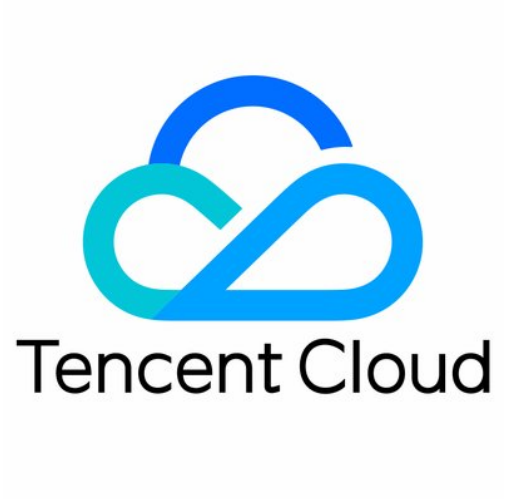
Anycast Internet Acceleration

Product Introduction

Product Documentation



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Overview

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What is Tencent Cloud Anycast Internet Acceleration?

Tencent Cloud Anycast Internet Acceleration (AIA) is a dynamic acceleration network with global coverage that can greatly improve the Internet access experience of your business. Unlike other application-layer acceleration services, AIA can optimize IP transfer quality, enable access from the nearest entry node and reduce network transfer jitter and packet loss, thereby improving the service quality of in-cloud applications, expanding the service scope and simplifying backend deployment.

Why Tencent Cloud AIA?

Low latency

AIA uses the Anycast method to simultaneously publish an IP to multiple regions. The request packet will reach the optimal IP publishing region according to the transfer protocol. The packet will prioritize entering Tencent Cloud before reaching the server through Tencent Cloud's private network lines, avoiding Internet congestion and reducing latency.

High reliability

Internet transfers can be unreliable. For example, if a line interruption of the ISP leads to an inability to access the Internet, users will have no choice but to wait for recovery to complete the transfers. With the help of AIA, multiple paths and entries are made possible by Tencent Cloud's private networks, the ISP's backbone networks and Tencent Cloud's POPs, preventing connection failures caused by single-region or single-line network outages and enhancing network stability.

Reduced Jitter

Unstable performance of the Internet link can lead to an unstable service experience such as network jitter caused by cross-ISP or cross-border connection issues. In contrast, Tencent Cloud private network lines offer stable performance. AIA allows the request to access the nearest Tencent Cloud node and be transferred through Tencent Cloud's private network lines across regions, perfectly resolving Internet jitter issues.

Simplified deployment

Implementing services that are accessed by end users in many different regions can be cumbersome because servers have to be deployed in each region, DNS has to be properly configured to enable load balancing and IPs vary in different regions. AIA eliminates the need to configure IPs for each region, avoiding geographic dispersion at the IP level. In addition, only one set of logics need to be maintained on the backend, as requests from different regions are accelerated to reach the backend servers through the private network.

Global Load Balancing

AIA uses the Anycast addressing method to simultaneously publish the IP to multiple regions. The request packet will reach the optimal IP publishing region (usually the nearest region) according to the transfer protocol, which achieves global load balancing. Additionally, in the case of a traffic-based attack, the cross-region publishing of IPs helps distribute the attacking traffic.

Ease of use

AIA is compatible with common IP operations, allowing you to purchase just one accelerating elastic public IP and simplifying usage. It supports self-service Internet bandwidth limiting, making it easy to configure upper limits for bandwidth based on cost or server processing speed. In addition, it supports traffic monitoring for backtracking and analysis as well as binding and unbinding for easier backend resource changes.

Features

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Tencent Cloud AIA can help publish an EIP to multiple regions by way of the Anycast technology to implement the following features:

Same Server in Multiple Regions

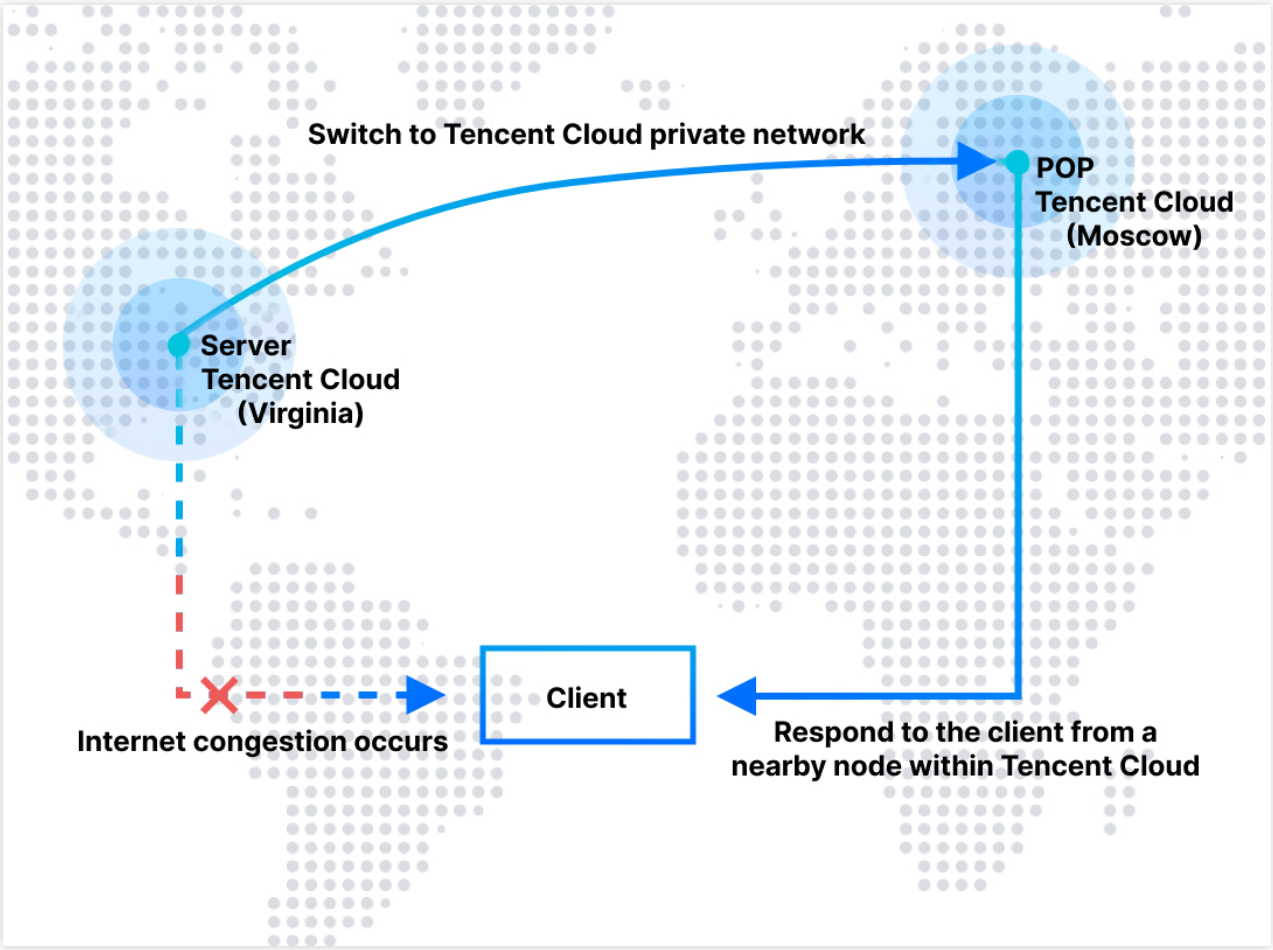
All user requests and responses can come in and out of the nearest Tencent Cloud access point, and only one set of service cluster, database, and storage node needs to be deployed at the backend. With the aid of Anycast, the backend service will be available in multiple regions through Tencent Cloud's dedicated private network connection. In contrast, in a traditional mode, one set of cluster or storage node needs to be deployed in each region to serve users nearby.

Multi-Region Acceleration

AIA helps avoid slow connection to the Internet, and services are not affected by Internet congestion, cross-carrier issues, and ISP failures.

