

Fast Access Soft Terminal (FAST)

Product Introduction

EXPLORING
SUCCESS
TOGETHER





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Who Are We?



China Telecom Americas Corporation (CTA)

- China Telecom (Americas) Corporation (CTA) provides customized, cost-effective and integrated network and communication solutions to its diverse base of customers. As a leading facility-resale carrier with unique access to providers in Asia and the Americas, we offer a wide range of services such as direct internet access, internet transit, data services, data center, ICT services, mobile voice, professional services and industry solutions.
- CTA is headquartered in Herndon, Virginia, with offices in Chicago, Dallas, Los Angeles, New York, Panama City, San Jose, Sao Paulo and Toronto. Enterprises throughout the Americas trust CTA's one-stop, turnkey solutions to meet the challenges of today's complex business environment.

- Established in 2001
- Headquartered in Herndon, VA
- **250+** Employees in US, Canada & LATAM
- **7** Regional Sales & Support Offices
- **2** Network Operations Centers in LA & HK
- **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





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PART 01 Background

Background – Globalization and Openness in a Nonreversible Mode



Digitalization, work from anywhere, the new canonical form of IT has influenced all industries (Technology, Manufacturing, Retail, Finance, etc.)

Global cloud and network services has become the Top 1 choice of enterprise global applications and digitalization transform.

“2 years of digital transformation in 2 months”

- **Microsoft CEO, Satya Nadella**

“In April, we saw more than **200 million** Microsoft Teams meeting participants **in a single day**, generating more than **4.1 billion** meeting minutes.”

Companies such as Microsoft, Twitter, Facebook, Goldman and PWC allow employees to work from home permanently.

Microsoft will now allow employees to work from home freely for less than 50 percent of their working week.

Benefits of WFH for Companies	Benefits of WFH for Employees
Increase the competitiveness in the market	Quiet and private working environment
Reduce cost of office buildings	Reduce cost and time of travel
Remove geographical restrictions on talent	More time to take care of families

Work from Home: New norm of resilience and flexibility, along with lower cost and higher efficiency.

Anywhere Operations

Top strategic technology trends for 2021 by Gartner



Anywhere operations refers to an IT operating model designed to support customers everywhere, enable employees everywhere and managing the deployment of business services across distributed infrastructure.

Individual: Work anywhere, workstream collaboration and productivity, interactive with clients virtually and comprehensively.

System: Automation to support remote operations, secure access service edge (SASE), digital experience monitoring, and automation/intelligence

The new canonical form of enterprise operation : “**Work from anywhere**”.



Key Motives of Global Cloud and Network Services Acceleration



Global enterprises rely on distributed cloud services

- SaaS video conference and collaboration (Zoom, MS Teams, Tencent meeting);
- Large file transfer (MS SharePoint, Google Doc).



Post-Pandemic: Digitalization transform acceleration, pushing forward the enterprise to adopt resilient mode of operation

- Enterprise (Global/remote) Work from anywhere, team collaboration, customer/partner interaction; Automatic remote management of systems
- Optimization and balance of digital experience, cost and security.



Key motives of cross-industry business scenarios

- **Manufacturing:** Remote control and management of factories;
- **Retail:** Front-end business continuity and user experience of New mode of retail;
- **Finance:** Security for cloud applications, meeting the balance of compliance and WFH;
- **Technology:** Distributed research center and outsourced services collaboration;
- **Global enterprise with Chinese capital:** Global cloud applications access requirements and remote guarantee for domestic political activities.

