Azure Functions

Workshop

Azure Thursdays

Every first thursday of the month

A friendly meetup about Azure related topics.

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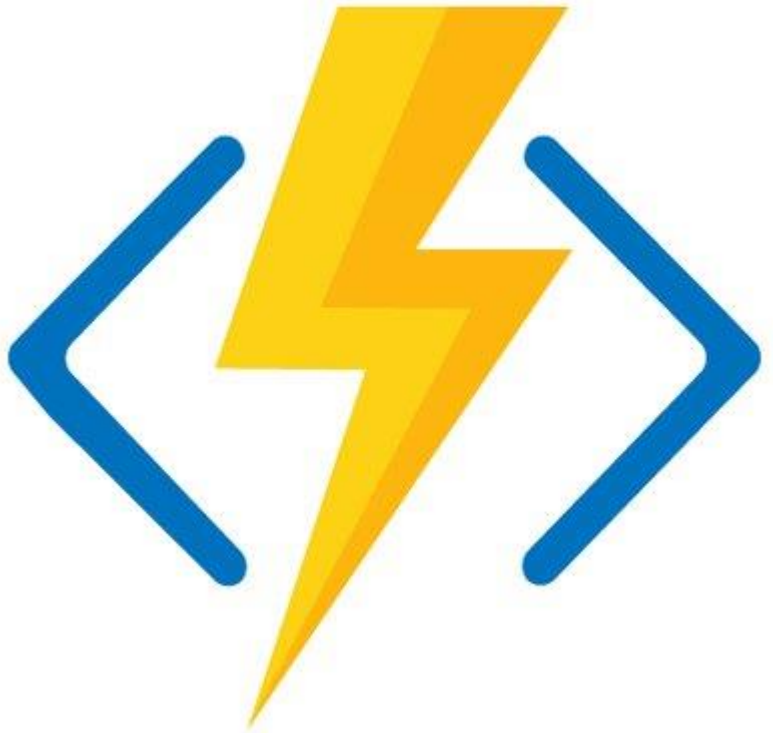
What can you expect?

- Introduction
- Characteristics
- Durable Functions
- Scenario’s
- Use Cases
- Demo
- Durable Functions
- Labs



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Who am I?

codit | Azure Technology Consultant

Microsoft® Most Valuable Professional | Microsoft MVP – Azure

InfoQ | InfoQ Cloud Editor

WAZUG board member

Azure Lowlands Organizer

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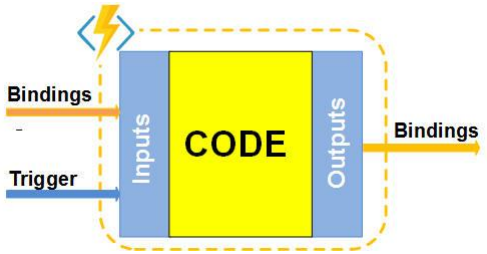
Introduction

Run code hosted in the Cloud

Bindings and Triggers



Hosting plan

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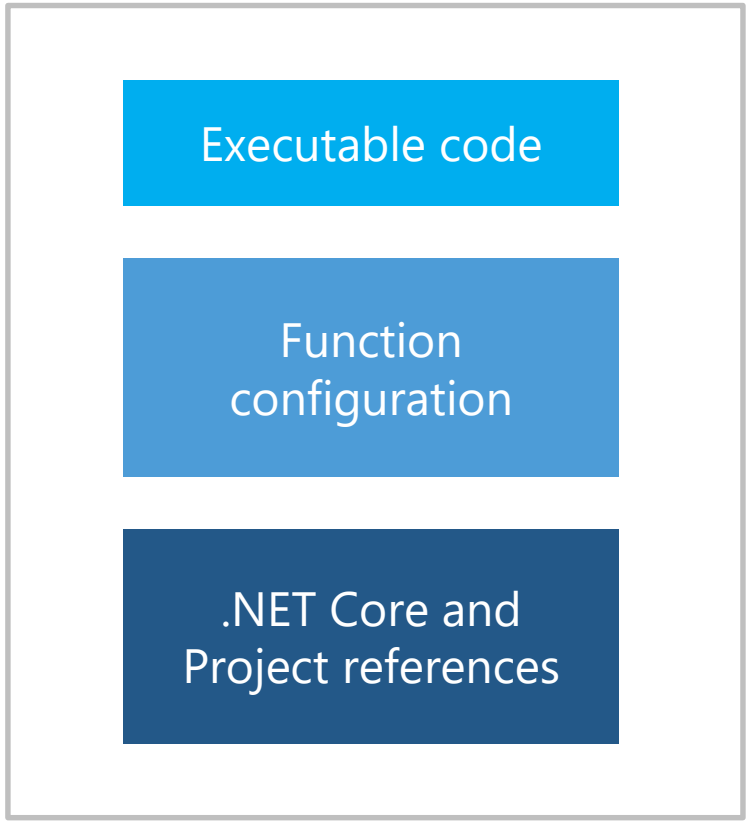
Azure Function Characteristics