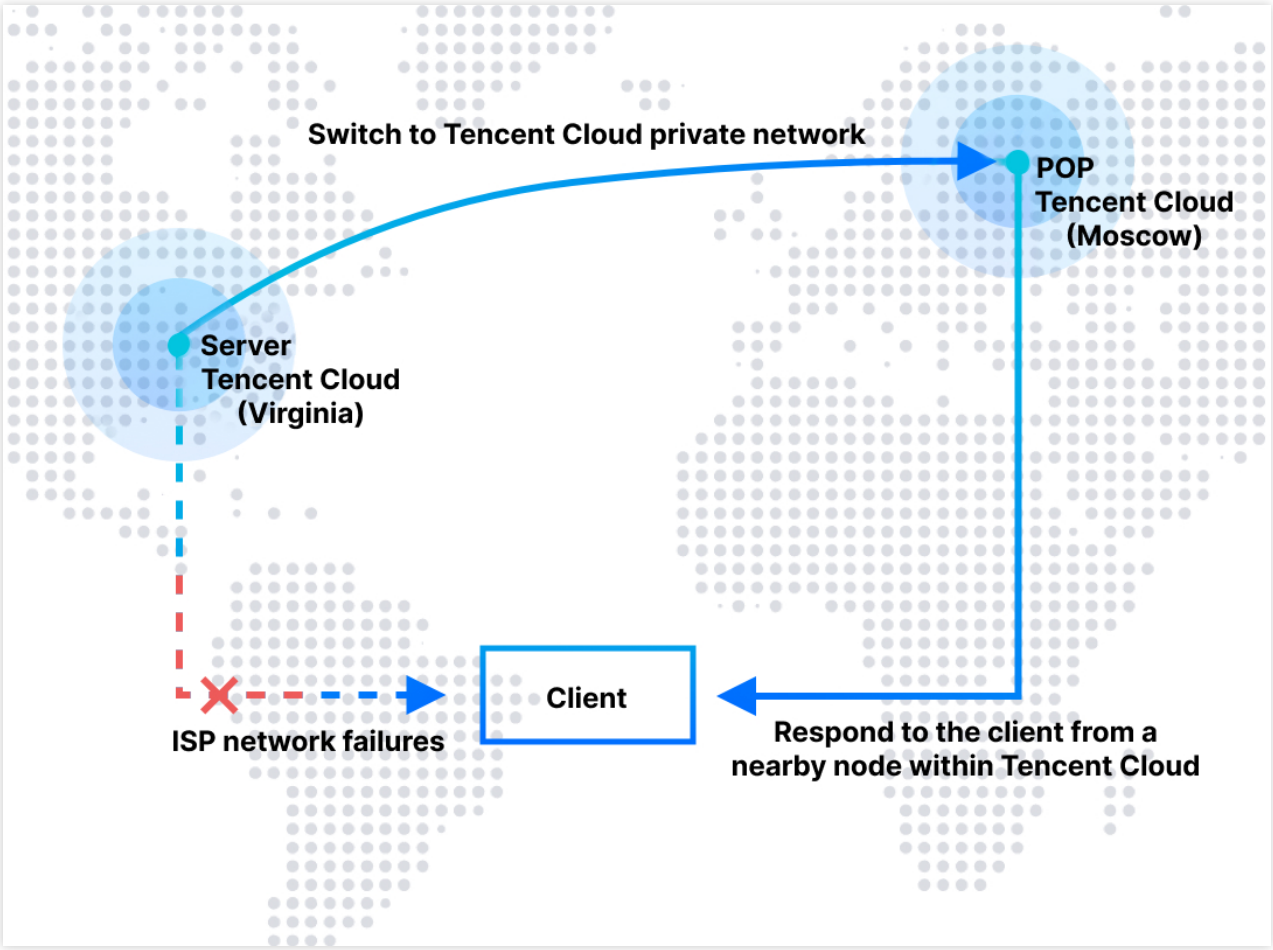
Avoiding Congestion

Anycast is capable of avoiding Internet congestion.
As shown below, when the public network line from the server to the client is congested, the data can be transmitted to the POP closest to the client through Tencent Cloud's dedicated private network connection to respond to the client's request, thereby avoiding the congestion.



Blocking Failures

ISP networks may fail from time to time, and Anycast can be used to block the failures.
As shown below, when the ISP network from the server to the client fails, the data can be transmitted to the POP closest to the client through Tencent Cloud's dedicated private network connection to respond to the client's request, thereby blocking the network failure.



Additional Information

The following concepts can help you better understand AIA:

For more information on the concepts, please see Glossary.

To provide Anycast service, public cloud vendors must have interconnection network nodes deployed across regions and support cross-region network scheduling. AIA offers the following basic capabilities:

Multi-path ISP aggregation: Tencent Cloud has BGP network egresses with 35+ ISP lines at the Tbps level.

Multi-node interconnection: Tencent Cloud's global backbone network at the Tbps level is used for hosting.

Multidimensional network monitoring models, global network monitoring alarms, and real-time detection of internet conditions are available.

SDN controller that controls the entire network can change IP publishing regions in seconds and enable multidimensional fine-grained control.

Optimal path algorithm is generated through self-learning.

