

Amazon Web Services (AWS) in China: Economic and National Security Concerns

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I. Overview of Amazon Web Services in China

In 2013, Amazon Web Services (AWS) took a number of major steps into China to move beyond merely providing its global cloud services to Chinese multinationals. First, AWS signed a range of agreements with provincial governments in China, most notably a joint Memorandum of Understanding (MOU) with the Beijing municipal government and the Government of Ningxia Hui Nationality Autonomous Region in December 2013.¹ Much like Beijing, the Government of Ningxia Hui Nationality Autonomous Region planned to use AWS Cloud services to power its public service applications.² At the same time, however, AWS also created a separate hardware venture in partnership with the provincial government, taking advantage of Ningxia's location at the nexus of China's physical fiber networks to establish major data centers.³ One Ningxia government official referred to this dual-track arrangement as following a “front-shop-back-factory” model of cooperation.⁴ AWS China also signed an agreement with the Shanghai Jiading Industrial Zone to launch an incubation program that supports startup businesses through a combination of resources from AWS China and a variety of incentives from the Industrial Zone.⁵ That initiative formally launched in 2014, with a stated intention of introducing incubation programs in other parts of China over time.⁶ Prior to these major agreements, AWS maintained only a modest presence in China, including an affiliate in China (Amazon Connect Technology Services (Beijing) Co., Ltd. / 亚马逊通技术服务(北京)有限公司) with offices in Beijing to provide support for users of AWS Cloud services and a local technical support operation.⁷

The centerpiece of the plans announced during this period was for AWS to begin offering China-based cloud services in 2014. AWS established partnerships with two local Chinese providers: Beijing SINNET Technology Co. Ltd. (北京光环新网科技股份有限公司), a Chinese internet data center and access service provider, and Wangsu Science & Technology Co. Ltd. (网宿科技), previously known as ChinaNetCenter, a Chinese internet service platform and content delivery network platform provider.⁸ The firms were tapped to provide Internet Data Center (IDC) and Internet Service Provider (ISP) services (such as infrastructure, bandwidth, and network capabilities) to support the rollout of AWS in China.⁹ ChinaNetCenter was described as “the preferred partner for Content Delivery Network (CDN) services for AWS China,” and both ChinaNetCenter and SINNET were described in some media reports as being tapped to provide

¹ <https://www.wired.com/2013/12/amazon-china/>; <https://www.crn.com.au/news/amazon-web-services-sells-china-assets-to-local-partner-in-400-million-deal-477592>

² <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>; <http://fortune.com/2017/11/14/amazon-china-cloud-computing/>

³ <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>

⁴ <http://fortune.com/2017/11/14/amazon-china-cloud-computing/>

⁵ www.zdnet.com/article/aws-to-deliver-services-from-inside-china-from-2014/

⁶ <https://www.shine.cn/archive/district/jiading/Amazon-lends-its-expertise-to-cloud-computing-incubator/>

⁷ <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>; <http://disclosure.szse.cn/finalpage/2017-11-13/1204136437.PDF>

⁸ <http://en.wangsu.com/pages/about-us/i1-press-release-detail.php?Id=95>;

<http://www.datacenterdynamics.com/content-tracks/design-build/amazon-plans-new-data-center-in-china/85134.fullarticle>

⁹ <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>; <http://disclosure.szse.cn/finalpage/2017-11-13/1204136437.PDF>

data centers.¹⁰ Amazon launched the China (Beijing) region of AWS in early 2014 with SINNET as its primary partner. Two years later on August 1st 2016, Amazon and SINNET expanded its partnership into a “broader operating relationship,” though this did not entail the establishment of a proper joint venture.¹¹ Under this arrangement, AWS China cloud services are “operated and provided” by SINNET, with Amazon providing “technology, guidance, and expertise.”¹² The main change from Amazon’s pre-existing partnership with SINNET appears to have been providing them with total responsibility for billing and receipts.

In the first half of November 2017, Amazon and SINNET announced that Amazon had sold the physical hardware assets for the operation of AWS’s China region to SINNET for approximately \$300 million USD in order to comply with tightened Chinese regulations that began entering into effect in June of that year.¹³ The new regulations include tightened rules on foreign data and cloud services, including new surveillance measures and increased scrutiny of cross-border data transfers.¹⁴ Under the terms of the deal, Amazon claims that it fully retains the underlying AWS intellectual property worldwide and is still the lead partner in expanding AWS’s presence in the Chinese market.

The precise terms of AWS’s agreement with SINNET have not been made publicly available. However, statements by Amazon and public reporting on the terms of AWS’s agreement with SINNET suggest that their partnership does not include a significant transfer of core AWS intellectual property. Furthermore, the AWS services provided within the China region appear to be highly segmented even from other Asia-Pacific AWS regions.¹⁵ The primary functional purpose of the November 2017 sale of AWS China’s physical assets to SINNET appears to be to increase this segmentation at the behest of the Chinese government, limiting the physical ability of Amazon to grant the U.S. government access to the data of Chinese users upon request in case it were ever legally bound to do so. At present, customers who wish to use AWS resources in China operated by SINNET are required to create a separate Chinese AWS account, which exists as a standalone credential with no connection to another global AWS Account.¹⁶ This is similar to the segmentation that AWS imposes for its Identity and Access Management (IAM) service, where user accounts can only be created and managed in the US East (N. Virginia) or GovCloud regions. IAM users created in the GovCloud region, for example, can only be used to access AWS services hosted in the GovCloud region.¹⁷ Amazon’s major parties to the deal include AWS head Andy Jassy and Alex Yung, Managing Director for AWS China, neither of whom have spoken publicly about the partnership beyond general positive platitudes.¹⁸

¹⁰ <https://techcrunch.com/2013/12/18/amazon-will-expand-aws-cloud-services-and-software-development-to-china-in-2014/>; <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>

¹¹ <https://www.amazonaws.cn/en/new/2016/announcing-operating-relationship-between-aws-and-SINNET/>; <http://fortune.com/2017/05/23/microsoft-claims-unique-cloud-status-in-china/>

¹² <https://www.amazonaws.cn/en/new/2016/announcing-operating-relationship-between-aws-and-SINNET/>

¹³ <http://disclosure.szse.cn/finalpage/2017-11-13/1204136437.PDF>

¹⁴ <https://www.crn.com.au/news/amazon-web-services-sells-china-assets-to-local-partner-in-400-million-deal-477592>

¹⁵ <https://aws.amazon.com/about-aws/global-infrastructure/regional-product-services/>

¹⁶ www.amazonaws.cn

¹⁷ <https://aws.amazon.com/about-aws/global-infrastructure/regional-product-services/>

¹⁸ <http://www.businesswire.com/news/home/20131218005451/en/Amazon-Web-Services-Announces-Upcoming-China-Region>; <http://en.wangsu.com/pages/about-us/i1-press-release-detail.php?Id=95>

Despite these precautions, potential avenues remain for AWS's China dealings to compromise the security of its global services, giving Western entities concerned about Chinese intelligence and espionage operations a reasonable cause for concern. To implement and maintain a segmented AWS region, SINNET must have an understanding of its architecture even if they are not granted control of the underlying intellectual property. Furthermore, AWS's decision to provide cloud services in China also gives the Chinese government the ability to compel source code review of key platform components, which would most likely be conducted through a government entity such as the China Information Technology Security Evaluation Center (中国信息安全测评中心 or CNITSEC)'s Source Code Review Laboratory. Although there is no public record of Amazon entering into such a process, the combination of access to both AWS source code and an internal understanding of AWS regional hardware, deployment and maintenance procedures could enable China's intelligence services to discover new penetration vectors for AWS's global civilian and government cloud platforms.

China Information Technology Security Evaluation Center (CNITSEC/中国信息安全测评中心)

The CNITSEC would be the government entity responsible for reviewing source code of key platform components from AWS. In their own words, the entity, "undertakes the analysis of information security vulnerabilities and hidden dangers in the information technology and information systems used in our country, as well as the assessment of information security risks in China's key information infrastructure."¹⁹

There are examples of large tech. MNCs willingly giving source code access to this entity; Microsoft and IBM have both made agreements with CNITSEC in the past.

In 2003, Microsoft agreed to code reviews by CNITSEC, building a Microsoft Source Code Review Lab and licensing their code to other Chinese technology security firms.²⁰ Cyber experts later found that the shared code was used in attacks on Google email platforms and accounts attributed to China.²¹

IBM has also allowed limited access for CNITSEC reviewers to investigate source code, in a secure room.²² This is part of the company's "Open Power" initiative as of 2015.²³

There has been a general industry trend towards open source code reveals, and it is possible that AWS will pursue a similar path as Microsoft and IBM. The company has made code for its machine learning software DSSTNE open source and has started to publicly share source code for some AWS services on GitHub.²⁴ Still, experts claim that an agreement between CNITSEC and Amazon would be unprecedented for the company, as Amazon is generally "bad" at sharing and generally keeps its development process tightly closed.

¹⁹ http://www.itsec.gov.cn/zxxw/201004/t20100405_15169.html

²⁰ http://www.itsec.gov.cn/zxxw/200305/t20030523_15100.html

²¹ <https://piie.com/blogs/realtime-economic-issues-watch/should-us-tech-companies-share-their-source-code-china>

²² <https://www.reuters.com/article/us-ibm-china-wsj-idUSKCN0SA1BZ20151016>

²³ <https://piie.com/blogs/realtime-economic-issues-watch/should-us-tech-companies-share-their-source-code-china>

²⁴ <https://aws.amazon.com/blogs/opensource/welcome-to-the-aws-open-source-blog/>

II. Beijing SINNET Technology Co., Ltd. (“SINNET”)

Key Findings

- At least one SINNET researcher has participated in research into PRC satellite and space exploration systems. This includes a National 863 Project, a funding vehicle for military-civilian dual-use technologies.
- SINNET has created a joint venture with Tsinghua Tongfang to provide AWS services. Tsinghua Tongfang has deep connections to the PLA and the Chinese defense industry.
- SINNET directly supports the network infrastructure of the PLA’s newspapers.
- SINNET is a member of industry groups that include research institutes associated with the PLA Air Force.
- SINNET subsidiaries Meganest and AnG both have Technology Transfer as a registered aspect of their business.

Corporate Overview

The Beijing SINNET Technology Co, Ltd (北京光环新网科技股份有限公司, SINNET) provides Internet broadband access (ISP), Internet data center (IDC) services, and other Internet services in China and internationally. SINNET was established in January 1999 and was recently named to a list of China’s Top 100 Internet companies by the China Internet Society and the Ministry of Industry and Information Technology (MIIT).²⁵ The company offers Internet data center (IDC), Internet access (ISP), and cloud computing services. SINNET’s website advertises strong capabilities for enterprise clients, particularly online retailers.²⁶ SINNET completed an IPO listing on the Shenzhen Stock Exchange in January 2014.²⁷

SINNET has two wholly owned subsidiaries, the Beijing Meganest Technology Company (Meganest, 北京中金云网科技有限公司) and the Beijing AnG Technology Company (AnG, 北京无双科技有限公司).²⁸ The Beijing Meganest Technology company is a data center outsourcing and cloud computing provider founded in Beijing in 2015.²⁹ AnG is an internet platform company performing data analysis for advertisers and is authorized to conduct tech transfer operations. The firm was founded in 2008 in California and has offices in Nanjing, where it is headquartered, as well as in Beijing, Shanghai, Wuhan, and Silicon Valley.³⁰

Table 1: Corporate Registration Information for Beijing SINNET Technology Co., Ltd.

Name	Beijing SINNET Technology Co. 北京光环新网科技股份有限公司
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²⁵ <http://news.163.com/17/1020/09/D16A2TJ300018AOP.html>

²⁶ <http://en.sinnet.com.cn/home/about/level/37>, December 2017.

²⁷ <http://en.sinnet.com.cn/home/about/level/37>, December 2017.

²⁸ http://www.sohu.com/a/108751426_115411

²⁹ <http://www.meganest.cn/index.php?menu=251>

³⁰ <http://www.agrant.cn/about>

Address	Beijing Mentougou District, Shilong Economic Development Zone, Yongan Road No. 20, Building 3, Floor 20, Room 202. 北京市门头沟区石龙经济开发区永安路 20 号 3 号楼二层 202 室
Other Contact Information	Phone: 86 10 6418 1150 Fax: 86 10 6418 1150 www.SINNET.com.cn 300383.SZ
Taxpayer ID	91110000700006921H
Uniform Social Credit Code	91110000700006921H
Registration Number	110109001142161
Organization Code	70000692-1
Registered Capital	1,446,351,388 yuan
Legal Representative	Geng Diangen 耿殿根
Date of Establishment	1999-01-27
Authorized Scope of Business	Internet access services business; Internet data center business; Internet information services business; professional contracting; information systems integration; three-dimensional multimedia integration; to undertake network engineering, intelligent building weak system integration; research and development of digital network applications; engaged in computer information network international networking operation business; sales of communications equipment, computers, software and auxiliary equipment.

SINNET's Partnership with Amazon Web Services

SINNET has partnered with Amazon Web Services to be the service provider and operator for AWS China within the Beijing Region, the first AWS region in China. The AWS China Beijing Region service platform allows developers to deploy cloud-based applications inside China using the same application programming interfaces (APIs), protocols, and operating standards used for AWS regions throughout the world.³¹

³¹ <http://en.sinnet.com.cn/home/product/indexyun/16>, December 2017.

Data and objects stored in the AWS Beijing Region remain exclusively within the region unless moved to another location by the customer. Customer data and metadata are not moved between AWS regions or outside of China.³²

Customers who are interested in using AWS resources in China, which are operated by SINNET, must create an AWS China account. These credentials are separate from other global AWS accounts and only customers with an AWS China account may use resources in the AWS China Beijing Region.³³

On August 1, 2016, Amazon Web Services announced a broader operating relationship between Amazon Connect Technology Services (Beijing) and Beijing SINNET Technology. From August 1, AWS cloud services in the Beijing region are operated and provided by SINNET, while AWS continues to provide technology, guidance, and expertise to SINNET. Previously, SINNET was AWS's IDC partner in Beijing, while AWS provided and billed for IT and software services. Under the new model, SINNET provides and bills for both IDC and AWS IT and software services. SINNET also enters into customer agreements with users in the Beijing region and offers customer support via the AWS console and other channels.³⁴

Security and Defense Industry Ties

Based on searches of government and military procurement websites, news media, and other online sources, analysts discovered the following customers and/or partner institutions for SINNET Technology. These entities directly support China's military or its defense industrial base.

