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Learning paths:

# Choose the best Azure service to automate your business processes

You can use the following methods with Microsoft Azure to host and execute code or workflows without using a Virtual Machine (VMs):

Azure functions

Microsoft Power Automate

Azure Logic Apps

Azure WebJobs

## Choose the best Azure service to automate your business processes

An important consideration in automating the flow of data to your business is how to distribute the right data to the right task. Automating this flow can streamline your business even further.

The example in the course uses a bike rental program at an University and how to scale up between low month usage and when the students return to class in August/September.

### Identify the technology options

Integrating an existing solution in another campus for the bike rental program.

#### Common business problems

You can use strict business processes to guarantee a high-quality service to users and high-quality products. Each process can have multiple steps, multiple people, and multiple software packages. The processes can run in tandem, branch, or loop.

Workflows are business processes modeled. Azure has four different technologies that you can build and implement workflows that integrate multiple systems.

Logic Apps

Microsoft Power Automate

WebJobs

Azure Functions

These four technologies has similar concepts:

They can all accept inputs or a piece of data or file supplied to the workflow

They can all run action, which is a simple operation that the workflow executes and may often modify data or cause another action to be performed

The can all include conditions, which is a condition, often run against an input that may decide which action to complete next.

They can all produce an output, such as a piece of data created by the workflow

These workflows can be either be started based on a schedule or can be triggered by some external event.

## Design-first technologies

When business analysts discuss and plan a business process, they may draw a flow diagram on paper. You can use this approach using Logic Apps and Microsoft Power Automate when designing your workflow. This is called the design-first approach.

### Logic Apps

Logic Apps is a service within Azure that you can use to automate, orchestrate, and integrate disparate components of a distributed application. By using the design-first approach in Logic Apps, you can draw out complex workflows that model complex business process. You can also modify the .json file in code view.

There are over 200 connectors to use with Logic Apps. These connectors provide an interface to an external service. The Twitter connector allows you to send and retrieve tweets and the Office 365 Connector lets you manage your email, calendar, and contacts. Logic Apps provides hundreds of pre-built connectors that you can use in your own apps. If you have an unusual or unique system that you want to call from a Logic Apps, you can create your own connector if your system exposes a REST API.

### Microsoft Power Automate

Microsoft Power Automate is a service that you can use to create workflows even when you have no development or IT Pro experience. You can create workflows that integrate and orchestrate many different components using the website or the Microsoft Power Automate Mobile App.

There are four different types of flow you can create:

Automated: A flow that is started by a trigger from some event. For example, the event could be the arrival of a new tweet or a file being uploaded.

Button: Use a button flow to run a repetitive task with a single click from your mobile device.

Scheduled: A flow that executes on a regular basis such as once a week, on a specific date, etc.

Business process: A flow that models a business process such as the stock ordering process or the complaints procedure.

Microsoft Power Automate provides an easy-to-use design that anyone can use to create flows of the above types. As the following screen shot illustrates, the designer makes it easy to design and layout your process.

Under the hood, Microsoft Power Automate is built on Logic Apps. This fact means that Power Automate supports the same range of connectors and actions. You can also use custom connectors in Microsoft Power Automate.

### Design-first technologies compared

Microsoft Power Automate is more appropriate for use by non-technical staff. If your workflow designers are IT professionals, developers, or DevOps practitioners, Logic Apps are usually a better fit.

|  |  |  |
| --- | --- | --- |
|  | **Microsoft Power Automate** | **Logic Apps** |
| **Intended users** | Office workers and business analysts | Developers and IT Pros |
| **Intended scenarios** | Self-service workflow creation | Advanced integration projects |
| **Design tools** | GUI Only. Browser and mobile apps | Browser and Visual Studio designer, code editing is possible |
| **Application Lifecycle Management** | Power Automate includes testing and production environments | Logic Apps source code can be included in Azure DevOps and source coded management systems |

## Code-first technologies

The developers on your team will likely prefer to write code when they want to orchestrate and integrate different business applications into a single workflow. This is the case when you need more control over the performance of your workflow or need to write custom code as part of the business process. For such people, Azure include WebJobs and Functions.

WebJobs are part of the Azure App Service that you can use to run a program or script automatically. There are two kinds of WebJobs.

Continuous – These WebJobs run in a continuous loop. For example, you can use a continuous WebJob to check a shared folder for a new photo.

Triggered – These WebJobs run when you manually start them or on a schedule.

You can use several different programming languages to determine what action your WebJobs will take. You can script the WebJob by writing code in a Shell Script (Windows, PowerShell, Bash) or you can write a program in PHP, Python, Node.js, or Java.

You can also use the .NET Framework or the .NET Core Framework and a .NET language such as C# or VB.NET. When using a .NET language, you can use the WebJobs SDK to make the task easier. The SDK includes a range of classes, such as JobHostConfiguration and HostBuilder, which reduces the code required to interact with the Azure App Service.

The WebJobs SDK only supports C# and the NuGet package manager.

## Azure Functions

Azure functions is a simple way for you to run small pieces of code in the cloud, without having to worry about the infrastructure required to host that code. You can write Azure Functions in C#, Java, JavaScript, PowerShell, Python, etc. In addition, with the consumption plan option, you only pay for the time when the code runs. Azure scales your functions based on the demand from users.

You use the portal to create Azure Functions. If you need source control management, you can also use GitHub or DevOps Services.

To create an Azure Function, choose from the range of templates, which includes:

HTTPTrigger – this template can be used when you want the code to execute in response to a request sent through the HTTP protocol

TimerTrigger – This template can be used when you want the code to execute according to a schedule.

BlobTrigger - This template can be used when the code you want to execute when a new blob is added to an Azure Storage account

CosmosDBTrigger - This template is used when you want the code to execute in response to a new or updated document in a NoSQL database.

Azure Functions can integrate with many different services both within Azure and from third parties. These services can trigger your function, send data to your function, or receive data output from your function.

### Code-first technologies compared

In most cases, the simple administration and more flexible coding model provided by Azure Functions may lead you to close them in preference to WebJobs. However you may choose WebJobs for the following reasons:

You want the code to be a part of an existing App Service application, such as in the same Azure DevOps environment.

You need close control over the object that listens for events that triggers the code. You can use the JobHost class for this control of this object.

|  |  |  |
| --- | --- | --- |
|  | **Azure WebJobs** | **Azure Functions** |
| **Support languages** | C# if you are using the WebJobs SDK | C#, Java, JavaScript, PowerShell, etc. |
| **Automatic scaling** | No | Yes |
| **Development and testing in a browser** | No | Yes |
| **Pay-per-use pricing** | No | Yes |
| **Integration with Logic Apps** | No | Yes |
| **Package Managers** | NuGet if you are using the WebJobs SDK | NuGet and NPM |
| **Can be part of an App Service application** | Yes | No |
| **Provides close control of JobHost** | Yes | No |

# Analyze the decision criteria

## How to choose a service

This diagram illustrates a flow chart you can use to choose the best technology:

