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Product Introduction of Cloud Phone

**Large-scale Automated Control, Enabling Smooth Interaction for One Person Managing Multiple Devices and Cross-platform Application Distribution**

Contents

Alibaba Cloud Workspace: Make Cloud Computing within Reach

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Alibaba Cloud Workspace
Cloud Computing for PC

Traditional PCs and Mobile Devices

Fully Managed

One-click Deployed

Flexible & Elastic

On-demand Billing

Cluster-based

AI Intelligent

Globally Deployed

Easily Controlled

Cloud-based Mobile Computing Power

Cloud-based App Computing Power

*Sources: "Report on the Digital Transformation Path of Small and Medium-sized Enterprises in 2022," "Report on Chinese Small and Medium-sized Enterprises' Cloud Migration in the First Three Quarters of 2023," and data centers

Business Architecture of Cloud Phone

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The Cloud Phone resource pool is built based on Alibaba Cloud, providing a variety of interactive modes to support implementation in scenarios such as community operations, cross-border e-commerce, cloud gaming, AI live streaming, smart terminals, and software testing.

Business Layer

| Community Operations | Cross-border E-commerce | Cloud Gaming | AI Live Streaming | Smart Terminals | Software Testing |

Interaction Layer

Clients,
Open Service API, and Client SDKs

Control Layer

Cloud Phone

- Images — Personalized Android System Configurations
- Networks — Flexible Network Egress
- Instances — On-demand Specifications
- Apps — Batch App Management
- Policies — Flexible Configurations
- Monitoring — Intelligent Alerting

Basic Layer

Alibaba Cloud

Sales Forms of Cloud Phone

Cloud Phone instance: allows you to scale out instances. The minimum specifications of an instance are 2 CPU cores and 4 GB of memory.

On-demand billing: supports subscription and pay-as-you-go to flexibly adapt to business scenarios.
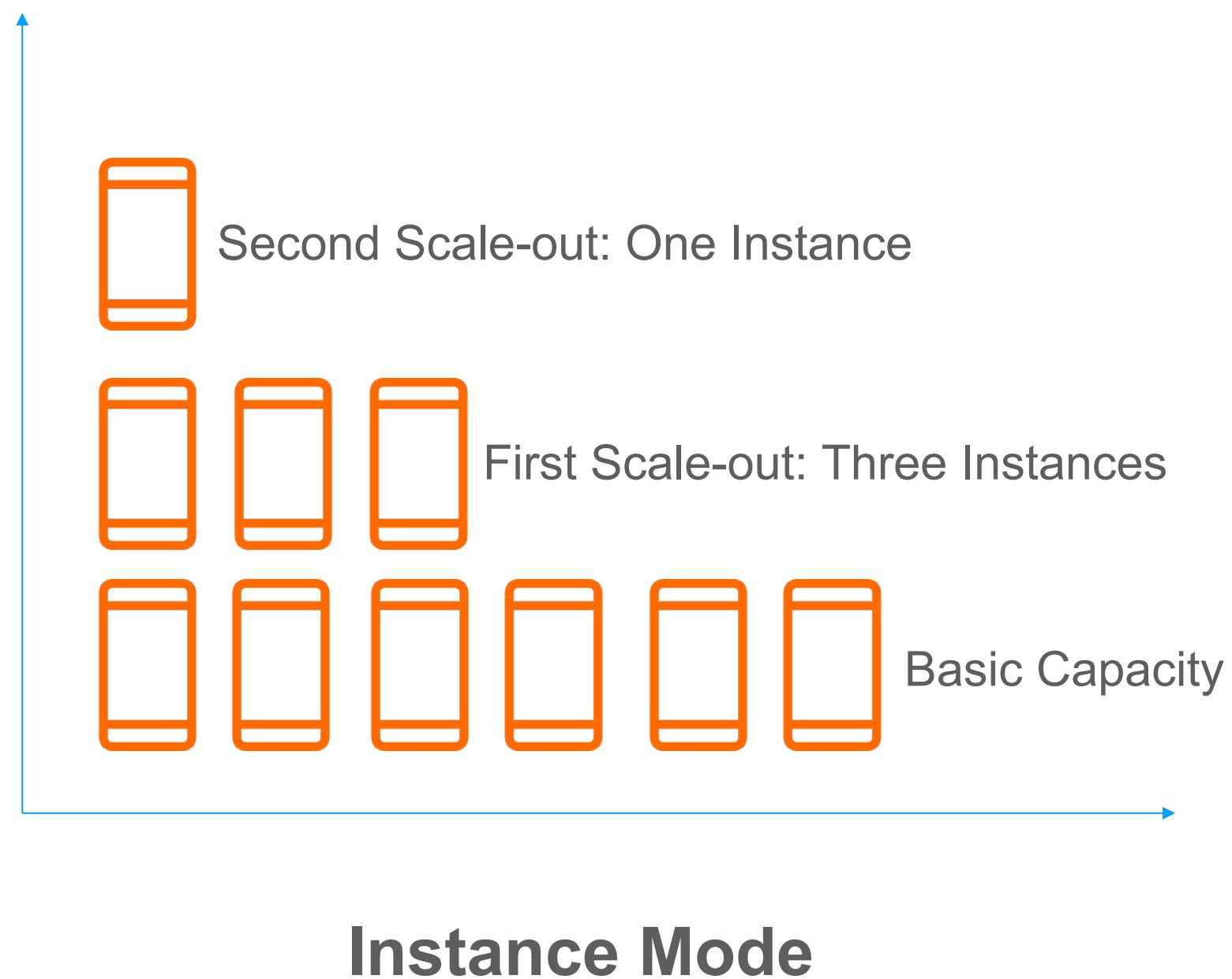
Cloud Phone matrix: allows you to purchase instances by matrix. Each matrix contains a total of 40 CPU cores and 120 GB of memory.