PRC Space Program

One of SINNET's key figures, Ru Shuwei (汝书伟), has participated in network management research supporting China's space programs. He helped develop satellite data transmission systems, worked on an automatic control project for lunar rovers, and developed network security systems. Moreover, he participated in a "National 863 Project" to develop a deep-space explorer vehicle.³⁵ Funded and administered by the PRC government, 863 projects focus on developing dual-use civil-military technologies.

PLA Newspaper Infrastructure

In addition, SINNET has indirect connections to China's military industrial complex. SINNET provides fiber broadband access and server hosting to the PLA Newspaper's Integrated Building Network System (中国人民解放军报社综合楼网络系统), the China Civil Aviation Information Center (中国民航信息中心), and the China COSCO Transportation Group (中国远洋运输(集团)总公司), among other companies and state-owned enterprises.

³² <http://en.sinnet.com.cn/home/product/indexyun/16>, December 2017.

³³ <http://en.sinnet.com.cn/home/product/indexyun/16>, December 2017.

³⁴ <http://www.amazonaws.cn/en/new/2016/announcing-operating-relationship-between-aws-and-sinnet/>, December 2017.

³⁵ www.cninfo.com.cn/finalpage/2014-01-20/63501228.PDF

China Electronic Technology Corporation (CETC)

SINNET belongs to industry groups which include the China Electronic Technology Group Corporation (CETC, 中国电子科技集团公司第二十八研究所), a well-renowned research organization which itself comprises many laboratories, companies, and production sites with military, defense, and government connections. Many entities subordinate to CETC are on the Entities List of the Bureau of Industry and Security, based on their activities and ties that are detrimental to U.S. interests. These entities often have a myriad of aliases that complicates U.S. companies' efforts to review export and partnerships decisions. CETC entities that require licenses for all items subject to the EAR or who are listed as presumption of denial include:³⁶

- CETC 20th Research Institute, aka “Xi’an Research Institute of Navigation Technology” – license required for all items subject to the EAR.
- CETC 11th Research Institute, aka “Beijing North China Lai Yin Opto-Electronics Technology Company” – presumption of denial.
- CETC 10th Research Institute, aka “Southwest Research Institute of Electronics Technology” – license required for all items subject to the EAR.
- CETC 29th Research Institute, aka “China Southwest Electronic Equipment Research Institute (SWIEE), “29 (SIWEI Co) Institute,” “SIWI Electronics Corporation,” and others – presumption of denial.
- CETC 54th Research Institute, aka “Telemetry and Telecontrol Research Institute (CTI),” “Shijiazhuang Communication Observation and Control Technology Institute,” and others – license required for all items subject to the EAR.

SINNET is part of the China Open Source Cloud Alliance (COSCL, 中国开源云联盟), a Chinese IT industry organization. This organization includes CETC’s No. 28 Research Institute (中国电子科技集团公司第二十八研究所),³⁷ which is responsible for developing military air traffic automation systems for the PLAAF and includes a first-class confidential war industry unit.³⁸ COSCL

SINNET and CETC’s No. 32 Research Institute is included with SINNET on a list of “planned invitees” to the 2018 China IDC Industry Annual Ceremony (中国 IDC 产业年度大典).³⁹ The multi-sector conference, attended by a few multi-national corporations in addition to Chinese SOEs, public organizations, private companies, and research institutions, is focused on innovations in networking, information sciences, information security, and web applications.

Via its varied government, military, and defense ties, CETC:

³⁶ <https://www.export.gov/csl-search#/?name=cetc>

³⁷ <https://freewechat.com/a/MzI4MDI3MTg5MA==/2247484096/1>

³⁸ <http://jsjmrh.jsdpc.gov.cn/junminrhApp/summary?uid=42;>

http://en.cetc.com.cn/enzgdzkj/about_us/member_units/408359/index.html

³⁹ <http://idcc.idcquan.com/>

- Currently manages 18 officially recognized government-funded State Key Laboratories and oversees 10 government-funded research institutions;⁴⁰
- Joined its No. 2, No. 28, and No. 46 Research Institutions as “experimental members” of the Civil-Military Tech Exchange (军转民技术交试点), a program sponsored by the State Administration of Science, Technology, and Industry for National Defense’s Information Center (国家国防科技工业局信息中心) and by the Chinese Weapon Industries Institute of New Technology Dissemination (a subsidiary of China North Industries, Norinco, an SOE in the weapons-manufacturing industry);^{41 42 43}
- Has won 14 Defense Science and Technology Progress Awards and 114 First-Class Defense Science and Technology Awards;⁴⁴
- Has completed work for the “Thousand Talents Program” (千人计划), a government program designed to hire foreign science and technology specialists in order to advance the goal of increasing China’s competitiveness in those fields;
- And has conducted research and development of computing technologies and LED technologies under the Chinese government’s “863 Plan” (863 计划), which is geared towards innovation in high-tech (for defense purposes or other purposes).^{45 46}

Additionally, as of May 2017, The CETC’s Electronics Technology Research Institution, No. 50 Research Institution, No. 30 Research Institution, and No. 15 Research Institution have been formally approved for seven research projects with the PLA’s Equipment Development Department. The titles of those projects are as follows:⁴⁷

- Construction Needs Analysis and System Design Project (建设需求分析与总体设计项目)
- Network Security Isolation Switching Technology Project (网络安全隔离交换技术项目)
- Systems Security & Systems Encryption Technology Project (系统安全保密体系构建技术项目)
- Building Cross-Domain Networks and Trusted Service Systems Project (跨域网络信任服务体系构建技术项目)
- Civil-Military Integration Development Evaluation Project (业务导向的大数据挖掘分析项目)

⁴⁰ http://www.cetc.com.cn/zgdzkj/_300891/_300895/index.html

⁴¹ <http://jzm.ctex.cn/>

⁴² <http://docsplayer.com/22609074> A 2013 report generated by this program named the CETC’s No. 28, No. 2, and No. 46 Research Institutions by name for this effort. The No. 2 lab is unlisted on the CETC official site, however, the official site of the CETC No. 2 Research Institution still lists itself as affiliated with CETC and appears to be updated daily.

⁴³ <http://www.miit.gov.cn/n1146285/n1146352/n3054355/n3057613/n3057618/c3649174/content.html>

⁴⁴ http://www.cetc.com.cn/zgdzkj/_300891/_300895/index.html

⁴⁵ http://22.cetc.com.cn/zgdzkj/_300931/_300935/311319/index.html

⁴⁶

http://www.ersuo.com/product_sort.asp?BigClassName=%C8%C6%CF%DF%C9%E8%B1%B8&selectkw=%B9%D8%D3%DA%CE%D2%C3%C7

⁴⁷ <http://www.weain.mil.cn/cggg/zbagg1/550966.html>

- Service-oriented Big Data Mining Analytics Project (业务导向的大数据挖掘分析项目)
- Security Technology and Smart Services Based on Analysis of Network User Behaviors (基于网络用户行为分析的智能服务及安全防护技术项目)

The Aerospace Equipment & Components New Product Development Project (sponsored by the China Aerospace Supply Armed Forces) recently drew 16 procurement agreements with CETC's No. 20, No. 58, No., 24, No. 55, No. 23, No. 47, and No. 44 Research Institutions for the following technical components in July 2017:⁴⁸

- D/A Transducer
- Temperature Sensors
- Semiconductor Laser Diode Linear Chip (Bar)
- Programmable Clock
- Anti-radiation Clock Divider
- AEHF Band Mixer
- VDMOS Components
- Sample and Hold Circuits
- Voltage Regulator
- Dual-channel High Frequency Rotating Joints
- SRAM
- Frequency Synthesizer
- Anti-radiation DDR Dedicated Power Supply
- Computer Bus Transceiver
- Bidirectional Voltage Level Translator
- Voltage Reference

Tongfang

According to a job posting, SINNET entered a joint venture with UnitedStack (光环有云(北京) 科技有限公司) in August 2016.⁴⁹ UnitedStack was acquired by Tsinghua Tongfang (清华同方) in November 2011.⁵⁰ Tsinghua Tongfang is a state-owned enterprise and is a comprehensive supplier of military products and services including but not limited to: military wireless communications and control equipment;⁵¹ military building and informatization support;⁵² electronic countermeasures, technical surveillance, and satellite navigation equipment; and small naval vessels.⁵³

⁴⁸ <http://www.weain.mil.cn/cggg/zbgg1/553439.html>

⁴⁹ <https://www.liepin.com/job/196190047.shtml>

⁵⁰ <http://news.qudong.com/article/446919.shtml>

⁵¹ www.thtf.com.cn/uploads/soft/150430/3-150430112022.pdf

⁵² <http://company.zhaopin.com/P2/CC1507/7851/CC150778516.htm>

⁵³ <http://www.industrial.thtf.com.cn/index.php?m=product.cont&classid=101&id=67&page=3>

Tsinghua Tongfang has a Military Information Security Product Certification (军用信息安全产品认证),⁵⁴ required for companies that support PLA networks. Tsinghua Tonghua's main businesses include command and control systems, design and development of military software, military information security products, and military-civilian integrated technical support.⁵⁵ Tsinghua Tongfang generates 60 million yuan annually from its military communications equipment.⁵⁶

Tsinghua Tongfang leaders have personal military ties. General Manager of Beijing Tongfang Time Link, Zhao Xiaoyan (赵晓岩), was a former member of the PLA and a graduate of the PLA's Information Engineering University.⁵⁷ The company's military business manager, Yang Zhiming (杨志明), was a former leader at two Chinese military factories.⁵⁸

Support for Chinese Censorship of Internet

SINNET has rigorously participated in the CCP-mandated censorship of the Chinese internet. On July 28, 2017, SINNET issued notices to customers demanding an end to the use of VPN software that can circumnavigate the Great Firewall to access otherwise censored websites.⁵⁹ It has been reported that the newly-passed Cyber Security Act and heightened political sensitivities in the run-up to the CCP Congress led to far greater government pressure on technology firms in China to tighten censorship.⁶⁰

SINNET Advancing China's Cloud Computing Capabilities

In August 2017, the AWS China office in Beijing hosted the annual technology summit in Beijing China. The message of the summit was that SINNET "has boosted the rapid growth of AWS in China." SINNET's opening remarks pointed to improvements in areas IoT, AI, security, and big data processing. SINNET Chairman Yang Yuhang presented a speech titled "The Implementation of AWS technology in Advancing China's Cloud Computing Capabilities – AWS Beijing Region's Year in Review." Yang pointed out that in the last year SINNET has localized operational management and customer services in China, and that the company now also offers AWS application services such as IoT platforms, ECS (Elastic Container Service), and NAT (Virtual Private Cloud). Yang plans for improvements within the AI technology area, as well as digitalizing data from traditional companies. The summit hosted over 5,000 guests and customers and closely resembles Apple's annual shareholders meeting in that the CTOs and CEOs revealed promising products for the year ahead.

Key Personnel

⁵⁴ <https://www.liepin.com/job/196190047.shtml>

⁵⁵ <http://company.zhaopin.com/CC406779281.htm>

⁵⁶ <http://finance.sina.com.cn/stock/companyresearch/20070209/09583328074.shtml>


⁵⁷ <http://www.gsm.pku.edu.cn/exed/P2802964431341213918560.html?clipperUrl=94/48878.ghtm><http://www.gsm.pku.edu.cn/exed/P2802964431341213918560.html?clipperUrl=94/48878.ghtm>

⁵⁸ <http://www.thtf.com.cn/plus/view.php?aid=113>

⁵⁹ <http://news.dwnews.com/china/news/2017-08-02/60004673.html>

⁶⁰ <https://cn.nytimes.com/business/20170802/amazon-china-internet-censors-apple/>

Table 2: Key Personnel at SINNET

	<p>Geng Diangen (耿殿根)</p> <ul style="list-style-type: none"> • Chairman and founder.⁶¹ • Graduate of University of Texas, Arlington College of Business.⁶² • Chairman of Aureola Media (光环传媒有限公司).⁶³ • Born in 1956. • Member of Chinese Communist Party (CCP). • Business manager at Beijing Jingmei Electronic Technology, December 1987 to January 1991. • Business manager at Beijing Huadian Communications, 1991-1995. • Manager of network communications department at SINNET Technology Group, 1995-1998. • Executive director and general manager at Beijing Baihui Investment Management, 2002-2010. • Chairman and general manager at SINNET Technology since founding the company in 1999.⁶⁴
	<p>Geng Guifang (耿桂芳)</p> <ul style="list-style-type: none"> • Geng Guifang is the older sister of Geng Diangen.⁶⁵ • Geng Guifang is a SINNET shareholder. Recent materials indicate a RMB 4.33 mln investment.⁶⁶ • Geng Guifang and Geng Diangen are the two shareholders of SINNET's other listed shareholder, Beijing Baihui Investment Management (北京百汇达投资管理有限公司) (RMB 25.6 mln).⁶⁷ • Geng Guifang is executive director at Beijing Baihui Investment Management⁶⁸

⁶¹ <http://www.baike.com/wiki/%E8%80%BF%E6%AE%BF%E6%A0%B9>

⁶² <http://www.baike.com/wiki/%E8%80%BF%E6%AE%BF%E6%A0%B9>

⁶³ <http://www.baike.com/wiki/%E8%80%BF%E6%AE%BF%E6%A0%B9>

⁶⁴ http://app.finance.china.com.cn/stock/data/view_director.php?symbol=300383&id=30155957

⁶⁵ <http://www.csrc.gov.cn/pub/zjhpublic/cyb/cybypl/201203/P020120316628917508644.pdf>

⁶⁶ <http://www.csrc.gov.cn/pub/zjhpublic/cyb/cybypl/201203/P020120316628917508644.pdf>

⁶⁷ <https://www.riskstorm.com/company/91110101742331060J>

⁶⁸ <https://www.riskstorm.com/company/91110101742331060J>



Yang Yuhang (杨宇航)

- Yang is president of SINNET Technology.⁶⁹

⁶⁹ <http://www.sinnet.com.cn/home/news/content/714>

III. Wangsu Science & Technology Co, Ltd. (网宿科技股份有限公司)

Key Findings

- Wangsu Science & Technology Co, Ltd. was reportedly among Amazon’s first local telecom operator partners for the AWS China (Beijing) region, in 2014. Wangsu was expected to provide IDC, ISP, and CDN services.
- Wangsu’s involvement with AWS appears to have diminished over time, as SINNET has taken a leading role as Amazon’s main Beijing-region partner.

