CHINA TELECOM
AMERICAS

Channel Partner Playbook

中国电信
CHINA TELECOM
Connecting the World

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CHINA TELECOM AMERICAS

CHINA TELECOM
AMERICAS

Dear Valued Partners,

Thank you for taking the time to learn more about China Telecom Americas. The following Playbook is intended to arm you with the knowledge necessary to help you win more APAC opportunities.

When launching our channel business nearly five years ago, we recognized early on that our partners were one of the keys to our success and made a strategic commitment to become a leader in the Channel. Since then, we have proudly worked side-by-side our partners on thousands of opportunities, solving complex challenges, providing unparalleled value and earning the trust needed to win more business.

We remain optimistic about the future as well. With demand for IT services predicted to grow well into the future in China, we are determined to deliver a world-class partner experience making China Telecom your first choice for all your China and Asia/Pacific business.

We hope you find this Playbook just one of many ways we strive to strengthen and grow our partnerships each and every day. Please do not hesitate to reach out to our Channel team for more information.

Sincerely,

Steven Tan, President
China Telecom Americas

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Corporate Overview

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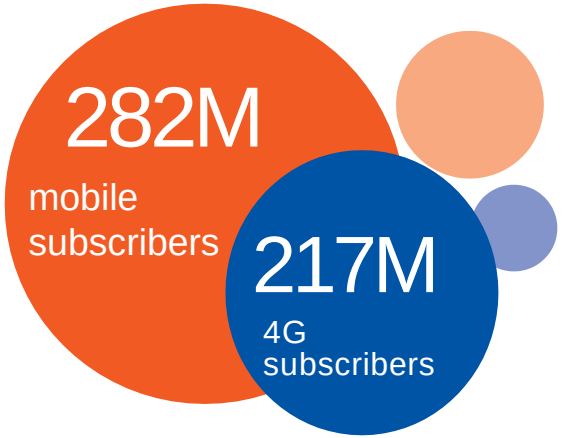
China Telecom by the Numbers

World's largest broadband operator with 153M subscribers

World's largest IPTV operator with 97.46M subscribers

World's largest 4G LTE FDD mobile operator with



Annual operation revenues of $55.2B in 2017

Source: 2018 Annual Results Announcement of China Telecom Corporation Limited (0728.HK)

Global Offices

2000
- **CT Hong Kong**

2001
- **CT Americas Established**
- United States

2004
- Macau

2006
- **CT Europe Established**
- United Kingdom
- Singapore
- Kazakhstan

2007
- Russia

2008
- United Arab Emirates

2009
- Japan
- Vietnam
- Indonesia

2010
- **CT Brazil Established**
- Germany
- Thailand
- Spain
- Canada

2011
- Australia
- Malaysia
- Korea

2012
- **CTG Established**
- Turkey
- South Africa
- India

2013
- France
- Kenya

2015
- **CT Africa & Middle East**
- Mauritius
- Sri Lanka

2016
- Pakistan
- Belarus
- Myanmar

2017
- Italy
- Czech Republic
- Sweden
- Netherlands
- Egypt

2018
- Denmark
- Switzerland
- Hungary
- Cambodia

Headquarters, Subsidiaries and Affiliates

Headquartered in Hong Kong and Beijing, China Telecom has established subsidiaries and affiliates in 29 countries around the world.

Europe

- United Kingdom (2)
- Belarus
- France
- Germany
- Russia
- Spain
- Turkey

Africa & Middle East

- Mauritius (2)
- Kenya
- South Africa
- United Arab Emirates

Asia-Pacific

- Hong Kong (1)
- Australia
- Indonesia
- Kazakhstan
- Malaysia
- Pakistan
- South Korea
- Thailand
- Beijing (1)
- India
- Japan
- Macau
- Myanmar
- Singapore
- Sri Lanka
- Vietnam

Americas

- United States (2)
- Brazil
- Canada
- Ecuador

(1) Corporate Headquarters (2) Regional Headquarters

Projects and services are offered in compliance with all applicable international laws and regulations including restrictions on the provision of goods and services or financial transactions which may apply.

Global Ranking

China Telecom ranks as the world's 10th largest telecommunications service provider (by annual revenue) and the largest broadband operator in world (by number of subscribers).

Forbes Global 2000
(2017)

Fortune Global 500
(2017)

Awards & Recognition

China Telecom has been **recognized time and again by globally reputable organizations.**

"Platinum Award - Excellence in Environmental, Social and Corporate Governance"

(2017)

"Best Managed Company in Asia" First Place

(2017)

"Most Honored Company in Asia"

(2011 - 2017)

"The Best of Asia - Icon on Corporate Governance"

(2010 - 2017)

"Critical Capabilities, Network Service Provider, Asia/Pacific"

(2016-2018)

"APAC Data Center Champion"

(2016-2017)

Technology Alliance Partners

Alibaba Cloud
amazon web services
ARBOR NETWORKS
ArcSight An HP Company
AVAYA
Avocent
Check Point SOFTWARE TECHNOLOGIES LTD.
cisco
cisco
Meraki
CITRIX
DELL
DELL EMC
f5
FORTINET
H3C
Hewlett Packard Enterprise
HUAWEI
IBM Cloud
IMPERVA
inspur 浪潮
JUNIPER NETWORKS
Lenovo
MAIPU 迈普
Microsoft
Microsoft Azure
NetApp
NETSCOUT
nuagenetworks
NUTANIX
ORACLE
paloalto NETWORKS
Polycom
Quantum
radware Every second counts
redhat
SANGFOR
silver peak
Symantec
VEEAM
VERITAS
VERSA NETWORKS
viptela
vmware
ZTE

About China Telecom Americas

- Established in 2001
- Headquartered in Herndon, VA
- **300+** US-based Employees
- **7** Regional Sales & Support Offices
- 2 Network Operations Centers (NOCs) in Los Angeles & Hong Kong
- **22** Points of Presence (PoPs) in North America
- **12** Points of Presence (PoPs) in South America
- **100+** Customers in the Fortune 500
- **100+** Carrier Partnerships
- **21** Channel Master Partnerships

Visit us online at ctamericas.com

Channel Program Overview

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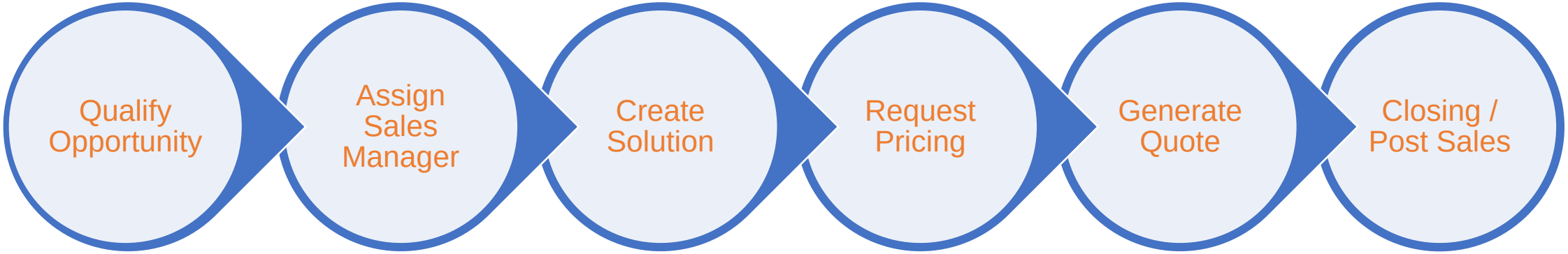
Why Partner with China Telecom Americas?

- Rich commissions with evergreen residuals **ensure you get paid for the life of the account (including renewals and upgrades) whether actively engaged or acting as a referral partner.**
- Market Development Funds **and training resources are available to all active channel partners.**
- Rapid delivery of global product portfolio **within 45 days (on average) to satisfy your client's requirements and get partners commissions paid quicker.**
- Dedicated US-based channel team **gives access to China Telecom's top engineering and operations talent from 8 offices across the United States and Canada.**
- Channel integration model eliminates conflict **by paying direct sales managers full commissions on channel deals and allows lead sharing from our direct sales with the channel.**
- Full service quote assistance & deal protection **means once your deal has been registered we focus on winning the business with you and preclude other partners from the quote process.**

Channel Opportunity Lifecycle



- Channel manager (CM) receives and qualifies the opportunity from the partner.
- Are we the best fit?
- Can we meet the timeline, budget, and technical requirements?

- CM assigns dedicated sales manager (SM) to be the point of contact for life of the account based on several factors.
- CM serves as escalation and pre-sales operations contact.

- Dedicated SM and SE will discuss and create the best solution with partner.
- CM conducts internal discovery review to see where we could add value.

- SM will work with CTA's pricing team to prepare pricing in accordance with customer expectations.
- SM will coordinate any change requests with pricing team.
- CM will monitor pricing process.

- SM will request formal quote once pricing is agreed on and generate order forms.
- CM will ensure timely delivery of order forms.

- Once customer order forms are signed and Master agent signs "Agent order form" a dedicated PM team will prepare & implement 45-day provisioning schedule.

CHINA TELECOM AMERICAS

Channel Customer Contacts & Service Escalation

Channel Contacts

Channel Business Development Managers
Brandi Tolbert branditolbert@ctamericas.com
+1.757.748.5696
John Cronin, johncronin@ctamericas.com
+1.773.853.2314 x 414

Sales / IT / Provisioning Support
CTA's channel manager assigns a dedicated Regional Sales Manager, SE and PM based on customer HQ location.

Channel Business Development
Steve Jacknow, Deputy Director, Channel
stevejacknow@ctamericas.com
+1.925.457.0579

Events
Marketing Team
marketing@ctamericas.com
+1.703.787.0088

Commissions
Ting Wu, Channel Accounting Specialist
tingwu@ctamericas.com
+1.703.787.0088 ext.89

Post-Sales Escalation Procedure

1st If non-emergency, contact your dedicated CTA Sales Manager and copy channelteam@ctamericas.com

2nd If emergency, contact CTA's 24x7 Network Operations Center (NOC) at 1 (877) 244-6241, send email to techsupport@ctamericas.com

3rd If no timely resolution, contact your assigned Channel Business Manager

Quote Requests:
channelteam@ctamericas.com

Customer Support

China Telecom Americas is dedicated to providing **quality service** to customers

Professional customer service team with 24/7/365 support to handle customers' inquiries and report faults.

