

# Serverless Computing

Serverless computing is a cloud computing execution model in which the cloud provider dynamically allocates resources to run an application's code, and the user only pays for the time that the code is actually running. This allows developers to focus on building and deploying their applications, without having to worry about the underlying infrastructure.

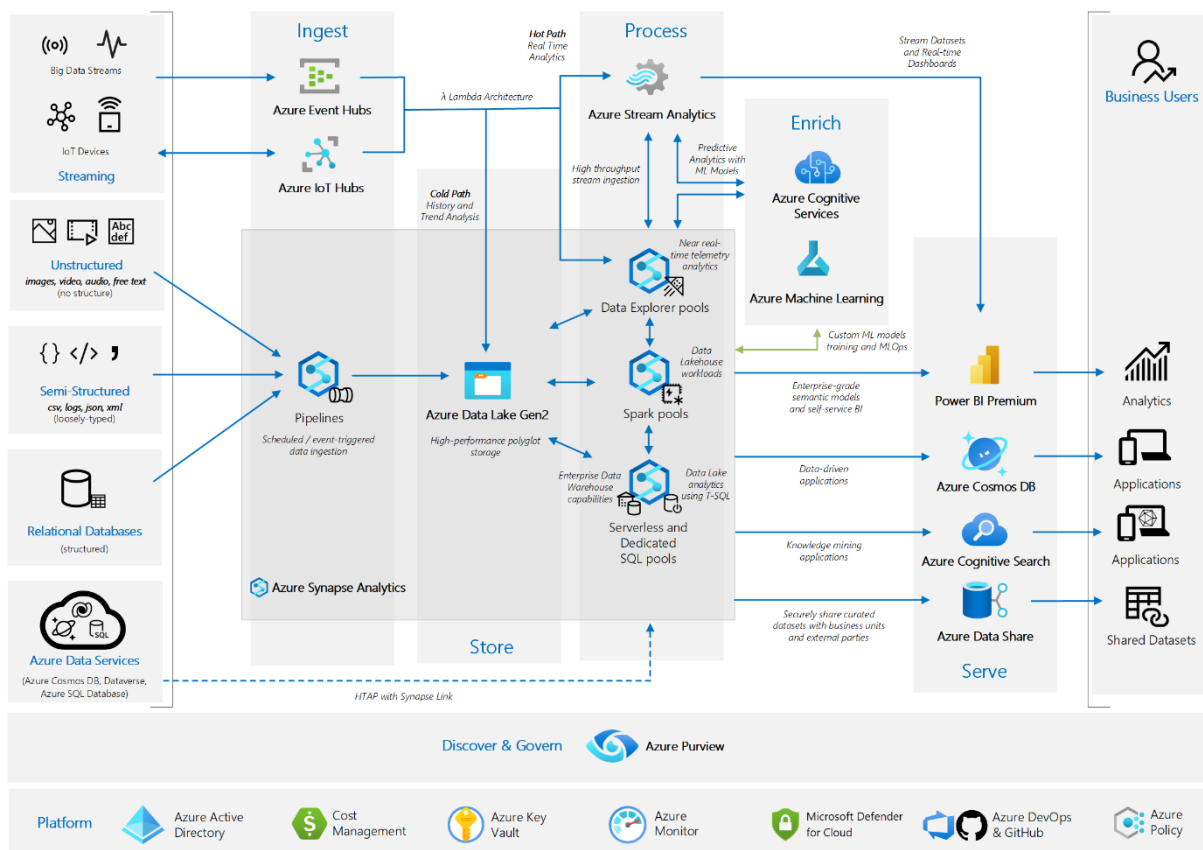
One example of using serverless on Microsoft Azure is to build a real-time data processing and analytics platform.

## Problem Statement:

A company has a large amount of data that is generated by various sources, such as IoT devices, social media, and e-commerce websites. They want to build a platform that can process and analyse this data in real-time, in order to gain insights and make data-driven decisions. However, they do not want to have to manage the underlying infrastructure, as they want to focus on developing and improving the data processing and analytics logic.

## Solution/Architecture:

To solve this problem, the company can use Azure's serverless offerings to build their data processing and analytics platform. They can use Azure Functions to run the code that processes and analyse the data, and Azure Event Hubs to ingest the data and trigger the functions. The processed and analysed data can then be stored in Azure Cosmos DB, which is a globally distributed, multi-model database that is well-suited for real-time data processing and analytics.