Corporate Overview

Wangsu Science & Technology Co, Ltd. (网宿科技股份有限公司) was founded in 2000 and is headquartered in Shanghai. The company primarily works on cloud computing, cloud security, global distribution IDC, and Internet CDN acceleration services. Wangsu has branches across China, as well as domestic and international subsidiaries, such as in the United States and India, and has research and development (R&D) centers in Silicon Valley and Xiamen.⁷⁰ It is the largest CDN provider in China and by some measures the second largest CDN worldwide.⁷¹

The company operates as in China as ChinaNetCenter and overseas under its third-tier and U.S.-based subsidiary company Quantil, although it appears that the former has since been rebranded as Wangsu, given that ChinaNetCenter URLs redirect to the Wangsu home page.⁷² The rebranding appears to be quite recent, with formal company reports from 2016 using the ChinaNetCenter logo.

The company was publicly listed in the Shenzhen stock exchange in October 2009.⁷³ Wangsu has expanded since its founding, purchasing CDNetworks, a rival company based in Seoul, from Japan’s KDDI Corporation, and has a controlling stake in Russia’s CDNVideo.⁷⁴

Table 3: Corporate Registration Information for ChinaNetCenter (Wangsu Science & Technology)

Name	Wangsu Science & Technology Co., Ltd. 网宿科技股份有限公司
Address	No. 200 Jiading Ring Road, Shanghai

⁷⁰ <http://en.wangsu.com/pages/about-us/h1-about-us.php>

⁷¹ <https://www.bizety.com/2017/02/23/akamai-vs-chinanetcenter-worlds-largest-cdn-vs-chinas-largest-cdn-2-world/>, January 2018.

⁷² <https://www.telecompaper.com/news/wangsu-science-and-technology-acquires-cdnvideo--1197158;>
<http://data.eastmoney.com/notices/detail/300017/AN201708210817732858,JUU3JUJEJTkxJUU1JUJFJUJGJUU3JUE3JTkxJUU2JThBJTgw.html>

⁷³ <http://en.wangsu.com/pages/about-us/h1-about-us.php>

⁷⁴ <http://www.technologynewschina.com/2017/02/china-on-course-to-rival-united-states.html>;
<http://www.cww.net.cn/article?id=406633>

	上海嘉定环城路 200 号 ⁷⁵
Other Contact Information	Phone: +86 400-010-0617 ⁷⁶ Website: http://www.wangsu.com/ Floor 6, Weishi Building, No.39 Xueyuan Road, Haidian District, Beijing 100191, China ⁷⁷
Type of Entity	Market-listed stock company (Shenzhen exchange: 300017) ⁷⁸
Taxpayer ID	91310000631658829P
Uniform Social Credit Code	91310000631658829P
Registration Number	310114000449293
Organization Code	63165882-9
Registered Capital	2,406,447,336 yuan
Legal Representative	Liu Chengyan 刘成彦
Date of Establishment	2000-01-26
Authorized Scope of Business	Computer hardware and software development, technology transfer, technical consulting, technical services, information collection, information dissemination, information systems integration, economic information services, telecommunications services, hardware and software components, office equipment sales, and import and export of goods and technology.

Wangsu's Partnership with Amazon Web Services

In late 2013 and 2014, it was reported that Wangsu—then ChinaNetCenter—would be among Amazon's local telecom operator partners for its first AWS Chinese cloud region in Beijing.⁷⁹ ChinaNetCenter would reportedly provide data center infrastructure resources for AWS, while SINNET would be responsible for delivering services.⁸⁰ ChinaNetCenter itself said:

⁷⁵ <https://www.sgs.gov.cn/lz/licenseLink.do?method=licenceView&entyId=dov71zgzilhvn4inh27pfqd6h0hvvq6tcm>, January 2018.

⁷⁶ <http://en.wangsu.com/pages/about-us/h6-contact.php>, January 2018.

⁷⁷ <http://en.wangsu.com/pages/about-us/h6-contact.php>, January 2018.

⁷⁸ <https://www.sgs.gov.cn/lz/licenseLink.do?method=licenceView&entyId=dov71zgzilhvn4inh27pfqd6h0hvvq6tcm>, January 2018.

⁷⁹ <https://aws.amazon.com/blogs/aws/coming-soon-new-china-beijing-region/>, January 2018.

⁸⁰ <http://www.datacenterknowledge.com/archives/2013/12/19/amazon-add-china-cloud-computing-region-2014>, January 2018.

“ChinaNetCenter will cooperate with AWS China and its other local China providers to provide the necessary IDC and ISP services, such as infrastructure, bandwidth, and network capabilities, to deliver the best experience for customers in China. ChinaNetCenter will also be AWS China's preferred provider of Content Delivery Network (CDN) services in China.”⁸¹

It is not clear whether ChinaNetCenter’s involvement with AWS was affected by the December 2017 sale by Amazon of unspecified local AWS infrastructure resources to SINNET.⁸² However, ChinaNetCenter’s current role in operating AWS services in the Beijing region was already unclear prior to this sale, and it appears that SINNET is currently Amazon’s chief—and possibly exclusive—partner for the region. One article suggests that ChinaNetCenter left the AWS project in 2015, due to factors including low returns from AWS and exposure to risks associated with government policies towards foreign involvement in the Chinese ICT industries and cloud services.⁸³ The English version of the ChinaNetCenter website continues to list AWS among the company’s corporate partners.⁸⁴

Security and Defense Industry Ties

Based on searches of government and military procurement websites, news media, and other online sources, analysts discovered the following customers and/or partners for Wangsu Science Technology Co. Ltd. These entities support China’s military or its defense industrial base.

Huawei

Huawei is listed on the Wangsu website as a customer and, in May 2014, the two companies reached an agreement to cooperate on cloud services, particularly on cloud storage and distribution, as well as advance moves to greater integrate their products and technologies.⁸⁵ Huawei maintains strong ties to the Chinese government and China’s defense and security apparatuses.⁸⁶ In October 2012, the U.S. House of Representatives’ Intelligence Committee warned that Chinese telecommunications companies, explicitly Huawei and ZTE, are used by the Chinese government to expose vulnerabilities in telecommunications supply-chains and compromise U.S. critical infrastructure.⁸⁷ The U.S. government has blocked the use of Huawei products over concerns of cyber spying through back doors and remote access.⁸⁸

ZTE

⁸¹ <http://en.wangsu.com/pages/about-us/i1-press-release-detail.php?Id=95>, January 2018.

⁸² https://www.theregister.co.uk/2017/11/14/aws_quits_china/, January 2018.

⁸³ <http://www.tmtpost.com/2488557.html>, January 2018.

⁸⁴ <http://en.wangsu.com/Home>, January 2018.

⁸⁵ <http://money.163.com/14/0521/13/9SP8RH9K002540BQ.html>

⁸⁶ https://www.rand.org/content/dam/rand/pubs/monographs/2005/RAND_MG334.pdf

⁸⁷ [https://intelligence.house.gov/sites/intelligence.house.gov/files/documents/huawei-zte%20investigative%20report%20\(final\).pdf](https://intelligence.house.gov/sites/intelligence.house.gov/files/documents/huawei-zte%20investigative%20report%20(final).pdf)

⁸⁸ <http://freebeacon.com/national-security/pentagon-military-block-use-of-chinese-telecom-gear/>

Wangsu signed an agreement with ZTE in 2014 to apply its Mobile Application Accelerator (MAA) technology to ZTE’s mobile devices.⁸⁹ ZTE is “state-owned, privately-managed” and thus aims to advance Chinese national interests in its profit-seeking endeavors. The company is led by the China Aerospace Industry Group Corporation (CASIC)—a major state-owned enterprise that manufactures missiles and aerospace systems—and there is significant overlap of senior ZTE employees and former or current CASIC staff. The United States included ZTE on its list of prohibited companies in March 2016 after it emerged that ZTE and its subsidiary and affiliated companies were evading U.S. sanctions restrictions and incorporating U.S. components into their products for export to Iran and North Korea. ZTE pled guilty in March 2017 and agreed to pay a \$900 million USD fine.⁹⁰

Government clients

Wangsu’s webpage indicates that it provides a broad scope of services to the government, noting that fast network access and reliable cybersecurity are essential to government websites and positive user experiences reflect on a government’s image. It further highlights the technical support the company provides for e-government cloud platforms.⁹¹

The website lists examples of the company’s government clients, which include the China Railway Corporation, the Ministry of Education, the Ministry of Finance, the State Intellectual Property Office, and the National Satellite Meteorological Center. Wangsu served as the transaction supplier for a CDN agreement between the National Satellite Meteorological Center and the Guoxin Tendering Group on October 31, 2017 for 1,164,000 RMB.⁹² The National Satellite Meteorological Center is under the State Council and assists in the development of indigenous satellites, such as the *Fengyuan-3*, purportedly in collaboration with the General Staff Department of the PLA.⁹³ Such satellites have dual-use capabilities and could be quickly adapted for military use in a contingency.

However, a deeper dive into the Wangsu website reveals a broader relationship with the Chinese government, with the company highlighting that it provided services for major national and international events, such as the 19th Party Congress, the 2017 BRICS Summit in Xiamen, and the 2016 G20 Summit in Hangzhou.⁹⁴

Key Personnel

Table 4: Key Personnel at Wangsu.

Name	Role	Info
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⁸⁹ http://www.wangsu.com/content/details45_1719.html


⁹⁰ <https://www.reuters.com/article/us-usa-china-zte-idUSKBN16E1X1>

⁹¹ http://www.wangsu.com/content/details3_382.html

⁹² http://www.ccg.gov.cn/cggg/zygg/cjgg/201710/t20171031_9081278.htm

⁹³ http://www.cma.gov.cn/en/aboutcma/Organizational/InstitutionsUnderCMA/201203/t20120319_166512.html;
<https://www.hsdl.org/?view&did=708400>

⁹⁴ <http://www.wangsu.com/about/history.html>

<p>Liu Chengyan 刘成彦</p> 	<p>President 总裁, Chairman of the Board 董事长</p>	<p>M, 53,</p>
<p>Hong Ke 洪珂</p>	<p>Deputy Chairman of the Board 副董事长, Vice President 副总裁, and Director of Quantil, a U.S.-based subsidiary.</p>	<p>M, 50, a U.S. citizen who previously worked in tech in the United States, masters from Arizona State.</p>
<p>Zhou Liping 周丽萍</p>	<p>Deputy Secretary 董秘, Vice President 副总裁, Director 董事</p>	<p>F, 41,</p>

IV. Ningxia Western Cloud Data Technology Co., Ltd. (NWCD) (宁夏西部云基地科技有限公司)

Key Findings

- Ningxia Western Cloud Data Technology, established in late 2013, operates one of China's largest cloud infrastructure facilities, West Cloud Valley, in Zhongwei, Ningxia province.
- The company is essentially a project of national and provincial government agencies, intended to provide cloud computing resources for Chinese state-owned enterprises and government offices, and to develop Western China.
- The company also intends to offer cloud computing services to Arabic countries as part of an online Silk Road strategy, through which China also hopes to improve access to strategic resources such as oil and natural gas.
- NWCD is a separate, second operating partner of AWS in China, after Beijing SINNET Technology.

Corporate Overview

Ningxia Western Cloud Data Technology is a cloud computing infrastructure operator that oversees facilities constructed in the city of Zhongwei in Ningxia province, with support from national policies aimed at developing Western China. The company was launched jointly by the governments of Ningxia and Beijing municipality to develop a cloud computing base, to take advantage of Ningxia's power generation capabilities, favorable land resources, and other natural advantages, which are well-suited to super-large-scale data center construction. The company's website state that it operates primarily as an infrastructure services provider through partnerships with leading Chinese cloud computing service providers.⁹⁵

Ningxia Western Cloud Data Technology was established in October 2013 by the Beijing city government's Beijing Cloud Valley (Beijing Yun Jidi) initiative in partnership with the government of Zhongwei municipality in Ningxia.⁹⁶ Its facilities in Zhongwei are known as "West Cloud Valley" and cover an area of 3,000 acres. Plans called for operating 200,000 servers during the project's initial development stage.⁹⁷

The company has laid out a three-part development strategy:⁹⁸

- Stage 1: Attract Amazon Web Services (AWS), Qihoo 360, and other leading Chinese and foreign enterprises. Focusing on developing a next-generation cloud data center, develop cloud infrastructure, cloud application, and cloud service industry chains to create an international cloud computing base.

⁹⁵ http://www.west-cloud.com/Category_1/Index.aspx, January 2018.

⁹⁶

<http://www.baike.com/wiki/%E5%AE%81%E5%A4%8F%E8%A5%BF%E9%83%A8%E4%BA%91%E5%9F%BA%E5%9C%B0>, January 2018.

⁹⁷ http://www.westcloudvalley.com/Category_29/Index.aspx, January 2018.

⁹⁸ http://www.westcloudvalley.com/Category_29/Index.aspx, January 2018.

- Stage 2: Focusing on national future strategic data security and disaster preparedness, offer secure and reliable data storage support and services for key state-owned enterprises, government offices, and financial institutions to serve as a “national strategic data disaster preparedness base.”
- Stage 3: Use the company’s strategic position in relation to the “online Silk Road” to offer cloud computing and information services to Arabic countries, and explore opportunities for exchanging services for oil and natural gas resources, as an online economic experiment zone.

Ningxia University, AWS, and the Zhongwei municipal government has also set up a talent development program to support cloud computing services, the Ningxia University – Amazon Cloud Computing School, which has approximately 600 enrolled students and 140 students expected to graduate in 2018.⁹⁹

Table 5: Corporate Registration Information for Ningxia Western Cloud Data Technology

Name	Ningxia Western Cloud Data Technology Co., Ltd. 宁夏西部云基地科技有限公司
Address	Block A, Zongguancun Zhongwei Park, Shapotou District, Zhongwei, Ningxia 中卫市沙坡头区中关村中卫园 A 座 ¹⁰⁰
Other Contact Information	Website: http://www.west-cloud.com/ ¹⁰¹ Phone: 0955-6556901 ¹⁰² Email: market@westcloudvalley.com
Type of Entity	Limited liability corporation ¹⁰³
Registration Number	640500200024094 ¹⁰⁴
Registered Capital	RMB 66.66 mln ¹⁰⁵

⁹⁹ https://markets.ft.com/data/announce/detail?dockey=600-201712112022BIZWIRE_USPRX___BW6337-1, January 2018.