Global customer service hotline:

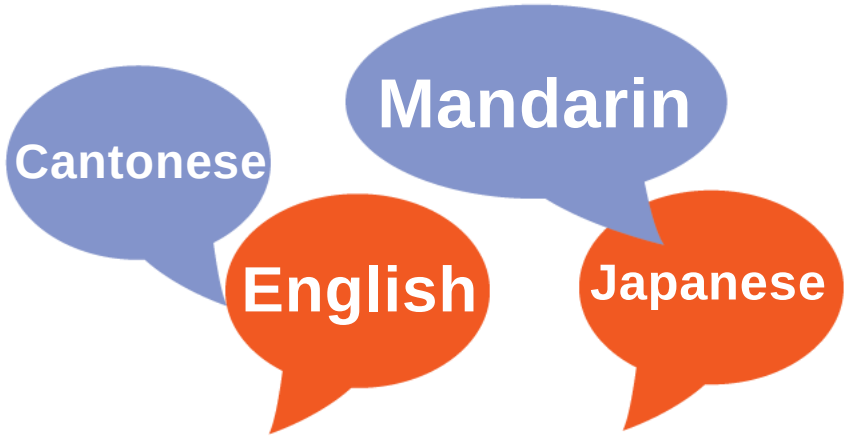
1 (877) 244-6241

techsupport@ctamericas.com

24/7

Real time monitoring with fault alert and follow-up action procedures.

Our service hotline supports **4 languages**



Provide data analysis to regularly keep enhancing service quality

Master Agent Partners

AVANT

ADVANTAGE

BRIDGEPOINTE TECHNOLOGIES

cloudwirX

COLOTRAQ

INTELISYS
Independence. No limits.

NXTSYS™ CONSULTING

STRATACORE
DATA CENTER + CLOUD + CONNECTIVITY → BUY SMARTER

TBI™
Technologically Brilliant

TELARUS

truthcomm

Top Speed Data Communications
The Business Bandwidth Broker®

WTG

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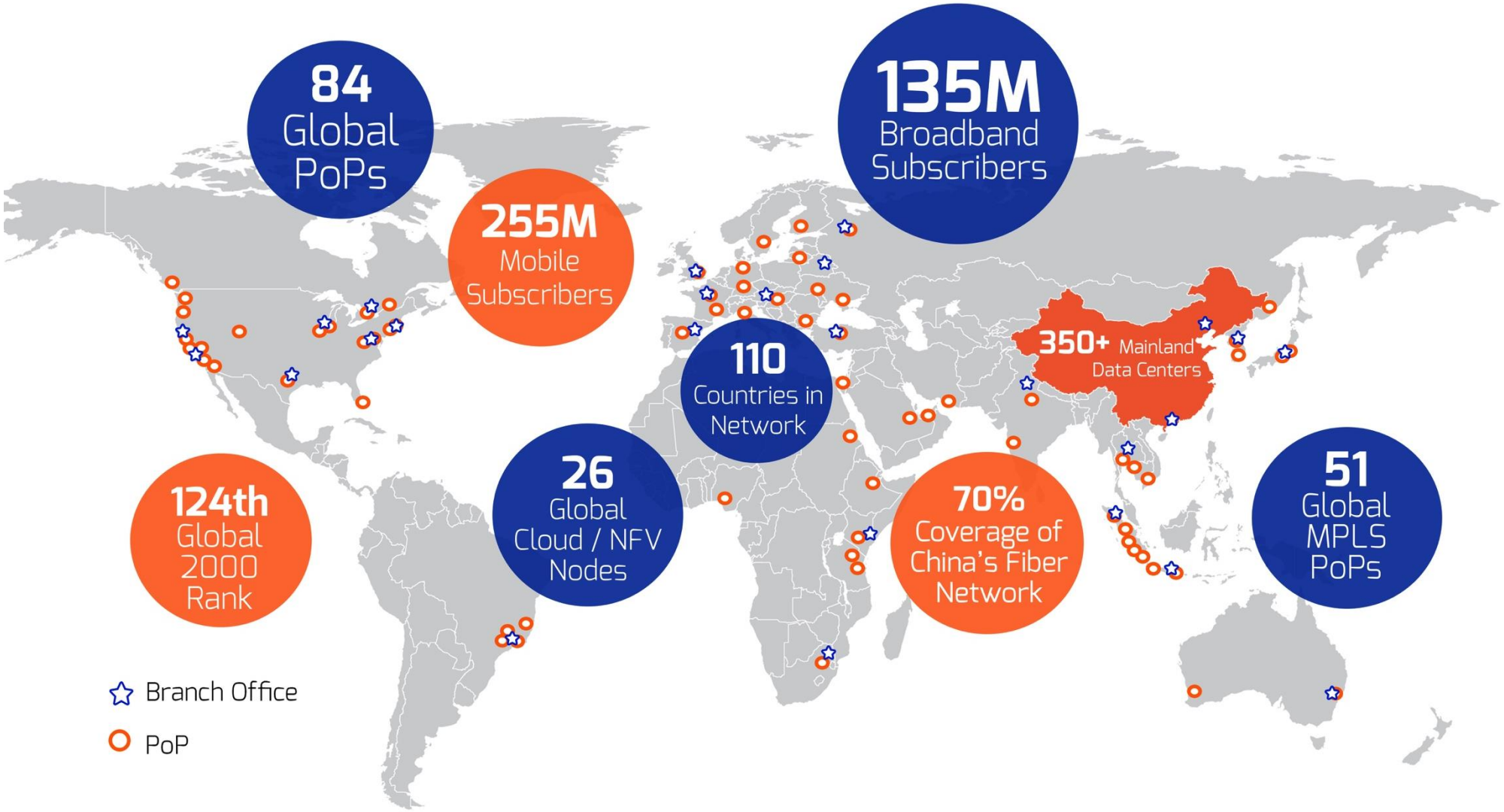
Selling China Telecom

China Telecom by the Numbers



Selling China Telecom's Value

Next-gen network
CT's CN2 carrier network utilizes the latest optical technologies and protocols.

Proven reliability
China's trusted incumbent with extensive in-country resources with over 400K employees.

One-stop shop
China's Hybrid IT leader providing end-to-end voice, video, data & security.

Comprehensive solution
Jointly planned, all-inclusive, custom APAC / China technology transformation.

Financial flexibility
Burstable Bandwidth, Pay-as-you-go, and 30-45 day install times = lower TCO.

Leading products
Cisco, Dell, HPE, Versa, VMware, Microsoft Certified Partners and more.

Expert care
Deployment, installation, maintenance, US-based sales and engineering support.

Broad reach
Global Tier-1 public and private internet, MPLS and Ethernet connectivity.

