AZURE FUNCTIONS VERSION 3

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INTRODUCTION

What are Azure Functions?

- Serverless FaaS computing platform
- Event driven - an event driven architecture where the function is driven by the trigger
- Pay as you go scalable model

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INTRODUCTION

FaaS is at the center of serverless

Functions-as-a-Service programming model use functions to achieve true serverless compute

Single responsibility

Functions are single-purposed, reusable pieces of code that process an input and return a result

Short-lived

Functions don't stick around when finished executing, freeing up resources for further executions

Stateless

Functions don't hold any persistent state and don't rely on the state of any other processes

Event-driven and scalable

Functions respond to predefined events, and are instantly replicated as many times as needed

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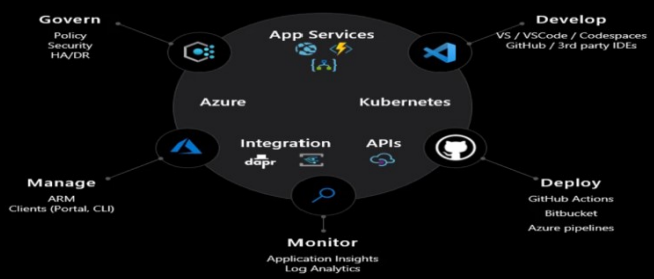
INTRODUCTION

Serverless platform

Services for specific use case | Consistency across developer and operator lifecycle | Integrates with common services



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HISTORY

- Started in preview in March 2016.
- General Availability started in November 2016.
- Competitors:
  - AWS Lambda
  - Google Cloud Functions
  - IBM OpenWhisk
  - Auth0 Webtask

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Azure Function

- Azure is a serverless solution that enables writing less code, maintain less infrastructure and saves on cost.
- Enable developer to connect to data sources making it easy to process and react to events
- Also, allows to build HTTP-based APIs.

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History

Language	1.x	2.x	3.x	4.x
C#	GA (.NET Framework 4.8)	GA (.NET Core 2.1[1])	GA (.NET Core 3.1) GA (.NET 5.0)	GA (.NET 6.0)
JavaScript	GA (Node.js 6)	GA (Node.js 10 & 8)	GA (Node.js 14, 12, & 10)	GA (Node.js 14) Preview (Node.js 16)
F#	GA (.NET Framework 4.8)	GA (.NET Core 2.1[1])	GA (.NET Core 3.1)	GA (.NET 6.0)
Java	N/A	GA (Java 8)	GA (Java 11 & 8)	GA (Java 11 & 8)
PowerShell	N/A	GA (PowerShell Core 6)	GA (PowerShell 7.0 & Core 6)	GA (PowerShell 7.0)
Python	N/A	GA (Python 3.7 & 3.6)	GA (Python 3.9, 3.8, 3.7, & 3.6)	GA (Python 3.9, 3.8)
TypeScript[2]	N/A	GA	GA	GA

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Features Summary

- Key Feature of Azure function 3:
  - Supports .NET Core 3.1 and Node 12
  - Deploy and scale containers on managed Kubernetes.
  - Add cognitive capabilities to apps with APIs and AI services.
  - Azure PlayFab.
  - Execute event-driven serverless code with an end-to-end development experience.

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Use Cases

> Example Use Case Scenarios:

- Big data Processing
- File Processing Validation
- Game data visualization
- IoT reliable edge relay

> Companies using Azure Function at large scale:

- American Red Cross
- Lorven Technology

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ADVANTAGES

> More enterprise focused than the FaaS offerings from AWS and Google Cloud.
> The pricing model is same as in AWS Lambda or GCD
> F# and Typescript, .NET (6.0)
> enables open binding extensions
> Different plan option

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DISADVANTAGES

- Doesn't have ease of access
- limitations on scaling
  - upper bound of 100 on the number of App Functions
- The pricing model is complex
  - premium plan and Dedicated plans are targeted towards enterprise customers
  - low end consumption plan has some pretty severe limitations
  - pricing associated with storage is not clear

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EASE OF USE

- **Doesn’t have that ease of deployment compared to AWS**
- **Relatively new version so it needs technical support**
- **Azure can host python only on Linux based hosting plan so it does not have Azure portal support**

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COST

> CONSUMPTION PLAN
- Pay-per-call

$0.20 per million executions	FREE 1 million executions

- Pay-per-GB*seconds

$0.000016/GB-s	FREE 400,000 GB-s

> PREMIUM PLAN
- no cold start, enhanced performance and VNET access.

vCPU duration	vCPU: $0.16 vCPU/hour
Memory duration	Memory: $0.0114 GB/hour

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COST USAGE

> Resource Consumption in
- 1 second:- 3 million executions / sec=3m sec
- GB/s:- 512 MB / 1,024 MB *3 million sec = 1.5 m GB/sec

> Monthly free grant
- 1.5 m GB/sec - 0.4 Gb/sec= 1.1 GB/sec
- 3 m executions – 1 m executions = 2 m executions

