



Choosing a Public Cloud IaaS Provider in China



Dear Cloud Community,

At China Telecom Americas, we know your global businesses must be more agile than ever to keep people, data, applications and other IT resources connected and working in the smartest ways possible.

Your communications infrastructures must serve the new reality; that your business users and IT teams are directly involved in activities that create a tremendous need for connectivity, compute resource and storage – everywhere.

Whether looking for simple access to shared/dedicated virtual resources or in need of end-to-end managed services that include ecosystem planning, automation and orchestration services, China Telecom Americas offers a complete range of IaaS solutions to help global enterprise confidently and cost-effectively connect and scale their business in from anywhere in China.

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Best regards,

Steven Tan
President, China Telecom Americas

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Choosing a Public Cloud IaaS Provider for Digital Business in China: What MNCs Need to Know

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Multinational corporations are increasingly looking to China for new digital business opportunities. Enterprise architecture and technology innovation leaders need to understand China's regulatory framework and unique market traits to apply the right selection criteria for Chinese public cloud IaaS.

Key Challenges

- While Gartner provides sophisticated evaluation criteria focusing on technical solutions for global Infrastructure as a Service (IaaS) providers, the market in China has different vendor dynamics that require additional investigation.
- The Chinese compliance and regulatory framework is highly complex, especially for foreign enterprises launching new businesses in China.
- Chinese public cloud providers have different cost models and pricing structures than the rest of the world, and clients should streamline or adopt a different approach when evaluating processes and vendors to optimize ROI.

Recommendations

Enterprise architecture (EA) and technology innovation leaders responsible for infrastructure delivery strategies in China need to:

- Apply for a Chinese Internet Content Provider (ICP) license (if using web hosting services in China) and comply with local cybersecurity laws.
- Focus on total cost of ownership (TCO) rather than unit price by including resilience, availability, efficiencies, elasticity and value-added services in any calculations.
- Leverage the IaaS provider's ecosystem (depending on use cases) to achieve added benefits and lower cost.