Selling CT's Global Network

176 PoPs in **33** countries

350+ Backbone Nodes

12T China Capacity

84 Transmission PoPs

51 CN2 (MPLS) PoPs

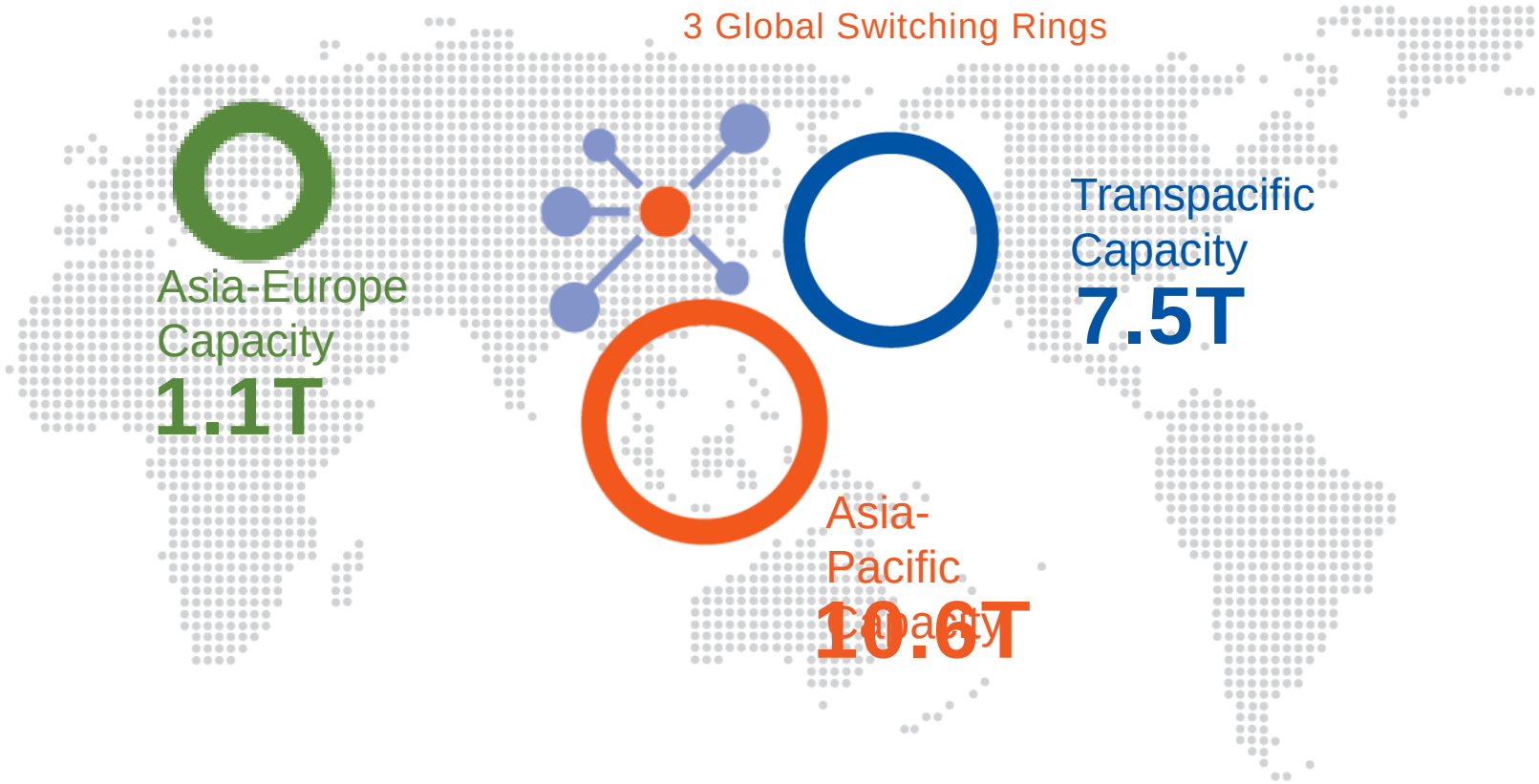
22 ChinaNet PoPs

20 Cloud / NFV PoPs

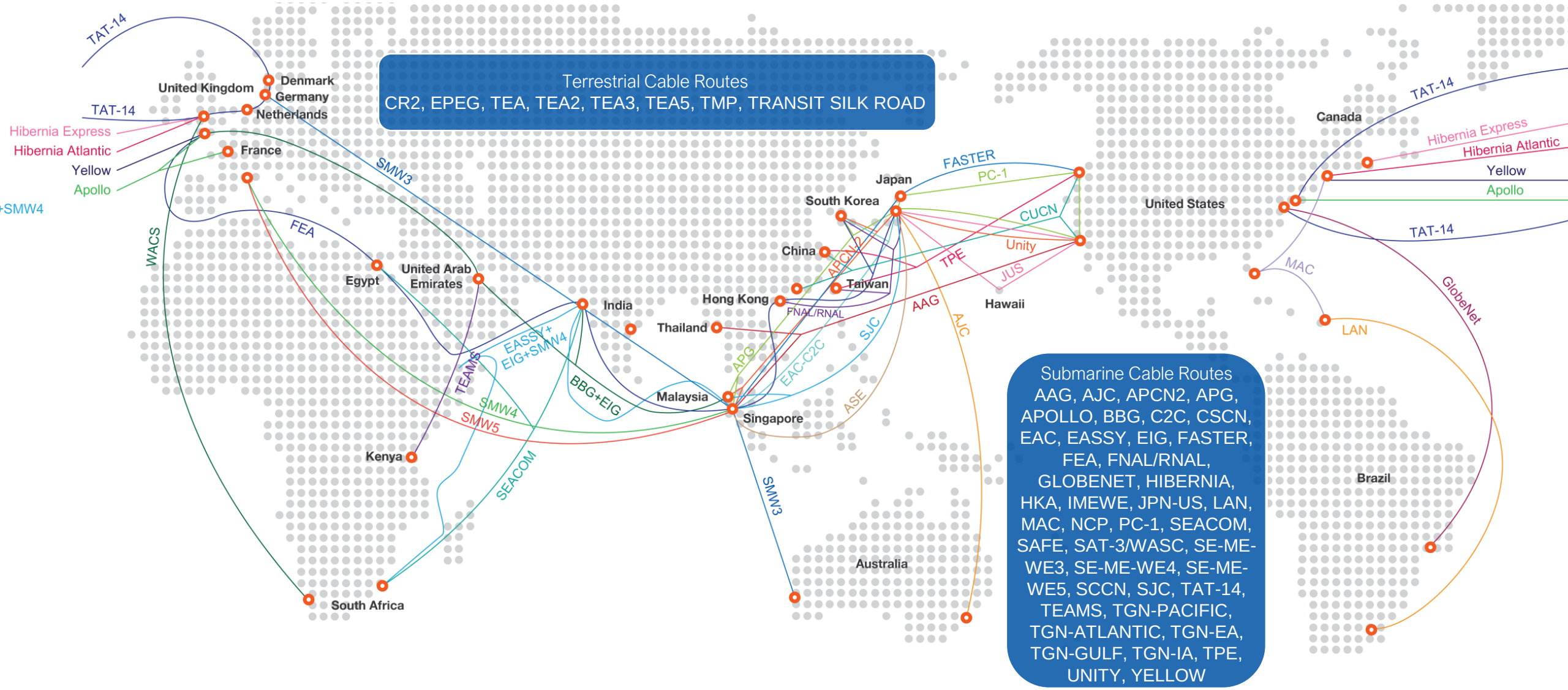
For detailed interactive map visit:
www.ctamericas.com/datacentermaps

Selling CT's Global Network

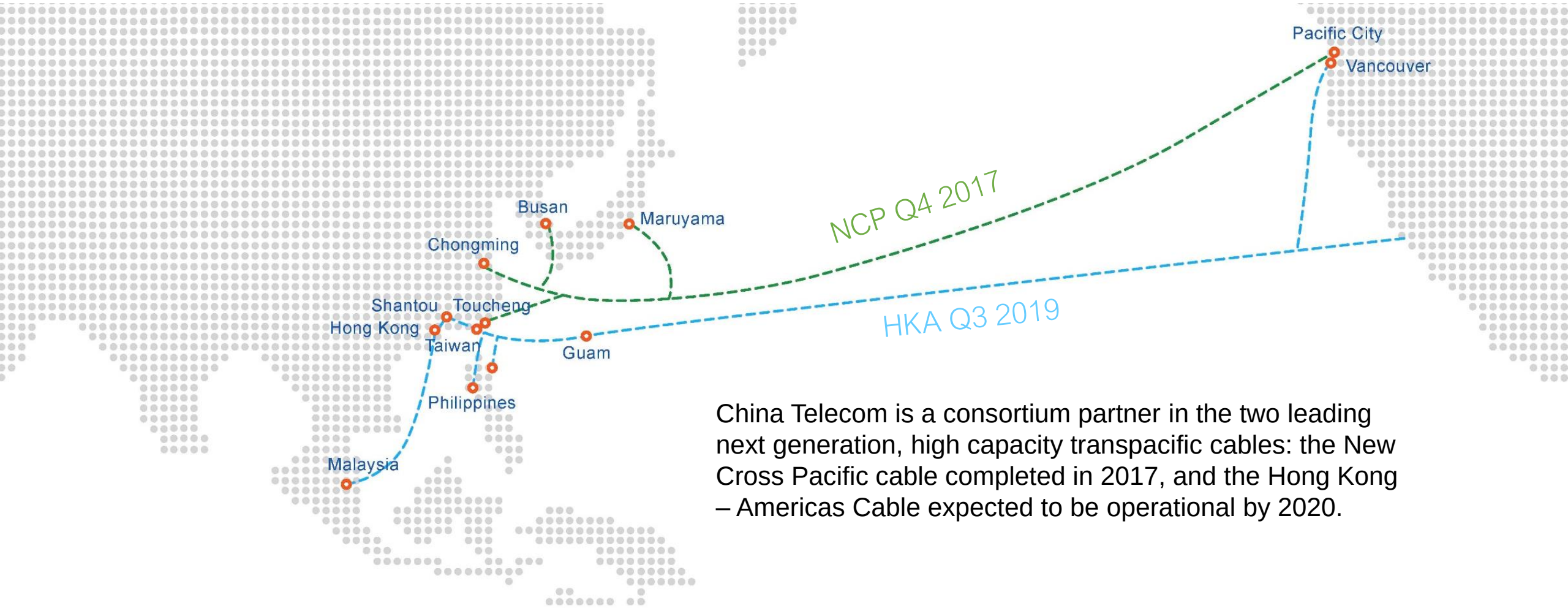
China Telecom's Tier-1 global network consists of **48** submarine and terrestrial cables, delivering a total international capacity of more than **42T**



Global Cable Systems



Cable Development Roadmap



China Telecom is a consortium partner in the two leading next generation, high capacity transpacific cables: the New Cross Pacific cable completed in 2017, and the Hong Kong – Americas Cable expected to be operational by 2020.

Inner China Cable System

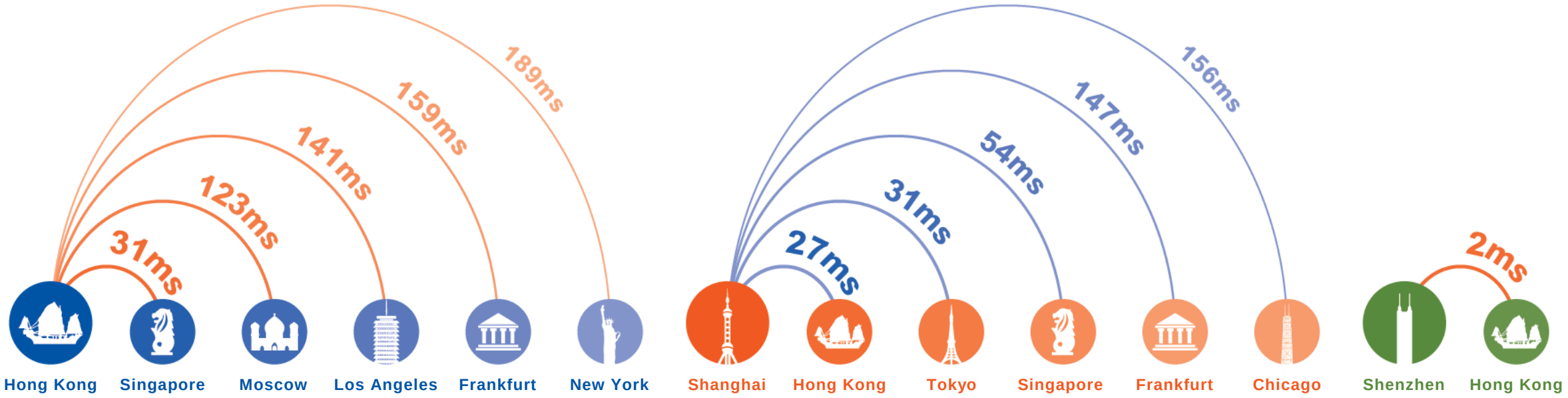
China Telecom connected with operators from neighboring countries and regions to build:

- China-Kazakhstan Cable
- China-Kyrgyzstan Cable
- China-Tajikistan Cable
- China-Nepal Cable
- China-Russia Cable
- China-Mongolia Cable
- China-Vietnam Cable
- China-Myanmar Cable
- China-Laos Cable
- Shenzhen-Hong Kong Cable
- Zhuhai-Macau Cross-Border Cable System

In addition, China-India Cable is being restored and China-Pakistan Cable is under construction.

Global Ultra-Low Latency Solutions

Featured annually in Gartner's *Critical Capabilities for Network Service Providers, Asia/Pacific* for providing high performance, ultra-low latency data transport solutions up to 100 Gbps including Ethernet, Wavelength, SONET / SDN across 14 key financial markets globally.