Subscription: supports 4 to 60 instances. The number of instances per matrix can be selected based on actual loads.

Second Scale-out: One Instance

First Scale-out: Three Instances

Basic Capacity

Instance Mode

4 to 60 Instances

Shared CPU, Memory, and GPU Resources

Matrix 1

CPU

Memory

GPU Acceleration

Matrix 2

Matrix 3

Matrix 4

YiTian Servers

Matrix Mode
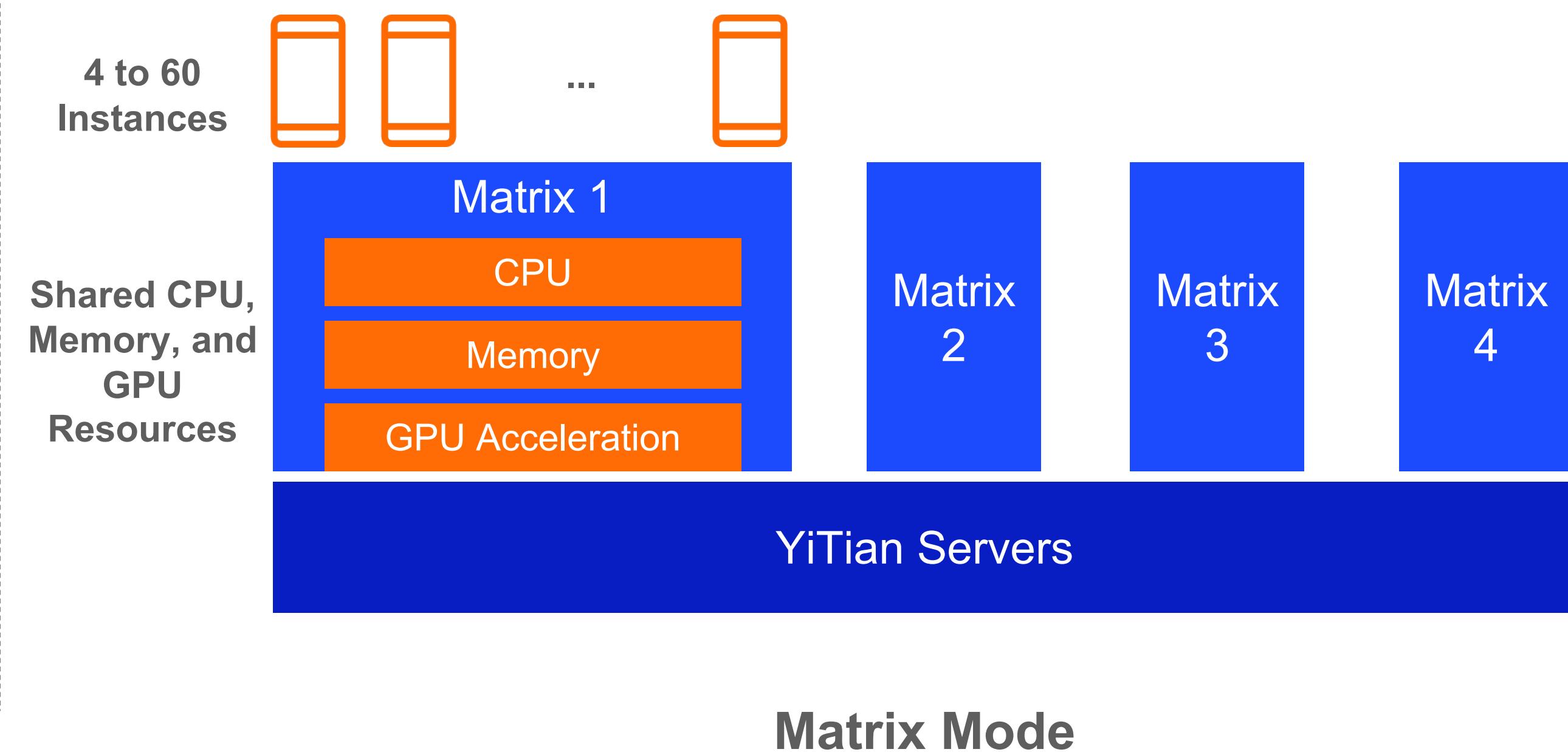
Contents

Key Features of Cloud Phone

Easy to Use
- Globally Distributed Infrastructure