- Choice of language
  - C#, Node.js, Python, F#, PHP, batch, bash, Java, or any executable
- Pay-per-use pricing model
  - Dynamic App Service Plan
- Support for NuGet and NPM
- Integrated security
  - Support for OAuth providers like AAD, Facebook, Google, Twitter, and Microsoft Account
- Code-less integration
- Flexible development
  - In-portal editor or set up continuous integration (e.g. GitHub, VSTS, local Git repository)

Anatomy of an Azure Function

- A “Run” file that containing the function code
- A “Function” file containing all service and trigger bindings and parameters
- A “Project” file containing project assembly and NuGet package references
- App Service settings, such as connection strings and API keys



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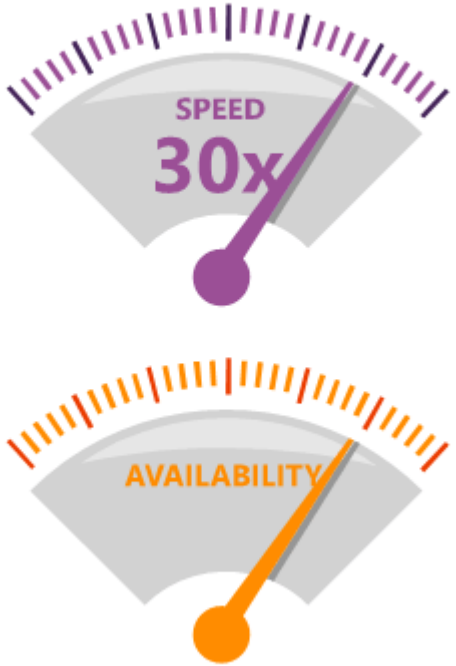
Scaling and hosting

- App Service offers dedicated and dynamic tiers.
- Dedicated is the existing App Service plan tiers
  - Basic, Standard, Premium
  - Pay based on # of reserved VMs
  - You're responsible for scale
- Dynamic
  - Pay on number of executions
  - Platform responsible for scale