Source: SDH/E1 testing

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Selling CT's Value

Products & Services Portfolio

Voice Services

- Hosted PBX
- SIP Trunk (Outside China)
- UCaaS
- Contact Centers
- DID / PRI
- Int'l Toll-Free
- IDD/ IPX
- Cloud Conferencing
- Mobile / MVNO
- Voice Wholesale

Enterprise Cloud

- Public / Private Cloud
- Cloud Infrastructure
- Cloud Networking
- Server Virtualization
- VPC
- VDI
- Disaster Recovery
- Business Continuity

Global Bandwidth

- Metro Ethernet
- GigE / FastE
- Private Lines(EPL/EVPL)
- MPLS VPN
- IPSec
- SD-WAN / Hybrid WAN
- Wavelength (DWDM)
- VPLS / EVPN
- Mobile VPN

Managed Services

- Managed WAN
- Managed Cloud
- Managed Security
- Managed CPE / vCPE
- IT-as-a-Service
- Threat/Intrusion Detection & Prevention

Global Internet

- Dedicated Internet
- Global Transit
- Paid Peering
- ChinaNet Access
- CDN (Content Delivery)
- Fixed Wireless
- Mobile Wireless
- Anti-DDoS

Data Center / Colocation

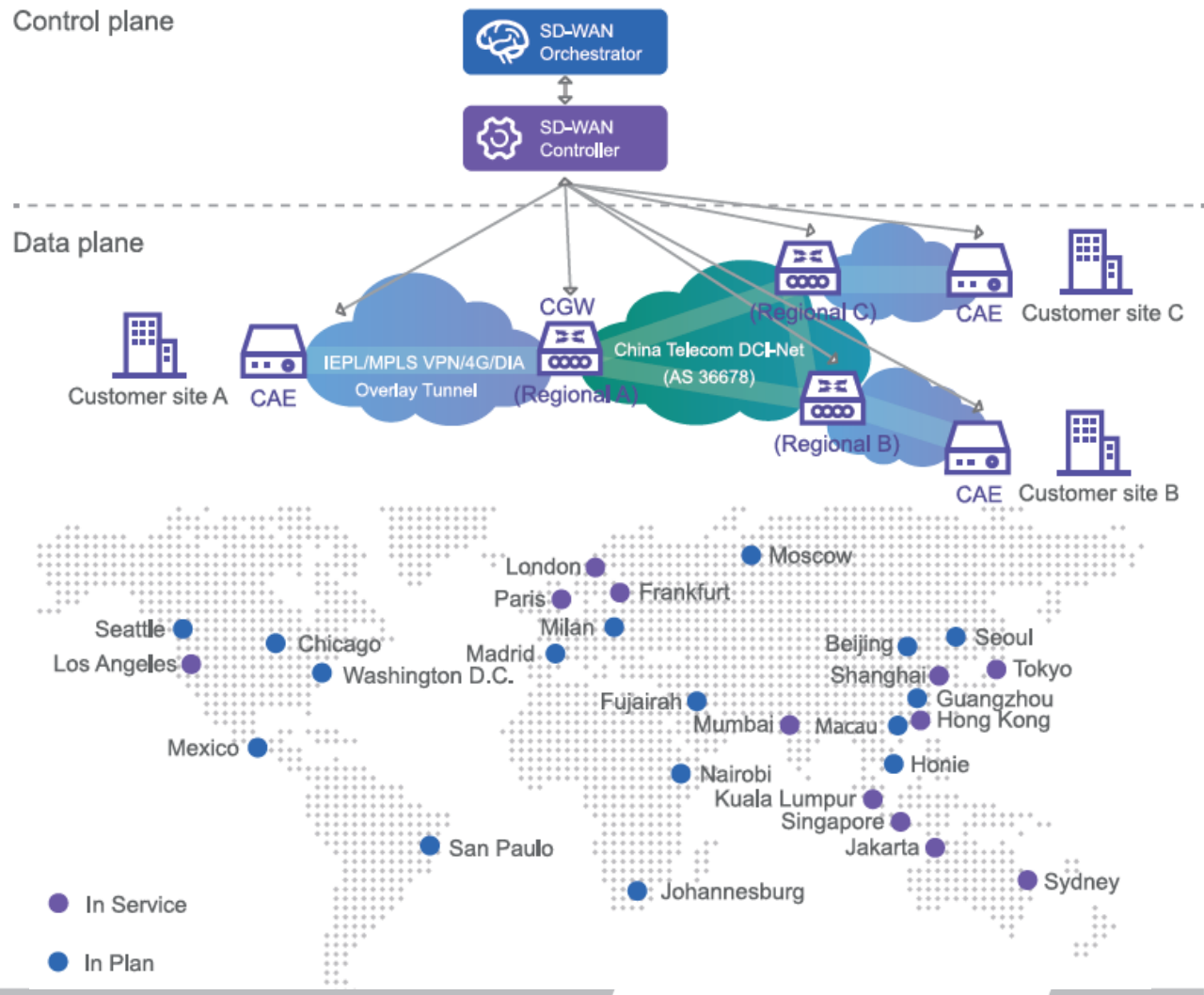
- Cages / Cabinets
- VIP Rooms
- Remote Hands
- Power / Cooling
- Hardware / Software Management
- Interconnection Services
- Data Center Security

SD-WAN / Hybrid WAN

China Telecom has set out to build a best-in-class cloud-connected Hybrid WAN platform fully-integrating Versa, Silver Peak and Cisco Viptela or Meraki technologies with APIs to our global MPLS management console allowing distributed organizations the simplicity, visibility and dynamic hybrid control from the data center to the edge.

- TB Level Backbone
- Traffic Management
- Hybrid WAN
- x86 / vCPE Management
- Fully Managed Service
- Zero-Touch Provisioning
- WAN Optimization
- Custom Topologies
- Bandwidth on Demand
- Public Cloud Exchanges
- Internet Breakouts
- Monitoring & Analytics

CT's Hybrid WAN Topology & NFV/Cloud Node Network



SD-WAN / Hybrid WAN

Qualifying Questions

- How much time is your IT team devoting to WAN management?
- Does your company have branch offices and/or data centers over large geographic distances that require reliable and secured connectivity?
- What connectivity features does the product offer, and how are they controlled?
- What features does the SD-WAN device provide beyond basic connectivity?
- How does your SD-WAN product detect congestion or failure, and what can it do about it?
- Do you need a Hybrid WAN solution for China that provides more security and reliability?

Key Differentiators

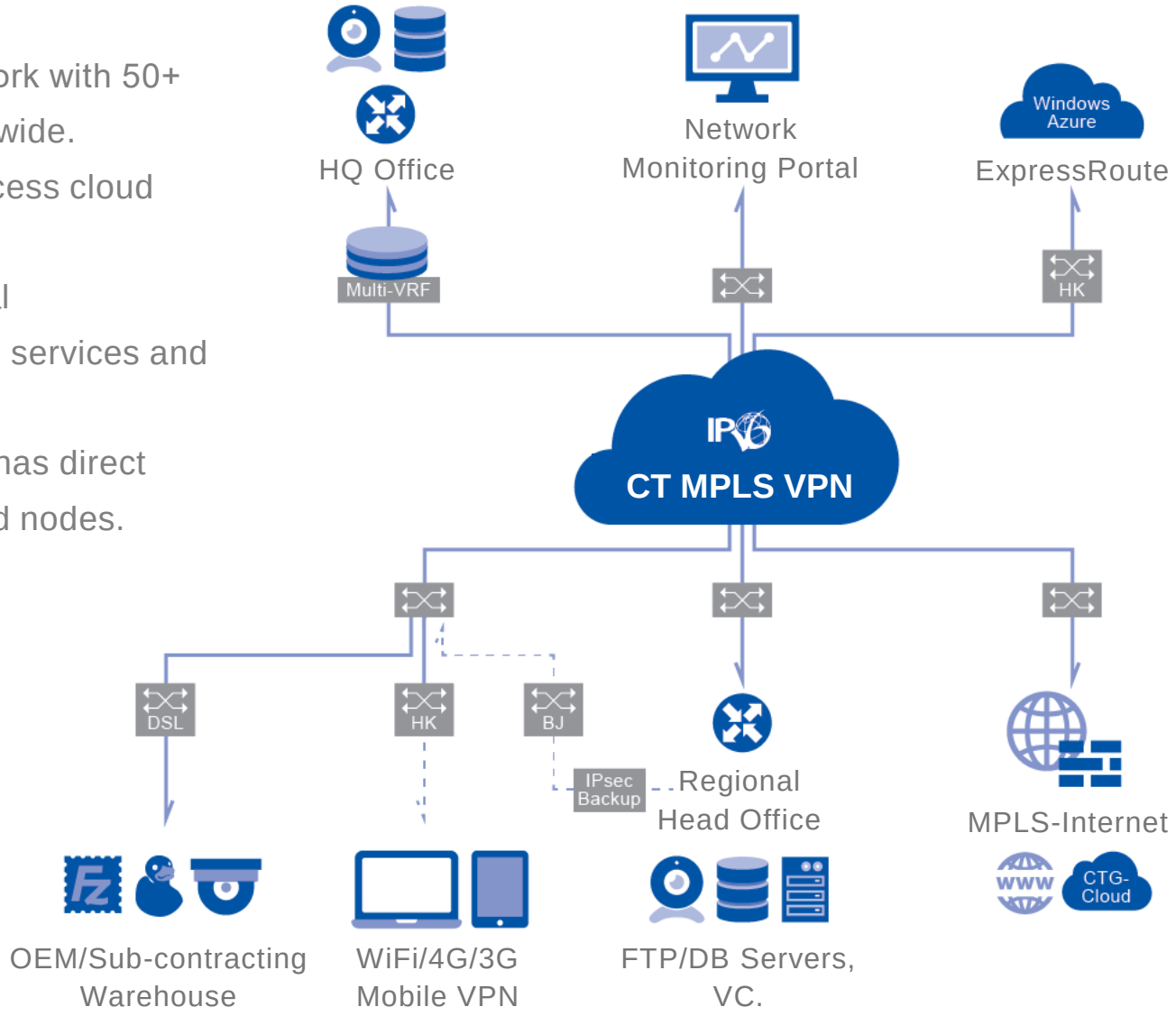
- CT operates ChinaNet (AS 4134) or “163 Net” China’s largest public internet network with 225M subscribers.
- China Telecom is a registered, Chinese government authorized VPN and IPSec service provider.
- CT offers Versa Networks, Silver-Peak, and Cisco-brand SD-WAN technologies with full MPLS / Hybrid WAN Integration Support.
- CT offers the widest range of custom SD-WAN, Hybrid WAN and vCPE access options available for China.
- By 2019, CT will have a 26-site, cloud-connected, global SDN backbone (AS 36678) with centralized control regardless underlying transport technology or application architecture.
- Load balancing with auto-failover using MPLS, Ethernet, DIA, 4G/3G redundancy options.
- Programmable vCPE “white box” and “white brand” solutions offering VNF configuration support for best-in-class vendors.
- Dedicated private network service connecting businesses in and out of China, with network-based QoS and Service Level Agreements (SLAs).
- A cost-efficient internet-based alternative for setting up VPN connectivity to access corporate applications, SaaS or Public Cloud services outside of China.

Key Considerations

- Internet circuits in China can be 20-40% more expensive in China which means more for our agent’s bottom-line, thus it is beneficial to take on China opportunities with a trusted local partner like China Telecom in your portfolio.
- SD-WAN-based tunnels are subject to performance impacts due to wide variances in latency across the public internet. By working directly with ISPs and carriers (like China Telecom) licensed to provide corporate VPN services, the Chinese government better understands the actual end-user of those services and the nature of the business.
- SD-WAN tunnels operated through unlicensed providers get discovered and shutdown.
- It is highly advisable to use DIA circuits for SD-WAN architectures in China do to over congestion on many public internet links.
- Authorities pinpoint illegal/unlicensed VPNs for shut down and can assess fines. Corporate VPNs are typically not targeted if they are supplied by a licensed provider and used to enable employees inside and outside of China to communicate and to access corporate and SaaS applications for legitimate business purposes.
- China enforces and deploys a combination of government policies and telecom equipment to safeguard China’s national security interests, colloquially known as the “Great Firewall of China (GFC).”
- The GFC analyzes information such as source and destination addresses, quantity of data flowing in each direction, and infers the nature of the information being transmitted, such as web content, voice communications, video streaming, etc. based on protocols and/or traffic patterns.