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Introduction

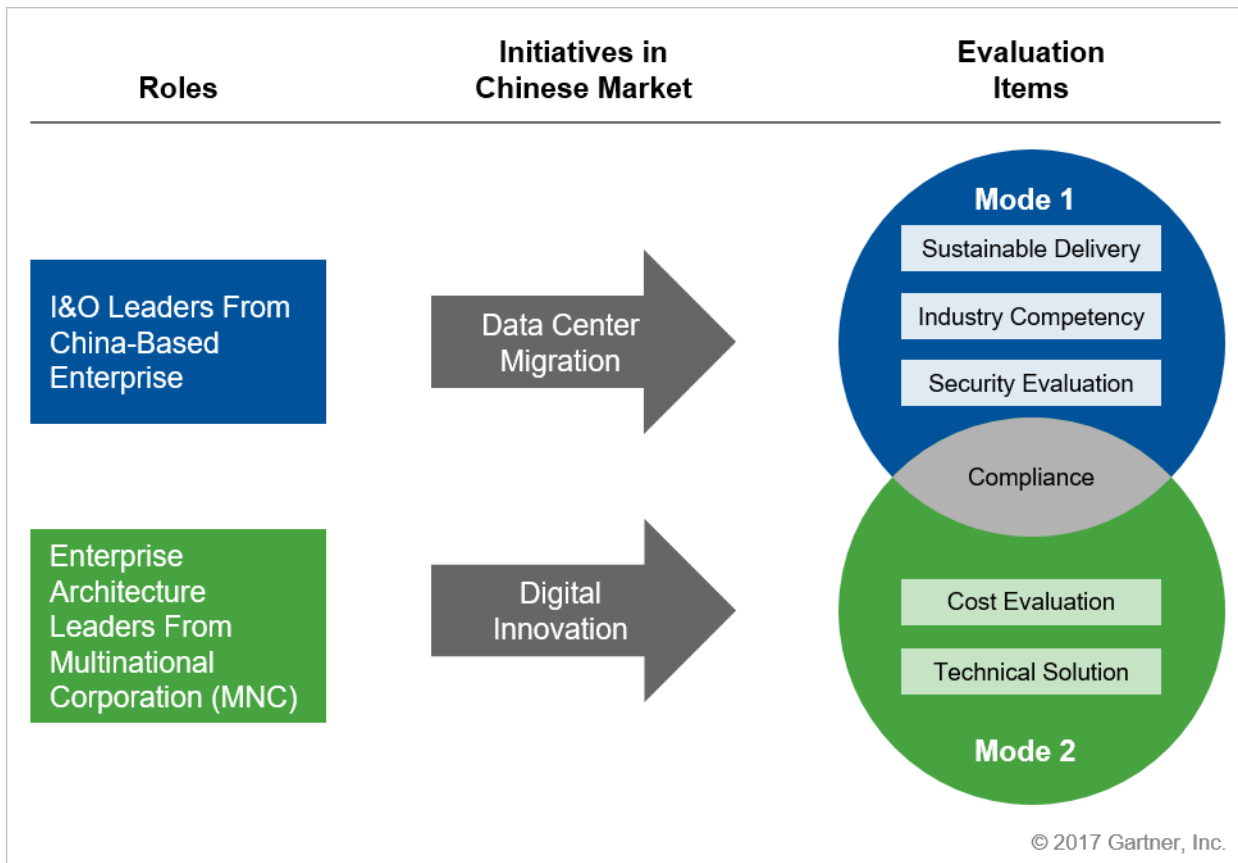
China's digital business economy is growing exponentially, led by the meteoric rise of digital giants like Baidu, Alibaba and Tencent, as well as their associated ecosystems. To take advantage of China's large population and growing consumption capability, many multinational corporations (MNCs) are looking to test their digital business initiatives in the Chinese market. Rather than building their infrastructure from scratch, enterprise architects and IT innovators are increasingly trying to accelerate their entry by leveraging the agility and flexible delivery capability of the Chinese public cloud. However, enterprises need to be aware of the differences between the Chinese market and the rest of the world when it comes to cloud IaaS delivery. These differences include:

- Compliance and regulations — The Chinese government implemented a suite of regulations based on technological sovereignty and data security.
- Choice of public cloud providers — Local Chinese providers have a bigger market share than global public cloud providers in this market.
- Cloud consumption paradigm — Not many large Chinese enterprises have migrated their critical production workloads to the public cloud.
- Technical solutions preference — The Chinese government built a "great firewall" and established regulations specifically designed to deter global internet companies from duplicating their success in this market (see "[The U.S. Firms at Risk From China Trade War: QuickTake Scorecard](#)").
- Enterprise software ecosystem support — Chinese cloud providers receive limited enterprise software ecosystem support in a nascent marketplace. Additionally, the market is inhibited by a lack of international vendors available to offer support to Chinese cloud platforms.
- English language support — Most Chinese local cloud providers provide the Mandarin version manuals, but English content is very limited in both the portal interface and manuals.
- Partner community — This is a community of cloud partners that helps customers migrate and operate in the cloud. However, the lack of cloud-specific large enterprise support skill sets in this immature but evolving community inhibits cloud adoption.

As a first step, any EA or technology innovation leader tasked with IaaS adoption in China should leverage Gartner's "[Evaluation Criteria for Cloud Infrastructure as a Service](#)." However, EA and technology innovation leaders responsible for selecting cloud IaaS suppliers in China need to also understand the local market conditions prior to making an investment.

There are, in fact, two distinct approaches to sourcing IaaS in China (see Figure 1). One approach comes from I&O leaders in Chinese enterprises who want to source IaaS to support data center workload migration. The other approach is from EA or technology innovation leaders in MNCs looking to source IaaS services in China to support innovative digital business ideas. The aim of this research is to help EA and technology innovation leaders in MNCs create the appropriate evaluation criteria for selecting a Chinese public cloud supplier.