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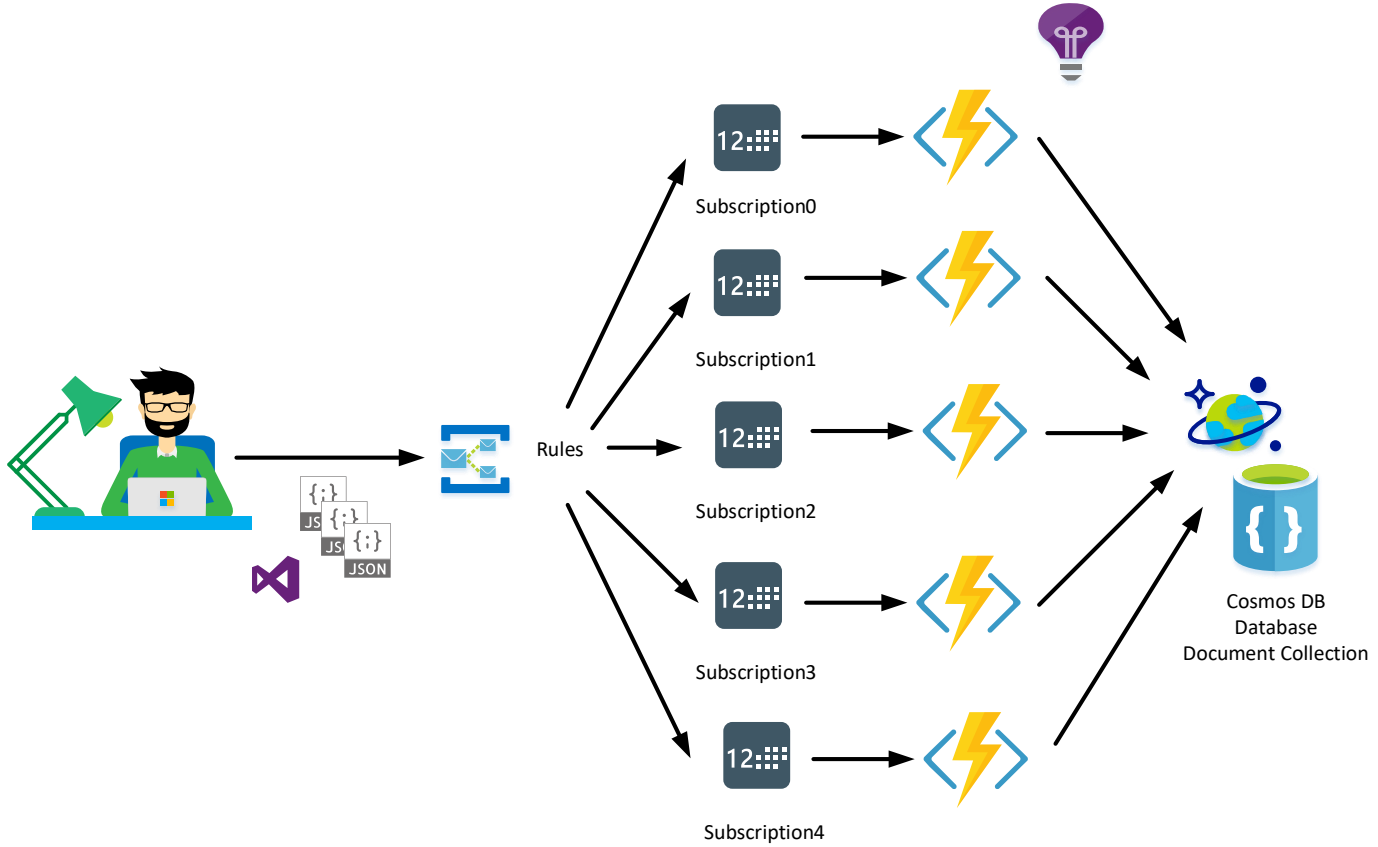
Demo – scaling



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Triggers and bindings

- Triggers automatically invoke the code in a function.
- Bindings serve as the basis for all connections to and from a function.

Type	Service	Trigger	Input	Output
Schedule	Azure Functions	✔		
HTTP (REST or webhook)	Azure Functions	✔		✔*
Blob Storage	Azure Storage	✔	✔	✔
Events	Azure Event Hubs	✔		✔
Queues	Azure Storage	✔		✔
Tables	Azure Storage		✔	✔
Tables	Azure Mobile Apps		✔	✔
NoSQL DB	Azure CosmosDB		✔	✔
Push Notifications	Azure Notification Hubs			✔

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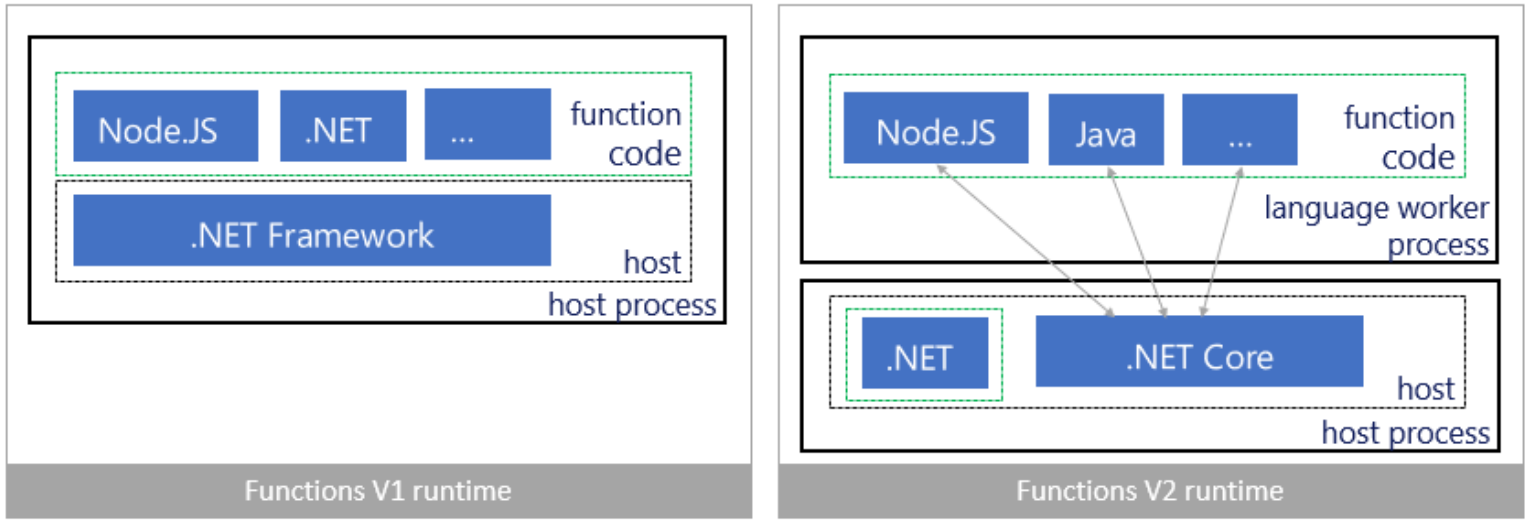
Functions V1 and V2