¹⁰⁰ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰¹ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰² <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰³ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰⁴ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰⁵ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

Legal Representative	田溯宁 ¹⁰⁶
Date of Establishment	October 13, 2013 ¹⁰⁷
Authorized Scope of Business	Domestic telecom business agency services; computer systems services; data processing services; computer technology services; online services (non-ISP), systems integration; computer software development and applications; computer, software, peripheral device, communications device, and other electronics product sales; computer and communications equipment leasing; computer technology development, services, transfer, and consulting. ¹⁰⁸

Key Personnel

Table 6: Key Personnel at Ningxia Western Cloud Data Technology.

Name	Role	Info
Tian “Edward” Suning 田溯宁	Board chairman	Tian has a Ph.D. from Texas Tech. He completed his undergraduate work in biology at Liaoning University and also has a graduate degree from the graduate school of the Chinese Academy of Sciences. Tian founded Chinese private equity firm CBC Capital in 2006 after serving as vice chairman and CEO of China Netcom Group. He also serves as an independent executive director at Lenovo and as a member of the advisory board to Harvard Business School. Tian was also the founder of Beijing Cloud Valley. ¹⁰⁹

¹⁰⁶ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰⁷ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰⁸ <http://m.qixin.com/company/71126186-e960-456d-a79f-7a16029c0c7a.html>, January 2018.

¹⁰⁹ <http://www.cbc-capital.com/page/aboutcbc/index.php>;
<https://baike.baidu.com/item/%E7%94%B0%E6%BA%AF%E5%AE%81>; interesting biography:
<http://www.washingtonpost.com/wp-srv/inatl/longterm/chinanext/chinanext16.htm>, January 2018.

V. Insights from Licensing Agreements between AWS and Chinese Customers

The Licensing Agreements for both the Beijing and Ningxia regional areas are made between AWS cloud service users and the respective service providers, SINNET and Ningxia Western Cloud Data Technology Co., Ltd. (NWCD). In summary, both Customer Agreements exclude Amazon and call for compliance with PRC government rules and regulations. However, Amazon is allowed access to account details at SINNET and NWCD's discretion in specific circumstances and in accordance to relevant laws. While the contract between each Chinese company and Amazon indicates that the latter reserves the right to intellectual property associated with AWC, details on whether SINNET and NWCD have or will have access to associated source code or software components remain to be found and would provide greater context in assessing potential risks and vulnerabilities. Below are summaries of relevant portions of the agreements with original text for reference.

Customer Agreements for AWS (SINNET for Beijing Region¹¹⁰ & NWCD for Ningxia Region¹¹¹)

Customer Agreements for both regions highlight that the agreement for services are made between the respective service operators and the user, with no connection to Amazon. Further, by accepting the agreement, AWS users must comply with PRC government rules and regulations in supplying sufficient identification details to register an account and follow the appropriate channels to apply for licenses. Data will remain within the AWS China Network and will be privacy-protected, and customers will adhere to relevant laws and China Compliance Procedures, defined as “any compliance procedures mandated under applicable law in China for the Service Offerings. Such procedures may be modified at our sole discretion in accordance with applicable law.”¹¹² AWS may monitor the external interfaces (e.g., ports) of customer content to verify compliance with the agreement. The agreements likewise note that the inclusion of prohibited content would result in a termination of the account and outlines scenarios in which an account would be suspended and again calls for adherence to China Compliance Procedures. Users are banned from reverse engineering the service products and disputes related to the offered services are governed by PRC law. However, users are allowed to use certain service offerings that are based on technology of Amazon but operated and provided by other service provider(s) not by us, from other AWS region(s) within China. *See: Select Original Text in Appendix.*

Service Terms for AWS (SINNET for Beijing Region¹¹³ & NWCD for Ningxia Region¹¹⁴)

Of note, the Service Terms clearly outline circumstances in which Microsoft software cannot be used, including scenarios in which an error would result in high casualties or relate to national security, though not explicitly framed within this context. Additionally, the Amazon Simple

¹¹⁰ <http://www.amazonaws.cn/en/agreement/beijing/>

¹¹¹ <http://www.amazonaws.cn/en/agreement/ningxia/>

¹¹² <http://www.amazonaws.cn/en/agreement/beijing/>

¹¹³ <http://www.amazonaws.cn/en/serviceterms/beijing/>

¹¹⁴ <http://www.amazonaws.cn/en/serviceterms/ningxia/>

Notification Service appears to be restricted by barriers associated with Chinese government fire walls and must also adhere to PRC law. *See: Select Original Text in Appendix.*

[Acceptable Use Policy for AWS \(SINNET for Beijing Region¹¹⁵ & NWCD for Ningxia Region¹¹⁶\)](#)

The Acceptable Use Policy explicitly outlines content that would be deemed in violation of PRC laws and regulations, but includes topics relevant to China’s territorial integrity and core interests. AWS has the right to investigate any security violation, network abuse, email or other message abuse, illegal or harmful activity, or offensive use or content. AWS may remove, disable access to, or modify any content or resource that violates this Policy or any other agreement. They may report violation to law enforcement, regulators, or appropriate third parties. The reporting may include disclosing appropriate customer information. *See: Select Original Text in Appendix.*

[Privacy Policy for AWS \(SINNET for Beijing¹¹⁷ & NWCD for Ningxia Region¹¹⁸\)](#)

The Privacy Policy language indicates that information sharing with Amazon remains at the discretion of the Chinese service provider. *See: Select Original Text in Appendix.*

¹¹⁵ <http://www.amazonaws.cn/en/aup/beijing/>

¹¹⁶ <http://www.amazonaws.cn/en/aup/ningxia/>

¹¹⁷ <http://www.amazonaws.cn/en/privacy/beijing/>

¹¹⁸ <http://www.amazonaws.cn/en/privacy/ningxia/>

VI. China Broadband Company 宽带资本 (CBC) from website

Company Profile

CBC, founded by Dr. Edward Suning Tian (田溯宁) in 2006, is a China-based private equity firm focusing on TMT investments. CBC has been regarded as one of the most influential investors in the Internet and technology space in China, leading many exceptional investments in both the Enterprise and the Consumer Internet sectors. CBC leverages its operational background to create significant value for its portfolio companies. CBC currently manages multiple USD and RMB funds with a total AUM of over USD 2 billion and has built a strong portfolio consisting of leading industry companies such as 21Vianet, AsiaInfo, Longshine, Qiniu, Fraudmetrix, Dianping, Focus Media, Oriental Pearl, Babytree, Ximalaya, and Wacai¹¹⁹.

In addition, CBC expands its footprint globally by partnering with leading global technology innovators, contributing significant value to their success in China. Over the years, CBC has invested in market leaders such as LinkedIn China, Planet, Docker, Evernote, Airbnb, Uber, and won the reputation as the best China partner for global technology companies through its active post-investment value-add¹²⁰.

Key Personnel

Mr. Edward Suning Tian, P.h.D.; Founding Partner/Chairman

Mr. Edward Tian is the founder and Chairman of China Broadband Capital Partners, L.P. (CBC).



Before Mr. Tian founded CBC Capital, he was the Vice Chairman and CEO of China Netcom Group from Nov. 2002 to May 2006. He was the CEO of China Netcom Company Ltd. from Aug. 1999 to May 2002. Prior to joining China Netcom, Mr. Tian was the co-founder and Chief Executive Officer of AsiaInfo Holding Inc., the first Internet technology provider in China. AsiaInfo successfully listed in NASDAQ in 2001 under Mr. Tian's leadership. Mr. Tian also used to be the Vice Chairman of PCCW Limited from 2005 to 2007. He's now the Independent Director of several multi-national companies. They are including Pudong Developing Bank, Lenovo Group Limited and Taiking Life Insurance Company Limited¹²¹. After being coined "Mr. Broadband" of China, newspapers and magazines have since re-named the entrepreneur to the "Mr. Cloud Computing" of China. Mr. Tian is the Chairman or Ceo of the following companies: Chengbei Innovation Consulting Co., Ltd (诚贝创业咨询有限公司), Ningxia Cloud Data Co., Ltd.(宁夏云在数据科技有限公司), and

¹¹⁹ <http://www.cbc-capital.com/page/aboutcbc/index.php>

¹²⁰ <http://www.cbc-capital.com/page/aboutcbc/index.php>

¹²¹ <http://www.cbc-capital.com/cp/class/>

Ningxia Western Cloud Base Science and Technology Co., Ltd 宁夏西部云基地科技有限公司。

Table 1: Corporate Registration Information for China Broadband Capital Co., Ltd.

Name	China Broadband Capital Co., Ltd. 中国天地融创创业投资有限公司
Address	Ritan North Road, Chaoyang District, Beijing Ritan Park 100020 北京市朝阳区日坛北路日坛公园内具服殿 100020
Other Contact Information	Phone: 86-10-8563-5888 Fax: 86-10-8563-5678
Legal Representative	Tian Suning 田溯宁
Date of Establishment	2006

Appendix I: SINNET Branches and Subsidiaries

Table 7: Beijing SINNET Technology Co. Shandong Branch

Name	Beijing SINNET Technology Co. Shandong Branch 北京光环新网科技股份有限公司山东分公司
Address	Shandong, Jinan, Huaiyin District, Qizhou Road, Guangbaoxian Building, 10 th Floor, 1010. 山东省济南市槐荫区齐州路阳光保险大厦 10 层 1010
Uniform Social Credit Code	91370104353489964H
Legal Representative	Geng Yan 耿岩
Date of Establishment	2015-09-08
Authorized Scope of Business	Internet access service business; Internet data center business; Internet information service business; information system integration; three-dimensional multimedia integration; to undertake network engineering, intelligent building weak system integration; research and development of digital network applications; engaged in computer information network international networking business; sales: Non-proprietary control of communications equipment, computers, software and auxiliary equipment.

Table 8: Beijing SINNET Technology Co. Dongcheng Branch

Name	Beijing SINNET Technology Co. Dongcheng Branch 北京光环新网科技股份有限公司东城分公司
Address	Beijing, Dongcheng District, Dongzhong Street No. 9, North 2 nd Floor, Room A 北京市东城区东中街 9 号北二层 A 号
Uniform Social Credit Code	911101010741440233
Legal Representative	Geng Diangen 耿殿根
Date of Establishment	2002-08-22
Authorized Scope of Business	Information system integration; to undertake network engineering; technology promotion services; sales of computer applications.

Table 9: Beijing SINNET Technology Co. Shanghai Pudong Branch

Name	Beijing SINNET Technology Co. Shanghai Pudong Branch 北京光环新网科技股份有限公司上海浦东分公司
Address	Shanghai, Pudong District, Ningqiao Road, No. 615, T12B-I10 浦东新区宁桥路 615 号 T12B-I10 层
Registration Number	31*****01116366
Legal Representative	Geng Yan 耿岩
Authorized Scope of Business	Information system integration, 3D multimedia integration, to undertake network engineering, intelligent building weak system integration, research and development of digital network applications

Table 10: Beijing Meganest Technology Company

Name	Beijing Meganest Technology Company 北京中金云网科技有限公司
Address	Beijing, Economci and Technology Development Zone, Boxing 8 Road No. 1, Room 2107 北京市北京经济技术开发区博兴八路 1 号 2 幢 2107 室
Other Contact Information	Tel: (86) 010-87222600 Fax: (86) 010-8722260 http://www.meganest.cn
Uniform Social Credit Code	91110302MA0010088N
Registered Capital	202,500,000 yuan
Legal Representative	Yang Jie 杨洁
Date of Establishment	2015-09-29
Authorized Scope of Business	Technology development, technical consultancy, technology transfer, technical services; computer system services, data processing (except for cloud computing data centers with PUE values above 1.5 in data processing); computer system integration; sales of computers, software and support equipment.

Table 11: Beijing AnG Technology Company.

Name	Beijing AnG Technology Company 北京无双科技有限公司
Address	Beijing Haidan District, Zhongguangcun Road No. 66, Building 1, Floor 22, 2604-06 北京市海淀区中关村东路 66 号 1 号楼 22 层 2604-06
Other Contact Information	Tel: (86) 400 850 8778 contactus@agrant.cn http://www.agrant.cn/about
Uniform Social Credit Code	911101085530586831
Registered Capital	20 million yuan
Legal Representative	Yang Yuhang 杨宇航
Date of Establishment	2010 年 04 月 19 日
Authorized Scope of Business	Computer software and hardware and network technology development, technology transfer, technical advice, technical services; computer technology training (not for national enrollment); design, production, agency, advertising; sales of self-developed products; import and export of goods, technology into Export, import and export agent.

Table 12: SINNET (Beijing) Network Services Limited.

Name	SINNET (Beijing) Network Services Limited 光环有云（北京）网络服务有限公司
Address	Floor 501, Floor 5, Building A, No. 10, Jiuxianqiao North Road, Chaoyang District, Beijing, China (Area 5-B) 北京市朝阳区酒仙桥北路甲 10 号院 402 楼 5 层 501 内(5-B 区)
Other Contact Information	support@light2cloud.com 010-64181150-298 http://www.light2cloud.com/
Uniform Social Credit Code	91110105MA006JY40X

Registered Capital	50 million yuan
Legal Representative	Yang Yuhang 杨宇航
Date of Establishment	2016年06月29日
Authorized Scope of Business	Technology development, technology transfer, technical consulting, technical services; cloud computing; computer system services; wholesale computer, software and auxiliary equipment; software development; data processing (data processing in the bank card center, cloud computing data center); Internet information services.
Primary Stock Holders	Gongqing Cheng Ju Hui Cheung investment management partnership (limited partnership) –共青城聚汇祥德投资管理合伙企业（有限合伙） UNITEDSTACK (Beijing) Technology Co., Ltd. – UNITEDSTACK（北京）科技有限公司 Beijing SINNET Technology Company –北京光环新网科技股份有限公司

Appendix II: SINNET's External Investments

Table 13: SINNET's External investment

Entity name	Registration or universal social credit number
光环云谷科技有限公司	91131082670343571H
北京科信盛彩云计算有限公司	91110302585837286P
北京华爱光环科技有限公司	911101053443661294
北京亚太中立信息技术有限公司	110000450192480
北京德信致远科技有限公司	91110000306321093N
北京亚逊新网科技有限公司	9111000031818775XX
西安博凯创达数字科技有限公司	916101336786458306
北京无双科技有限公司	911101085530586831
北京光环金网科技有限公司	911101130785322186
陕西广电新网云服务有限公司	91611104MA6TG2K20Y
光环有云（北京）网络服务有限公司	91110105MA006JY40X
北京瑞科新网科技有限公司	91110105558526466P
北京中金云网科技有限公司	91110302MA0010088N
光环新网（上海）信息服务有限公司	91310114795662752T
光环新网（宁夏）云服务有限公司	91640500MA75X2122E
北京拓量投资中心（有限合伙）	110108020217447
天津新动金鼎万众体育资产管理合伙企业（有限合伙）	91120116MA07D9244L

Appendix III: Other Key Personnel at SINNET

Table 14: Other Key Personnel at SINNET.