Figure 1. Mode 2 Initiatives for Selecting Public Cloud in China



Source: Gartner (July 2017)

Analysis

The Fundamentals of Chinese Cloud IaaS Market Dynamics

The scale of the opportunity presented by the Chinese market easily outweighs the cultural, political and practical hurdles that can slow market entry. Nevertheless, there are important differences between the Chinese market and the rest of the world when it comes to the cloud IaaS model. These need to be both understood and overcome to facilitate a successful Chinese cloud adoption process. The characteristics of the Chinese IaaS market that are different from the global market include:

- In the domestic market, Chinese cloud suppliers have a larger market share than global cloud suppliers. For example, Alibaba cloud maturity is rated Tier 2B, but it has a larger market share in China than established global vendors (see "Magic Quadrant for Cloud Infrastructure as a Service, Worldwide").

- Global cloud suppliers did not deliver the same features simultaneously in all regions. Organizations should check with global suppliers regarding the availability of specific features. See the Amazon Web Services [Region Table](#) for examples of the various available features in the China Beijing region compared with the rest of the world.
- For cloud suppliers, the global marketplace differs from the Chinese market. Based on China's different operating model, global cloud suppliers rely on their joint venture (JV) partners to host the public cloud platform. The commercial off-the-shelf infrastructure (COTS-I) software in the global marketplace may not be certified in the Chinese market.

Overall, cloud computing is still a hot topic in China's capital markets, and many new startup companies are getting into the public cloud IaaS market to offer new features developed specifically for the Chinese market. However, public cloud consumption is mainly for internet-related companies or consumer experience initiatives. The enterprise workload cloud migration has not yet become mainstream in China, and most of the new and innovative features are being developed for digital consumer business rather than for enterprise.

For these reasons, it is important for any consumers of cloud IaaS to align their business goals with specific digital initiatives in China. They also need to carefully evaluate the digital business-related application adoption requirement (including learning effort required) for selecting the different IaaS suppliers in China.

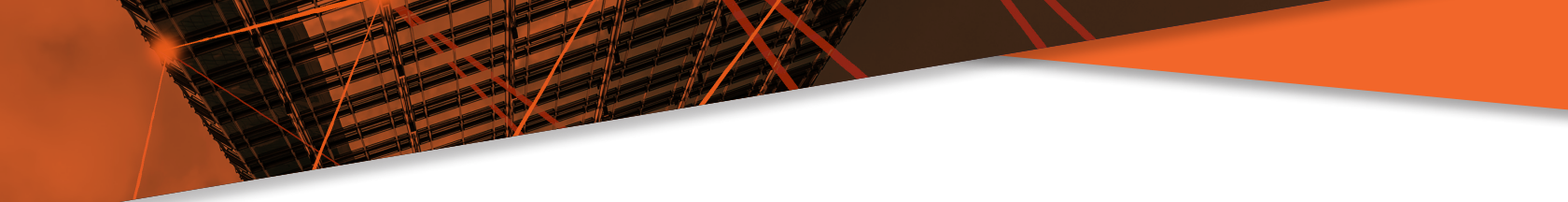
Comply With Chinese Regulation Despite Its Complexity

Some of the most prominent differences between IaaS in China and in the rest of the world exist in the regulatory sphere. EA and technology innovation leaders need to be aware of several specific compliance and regulatory requirements that affect both the cloud supplier and enterprise clients.

Firstly, we recommend that clients evaluate suppliers' qualifications, as this is an essential part of compliance. In China, global suppliers can only be granted a license when they build a JV with a Chinese company (which must hold a 50% share or more). Suppliers must also pass the government's certification process (see Note 1).

