KooPhone

Service Overview

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1 What Is KooPhone?

Introduction

KooPhone is a high-experience and high-security cloud phone service launched by Huawei Cloud for government, enterprise, and Internet customers. It integrates core technologies such as ARM server virtualization, audio and video encoding and decoding, and real-time transmission capabilities, and introduces Huawei's rich application ecosystem, provides cloud computing power and cloud applications for more screen-connected devices.

KooPhone fully utilizes the advantages of device-cloud synergy to provide device-cloud interaction, simulation of various sensors such as microphones and cameras, and unified management and control of applications and data permissions on the cloud, based on Huawei's all-scenario smart ecosystem, Huawei's smart ecosystem meets customers' different application requirements and can be easily and securely applied to various scenarios, such as mobile office and personal/home entertainment.

Differences from the Cloud Phone Server (CPH)

Cloud Phone Host (CPH) is a Huawei Cloud service. Huawei cloud phones are virtual phones running on Kunpeng Bare Metal Servers (BMSs) from Huawei Cloud. They run native Android. Simply speaking, cloud phone server = cloud server + Android OS. You can remotely control a cloud phone in real time to run Android applications on the cloud. You can also use the compute power of cloud phones to build applications for scenarios like cloud gaming, virtual office, and live streaming.

Based on CPH, KooPhone provides an upper-layer complex software system to improve user experience. It uses a series of technologies, such as device-cloud synergy engine, computing resource management, user account authentication, and mobile phone UI optimization, on the basis of CPH, it provides users with a remote mobile phone operation environment.

For more information about CPH, see **What Is Cloud Phone Host?**

2 Product Advantages

Excellent Experience

Exclusive device-cloud rendering and perceptual encoding technologies provide higher HD image quality than similar products. The processing latency of cloud phones is reduced to less than 100 ms, and operations are not affected.

Flexible & efficient

Based on cloud advantages, tens of thousands of mobile phones can be provisioned and provisioned in minutes, and massive resources can be managed and controlled in a centralized manner. In addition, mobile phones with different performance specifications can be flexibly converted on demand, providing brand-new terminal experience.

Security and Reliability

Cloud-pipe-device full-link security protection, reliable cloud storage, and multi-level management and control policies ensure data, application, and device security. Terminal apps have anti-screen capture and real-time watermark capabilities to ensure service security.

Application compatibility

Provides device simulation for real devices such as GPS, cameras, and gyroscopes, compatible with 32-bit and 64-bit apps, and mainstream Android native apps that can be installed and used immediately.

3 Scenarios

Application Scenario: Secure Mobile Office

Traditional physical office mobile phones of enterprises lack unified protection measures, such as anti-screen capture, application control, and monitoring, making information security protection difficult. Data assets are scattered on physical mobile phones, making it difficult to accumulate, collect statistics on, and manage data assets. Mobile phone hardware assets are prone to loss and damage. The application and data update period is long and the maintenance cost is high.

On the device side, KooPhone provides security features such as anti-screen capture, anti-photographing and recording, and real-time watermarking to strictly control data leakage. On the cloud side, KooPhone provides unified data monitoring, security hardening, centralized application management, one-click distribution, unified upgrade, and unified repair and prevention of system vulnerabilities and security threats. Provides more convenient access modes and richer application ecosystems than common office software. Enterprise employees can use mobile phones to access cloud phones anytime and anywhere, implementing secure mobile office, such as message processing and video conferencing.

4 Functions

4.1 General-purpose Cloud Phones

For details about the functions provided by the general-purpose cloud phone, see **Table 4-1**.

Table 4-1 Overview of General Cloud Phone Functions

Function	Description
Cloud phone instance management	- Stops, starts, and restarts cloud phone instances, binds or unbinds users, and uninstalls apps. - Queries the running and login status of cloud phone instances. - Allows users to query the binding status and expiration time of cloud phone instances.
Device-cloud synergy engine	- Provides audio/video stream codec on the device and cloud. - Supports automatic reconnection after network disconnection and network switchover. - Supports automatic adjustment of audio and video sampling frequencies and bit rates. - Applications can be uploaded between the device and cloud.
Device-cloud device simulation	Supports simulation of touch control, microphones, camera, GPS, gyroscope, acceleration sensors, gravity sensors, and light sensors.
Organization and user management	- Supports organization and department management. - Users in organizations and departments can be managed.