MPLS VPN

- China Telecom operates China's leading MPLS network with 50+ PoPs covering key metros in over 30 countries worldwide.
- High network security and performance to private access cloud services.
- Bundled with firewall and Netcare management portal
- Cost saving, single link access for MPLS, multi-cloud services and Internet access.
- Fully-integrates with CT's SD-WAN architecture and has direct connections to cloud providers across 26 global cloud nodes.
- IPv6 Support
- 24/7 global support with NOC in US
- SLA guarantees with 6 Classes of Services (CoS)



MPLS VPN

Qualifying Questions

- Does your company have multiple locations between the US and China? *If "YES" – Where? What locations are you looking to connect?*
- *How do you connect remote employees and accommodate for mobile personnel?*
- Is your business planning to expand to other geographic locations in the future?
- Are you having performance issues running applications requiring high QoS?
- Does your business use video or other bandwidth-intensive applications?
- Are you planning to launch a Big Data analytics initiative requiring low latency and high bandwidth?

Key Differentiators

- CT operates 51 Global MPLS PoPs in 30+ countries
- SLA guarantees with six Classes of Services (CoS)
- Transport links use China Telecom's CN2 (AS4809) next-gen, global carrier network
- MPLS VPN service delivery typically happens within a 45 day (average) timeframe.
- CT's MPLS network fully integrates with SD-WAN partner platforms through APIs for seamless hybrid WAN management

Key Considerations

- High-end VPN solutions like MPLS are not subject to heavy GFC filters, but must only be used for internal business and adhere to Chinese cyber security regulations. Note: It is illegal to resell VPN services in China without government authorization.
- Global operators often use MPLS VPN or EPL services and terminate them at a location outside mainland China, typically Hong Kong or Tokyo, where they integrate them with their own networks. However, this network architecture is not optimal nor fully transparent to the government. Therefore, is advisable to deploy corporate VPNs, whether Internet-based, SD-WAN or MPLS from Chinese locations all the way to corporate headquarters, data centers and/or public cloud environments, using authorized providers to ensure regulatory compliance and business continuity.
- SIP trunks are not sold in China, however VoIP applications can be run over China Telecom's MPLS VPN network.
- Authorities pinpoint illegal VPNs for shut down or will even assess fines. Corporate VPNs are typically not targeted if they are supplied by a licensed provider (such as China Telecom), and used to enable employees inside and outside of China to communicate among themselves and to access corporate and SaaS applications for legitimate business purposes.

Global Internet

World's largest broadband network with the most Internet users

135M broadband subscribers, and

122M 4G terminal users

World's most extensive network of Chinese Internet resources

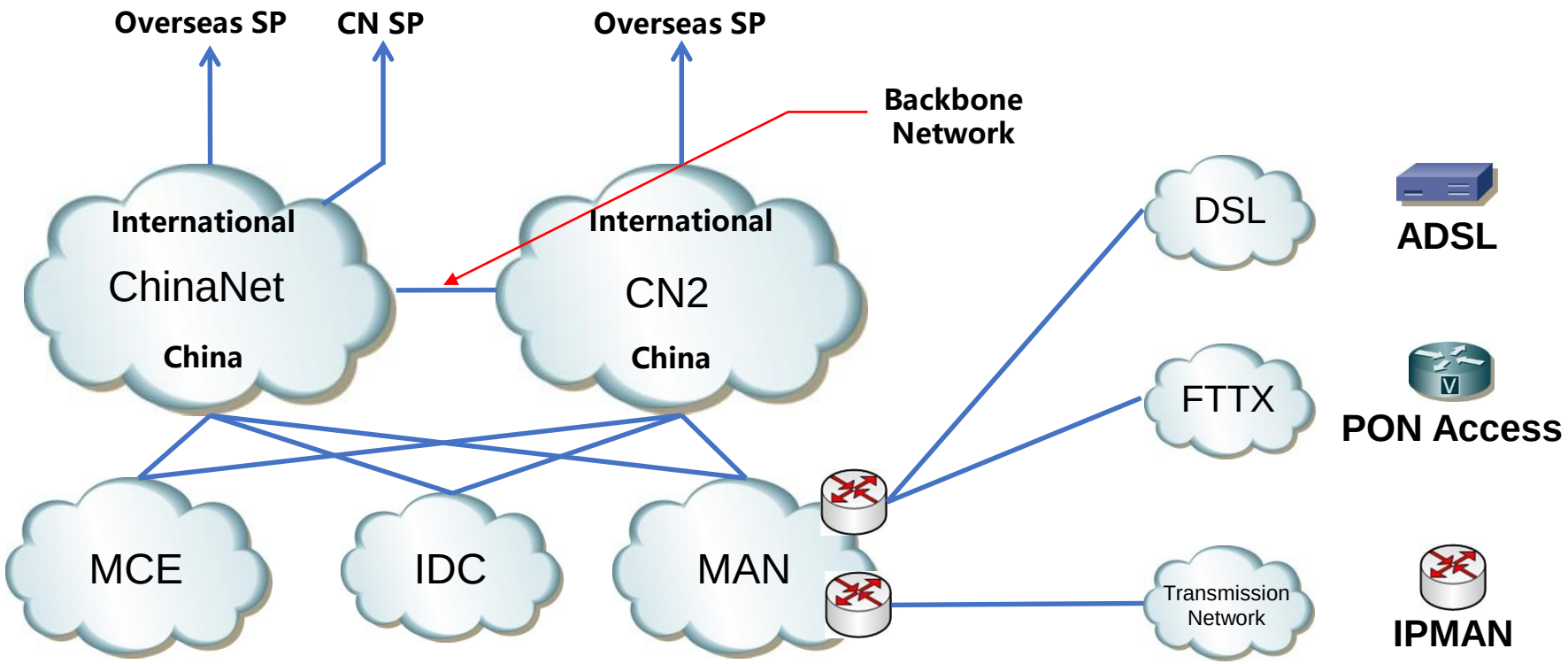
with more than **2.3M** Chinese websites

and over **350** Data Centers in mainland China

- Bandwidth options are SDH (2M and above), Ethernet (1M – 10G)
- Burstable Bandwidth options available.
- Multiple service options (MLPS / IP VPN, DIA, NGN Trunk, 3G Trunk, private leased line, etc.)
- Multiple access speeds (T1/E1, DS3, OC-3, Fast E and GigE).
- Static routing or BGP-4 routing with AS4809
- Dual-PoPs in 161 cities & Dual-PEs installed in 148 Single-POP cities.
- Network security ensured with AS-SET updates, DNS Registry and Anti-DDoS services

Source: 2016 Annual Results Announcement of China Telecom Corporation Limited

Local Internet Access (LIA) in China



- **Dsl:**
  - Asymmetric Bandwidth
  - No fixed IP address
  - Few premium access
  - No BGP
- **PON:**
  - Symmetric Bandwidth
  - Fixed IP address
  - Few Premium Access
  - No BGP
- **Leased Line Internet:**
  - Symmetric Bandwidth
  - Fixed IP address
  - Premium Access Allowed
  - BGP allowed.

Access Types Comparison

	ADSL	LAN	PON	IPMAN
IP Allocation	Dynamic IP	Static IP, Normally /30 IP, No more than /29 IP	Static IP, Normally /30 IP, No more than /29 IP	Static IP, depend on bandwidth.
Support BGP	No	No	No	Yes
Bandwidth	2M/512K-4M/512K (Copper access) 4M/512k-20M/1M(Fiber Access	2M-40M(Depend on different location)	2M-40M(Depend on different location)	2M-1G(Or even higher bandwidth)
Uplink/Downlink Configuration	Asymmetrical	Symmetrical	Symmetrical	Symmetrical

Global Internet

Qualifying Questions

- How would you describe the quality of your internet connectivity in China and APAC, in general?
- Does your company depend on China Internet for access to customers or SD-WAN site connectivity?
- Is your company planning to expand its presence in China to additional regions throughout the country?
- Does your company rely on access to bandwidth-intensive content or applications requiring low latency?
- What is your tolerance for downtime?
- What DDoS mitigation or DNS protection services do you currently use? How is its effectiveness inside China?
- How do you enforce security policies for remote sites?

Key Differentiators

- IP bandwidth in CT's metro area network and backbone network reached 500Tbps and 170Tbps respectively in 2018, maintaining industry-leading position in China.
- As China's largest ISP, CT offers Tier-1 stability, highly redundant and reliable service with SLAs on latency, jitter, pack drop rate (PDR), PoP availability and mean time to repair (MTTR).
- China Telecom operates ChinaNet (AS 4134) or "163 Net" China's largest public internet network by subscriber base.
- High capacity bandwidth options from 10M to 100G.
- CT offers BGP service with full routes or regional specific routes in China.
- Fast, efficient Anti-DDoS systems safeguard user network security.
- Netcare management portal provides real-time network visibility and reports on link utilization and network performance and integrates with SD-WAN partners.

Key Considerations

- Use Dedicated Internet Access (DIA) as opposed to standard xDSL/xPON/HFC internet service in China to reduce the impact on performance caused by congestion and processing delays that can occur from the GFW.
- There are peering bottlenecks between Chinese ISPs that can result in 200-300ms+ RTT with high packet loss even within the same metro during peak congestion.
- Internet circuits in China can be 20-40% more expensive in China which means more for our agent's bottom-line, thus it is beneficial to take on China opportunities with a trusted local partner like China Telecom in your portfolio.
- BGP networking is restricted in China and customers must apply for a special operators license. SIP trunks are not sold in China, however VoIP applications can be run over China Telecom's MPLS VPN network.
- Download speeds in China averaged 7.6 megabits per second (mbps) in the first quarter of 2017, only slightly above the global average of 7.2 mbps. The regional leader, South Korea, had an average download speed of 28.6 mbps.
- Chinese law requires filing for an "ICP record" for non-commercial websites or an "ICP license" to run commercial websites before hosting content inside of China, thus ports 80, 8080, 443 and 8443 are normally blocked. China Telecom Americas can assist with providing ICP filing procedure guidance.

Cloud Solutions

China Telecom provides 12 cloud based solutions which fully integrate with its premium global network capabilities.