Outside of regulations pertaining to suppliers, entrants to the Chinese market must be aware of a few key regulations. Cybersecurity laws mandate that the Chinese authorities must evaluate what data can be transited out of mainland China. The laws, which came into effect as recently as June 2017, define the personally identifiable information (PII) and critical information infrastructure that impact the method of the cross-border data transfer. However, it is important to note that the deadline for compliance with data localization has been extended until December 2018, as the law was written in Chinese and the critical information infrastructure has yet to be defined. For further information, see "[Three Actions to Take to Address Chinese Cybersecurity Law.](#)"

Additionally, for public websites in China, there are a number of regulations regarding ICP licenses and records, all of which must be understood. Under the scope of the regulations from the Ministry of Industry and Information Technology (MIIT) and the Telecommunications Bureau, there is a difference between recording and licensing. If a website is hosted on mainland China and accessible by public consumers, the provider must register for an ICP record. However, if the website is for e-commerce and there is a facility for monetary transaction or online trade, the



provider must register for an ICP license. Outside of legal compliance and from a practical perspective, recording and licensing can:

- Provide a faster connection through a hosted server from a cloud supplier in China.
- Expedite network speeds using a Chinese CDN service with ICP permission.
- Address the Chinese government's targeted blocking of overseas websites by "key words." While a license cannot prevent blocking, it does allow the website provider to petition the Telecommunications Bureau to lift the block.

If a host server is located outside mainland China, or has not been granted the status of legal entity in China, it will be impossible to secure a license. Obtaining an ICP number takes, on average, between 10 and 20 business days following the submission of documents to a hosting provider. Under the terms of the process, the client prepares the company information, while the internet carrier or CDN provider delivers the ICP recording service.

Focus on the Total Cost of Ownership Rather Than the Unit Price

Despite its benefits in terms of agility and speed of deployment, there is no clear answer as to whether or not cloud IaaS deployments will save organizations money, since that depends on the client's cloud migration approach (see ["Three Journeys Define Migrating a Data Center to Cloud Infrastructure as a Service"](#)). It is therefore essential for EA leaders to consider the TCO of the cloud.

In China, as in the rest of the world, it is appropriate to use a global cost estimation framework to compare services. See ["Calculating and Comparing Data Center and Public Cloud IaaS Costs"](#) as the basic framework for cost evaluation, and ["Build the Right Justification for Moving to the Cloud"](#) for justification evaluation. While public cloud tends to be the first choice for digital business deployment, there are certain differences in the Chinese market that leaders need be aware of.

The right sourcing model for local suppliers of public cloud services is crucial for a successful deployment.

There are three ways to acquire a public cloud service in China:

1. On-demand from a website
2. Through an authorized partner
3. Through supplier direct sales

If an organization uses public cloud for a proof-of-concept (POC) test, it is advisable to take advantage of an on-demand resource which can be paid for by credit card. However, enterprise clients generally prefer to engage an authorized partner to acquire their public cloud resource. For even greater costs savings, if clients are prepared to commit a certain amount to a prepaid service, they can avail themselves of achievable discounts of up to 15% from an authorized partner. Normally these discounts would require a prepayment of more than USD \$50,000. If a client is a



global enterprise or one of China's industry flagships, the discount may be deeper through direct sales. However, Amazon Web Services or Azure in China may align with a global price model, and may not extend the deep discounts offered by local cloud service providers.

It is important to state that the on-demand cost in China can be clearly seen on the public cloud providers' websites. However, any discount plan should be negotiated on a case-by-case basis. Clients can refer to the price when processing the POC and, depending on the type of account, the local service provider may even contribute some test resources free of charge.

Finally, different public cloud resources come with different discount models from local cloud service providers. For example, the storage- and network-related workloads may get the deepest discounts, whereas Platform as a Service (PaaS) solutions such as artificial intelligence (AI) or big data may only offer relatively small discounts. Compute resources may come with barely any discounts at all. Overall, the size of the discount largely depends on the amount that an organization is prepared to spend.

