Face Recognition Service

FAQs

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Contents

1 General Consulting....1
1.1 How Do I Implement Recognition of Multiple Faces?....1
1.2 How Can I Deal with Unauthorization Issues?....1
1.3 Why Do Recognition Errors Occur?....2
1.4 Why Is the Face Recognition Pass Rate Low?....2
1.5 Why Are the Request Responses Too Slow?....3
1.6 What Are the Differences Between Face Recognition V1 and V2?....3
1.7 How Many Times Can I Call the Face Detection API for Free?....4
1.8 How Do I Disable a Service?....4
1.9 Can I Use Certificate Photos for Face Recognition?....4
1.10 Why Is the Number of Calls Not Displayed on the Service Management Page When I Call the Silent LiveDetect API?....4
1.11 Can FRS Be Deployed on Premises?....4
1.12 Does FRS Provide SDKs for Mobile Phones (Android and iOS)?....4
2 SDK FAQs....6
2.1 How Do I Switch the Version When an SDK Calls the V1 and V2 APIs?....6
3 API FAQs....7
3.1 How Can I Use FRS APIs?....7
3.2 How Do I Obtain a Token?....7
3.3 What Do I Do If the Error Message "APIG.0101 API not exist or not published to environment" Is Displayed During API Calling?....8
3.4 What Do I Do If Error FRS.0020 Is Reported During API Calling?....9
3.5 What Do I Do If an Error Is Reported During API Calling?....9
3.6 What Do I Do If Error FRS.0022 Is Reported When Images Are Accessed on OBS?....10
3.7 What Is QPS?....10
3.8 How Do I Increase the QPS Quota During QPS Traffic Limiting?....10
3.9 How Do I Obtain the Correct Endpoint?....11
3.10 How Do I Obtain the Base64 Code of an Image?....11
3.11 How Do I Set the top_n Parameter in the Face Retrieval API?....12
3.12 Why Is the Data Returned by FRS Empty?....12
3.13 What Is the Minimum Bandwidth Required for FRS?....12
3.14 How Can I Obtain the URL of the Latest Image from the OBS Bucket?....13
3.15 Can I Query Facial Images That Have Been Uploaded for FRS?....13

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3.16 How Do I Handle the Situation Where the Number of Requests Exceeds the Threshold?..... 13

4 Region and AZ FAQs..... 14

4.1 What Are Regions and AZs?..... 14

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1 General Consulting

1.1 How Do I Implement Recognition of Multiple Faces?

Currently, Face Recognition Service (FRS) can recognize only the largest face in an image containing multiple faces. You can follow the instructions here to perform face recognition (verification/retrieval) of multiple faces:

1. Call the **Face Detection API** to obtain the pixel locations of multiple faces in an image.
2. Snapshot the faces from the original image based on the location information. For reference information, see the **Multi-Face Recognition Demo**.
3. Call **FRS APIs** again to implement face verification or retrieval of multiple faces.

1.2 How Can I Deal with Unauthorization Issues?

If the system prompts "The OBS is unauthorized" after you submit OBS data to FRS, follow the following steps:

1. Check whether you have clicked **Service Authorization** on the **Management Console** because to use data stored on OBS, you need to authorize FRS to read OBS data.
   - If you have authorized the service, you cannot see the **Service Authorization** button in the upper right corner of the page.
   - If you have not authorized the service, click the **Service Authorization** button in the upper right corner.