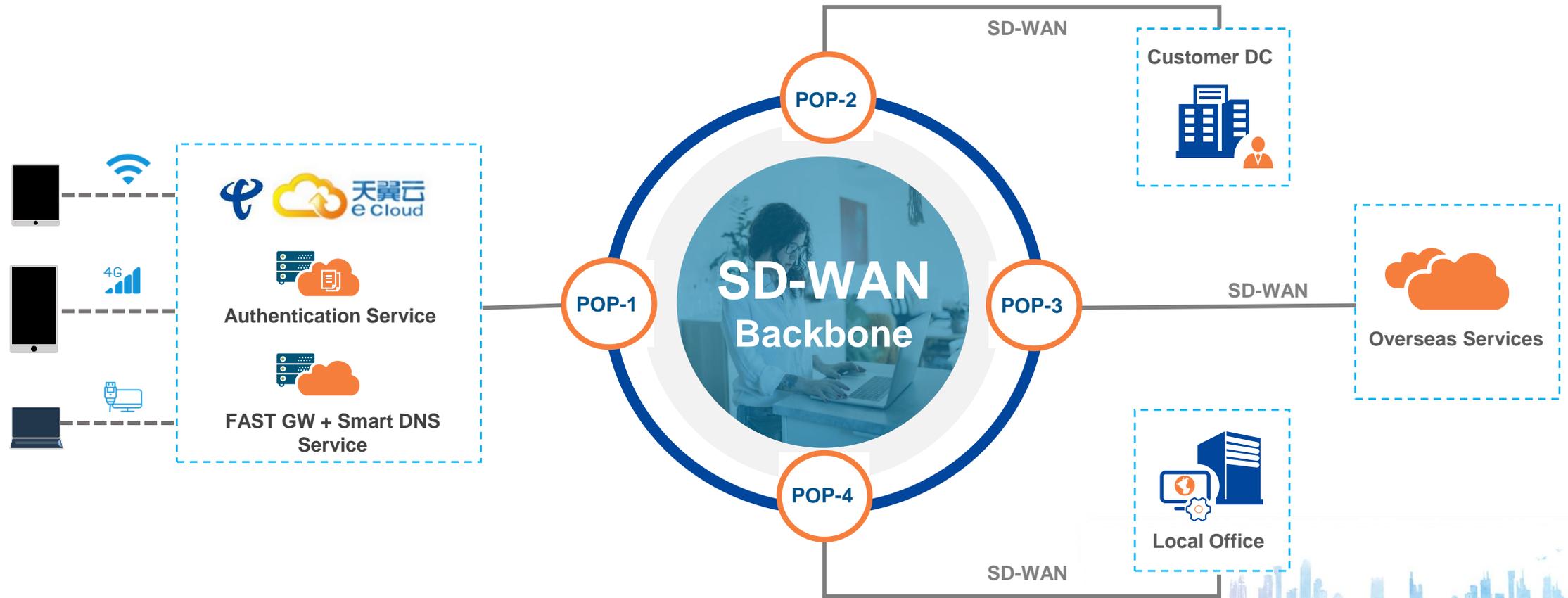


PART 02 Product Introduction



Fast Access Soft Terminal (FAST)

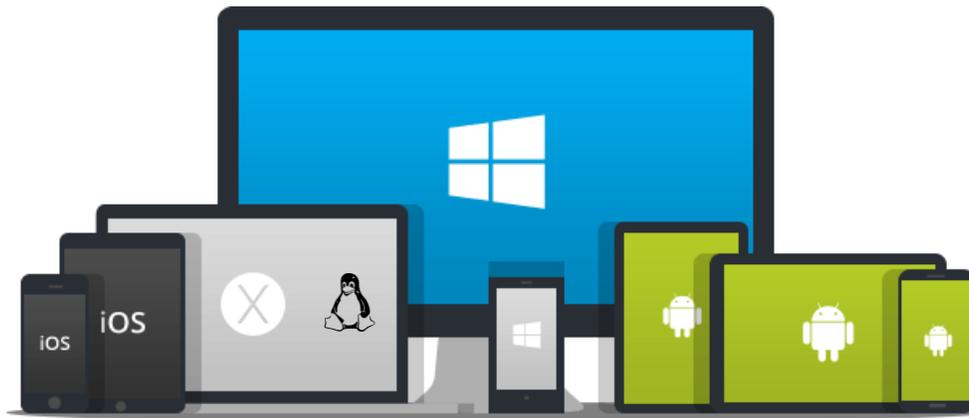
FAST refers to **Fast Access Soft Terminal**, which is an enterprise-class remote access application. FAST provides integration ability with other SD-WAN vendors as well. FAST aims to provide enterprise user's **Secured, Stable, Agile** remote access.





FAST Supports Multiple OS Terminals

In order to cover **remote work scenarios**, FAST integrates OpenVPN, L2TP/IPsec, SSL standard tunnel protocols to supports Windows, MacOS, iOS, Android, Linux operation system on end user terminals.



