2016-12	Alibaba Cloud CDN got the first CDN license in Mainland China.
2017-08	Alibaba Cloud CDN released SCDN and Dynamic Route for CDN, respectively emphasizing security and dynamic resources.
2018-07	Alibaba Cloud CDN updated the console, optimizing user experience.
2018-09	Alibaba Cloud CDN released new versions of API.

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 virture 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.
Zhihu	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.

Typical Customer	Descriptions
Momo	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.
UC	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&M much easier.