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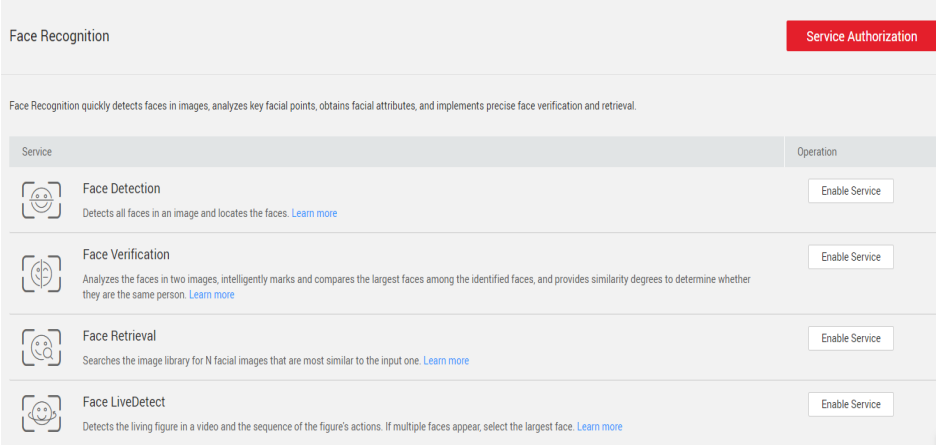
Figure 1-1 Service authorization



2. If you have authorized the service on the management console, check whether the OBS URL is the OBS bucket address under your account.
3. If the OBS URL is the OBS bucket address under your account, check whether the OBS bucket is in region CN North-Beijing1 or CN South-Guangzhousupported by FRS.
4. If the problem persists, visit the **Contact Us** page and fill in your information. We will contact you within one working day (working hour: Monday to Friday, from 09:00 to 18:00). Alternatively, you can dial +86 4000-955-988 or +86-950-808 and press 1 to quickly get a solution.

1.3 Why Do Recognition Errors Occur?

Possible Causes

1. Images collected in the base library are not clear.
2. Qualities of the images captured by PUs are poor.

Common image quality problems: backlight, casting shadows, incorrect angles, and blurs.

Solution

1. Enter the images with good qualities into the base library to replace the poor ones.
2. Improve the PUs' snapshot conditions. For example, adjust the illumination to avoid backlight. Remove the blurred images and adjust the camera parameters to improve clarity.

1.4 Why Is the Face Recognition Pass Rate Low?

Symptom

The pass rate of face recognition is low. A PU needs to capture multiple images to get one whose score is higher than 0.93 (the threshold).

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Possible Causes

1. Qualities of the images in the base library are poor.
2. The PUs' snapshot conditions are poor.
3. The face posture captured by the PU is much different from that in the base library, or the face in the base library is much different from that in the snapshot.

Solution

1. Enter the images with good qualities into the base library to replace the poor ones.
2. Improve the PUs' snapshot conditions. For example, adjust the illumination to avoid backlight. Remove the blurred images and adjust the camera parameters to improve clarity.
3. If there are too many differences, you can record multiple faces for one person. You can record images with multiple different postures for a face in the base library to ensure that there is a posture similar to the captured one. Alternatively, you can enter captured faces with good qualities into the base library.

1.5 Why Are the Request Responses Too Slow?

Symptom

Requests sent by a user must go through TCP handshake and HTTPS certificate exchange. If packet loss occurs during the process, the operating system will retransmit the packet. The retransmission interval may be 3s or 5s depending on the system.

Solution

1. Use the HTTPS persistent connection for requests, avoiding HTTP connection building for every request. If no data is transmitted to API Gateway for 300s, the connection will be closed. To prevent this situation, a data packet needs to be periodically sent from the client to maintain persistent connection.
2. Conduct timeout retries at the application layer to collect statistics on the average duration of more than 99% requests. Then set a retry mechanism based on the duration.

1.6 What Are the Differences Between Face Recognition V1 and V2?

Currently, FRS has two versions: V1 and V2. Both versions have been put into commercial use. Their differences are as follows:

1. V2 APIs support QPS billing while V1 APIs do not. Therefore, V2 is more favorable for users whose traffic volumes are large.
2. The accuracy and scenario universality of the V2 version are better than those of the V1 version. It is recommended that new users use V2 APIs. In general

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scenarios, the functions of V2 are the same as those of V1. The difference is that the V2 Face Detection API supports fewer face attributes than that of V1.