Compare Technical Solutions With Suppliers' Business Competency and Ecosystem Maturity

It is difficult to compare the pros and cons of any cloud IaaS without first considering specific use cases. When it comes to the public cloud in China, clients need to consider the business scenarios and use cases for digital business. To facilitate decision making, clients can use Gartner's "[Evaluation Criteria for Cloud Infrastructure as a Service](#)" to compare different solutions. By using this tool, clients may find that they did not need as many features as they initially thought, or they might prioritize different features based on specific use cases.

The evaluation criteria cover more than 230 technical features under eight categories. However, EA and technology innovation leaders need to consider two specific criteria in relation to the Chinese market.

Do They Have Capable English Support Skills?

English language support is a basic service for MNCs, but not all Chinese cloud suppliers have this capability. There are several items that leaders should check in this area:

- Online manuals, routine service reports, email communications and alert messages
- Full English-version website, including detailed error message explanations
- Oral English skills for 24/7 call center, technical support and escalations

Do They Offer Advanced Feature Capabilities Such as PaaS?

A PaaS feature can offload infrastructure responsibility to a supplier, allowing clients the resources to focus on application development to align with business value. In order to evaluate the advanced features, Gartner suggests that clients evaluate candidates based on different scenarios to support digital business initiatives. For example, clients should evaluate whether candidates can provide

PaaS-level products such as serverless solutions. For a detailed analysis of IaaS and PaaS technology, see "[Technology Insight for Integrated IaaS and PaaS](#)."

How Can the User Leverage the Supplier's Ecosystem for Maximum Advantage?

Giant Chinese internet companies have put in place solid practices for running digital business through mobile and social platforms in China. They have also built several ecosystems alongside public cloud services such as Taobao, JD.com and WeChat. When launching a digital business initiative in the Chinese market, the ability to leverage a mature ecosystem is crucial, especially when it comes to sales promotion. See "[Manulife Uses WeChat to Improve Customer Experience](#)" for an example of a client putting the customer experience interface in WeChat through the Tencent platform. In summary, the supplier's ecosystem is an important consideration when choosing a cloud IaaS supplier for digital business initiatives, since these ecosystems have exclusive public cloud IaaS connections. EA leaders need to consider which ecosystem can provide the most benefit for their specific use cases.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Evaluation Criteria for Cloud Infrastructure as a Service"

"Build the Right Justification for Moving to the Cloud"

"Three Journeys Define Migrating a Data Center to Cloud Infrastructure as a Service"

"Market Guide for Cloud Infrastructure as a Service, China"

"Manulife Uses WeChat to Improve Customer Experience"

"Three Actions to Take to Address Chinese Cybersecurity Law"

Note 1 The Regulation Requirement for Global IaaS Service Providers Operating in China

The reason for these regulations is that public cloud services are included as part of the telecommunications value-added services covered by the 2015 Telecom Catalogue from the MIIT. Additionally, under the Catalogue for the Guidance of Foreign Investment Industries published by the Chinese Ministry of Commerce, foreign capital shall not exceed 50% (except for e-commerce) to own a telecommunications value-added service company. Public cloud, colocation services, content delivery networks (CDNs), IP-VPNs and internet connections are all included under this category.

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Your global businesses has to be more agile than ever to keep people, data, applications and other IT resources connected and working in the smartest ways possible. Your communications infrastructures must serve the new reality; that your business users and IT teams are directly involved in activities that create a tremendous need for connectivity, compute resource and storage - everywhere.

From SaaS applications that support marketing or customer service to mission-critical transaction processing that experiences heavy workloads at peak times, we understand that your business relies on their communications infrastructure to compete and win. That's why China Telecom has made massive investments in enterprise managed cloud services.

Our enterprise managed cloud services offer your organization new ways to architect communications infrastructures that meet today's needs, and allow for flexibility and growth tomorrow. They are scalable, cost-effective, secure and most importantly, enable global innovation.

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China Telecom Americas, a wholly-owned US-based subsidiary of China Telecom Corp. Ltd. (NYSE: CHA), is an international telecom provider for data, IP and voice wholesale services to multinational companies, organizations and international carriers requiring China domestic services and international access to China & throughout Asia-Pacific.

With headquarters in Herndon, Virginia and offices in Chicago, Los Angeles, New York, San Jose and subsidiaries in Toronto and São Paulo, China Telecom Americas continues to expand its strength and reach to serve our growing customer base with locally-based, one-stop-shop, turn-key solutions for everything from China domestic and international data circuits to IDC services, network management, equipment management, system integration and more.

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China Telecom owns and operates a twenty-node, multi-continent cloud network built with next-generation technology. Dedicated teams of cloud specialists and engineers support every customer, so they achieve successful, cost-effective global cloud deployments that scale with the speed of their business. Partnering with leading technologies companies like VMware, Microsoft and Cisco, our public, private and hybrid cloud solutions create reliable, high-performance infrastructure in a secure and controlled environment.

Why CT Cloud?

- **Scalability** - We make multicloud easy in China, scaling at your pace and at lower total cost ownership.
- **Agility** - From migration to managing virtual infrastructure we can get you up and running in China.
- **Assurance** – Achieve cloud computing's cost efficiencies while ensuring data sovereignty.
- **Adoption** – Use interfaces and tools you already know, which helps you migrate workloads as seamlessly as possible.
- **Expansion** – Managed cloud services free up the resources and expertise of your own IT operations team.
- **Disaster recovery** – Geo-redundant availability that allows the replication of critical workloads to the Cloud.
- **Speed** – Quickly deploy development, test and production servers.



Compute

Infrastructure enabling you to build, monitor and manage your individualized cloud service. Cloud Compute is mostly pre-provisioned, so it can nearly instantly be deployed to your needs. It can be integrated and managed across hybrid environments so it meets your needs for both private and public environments. Request a free trial today!

- **Simple Compute Service (SCS)** offers preconfigured Microsoft (4 vCPU, 4G RAM, 200G Disk, Windows Server 2012 R2) or Linux Virtual Machine (4 vCPU, 16G RAM, 1T Disk, CentOS 6.5x64), one dedicated virtual firewall with RDP and one open SSH port.
- **Virtual Private Cloud (VPC)** platform offers premium grade, secure virtual resource pool of compute, storage and network (8 vCPU, 20G RAM, 1.2T Disk, 2 IP, 5Mbps Bandwidth, Windows Server 2012 R2 and CentOS Image, one dedicated virtual firewall, one open SSH port) and a self-service portal to spin up or down VMs as necessary and manage back up. VMware, Citrix infrastructure set up and 24x7 managed service can be added.



Storage

Get the flexibility to store your data using cost efficient storage that accessible from anywhere in the world. Our high-performance network reduces latency and makes users feel like the data they need is right next door.

- Object Oriented Storage (OOS) system specifically designed for the Internet, mass data, data sharing and data analysis has multiple classes of storage to suit standard and performance applications requirements.
- Storage control on both transmission and access supports data isolation and compliancy with China's data privacy policies, and is fully compatible with Amazon S3 Interface.
- Server, storage, network hardware rental service are available.



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By taking the advantage of China Telecom's global network coverage to bypass the public internet, customers can establish fast, reliable and secure multi-point network connections to public cloud platforms across a dedicated network of gateway nodes around the world.

Get high performance, private connections to Microsoft Azure, Amazon Web Services, Softlayer in Mainland China, Asia-Pacific and in the United States from MPLS, local loop or IEPL connections with one physical port supporting many Virtual Circuits (VCs) with flexible bandwidth speed options ranging from 50 Mbps to 10Gbps.

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