CLOUDFLARE®

Optimize Web Presence in China

Tapping into China's massive, complex, and repidly growing Internet economy.

1 888 99 FLARE | enterprise@cloudflare.com | www.cloudflare.com

Executive Summary

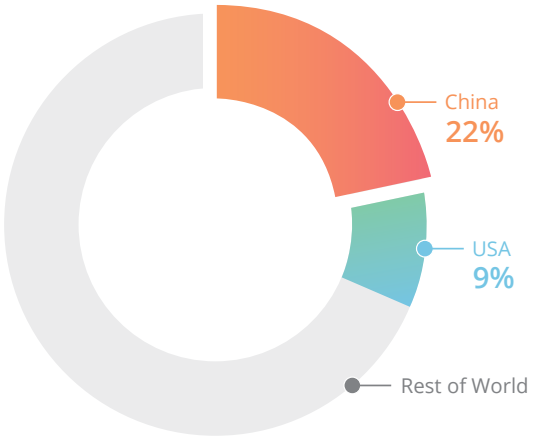
China is home to the world's largest Internet population with 720 million people online. This staggering number of web users still has capacity to double in size as China is only just passing 50% Internet penetration. However, tapping into this market can be difficult with regulatory requirements, malicious attacks and Internet infrastructure challenges. To help customers overcome these hurdles and streamline the process of website optimization in China, Cloudflare has seamlessly extended its global performance and security network services into China. Customers using Cloudflare's China Network service have shaved off seconds of latency per request and seen site availability improve by over 30%.

China's Massive Internet Economy

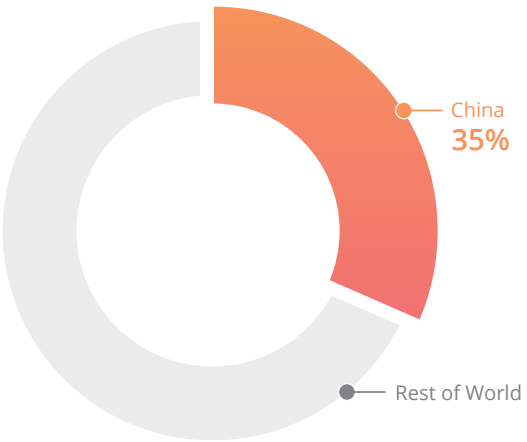
China has a vast, rapidly growing online economy. It is home to the world's largest Internet population with 720 million netizens; that's over one fifth of all Internet users globally, and two and a half times that of the United States. At only 52% Internet penetration (compared to the U.S. at 89% penetration), China's online market still has potential to double in size.[1] In 2015, over 10% of China's total retail transactions occurred online, with $253 billion spent in the first half of 2015 alone.[2] China's online shopping holidays are also on an unrivaled scale; in 2015, China's leading eCommerce platform, Alibaba, reported $14.3 billion in sales from Singles' Day, while U.S. companies combined for $3 billion in total sales on Cyber Monday.[3] Furthermore, these massive sales numbers are growing: by 2018 over 550 million people are expected to make online purchases annually, and by 2020, eCommerce in China is expected to reach over $1 trillion.[4]

Having an optimized online presence is necessary to succeeding in the Chinese retail market. 91% of all Chinese web users have social media accounts that they use to research brands and understand companies.[5] In 2015, online interactions with companies promoted $2.2 trillion in retail sales, influencing more than 64% of all in-store transactions. Furthermore, optimizing customers' online experience has critical impact on revenue, as people become more accustomed to faster Internet speeds. Websites that took six seconds to load saw a 40% decrease in sales conversion in 2010, while today this decrease has grown to 50%; businesses whose websites takes six or more seconds to load are losing every other paying visitor.[6]