- Default Runtime for a Function App is V2
- V1 is Full .NET Framework
- V2 is .NET Core
- More language support for V2



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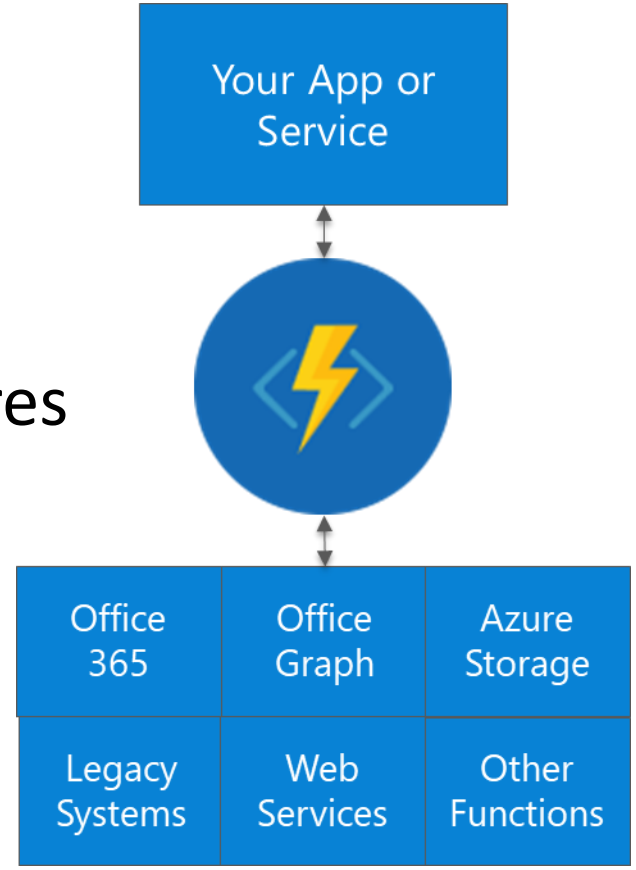
Scenario's

- Timer-based processing
- Azure service event processing
- SaaS event processing
- Serverless web application architectures
- Serverless mobile back ends
- Real-time stream processing
- Real-time bot messaging