- Cluster Management to Improve Operational Efficiency

Open
- Multiple Clients and Access Methods
- Compatibility with Mainstream Apps in the Android Ecosystem

Flexible
- Network Redirection and Flexible IP Configurations
- Real Device Simulation

Smooth
- Proprietary Streaming Protocol with Weak Network Resilience and Scenario Adaptation
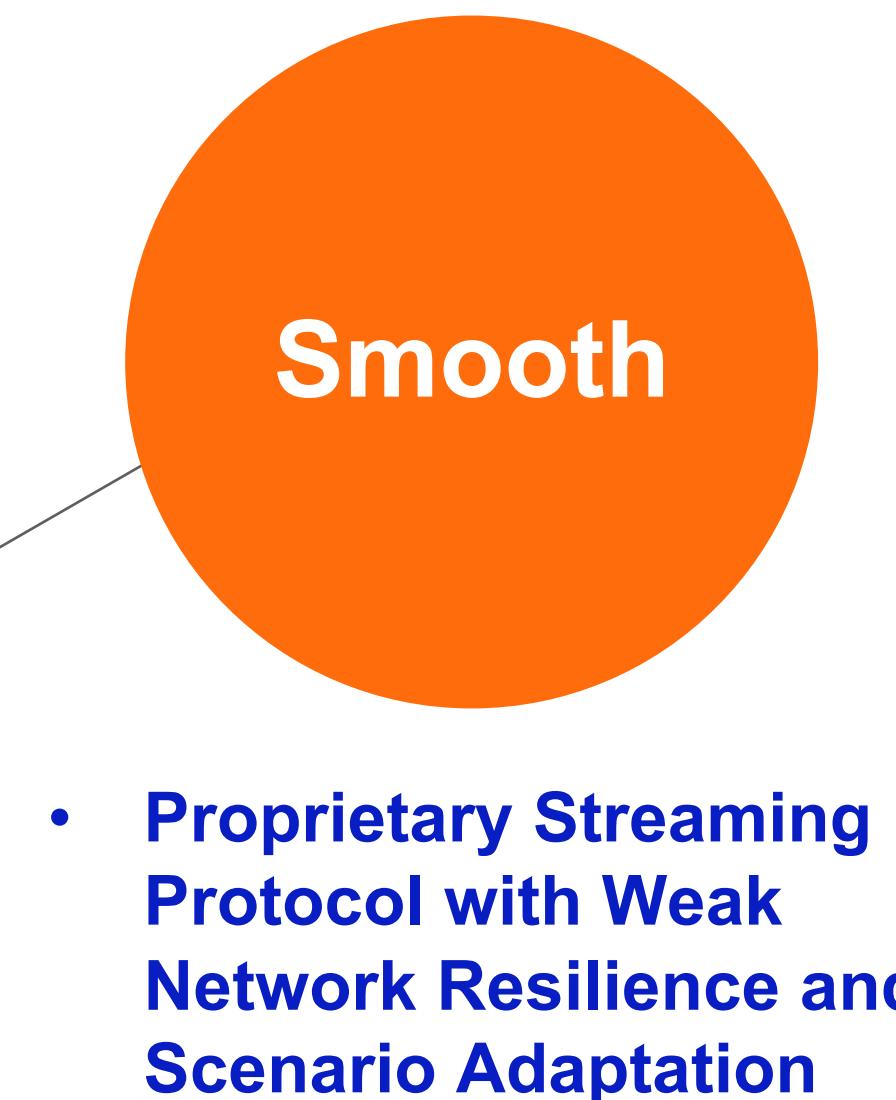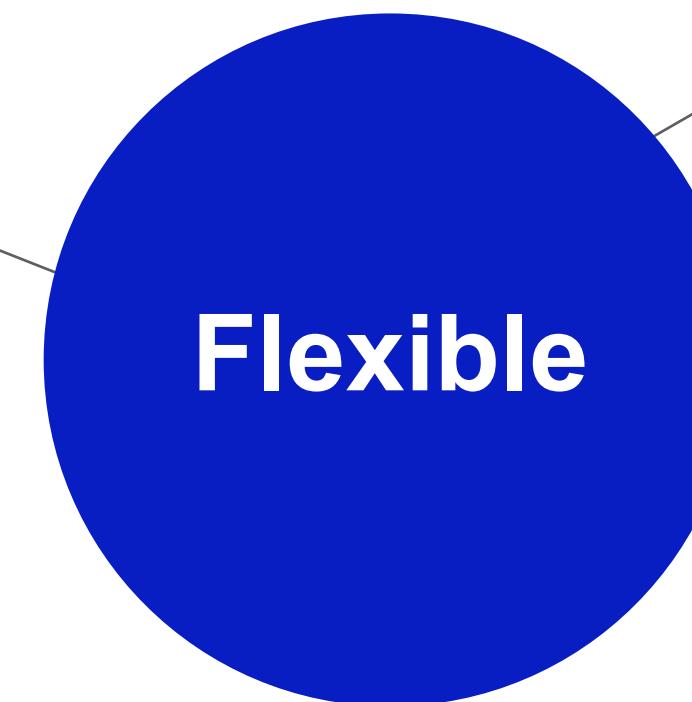
Easy to Use: Globally Distributed Infrastructure

