



2016 Top Markets Report **Cloud Computing** Country Case Study

China

A complex and difficult regulatory environment and local competition makes China a challenging market. Entering or expanding into the Chinese market requires the capacity to navigate regulatory barriers and effectively manage an array of additional administrative, technical and operational costs. The Chinese market can be a lucrative one for U.S. companies with the in-country expertise, resources and commitment to tackle the market.

Overall
Rank

11

The cloud computing market is still relatively nascent in China. According to Bain & Company, China's cloud computing market was worth \$1.5 billion in 2013. However, that figure is expected to go up to \$20 billion by 2020, a compound annual growth rate of approximately 40 percent.¹

China's state-owned telecom companies plan to invest about \$180 billion from 2015 to 2017 in fixed-line and wireless connectivity. The government views cloud computing as a strategic priority and included it in the nation's 12th Five-Year Plan. The Ministry of Industry and Information Technology and the National Development and Reform Commission (NDRC) subsequently launched pilot cloud schemes in five cities: Beijing, Shanghai, Shenzhen, Hangzhou and Wuxi. China's development blueprint for the next five years, the 13th Five-Year Plan (2016 – 2020), will likely reaffirm the strategic priority of cloud computing, with the NDRC planning continued investment through 2020.²

According to IDC estimates, nearly 500 million smartphones were projected to sell in China in 2015, three times the sales in the United States and about one third of global sales. More than 680 million people in China will be online, or 2.5 times the number in the United States. These numbers are

expected to grow further, helped by its national initiative, The Broadband China Project, intended to give 95 percent of the country's urban population access to high-speed broadband networks.³

Furthermore, China's State Council has unveiled plans to invest \$22 billion in expanding broadband network infrastructure in underserved areas of the country by 2020. Through this investment, 30 million households will have improved Internet access, including some 50,000 villages currently without broadband access.⁴ In total, China's expenses on information and communication technologies will be more than \$465 billion in 2015.⁵

Tencent, a Chinese Internet company, announced in 2015 that it will invest \$1.5 billion over the next five years in its cloud computing business, including the construction and operation of data centers in China and Hong Kong.^{6,7} The Alibaba Group announced a \$1 billion investment into Aliyun, its cloud computing unit, which has data centers in China and Hong Kong.⁸

Despite the positive industry events mentioned above, U.S. firms face some considerable challenges when entering the Chinese market, with China's regulatory environment being perhaps the biggest

obstacle. For example, foreign cloud providers are required to partner with local companies to serve customers, which raises questions about how much control foreign providers will ultimately have over their partnerships and joint ventures given that their Chinese partners may fully manage daily operations.⁹ Moreover, certain regulatory requirements impact the hardware and software that may be used in offering cloud services, necessitate that extra care be taken to avoid hosting certain content and create uncertainty about some industries' ability to contract with foreign cloud providers.¹⁰

A 2015 policy document written by the American Chamber of Commerce in China highlighted a series of information security policy initiatives that could potentially restrict the flow of foreign goods and services in the ICT sector.¹¹ Some examples include a law preventing data from being removed from China if it is deemed to contain state secrets, a standard that prohibits the overseas transfer of data to an entity without express user consent or government permission and an antiterrorism law that requires that companies hand over technical information and help with decryption efforts.¹²⁻¹⁴ Another example includes a law that prohibits financial institutions from analyzing, processing, or storing offshore personal financial information of Chinese citizens. While China recently suspended rules that would have forced banks to turn over proprietary source code and encryption keys to the China Banking

Regulatory Commission (CBRC), the CBRC has reached out to western technology companies to get opinions on a new version of the rules.^{15, 16} Further restrictive policies include a law and standard that requires any credit information collected within the territory of China to be organized, stored and processed within China.¹⁷

