



Tuya Smart Cloud Platform Overview

Introduction of Tuya

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Tuya Smart deploys cloud services around the world and is committed to providing safe, stable, and fast cloud services for customers worldwide. It is capable of concurrently processing hundreds of millions of massive data and delivering uninterrupted computing services of up to 99.99% availability. Tuya integrates global nodes from different cloud platforms to allow users in different regions to access the nearest nodes, which ensures efficient and stable user experience.

1 Overview

Tuya cloud platform provides full lifecycle services, from smart hardware connection to client control, including product definition, simulation test, hardware development, client development, cloud platform interaction, product testing, operations management and data analysis.

To reduce the development threshold and speed up launching production of smart devices, Tuya provides hardware manufacturers and makers with SDK, open and complete cloud platform API and debugging assistant to help them smoothly complete the self-service development. Meanwhile, Tuya cloud platform will help manufacturers to step up to smart software and hardware, aiming to continuously deliver high-quality smart services.

2 Advantages

2.1 Global deployment

- Broad coverage

Tuya has deployed data centers in China, East US, West US, Europe, and India, and data acceleration services in Hong Kong and Japan, all of which guarantee the high-availability services. It enables customers' products to be accessed in most populous countries and cities.

- Multiple availability zones

Tuya cloud platform provides five availability zones, namely **China, East US, West US, Europe, and India**. Based on the user's geographic location, it will automatically select the nearest availability to guarantee the fast response time with the smallest data link.

2.2 Global acceleration

- High-speed network

Domestically, Tuya has reached an in-depth cooperation with Tencent Cloud and shares the same level of network link as Tencent. Abroad, Tuya has deployed Amazon Web Services (AWS) with the data centers hosted in multiple cities worldwide, which allows users to access the nearest nodes.

- Acceleration service

Tuya cloud platform CDN acceleration covers over 500 nodes across cities in China, and over 100 nodes in populous cities abroad. It provides custom DNS and SMS acceleration services based on different local operators to facilitate international business for companies worldwide.

- Data drift

Tuya cloud platform proprietary algorithms allow companies to release products globally and view global data domestically, ensuring that users have safe and stable access to cloud services.

2.3 Auto scaling

- High availability

With **distributed microservice** architecture, Tuya cloud platform can implement auto scaling based on business peaks. The modular architecture design enables scaling out and hot swap of business modules.

- Hot deployment

Even if Tuya cloud platform weekly releases new functions, it applies a service-based code release mechanism that guarantees your control commands will not be lost.

- Massive data

The core R&D team of Tuya cloud platform has rich experience in architecture and processing massive services. At present, Tuya cloud platform processes hundreds of millions of requests every day. The user data has already exceeded 3 billion, and the storage capacity is nearly 2 PB (2,097,152 GB).

2.4 Data security

- User device security

Tuya cloud platform implements a **five-level security** strategy to guarantee smart devices security.

- Company data security

Company data is stored isolatedly to ensure your data security. Meanwhile, different data storage services are provided for diversified business scenarios, and the core data will be encrypted.

2.5 Openness

- API

Tuya cloud platform provides multiple calling methods such as HTTP/HTTPS, MQTT and WebSocket. You can export your own business data at any time.

- Partnership

Tuya cloud platform provides connection services with major platforms such as Amazon Alexa, Google Assistant, and Tencent's WeChat.

3 Availability zone

3.1 Introduction

In consideration of the international market, the distribution of submarine optical fiber cable and actual testing results, Tuya cloud platform has deployed availability zones in five regions, namely Asia, Europe, West US, East US and India.



The code of available zone is composed of two Latin alphabets and is defined as follows.

Availability zone	Service area	Data center
AY	Asia	Tencent Cloud Data Center in Shanghai
AZ	West US	AWS Data Center in Oregon
UEAZ	East US	Azure Data Center in Virginia
EU	Europe	AWS Data Center in Frankfurt

Availability zone	Service area	Data center
IN	India	AWS Data Center in Mumbai

There are also other selections of data centers deployed in Hong Kong, Singapore, Tokyo, São Paulo and so on, which can flexibly scale availability zone based on your location.