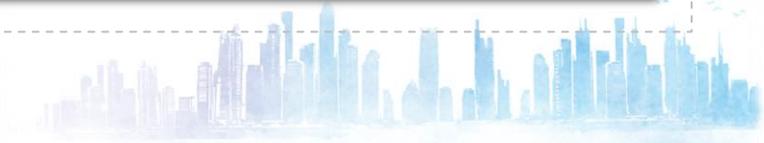
For different work scenarios, **FAST** supports:

Client Mode (APP)

Terminals can download apps from iOS and Android stores to install FAST clients.

Clientless Mode (System built-in VPN)

Terminals can use system built-in Network VPN setting options to configure L2TP/IPsec connection.

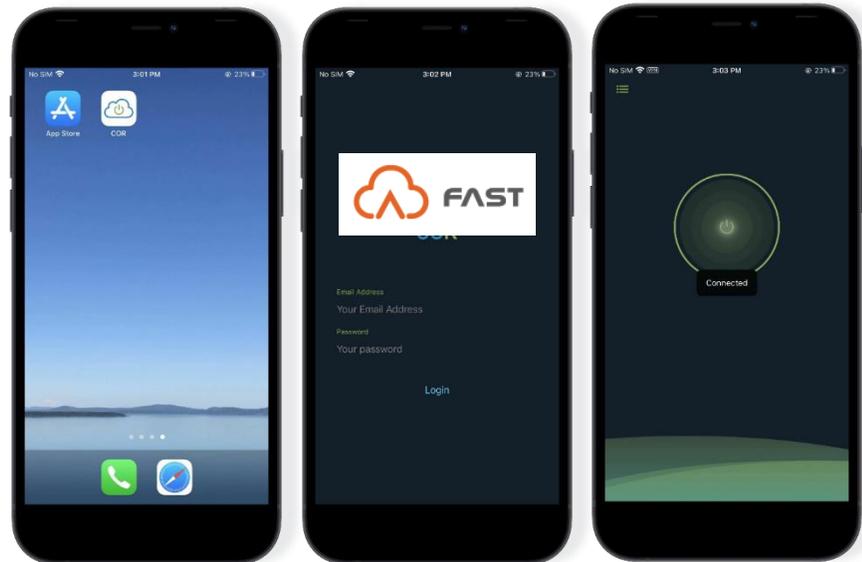




FAST Cares End User Experience

FAST provides a **full-functional** and **easy-use** application to end users. Enterprise end users only need to login and one-click to set up connection.

Search <SD-WAN FAST> in App Store.



Step 1. Open FAST App

Step 2. Enter Account

Step 3. Click Connect

To enhance user experience, **FAST clients support:**



FAST Zero Touch Configuration

FAST provides ZRC feature, end users don't need network configuration on devices.



FAST Smart Gateway

FAST provides closest gateway based on pre-configuration and end user location.



FAST Smart DNS

FAST integrates Smart DNS service to provide accurate overseas domain resolving.



FAST HA*

FAST supports HA architecture to ensure business continuity.

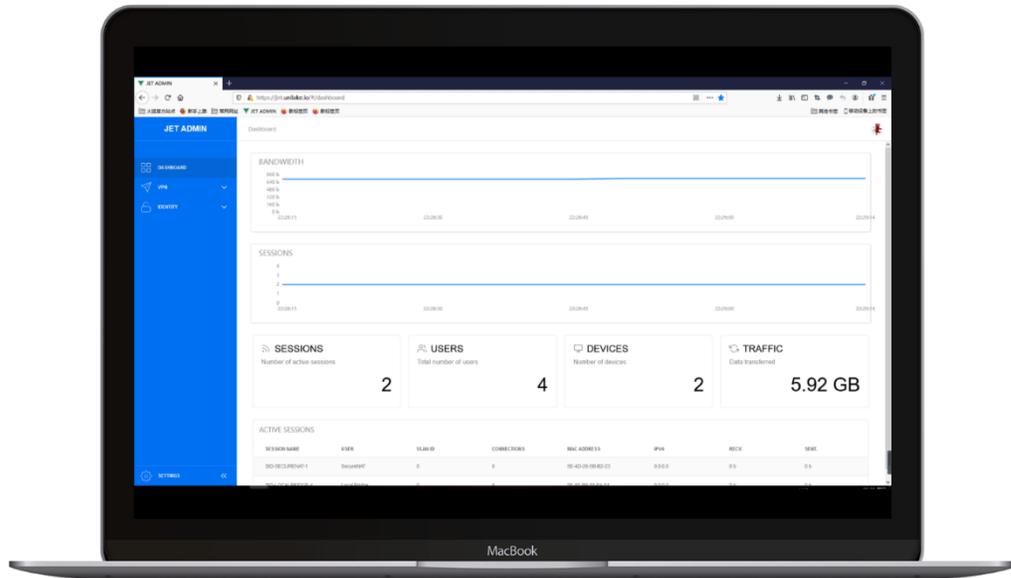
* This feature is in need of additional deployments based on the business requirements of the customer currently.





