HttpDNS

Product Introduction

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What is HttpDNS?

HttpDNS sends domain name resolution requests to Tencent cloud DNS servers through HTTP protocol. Compared with traditional DNS service that implements resolution by accessing ISP LocalDNS, HttpDNS avoids domain name hijacking and cross-network access problems caused by LocalDNS, and solves domain name resolution exception in mobile Internet services.
With years of technology experience and supported by DNSPod, HttpDNS has provided reliable services for over 400 million users.

What problems can HttpDNS solve?

HttpDNS can solve DNS resolution exception and domain name hijacking in mobile Internet:

- Status quo of mobile DNS: The LocalDNS export of ISP performs NAT according to the destination IP address of authoritative DNS, or forwards resolution requests to other DNS servers. This may cause that the authoritative DNS cannot correctly identify LocalDNS IP of ISP, resulting in domain name resolution failure and cross-network traffic.
- Consequences of domain name hijacking: Websites cannot be accessed (cannot connect to the server) and phishing sites may be accessed.
- Consequences of cross-domain, trans-provincial, cross-ISP or cross-border result resolution: The access is very slow, or the website cannot be accessed.

How does HttpDNS work?

- Client directly accesses HttpDNS API to obtain the optimal IP of domain name. (Considering disaster recovery, it is recommended to use ISP LocalDNS as an alternative to resolve domain name.)
- When a business IP is obtained, the client sends business protocol requests to this IP. Take HTTP request as an example. Through specifying Host field in header, the client can send standard HTTP request to the IP returned by HttpDNS.

Quality of HttpDNS service

HttpDNS service ensures high availability and fast response

- BGP Anycast network is deployed: HttpDNS deploys BGP Anycast network architecture and establishes BGP interconnection with Top 17 ISPs in China, enabling quick forwarding of user requests of all ISPs to HttpDNS servers. As more and more ISPs are connecting with HttpDNS, fast service response can be guaranteed.
- Remote disaster recovery and real-time failover: HttpDNS deploys multiple nodes in IDCs of North China, East China and South China. If any node fails, it can seamlessly switch to a backup node to ensure high availability of services.

Features of HttpDNS Enterprise Edition

- Self-developed intelligent SDK (available for iOS and Android) with a coverage of over 100 million users
- Supports Encryption
- 99.99% availability guaranteed by SLA
- Unlimited queries
- Provides user access distribution report
- Supports edns-client-subnet
- Provides technical support via Ticket system and phone calls

Use Cases

1. Mobile Application Scenarios

HttpDNS replaces the default domain name resolution method of mobile Apps and desktop applications by HTTP protocol to avoid abnormal user network access caused by ISP LocalDNS service error.
HttpDNS is mainly used in the development of the following types of mobile Apps:

- Information and Game Apps
  Demands: Lower access latency, reduce cross-network accesses, and increase response speed
  Customers: Tencent Game Center, autohome (汽车之家)

- E-commerce Apps
  Demands: Reduce connection failures, improve business efficiency, and improve stability
  Customers: Jumei (聚美), ele (饿了么)

- Social Apps
  Demands: Avoid domain name hijacking, ensure users can access the App safely and correctly
  Customers: Mobile QQ

- Audio/Video Apps
  Demands: Require high smoothness, increase the successful connection rate of music and video playback
  Customers: bilibili, QQ Music

2. Related Data

Tencent Cloud HttpDNS is now serving over 400 million end users. With the help of HttpDNS, access failures caused by domain name hijacking is reduced by 60%, and the average user delay is lowered by 22%.

Customers got great results after using HttpDNS:

- Tencent Game Center: User resolution latency is lowered by 13%, and the cross-network accesses are greatly reduced.
- Tencent News: User connection failure rate is lowered by 22%
- QQ Music: The overall user access latency is lowered by 13%.
- Mobile QQ: Access failures caused by domain name hijacking are reduced by 99%.

Advantages

Technically, HttpDNS only changes the domain name resolution protocol from DNS to HTTP. It's not complicated, but this tiny change brings huge benefits:

Troubleshooting Abnormal Domain Name Resolution

Http protocol allows the request for domain name resolution to be transparently transmitted to the HttpDNS server IP rather than ISP LocalDNS. Therefore, the user's request for domain name resolution in client will not suffer from abnormal domain name resolution.

Refined Scheduling

Combining IP address warehouse generated by proprietary technology of DNSPod and speed measurement system, HttpDNS can directly obtain the user IP and guarantee to guide users to the IDC node that has the fastest access speed.

Cost-Effective

To connect to HttpDNS, only a small change to the client's access layer is required and the user's mobile phone does not need to be rooted or jailbroken. Meanwhile, the simple structure of Http protocol request allows it to be compatible with any versions of mobile operating system. In a word, with minimal change costs, the abnormal domain name resolution is solved while the need of refined traffic scheduling is also met.

High Scalability

HttpDNS provides a reliable domain name resolution service. The business can combine its scheduling logic with returned results of HttpDNS to achieve more refined traffic scheduling. For example, a specified version of client can be connected to a requested IP address, and a user with a specified network type can be connected to a specified IP address.

Generally, HttpDNS avoids the problem of failing to access the expected optimal point and further the business due to abnormal LocalDNS used by mobile Internet users.