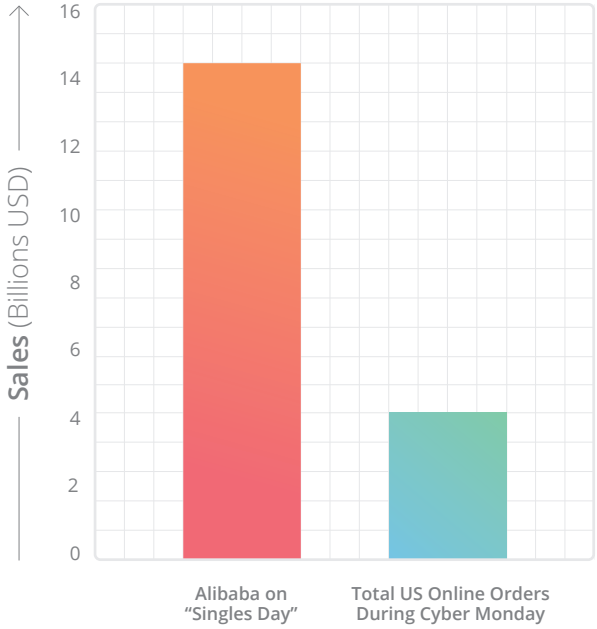
China's Share of the World's Internet Population



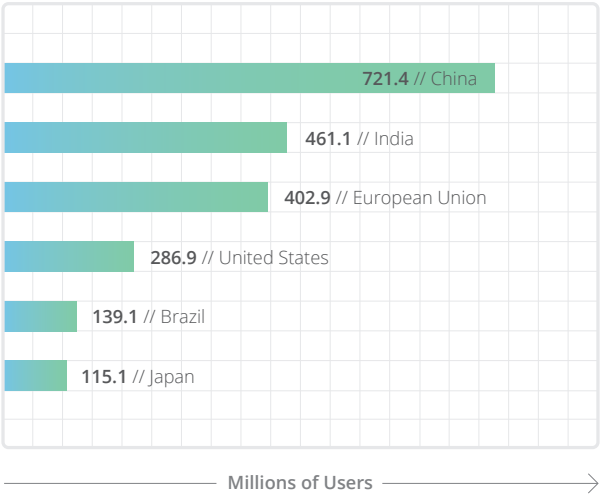
Total Global eCommerce Spending[1]



Online Shopping Holiday Sales



The Highest Number of Internet Users[2]



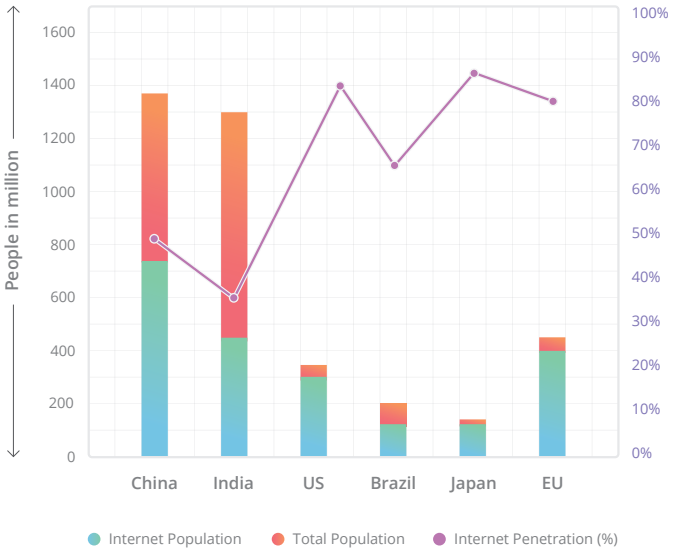
Challenges of Operating Online in China

Tapping into China's lucrative and growing Internet economy can be difficult. First, in order to serve online content inside China, companies need to obtain an Internet Content Provider (ICP) license from China's Ministry of Industry and Internet Technology. This can be a daunting and long process for foreign companies entering the market (See FAQ on ICP Licenses).

In addition, online operations face performance and availability challenges posed by China's unique and complex infrastructure. China has three connections with the outside world (located in Beijing, Shanghai, and Guangzhou), a limitation that often results in severe bottlenecks for web traffic coming into the country. When Cloudflare client Udacity first entered China, they noticed dramatic spikes in load time for web assets going into China. Paul Bauer, platform engineer at Udacity, explained, "Depending on your ISP (Internet service provider) in China, loading the assets from our classroom would take several minutes; that's because AWS CloudFront nodes were getting throttled like everything else coming from outside China to as little as 20Kbps." Udacity isn't alone; in a recent study performed by Mehdi Daoudi, CEO of Catchpoint systems, local websites were twice as fast as those served from outside China.[7] Serving your content inside of China and avoiding these choke points is thus critical to achieving high web performance in the country. Furthermore, increasing the performance of your site improves SEO rankings, as does serving content from within China.[8]