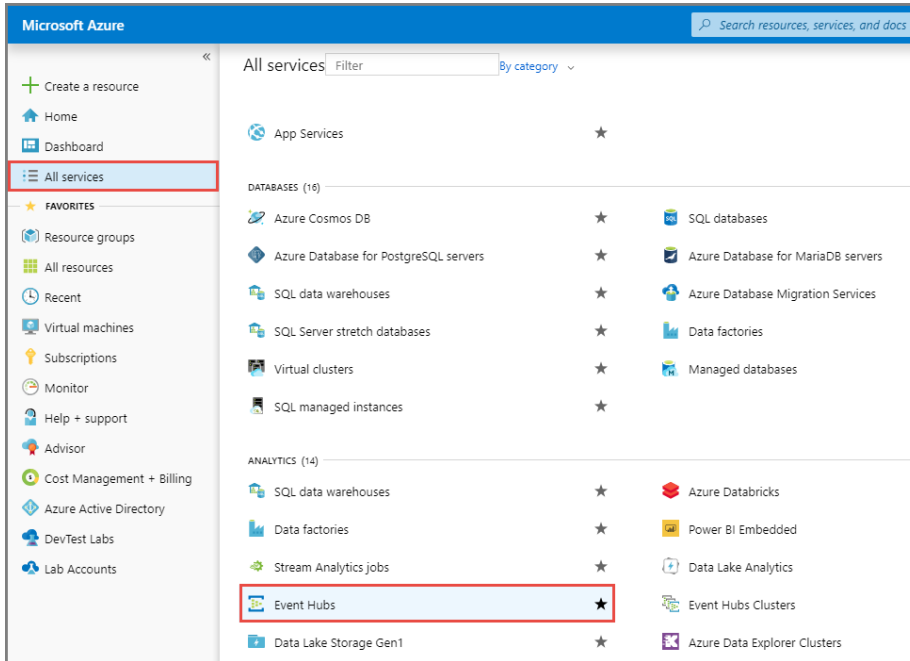


This solution allows the company to focus on developing the data processing and analytics logic, without having to worry about the underlying infrastructure. The functions will be automatically scaled up or down based on demand, and the company only pays for the time that the functions are actually running.

### Technical Details and Implementation of Solution:

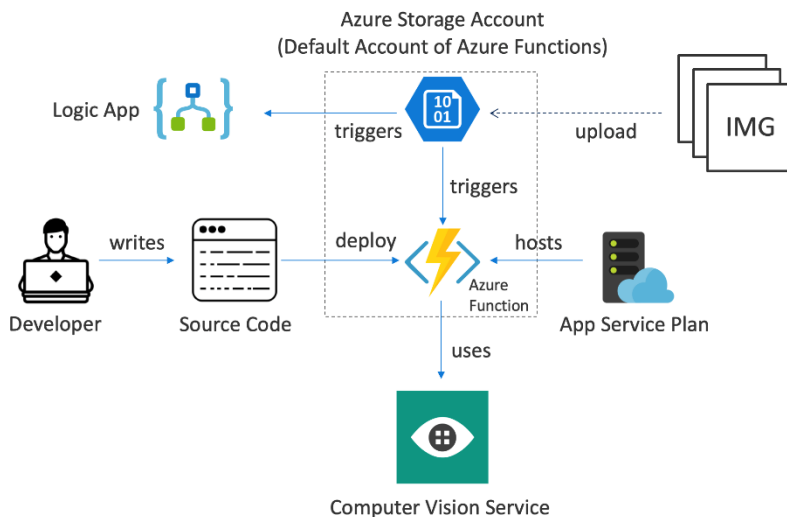
To implement this solution, the company can follow these steps:

- Set up an Azure Event Hubs namespace and create one or more event hubs to ingest the data.

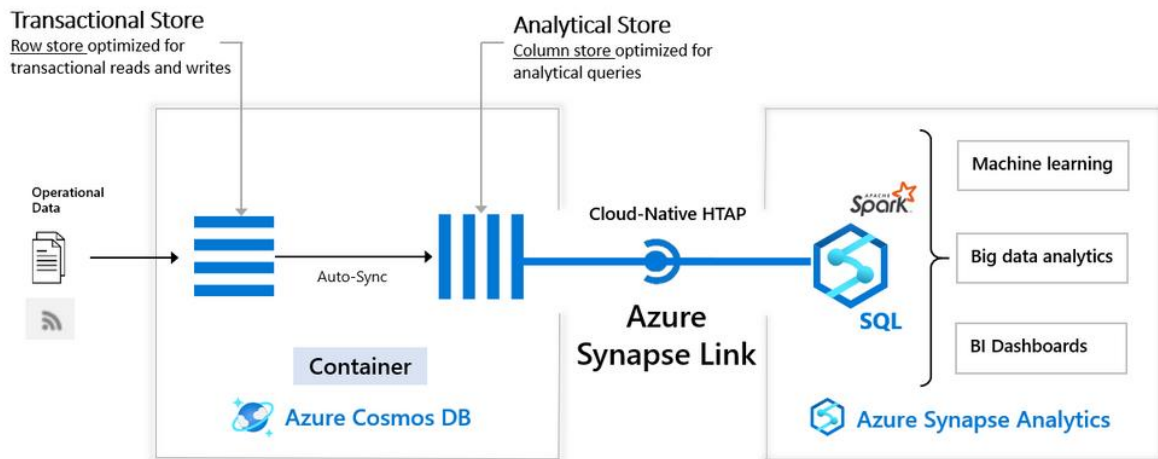


- Create Azure Functions to run the data processing and analytics logic. This can be done through the Azure portal, Visual Studio, or the Azure Functions CLI.