Name	Role	Info
Pang Baoguang 庞宝光	Chairman-Supervisory Board 监事会主席	F, 44
Geng Diangen 耿殿根	Chairman of the Board 董事长, Legal Representative	M, 61, Attended University of Texas
Yang Yuhang 杨宇航	General Manager & Director 董事	M, 55, Attended University of Aston
Zhang Lijun 张利军	Chief Financial Officer 财务总监	M, 38
Geng Yan 耿岩	Deputy General Manager 副总经理	M, 37, Jilin Agricultural University.
Qi Shunjie 齐顺杰	Deputy General Manager 副总经理	M, 49, Attended University of Texas
Chen Hao 陈浩	Vice President 副总裁, Deputy GM & Director - Broadband Technical	M, 47, Attended Taiyuan Mechanical College.
Hou Yan 侯焰	Deputy General Manager 副总裁	F, 51, Attended the Institute of Scientific & Technical Information of China.
Wang Junhui 王军辉	Member-Supervisory Board 监事	M, 33
Zheng Shanwei 郑善伟	Director 董事	M, 43
Li Chao 李超	Member-Supervisory Board 监事	F, 40, Attended Civil Aviation University of China.
Yuan Ding 袁丁	Director 董事	F, 42, Attended Beihang University.
Chen Jing	Securities Representative	F

Gao Hong 高宏	Board Secretary & Deputy General Manager 董事会秘书兼副总裁	F, 47, Attended Nankai University.
Song Jianer 宋健尔	Independent Director 独立董事	M, 50
Guo Lili 郭莉莉	Independent Director 独立董事	F, 54, Also on board of Beijing New Oriental Star Petrochemical Engineering Co.
Hou Chengxun 侯成训	Independent Director 独立董事	M, 54
Ru Shuwei 汝书伟	Supervisor 监事	Beijing University of Technology Institute of Electronic Information and Control Engineering
Wang Shufang 王淑芳	Independent Director 独立董事	
Han Xu 韩旭	Independent Director 独立董事	
Shui Jun 税军	Independent Director 独立董事	
Cao Yi 曹毅	Director 董事	

Appendix IV: Other Key Personnel at Wangsu

Table 15: Other Key Personnel at Wangsu.

Yan Yongchun 颜永春	Director 董事	M, 49, Xi'an Jiaotong University
Li Zhiping 李智平	Independent Director 独立董事	M, 61
Huang Siying 黄斯颖	Independent Director 独立董事	F, 39
Wang Yusong 王蔚松	Independent Director 独立董事	M, 58
Zhang Haiyan 张海燕	Chairman of the Board of Supervisors 监事会主席	F, 42
Xuan Jun 宣俊	Supervisor 监事	M, 59,
Xu Mingwei 徐明微	Staff Supervisor 职工监事	M, 42
Chu Minjian 储敏健	Vice President 副总裁	M, 51
Huang Shalin 黄莎琳	Vice President 副总裁	F, 42
Xiao Qian 肖蓓	Vice President 副总裁 , Director of Finances 财务总监	F, 39

Appendix V: Select Original Text for Licensing Agreements between AWS and Chinese Customers

Customer Agreements for AWS (SINNET for Beijing Region¹²² & NWCD for Ningxia Region¹²³)

Both SINNET and NWCD

- *Use of the Service Offerings:*
 - Although Amazon develops and maintains the underlying technology, the Service Offerings are operated and provided to you by us, not by Amazon. Amazon is not a party to this Agreement, and this Agreement does not provide you with any contractual or other rights or remedies against Amazon.
 - To access the Services, you must have an AWS account associated with a valid e-mail address and one or more valid forms of identification. You must provide sufficient supporting documents (e.g. business license for company or a government issued ID), as requested by us, to allow us to verify your identity.
 - Through your account, you may *access* and use certain service offerings that are based on technology of Amazon but operated and provided to you by other service provider(s), not by us, from other AWS region(s) within China (“Other AWS China Regions”).
 - (a) If you use the Services to host a website providing non-commercial Internet information services, you must undertake filing procedures for a non-commercial website (an “ICP Recordal”) at the relevant governmental or regulatory authority; and
 - (b) If you use the Services to host a website providing commercial Internet information services, you must obtain a value-added telecommunications license for a commercial website (an “ICP License”) from the relevant governmental or regulatory authority.
- *Data Privacy:*
 - Your Content will be stored only in the AWS China Network. You consent to the storage of Your Content in, and transfer of Your Content into, the AWS China Network. We will not (a) access or use Your Content, (b) disclose Your Content to any government or third party or (c) move Your Content outside of the AWS China Network, except in each case as necessary to maintain or provide the Service Offerings, or as necessary to comply with the law, China Compliance Procedures or requests of governmental or regulatory authorities. Unless it would violate the law, China Compliance Procedures or requests of governmental or regulatory authorities, we will give you notice of any such requests.
- *Encryption Software*
 - We work to protect the security of your information during transmission by using Secure Sockets Layer (SSL) software, which encrypts information you input.
- *Prohibited Content:*

¹²² <http://www.amazonaws.cn/en/agreement/beijing/>

¹²³ <http://www.amazonaws.cn/en/agreement/ningxia/>

- If either you or we determine that any of Your Content contains any Prohibited Content, you agree that you will immediately terminate access to such content, keep relevant records and report the violation to the relevant governmental or regulatory authority.
- *Suspension:*
 - We may suspend your or any End User's right to access or use any portion or all of the Service Offerings immediately upon notice to you if we determine:
 - (a) your or an End User's use of or registration for the Service Offerings
 - (i) violates law or does not comply with China Compliance Procedures, including without limitation, failure to obtain or maintain Governmental Approvals,
 - (ii) poses a security risk to the Service Offerings or any third party,
 - (iii) could adversely impact our systems, the Service Offerings or the systems or Content of any other AWS customer,
 - (iv) could subject us, our affiliates, or any third party to liability, or
 - (v) could be fraudulent;
 - (b) you are, or any End User is, in breach of this Agreement;
 - (c) you are in breach of your payment obligations under Section 5;
 - (d) your use of service offerings from Other AWS China Regions through your account is suspended; or
 - (e) you have ceased to operate in the ordinary course, made an assignment for the benefit of creditors or similar disposition of your assets, or become the subject of any bankruptcy, reorganization, liquidation, dissolution or similar proceeding
- *Use restrictions*
 - Neither you nor any End User will use the Service Offerings in any manner or for any purpose other than as expressly permitted by this Agreement... (b) reverse engineer, disassemble, or decompile the Service Offerings or apply any other process or procedure to derive the source code of any software included in the Service Offerings (except to the extent applicable law doesn't allow this restriction)
- *Governing Law: Disputes*
 - This Agreement is governed by the laws of the People's Republic of China excluding any conflicts of laws rules or principles. Any dispute relating in any way to the Service Offerings or this Agreement will be submitted to the China International Economic and Trade Arbitration Commission for arbitration in Beijing, which shall be conducted in accordance with the Commission's arbitration rules in effect at the time of applying for arbitration. The arbitral award is final and binding upon both parties. The number of arbitrators shall be three

NWCD Explicitly

- *Compliance*
 - You will provide information or other materials related to Your Content (including copies of any client-side applications) as reasonably requested by us to verify your compliance with the Agreement. We may monitor the external interfaces (e.g., ports) of Your Content to verify your compliance with the Agreement. You will not block or interfere with our monitoring, but you may use

encryption technology or firewalls to help keep Your Content confidential. You will reasonably cooperate with us to identify the source of any problem with the Services that we reasonably believe may be attributable to Your Content or any end user materials that you control.

[Service Terms for AWS \(SINNET for Beijing Region¹²⁴ & NWCD for Ningxia Region¹²⁵\):](#)

- *Use of Microsoft software*
 - Cannot use for applications for “High Risk Use” (deemed: controlling aircraft or other modes of human mass transportation, nuclear or chemical facilities, life support systems, implantable medical equipment, motor vehicles, weaponry systems.)
- *Use of Amazon Simple Notification Service (Amazon SNS)*
 - Your notifications sent through Amazon SNS may be blocked, delayed or prevented from being delivered by destination servers and other reasons outside of our control and there is no warranty that the service or content will be uninterrupted, secure or error free or that notifications will reach their intended destination during any stated time-frame.
 - “Through your use of Amazon SNS you will not:
 - Materially violate or facilitate the material violation of any local or foreign law, rule, regulation or order, including laws regarding the transmission of data or software.

[Acceptable Use Policy for AWS \(SINNET for Beijing Region¹²⁶ & NWCD for Ningxia Region¹²⁷\):](#)

- *Prohibited Content*
 - “The content which is prohibited by PRC laws and regulations (“Prohibited Content”). According to PRC regulations, Prohibited Content includes anything that:
 - opposes the basic principles established by the Constitution;
 - endangers national security, divulges state secrets or purports to subvert the national regime or undermine the unity of the nation;
 - jeopardizes the honor and interests of the nation;
 - incites ethnic hatred or discrimination, or undermines ethnic unity;
 - undermines national religious policy or advocates heresies or superstition;
 - disseminates rumors, disrupts the social order or undermines social stability;
 - disseminates obscenity, eroticism, gambling, violence, homicide or terrorism, or instigates others to commit crimes;

¹²⁴ <http://www.amazonaws.cn/en/serviceterms/beijing/>

¹²⁵ <http://www.amazonaws.cn/en/serviceterms/ningxia/>

¹²⁶ <http://www.amazonaws.cn/en/aup/beijing/>

¹²⁷ <http://www.amazonaws.cn/en/aup/ningxia/>

- insults or slanders other persons or infringes upon other persons' lawful rights and interests; or
 - contains any other content prohibited by laws or administrative regulations.”
- *No Security Violations*
 - You may not use the Services to violate the security or integrity of any network, computer or communications system, software application, or network or computing device (each, a “System”). Prohibited activities include:
 - Unauthorized Access. Accessing or using any System without permission, including attempting to probe, scan, or test the vulnerability of a System or to breach any security or authentication measures used by a System.
 - Interception. Monitoring of data or traffic on a System without permission.
 - Falsification of Origin. Forging TCP-IP packet headers, e-mail headers, or any part of a message describing its origin or route. The legitimate use of aliases and anonymous remailers is not prohibited by this provision.
- *No Network Abuse*
 - You may not make network connections to any users, hosts, or networks unless you have permission to communicate with them. Prohibited activities include:
 - Monitoring or Crawling. Monitoring or crawling of a System that impairs or disrupts the System being monitored or crawled.
 - Denial of Service (DoS). Inundating a target with communications requests so the target either cannot respond to legitimate traffic or responds so slowly that it becomes ineffective.
 - Intentional Interference. Interfering with the proper functioning of any System, including any deliberate attempt to overload a system by mail bombing, news bombing, broadcast attacks, or flooding techniques.
 - Operation of Certain Network Services. Operating network services like open proxies, open mail relays, or open recursive domain name servers.
 - Avoiding System Restrictions. Using manual or electronic means to avoid any use limitations placed on a System, such as access and storage restrictions.
- *No E-Mail or Other Message Abuse*
 - You will not distribute, publish, send, or facilitate the sending of unsolicited mass e-mail or other messages, promotions, advertising, or solicitations (like “spam”), including commercial advertising and informational announcements. You will not alter or obscure mail headers or assume a sender’s identity without the sender’s explicit permission. You will not collect replies to messages sent from another internet service provider if those messages violate this Policy or the acceptable use policy of that provider.
- *Our Monitoring and Enforcement*
 - We reserve the right, but do not assume the obligation, to investigate any violation of this Policy or misuse of the Services or AWS China Site. We may:
 - investigate violations of this Policy or misuse of the Services or AWS China Site; or
 - remove, disable access to, or modify any content or resource that violates this Policy or any other agreement we have with you for use of the Services or the AWS China Site.

- We may report any activity that we suspect violates any law or regulation to appropriate law enforcement officials, regulators, or other appropriate third parties. Our reporting may include disclosing appropriate customer information. We also may cooperate with appropriate law enforcement agencies, regulators, or other appropriate third parties to help with the investigation and prosecution of illegal conduct by providing network and systems information related to alleged violations of this Policy.
- *Reporting of Violations of this Policy*
 - If you become aware of any violation of this Policy, you will immediately notify us and provide us with assistance, as requested, to stop or remedy the violation. To report any violation of this Policy, please follow our abuse reporting process.

Privacy Policy for AWS (SINNET for Beijing¹²⁸ & NWCD for Ningxia Region¹²⁹):

- *Sharing Customer Information*
 - Information about our customers is an important part of our business, and we are not in the business of selling it to others. We share Account Information only as described below or pursuant to applicable laws and regulations and with affiliates we control that either are subject to this Privacy Policy or follow practices at least as protective as those described in this Privacy Policy.
 - Amazon: We work closely with Amazon in order to operate and provide the Service Offerings based on Amazon's AWS technologies, and we may share Account Information with Amazon.