Even if companies host their websites within mainland China, there are further internal infrastructure complications to overcome. There are only three major ISPs that control the network inside of China: China Telecom, China Unicom, and China Mobile. Due to limited interconnection (peering) and the incredibly high volume of traffic in China, these networks are frequently congested, resulting in high latency and packet loss. Even

Internet Penetration by Country/Region

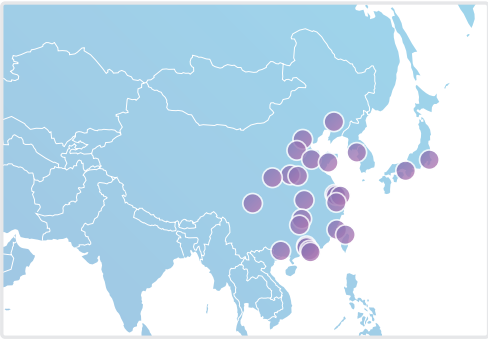


within an individual ISP's network across China (for example, China Telecom in Beijing and China Telecom in Guangzhou), the quality of the network can vary significantly.

Security is also a major concern in China as websites see a constant barrage of attacks. Not only have large botnet attacks been seen coming from the country, but over 50% of the world's Distributed Denial of Service (DDoS) attacks target China.[9] Furthermore, these DDoS attacks are on the rise, making China's Internet increasingly more unreliable for websites without protection.[10] These security concerns, combined with performance challenges, mean finding the proper web performance and security provider in China is essential to delivering a reliable, high performing online service for your customers.

Cloudflare in China

Recognizing the need for Internet optimization in the region, Cloudflare decided to expand its network services into China. To do so, Cloudflare established a partnership with Chinese search engine giant, Baidu. Cloudflare offers a seamless experience for customers inside and outside of China, enabling the same web performance and security features as the Cloudflare global network through the same Cloudflare dashboard.



Cloudflare Performance in China

- Content Delivery Network (CDN) leverages 25 China Points of Presence (PoPs) to cache and serve content from the closest PoP to the end user, providing lower latency and page load times. These China PoPs are geographically dispersed across Tier 1 and 2 cities with connectivity to the major ISPs in each region.
- Intelligent traffic routing through China's complex infrastructure, resulting in faster performance for sites as traffic is routed around congested pathways.
- Quick propagation of new rules and changes, with most changes completely deployed within minutes.