Function	Description
App deployment	● Uploads and deletes apps. ● Installs and uninstalls apps in batches on cloud phones. ● Queries app deployment tasks.
Security management	● Supports anti-screen capture on cloud phones. ● Supports application installation blacklist and whitelist control. ● Supports encrypted transmission of audio/video, and control streams between devices and cloud. ● Administrators and users can monitor the network traffic of cloud phone instances in real time. ● Supports real-time watermarks on video streams.

5 Instance Specifications

General-purpose Cloud Phones

The general-purpose cloud phone has two editions: professional edition and enterprise edition. Each edition provides cloud phone instances of different specifications. Currently, only the professional edition is provided. For details, see **Table 5-1**.

Table 5-1 Edition description

Edition	Instance Specifications	Description	Scenario
Professional edition	● 4 vCPUs | 8 GB memory | 64 GB storage | Up to 720p resolution	● Device-cloud synergy: Based on Huawei-developed device-cloud protocols, audio and video rendering, encoding, and decoding algorithms, the SDK on the device side works with that on the cloud side to provide HD image quality and smooth operation experience. ● Device simulation: provides virtual simulation devices that connect to physical mobile phones, such as GPS, sensors, and gyroscopes. ● Security management and control, including anti-screenshot, real-time watermark anti-tamper, application installation blacklist and whitelist, and encrypted data transmission of device-cloud audio and video streams and control flows.	● General business office: Users can use terminals such as PCs and tablets to access cloud phones anytime and anywhere to implement mobile office such as message processing, process approval, and video conferencing. ● Mobile secure office: Strict control is implemented on the device and cloud to ensure information and data security.

6 Principles

6.1 Device-Cloud Synergy

Collaboration between KooPhone mobile phones and the cloud. The mobile phone and cloud are responsible for different tasks and work together to complete the functions of the mobile phone. The mobile phone is responsible for processing tasks such as user input, display, and operation, and the cloud is responsible for processing a large amount of data storage, processing, and computing. With KooPhone device-cloud synergy, users can experience smooth operations similar to those on real phones.

6.2 Unique Code

KooPhone uses unique encoding technologies, such as error-correcting codes and compression algorithms, to ensure data integrity and validity during transmission. In addition, KooPhone uses encryption technologies to protect data security. With these coding technologies, KooPhone can provide faster, more secure, and more reliable mobile phone services.

6.3 Device Simulation

KooPhone provides virtual simulation devices (such as cameras, GPS devices, and sensors) that are connected to real devices on the cloud, and provides simulation device APIs that are the same as those of real devices for applications to ensure compatibility with the application running environment.

7 Permissions Management

If you need to assign different permissions to employees in your enterprise to access your KooPhone resources, Identity and Access Management (IAM) is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you efficiently manage access to your cloud resources.

With IAM, you can use your account to create IAM users, and assign permissions to the users to control their access to specific resources. For example, if you want operation personnel to have the permission to use KooPhone but do not want them to have the permission to delete KooPhone, you can create IAM users for operation personnel and grant them only the permission to use KooPhone, however, the KooPhone permission policy cannot be deleted to control the usage scope of KooPhone resources.

If your account does not need individual IAM users for permissions management, skip this section.

IAM is a free service. You pay only for the resources in your account. For more information about IAM, see **What Is IAM?**

KooPhone Rights

New IAM users do not come with default permissions, so add them to one or more groups and then attach policies or roles to these groups to grant specific operation permissions on cloud services.

VIAS is a project-level service deployed and accessed in specific physical regions. When granting permissions, set Scope to Regional-level projects and set permissions in the cn-north-4 project corresponding to the specified region (for example, CN North-Beijing4). The permissions take effect only for this project. If you set permissions for **All projects**, the permissions will take effect for all region-specific projects. When accessing KooPhone, the users need to switch to the authorized region.

You can grant permissions to a role or by creating a policy.

- Roles: A coarse-grained authorization strategy that defines permissions by job responsibility. Available service-level roles are limited. When using roles to grant permissions, you need to also assign other roles which the permissions

depend on to take effect. Roles are not an ideal choice for fine-grained authorization and secure access control.

- Policies: A fine-grained authorization strategy that defines permissions required to perform operations on specific cloud resources under certain conditions. This mechanism enables more flexible authorization and meets secure access control requirements. For example, for KooPhone, the administrator can control IAM users to perform specified operations only on a certain module.

Table 7-1 lists all the system roles supported by KooPhone.

