

Azure Function

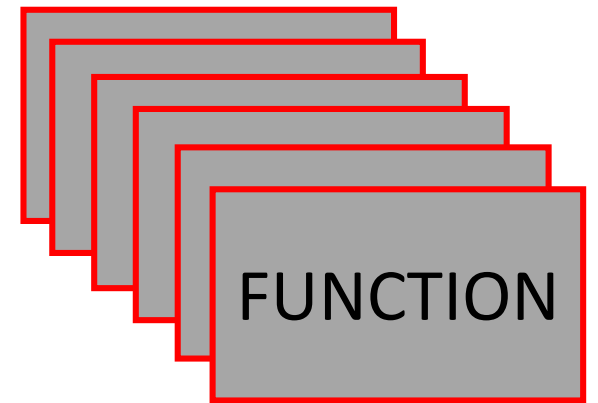
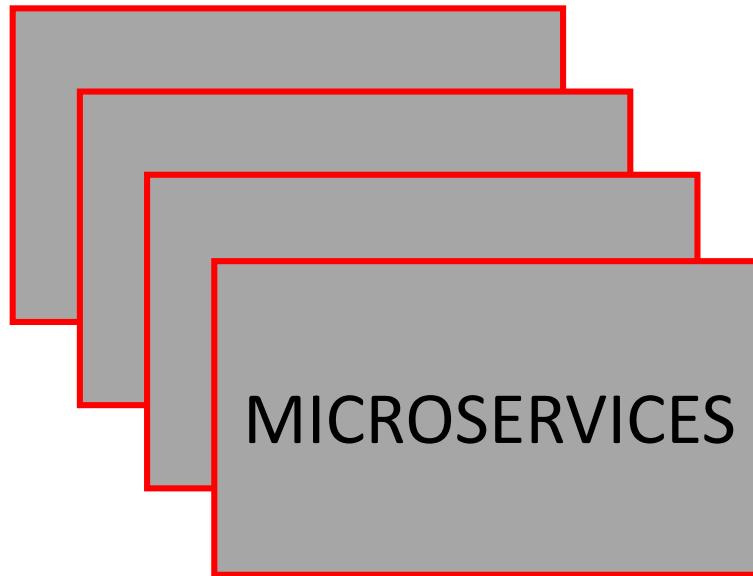
Function as a Service (FaaS)

Presented By Freddy @FredEatWorld

Cloud Computing Service Models

- Backend as a Service - **BaaS**
- Content as a Service - **CaaS**
- Data as a service - **DaaS**
- Database as a service - **DBaaS**
- Desktop as a Service
- Energy Storage as a Service - **ESaaS**
- Function as a Service - **FaaS**
- Games as a Service - **GaaS**
- Infrastructure as a service – **IaaS**
- IT as a service - **ITaaS**
- Logging as a service - **LaaS**
- Mobile backend as a service - **MBaaS**
- Monitoring as a Service
- Network as a service - **NaaS**
- Payments as a service
- Platform as a service - **PaaS**
- Recovery as a service
- Robot as a service - **RaaS**
- Search as a service
- Security as a service
- Software as a service - **SaaS**
- Storage as a service