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Cloud Phone supports the following regions: China (Hangzhou), China (Shanghai), China (Beijing), China (Shenzhen), **Singapore, China (Hong Kong), and Germany (Frankfurt)**. As business expands, Cloud Phone will gradually become available in other regions.

30
Global Public Cloud Regions

89
Global Public Cloud Zones

3,200
Edge Computing Nodes

180+ Tbit/s
Global Outbound Bandwidth

Development and Innovation Assistant for
More Than 3 Million Enterprises

Intelligent and Convenient Services for
More Than 1.2 Billion People

UK (London) (2)
Germany (Frankfurt) (3)
China (Zhangjiakou) (3)
China (Ulanqab) (3)
China (Beijing) (12)
China (Hohhot) (2)
China (Qingdao) (2)
South Korea (Seoul) (1)
China (Wuhan - Local Region)* (1)
China (Nanjing - Local Region)* (1)
China (Shanghai) (11)
Japan (Tokyo) (3)
China (Chengdu) (2)
China (Hangzhou) (8)
SAU (Riyadh - Partner Region) (2)
UAE (Dubai) (1)
China (Fuzhou - Local Region)* (1)
China (Guangzhou) (2)
China (Heyuan) (2)
India (Mumbai) (2)
China (Hong Kong) (3)
China (Shenzhen) (6)
US (Silicon Valley) (2)
US (Virginia) (2)
Thailand (Bangkok) (1)
Philippines (Manila) (1)
Malaysia (Kuala Lumpur) (2)
Singapore (3)
Indonesia (Jakarta) (3)
Australia (Sydney) (2)

The number in parentheses indicates the number of zones.
Indicates local regions.
Indicates public cloud regions operated by Alibaba Cloud.
Indicates public cloud regions operated by partners.

