Prerequisites:
An IBM Cloud account.
IBM Cloud CLI installed and authenticated.
Step 1: Set Up IBM Cloud Object Storage
First, you'll need to create an IBM Cloud Object Storage instance and set up a bucket to store your media files.

Create an Object Storage instance on IBM Cloud.
Create a bucket in your Object Storage instance to store media files.
Step 2: Create IBM Cloud Functions (Serverless) Actions
Next, create IBM Cloud Functions (serverless) actions to handle media processing and streaming.

Create an action to upload media files to the Object Storage bucket:
python
Copy code

```
# upload_media.py

import ibm_boto3
from ibm_botocore.client import Config
import os

def main(args):
    cos_api_key = os.environ.get('COS_API_KEY_ID')
    cos_service_instance_id = os.environ.get('COS_RESOURCE_CRN')
    cos_endpoint = args.get('endpoint')
    cos_bucket = args.get('bucket')

    cos = ibm_boto3.client('s3',
        ibm_api_key_id=cos_api_key,
        ibm_service_instance_id=cos_service_instance_id,
        config=Config(signature_version='oauth'),
        endpoint_url=cos_endpoint
    )

    media_file = args.get('media_file')
    media_filename = media_file.filename
    media_file_data = media_file.file.read()

    cos.upload_fileobj(
```

```
        Fileobj=media_file_data,
        Bucket=cos_bucket,
        Key=media_filename
    )

    return {
        'message': f'Successfully uploaded {media_filename} to {cos_bucket}'
    }
```

Create an action to retrieve and stream media files:

python

Copy code

```
# stream_media.py

import ibm_boto3
from ibm_botocore.client import Config
import os

def main(args):
    cos_api_key = os.environ.get('COS_API_KEY_ID')
    cos_service_instance_id = os.environ.get('COS_RESOURCE_CRN')
    cos_endpoint = args.get('endpoint')
    cos_bucket = args.get('bucket')
    media_filename = args.get('media_filename')

    cos = ibm_boto3.client('s3',
        ibm_api_key_id=cos_api_key,
        ibm_service_instance_id=cos_service_instance_id,
        config=Config(signature_version='oauth'),
        endpoint_url=cos_endpoint
    )

    media_stream = cos.get_object(
        Bucket=cos_bucket,
        Key=media_filename
    )

    return {
        'headers': {
            'Content-Type': media_stream['ContentType'],
            'Content-Disposition': f'inline; filename="{media_filename}"'
```

```
        },
        'body': media_stream['Body'].read()
    }
```

Step 3: Deploy IBM Cloud Functions
Use the IBM Cloud CLI to deploy the actions you created in Step 2:

bash
Copy code
```
ibmcloud fn action create upload_media upload_media.py --kind python:3.7
ibmcloud fn action create stream_media stream_media.py --kind python:3.7
```

Step 4: Create API Endpoints
Create API endpoints (e.g., using IBM API Gateway or OpenWhisk web actions) that trigger the upload_media and stream_media actions created in Step 2.

Step 5: Client Application
Develop a client application (web or mobile) that allows users to upload and stream media content by making API calls to the endpoints you created in Step 4.
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    media_file = args.get('media_file')
    media_filename = media_file.filename
    media_file_data = media_file.file.read()

    cos.upload_fileobj(
        Fileobj=media_file_data,
        Bucket=cos_bucket,
        Key=media_filename
    )

    return {
        'message': f'Successfully uploaded {media_filename} to {cos_bucket}'
    }
```

Create an action to retrieve and stream media files:

python

Copy code

```
# stream_media.py

import ibm_boto3
from ibm_botocore.client import Config
import os

def main(args):
    cos_api_key = os.environ.get('COS_API_KEY_ID')
    cos_service_instance_id = os.environ.get('COS_RESOURCE_CRN')
    cos_endpoint = args.get('endpoint')
```

```
    cos_bucket = args.get('bucket')
    media_filename = args.get('media_filename')

    cos = ibm_boto3.client('s3',
        ibm_api_key_id=cos_api_key,
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    media_stream = cos.get_object(
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    return {
        'headers': {
            'Content-Type': media_stream['ContentType'],
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