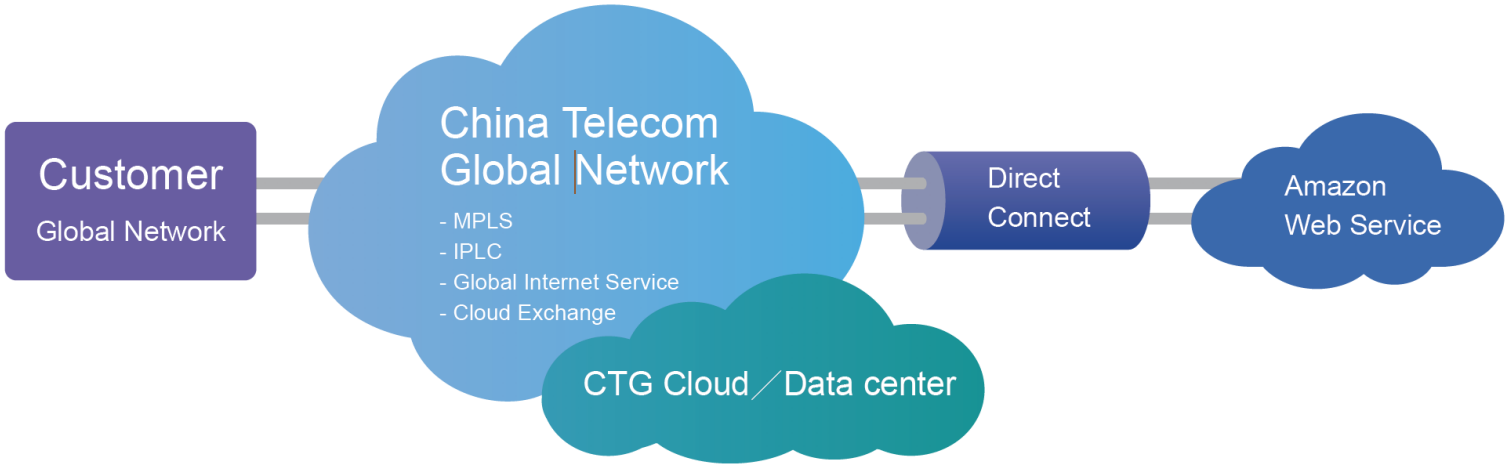
- VPC
- Hybrid Cloud
- Managed Cloud
- SD-WAN
- CDN
- Cloud Exchange
- Cloud Visibility
- Data Insights
- Migration
- Backup
- Hosted Mail
- Cloud Conferencing

Direct connections with China Telecom's **eCloud (mainland China), Microsoft, Ali, BT, KT** and other public clouds with management services

Cloud Networking

China Telecom's global network integrates with AWS or Azure through through authorized IPsec VPN tunnels and direct connections leverage CT's 29 location cloud-connected data center network fabric.

- CT is one of three licensed providers of dedicated cross-border public cloud-to-cloud interconnections.
- Single provider for network and cloud provisioning and management.
- Private and secure links to AWS, Microsoft Azure and Alicloud.
- Full integrations with CT's MPLS or ChinaNet (AS 4134)
- Custom route options based on Chinese Internet users and cloud availability zones.



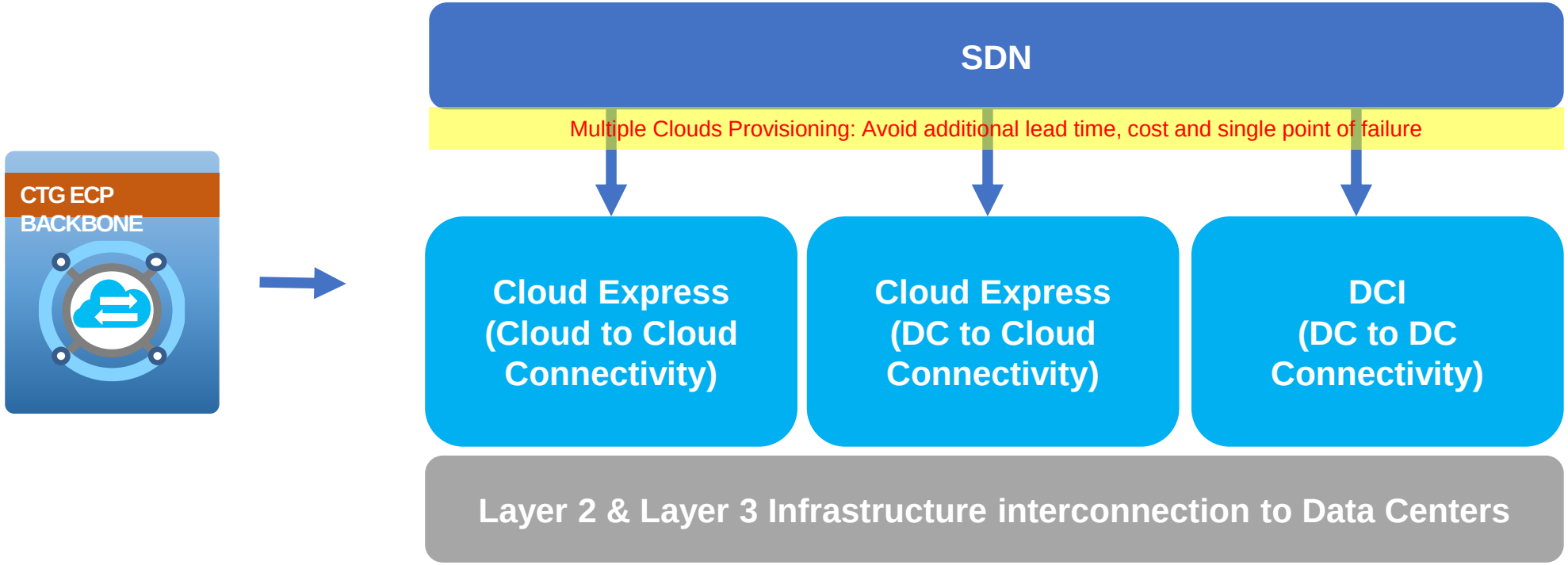
Solution highlights

Hybrid Cloud solution
to address your diversified
internal requirements

AWS based Disaster Recovery
enable your business
continuity plan

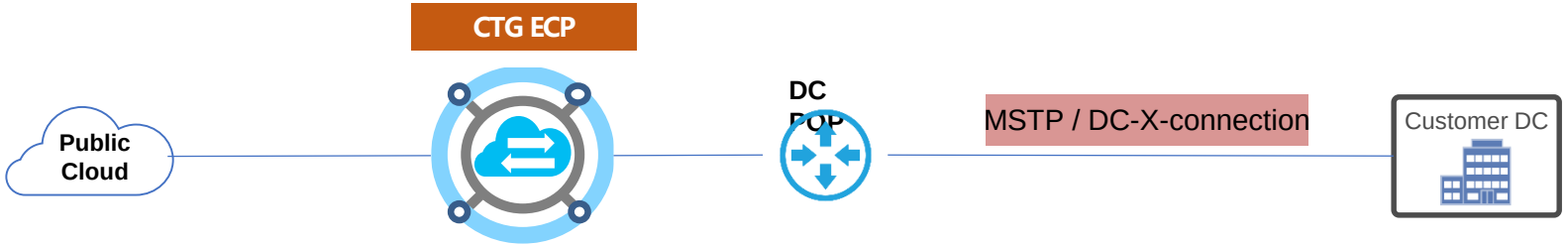
Dedicated resources /
low-cost shared resources
both available