> Cost after free usage
- 1.1 GB/sec *$0.000016/GB/s = **$17.60**
- 2 million executions *$0.20 = **$0.40**

> **TOTAL= $18**

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BEST PRACTICES

- > Choose the correct hosting plan
- > Configure storage correctly
- > Organize your functions
- > WRITE ROBUST FUNCTIONS
  - – Avoid long running functions
  - – Plan cross function communication

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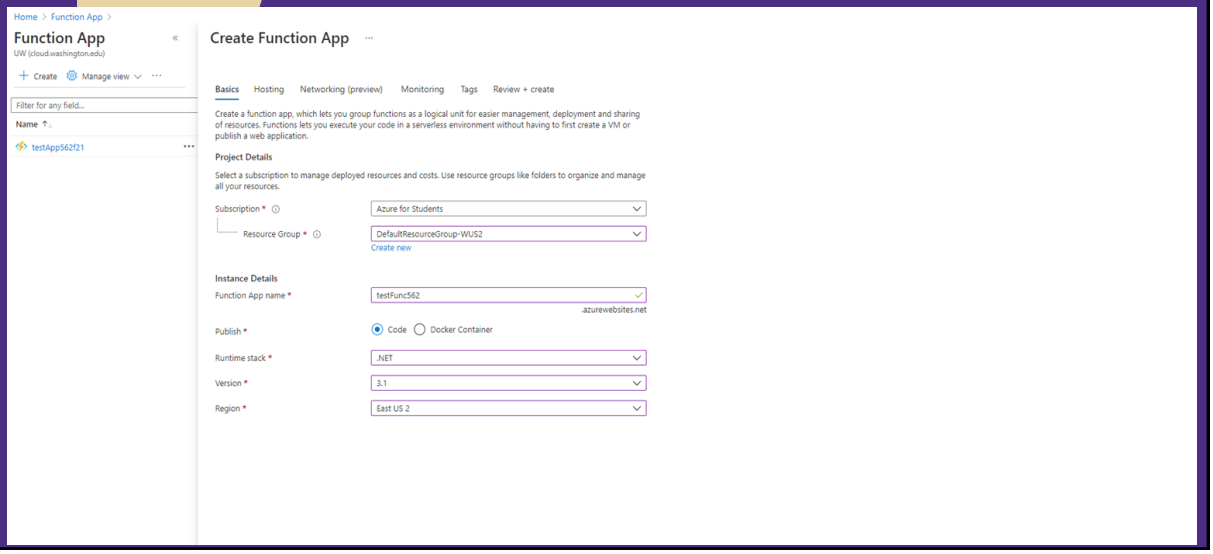
Demo



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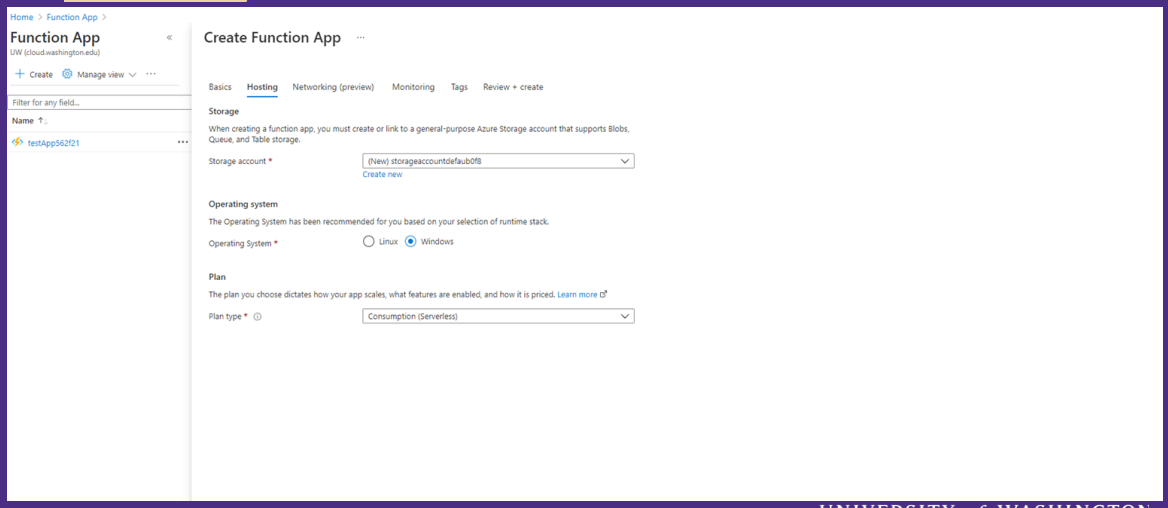
Demo