Use cases

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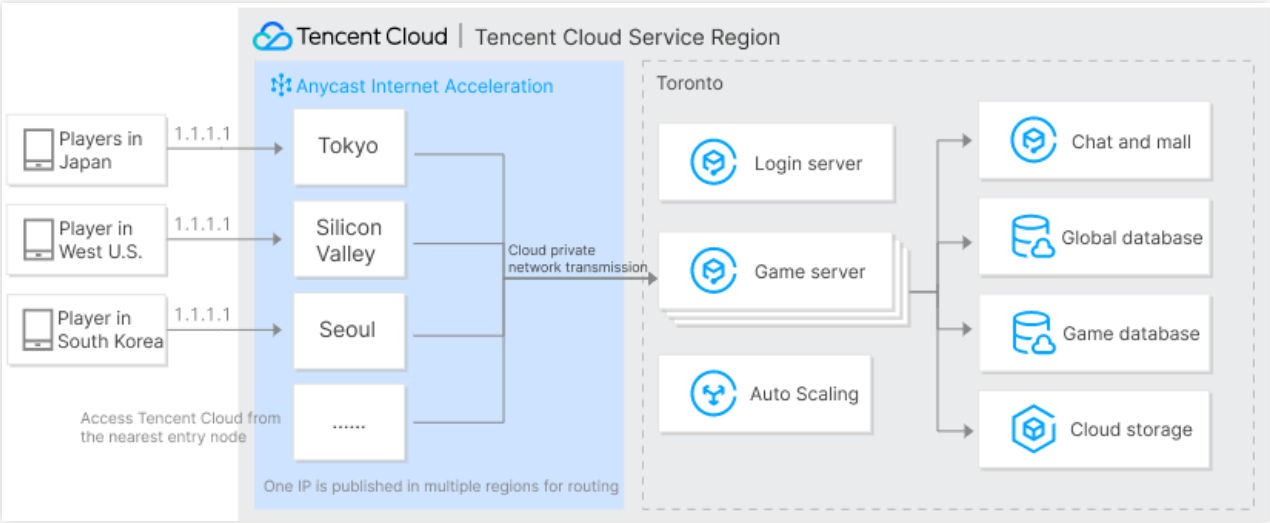
AIA can optimize IP transmission quality and enable multi-entry nearby access. This document describes the application scenarios of AIA.

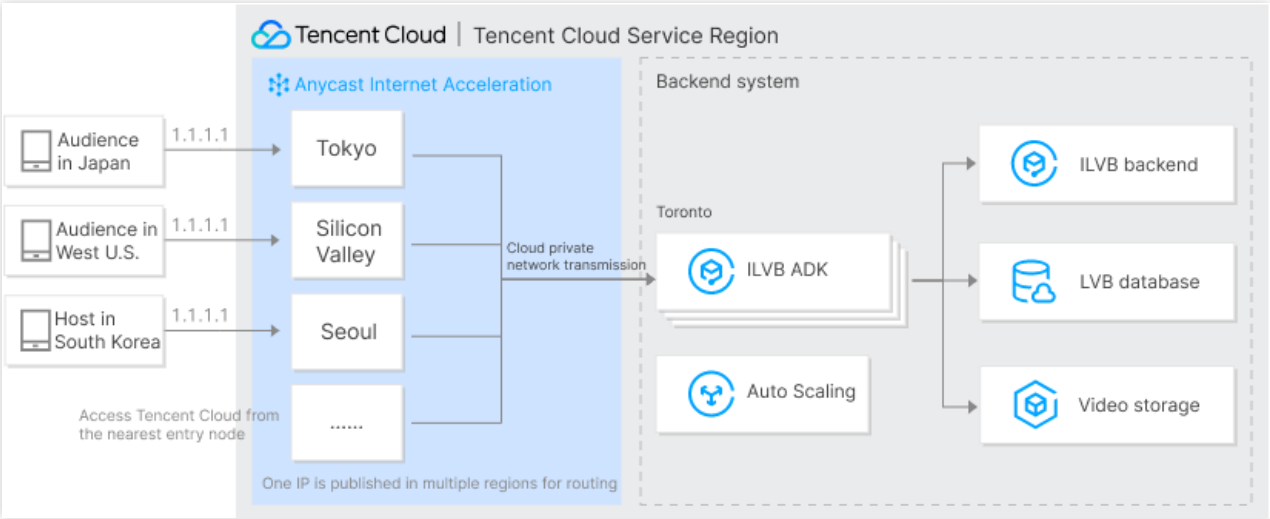
Game Acceleration

An Anycast IP can be used for gaming acceleration. Through AIA, game requests can access Tencent Cloud from nearby entries and get to game servers through Tencent Cloud's private network, greatly shortening the public network path and reducing problems such as latency, network jitter, and packet loss. Compared with the traditional acceleration service, an Anycast IP requires no extra deployment of traffic receivers at the entry and eliminates the need for zoning, thus simplifying DNS deployment.