Elastic Cloud Platform - ECP

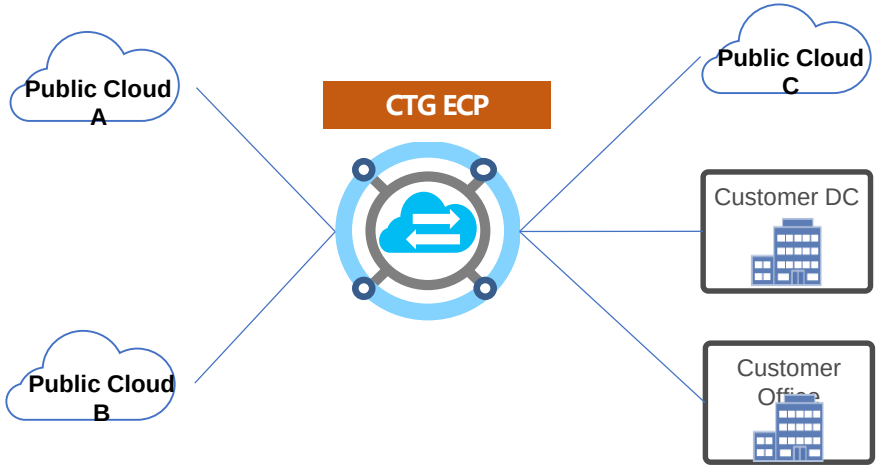


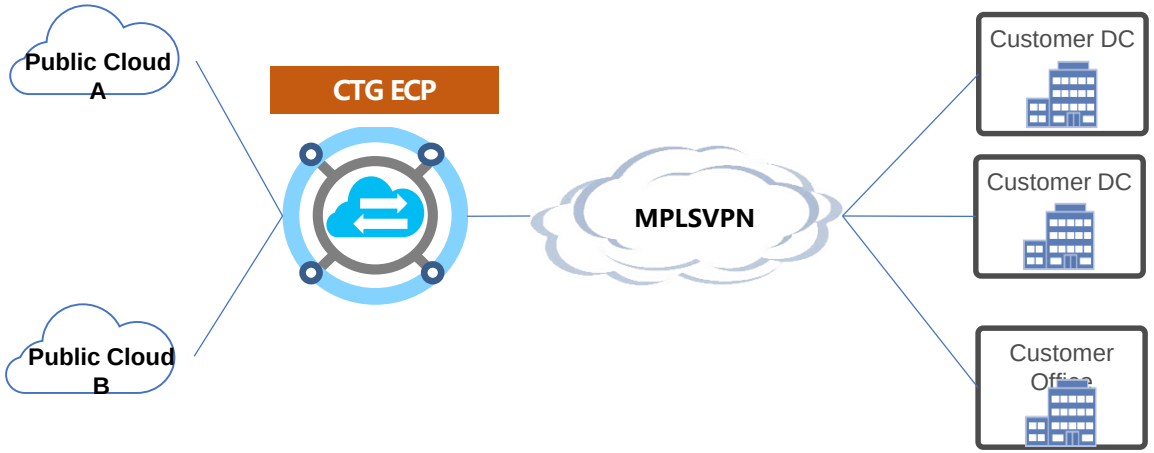
Typical Scenarios of ECP

Scenarios 1: P2P connection from Cloud to On-Premise Customer Site



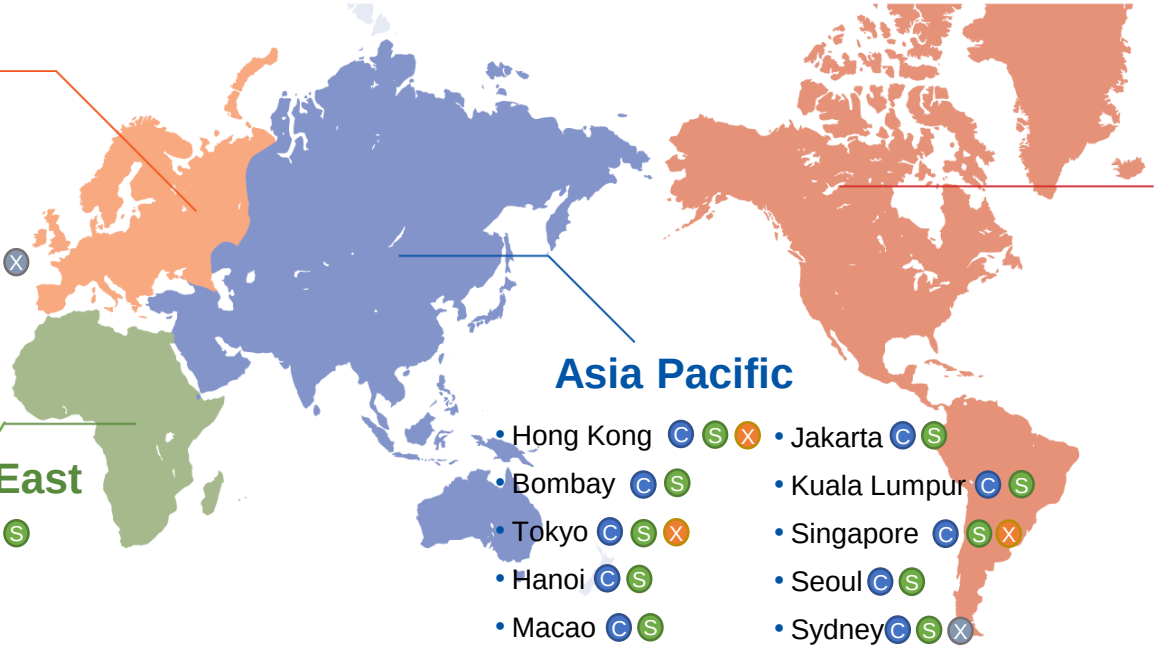
Scenarios 2: Multi-site (any to any) Elastic Connection





Global Cloud Coverage

We enable geo-redundancy with 26 global cloud nodes covering each corner of the world and connections to leading public cloud providers inside and outside of China.



Europe

- Frankfurt C S X
- London C S X
- Paris C S X
- Amsterdam C S X
- Prague C S
- Dublin C X
- Istanbul C S

Africa & Middle East

- Johannesburg C S
- Nairobi C S
- Fujairah C S
- Lagos C S
- Cairo C S

Asia Pacific

- Hong Kong C S X
- Bombay C S
- Tokyo C S X
- Hanoi C S
- Macao C S
- Bangkok C S
- Beijing C X
- Shanghai C S X
- Guangzhou C
- Jakarta C S
- Kuala Lumpur C S
- Singapore C S X
- Seoul C S
- Sydney C S X
- Manila C S
- Chengdu C
- Guiyang C
- Shenzhen C

America

- Los Angeles C S X
- San Jose C S X
- Washington C S X
- Chicago C S X
- Toronto C S X
- St Paul C S X
- New York X

C Cloud Server

S SD-WAN

X Cloud Exchange

In Plan for 2018

Cloud

Qualifying Questions

- What does your cloud / data center operations look like across l*ocations? What services are they running? Private on-premise vs. private third-party?*
- Are you experiencing costly capital expenditures for server infrastructure and maintenance?
- Are you experiencing issues with cloud visibility in China?
- Do you have sensitive data you are transporting to and from the cloud?
- How important is cost control over additional usage?
- Do you have multiple locations needing access to a single server?
- Do you need help with management of server updates, firewall and applications?

Key Differentiators

- China Telecom is one of only three licensed providers of dedicated cross-border AWS / Azure cloud-to-cloud interconnections by the Chinese government.
- China Telecom operates the most cloud availability zones in China.
- China Telecom's eCloud offers simple & flexible VM provisioning through a pay-as-you-go cloud management console in English.
- China Telecom offers hybrid cloud and multi-cloud migration and configuration management services.
- China Telecom's cloud exchange backbone network (AS 36678) helps customers establish fast, reliable and secure multi-point network connections to public cloud platforms across a dedicated network of cloud gateway nodes in 41 data centers around world.
- Private connections to Microsoft Azure, Amazon Web Services, IBM Cloud in Mainland China, Asia-Pacific and in the United States with either MPLS, Layer 3 VPN , EPL connections with one physical port supporting many Virtual Circuits (VCs) with flexible bandwidth speed options ranging from 50 Mbps to 10 Gbps.
- Virtual resource pool (8vCPU, 20G RAM, 1.2T Disk, 2 IP, 5Mbps Bandwidth, Windows Server 2012 R2 and CentOS Image, 1 dedicated virtual firewall)
- Self-service portal for customer to create, modify and delete VMs as necessary.

Key Considerations

- Consider hosting an instance of business-critical applications, including those that require a high level of performance for end-user experience within data centers or public cloud environments located inside China.
- According to Gartner, the overall virtualization rate in China is less than 50%, which compares to more than 80% for the mature global market. Finding a trusted provider of virtualization services is hard if not working with an experience carrier like China Telecom.
- Private cloud is still the preferred choice for enterprise workloads in China. According to Gartner, by 2020, more than 30% of large enterprises' business workloads in China will be hosted on as-a service private infrastructure, up from less than 5% today.
- Data localization: the Chinese Cybersecurity Law (CCL), much like GDPR, requires all data generated in China that is private – personal IDs, bank accounts, etc. – or "important" – related to national security, economic development or public interest – to remain within the boundaries of the country.

Colocation & Data Centers

China Telecom has extensive colocation and data center operations experience to provide highly-customized, high-availability on-premises solutions either in a CT data center or in one of our partners facilities.

of DC market share in mainland China

- Operations management & multi-tier security
- 24x7 Support
- Structured Cabling
- Tier III or above standards (5 stars standard)
- Experienced staff with professional certifications and training
- ITIL Management System Operation, ISO27001, ISO9001 and ISO20000 certified

Global colocation in key metros and IPX markets.

China
Beijing, Shanghai, Shenzhen, Guangzhou, Suzhou, Chengdu, Hangzhou, Inner Mongolia

Hong Kong

Singapore

Japan
Tokyo

United Kingdom
London

Germany
Frankfurt

USA
Ashburn
Los Angeles, Santa Clara

Colocation & Data Centers

Qualifying Questions

- Is your data growing exponentially?
- Do you need high availability and disaster recovery for a critical application?
- Is your in-house equipment reaching the end of its life?
- Our data centers can offer a viable, more cost-effective and more secure alternative!
- Are you thinking about moving into the cloud?
- Where is your mission-critical infrastructure located today?
- Do you currently use third-party data centers?
- Do you have a backup or disaster plan in place?
    - If "YES," ask "How quickly do you get a response or follow-up to support tickets?"
    - If "NO," a great opportunity exists! Not all data centers in China offer live tech support 24/7. China Telecom does.
- Does your organization provide applications, gaming, live video streaming or similar bandwidth-intensive online services?
- Is your company compliant with data localization regulations of the new China Cyber Security Law (CCL)?
- What does your cloud / data center operations look like across l*ocations? What services are they running? Private on-premise vs. private third-party?*
- Are you experiencing costly capital expenditures for server infrastructure and maintenance?
- Do you have sensitive data you are transporting to and from the cloud?
- How important is cost control over additional usage?
- Do you have multiple locations needing access to a single server?
- Do you need help with management of server updates, firewall and applications?

Key Differentiators

- CT is China's data center market leader, owning and operating 350+ mainland China data centers connected to 80+ global Points of Presence (PoPs) through a variety of Layer 2 and 3 access options.
- ISO 27001 and TL9000 Certifications, ITIL and HIPAA compliancy.
- Dual redundancy power and cooling
- Disaster recovery and threat security, ensuring minimum risk and maximum uptime for mission-critical applications.
- Rapid data center infrastructure development, testing, deployment and launch.
- Dedicated global cloud network (AS36678) with private connections to public cloud providers and China Telecom's Chinanet, CN2 networks.
- Virtual resource pool (8vCPU, 20G RAM, 1.2T Disk, 2 IP, 5 Mbps Bandwidth, Windows Server 2012 R2 and CentOS Image, 1 dedicated virtual firewall)
- Self-service management portal with pay-as you go monthly billing for customer to create, modify and delete VMs.

Key Considerations

- Consider hosting an instance of business-critical applications, including those that require a high level of performance for end-user experience within data centers or public cloud environments located inside China.
- China Telecom is a single point of contact to assist customers with infrastructure provisioning in CT owned data center as well as in carrier neutral facilities throughout China and globally.
- Get increased availability and applications faster and more reliably to the edge from inside China.
- China Telecom has 180+ Tier 3 & Tier 4 IDCs located in prime areas in Mainland China offering customers the highest level of security, interconnectivity and resource availability.

Content Delivery Networks (CDN)

CDN Product

- Global Network
- Web Acceleration
- File Download
- Live and On-Demand Video Acceleration
- Value-Added Services

Features & Benefits

Enhanced Experience
- Increased Availability & Performance
- Enhance end-user satisfaction
- Increase revenue

Cost Reduction
- Reduce CAPEX
- Reduce bandwidth cost
- Reduce maintenance cost

Capacity On Demand
- Purchase CDN on demand
- Meet temporary demand
- Easily CDN Access

Security
- Improve security
- Reduce business risk
- Increase revenue from online business

Content Delivery Networks (CDN)

Qualifying Questions

- Do you have a current CDN provider for China?
- Are your customers, suppliers, partners and employees satisfied with the digital experience that you deliver in China?
- If “No” or “Maybe,” are there any specific areas or concerns that you have?
- Do you have plans to expand your geographic footprint in high-growth markets or regions in China to improve content delivery to end-users?
- Is your company an ICP license holder?
- Is your organization concerned about security? For example, mitigating Distributed Denial of Service (DDoS) attacks without sacrificing user experience?

