

# Building a Function Pipeline

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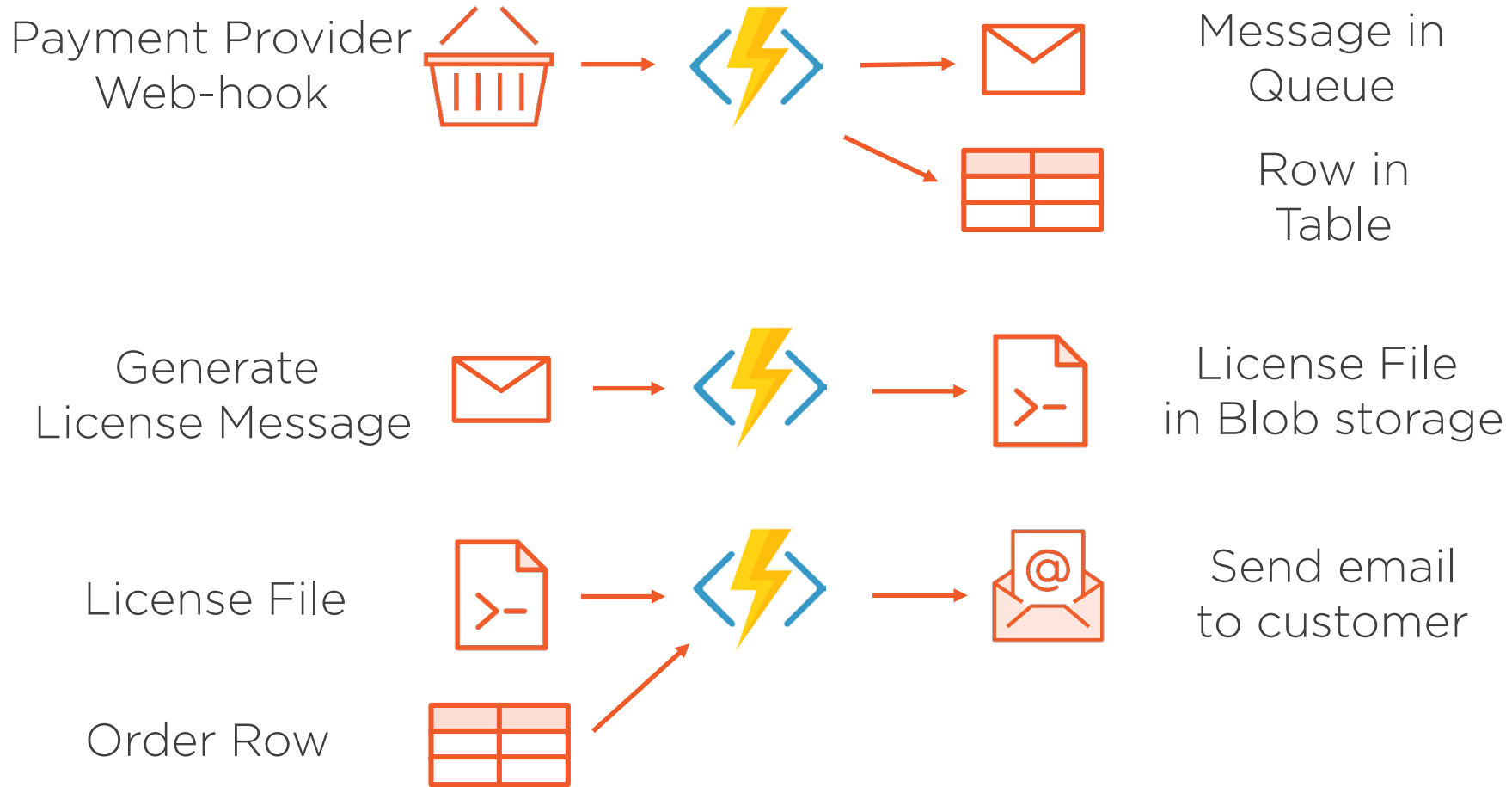
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SOFTWARE ARCHITECT

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# The Story so Far



# Overview



## More triggers and bindings...

- Queue trigger
- Blob output and trigger
- SendGrid email output
- Table Storage input and output

## Advanced binding techniques

- IBinder interface

## Function pipelines

- Chain together several, small single-purpose functions

# Demo



New Order  
Message



License File  
in Blob storage



## Demo Recap

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New Order  
Message



License File  
in Blob storage



## function.json – Queue Trigger

```
{  
  "name": "myQueueItem",  
  "type": "queueTrigger",  
  "direction": "in",  
  "queueName": "orders",  
  "connection": "AzureWebJobsStorage"  
},  
  
public static void Run(Order myQueueItem,  
    TraceWriter log, TextWriter outputBlob)  
{ ...
```