FAST Enhances Network and Configuration Management Efficiency

As a full-set enterprise application, FAST provides back-end management tools, which are web portal base designed for admin users, functions include Account Mgmt., Identity Verification, Traffic Visualization, Domain/IP whitelist, route control functions, etc..



To enhance network and configuration management efficiency, **FAST back-end management** tools support:



Web Portal Base

Web portal base tool provides an operation interface for network admins to simplify and standardize configuration process.



Account Management

FAST provides a quick process of account management for Account Creation, Password Modification, Account Delete.



AD and MFA *

FAST provides ability to integrate AD and MFA options which can be configured on FAST back-end management tool.



Route Optimization and Access list

FAST provides domain and IP whitelist functions for route optimization, which could achieve efficient management of network access authority by user-defined access list.

*roadmap GA in 2021 Q3

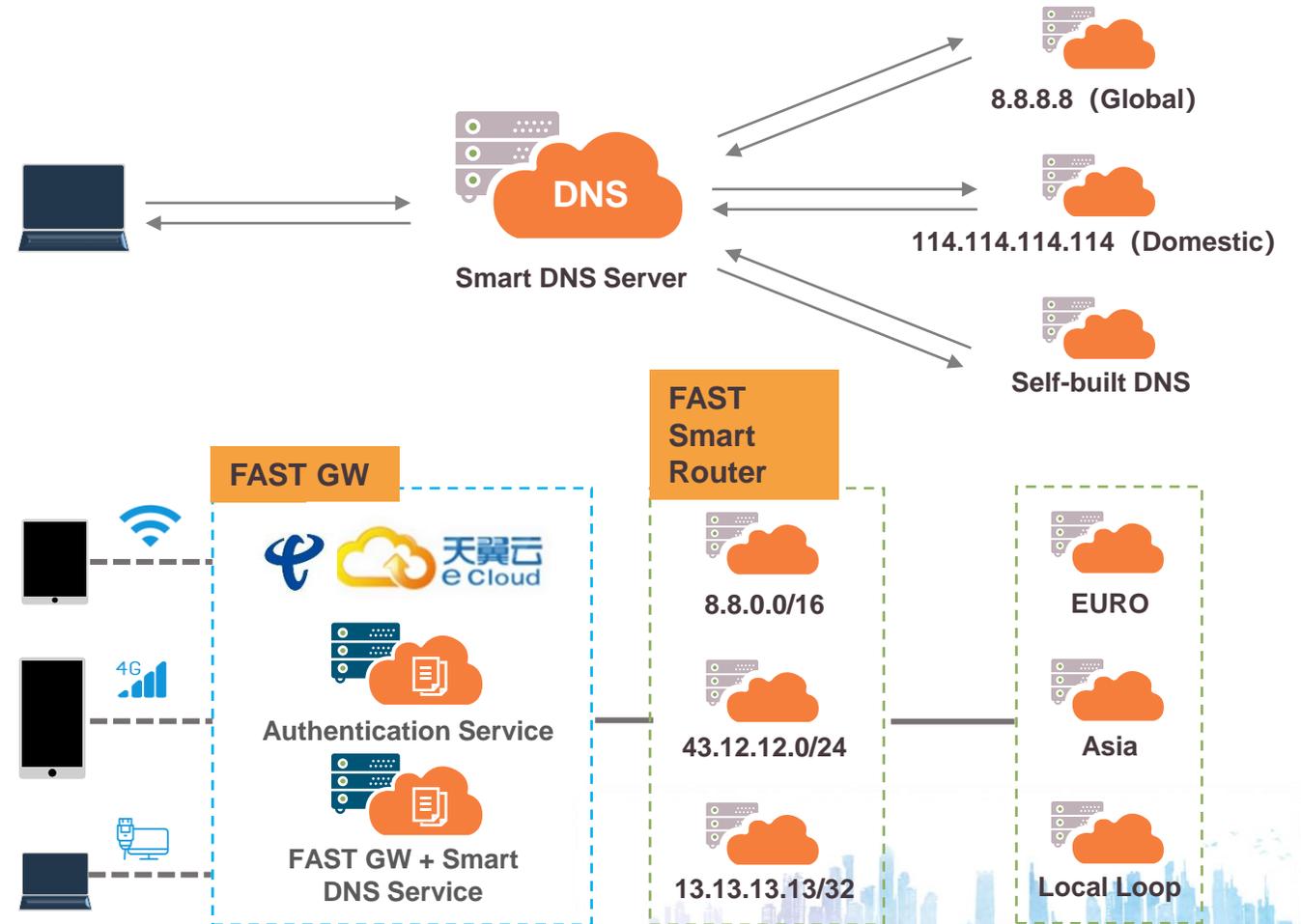
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FAST Provides Smart DNS

