

Global CDNs in China: What You Need to Know About Performance

For multinational organizations striving to succeed in China, delivering a hyper-fast digital experience is imperative. The selection of a CDN provider plays a pivotal role in enabling this speed and helping to scale long-term revenue growth. In a market where Chinese consumers are digitally savvy and demand instant content delivery, the stakes are even higher. However, the complexities of achieving the highest performance in China are often obscured by bold claims from CDN providers that don't always reflect reality. This article cuts through the noise, providing you a clear, data-based perspective on how global CDNs like Fastly, Akamai, and Cloudflare truly operate in China, and what it takes to ensure success in this critical market.

When it comes to the big promises you've been told about CDN performance in China, Akamai and Cloudflare have long claimed that they're faster than Fastly. Below, we demonstrate the baselessness of these claims and show the real process of using a global CDN like Fastly, Akamai, or Cloudflare in China.

How Global CDNs in China really work

When a CDN sells you services in China, they're actually selling you on a combination of services between their own global network, and a local affiliate in China. They might claim some kind of special service or feature, but what they are actually offering is an agreement that transfers your traffic from their global CDN off to the local affiliate. This helps the CDN take advantage of the affiliate's ability to offer better performance thanks to their network of POPs (points of presence) being physically on the ground in China.

This reliance on the local affiliate inevitably results in you signing a separate contract with the affiliate directly – there is no global CDN who can independently handle delivery end-to-end for you including China. And no global CDN has exclusive access to any of the local Chinese affiliate CDNs either. Not Akamai, not Cloudflare, and not Fastly. So, once your traffic crosses into China, the only differentiator is which global CDN can move your traffic the fastest *into* that affiliate handoff.

Put simply, whichever CDN is the fastest into China, without or before using an affiliate, will provide you the fastest overall delivery. This is because all CDNs receive the same treatment for the 'last mile' of their service - handled by the local affiliates. Anyone claiming an advantage on the ground is likely overstating their performance in China (which is a good thing to know about them).

Do you need a local CDN in China to have acceptable performance?

Performance will always be better with a local CDN chained behind a global CDN provider, but content is still delivered at relatively high performance without one, per the 3rd party data below, as most global CDNs have POPs very close to China. Fastly's closest POP, for example, is in Hong Kong. Many companies begin by assessing their business performance in China without a local CDN before going to the complexity and cost of adding one for potentially marginal gains.

Does a local CDN provider reduce the risk of Censorship in China?

Based on all available data, the answer is No. Any content can be censored, based on the content itself, not the medium by which it is transported in the country. Non-use of a local CDN does not appear to disadvantage a content provider and content can be censored on a local CDN just as much as that from a global CDN.

A data-based look at performance

In an effort to perform an objective data-based look at CDN performance in China, Fastly uses 3rd party data from NetScaler (formerly Cedexis) to make an apples-to-apples comparison. The data below is theirs, not modified by Fastly, and gathered from real users in China for the first 8 months of 2024 (from January 1st through the end of August. For complete transparency, our methodology notes are available at the bottom of this report.

Key results

Fastly's mean, median, and 75th percentile performances in China were better than Akamai and Cloudflare without local CDN chaining.

- This means that Fastly's average speed across all requests in this sample over the past two years is faster than theirs.
- This means that the most commonly seen response time for requests over the past two years is faster than theirs.
- This means that when you look at the 75th percentile for performance in China (the measured response time for each provider where 75% of responses are below that time, and 25% are over it), Fastly performed better than Akamai and Cloudflare.
- Most importantly, this means that Fastly outperforms these vendors in China. We do it without affiliate peering, and the extra speed Fastly offers in delivering content from your origin to a Chinese affiliate network is an advantage that the competition can't overcome.

The performance gains you get with Fastly **on the way** to China are preserved once you're in China, and the data validates this fact. So get faster everywhere, all over the world, and even in China, with Fastly.

