Develop Azure compute solutions - Azure Functions

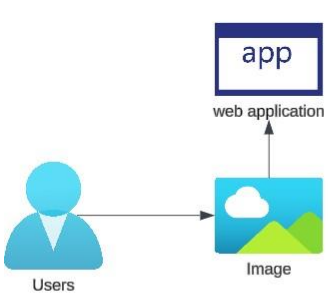
What are Azure Function Apps

This is a serverless solution where the infrastructure is managed for you.

Here the underlying compute is managed for you.

What's the purpose of using Azure Functions?

There are different use cases , let's look at a use case.



An application is hosted on an Azure Web App. The application allows users to upload images.

The application is responsible for processing the image and storing the image.

The code base would have different modules for different functionality.

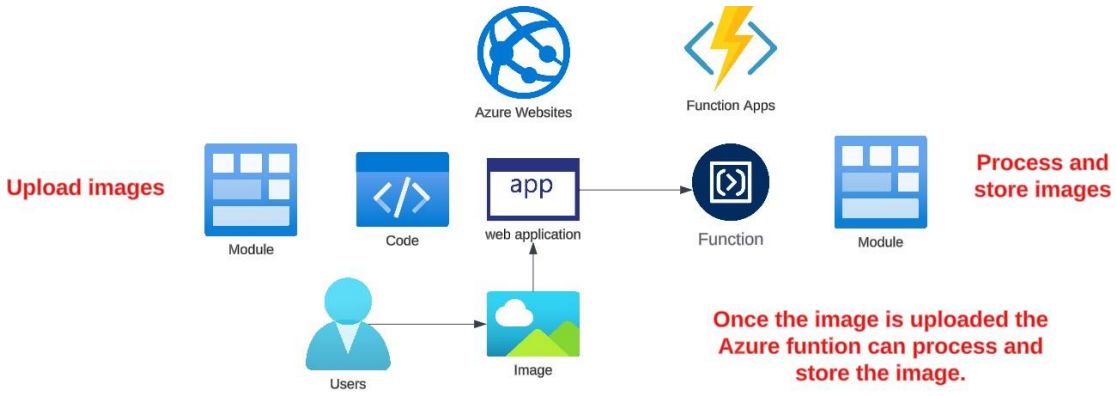
Upload images

Process and store images

The module for processing and storing the images can be in the same code base as the application.

But maybe this code module needs to be reused by other applications.

We can therefore look towards hosting that code module in Azure Functions.

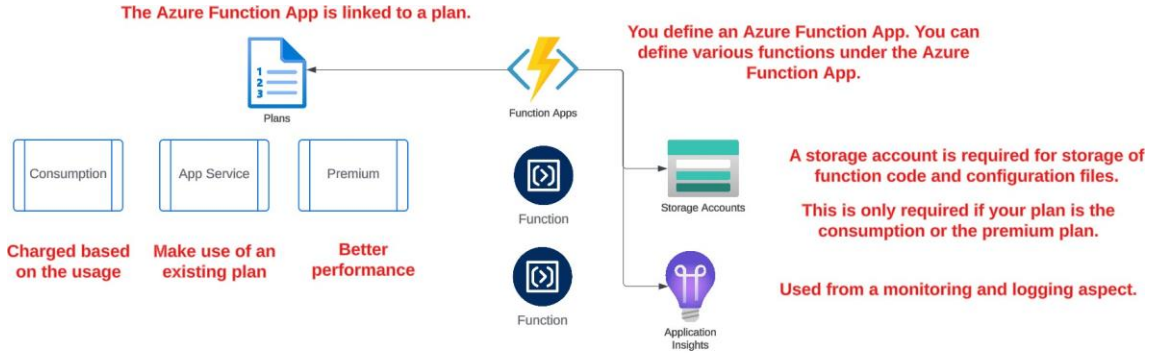


Some of the core advantages

Other applications can invoke the same Azure Function. Its now like a shared service.