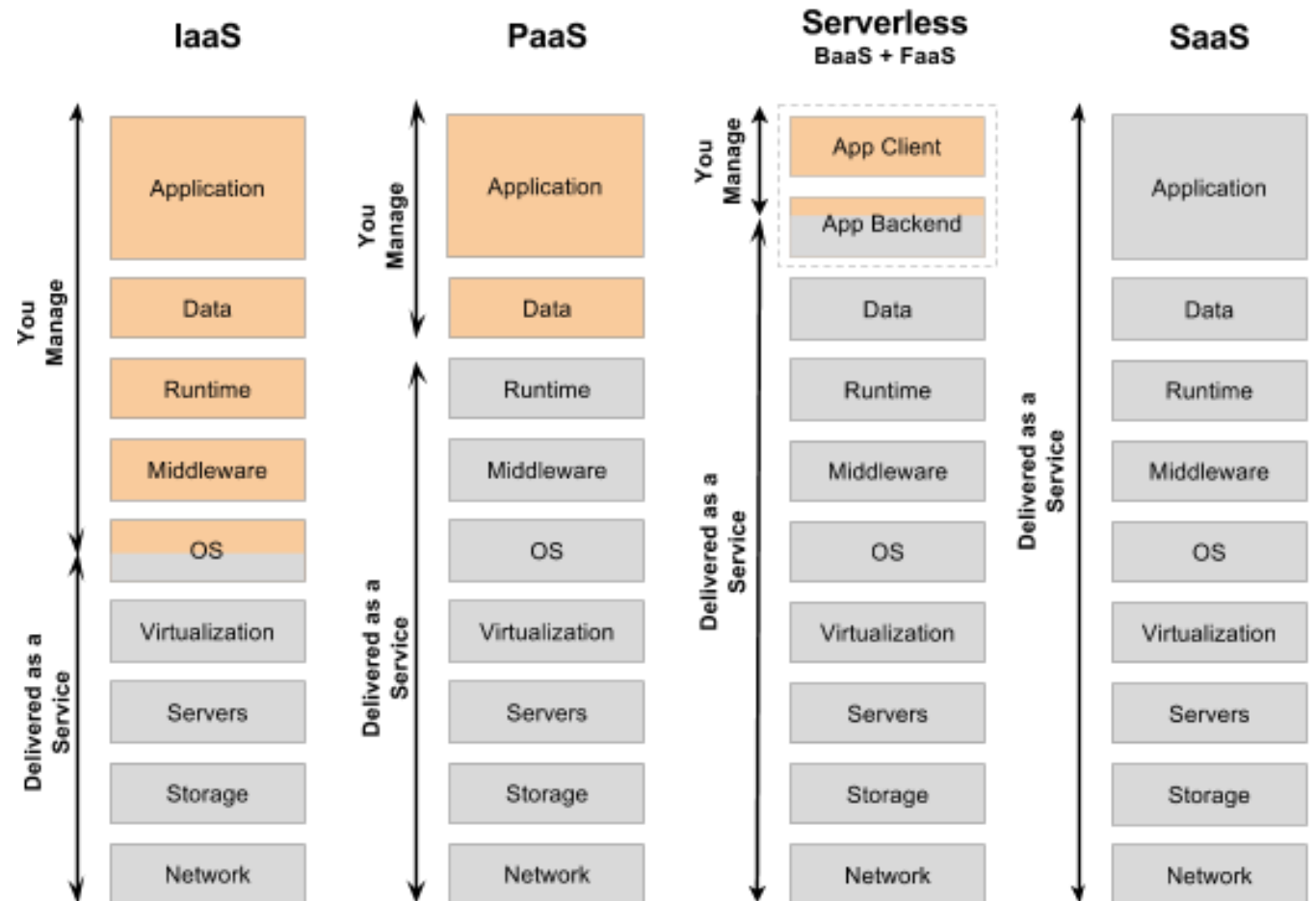
Serverless Evolution

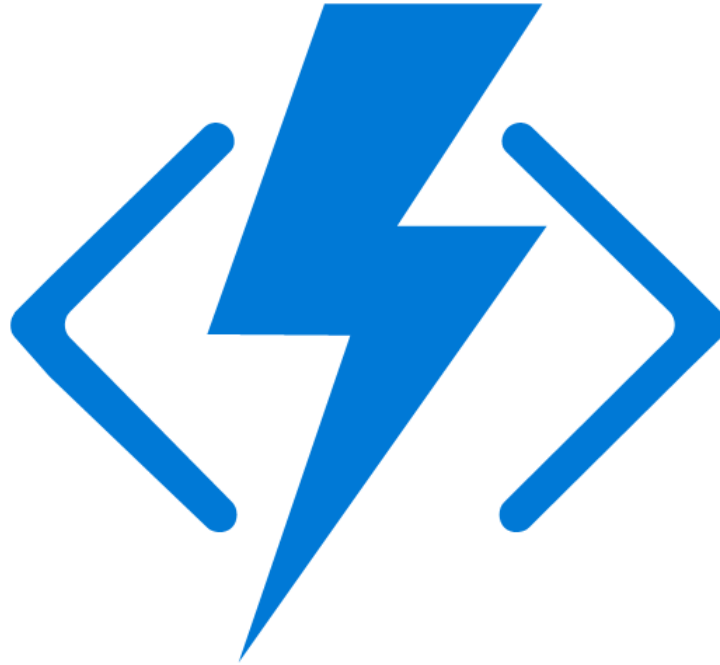


Nanoservices

The World of Serverless and Headless

- Serverless and Headless
“Whatever makes you happy”
- Lightweight Architecture
“It’s float like a feather”
“In a beautiful world”
- Serverless + Headless + Frontend Architecture
“I wish I was specials”
#DevKekinian ☺

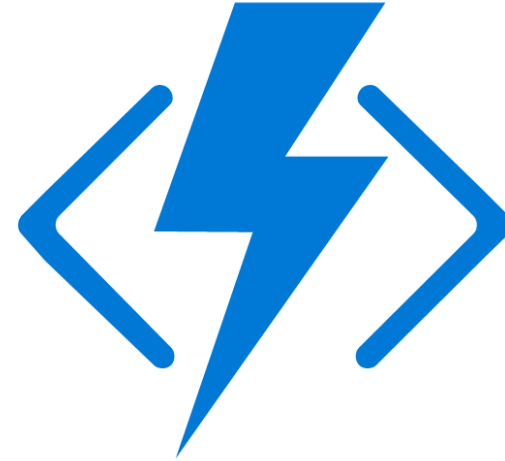




What is Azure Function?



+++ =



Azure Function is AWS
Lambda++ (plus plus)

Why Azure Function?



- Azure DNA, seamless integration with other Azure services such as Logic Apps, Event Hub, CosmosDB, Azure Blob Storage, Application Insight, etc.
- You're already trust Microsoft Stack 😊
- Great documentation <https://docs.microsoft.com>
- **Azure Functions Runtime can be deployed on-premises to provide a nearly identical development experience as the cloud service**

Why Azure Function?



- Azure Function Host/Runtime is open-source
- Pay only for the time spent running your code (consumption plan) with one million execution free
- Functions supports NuGet and NPM, so you can use your favorite libraries
- Built-In Swagger Support
- And Many More...

Azure Function

Language Support:

- C#
- JavaScript
- F#

Experimental Language:

- PHP, Bash, Batch, Python, PowerShell, TypeScript

Bind into services



Azure
Service Bus



Azure
Event Hub



Azure
Storage



Dropbox



Sendgrid



AzureDocDb



OneDrive



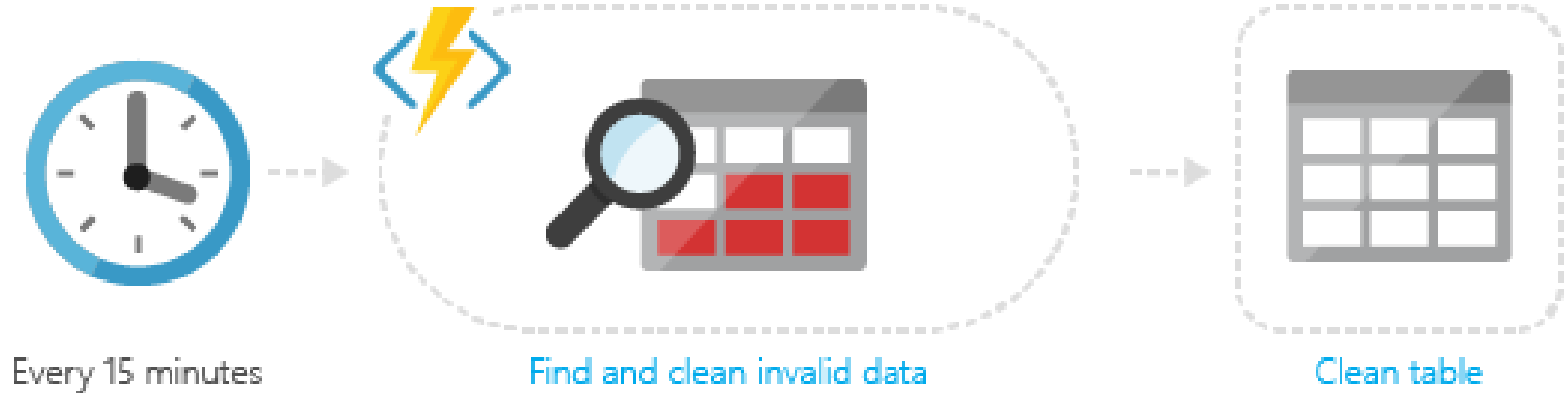
Box



Twilio

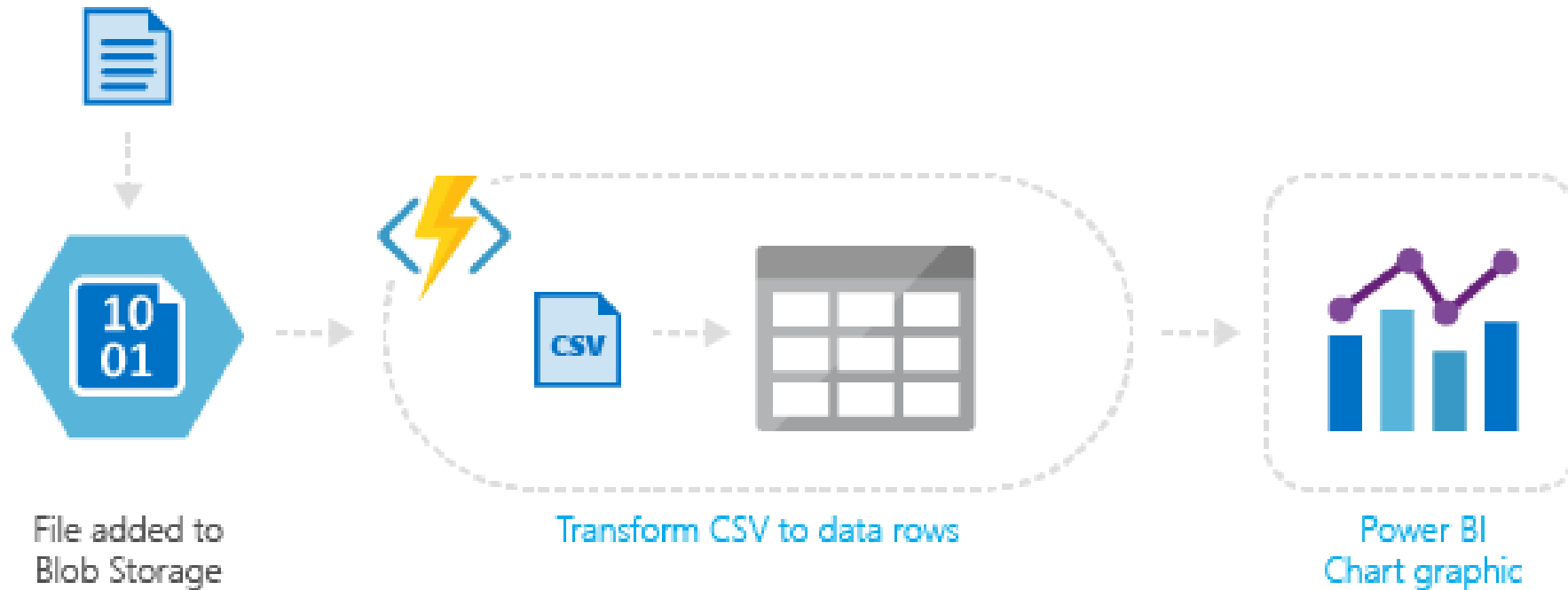