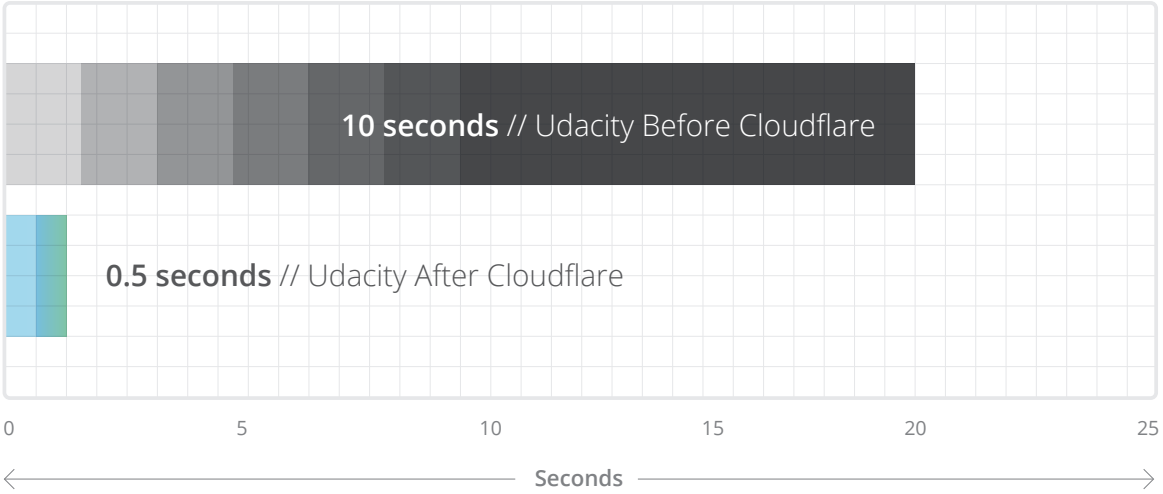
Cloudflare Security in China

- DDoS protection, which has stopped some of the largest attacks in history, provides peace of mind to customers who know their site is safe from attacks. Furthermore, because of the seamless integration between Cloudflare's Global and China Networks, Cloudflare can leverage the combination of both networks to mitigate attacks.
- Web Application Firewall (WAF) filters traffic coming to websites and protects from dangerous layer 7 attacks.
- Universal SSL support making all of web traffic encrypted and hidden from the eyes of anyone trying to see content without permission.
- Data Privacy. Cloudflare has taken numerous steps to ensure the security and integrity of data in China. Customer identifiable information such as email addresses, password hashes, and billing information is never stored on the China network or shared with our partner.
- Keyless SSL technology gives the ability to serve encrypted traffic over the China network without having to store private SSL keys within China.

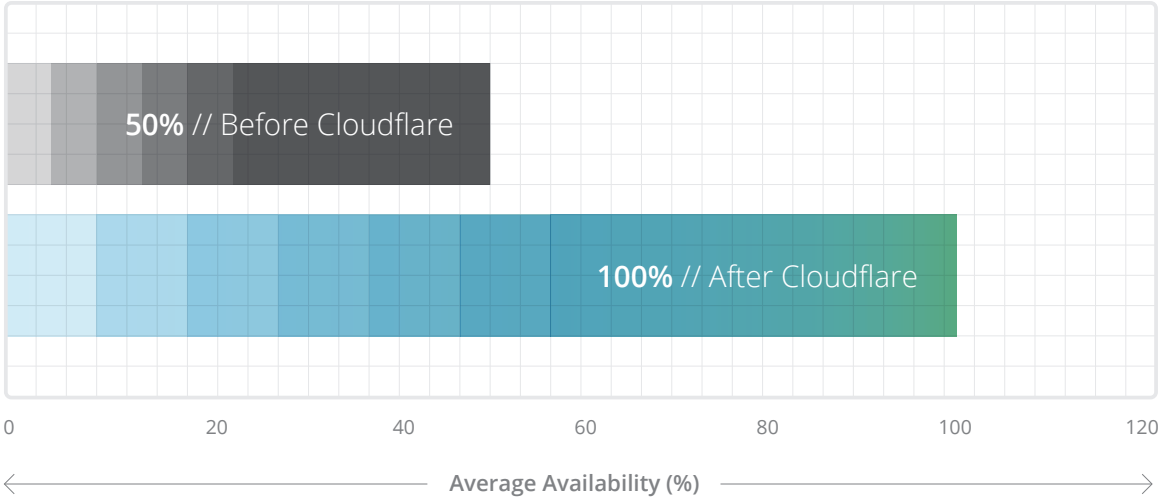
Cloudflare's China Network Service Experience

Online educator Udacity was experiencing serious performance drops when they launched China. These drops were frustrating customers who were waiting for pages to load instead of learning from Udacity's content. However, when Udacity turned on Cloudflare's China Network, they experienced a 20X improvement in page load time, seeing their classroom page go from taking 10 seconds to load down to 0.5 seconds. That's why Paul Bauer, platform engineer at Udacity, described Cloudflare in a single word: "Performance". Furthermore, clients have enjoyed the increased reliability they get with Cloudflare's network. TechCrunch.cn, for example, was only available about 50% of the time in mainland China before using Cloudflare's service. Now the site averages nearly 100% availability.

Average Page Load Time in Seconds Before/After Cloudflare



Website Availability Before/After Cloudflare



Cloudflare's China network service is available to any Cloudflare Enterprise customer. Call Cloudflare to get started optimizing your web presence in China today! Ensure that the largest web population on the planet has quick, secure, and reliable access to your company's online content without sacrificing the integrity of data or worrying about the safety of your site.

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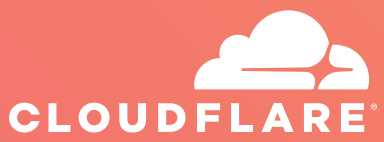

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