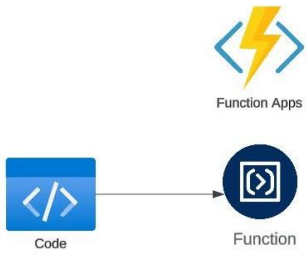
We can update and maintain the code base for Processing and storing images seperately.

Our web application can make full use of the capacity of the Azure App Service Plan just for the web application needs.



The Functions have support for languages - C#, Java, JavaScript, Python, PowerShell.

Lab - Creating a function in the portal



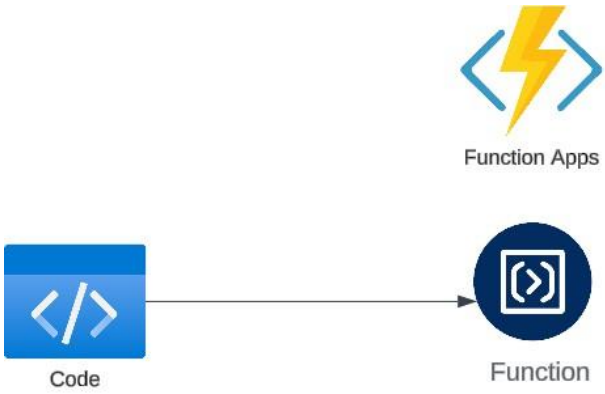
When you define a function, you specify a trigger for the function. How would the function get invoked.

Initially we will select an HTTP trigger.

```
module.exports = async function (context, req) {
    context.log('JavaScript HTTP trigger function processed a request.');

    const name = (req.query.name || (req.body && req.body.name));
    const responseMessage = name
        ? "Hello, " + name + ". This HTTP triggered function executed successfully."
        : "This HTTP triggered function executed successfully. Pass a name in the query string or in the request body for a personalized response.";

    context.res = {
        // status: 200, /* Defaults to 200 */
        body: responseMessage
    };
}
```



Here our function is based on an HTTP trigger. With the HTTP protocol a request is sent onto a destination and a response is sent back.

When sending an HTTP request, there is a method associated with the request. This helps to establish what is the type of request that is being sent across.

GET Method - This is used to request data.

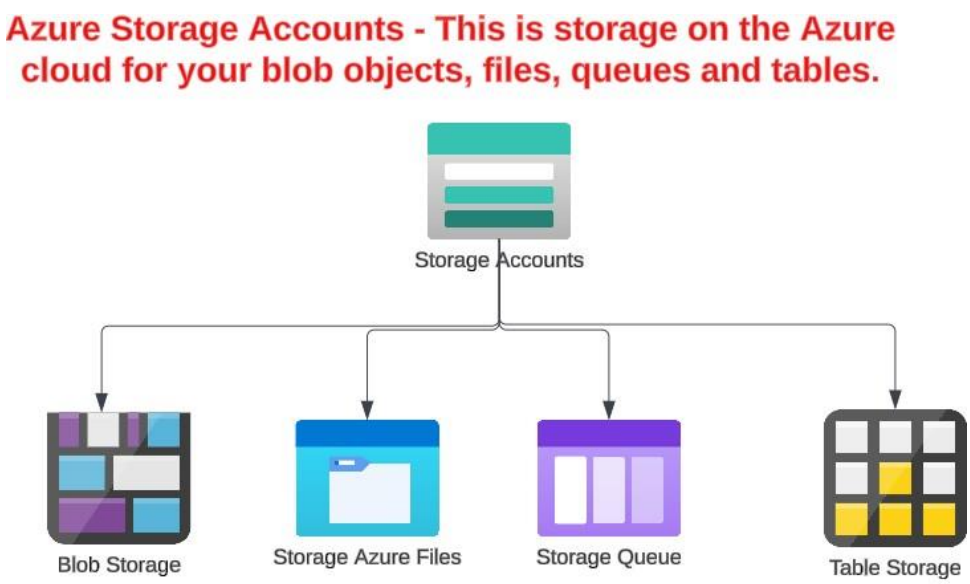
With the GET request you can pass in query string parameters.