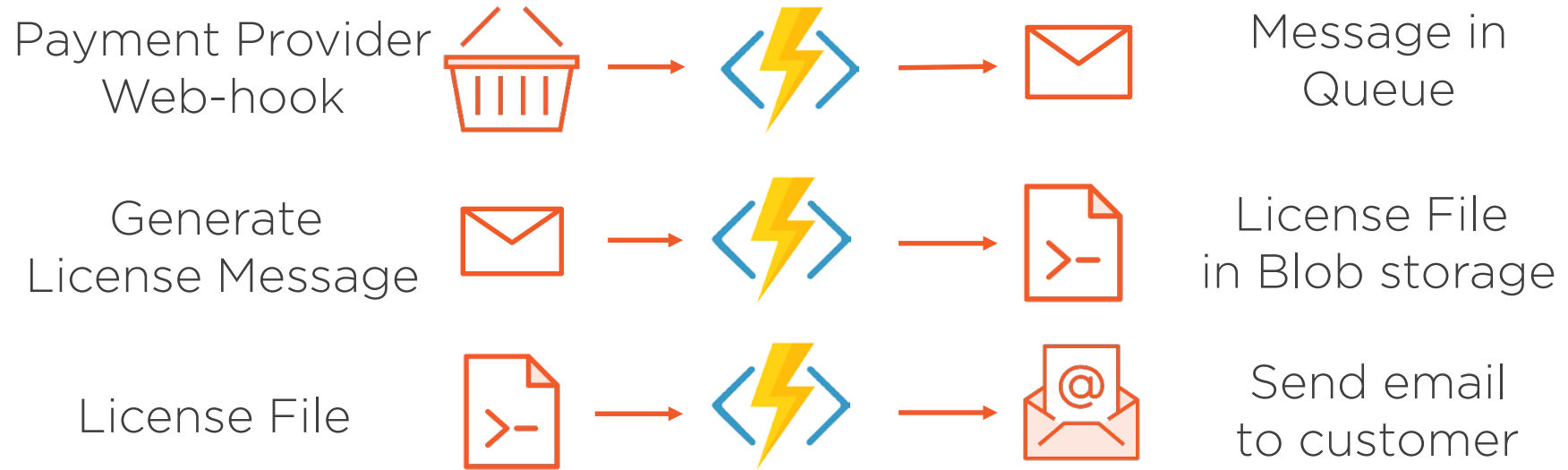
## function.json – Blob Output

```
{  
  "type": "blob",  
  "name": "outputBlob",  
  "path": "licenses/{rand-guid}.lic",  
  "connection": "AzureWebJobsStorage",  
  "direction": "out"  
}
```

```
public static void Run(Order myQueueItem,  
    TraceWriter log, TextWriter outputBlob)  
{ ...
```



# The Story so Far





# Demo



License File



Send email  
to customer



## Demo Recap

---

License file



Send email  
to customer



## function.json – Blob Trigger

```
{  
  "name": "myBlob",  
  "type": "blobTrigger",  
  "direction": "in",  
  "path": "licenses/{filename}.lic",  
  "connection": "AzureWebJobsStorage"  
},
```

```
public static void Run(string myBlob,  
    string filename, TraceWriter log, out Mail message)
```



# Blob Trigger Bindings



## Binding to parameters

- String
- Custom object
- Stream
- CloudBlockBlob
- ... many others

## function.json – SendGrid Output

```
{  
  "type": "sendGrid",  
  "name": "message",  
  "apiKey": "SendGridApiKey",  
  "direction": "out"  
}
```

```
public static void Run(string myBlob,  
  string filename, TraceWriter log, out Mail message)
```