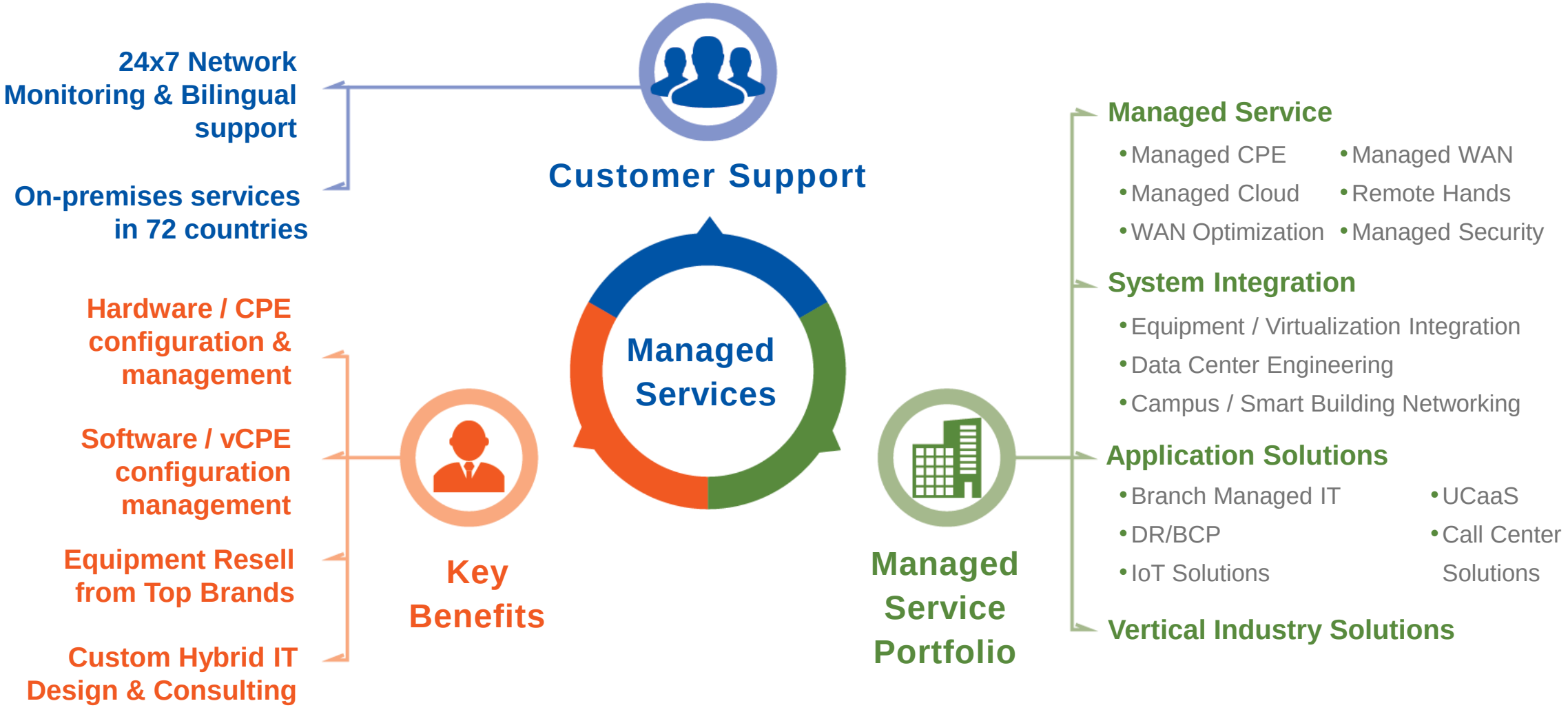
Key Differentiators

- No other provider in China offers as many CDN nodes and eyeball access on one network (AS 4134) than China Telecom.
- China Telecom has deployed CDN nodes in 83 cities in 41 countries
- CT owns its IP Network, allowing it full control and superior performance. It is burstable with no limit, and its burstable rate is offered at non-premium pricing. Additionally, there is no charge for mid-tier traffic.
- CT’s CDN supports streaming on demand, live broadcasts and adaptive streaming media over HTTP.
- China Telecom’s CN2 (world’s largest MPLS network) is an optional high efficiency choice for the transportation between management node and cache node.

Key Considerations

- CDN improves speed and end-user satisfaction with faster delivery speeds.
- The type of design plays an important role when analyzing CDN performance metrics.
- Reduces CAPEX, bandwidth and maintenance costs.
- The performance of a CDN is impacted by the relationship the CDN has with the local Internet Service Provider (ISP).
- For adequate testing the following sectors must be included: Latency, Throughput and Bandwidth, DNS lookup times, CP connection times, Content download, Cache hit times, Round trip times, Time-to-first byte.

Managed Services



Advantage

Regulations, Laws	Resources	Response Time	Real needs
Customer is not familiar with different regions	Customer does not have local IT support or qualified supplier/partner	One-stop service and global delivery	Understand customer requirements

Resource

Subsidiaries in 37 countries and regions around the world, and is familiar with local IT information resources, IT suppliers and engineers.

Technical

With a technical/management team with extensive project planning, design, implementation and operational experience, we can provide a package solution for our customers.

Service

Service provider-level operation and maintenance management experience and team, providing on-site service or remote technical support services according to customer needs, all China personnel services

One-Stop and Fast Global Delivery

Based on the extensive experience in overseas delivery, we deliver quickly in 37 countries around the world.

Managed Services

Qualifying Questions

- When do you plan to refresh the following: routers, switches, servers, firewalls, desktops, phone systems?
- How much time is your IT team devoting to WAN management?
- How much time does your staff spend managing security?
- Is it a priority for you to decrease CAPEX or OPEX costs right now?
- Are your customers, suppliers, partners and employees satisfied with the digital experience that you deliver in China?
- How do you manage your network and voice equipment?
- How much are you spending on equipment management monthly?
- Is maintaining and troubleshooting your network becoming a burden on limited human and financial resources?
- Do you struggle to ensure IT staff support for your worldwide network?

Key Differentiators

- China Telecom Americas has partnerships and certifications to sell and manage leading technology solutions from Cisco, Microsoft, Juniper, F5, Dell, HPE, Vmware, Citrix, Netapp, Dell EMC plus many more.
- Delivers 24x7 end-to-end operations monitoring management service to the customer's WAN (including customer-owned or leased CPE), guaranteeing the stability and performance of the customer's network.
- The customer WAN maintenance management outsourcing service and CPE equipment lease service reduce a customer's initial investment and long-term operation and maintenance costs compared to the cost of buying required CPE. CPE options include the full range of routers and switches from CISCO and Huawei

Key Considerations

- Beginning in 2018, US and China imposed additional import tariffs of 25% on telecommunications and information technology (IT) imports.
- A Managed Service Provider will be your end-to-end solutions provider. If they do not have experience in the industry you operate, there will be a lack of knowledge that will reflect on the services performed.
- Determine how much downtime and risk your company could realistically handle, and choose your solution accordingly.

Voice & Unified Communications Services

Global Voice

- Global Hosted PBX
- SIP (Outside China)
- Int'l Toll Free
- Traditional Voice
- MVNO Solutions

Global Conference

- Cloud Conference
- Web Conference
- Video Conference

Features & Benefits

Cost Saving

- Competitive call rates
- Lower international costs

High Quality

- Utilize CT's enterprise-grade global voice network for improved quality and reliability.

Flexible Package

- Tailor-made packages based on specific requirements leveraging partner technologies.

Global Coverage

- Over 70 countries in our network for UC solutions.

Voice & Unified Communications

Qualifying Questions

- Is your company converging voice, video, data and cloud applications?
- Do you have a current UCaaS / Phone system provider for China?
- Are your customers, suppliers, partners and employees satisfied with the UCaaS experience that they deliver in China?
- Do you have a unified telephony scheme for all your global branches?
- Do you currently manage configurations and adding users and features to your communications platforms?
- Does your company require extensive worldwide conferencing access for a high number of lines?
- Does your organization have a high number of geographically dispersed and remote employees?
- Would your company use global video teleconferencing more often if it were more affordable?

Key Differentiators

- CT resells and offers custom management for the largest portfolio of best-in-class VoIP and Unified Communications brands from Cisco, Polycom, Avaya, and more.
- China Telecom's SIP Trunk Service (outside of China) utilizes latest soft-switch network device (SS), Trunk Gateway (TG) and Service Border Controller (SBC) to carry voice traffic.
- China Telecom's Global Hosted PBX (GPBX) users can make international calls via their extension numbers. For security, this function can require password authentication.
- Existing PSTN connections can be fully integrated. For users with only TDM-PBX, China Telecom can provide SIP gateways for conversion.
- China Telecom provides competitive international call rates, and reduces travel and costs associated with upgrading traditional on-site services.
- By leveraging CT's next-generation IP networks for global VoIP services, companies can extend their business communications worldwide without costly CAPEX investments.
- Our extensive IP networks and broad endpoint device support allow customers to enjoy flexible, global voice and video teleconferencing at competitive subscription rates.
- Voice QoS guarantee
- Bundle IP/VPN as a value-added service
- Monthly rental fee, depending on the number of concurrent calls requested by the customer, installation fee
- With China Telecom's Global PBX service, you can reach your colleagues in worldwide branch offices by simply pressing an extension number. No matter where your offices are or which fixed-network telecom operator you are using, you can enjoy the unparalleled convenience in global communication and maximize your productivity to wherever your business takes you.
- SIP Trunk on Internet/VPN/Lease Line

Key Considerations

- Many voice apps and services such as Skype's VoIP app are blocked in China and can only be accessed using a VPN connection.
- No service provider can offer SIP trunks in China due to regulations governing phone numbers registration.

Key Takeaways

- *Business in China?*
  - Relationships to consumers, partners, suppliers, manufacturers, distributors
- *Global operation across multiple continents?*
  - CTA to be a near “one-stop-shop” for their international network solutions
- *All contracts, global MSAs, and account support based in US?*
  - Multilingual staff, access to local China resources, dual NOC, USA contract law, currency options
- *Concern about international delivery intervals and project management?*
  - 45 day interval, strong relationship and business volume with local service providers (China and Global), dedicated local and global project management team
- *Limited knowledge on China rules and practices?*
  - Business licensing, authorized encryption services for networks, ICP registration for web content, Internet BGP approvals, strict consumer data privacy laws
- *Applications have specific network performance goals?*
  - Solutions that support point of sale, CRM, ERP, voice, video, real-time transactional data, or centralized data storage

CHINA TELECOM AMERICAS

About China Telecom Americas

China Telecom Americas is the largest subsidiary of China Telecom Corporation, one of the world's leading providers of integrated communications and information technology services to enterprises in over 110 countries around the globe. Headquartered in Herndon, Virginia with offices in Chicago, Dallas, Los Angeles, New York, San Jose, Toronto and São Paulo, China Telecom Americas is advancing transpacific digital transformation through an end-to-end suite of IT networking solutions from custom-built next-gen network architectures, global internet access services, managed cloud and data center services, network security, content delivery (CDN), unified communications, mobile services and more.

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