Azure Function Scenario

Timer-based processing



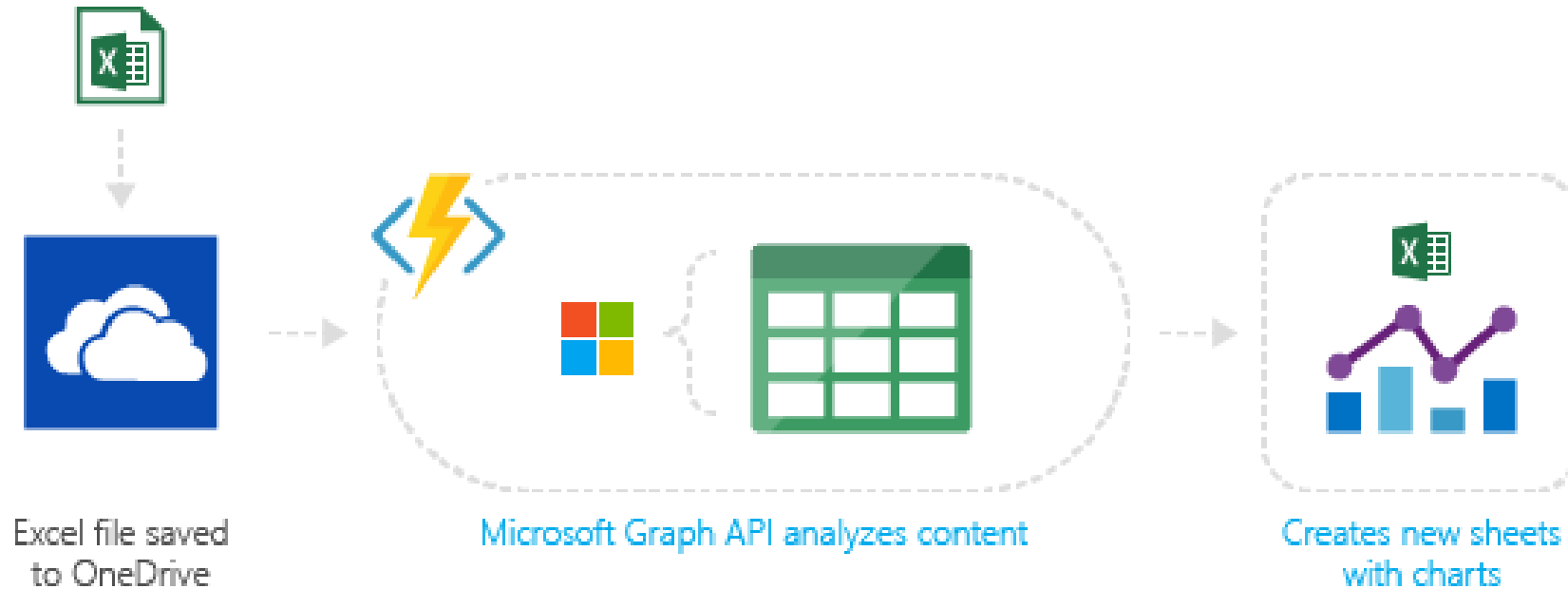
Azure Function Scenario

Azure service event processing



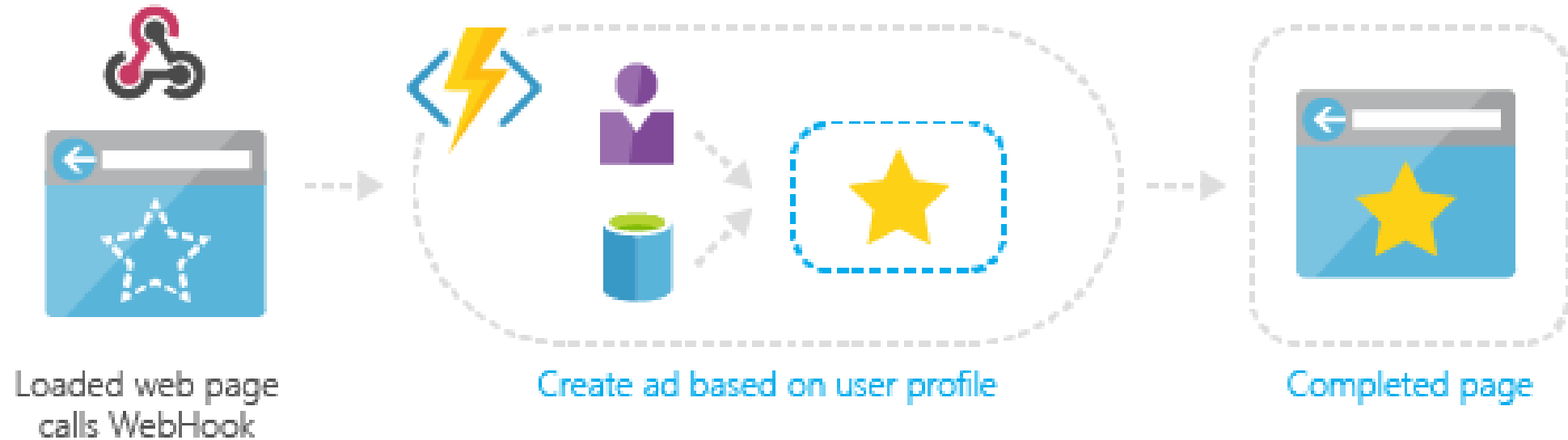
Azure Function Scenario

SaaS event processing



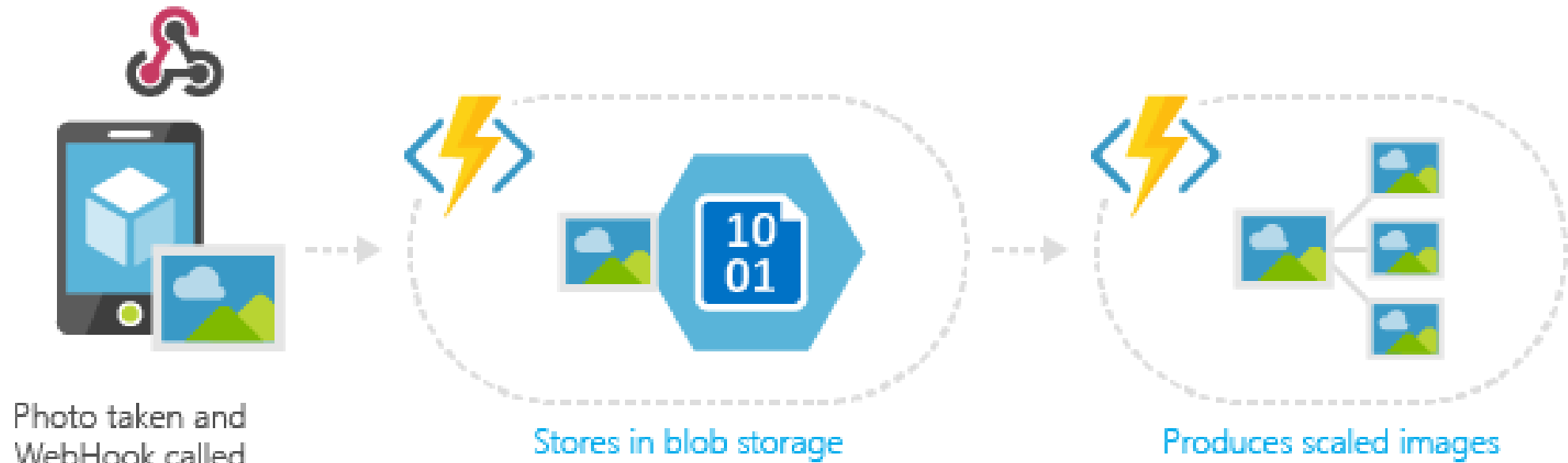
Azure Function Scenario