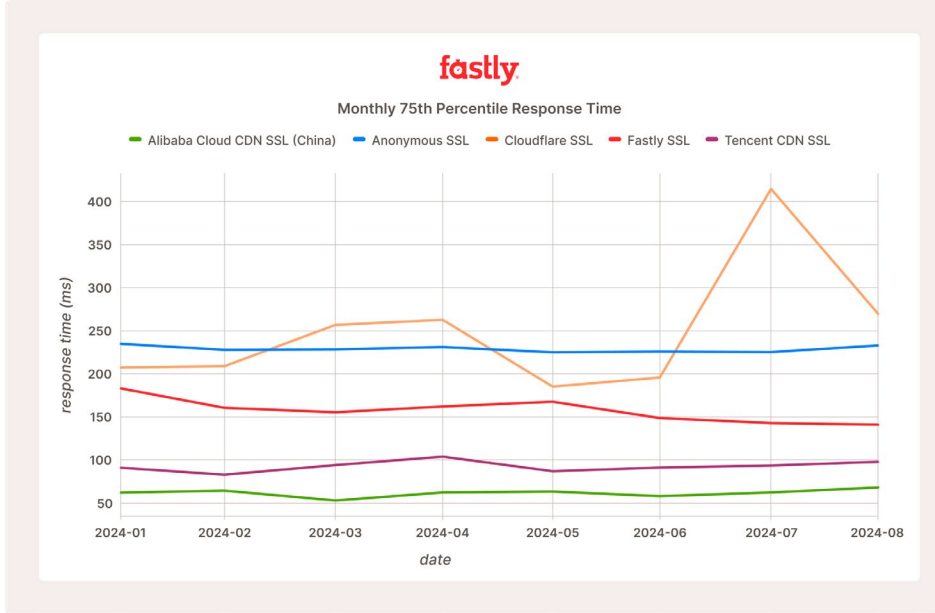
Deep dive on the data

To validate CDN speed performance in China, Fastly implemented a longitudinal benchmark study using NetScaler to collect data around the clock from the top 10 percent of networks in China. We measured the time it takes for a CDN to deliver the first byte of data in a secure request. The performance of each CDN was then analyzed by calculating key metrics like average latency across different percentiles each day. This data was visualized in monthly charts, showing the average performance of CDNs from January to August 2024.

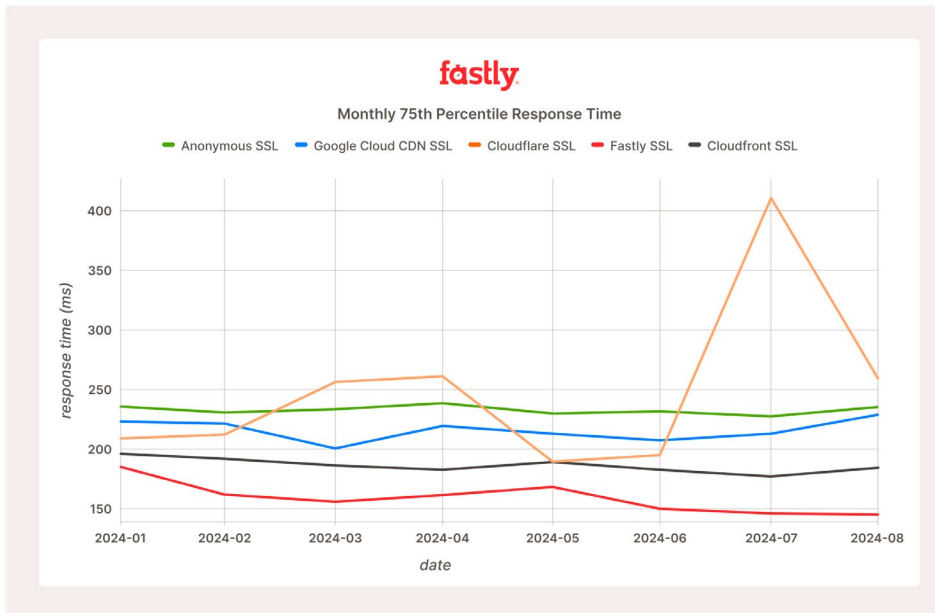
The charts below show the monthly 75th percentile response times, and the monthly mean response times for the three global CDNs (Fastly, Akamai, and Cloudflare), plus the bundled CDNs that are a part of AWS and Google Cloud in their public cloud offerings (AWS Cloudfront and Google Cloud CDN), and two major Chinese CDNs (Alibaba Cloud CDN and Tencent CDN).

Monthly 75th Percentile Response Time

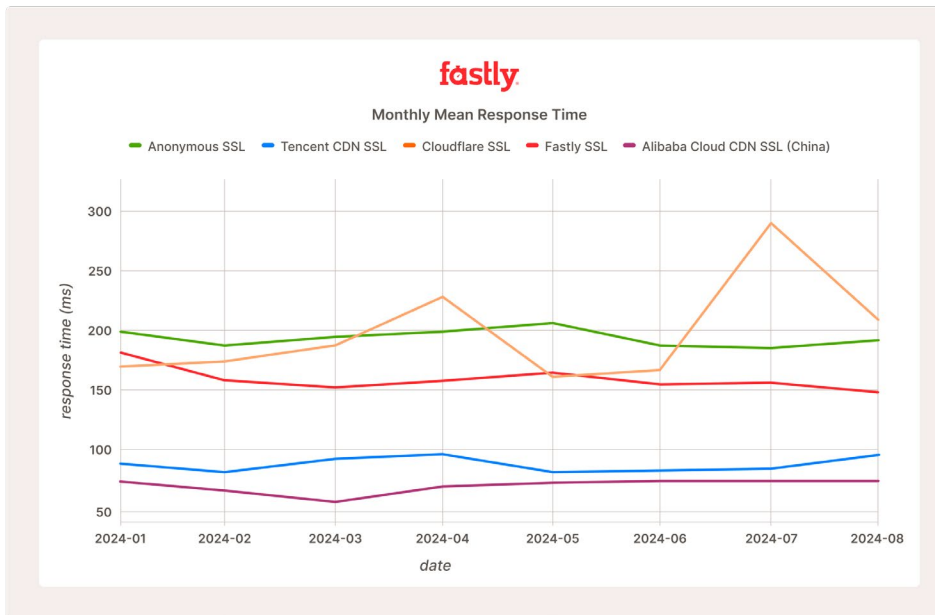
Among the top 3 global CDNs (Fastly, Akamai, and Cloudflare) and two major Chinese CDNs (Alibaba Cloud CDN and Tencent CDN), Fastly consistently performs the best for response time of the global CDNs, with Cloudflare and Akamai showing a slower performance. Fastly is only beaten by Alibaba and Tencent, as is expected for a performance check in China.