Map Approval No.: GS (2016) 1664

Easy to Use: Cluster Management to Improve Operational Efficiency

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Provides an SDK for managing clusters to improve operational efficiency.
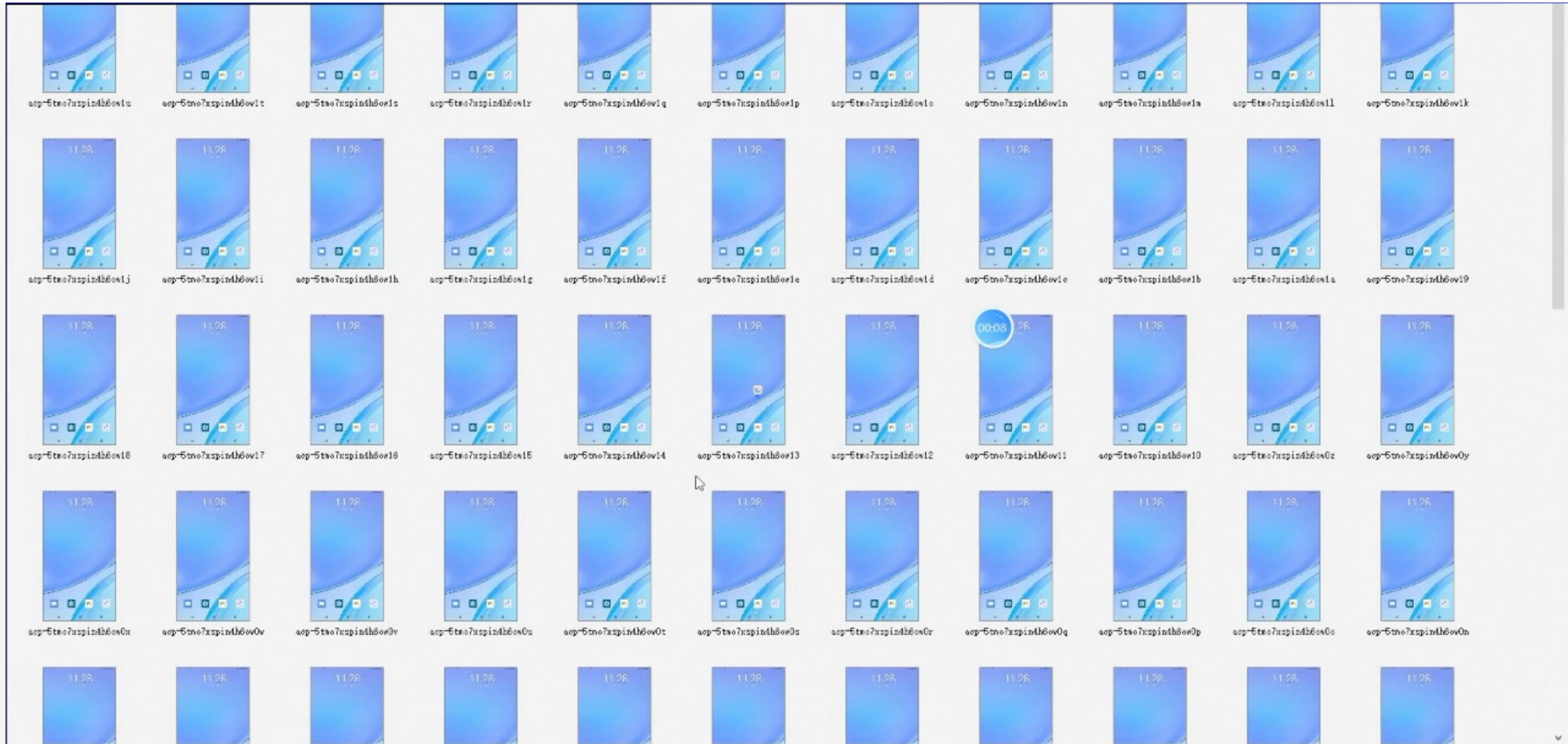
Open: Multiple Clients and Access Methods to Meet Diverse Scenario Needs

Supports multiple clients and access methods to meet customer needs in diverse business scenarios. Supported clients include PC, mobile, web, and hardware terminals. Supported connection and operation methods include console, API, SDK, and ADB.
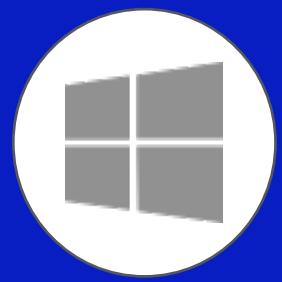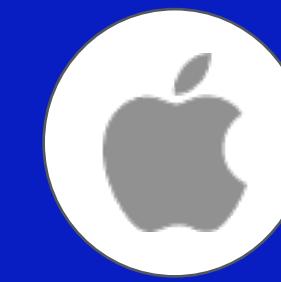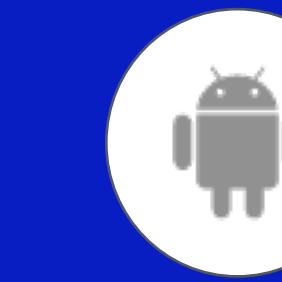
| Windows | Mac | iOS | Android | Web |

| Console | API | SDK | ADB |
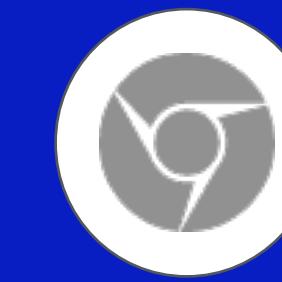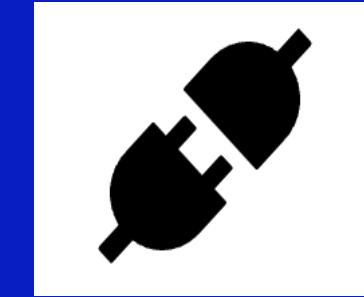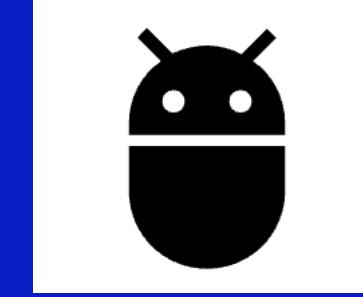
Open: Compatibility with Mainstream Apps in the Android Ecosystem

Supports Android 9 and Android 12 images, with ongoing adaptation to Android 13 and Android 14 images.

Ongoing Adaptation
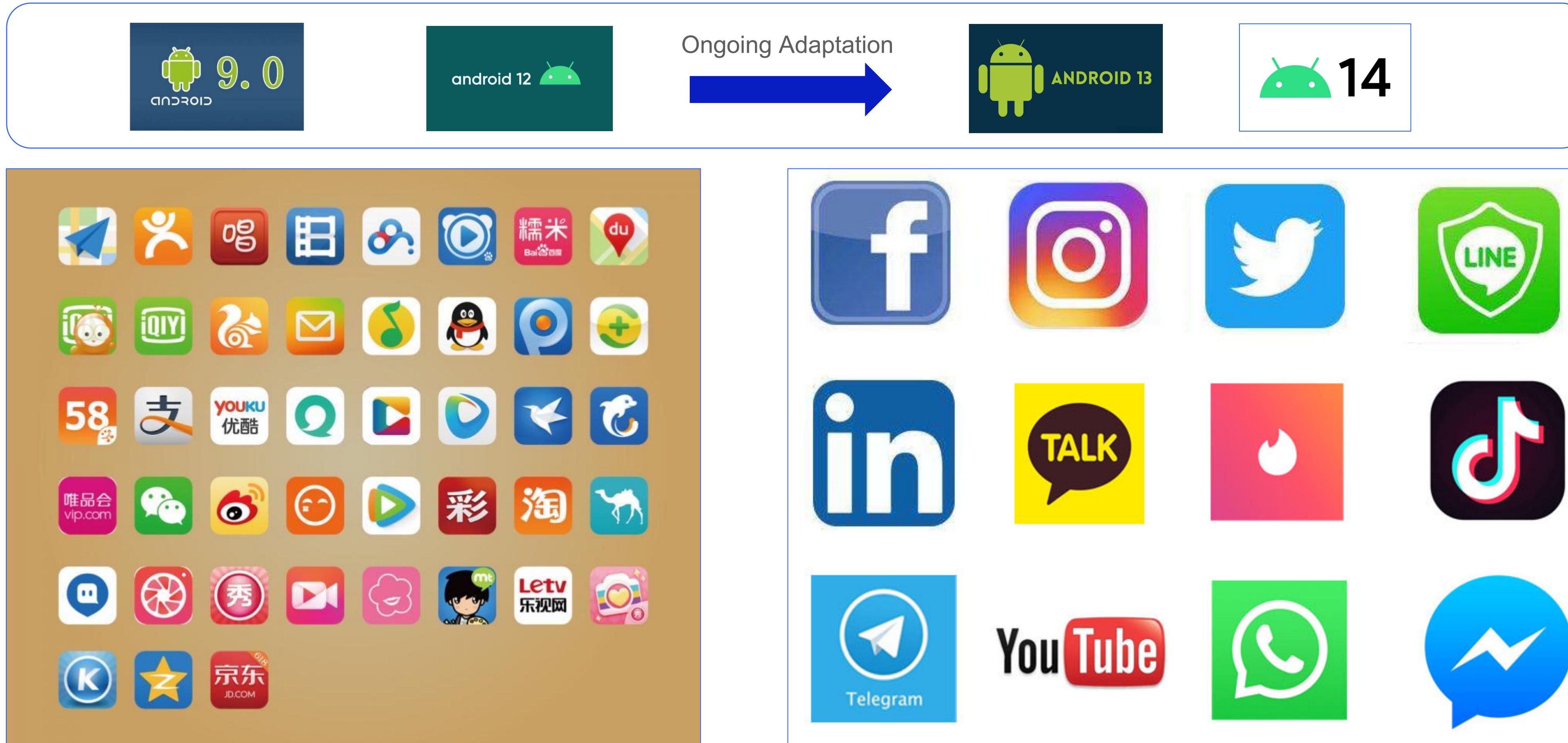
Flexible: Network Redirection and Flexible IP Configurations