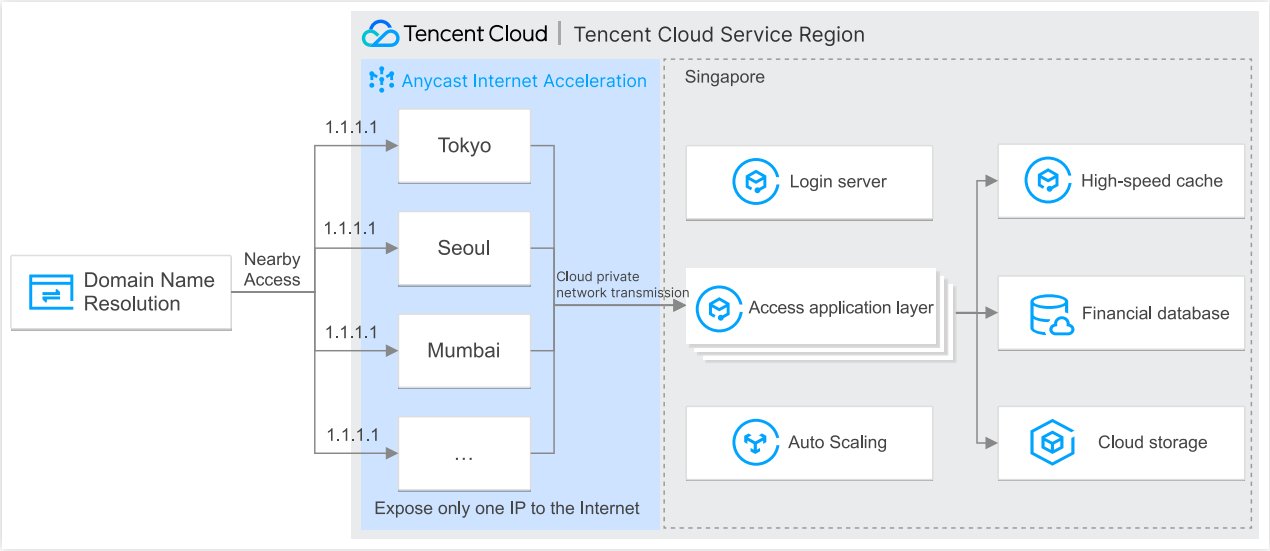
Interactive Live Video Broadcasting (ILVB)

If high-quality and latency-free audio/video streaming is desired during live video broadcasting (LVB) in the case of cross-region transmission, the LVB platform needs to establish the dedicated network and access points that cover multiple regions. With the aid of AIA, the LVB platform can directly use Tencent Cloud's private network and POPs to serve users, without the need to set up a dedicated network connection from scratch.



Financial Service

Financial services such as securities trading highly require real-time performance, but unstable public network transmission cannot meet this requirement. After the access layer of financial applications is bound to an Anycast IP, data can be transmitted over Tencent Cloud's private network to make these applications available in multiple regions. In addition, the AIA service also allows the same IP to be used in multiple regions, which simplifies IP-related approval work, such as ICP filing and registration with financial regulator registration.