POST Method - This is used to send data to create or update a resource.

Here you can pass data in the body of the request.

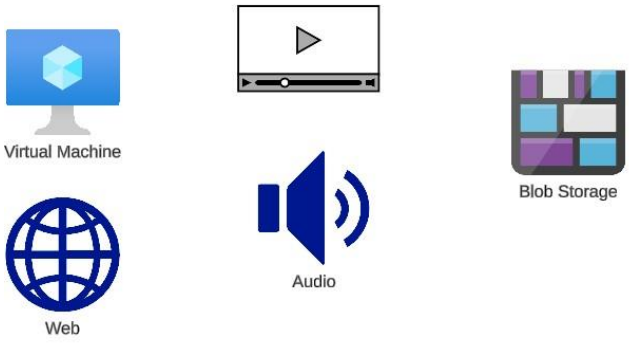
Develop for Azure Storage - Azure Storage Accounts

What are Azure S torage Accounts

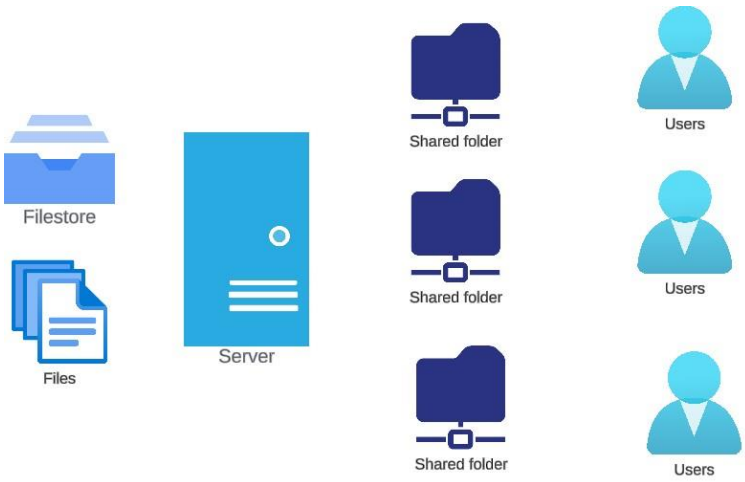


Azure Storage Accounts provides 4 services.

This is used for storing a large amount of unstructured data. Suitable for storing images, documents, video and audio files.



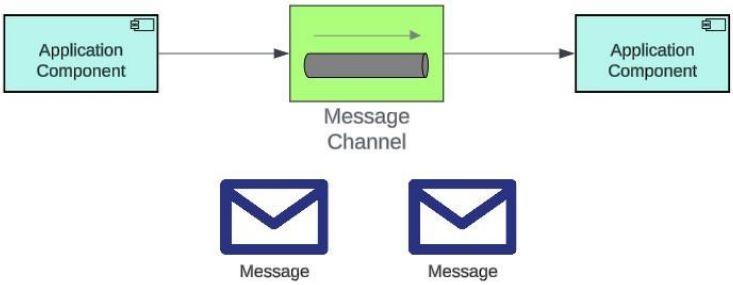
The video and audio files could be stored in an Azure storage account.



Here you need to maintain the file server and ensure enough storage is in place.

Instead you can create file shares using the Azure File share service. Here the storage is managed for you.

If messages need to be shared across multiple application components. Here you need to have the message software and maintain it.



Instead we can make use of the Queue service which provides the basic messaging service.

If an application needs to store data (non-relational structured data), like let's say data about users.