Serverless web application architectures



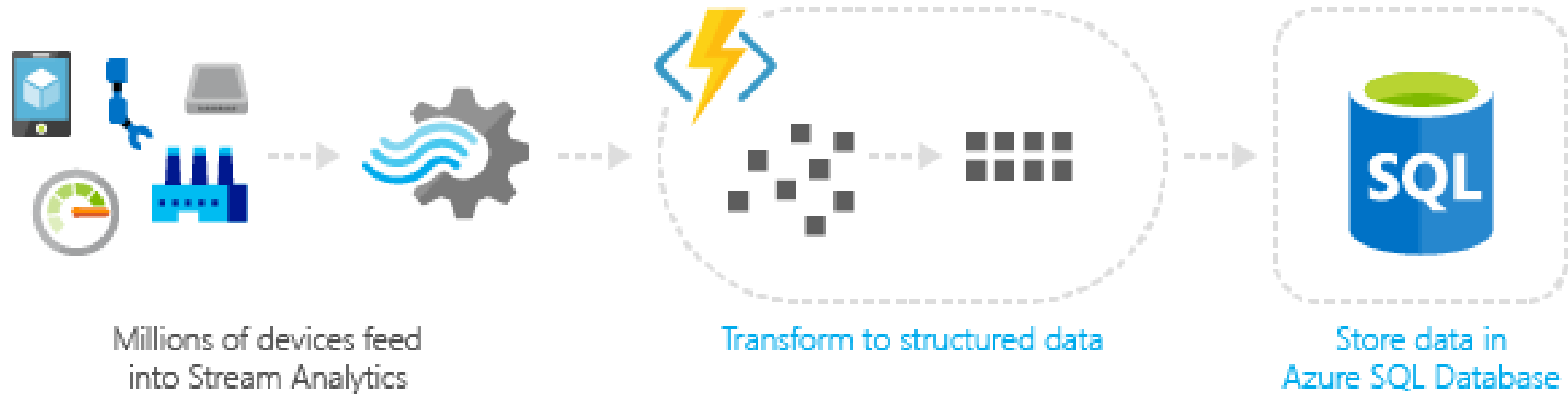
Azure Function Scenario

Serverless mobile back ends



Azure Function Scenario

Real-time stream processing

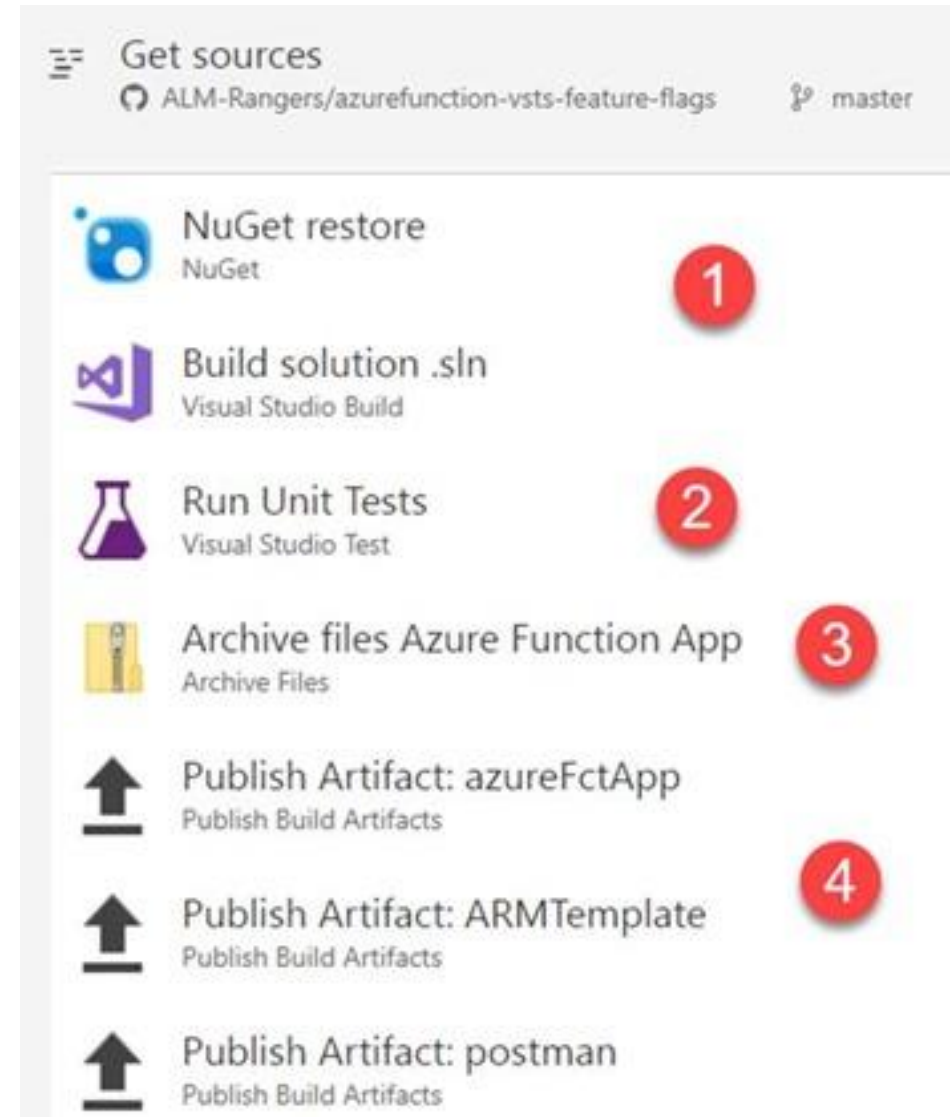
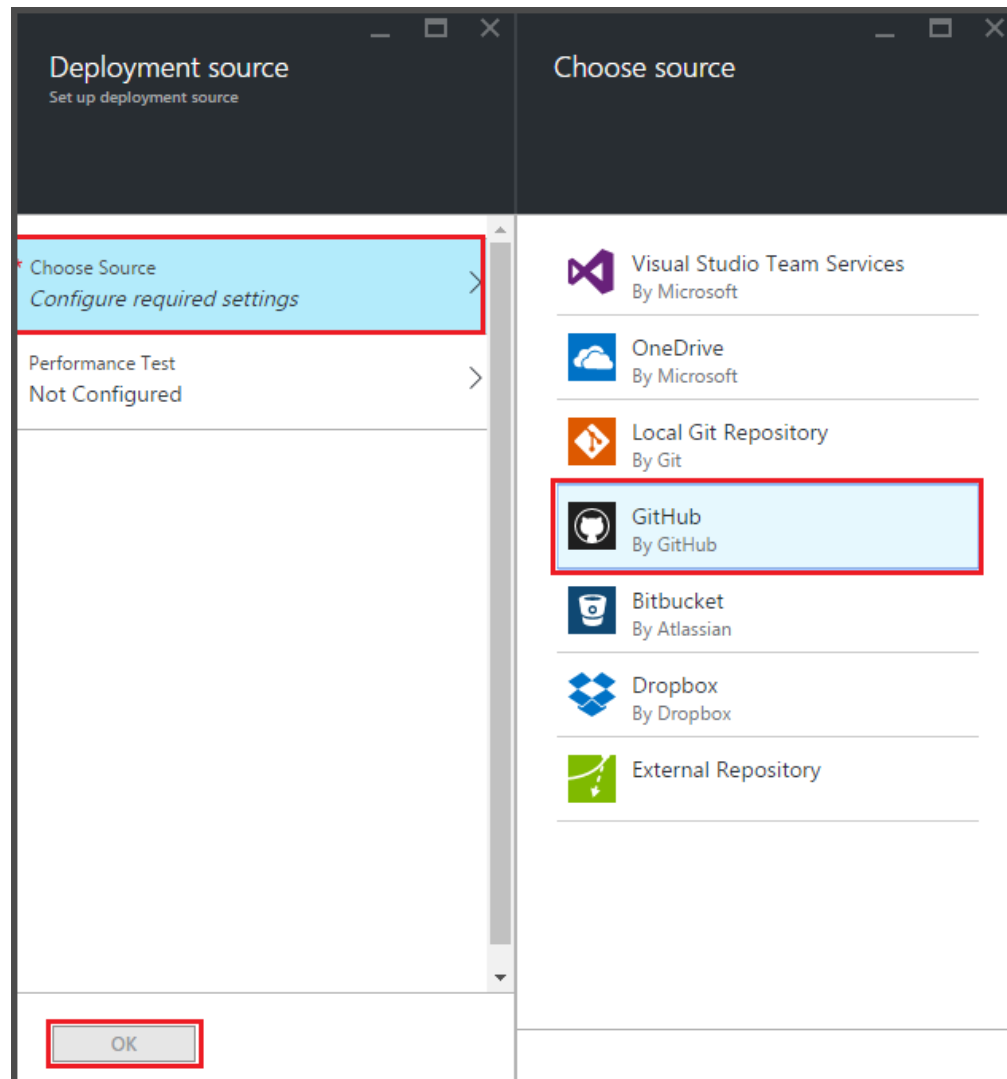