FAST provides **smart DNS and traffic separation functions**. By means of Smart DNS, FAST supports intelligent domain resolution, along with CTA SD-WAN to perform automatic traffic separation of domestic and global SaaS.

- 01** Domestic resolution services for domestic domain.
- 02** Global resolution services for global domain.
- 03** CDN precision resolution services.
- 04** Automatic traffic separation of domestic and global access.





PART 03 Product Features



FAST Product Characteristics



Independent Login Account

FAST supports independent Login account, which is in no need of personal information and prohibits sensitive information leakage.



No-Log System

FAST do not collect online browsing logs of customers.



Local Traffic Split

FAST supports traffic split on the client side locally, the default path of local access is local Internet, which helps to lower the cost of access circuits.



Multiple Modes and Protocols

FAST supports multiple mode and protocol based on the network environment of end user, improving network user experience.



SaaS Acceleration

FAST is combined with SD-WAN as service, providing mainstream SaaS acceleration, including Office365, Salesforce, Zoom, etc.



Multiple Encryption Protocols

FAST supports all the mainstream network encryption protocols, including TLS, SHA256, protecting the data security of customers.



Globally Distributed Backbone Resources

FAST is based on globally distributed backbone resources, meeting the requirements of business access path of customers in all regions.



Low Latency of Leased Line

FAST adopts high quality leased lines, guaranteeing low latency, secure and stable WFH globally



Professional Support

FAST team owns professional carrier O&M system and is committed to providing professional SD-WAN+WFX services.

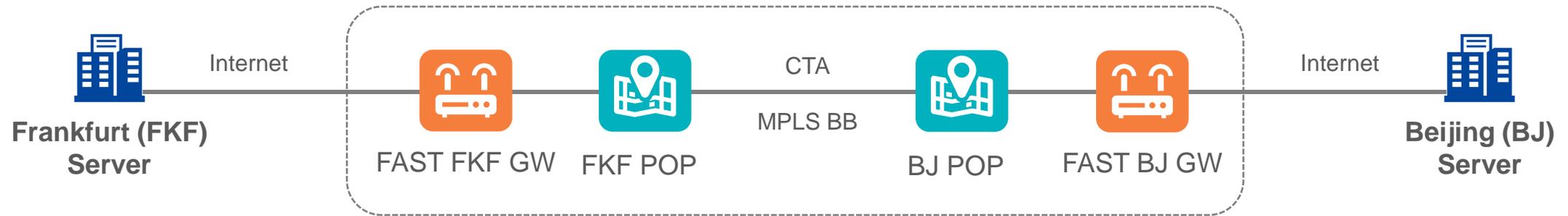


PART 04 User Scenarios



FAST Guarantees Enterprise-Grade Remote Access

In the product family of cloud network convergence field, FAST is the enterprise-grade remote access tool. FAST is originated from **CTA SD-WAN** remote access module and works as follows:



Enterprise-grade remote access ability with High Security, Stability and Flexibility

- Supporting integration with SD-WAN products from multiple providers, accessing SD-WAN Backbone remotely:
 - Intranet Server
 - Overseas SaaS
- Supporting cloud VM to deploy FAST Gateway independently, along with Backbone resources to achieve SaaS acceleration.