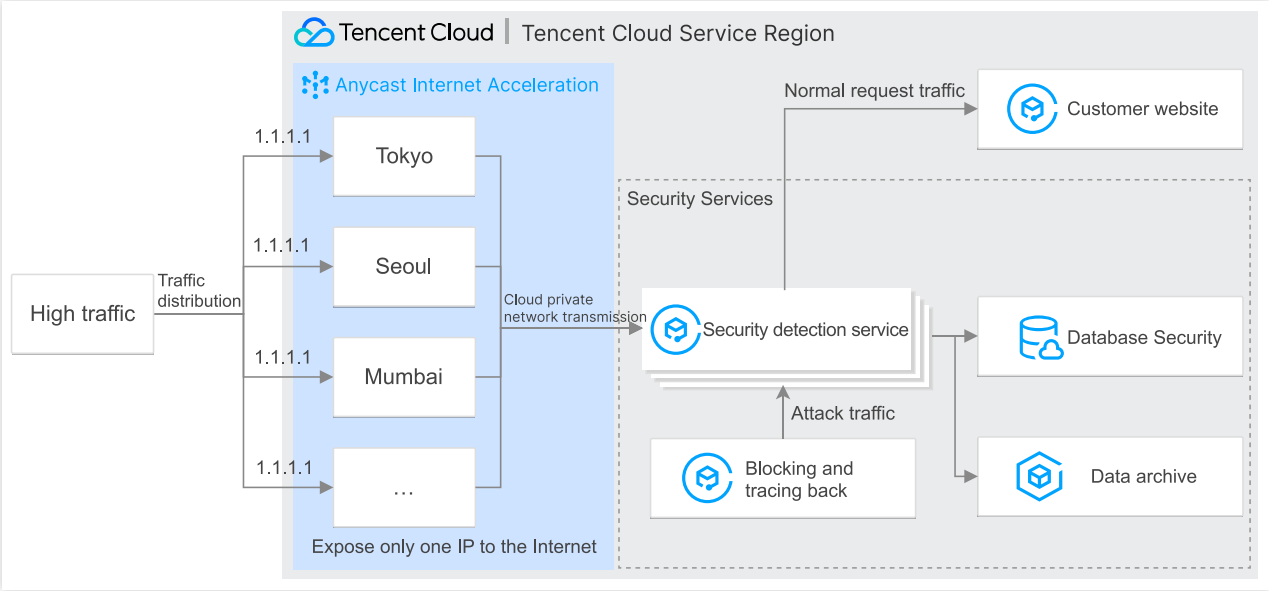


Security Service

Security cleansing service providers, games, and large website applications are often under various high-traffic attacks such as Syn Flood and ICMP Flood. An ordinary public IP is generally published in a single region, so all attack traffic flows through the single ingress/egress. With AIA, an IP can be simultaneously published in multiple regions without the need to change the DNS configuration, and the attack traffic is diverted to nearby ingresses for processing.

Note:

Anti-DDoS Basic is enabled for AIA by default, which gives an AIA IP the same basic DDoS attack prevention capabilities enjoyed by a BGP IP. If you need a higher level of protection, please purchase Anti-DDoS Pro.



Use Limits

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This document describes the use limits of AIA.

Restrictions

AIA only provides acceleration services for regions outside the Chinese mainland. It does not accelerate the transmission between the Chinese mainland and other regions.
The Anycast EIP can be bound to a CVM instance, NAT Gateway, ENI, HAVIP, and private network CLB.
When an Anycast EIP is created in the console, only one AIA BGP bandwidth package will be automatically created for each region. This bandwidth package only records the bandwidth usage details in the region, which is not used for billing.
All Anycast EIPs in a single region are aggregated into the bandwidth package of the region, which is subdivided into bandwidth packages corresponding to the acceleration region. Assume you create an Anycast EIP in the Asia Pacific region (Hong Kong, China), the bill lists three bandwidth packages: Asia Pacific to Asia Pacific, Asia Pacific to North America, and Asia Pacific to Europe.

Bandwidth Cap

The network bandwidth cap configured for an Anycast EIP refers to the maximum outbound bandwidth, i.e., the bandwidth flowing out from the Anycast EIP. The supported network bandwidth cap is 1-2000 (inclusive) Mbps.
Note:
An Anycast EIP created after July 20, 2021, 00:00:00 restricts the total outbound bandwidths of a single IP to the bandwidth cap. However, the bandwidth cap configured for Anycast EIPs created before the time point still restricts the maximum bandwidth going to a single region.
To restrict the total outbound bandwidths of an Anycast EIP created before July 20, 2021, you can adjust the bandwidth cap to apply the new rule.

Peak Bandwidth

Peak Bandwidth	Description
Single	The peak bandwidth of instances including public IP and EIP in a single bandwidth package is

instance	2 Gbps. The peak bandwidth is only regarded as the maximum possible peak bandwidth, and not as the committed bandwidth. In case of resource contention, the peak bandwidth may not reach this value.
Single region	The sum of peak bandwidths of all the running instances billed on bandwidth packages cannot exceed 50 Gbps in one region. If your application requires a guaranteed or higher bandwidth, contact your sales rep or contact us.

References

Elastic IP (EIP)

Version History

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Updated on	Description
June 30, 2019	Private network CLB can be bound.
December 30, 2018	Service coverage in Southeast Asia is optimized.
March 31, 2018	The acceleration scope is expanded with new POPs deployed.
November 23, 2017	Accelerated EIP of Anycast is released for beta test, and multi-region Anycast is supported.
January 20, 2016	Cross-region traffic scheduling is supported on the backend.