1.7 How Many Times Can I Call the Face Detection API for Free?

The first 2,000 valid API calls of sub-services (excluding Face LiveDetect) of FRS are free.

1.8 How Do I Disable a Service?

FRS cannot be disabled once being enabled. An enabled service is paid on a pay-per-use basis by default. No fee will be deducted if you do not call the service.

1.9 Can I Use Certificate Photos for Face Recognition?

Certificate photos can be used for Face Recognition. Non-facial information will not be extracted when the service extracts facial features. Due to various factors such as technology and cost, FRS has some restrictions. For details, see **Restrictions and Limitations**.

1.10 Why Is the Number of Calls Not Displayed on the Service Management Page When I Call the Silent LiveDetect API?

1. The number of API calls billed in pay-per-use mode is updated in real time. If it does not change, refresh the page.
2. The number of API calls billed by QPS quota is not displayed on the **Service Management** page.

1.11 Can FRS Be Deployed on Premises?

FRS cannot be deployed on premises. FRS provides services through open APIs. You can obtain the face recognition results by accessing and calling APIs in real time. It recognizes and compares faces automatically and provides you with the similarity degrees.

1.12 Does FRS Provide SDKs for Mobile Phones (Android and iOS)?

FRS provides a Java SDK for Android systems. Currently, no SDK is available for iOS systems. For details about the Java SDK, see the **Java SDK Quick Start**.

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NOTE

When an Android system uses this Java SDK, the main thread is not supported. You are advised to use the sub-thread.

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2 SDK FAQs

2.1 How Do I Switch the Version When an SDK Calls the V1 and V2 APIs?

When an SDK calls V1/V2 APIs, no other configuration is required.

Example 1 (python-sdk):

V1: **frs_client.get_search_service().search_face_by_file(face_set_name, file_path);**

V2: **frs_client.get_v2().get_search_service().search_face_by_file(face_set_name, file_path);**

Example 2 (java-sdk):

V1: **frsClient.getSearchService().searchFaceByFile(faceSetName, filePath);**

V2: **frsClient.getV2().getSearchService().searchFaceByFile(faceSetName, filePath);**

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3 API FAQs

3.1 How Can I Use FRS APIs?

You can send a request based on constructed request messages using any of the following three methods:

- cURL

  cURL is a command-line tool used to perform URL operations and transmit information. cURL acts as an HTTP client that can send HTTP requests to the server and receive response messages. cURL is applicable to API debugging.

- Code

  You can use code to call APIs to assemble, send, and process request messages.

- RESTful client

  Both Mozilla and Google Chrome provide a graphical browser plug-in REST client to send and process requests. Postman 7.24.0 is recommended.

3.2 How Do I Obtain a Token?

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to request headers to get permissions for calling the API.

The following uses the **cn-south-1** region as an example to describe how to use Postman to obtain a user token. Postman 7.24.0 is recommended.

1. The POST request URL is **https://iam.cn-south-1.myhuaweicloud.com/v3/auth/tokens**. You do not need to set **Headers**.
2. The body format is as follows:

```
{
    "auth": {
        "identity": {
            "methods": [
                "password"
            ],
            "password": {
```