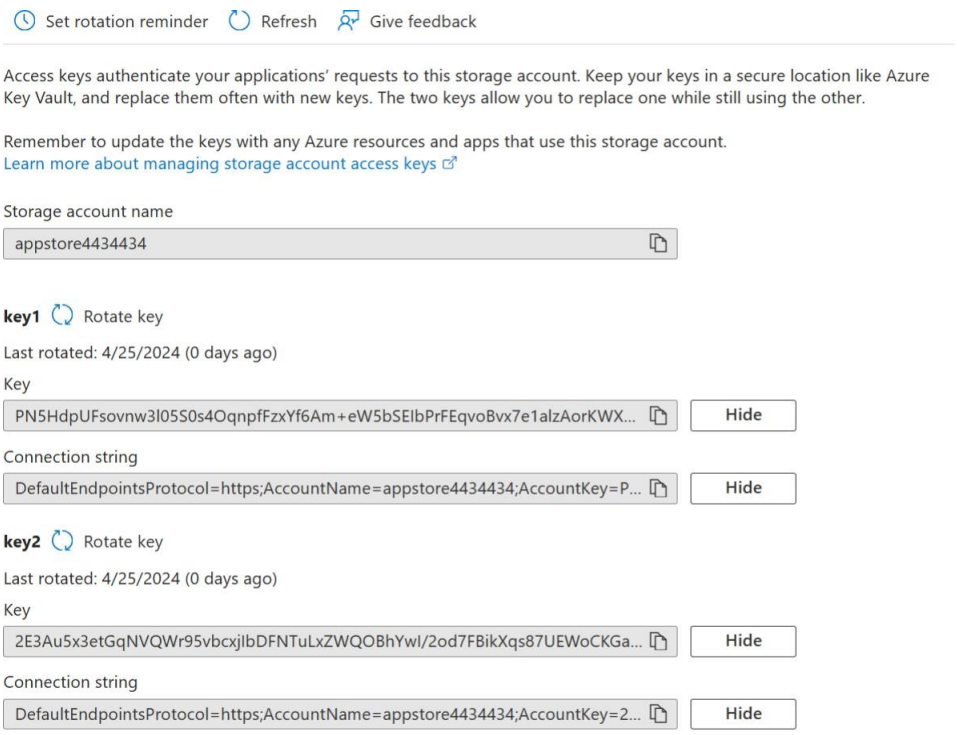
Azure Storage Accounts - Different authorization techniques

Let's say you are using an Azure Storage account to store images via the use of the Blob service.

One way to give access is to enable anonymous access. But this gives access to the Blobs at the container level.

Another broader way of giving access is via the use of Access Keys.

This gives access to all services in the storage account.



Another way of granting access is via the use of Shared Access Signatures.

Another way of granting access is via the use of Shared Access Signatures.

Here you can put more restrictions on the access - You can also grant time limited access.

Storage Accounts - Access Tiers

Storage Accounts

A company can look towards millions of objects in an Azure Storage Account.

Blob Storage

Storage Container

Files

Data storage prices pay-as-you-go	Premium	Hot	Cool	Cold	Archive
First 50 terabyte (TB) / month	$0.15 per GB	$0.018 per GB	$0.01 per GB	$0.0036 per GB	$0.00099 per GB
Next 450 TB / month	$0.15 per GB	$0.0173 per GB	$0.01 per GB	$0.0036 per GB	$0.00099 per GB
Over 500 TB / month	$0.15 per GB	$0.0166 per GB	$0.01 per GB	$0.0036 per GB	$0.00099 per GB

A company would want to monitor their storage costs.

An this can especially be the case if objects are not being used.

Storage Accounts

Blob Storage

Image

Image

A thousand images have been uploaded on a particular day. During the first week the images are being used regularly.

But after a week the images are not being accessed. Should be still pay the same when it comes to storage costs.

We can use Access tiers to help in this regard.

Hot	This is the default tier for objects. Here this is optimized for objects that are accessed frequently.
Cool	This is ideal for objects that are infrequently accessed. An object can be set to the Cool Access tier. Here the object needs to be stored for a minimum of 30 days. Here the storage costs are lower when compared with the Hot access tier, but the access costs are higher.
Cold	This is ideal for objects that are rarely accessed or modified, but you still need access to them. An object can be set to the Cool Access tier. Here the object needs to be stored for a minimum of 90 days. Here the storage costs are lower when compared with the Cool access tier, but the access costs are higher.
Archive	This is ideal for objects that are rarely accessed. And if you need to access them, you don't mind waiting for the data to be restored first. Here the data needs to be stored for a minimum of 180 days.