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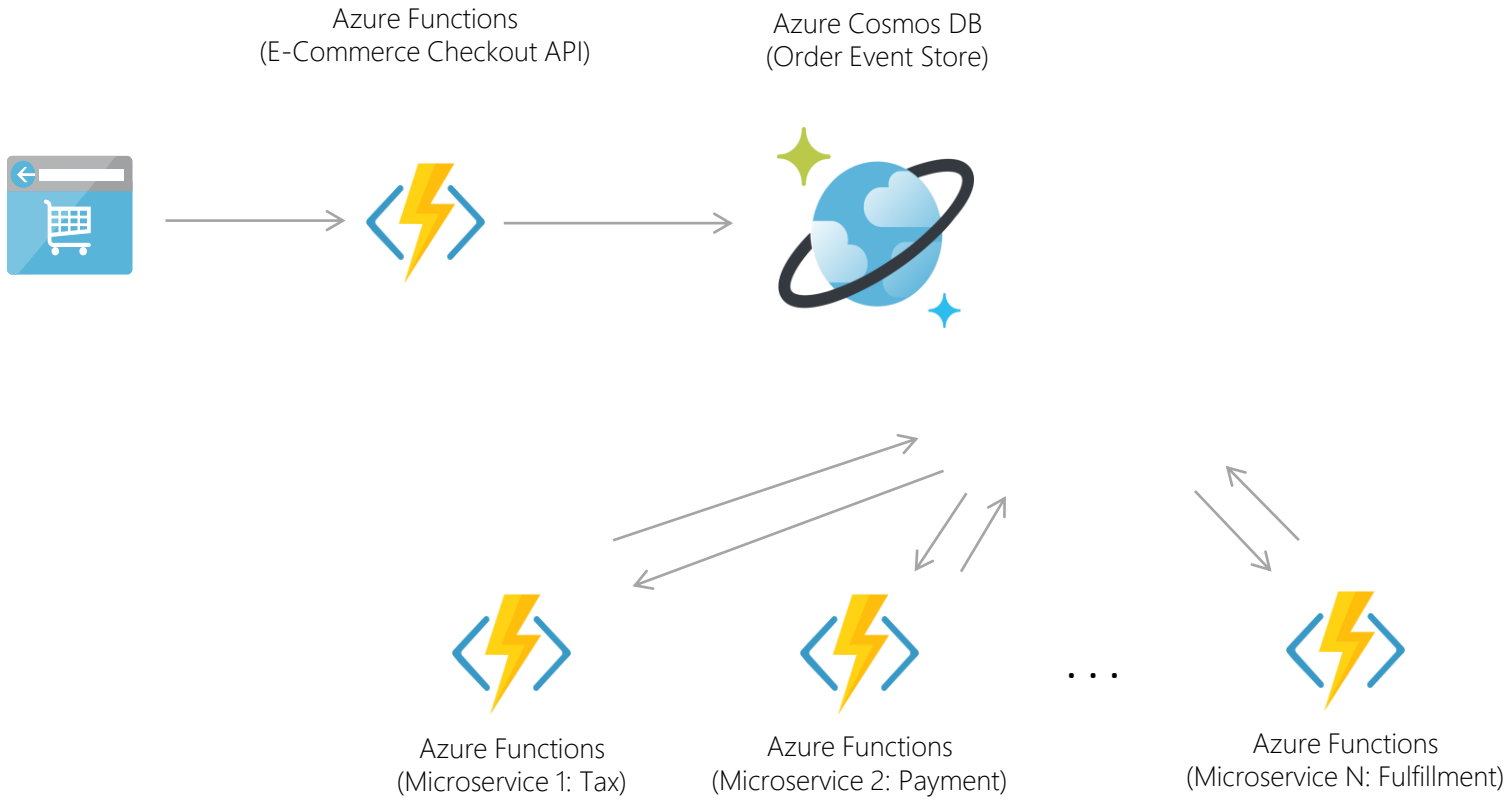
Use case – Order processing