Another significant regulatory issue includes a planned security rating system to be used in assessing the "trustworthiness" of cloud providers vying for public contracts.¹⁸ Foreign firms are expected to be able to participate in the review process, though in doing so they may be required to turn over proprietary source code.¹⁹ By 2020, the Chinese government may be aiming to remove foreign-made software and hardware from major segments of the economy, such as the military, banks, some government bureaus and the country's

massive state-owned enterprises. Instead, the Chinese government prefers to have domestic suppliers provide software and hardware for these sectors.²⁰

Mainland China's Internet download speeds also present challenges. The penetration of broadband access, which is critical to the meaningful use of cloud services, is only about 14 percent.^{21, 22} In 2014, average peak connection speed in China was 16 megabits per second whereas in the United States the speed was 45 megabits per second, almost three times faster.²³ Chinese Internet-filtering systems contribute to this slowness and latency tests have confirmed the importance of having in-country technical infrastructure, although concerns also exist about China's electricity infrastructure and ability to dependably supply power to large data center operations.^{24, 25} Fortunately, the deployment of LTE networks and other infrastructural upgrades should help ameliorate the barriers to cloud computing created by slow or unreliable networks.²⁶ Analysts predict that 4G LTE mobile networks will reach over half the Chinese population by 2016.²⁷

Despite the challenges presented by the Chinese market, several large, well-resourced U.S. cloud providers have established operations in the market through joint partnerships with local companies. For example, Microsoft has partnered with 21Vianet, a Chinese data services firm, to roll out public cloud services.²⁸

Other U.S. companies are also operating in China. Amazon is partnering with ChinaNetCenter to offer cloud services; IBM is teaming with 21Vianet to offer its hybrid cloud platform; and Oracle recently announced that it will add 260 employees in China.²⁹⁻³¹

Local competition is another significant factor to take into consideration. Several Chinese companies are well-positioned in their domestic market. E-commerce giant Alibaba's Aliyun is already a notable competitor, servicing 1.4 million customers directly and indirectly.³² China Mobile, China Unicom, China Telecom, Baidu, Tencent and ZTE among others, are also well-positioned in the market.^{33, 34}

Although some point out that local players currently lack some of the larger U.S. firms' key advantages (e.g., scale, technical skill, name recognition,

innovative services), there is no doubt that these gaps will close to varying degrees over the next several years.

Guidance and Resources for Exporters

The following information is intended to provide guidance and resources for U.S. exporters looking to sell their services in China. The information was provided by U.S. Department of Commerce staff located in-country as well as by input from U.S. Department of Commerce industry specialists. As mentioned, the information is only intended to serve as guidance and does not guarantee sales or success in the market.

- Usual buyers of cloud computing services in China might include: SMEs and large companies.
- Preferred business strategies to enter/expand in the market might include: Distribution agreements, joint ventures and establishing a subsidiary company in China.
- Common trade barriers to enter/expand in the market and suggested troubleshooting strategies might include: Lack of effective IP protection can prove challenging. Chinese language skills are essential. Working with a Chinese distributor/reseller or setting up an office in China are good ways to enter and expand in the market.

- Recommendations to bid and navigate government procurement processes: Foreign suppliers usually work with Chinese system integrators (SI) or resellers to obtain government contracts.

- American Chamber of Commerce in China <http://www.amchamchina.org/>
- U.S. Department of Commerce Country Commercial Guide (page 76) http://export.gov/china/build/groups/public/@eg_cn/documents/webcontent/eg_cn_078667.pdf
- The American Chamber of Commerce in Shanghai <http://www.amcham-shanghai.org/AmchamPortal/>
- Trade Shows http://www.chinaexhibition.com/trade_events/list-0-212-0-ICT-%28Information_and_Communications%2C_Technology%29.html
<http://www.cloudchinaexpo.com/>
<http://www.cloudconnectevent.cn/en/about-us/cloud-connect/>
- U.S. Information Technology Office / Trade Association <http://www.usito.org/about-us>