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```
            "user": {
               "name": "Username",
               "password": "Account password",
               "domain": {
                  "name": "Account name"
               }
            }
         }
      },
      "scope": {
         "project": {
            "name": "Region where FRS is deployed, for example, cn-south-1"
         }
      }
   }
}
```

3. After the request is sent, if the return code is **201**, click **Header** to obtain the value of **X-Subject-Token**, which is the token.

To call an API in another region, you need to use the IAM address of the region to obtain the token and then call the API in the region.

3.3 What Do I Do If the Error Message "APIG.0101 API not exist or not published to environment" Is Displayed During API Calling?

Symptom

When an API is called, the error message "APIG.0101 The API does not exist or has not been published in the environment" is displayed.

This error indicates that the request address or URL used for calling the API does not exist or is not published.

Solution

For example, error APIG.0101 is reported when the service status query API is called. The solution is as follows:

1. Obtain a correct example request by referring to the API Reference.
   ```
   # Query the service status.
   https://{endpoint}/v1/{project_id}/subscribe
   ```
2. Replace **{endpoint}** in the example request with the actual endpoint. For details about the request address of FRS, see **Endpoints**.

   For example, if your service is deployed in the CN North-Beijing4 region, the endpoint of the region is **face.cn-north-4.myhuaweicloud.com**.
3. Replace **{project_id}** in the example request with the actual project ID. For details about how to obtain the project ID, see **Obtaining Account, IAM User, Group, Project, Region, and Agency Information**.

For details about the URL, see **Making an API Request**.

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3.4 What Do I Do If Error FRS.0020 Is Reported During API Calling?

Symptom

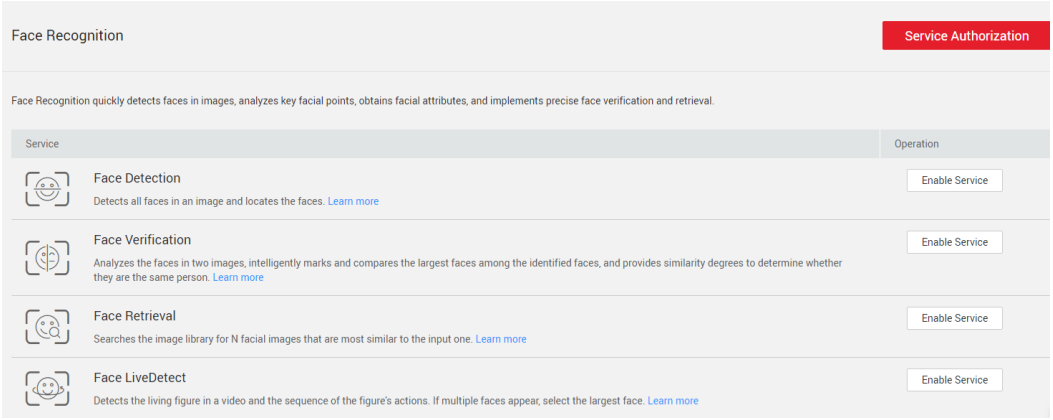
When an API is called, error FRS.0020 is reported.

This error indicates that the sub-service is not enabled. For example, if sub-services such as Face Detection, Face Verification, and Face Retrieval are not enabled, error FRS.0020 is reported when an API is called.

Solution

If a sub-service is not enabled, log in to the **FRS management console** and click **Enable Service**. If the sub-service has been enabled, check whether the request address for calling the API is in the region where the sub-service is enabled.

Figure 3-1 Enabling a service



3.5 What Do I Do If an Error Is Reported During API Calling?

Troubleshooting

1. Find the cause based on the API calling result or error code.
2. Check whether the AK and SK have been successfully obtained.
3. Check whether the token has been correctly entered or has expired.
4. Check whether the API calling method is correct.

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3.6 What Do I Do If Error FRS.0022 Is Reported When Images Are Accessed on OBS?

Possible Causes

1. The OBS path is incorrect.
2. The OBS bucket is not a bucket of the current account.
3. The current account does not authorize FRS to access OBS during service subscription.

Solution

1. The image path is in the **/bucket/image-path** format and does not contain the domain name.