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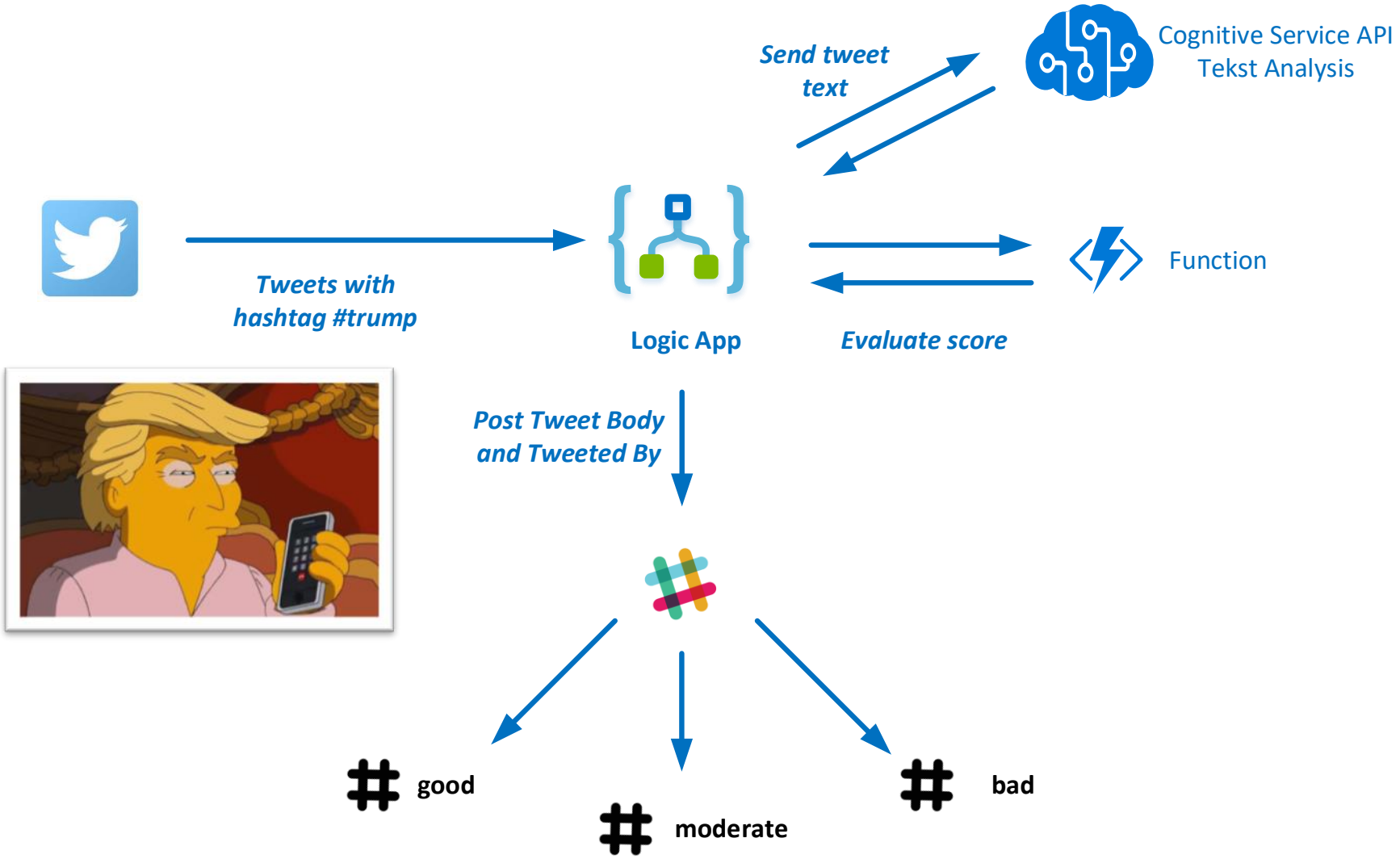
Use case – Sentiment Analysis



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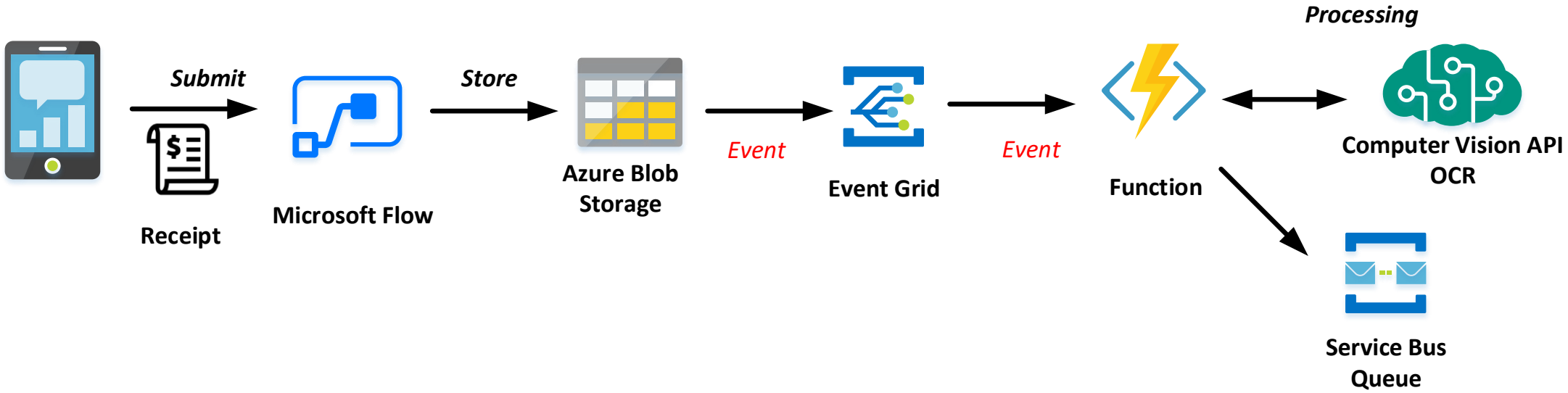
Use case – Serverless Expense Submission