¹²⁸ <http://www.amazonaws.cn/en/privacy/beijing/>

¹²⁹ <http://www.amazonaws.cn/en/privacy/ningxia/>

Appendix VI: Question on Amazon and GreatFire.Org

Key Takeaways:

- Amazon touted its support for net neutrality and freedom of speech before, during, and after DDoS attacks on the free speech organization GreatFire.org
- Amazon has not provided any obvious assistance to GreatFire.org in the wake of Chinese DDoS attacks from China's Great Cannon
- The Chinese government has clearly signaled to MNCs (before, during, and after the attacks) the significance of its domestic control over cloud computing services used in China

Using AWS and other CDNs to Circumvent the Great Firewall

In 2011, Charlie Smith, Percy Alpha, and Martin Johnson¹³⁰, established GreatFire.org with the goal of reversing some of the effects of Chinese censorship and advocating for transparency and freedom of speech online.¹³¹ The advocacy organization received funding from the U.S. Department of State in 2014 and support from other similar advocacy organizations such as the Open Tech Fund, Radio Netherlands Worldwide, and Reporters Without Borders.¹³² It also accepts PayPal donations, “selling” its virtual private network (VPN) services and unblocking content in China on behalf of the content provider.¹³³

To support its mission, GreatFire.org has a host of tools in its arsenal:

- FreeBrowser, an Android mobile browser that allows access to banned websites;
- FreeWeibo, which posts censored and deleted content from Weibo;
- And most notably, Collateral Freedom, an initiative by GreatFire.org and other likeminded groups and individuals that uses CDNs through global cloud services, such as AWS's CloudFront, GitHub, and EdgeCast Networks to create “mirrors” of blocked websites.

The mirror sites on Collateral Freedom are hosted on cloud storage, which is encrypted and content cannot be selectively restricted. In Amazon's case, the mirror is stored on Amazon Simple Storage Service (S3) and appears in the form of a unique URL that begins with “https://s3.amazonaws.com/”.¹³⁴

Collateral Freedom poses a dilemma for Chinese censors—either tolerate the existence of mirrors or block the entire cloud network.¹³⁵ The latter would disrupt the numerous Chinese businesses

¹³⁰ Aliases maintained by the creators of GreatFire.org.

¹³¹ <https://www.bloomberg.com/news/articles/2014-03-20/secretive-web-activists-give-chinese-a-way-around-censorship>; <http://empodera.org/en/greatfire-org-and-free-brwoser-defending-freedom-of-speech-in-china/>

¹³² <https://www.bloomberg.com/news/articles/2014-03-20/secretive-web-activists-give-chinese-a-way-around-censorship>; <http://empodera.org/en/greatfire-org-and-free-brwoser-defending-freedom-of-speech-in-china/>

¹³³ <http://empodera.org/en/greatfire-org-and-free-brwoser-defending-freedom-of-speech-in-china/>

¹³⁴ <https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/MigrateS3ToCloudFront.html>; <http://www.chinafile.com/Punching-Hole-Great-Firewall>

¹³⁵ <http://foreignpolicy.com/2014/03/25/a-back-door-to-chinese-internet-freedom/>

that rely on these platforms for e-commerce, making “the collateral cost of choosing to block [these sites] prohibitive for China’s censors.”¹³⁶ Collateral Freedom has created mirror sites of many controversial blocked sites, such as the International Consortium of Investigation Journalists reporting on offshore tax havens by Chinese officials, and commentary on the Kunming knife-attack, wherein eight perpetrators—purportedly—Uighur minorities from Xinjiang killed 31 people.¹³⁷

Retaliation and the Great Cannon

Collateral Freedom seemed to be more or less successful at providing content to users in China. China blocked GitHub in January 2013, but restored services after facing backlash from the founding president of Google China, Kai-Fu Lee, who criticized that such a move would “[bring] about a loss in competitiveness and insight,” and that GitHub was important to local software developers.¹³⁸ This would not be the first time actions taken by Chinese censors would have adverse or unexpected effects. When censors blocked Akamai networks in October 2014, the block inadvertently brought down access to the Hong Kong and Shanghai Banking Corporation (HSBC)’s—one of the world’s largest banks—corporate banking portal.¹³⁹

Less than a month later, in November 2014, ahead of the World Internet Conference, EdgeCast Networks was blocked by China. GreatFire.org purports that the move was likely due to “Collateral Freedom” efforts to bypass the Great Fire Wall. GreatFire.org noted that they, “gamble[d] that the Chinese authorities will not block access to global CDNs because they understand the value of China being integrated with the global internet.”¹⁴⁰ The move to censor EdgeCast-hosted sites was viewed as significant as EdgeCast is one of the largest CDNs in the world.¹⁴¹ According to Charlie Smith, the move was likely prompted by the creation of a mirror website for Boxun, a site which broke key details of the Bo Xilai scandal.¹⁴²

Soon after, in March 2015, GreatFire.org’s CloudFront services and its mirrors on GitHub were hit by a Distributed Denial of Service (DDoS) attack, which redirected traffic from Baidu—China’s search engine equivalent to Google—and inundated the mirror websites with requests accounting for over 2500 times normal levels for GreatFire.org. This drove bandwidths cost up to

¹³⁶ <http://www.chinafile.com/Punching-Hole-Great-Firewall>;

https://www.opentech.fund/sites/default/files/collateral_freedom_1.0.pdf

¹³⁷ <http://www.chinafile.com/Punching-Hole-Great-Firewall>

¹³⁸ <https://www.computerworld.com/article/2493478/internet/github-unblocked-in-china-after-former-google-head-slams-its-censorship.html>; <https://qz.com/297956/the-great-firewalls-latest-victims-demonstrate-its-stubborn-flaw/>

¹³⁹ <https://en.greatfire.org/blog/2014/nov/hsbc-corporate-banking-blocked-china-and-outbound-finance-impacted>

¹⁴⁰ <https://www.bestvpn.com/fr/china-blocks-thousands-edgecast-websites/>;

<https://www.reuters.com/article/us-china-internet-censorship/china-blocks-websites-ahead-of-high-profile-internet-forum-group-idUSKCN0J20MI20141118>

¹⁴¹ <https://en.greatfire.org/blog/2014/nov/china-just-blocked-thousands-websites>

¹⁴² <https://qz.com/297956/the-great-firewalls-latest-victims-demonstrate-its-stubborn-flaw/>;
<http://www.businessinsider.com/boxun-bo-xilai-watson-meng-china-hacked-2012-4/?IR=T>

\$30,000 a day.¹⁴³ On their blog, GreatFire.org indicated that they have asked Amazon if it will forego the costs.¹⁴⁴ It remains unclear if AWS was receptive to their request:



Figure 1: GreatFire.org's Twitter response to a journalist asking about AWS' support at the time of the attack.¹⁴⁵

A Chinese offensive cyber weapon known to the Citizen Lab at the University of Toronto as the “Great Cannon” was deployed during the attack.¹⁴⁶ The Great Cannon’s ability to overwhelm, and thus disrupt, websites that promote content that it opposes is significant in that it indicates the reach of the Chinese government’s cyber capabilities now extend beyond its national borders.¹⁴⁷

The graphic below details the relationship between the Great Cannon and the Great Firewall:

¹⁴³ <https://en.greatfire.org/blog/2015/mar/we-are-under-attack#comments>;
<https://blog.thousandeyes.com/chinas-new-weapon-great-cannon/>;
<https://twitter.com/GreatFireChina/status/578631443309572096>

¹⁴⁴ <https://en.greatfire.org/blog/2015/mar/we-are-under-attack>

¹⁴⁵ <https://twitter.com/GreatFireChina/status/579341498208165888>

¹⁴⁶ https://www.washingtonpost.com/opinions/chinas-great-cannon/2015/04/11/c926c718-dfa6-11e4-a1b8-2ed88bc190d2_story.html

¹⁴⁷ <https://blog.thousandeyes.com/chinas-new-weapon-great-cannon/>

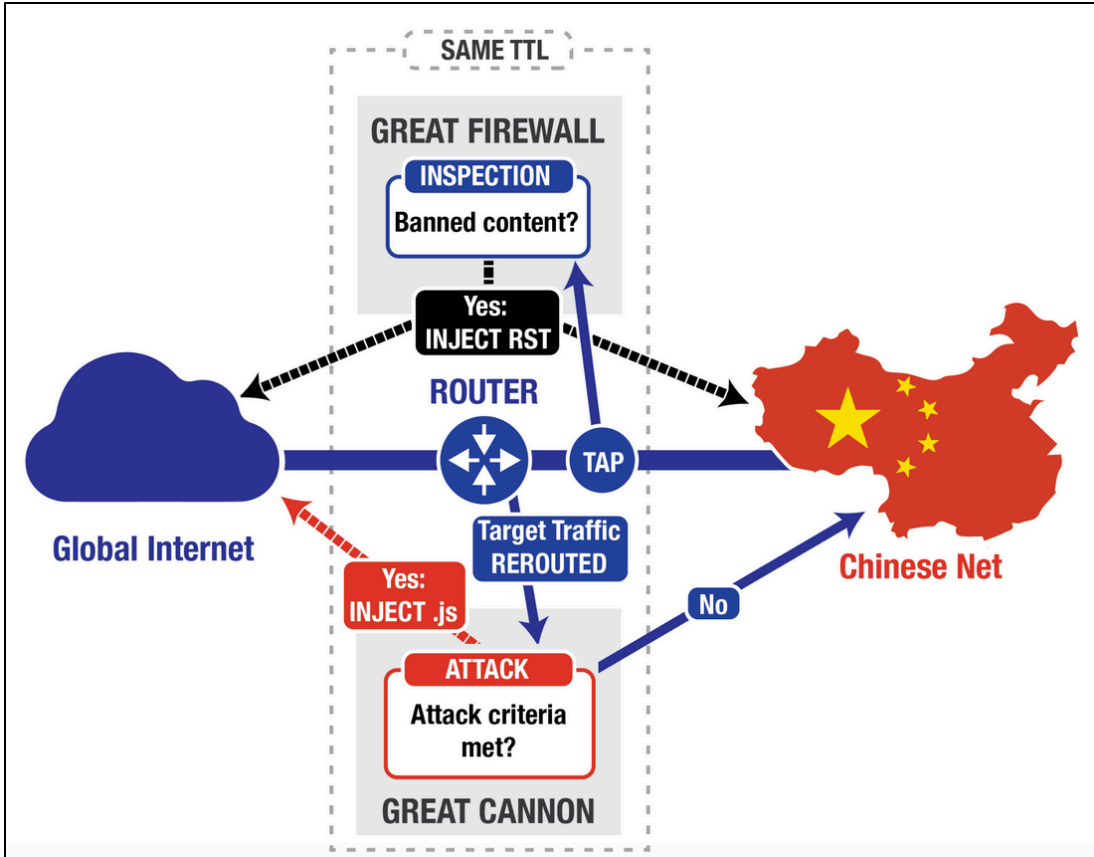


Figure 2¹⁴⁸

The following graphic showcases how the Great Cannon operates:

¹⁴⁸ <https://citizenlab.ca/2015/04/chinas-great-cannon/>

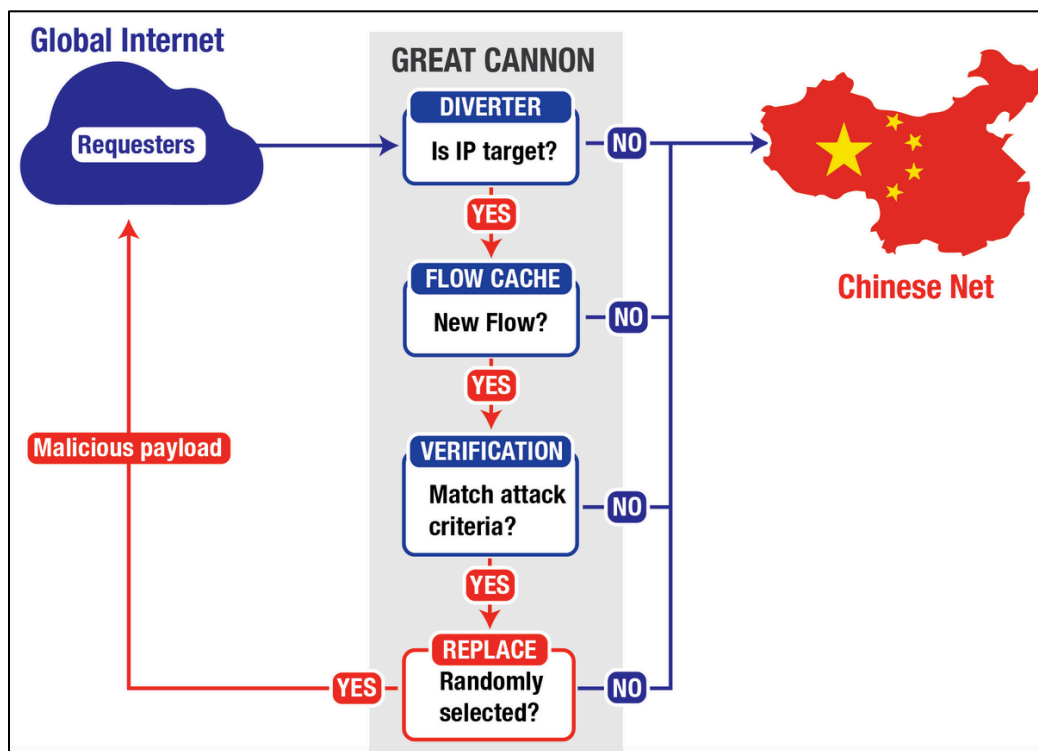


Figure 3¹⁴⁹

The Chinese government has denied involvement in the attacks, though analysts suggest there are few others with the technical capabilities or motive to launch them.¹⁵⁰ Guidelines from the Chinese government to domestic and state media outlets were leaked following the attacks, advising local media to “not conjecture or comment of your own accord before the authoritative media have reported the case, and do not republish foreign coverage.”¹⁵¹

Earlier that year (2015), the Cyberspace Administration of China (CAC) named GreatFire.org an “anti-China website founded by anti-China organizations”.¹⁵² In some ways, the deployment of the Great Cannon against GreatFire.org was not surprising, as it was already identified by the central government as problematic and a long-time instigator of “unprovoked attacks against the Chinese government” (长期对中国政府进行无端攻击).¹⁵³

May 2015, almost two months after the attack, the U.S. Department of State conveyed its concern to Chinese counterparts, with spokesperson Jeff Rathke saying, “We are concerned by reports that China has used a new cyber capability to interfere with the ability of worldwide Internet users to