- Set up Azure Event Hubs triggers on the functions to trigger the functions when new data is available. This can be done through the Azure portal or the Azure CLI.

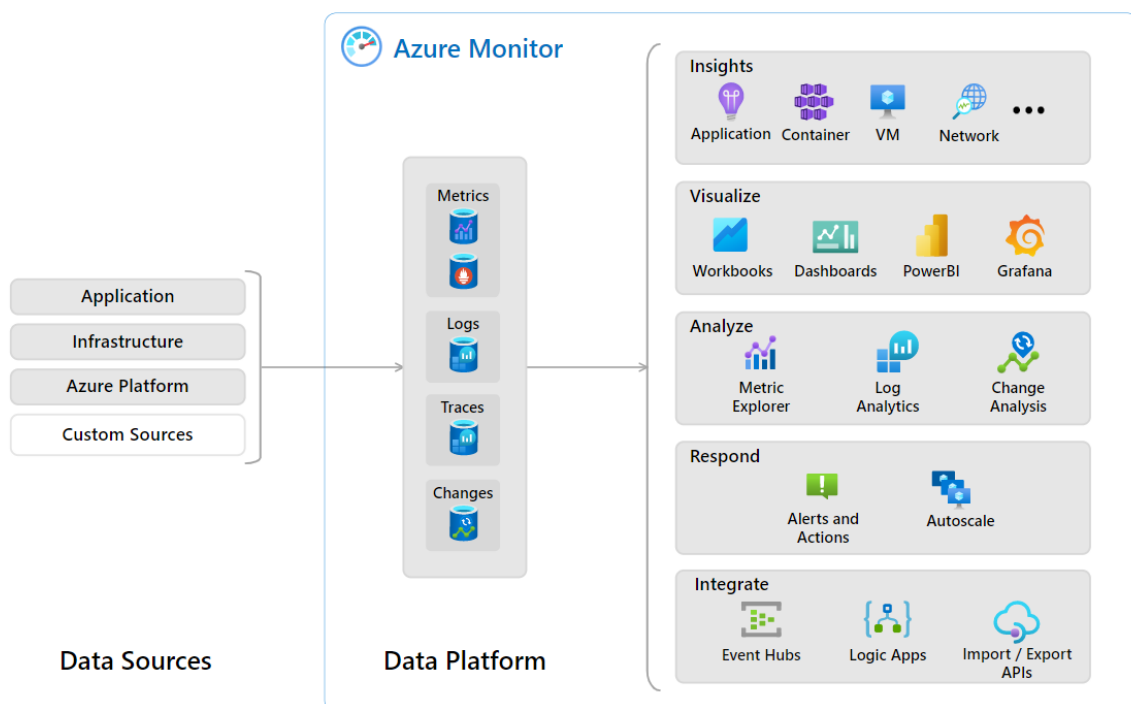


-Set up an Azure Cosmos DB account to store the processed and analysed data.



-Test and debug the functions using the Azure Functions local development tools.

Deploy the functions to Azure and set up monitoring and logging using Azure Monitor and Azure Log Analytics.



## **Challenges in Implementing the Solution:**

One challenge in implementing this solution is the learning curve associated with using Azure Functions and Event Hubs. These tools can be complex to set up and use, especially for those who are new to serverless computing.

Another challenge is the cost of running serverless functions on Azure. While the pay-per-use model can be cost-effective for smaller applications, the cost can quickly become significant for larger applications. It is important to carefully monitor and optimize the usage of the functions to ensure that costs are kept under control.

## **Business Benefit:**

By using serverless on Azure to build their data processing and analytics platform, the company can realize several benefits. Firstly, they can focus on developing and improving the data processing and analytics logic, without having to worry about the underlying infrastructure. Secondly, the platform will be able to process and analyse data in real-time, which can enable faster decision making and allow the company to react quickly to changing conditions. Additionally, the platform will be automatically scaled up or down based on demand, which can help to optimize cost. Finally, using a pay-per-use model like Azure Functions means that the company only pays for the resources that they actually use, which can further reduce costs.

Overall, using serverless on Azure to build a real-time data processing and analytics platform can provide significant business value by allowing the company to gain insights from their data more quickly and make data-driven decisions more effectively.

## **Resource:**

-<https://learn.microsoft.com/de-de/azure/architecture/example-scenario/analytics/enterprise-bi-synapse>

-[https://learn.microsoft.com/en-us/azure/azure-monitor/media/overview/azure-monitor-overview-2022\\_10\\_15-add-prometheus-opt.svg](https://learn.microsoft.com/en-us/azure/azure-monitor/media/overview/azure-monitor-overview-2022_10_15-add-prometheus-opt.svg)

-By Fenil (Software Engineer)

[www.fenil.chauhan@gmail.com](mailto:www.fenil.chauhan@gmail.com)