Table 7-1 KooPhone system permission

Role/Policy Name	Description	Type	Role Content
KooPhone Administrator	Role that has all KooPhone operation rights. Users with this permission can have all rights supported by KooPhone.	Role	**Content of the KooPhone Administrator Role**
KooPhone ReadOnlyUser	User who has the read-only permission on KooPhone.	System-defined roles	**Content of the KooPhone ReadOnlyUser Role**

Table 7-2 lists the common operations supported by system-defined permissions for KooPhone.

Table 7-2 Common operations supported by system-defined permissions

Operation	KooPhone Administrator	KooPhone ReadOnlyUser
Buy a cloud phone	√	×
View organizations and users details	√	√
Create an organization	√	×
Add a department	√	×
Add a member	√	×
Query cloud phone instances (cloud phone status and name)	√	√
Parameters in the customized instance list	√	×

Operation	KooPhone Administrator	KooPhone ReadOnlyUser
Restart a cloud phone instance	√	×
Power on a cloud phone instance	√	×
Power off a cloud phone instance	√	×
Renewals	√	×
Unsubscribe the service	√	×
Uninstall an app	√	×
Delete a cloud phone instance	√	×
Bind/Unbind a user	√	×
Query details about a deployment	√	√
Upload an app	√	×
Uninstall an app	√	×
Install an app	√	×
Query security control details	√	√
Enable anti-screen capture	√	×
Disable anti-screen capture	√	×
Enable video watermark	√	×
Disable video watermark	√	×
Batch deletion (app blacklist and whitelist)	√	×
Create a list (app blacklist and whitelist)	√	×
Enable (app blacklist and whitelist)	√	×
Disable (app blacklist and whitelist)	√	×
Modify blacklist/whitelist	√	×

Operation	KooPhone Administrator	KooPhone ReadOnlyUser
Delete (app blacklist and whitelist)	√	×
Enable encrypted transmission	√	×
Disable encrypted transmission	√	×

References

- **Identity and Access Management (IAM) Service Overview**
- For details about how to create a user group and user and grant KooPhone permissions, see "Permissions Management" in the User Guide.

Content of the KooPhone Administrator Role

```
{
    "Version": "1.1",
    "Statement": [ {
        "Effect": "Allow",
        "Action": [
            "Koophone:*:*"
        ]
    }]
    }
  }
}
```

Content of the KooPhone ReadOnlyUser Role

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Action": [
                "Koophone:*get*",
                "Koophone:*list*"
            ],
            "Effect": "Allow",
        }
    ]
    }
  }
}
```

8 Constraints

KooPhone is in the open beta test (OBT) state. The restrictions on using KooPhone are as follows:

- Due to limited resources during the OBT, only Huawei Cloud accounts that have passed the Huawei Cloud enterprise certification and OBT application approval can be used for trial.

- Users cannot use KooPhone cloud phones to hang up or brush orders, violate laws, or violate Huawei security requirements. If related requirements are violated, the user's cloud phone will be restricted or frozen.

- Currently, the specifications of a cloud phone instance cannot be changed in the OBT phase. For example, you can change the number of CPU cores, memory, and storage space of a cloud phone instance. If you need to change the specifications, unsubscribe from the cloud phone instance and purchase a new one that meets the requirements.

- When the Huawei Cloud account is restricted or frozen or the cloud phone resource enters the retention period, the use of the KooPhone cloud phone will be restricted (including but not limited to login, restart, and reset of the cloud phone). Users must understand and handle the restriction in advance to avoid impact on services.

- If you do not renew or top up your account after the retention period expires, KooPhone will stop providing services, data stored in your cloud phone instance will be deleted, and the cloud phone instance will be released.

9 Relationship with Other Cloud Services

Based on Huawei Cloud Arm servers, KooPhone integrates core technologies and services such as Huawei Cloud audio and video encoding and decoding and real-time audio and video transmission, and integrates the rich application ecosystem of Huawei Device Cloud HMS, providing users with out-of-the-box SaaS cloud phones.

10 Concepts

Cloud Phone Instance

A cloud phone instance is a virtual phone that contains a mobile phone operating system and basic system applications and runs on the cloud. After signing in to a cloud phone from the KooPhone app on a physical device, perform operations on the cloud phone with the same user experience as that of the physical device, such as running apps, playing games, taking photos, and mobile office.

Cloud Phone Image

Cloud phone image is an OS running on cloud phones, for example, Android. Currently, KooPhone provides Google's native Android 9.

General-purpose Cloud Phone

It integrates core technologies such as Arm server virtualization, audio/video codec, and real-time transmission. Furthermore, it introduces the rich application ecosystem of devices, providing cloud computing power and apps for more screen-connected devices.