# What if Bindings Don't Meet My Needs?

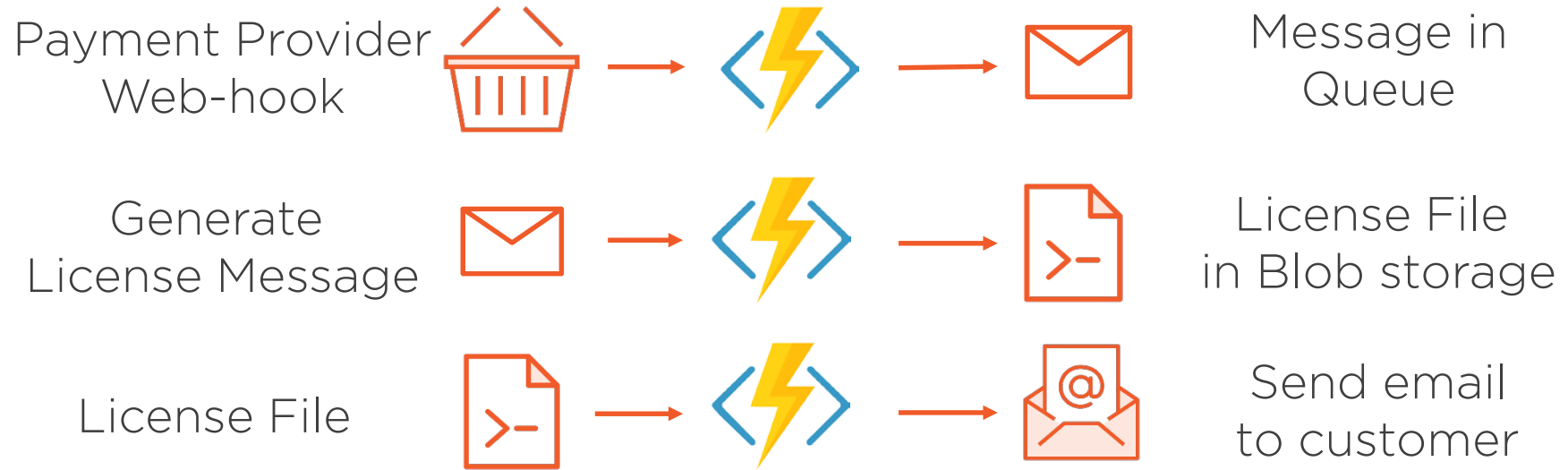


**You don't have to use bindings**

**Bindings are provided for convenience**



# The Story so Far



# Database Bindings



## Built-in bindings

- Azure DocumentDb
- Azure Table Storage

## SQL Azure

- No built-in support yet
- Use your own EF models



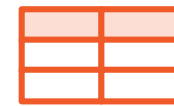
# Demo



Payment Provider  
Web-hook



Message in  
Queue



Row in  
Table



## Demo Recap

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Payment Provider  
Web-hook



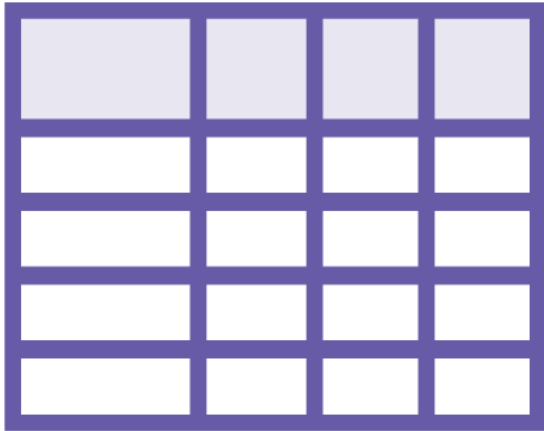
Message in  
Queue  
Row in  
Table

# function.json – Table Storage Output

```
{  
  "type": "table",  
  "name": "outputTable",  
  "tableName": "orders",  
  "connection": "AzureWebJobsStorage",  
  "direction": "out"  
}
```