3.2 Network acceleration

- DNS acceleration - Tuya cloud platform can accelerate DNS resolutions for global customers from different populous cities based on their mobile network operators. - Tuya automated algorithm mechanism can maximize the stability of DNS resolution to prevent BGP hijacking.
- CDN acceleration _ Acceleration node in Mainland China: - More than 500 city nodes share the same level of network edge acceleration with Tencent. - Acceleration stability is monitored in real-time through autonomous monitoring services. _ Acceleration nodes in other countries and regions: - North America: Ashburn, Virginia; Atlanta, Georgia; Chicago, Illinois; Dallas-Fort Worth, Texas; Hayward, California; Jacksonville, Florida; San Francisco, California; Miami, Florida; New York, New York State; Newark, New Jersey; Palo Alto, California; San Jose, California; Seattle, Washington; South Bend, Indiana; St. Louis, Missouri. - South America: Rio de Janeiro, Brazil; São Paulo, Brazil. - Europe, Middle East and Africa: Amsterdam, Netherlands; Dublin, Ireland; Frankfurt, Germany; London, UK; Madrid, Spain; Marseille, France; Milan, Italy; Paris, France; Stockholm, Sweden; Warsaw, Poland. - Asia-Pacific: Hong Kong, China; Taipei, Taiwan, China; Chennai, India; Mumbai, India; New Delhi, India; Manila, Philippines; Seoul, South Korea; Singapore; Melbourne, Australia; Sydney, Australia; Osaka, Japan; Tokyo, Japan.
- Global networking report
 - The response time in Chinese cities is less than 40 ms (0.04 s).
 - The response time in Asian cities is less than 80 ms (0.08 s).
 - The response time in Europe and Northern America is less than 90 ms (0.09 s).

- Response time in Middle East and Africa is also acceptable.

1 The server connection speed listed in the following table comes from a third-party testing provider. Due to network quality fluctuations, there may be minor deviation.

Area	Country/Region	City/Province	Server connection speed (ms)
Asia	China	Hangzhou	3
Asia	China	Jiangsu	9
Asia	China	Hunan	21
Asia	China	Sichuan	40
Asia	China	Guangzhou	25
Asia	China	Shanghai	7
Asia	China	Shenzhen	31
Asia	China	Guangxi	31
Asia	China	Yunnan	38
Asia	China	Fujian	20
Asia	Hong Kong, China	Hong Kong	49
Asia	Japan	Tokyo	73
Asia	Korea	Seoul	68
Europe	Germany	Munich	6.152
Europe	Germany	Cologne	4.078
Europe	Germany	Frankfurt	0.629
Europe	Germany	Berlin	16.145
Europe	Spain	Madrid	34.787
Europe	France	Lille	14.909

Area	Country/Region	City/Province	Server connection speed (ms)
Europe	Italy	Milan	10.143
Europe	Italy	Padova	53.637
Europe	Italy	Rome	22.347
Europe	Turkey	Istanbul	46.642
Europe	Norway	Oslo	30.707
Middle East	United Arab Emirates	Dubai	152.772
Middle East	Saudi Arabia	Riyadh	81.425
Middle East	Israel	Kiryat-matalon	53.221
Africa	South Africa	Durban	330.413
Africa	South Africa	Cape Town	298.473
Africa	South Africa	Johannesburg	319.452
North America	United States	Santa Ana	29
North America	United States	Kansas	35
North America	United States	Los Angeles	38
North America	United States	San Jose	23
North America	United States	Atlanta	70.117
North America	United States	Boulder	36.056
North America	United States	Boston	74.252
North America	United States	Chicago	88.373
North America	Canada	Vancouver	12.916
North America	Canada	Toronto	87.596
South America	Argentina	Buenos Aires	203
South America	Brazil	São Paulo	179

Area	Country/Region	City/Province	Server connection speed (ms)
South America	Brazil	Alegre	220
Oceania	Australia	Perth	227

4 Security

Tuya cloud platform provides cloud services with financial-grade security, and your data is secured by comprehensive protection system. It has established security measures such as real-time log analysis, intrusion prevention, risk perception capability and security management system, implementing technical solutions to communication and data security, including data encryption, ID verification, dynamic password, encrypted tunnel, chip security and virtual devices.

Safe Cloud Service

The same security level with finance

Real-time log analyze

Deep intrusion prevention

Risk perception

Safety management system

Business risk control

- Full-scale deep security protection system for cloud platform

Network security

1 Data Encryption

The communication content is fully encrypted by AES. Even if the device is lost, it cannot be cracked.

2 Identification

Tuya's self-acting algorithm guarantees data isolation and increases authentication requirement.

3 Dynamic key

Data security can be guaranteed by dynamically assigned secret key, even if the algorithm is exposed.

4 Channel encryption

Full-link TLS encryption channel is supported to ensure network transmission security.

5 Security chip

Support independent security chip to protect hardware keys.

6 Virtual device

Unique virtual device protection, can be restored immediately after being attacked.

7 Security agency cooperation

Long-term cooperation with professional security agencies to create a security system with continuous iteration capabilities.