2. Ensure that the OBS bucket you access belongs to the current account.
3. To access images on OBS, authorize FRS to access OBS.

3.7 What Is QPS?

Query per second (QPS) indicates the number of requests per second. You are charged for calling the FRS APIs based on the QPS quota. You can select the required QPS quota. For details about the prices, see **Product Pricing Details**.

- The system QPS baseline is an image whose resolution is 640 x 480 with a size of about 200 KB. If the input image exceeds the specifications, the system performance deteriorates. If you have any question, contact the service personnel.

3.8 How Do I Increase the QPS Quota During QPS Traffic Limiting?

Symptom

When an API is called, error FRS.0033 is reported.

This error indicates that the number of current requests exceeds the traffic control threshold.

Solution

- You are advised to control the request policy or retry the request.
- Increase the QPS quota.
  - For details, see **Face Recognition Pricing Details**.
  - Modify the QPS specifications.
    i. Log in to the FRS management console.

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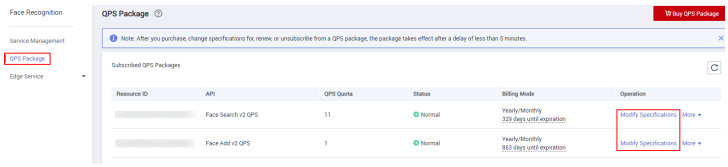
ii. In the left navigation pane, choose **QPS Package**. For APIs that support QPS, click **Modify Specifications**.

Figure 3-2 Modifying the QPS specifications



3.9 How Do I Obtain the Correct Endpoint?

An endpoint is the request address for calling an API. Endpoints vary depending on services and regions.

Table 3-1 lists Face Recognition endpoints. Select a desired one based on service requirements.

Table 3-1 FRS endpoints

Region Name	Region	Endpoint	Protocol	Deployed Service
CN North-Beijing1	cn-north-1	face.cn-north-1.myhuaweicloud.com	HTTPS	FRS APIs (V1)
CN North-Beijing4	cn-north-4	face.cn-north-4.myhuaweicloud.com	HTTPS	FRS APIs (V1) and FRS APIs (V2)
CN East-Shanghai1	cn-east-3	face.cn-east-3.myhuaweicloud.com	HTTPS	FRS APIs (V2)
CN South-Guangzhou	cn-south-1	face.cn-south-1.myhuaweicloud.com	HTTPS	FRS APIs (V1) and FRS APIs (V2)

3.10 How Do I Obtain the Base64 Code of an Image?

1. Open the Google Chrome browser and drag an image file to the browser. The image is displayed on the browser.
2. Press **F12**, click **Sources**, and select the image file from the navigation tree on the left. The Base64 code of the image is displayed on the right, as shown in red frame 3 in the following figure.
3. Double-click the Base64 code of the selected image and press **Ctrl**+**C** to copy the Base64 code. Do not right-click the image to copy it.

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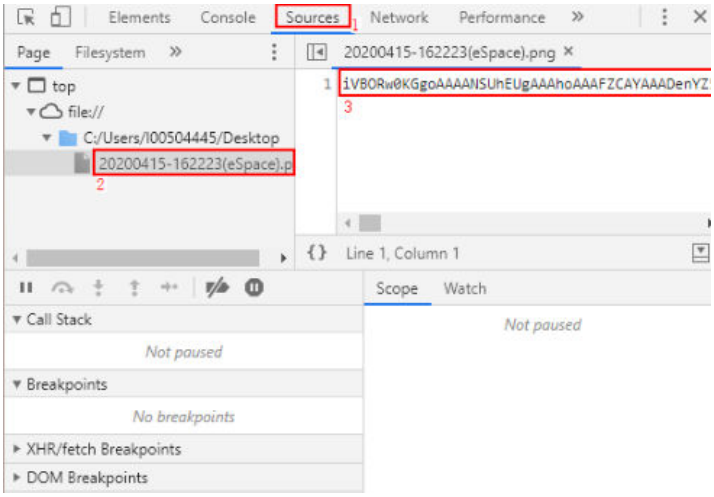
Figure 3-3 Base64-encoded image



3.11 How Do I Set the top_n Parameter in the Face Retrieval API?

If a request for the API does not contain the **top_n** parameter, the system returns the most similar 10 faces by default. The maximum value you can set for the **top_n** parameter is **1,000**.

3.12 Why Is the Data Returned by FRS Empty?

Symptom

The face in an uploaded image may be transverse or upside down.

Solution

1. Select a solid color background without any interference and ensure that the face in the image is clear.
2. The side face angle cannot exceed 30°, and the angle of head up or down cannot exceed 15°.
3. The face in the image must be a front face and must be vertical. If the face is transverse or upside down, rotate it and try again.

3.13 What Is the Minimum Bandwidth Required for FRS?