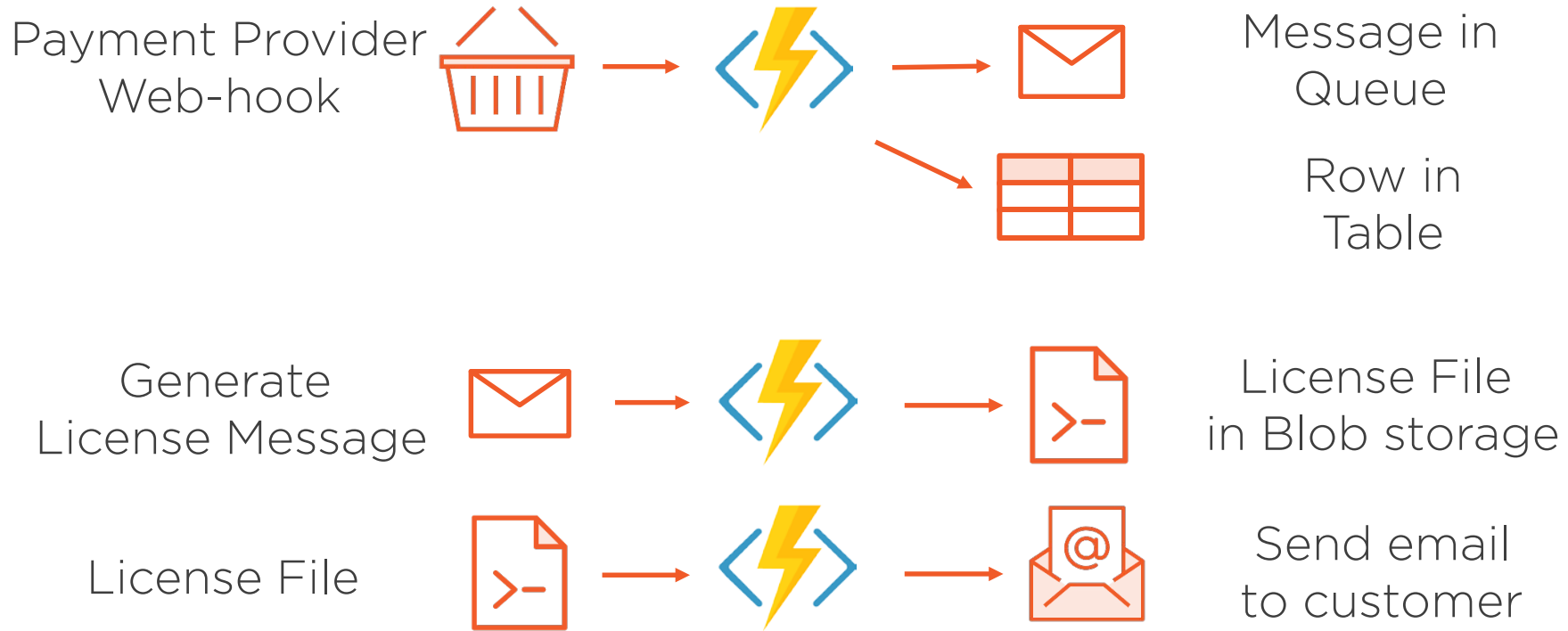
# Table Storage Output Binding



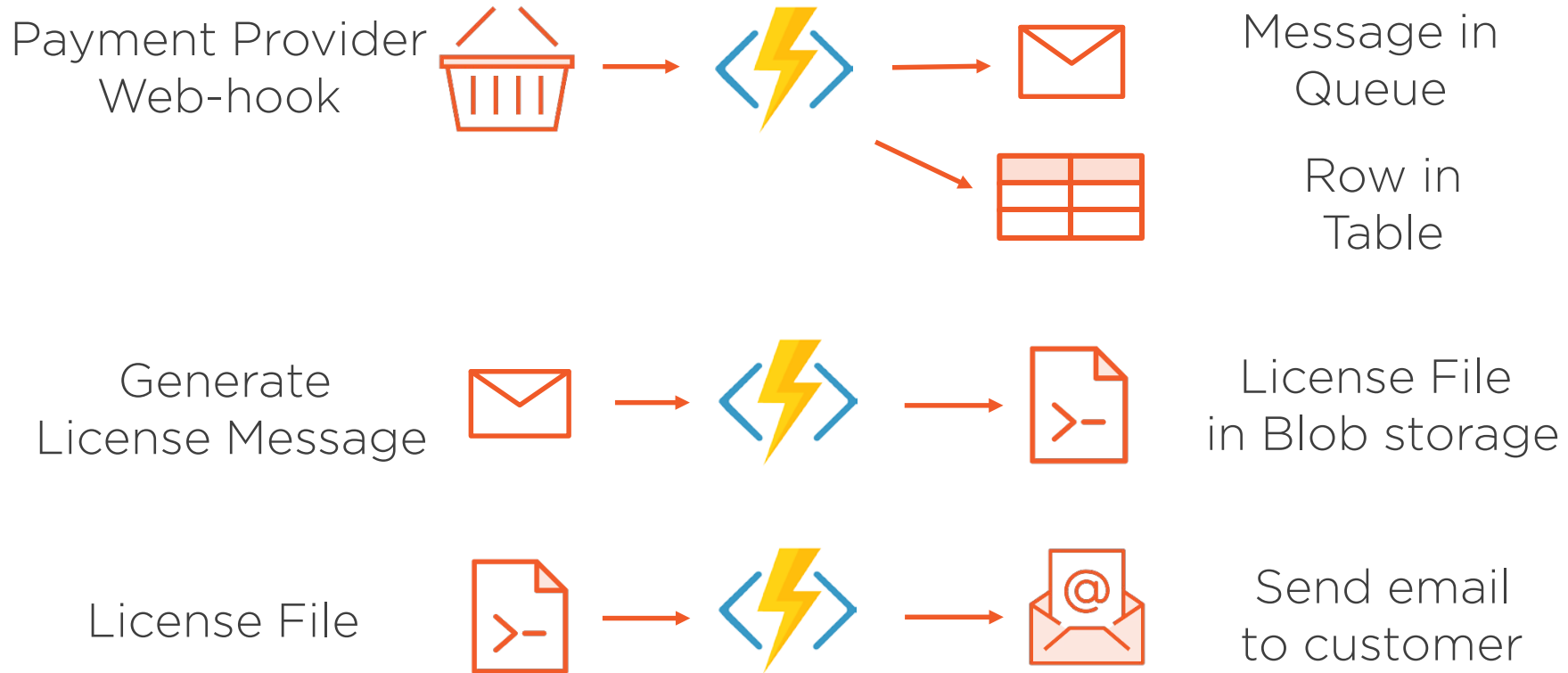

## **IAsyncCollector<T>**

- Strongly typed object
- RowKey and PartitionKey

# The Story so Far



# The Story so Far



a9298135-4c7f-4829-a441-e3a5f7c8a4c4.lic



# Demo



## **IBinder**

- Control license filename

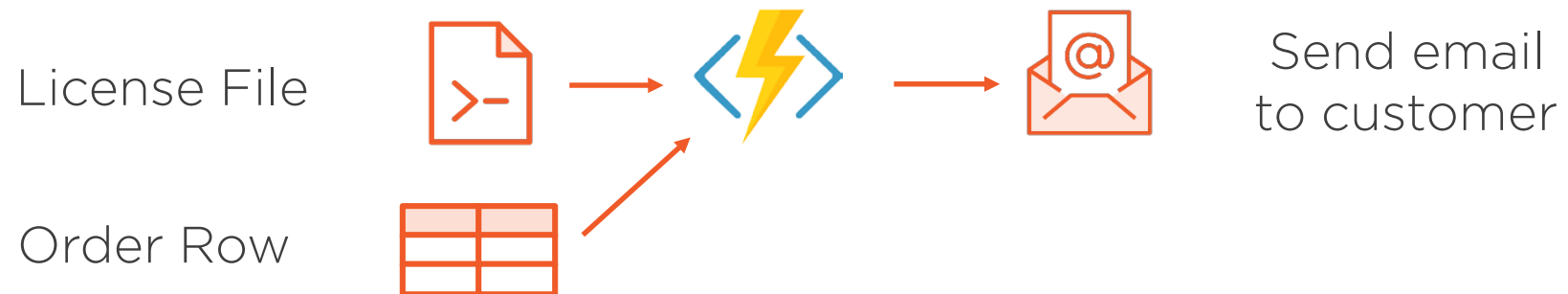
## **Input Binding**

- Lookup order in Azure Table Storage



## Demo Recap

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# function.json – Table Storage Input

```
{  
  "type": "table",  
  "name": "ordersRow",  
  "tableName": "orders",  
  "partitionKey": "Orders",  
  "rowKey": "{filename}",  
  "take": 50,  
  "connection": "AzureWebJobsStorage",  
  "direction": "in"  
}
```



```
public static void Run(Order order, IBinder binder)
{
    using (var outputBlob = binder.Bind<TextWriter>
        (new BlobAttribute(
            $"licenses/{myQueueItem.OrderId}.lic")))
    {
        outputBlob.Write(...);
    }
}
```

IBinder

**Control blob filenames**

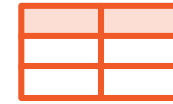


# The Story so Far

Payment Provider  
Web-hook



Message in  
Queue



Row in  
Table

Generate  
License Message



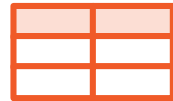
License File  
in Blob storage

License File



Send email  
to customer

Order Row

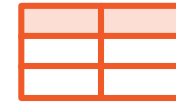


# The Story so Far

Payment Provider  
Web-hook



Message in  
Queue



Row in  
Table

Generate  
License Message



License File  
in Blob storage

License File



Send email  
to customer

Order Row



# Summary



## Add bindings easily in the portal

- Function.json

## Binding parameter types

- Strings, Streams, Custom objects
- `IAsyncCollector<T>`

## Chaining functions into a pipeline

- Testing with Postman



# That's Not All



## More triggers and bindings

- ServiceBus, DocumentDb, Twilio

## More parameter types

- Read the docs!

## More languages

- JavaScript, F#, PowerShell
- Learn from the sample templates

Next Up...

Deploying Azure Functions