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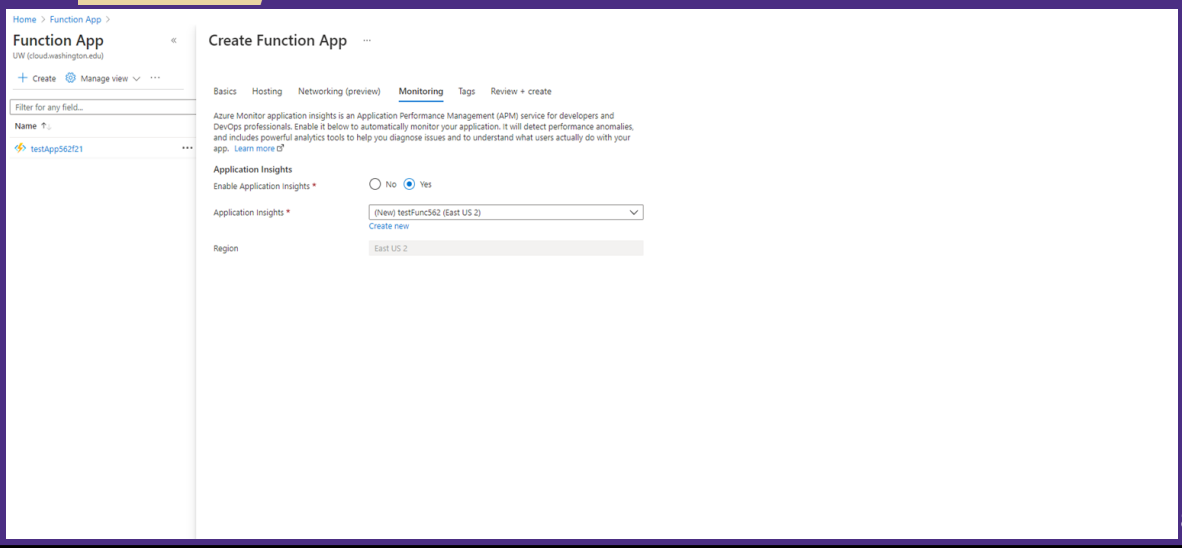
Demo



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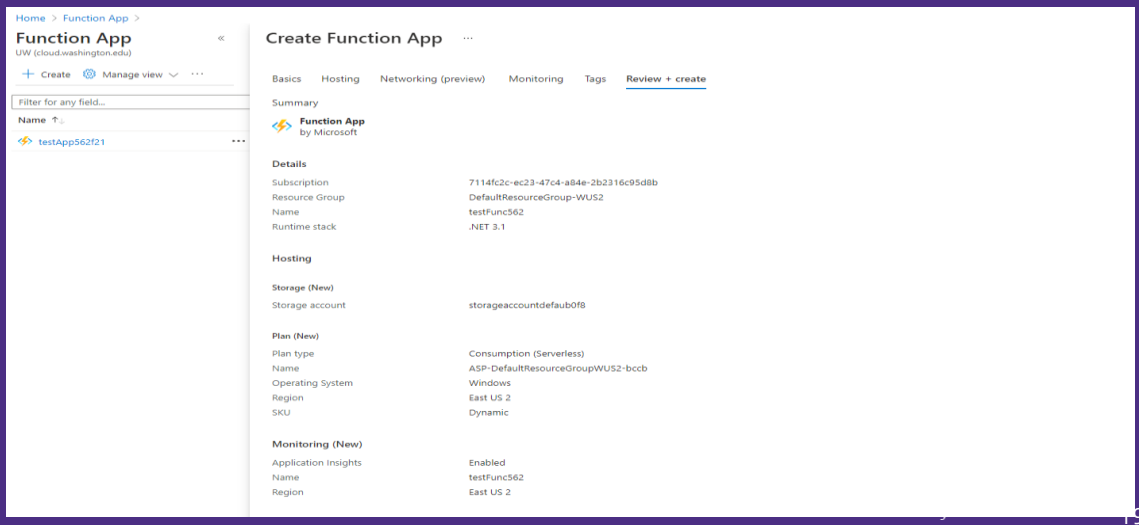
Demo



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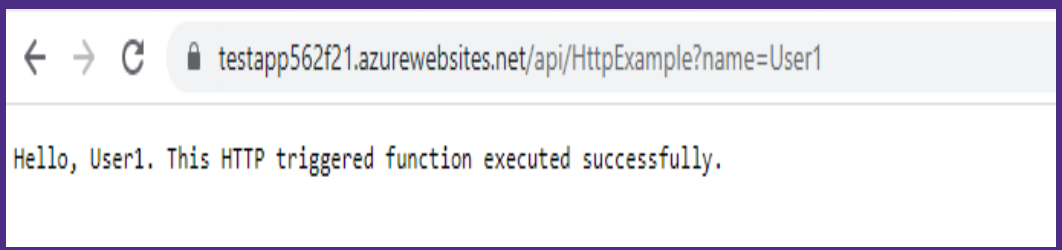
Demo

Output



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