Network Redirection

Flexible IP Configurations

User-side Clients

(1) Internet

(2) Network Redirection

Alibaba Cloud

Alibaba Cloud Workspace VPC

Alibaba Cloud Workspace

Alibaba Cloud Workspace

...

Alibaba Cloud Workspace

Alibaba Cloud Workspace

Cloud Phone

User-side Clients

(1) Internet

(2) Network Proxy (Transparent Proxy, Clash, or MITM)

Proxy IP Address
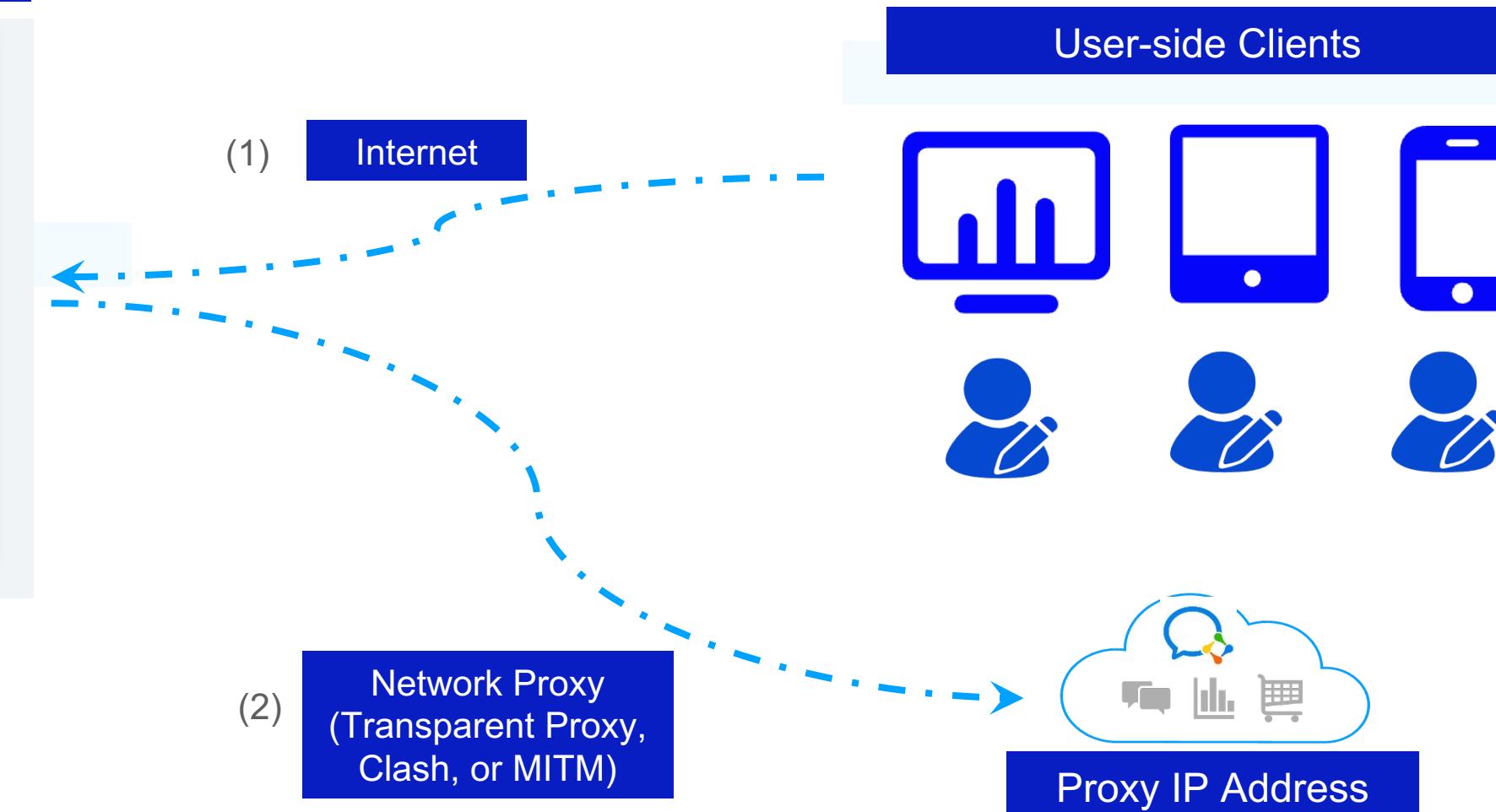
Network redirection has two typical use cases:

1. To determine whether an app's network control is dependent on IP addresses, the network redirection feature can be enabled to replace the IP address of the data center with the IP address of a client. If the app changes from an abnormal state to a normal state, it can be confirmed that the app is affected by IP address-based network control.

2. Network redirection supports a one-to-N pattern. If network redirection is enabled on a Cloud Phone instance, other Cloud Phone instances can use this instance as their network egress, thereby reducing client-side resource consumption.

For scenarios such as community operations and advertising that require third-party IP addresses, flexible IP proxying can be achieved by using methods such as transparent proxies, Clash, or MITM.

Flexible: Comprehensive Real Device Simulation

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Sensors:
Accelerometer, magnetic_field, rotation_vector, light, and pressure

Tools:
Send Notification, Cancel Notification, HTTP Get Test, Restart Zygote, and Ping Test

Hardware properties:
ID (Android ID and Wi-Fi MAC address)
SysProp (serialno, hardware, product, and build)
GPU (vendor, name, and version)

Phone properties:
LAC/CID, SimState, Imei, Meid, SubscriberID, DeviceID, and NetworkOperator

Configurations:
Root permissions, system UI (status bar and navigation bar), background process cleanup, one-click device migration, virtual location, virtual battery level, and app guard

Smooth: Proprietary Streaming Protocol with Weak Network Resilience and Scenario Adaptation

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Resistant to jitter (jitter: 150 ms):
Video playback remains smooth.

Resistant to packet loss (packet loss rate: 30%):
Audio playback latency is less than 300 ms, ensuring clear and continuous calls.
Video playback remains smooth with a freeze rate of approximately 5.4%, compared with a competitor product's freeze rate of about 16%.

Resistant to bandwidth throttling (less than 2 Mbit/s):
Video playback remains normal with a freeze rate less than 3% and no screen blurring or artifacts.

Weak Network Resilience
Counteracts packet loss, jitter, and insufficient bandwidth to adapt to unstable public network environments.

Scenario Adaptation
Adapts to user operation scenarios, balancing smoothness and clarity.

Bandwidth Prediction	Multiple Transmission Protocols	Congestion Control

Audio and Video Scenarios Audio MOS > 4.0 Audio Latency < 170 ms	Social Scenarios PSNR: 50+ dB

Cloud   Cloud-based Host & Rendering and Encoding

Network   Weak Network Resilience
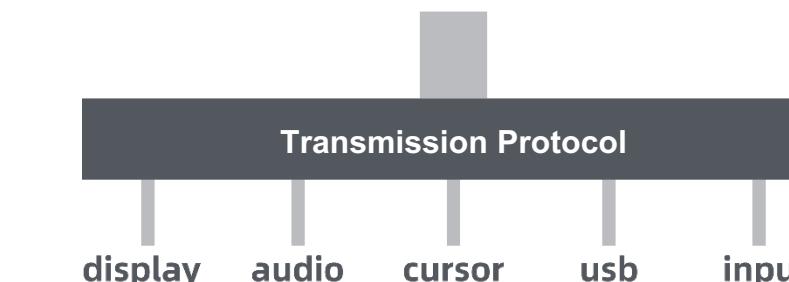
Terminal   Multi-terminal Coverage & Real-time Interaction

ASP 2.0

Multi-guest System

Rendering and Encoding Calculation

vCPU vGPU

windows ubuntu/UOS

Multiple Transmission Protocols

Transmission Protocol

display audio cursor usb input

Multi-terminal System

Other Features

No.	Feature	Description
1	More economical	Supports free interaction traffic between clients and Cloud Phone instances. Provides a free shared Internet bandwidth of 5 Mbit/s.
2	More secure	Provides comprehensive security control policies based on the cloud security system of Alibaba Cloud, and supports VPCs and security groups.
3		Provides multiple backup options, including full-device backup, app backup, and file backup.
4	More convenient	Supports virtual cameras, virtual microphones, clipboard sharing, adaptive screen resolution, and multi-touch event handling.
5		Supports card-style status display for Cloud Phone instances.
6		Supports resource monitoring at both the instance level and instance process level.
7	...	Continuously increasing.