Azure Function Scenario

Real-time bot messaging



Azure Function CI/CD Using Visual Studio Online



Azure Functions Programming Model

Trigger & Inputs

The Code

```
1 using System.Net;
2
3 public static async Task<HttpResponseMessage> Run(HttpRequestMessage req, TraceWriter log)
4 {
5     log.Info("C# HTTP trigger function processed a request.");
6
7     // parse query parameter
8     string name = req.GetQueryNameValuePairs()
9         .FirstOrDefault(q => string.Compare(q.Key, "name", true) == 0)
10        .Value;
11
12    // Get request body
13    dynamic data = await req.Content.ReadAsAsync<object>();
14
15    // Set name to query string or body data
16    name = name ?? data?.name;
17
18    return name == null
19        ? req.CreateResponse(HttpStatusCode.BadRequest, "Please pass a name on the query string or in the request body")
20        : req.CreateResponse(HttpStatusCode.OK, "Hello " + name);
21 }
```

Outputs



Performance and Scalability Rapid Enhancement

Jan 2018

AVG. RESPONSE TIME	USER LOAD	REQUESTS PER SEC	FAILED REQUESTS	ERRORS →	USAGE
515.2 _{ms}	500 _{users}	362.9 _{RPS}	0% <small>41 failed requests 108872 total requests</small>	2 _{errors} <small>1 threshold violated</small>	2.5K _{VUMs}

Mar 2018

AVG. RESPONSE TIME	USER LOAD	REQUESTS PER SEC	FAILED REQUESTS	ERRORS →	USAGE
240.1 _{ms}	500 _{users}	537.5 _{RPS}	0% <small>0 failed requests 161250 total requests</small>	2 _{errors} <small>2 thresholds violated</small>	2.5K _{VUMs}

<https://www.azurefromthetrenches.com/azure-functions-significant-improvements-in-http-trigger-scaling/>

Quick Demo: Azure Function

- SARCCOM Website is using Azure Function for integration with;
 - Slideshare.net
 - Pushy – Web Push Notification (In-Progress)



SlideShare



- Monitoring function using Visual Studio Code
- Develop and Deploy function using Visual Studio Code

Microsoft Azure

Search resources, services and docs

lifebender@outlook.c...
FREDHOPELANEGMAIL (DEFA...