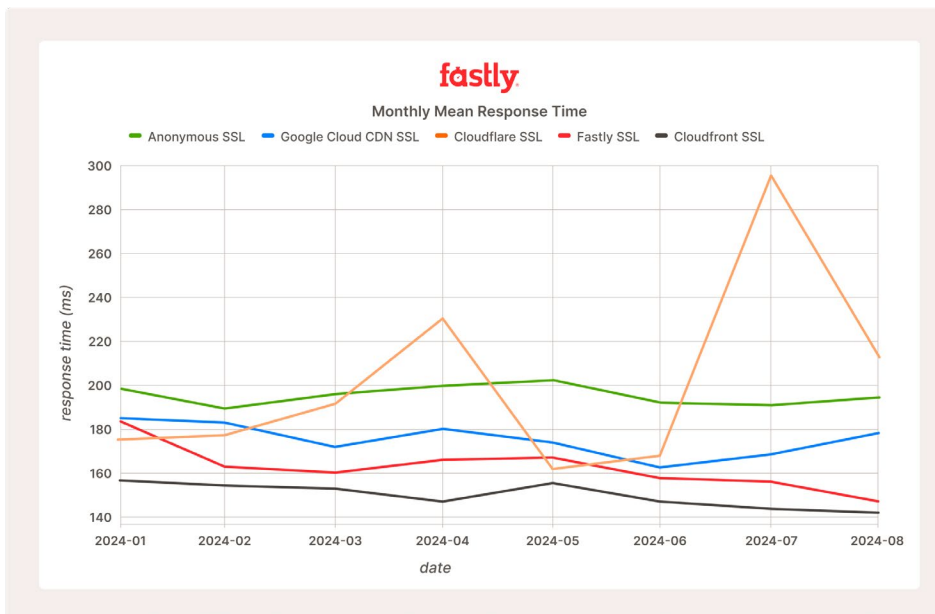
When we add in AWS Cloudfront and Google Cloud CDN (the built-in CDNs that are a part of Google and Amazon's public cloud offerings) we see that Fastly is still the clear winner for all non-Chinese CDNs.



When looking at Monthly Mean Response time we see the same pattern – Fastly is the fastest of the global CDNs, with Cloudflare and Akamai delivering a slower mean response time.



When we add in AWS Cloudfront and Google Cloud CDN (the built-in CDNs that are a part of Google and Amazon’s public cloud offerings), we see that Fastly beats everyone but Cloudfront during this testing period, with Cloudflare and Akamai showing a slower performance. Fastly did beat Cloudfront in preparatory and some ancillary tests, but results varied. Fastly consistently beats Cloudfront in global performance testing.



Conclusion

The key takeaway from this longitudinal performance analysis is that Fastly consistently outperforms other global CDN providers in China, providing a distinct advantage in speed that others cannot replicate. Unlike other global CDNs, Fastly achieves superior performance without relying on affiliate peering, ensuring that the speed gained from your origin to a consumer or a Chinese affiliate network remains unparalleled. This advantage is critical for multinational organizations aiming to succeed in the highly competitive and demanding Chinese market, where digital performance can make or break business performance.

By choosing Fastly, you are not only optimizing your digital experience on a global scale but also ensuring that your performance in China aligns with or surpasses the expectations of the market's digitally savvy consumers. In a landscape where speed is paramount, Fastly's unique approach offers a competitive edge that is essential for driving long-term growth and meeting the demands of one of the world's most challenging markets.

Methodology

NetScaler provides 24-hour period measurements for a subset of data collected from the top 10 percent of contributing networks in the selected country, China. The latency metric is time to first byte, which is the time it takes from when the client sends the request to the time the first byte of the response arrives for secure static object delivery. NetScaler calculates the mean, 50th percentile, 75th percentile, and 95th percentile for each CDN every 24-hour period. We visualize this data in charts by taking the mean of all days in each month for each CDN's calculations, sampled from 2024-01-01 to 2024-08-31.