¹⁴⁹ <https://citizenlab.ca/2015/04/chinas-great-cannon/>

¹⁵⁰ <https://chinadigitaltimes.net/2015/03/minitue-dont-conjecture-on-github-ddos-attack/>

¹⁵¹ <https://chinadigitaltimes.net/2015/03/minitue-dont-conjecture-on-github-ddos-attack/>

¹⁵² http://www.cac.gov.cn/2015-01/22/c_1114097853.htm

¹⁵³ Ibid

access content hosted outside of China.”¹⁵⁴ Amazon had yet to comment on the attack or whether it provided support to GreatFire.org.¹⁵⁵

Amazon and its representatives had consistently spoken out in support of net neutrality leading up to and following the attack. China’s much-touted policy of “cyber sovereignty”—that each country should determine its own internet regulations—is in clear opposition of this concept. In 2014, Amazon joined other major tech companies signing onto a letter advocating for net neutrality in 2014 and participated in the American Civil Liberties Union’s “Day of Action” for net neutrality in June 2017.¹⁵⁶ After the repeal, Amazon’s Chief Technology Officer released a statement that Amazon will “continue to work...to find ways to ensure an open and fair internet that can continue to drive innovation,” with the lobbying organization the company co-founded, the Internet Association, planning to join lawsuits to counter the decision.¹⁵⁷ More broadly, Jeff Bezos, Amazon’s CEO, has defended free speech in June 2016, saying:

“The most important thing to remember is that beautiful speech doesn’t need protection—it’s ugly speech that needs protection...We live in a world where half the population on this planet, if you criticize your leader, there’s a good chance you’ll go to jail or worse. We live in this amazing democracy with amazing freedom of speech...”¹⁵⁸

Amazon CloudFront and CDNs in China

The use of Amazon AWS—specifically CloudFront—and other CDNs to set up mirror sites that bypass the Great Firewall was a primary feature in operation Collateral Freedom. Amazon CloudFront is Amazon’s CDN service, allowing for faster distribution of a web content to an end user.¹⁵⁹ This is achieved through “edges” which are data centers located around the world. Content is routed to edge locations that have the lowest time delays to allow more efficient delivery of data.¹⁶⁰ CloudFront is integrated with AWS, in terms of physical infrastructure, as well as with the software behind other AWS services, such as AWS Shield and Amazon S3.¹⁶¹

Of note, the AWS China website—accessed January 2018—suggests using CloudFront for end users outside the country, but indicates that, “Amazon CloudFront edge locations are currently not

¹⁵⁴ <https://www.cbsnews.com/news/us-concerned-china-behind-malicious-cyber-attack-on-us-sites/>

¹⁵⁵ <https://www.computerworld.com/article/2907112/group-fighting-net-censorship-in-china-presses-on-despite-ddos-attack.html>

¹⁵⁶ <https://www.theverge.com/2014/5/7/5692578/tech-coalition-challenges-fcc>;
<https://www.usatoday.com/story/tech/news/2017/06/06/net-neutrality-supporters-plan-july-12-day-action/102543796/>;

¹⁵⁷ <http://money.cnn.com/2017/12/14/technology/business/fcc-net-neutrality-reactions/index.html>;
<https://www.wired.com/story/tech-giants-to-join-legal-battle-over-net-neutrality/>

¹⁵⁸ <http://fortune.com/2016/06/01/jeff-bezos-free-speech/>

¹⁵⁹ <https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/Introduction.html>

¹⁶⁰ Ibid.

¹⁶¹ https://aws.amazon.com/cloudfront/?sc_channel=PS&sc_campaign=acquisition_BR&sc_publisher=google&sc_medium=english_cloudfront_b&sc_content=cloudfront_e&sc_detail=amazon%20cloudfront&sc_category=cloudfront&sc_segment=159751535673&sc_matchtype=e&sc_country=BR&sc_kwcid=AL!442213!159751535673!e!!g!!amazon%20cloudfront&ef_id=Wm94swAAAFz9MP2o:20180130215708:s

available inside of China. Amazon CloudFront services are provided independently by Amazon Web Services, Inc. and require a separate global AWS account.”¹⁶²

In 2014 when Amazon announced its partnership with Wangsu (then ChinaNetCenter), Amazon also noted that that “ChinaNetCenter will also be China’s preferred provider of CDN services in China.”¹⁶³ Prior to the formal announcement, Jeff Barr, Chief Evangelist for AWS, provided a preview of what was to come for the company in the China in a blog post. Notably, CloudFront was not listed amongst the AWS services to be offered in China, Barr wrote that use of Amazon’s services would “[remain] in compliance with China’s legal and regulatory requirements.”¹⁶⁴ While the current status of the agreement with Wangsu is unclear, Sinnet was likewise tapped to provide CDN services.

Regulation of CDNs has increased under the 2017 Cybersecurity Law implementation, with increased due-diligence burdens for new businesses or MNCs in China. In order for Chinese internet users to gain access to content, CDN vendors must be licensed *in China*; “so-called global CDNs ... are not recognized” as legal providers.¹⁶⁵ The new regulations can perpetuate systemic advantages for Chinese companies. Numerous studies have shown that China’s restrictive internet serves as a form of trade protectionism disproportionately benefitting local versions of Facebook, Twitter, or Google (with RenRenWang, Weibo, and Baidu having pointedly similar interfaces and tools), as they moved to occupy spaces that would otherwise be occupied by foreign internet products.¹⁶⁶ In 2016, the Office of the U.S. Trade Representative added the Great Firewall to its list of trade impediments.¹⁶⁷

According to the new regulations, companies must also register for an ICP; AWS through Sinnet has their own and does not need to register. It is possible that this was one of many reasons AWS elected to partner with Sinnet, but this has not been openly stated by Amazon or Sinnet.

Still, Chinese-language reports indicated that from 2014 to 2016 AWS hoped to operate independently in Beijing and Ningxia. According to those same sources, AWS faced greater roadblocks following the March 2016 enactment of the Catalogue of Telecommunications Services [电信业务分类目录] and thus signed the cooperation agreement with Sinnet.¹⁶⁸ The deal with Amazon may have helped Sinnet secure its operating license in China—a requirement announced by MIIT in January 2017—by removing barriers that the company had faced (according to analysts at Citic Securities).¹⁶⁹ Additionally, a Chinese source claims that an earlier Amazon-Sinnet agreement was of limited benefit to Sinnet, which would only provide computer rooms (机房),

¹⁶² <https://www.amazonaws.cn/en/content-delivery/>

¹⁶³ <https://www.prnewswire.com/news-releases/chinanetcenter-working-with-amazon-web-services-china-for-china-cloud-service-238822041.html>

¹⁶⁴ <https://aws.amazon.com/blogs/aws/coming-soon-new-china-beijing-region/>

¹⁶⁵ <https://www.cdnetworks.com/en/news/dont-get-blocked-out-of-china-pick-the-right-cdn/4175>

¹⁶⁶ <https://www.ft.com/content/2622e476-c89e-11e4-b43b-00144feab7de>;

¹⁶⁷ <https://www.nytimes.com/2016/04/08/business/international/china-internet-controls-us.html>

¹⁶⁸ <http://finance.sina.com.cn/roll/2017-12-12/doc-ifypnyqi4089866.shtml>

¹⁶⁹ http://usa.chinadaily.com.cn/business/2017-11/15/content_34565256.htm;

<https://www.wsj.com/articles/amazon-to-sell-its-china-cloud-computing-business-1510628802>

and thus only 10% of Amazon’s service costs in China.¹⁷⁰ Criticism of the new regulations came from the U.S. public and private sector, as well as from free speech advocacy organizations like GreatFire.org. Over 50 U.S. lawmakers protested the 2017 Cybersecurity Law, citing the difficulties for MNCs and for U.S. companies who would “essentially transfer ownership and operations of cloud systems to Chinese partners. In 2017, in the lead-up to the launch of China’s Cybersecurity Law, Charlie Smith, of GreatFire.org, noted that the then-forthcoming regulations would largely undermine their anti-censorship efforts. He said their “strategy would collapse because if foreign businesses host all of their data in China, they would face minimal disruption if the authorities cut off access to the foreign internet.”¹⁷¹

It is unlikely, in light of how far-reaching the new regulations are, that Amazon would pursue measures to prevent CloudFront from being blocked. The 2017 Cybersecurity Laws affect everyone—including possible competitors of Amazon.. Fortune Magazine wrote about Amazon’s sale of its cloud computing structure to Sinnet: “This move is mostly around regulatory compliance,’ said Charlie Dai, Beijing-based analyst at Forrester Research. He added the move was necessary for AWS to build up its other business areas in the market.”¹⁷²

¹⁷⁰ <http://tech.sina.com.cn/it/2017-11-15/doc-ifynshev6371038.shtml>

¹⁷¹ <https://www.bloomberg.com/news/articles/2017-05-24/foreign-firms-fret-as-china-implements-new-cybersecurity-law>

¹⁷² <http://fortune.com/2017/11/14/amazon-china-cloud-computing/>

Appendix VII: Tian Suning

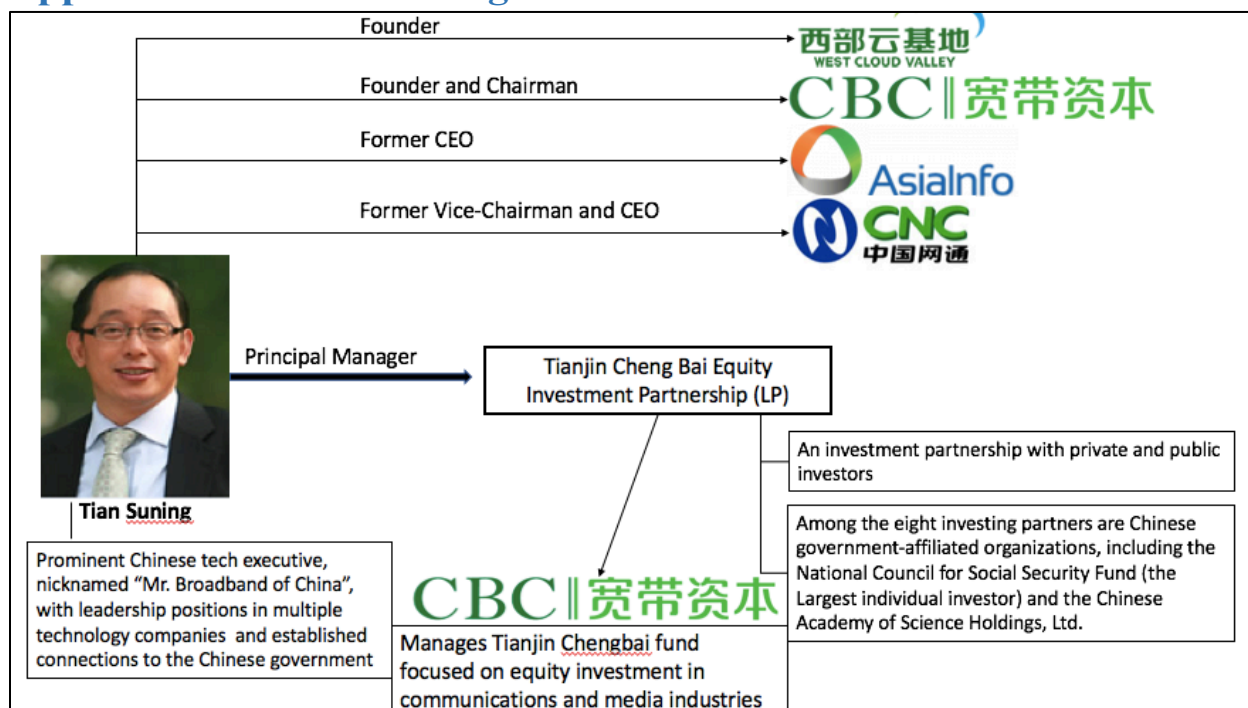


Figure 4: Summary of ties and relevant information for Tianjin Cheng Bai Equity Investment Partnership (LP) and CBC.

Timeline of Tian Suning's Business Activities

Tian 'Edward' Suning Overview

Tian was born in 1963 and spent most of his childhood living under the Cultural Revolution (1966-1976). During his childhood, Tian's parents were sent to reeducation center camps due to their socioeconomic status as middle-class scientists. Tian was thus forced to move to Shenyang with his grandmother for most of his childhood.

Inspired by the new era promised by Deng Xiaoping in 1976, Tian excelled as a student, graduating with a Masters in Science from the elite Chinese Academy of Science. Tian and his wife went on to study at Texas Tech University, where Tian earned a doctorate in Environmental Management in 1987. Tian remained in Texas, raising their daughter and working in the burgeoning Silicon Valley.

Tian established AsiaInfo in 1993 as a means of contributing to China's lagging technology infrastructure. Tian and his friend James Ding established this U.S. based start-up company and began producing software for the developing information technology (IT) market. The founders reached two major breakthroughs: the first in 1995 when AsianInfo launched offices in China and the second in 1999 after securing a contract for building the backbone for China Telecom's new commercial Internet service.¹⁷³

¹⁷³ <http://www.referenceforbusiness.com/history2/9/China-Netcom-Group-Corporation-Hong-Kong-Limited.html>

In 1999, four state-owned entities¹⁷⁴ persuaded and convinced Tian to lead as CEO the newly formed state-owned enterprise, China Netcom. With \$75 million in start-up capital, China Netcom sought to expand broadband capacity at a faster rate than China Telecom's dial-up internet capacity.¹⁷⁵ This was the first time a state-owned telecom enterprise (Netcom) had recruited a top executive from a non-state enterprise and shaped its business model to resemble a Silicon Valley technology company. In 2002, Tian transitioned his focus and efforts at China Netcom on a full-time basis.¹⁷⁶

1993	Tian co-founds AsiaInfo in Delaware
1999	Tian moves back to China to start China Netcom <ul style="list-style-type: none"> • With funding from four SOEs, built the fiber-optic based network framework for broadband internet • The company struggled for the first couple of years until the government allowed it to sell a 12 percent stake to a group of foreign investors for \$325 million
2004	China Netcom dual listed on the Hong Kong and New York Stock Exchanges <ul style="list-style-type: none"> • Raised more than \$1.1 billion for the company
2005	AsiaInfo firmly established itself as a leading provider of telecom network integration and software solutions in China, offering total network solutions and proprietary software products to meet the complete internet and telecommunication infrastructure and operating needs of Chinese carriers. AsiaInfo has strong relationships with all of China's major telecom carriers. Moreover, it aims to further upgrade and standardize its proprietary software applications to exploit new opportunities in China's fastest growing IT industry.
2006	Tian stepped down as CEO of China Netcom Group to devote more time to his new venture, China Broadband Capital Partners.
2006	Tian Suning files for Notice of Exempt of Offering of Securities for China Broadband Capital Partners, L.P.
2007	Tian resigned the position of non-executive director of China Netcom
2013	Tian becomes CEO of Ningxia Western Cloud Data Technology Co. Ltd. (NWCD) and oversees Internet Data Center Services (IDC), Internet Access Services (ISP), and Cloud Computing projects in Western China.
2017	Amazon Web Services, Inc. (AWS) and (NWCD) agree to a strategic technology partnership and launch of the AWS China (Ningxia) Region, operated by NWCD.