Home > Function Apps

Function Apps

Search

Pay-As-You-Go

Function Apps

sarccom

Functions

HttpTriggerCSharp1

NexmoAnswer

NexmoCall

NexmoEvent

NotifySarccomWeb

TestCosmosDB

UtilNumberSpelled

Proxies

Slots (preview)

sarccomtest

Function Apps

Location: All locations

Resource Group: All resource groups

No grouping

NAME	SUBSCRIPTION ID	RESOURCE GROUP	LOCATION
sarccom	Pay-As-You-Go	SARCCOM_RG	Southeast Asia
sarccomtest	Pay-As-You-Go	SARCCOM_RG	Southeast Asia

Hi this is trigger by Azure Function

sarccom.org

Hi this is trigger by Azure Function

sarccom.org

Hi this is trigger by Azure Function

sarccom.org

Azure Portal

Azure Function Online Editor

Home > sarccom - HttpTriggerCSharp1

sarccom - HttpTriggerCSharp1

Function Apps

Search

Pay-As-You-Go

Function Apps

sarccom

Functions

HttpTriggerCSharp1

Integrate

Manage

Monitor

NexmoAnswer

NexmoCall

NexmoEvent

NotifySarccomWeb

TestCosmosDB

UtilNumberSpelled

RUN.CSX

Save

Run

</> Get function URL

```
1 #r "Newtonsoft.Json"
2 using System.Net;
3 using Newtonsoft.Json;
4 using System.Security.Cryptography;
5 using System.Xml;
6 using System.Text;
7
8 public static async Task<HttpResponseMessage> Run(HttpRequestMessage req, TraceWriter log)
9 {
10     log.Info("C# HTTP trigger function processed a request.");
11
12     var jsonResponse = new List<SlideshowEntity>();
13
14     using (var wc = new WebClient())
15     {
16         var apiKey = "oA6ztrIv";
17         var sharedSecret = "tPoUDEzs";
18         var unixTimestamp = Convert.ToInt32(Math.Floor((DateTime.UtcNow - new DateTime(1970, 1, 1, 0, 0, 0)).TotalSeconds));
19         var hash = CalculateSHA1(sharedSecret + unixTimestamp, Encoding.UTF8);
20         var url = $"https://www.slideshare.net/api/2/get_slideshows_by_user?username_for=sarccom&api_key={apiKey}&shared_secret={sharedSecret}&timestamp={unixTimestamp}&hash={hash}";
21
22         log.Info("HTTP Request to slideshare.com using WebClient.");
23
24         var response = wc.DownloadString(new Uri(url));
25         var docXML = new XmlDocument();
26         docXML.LoadXml(response);
27         var slideshow = docXML.SelectNodes("//Slideshow");
```

Log Errors and warnings

Azure Function Online Editor, Log, and Testing UI

Home > sarccom - HttpTriggerCSharp1

sarccom - HttpTriggerCSharp1
Function Apps

Search

Pay-As-You-Go

Function Apps

sarccom

Functions

HttpTriggerCSharp1

Integrate

Manage

Monitor

NexmoAnswer

NexmoCall

NexmoEvent

NotifySarccomWeb

TestCosmosDB

UtilNumberSpelled

Proxies

Slots (preview)

sarccomtest

run.csx

Save

Run

</> Get function URL

```
1 #r "Newtonsoft.Json"
2 using System.Net;
3 using Newtonsoft.Json;
4 using System.Security.Cryptography;
5 using System.Xml;
6 using System.Text;
7
8 public static async Task<HttpResponseMessage> Run(HttpRe
9 {
10     log.Info("C# HTTP trigger function processed a request")
11
12     var jsonResponse = new List<SlideshowEntity>();
13
14     using (var wc = new WebClient())
15     {
16         var apiKey = "oA6ztrIv";
17         var sharedSecret = "tPoUDezs";
18         var unixTimestamp = Convert.ToInt32(Math.Floor((
19         var hash = CalculateSHA1(sharedSecret + unixTime
20         var url = $"https://www.slideshare.net/api/2/get
21
22         log.Info("HTTP Request to slideshare.com using k
23
24         var response = wc.DownloadString(new Uri(url));
25         var docXML = new XmlDocument();
26         docXML.LoadXml(response);
27         var slideshow = docXML.SelectNodes("//Slideshow"
28
```

Logs

Errors and warnings

Pause

Clear

Copy logs

Expand

```
2018-03-17T02:49:27 Welcome, you are now connected to log-streaming service.
2018-03-17T02:49:48.421 [Info] Function started (Id=31ad35cf-1bd0-46ec-8d97-aada
2018-03-17T02:49:48.421 [Info] C# HTTP trigger function processed a request.
2018-03-17T02:49:48.421 [Info] HTTP Request to slideshare.com using WebClient.
```

View files

Test

HTTP method

GET

Query

name

Freddy

+ Add parameter

Headers

There are no headers

+ Add header

Request body

```
1 {
2   "name": "Azure"
3 }
```

Output

Status: 200 OK

```
[{"ID":"86798446","Title":"Legacy code - Taming The Beast","Descrip
```


Visual Studio Code Azure Function Tooling, Develop, Debug, Testing, Deploy

EXPLORER

LEFT

RIGHT

FUNCTIONAPP

XML DOCUMENT

COMMITTS

COMPARE COMMITTS

AZURE FUNCTIONS

Pay-As-You-Go

sarccom

Application Settings

Functions

HttpTriggerCSharp1

NexmoAnswer

NexmoCall

NexmoEvent

NotifySarccom

TestCosmo

UtilNumbe

Proxies

sarccomtest

Visual Studio Ente

Visual Studio Enterprise with MSDN

SQL CONNECTION

BOOKMARKS

PROJECTS

GITLENS

Test Hit Azure Function.txt

1 <https://sarccom.azurewebsites.net/api/HttpTriggerCSharp1?code=sbt1h1UWu4/JKiALeCA628F4VaoMq2tx4hV9qUUPg6271iW5z7rdag==>

2

3 <https://sarccom.azurewebsites.net/api/UtilNumberSpelled?code=7SHszDQSC0LSMWqp6mo79p2FbExeM51cP3Xm8ZjX72CncyHE4P1Qg==&number=500000>

Response(1067ms)