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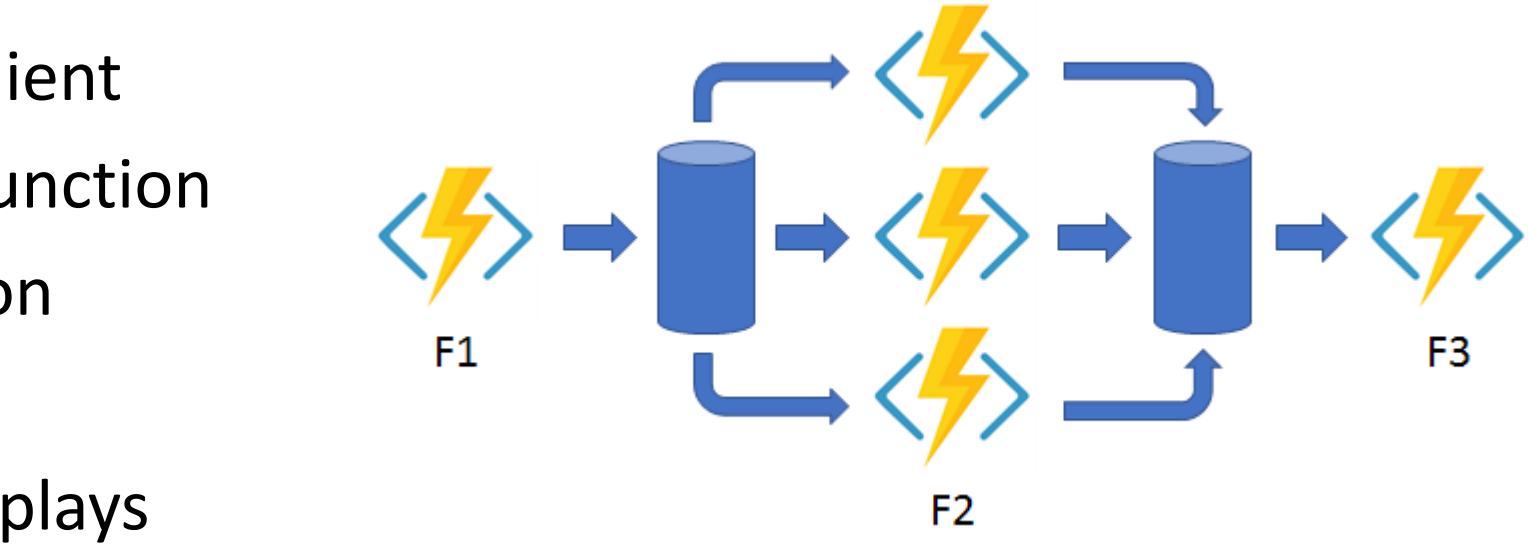
Durable Functions

- Advanced feature for writing long-running orchestrations as a single C# function. No JSON schemas. No designer.
- New orchestrator functions can synchronously or asynchronously call other functions.
- Automatic checkpointing, enabling “long running” functions.
- Solves a variety of complex, transactional coding problems in serverless apps.
- Built on the open source Durable Task Framework.

Durable Functions - Characteristics

- The Orchestrator Client
- The Orchestrator Function
- The Activity Function
- Bindings
- Checkpoints and replays



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Considerations

- Functions and Logic Apps work great together, and that integration will only get better.
- You can orchestrate Functions using Logic Apps today.
- Durable Functions overlaps with Logic Apps, one function calling another, but:
  - Offers advance ‘code only’ orchestration ‘like’ capabilities to function
  - Enables "long running" functions
  - Enables "advance" scenarios/patterns which are difficult otherwise: async HTTP, map reduce, actors, etc.

Labs

- Lab 1 - Build an Azure Function
- Lab 2 - Instrumenting a Function App with Application Insights
- Lab 3 – Azure Function and DevOps
- Lab 4 – Building a Smart solution
- Lab 5 – Durable Functions (Advanced)

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