The image size and concurrency are controlled by customers. Customers can select the bandwidth based on their service requirements. FRS does not set a minimum limit for bandwidth.

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3.14 How Can I Obtain the URL of the Latest Image from the OBS Bucket?

For details, see **How Do I Obtain the Object URL?**.

3.15 Can I Query Facial Images That Have Been Uploaded for FRS?

FRS does not store customers' facial images. It detects facial parameters based on the images and stores only facial features. You can use the following two methods to store image data:

1. Enable HUAWEI CLOUD OBS to store face images.
2. Store facial images in your databases.

3.16 How Do I Handle the Situation Where the Number of Requests Exceeds the Threshold?

1. If this error code is returned when the pay-per-use billing mode is used, you are advised to control the request policy or try again.
2. If this error code is returned when the QPS package is used for billing, you are advised to expand the capacity to increase the QPS quota.

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4 Region and AZ FAQs

4.1 What Are Regions and AZs?

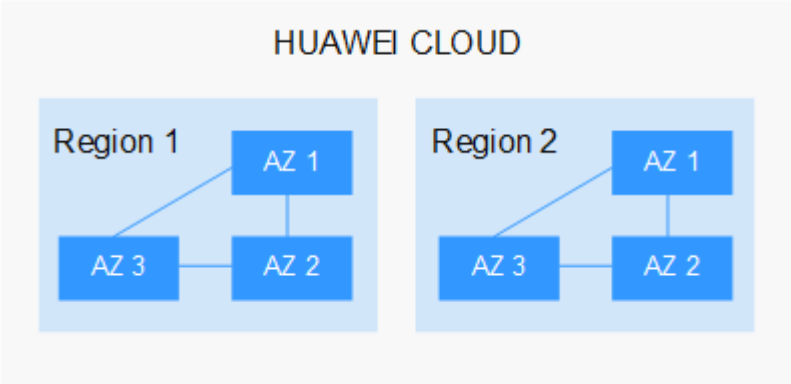
Concepts

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and AZ.

- Regions are divided from the dimensions of geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides services of the same type only or for specific tenants.
- An AZ contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

Figure 4-1 shows the relationship between the regions and AZs.

Figure 4-1 Regions and AZs



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Services of HUAWEI CLOUD are available in many regions around the world. You can select a region and AZ as needed.

How to Select a Region

When selecting a region, consider the following factors:

- Location

  You are advised to select a region close to you or your target users. This reduces network latency and improves access rate. However, Chinese mainland regions provide basically the same infrastructure, BGP network quality, as well as operations and configurations on resources. Therefore, if you or your target users are in the Chinese mainland, you do not need to consider the network latency differences when selecting a region.

  - If you or your target users are in Asia Pacific excepting the Chinese mainland, select the **AP-Hong Kong**, **AP-Bangkok**, or **AP-Singapore** region.
  - If you or your target users are in Africa, select the **AF-Johannesburg** region.
  - If you or your target users are in Europe, select the **EU-Paris** region.
- Relationship between cloud services

  When using multiple cloud services, pay attention to the following restrictions:

  - ECSs, RDS instances, and OBS buckets in different regions cannot communicate with each other through an internal network.
  - ECSs in different regions cannot be bound to the same load balancer.
- Resource price

  Resource prices may vary in different regions. For details, see **Product Pricing Details**.

How to Select an AZ

When determining whether to deploy resources in the same AZ, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs in the same region.
- For low network latency, deploy resources in the same AZ.

Regions and Endpoints

Before using an API to call resources, specify its region and endpoint. For more details about FRS regions and endpoints, see **Regions and Endpoints**.

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