In compliance with complex network architecture

- Site-to-Site connection
- Multiple sites connection
- Layer 2 connection

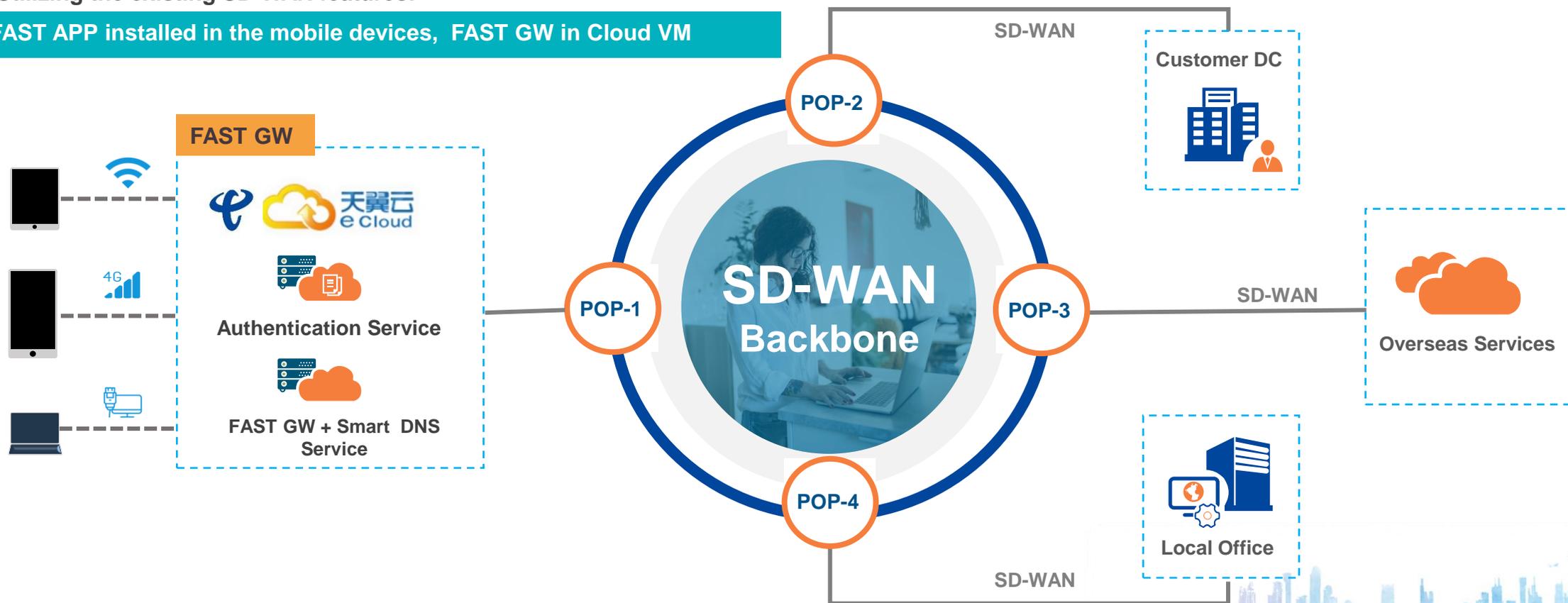


FAST Extends SD-WAN Remote Access

For the existing SD-WAN users, FAST works as follows:

- Providing fast and secure access for the end user mobile devices;
- Utilizing the existing SD-WAN features:

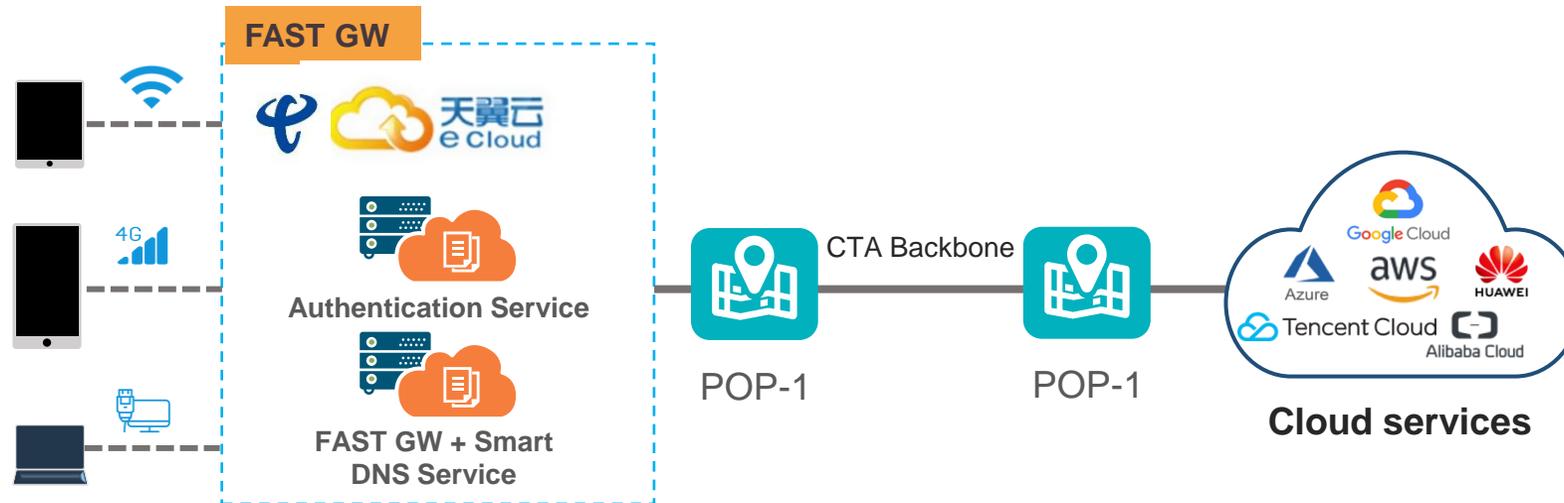
FAST APP installed in the mobile devices, FAST GW in Cloud VM





FAST Supports Independent Deployment

For the small-scale enterprise users with global cloud and SaaS acceleration requirements, FAST works as follows:



FAST GW Deployment Specification		
	Cloud VM Specification	Concurrent Users
1	4FASTes+8G (Memory) +200G (Disk)	500
2	8FASTes+16G (Memory) +300G (Disk)	1000



FAST Gateway Deployment in eCloud

VM

- Independent mode (Single tenant owns the Gateway)
- Multi-tenant sharing mode (CTA manages Gateway)



SaaS acceleration based on CTA Backbone

- Utilizing the existing underlay transport backbone resources
- Supporting integration with the existing SD-WAN POP





FAST Solution Designed For Individual User

Case

Enterprise A has connected Shenzhen CGW and Frankfurt CGW (100M) based on SD-WAN Backbone, accessing the SAP system deployed in Europe SaaS platform, while the personnel based in China are also in need of fast and secure access (The max of concurrent users is 100)

a

SAP deployed in Europe SaaS platform (Overseas SaaS access)

b

Shenzhen internal file-server

FAST Solution Design:

- FAST GW in eCloud platform (4FASTes+8G+200G) to deploy FAST Gateway;
- Estimated FAST bandwidth usage approved by Enterprise IT manager.

Internet bandwidth of Cloud VM, Backbone bandwidth

If the current usage of SD-WAN bandwidth is over 80% (i.e., 80M backbone bandwidth) before FAST adoption, and the rest is insufficient to support the max concurrent usage (supposing 30M for 100 concurrent users) .

80M (The existing usage) +30M (FAST usage) >100M, the additional bandwidth should be considered.

FAST Gateway integrated with Shenzhen CGW (POP)

- a. The default route (Overseas Internet) in the SD-WAN CGW routing table will be sent to Frankfurt to breakout, accelerating SaaS access;
- b. The intranet route in Shenzhen site will be as follows, **Shenzhen CAE----> Shenzhen CGW----> FAST Gateway**, achieving intranet access.

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