Citations

- 1 <http://bain.com/publications/articles/finding-the-silver-lining-in-chinas-cloud-market.aspx>
- 2 Ibid
- 3 <http://bits.blogs.nytimes.com/2014/12/02/in-2015-technology-shifts-accelerate-and-china-rules-idc-predicts/>
- 4 <https://www.telegeography.com/products/commsupdate/articles/2015/10/15/china-plots-usd22bn-rural-broadband-project/>
- 5 <http://bits.blogs.nytimes.com/2014/12/02/in-2015-technology-shifts-accelerate-and-china-rules-idc-predicts/>
- 6 <http://www.wsj.com/articles/chinas-tencent-to-invest-1-57-billion-in-cloud-computing-over-five-years-1442320553>
- 7 Exchange rate note: 1 CNY = 0.153941 USD (03/11/2016)
- 8 <http://www.techcrunch.com/2015/07/29/alibillion/>
- 9 http://www.uscc.gov/sites/default/files/Research/DGI_Red%20Cloud%20Rising_2014.pdf
- 10 Ibid
- 11 <http://www.amchamchina.org/policy-advocacy/policy-spotlight/data-localization>
- 12 Ibid
- 13 <http://www.reuters.com/article/2015/03/13/us-china-security-usa-iduskbn0m91zt20150313>
- 14 http://www.nytimes.com/2015/12/28/world/asia/china-passes-antiterrorism-law-that-critics-fear-may-overreach.html?mwrsm=Email&_r=0
- 15 <http://www.wsj.com/articles/china-halts-implementation-of-banking-tech-guidelines-1429181094>
- 16 <http://www.lowyinterpreter.org/post/2015/10/14/Chinas-lays-down-the-cyber-law-Play-in-our-space-play-by-our-rules.aspx>
- 17 <http://www.amchamchina.org/policy-advocacy/policy-spotlight/data-localization>
- 18 <http://www.zdnet.com/article/china-explores-trust-rating-index-for-cloud-vendors/>
- 19 Ibid
- 20 <http://www.bloomberg.com/news/2014-12-17/china-said-to-plan-sweeping-shift-from-foreign-technology-to-own.html>
- 21 http://www.uscc.gov/sites/default/files/Research/DGI_Red%20Cloud%20Rising_2014.pdf

- 22 <http://www2.itif.org/2014-china-ict.pdf>
- 23 <https://www.akamai.com/us/en/our-thinking/state-of-the-internet-report/>
- 24 <https://gigaom.com/2014/08/21/hewlett-packard-takes-its-helion-openstack-cloud-to-china/>
- 25 http://fac.comtech.depaul.edu/yhwang1/Article_MIS350/article_12.pdf
- 26 <http://www.zdnet.com/article/chinas-kingsoft-unveils-full-cloud-services-suite/>
- 27 https://www.strategyanalytics.com/strategy-analytics/news/strategy-analytics-press-releases/strategy-analytics-press-release/2015/11/13/consumers-want-flexible-service-plans-with-4g-lte-networks-in-china#.VmBo_7grKUm
- 28 <http://www.businesscloudnews.com/2015/04/07/21vianet-microsoft-renew-vows-on-chinese-public-cloud-services/>
- 29 <http://www.prnewswire.com/news-releases/chinanetcenter-working-with-amazon-web-services-china-for-china-cloud-service-238822041.html>
- 30 <https://www-03.ibm.com/press/us/en/pressrelease/47854.wss>
- 31 <http://www.forbes.com/sites/greatspeculations/2015/09/04/can-oracles-expansion-plans-in-china-overcome-nationalistic-tendencies-and-heavy-competition/>
- 32 <http://www.bloomberg.com/news/2014-10-17/alibaba-adds-philips-provincial-governments-as-cloud-cus.html>
- 33 http://fac.comtech.depaul.edu/yhwang1/Article_MIS350/article_12.pdf
- 34 http://bits.blogs.nytimes.com/2014/08/04/alibaba-has-a-computing-cloud-and-its-growing-too/?_r=0