AsiaInfo (1993-2014)

¹⁷⁴ the Academy of Sciences; Information and Network Center of State Administration of Radio, Film and Television (INC-SARFT); China Railways Telecommunications Center (CRTC); and Shanghai Alliance Investment Limited (Shanghai Alliance)

¹⁷⁵ <http://www.referenceforbusiness.com/history2/9/China-Netcom-Group-Corporation-Hong-Kong-Limited.html>

¹⁷⁶ <http://en.ccg.org.cn/staff-member/tian-suning/>

Tian Suning co-founded AsiaInfo in 1993 and led the company as CEO until 1999. Tian has remained on the Board of Directors until 2014 when he was appointed Executive Chairman. AsiaInfo was based both in Beijing and at Santa Clara, California and was established by Chinese students seeking to provide professional domestic IT solutions to the burgeoning Chinese telecom industry.

By 2005, AsiaInfo had established itself as one of the leading provider of telecom network integration and software solutions in China, offering packaged network solutions and proprietary software products for internet and telecommunication infrastructure and operating needs. The first VC investment for AsiaInfo was \$500,000 USD from Mr. Louis Lau, a venture capital angel and an overseas Chinese businessman. Mr. Lau made the following stipulations when making his investment in the 1990s:

1. All employees should work in China in the future;
2. AsiaInfo must not be connected to real estate business¹⁷⁷

China Netcom Company Ltd. (1999-2006)

In 1999, four state-owned entities: the Academy of Sciences; Information and Network Center of State Administration of Radio, Film and Television (INC-SARFT); China Railways Telecommunications Center (CRTC); and Shanghai Alliance Investment Limited (Shanghai Alliance); founded China Netcom. The four investing partners turned to Tian and persuaded him to take the new company's CEO spot by offering him an unprecedented degree of autonomy.

China Netcom first aimed to build the infrastructure of broadband internet via a vast fiber-optic-based network. CRTC agreed to allow the company to lay cable along its extensive railway network. Only two months after launching construction, China Netcom's fiber-optic based network expanded to over 8,500 kilometers.¹⁷⁸

China Netcom initially struggled and the company was heading toward bankruptcy by 2002. Netcom received a 'government bailout' vis-a-vis the Chinese government allowed Netcome to sell a 12 percent stake to a group of foreign investors that included News Corp. and Goldman Sachs. The Chinese government made an exception in allowing this foreign sale for China Netcom.¹⁷⁹

In 2002, the Chinese government decided to merge the operations of China Telecom into the existing China Netcom. This government-backed merger allowed China Netcom a monopoly over the domestic telecom industry. China Netcom eventually expanded operations throughout

¹⁷⁷https://books.google.com.br/books?id=24P3M4hrpWwC&pg=PA168&lpg=PA168&dq=china+netcom+tian+suning&source=bl&ots=yzelAlghaN&sig=mx_Z2K1RZbPMVqx24xhTPAEZ5G0&hl=en&sa=X&redir_esc=y#v=onepage&q=china%20netcom%20tian%20suning&f=false

¹⁷⁸https://books.google.com.br/books?id=24P3M4hrpWwC&pg=PA168&lpg=PA168&dq=china+netcom+tian+suning&source=bl&ots=yzelAlghaN&sig=mx_Z2K1RZbPMVqx24xhTPAEZ5G0&hl=en&sa=X&redir_esc=y#v=onepage&q=china%20netcom%20tian%20suning&f=false

¹⁷⁹https://books.google.com.br/books?id=24P3M4hrpWwC&pg=PA168&lpg=PA168&dq=china+netcom+tian+suning&source=bl&ots=yzelAlghaN&sig=mx_Z2K1RZbPMVqx24xhTPAEZ5G0&hl=en&sa=X&redir_esc=y#v=onepage&q=china%20netcom%20tian%20suning&f=false

the Asia-Pacific region and created a subsidiary in Hong Kong as a vehicle for a public offering. This subsidiary listed in on the Hong Kong and New York Stock Exchange and raised more than \$1.1 billion USD.¹⁸⁰

Just as China Netcom become a major world player in the Chinese and international telecommunications markets, Tian Suning stepped down as CEO of China Netcom Group in 2006 to devote more time to his new venture, China Broadband Capital Partners.¹⁸¹

Post China Netcom Positions – China Broadband Capital (CBC) and Beyond

After leaving China Netcom, Tian transitioned from China Netcom’s CEO to Managing Partner China Broadband Capital (CBC) private equity fund. His experience as an entrepreneur and executive in the information technology business provided the key contacts for networking and unique ability to discover company’s value.¹⁸² Founded in February 2006, China Broadband Industry Fund (CBC Capital) is a six USD billion private equity fund dedicated to long-term investments. The Venture Capital Fund invests primarily in established companies but also invests in qualified start-ups. The fund focuses on long-term investments in China's telecommunications, technology, internet and new media industries and is committed to promoting the continuous development of China's communications and broadband industries. Through unique relationships with governments, service providers, start-ups and domestic and foreign investors, the fund remains flexible and agile in creating value for a variety of clients. The fund currently manages a number of domestic and overseas equity investment funds, including the Tianjin Chengbai fund.¹⁸³

Structure of CBC and

China Broadband Capital Co., Ltd.(CBC) is a private equity firm based in Beijing, China. CBC does not file or raise capital under the State Administration of Industry and Commerce (SAIC) office in China. CBC first filed its notice of sale of securities with the Security Exchange Committee (SEC) on 20 December 2006 and has continued to file with the SEC as recently as 2014. China Broadband Capital Partners, L.P. first filed in 2006 under the Notice of Sale of Securities Pursuant to Regulation D, Section 4(6), And/Or Uniform Limited Offering Exemption.

Regulation or Form D governs private placement of securities This act requires that registration forms are filed to disclose important information to owners while also prohibiting fraudulent activities. A private placement is a capital raising event that involves the sale of securities to a relatively small number of select investors. These investors are often accredited and can include large banks, mutual funds, insurance companies, pension funds, family offices, hedge funds, and high and ultra-high net worth individuals. Given that these investors usually have significant

¹⁸⁰https://books.google.com.br/books?id=24P3M4hrpWwC&pg=PA168&lpg=PA168&dq=china+netcom+tian+suning&source=bl&ots=yzelAlghaN&sig=mx_Z2KIRZbPMVqx24xhTPAEZ5G0&hl=en&sa=X&redir_esc=y#v=onepage&q=china%20netcom%20tian%20suning&f=false

¹⁸¹ <http://www.referenceforbusiness.com/history2/9/China-Netcom-Group-Corporation-Hong-Kong-Limited.html>

¹⁸²https://books.google.com.br/books?id=24P3M4hrpWwC&pg=PA168&lpg=PA168&dq=china+netcom+tian+suning&source=bl&ots=yzelAlghaN&sig=mx_Z2KIRZbPMVqx24xhTPAEZ5G0&hl=en&sa=X&redir_esc=y#v=onepage&q=china%20netcom%20tian%20suning&f=false

¹⁸³ <https://www.chinaventure.com.cn/cvmodule/institution/detail/12631.shtml>

resources and experience, standards and requirements for a private placement are often minimal, in contrast with a public issue.¹⁸⁴

A private placement is different from a public issue in which securities are made available for sale on the open market to any type of investor.¹⁸⁵ A private placement has minimal regulatory requirements and standards that it must abide by. While it is a capital raising event involving the sale of securities, it is a method of capital raising that does not have to be registered with the Securities and Exchange Commission (SEC). Its investors include a small pool of entities and individuals. The investment does not require a prospectus and disclosure of detailed financial information. Furthermore, Regulation D of the 1933 Act provides a registration exemption for private placement offerings. Regulation D allows an issuer to sell securities to a targeted group of accredited investors that meet specified requirements. Instead of a prospectus, private placements are sold using a private placement memorandum (PPM) and cannot be broadly marketed to the general public.¹⁸⁶

China Broadband Capital Partners, L.P. in 2006 also filed under Rule 506. Rule 506 allows companies to offer and sell securities and allows for an unlimited amount of money to be raised.¹⁸⁷ Rule 506 is a safe harbor under the Securities Act of 1933 (“Securities Act”) that allows the fund to avoid the costly registration and disclosure requirements applicable to public issuers of securities.¹⁸⁸ The 2006 sale, classified as a Limited Partnership Interest, lists Beneficial Owners and the General/Managing Partner as CBC Partners, L.P.¹⁸⁹

Tian Suning and CBC LLC and LP took full advantage of Regulation or Form D and Rule 506 to avoid scrutiny and unwanted attention from media and government entities. As compared to China’s securities market, the US securities market represents the largest source of capital in the world and helps enhance a company’s corporate reputation and profile.¹⁹⁰ For Tian Suning and CBC, the US securities market provided the fastest vehicle for growth as it leveraged greater capital fund opportunities and US consulting expertise within the Cloud Computing and IT industries. Tian Suning and CBC then funneled these investments into China based IT and Cloud computing companies, such as Ningxia West Cloud LLC and Beijing Supercloud LLC.

See Slideshow for transfer of funds between CBC LP, CBC LLC, and Amazon Web Services.

¹⁸⁴ <https://www.investopedia.com/terms/s/sec-form-d.asp>

¹⁸⁵ <https://www.investopedia.com/terms/p/privateplacement.asp>

¹⁸⁶ <https://www.investopedia.com/terms/p/privateplacement.asp>

¹⁸⁷ <https://www.sec.gov/fast-answers/answers-rule506htm.html>

¹⁸⁸ <https://www.strictlybusinesslawblog.com/2017/09/21/3c1-funds-vs-3c7-funds/>

¹⁸⁹ Mirabaud & Cie, Geosor Corporation, Internet Application Limited, New America Incorporated

¹⁹⁰ <https://www.pwc.com/ua/en/services/capital-markets/assets/listing-in-the-us-ua-en.pdf>

Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业 (有限合伙))

- Tianjin Cheng Bai Equity Investment Partnership (hereafter “Tianjin Cheng Bai”) is an investment partnership established in 2008 with both public and private investment.
- Tianjin Cheng Bai appears to be managed by Tian Su Ning (田溯宁), and his name is attached to two of the seven partner investing organizations. Tian is a prominent Chinese tech executive with leadership positions in multiple technology companies and established connections to the Chinese government.
- Chinese government-affiliated organizations are among Tianjin Cheng Bai’s investing partners, with the National Council for Social Security Fund (全国社会保障基金理事会) as the largest individual investor. The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司) is also an investor.¹⁹¹

Political or Government Connections

Military Connections

- Tian Suning, the principal figure associated with Ningxia West Cloud Co, Ltd., also has leadership positions with China Broadband Capital (中国宽带资本基金), a technology investment firm, and Beijing Supercloud (北京天地超云科技有限公司), a Beijing government-supported telecommunications equipment developer.¹⁹² Beijing Supercloud describes itself as working closely with the Chinese Academy of Sciences to undertake cooperative research, including in support of the 863 Program, a national research program with significant input from the People’s Liberation Army.¹⁹³ A news release on the company’s website also touts its contribution to the development of China’s national security and indigenous innovation through the development of China’s first server using Shanghai Zhaoxin Semiconductor’s (上海兆芯处理器) 8-core x86 infrastructure-based processor.¹⁹⁴

Government Connections

- Tian Su Ning participated in the Xi Jinping-attended US-China Internet Industry Forum in Seattle in September 2015.¹⁹⁵ He has also served as vice president of the China Youth Entrepreneur Federation, which is affiliated with the Communist Youth League.¹⁹⁶

¹⁹¹ http://www.tcl.com/attached/file/20150205/20150205161512_82986.pdf

¹⁹² http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqmFb_PftVzMKlvaneBIfmg3_BXqXhIA-XHJIFfK, accessed August 31, 2016.

¹⁹³ <http://www.chinasupercloud.com/introduction.html>, accessed August 31, 2016.

¹⁹⁴ <http://www.chinasupercloud.com/newsdetails.html?id=337>, accessed August 31, 2016.

¹⁹⁵ <http://www.cbc-capital.com/cn/news/class/>, accessed August 31, 2016.

¹⁹⁶ http://baike.baidu.com/link?url=7FR9i-1AVKsQYD8fNbgrQGM64rRZE4O3pQ3Ksn0YH6-gOaSG_RwzL4JVeJWdBwPgHMx9i2GwkiJz2B7FY2BA_, accessed August 31, 2016.

Key Personnel

Based on searches of this entity's corporate data, and other online information, key personnel associated with Ningxia West Cloud Co, Ltd. include the following individual



Tian Su Ning (田溯宁)

- Tian is the founder and chairman of China Broadband Capital, and has also led Beijing Supercloud since its founding in 2010.¹⁹⁷
- He has previously held a variety of leadership positions in Chinese technology firms, including as Vice Chairman and CEO of China Netcom Group and CEO of AsiaInfo Holdings., Inc.¹⁹⁸
- Tian was born in 1963 and possesses a Master's Degree in Natural Resources Management from The Chinese Academy of Science and a PhD in Natural Resources Management from Texas Tech University.¹⁹⁹

¹⁹⁷ http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiQMFb_PftVzMKlvaneBIimg3_BXqXhIA-XHJIFfK, accessed February 15, 2018.

¹⁹⁸ <http://www.cbc-capital.com/cn/cp/class/>, accessed February 15, 2018.

¹⁹⁹ http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiQMFb_PftVzMKlvaneBIimg3_BXqXhIA-XHJIFfK, accessed February 15, 2018.