1 HTTP/1.1 200 OK

2 Cache-Control: no-cache

3 Pragma: no-cache

4 Transfer-Encoding: chunked

5 Content-Type: application/json; charset=utf-8

6 Content-Encoding: gzip

7 Expires: -1

8 Vary: Accept-Encoding

9 Server: Microsoft-IIS/10.0

10 X-Powered-By: ASP.NET

11 Date: Sat, 17 Mar 2018 02:28:58 GMT

12

13 [

14 {

15 "ID": "86798446",

16 "Title": "Legacy code - Taming The Beast",

17 "Description": "How To Rearchitecting Legacy System
r\nMeetup By Software Architect Indonesia Community h

PROBLEMS

OUTPUT

DEBUG CONSOLE

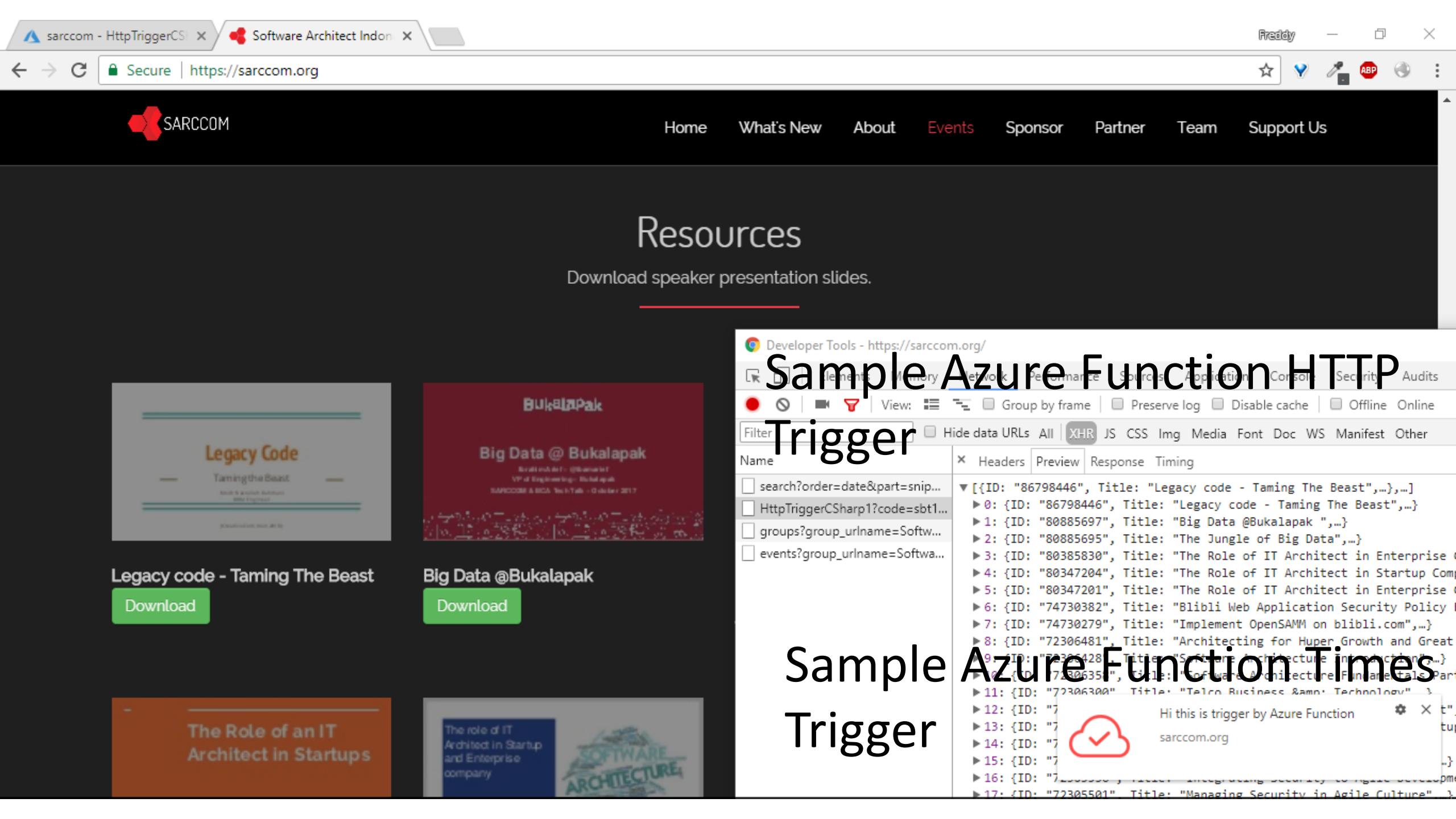
TERMINAL

Disconnected from log-streaming service.
Connecting to log stream...
2018-03-17T02:51:05 Welcome, you are now connected to 1c

Hi this is trigger by Azure Function

sarccom.org

0 0 Connect Azure: lifebender@outlook.com 1067ms 13.13 KB No Environment Ln 3, Col 132 Spaces: 4 UTF-8 CRLF Plain Text Activate Sencha Ext JS Extension



- Home
- What's New
- About
- Events
- Sponsor
- Partner
- Team
- Support Us

Resources

Download speaker presentation slides.



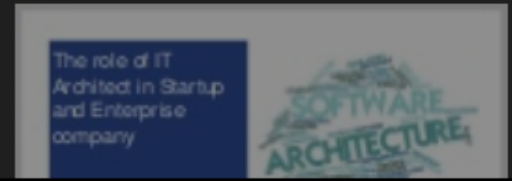
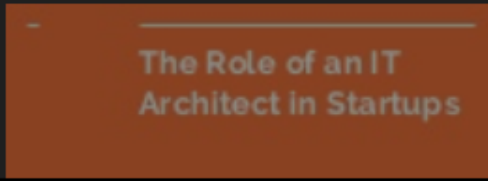
Legacy code - Taming The Beast

Download



Big Data @Bukalapak

Download



Sample Azure Function HTTP Trigger

Sample Azure Function Times Trigger

Developer Tools - https://sarccom.org/

Filter

XHR

JS CSS Img Media Font Doc WS Manifest Other

Name	Headers	Preview	Response	Timing
<input type="checkbox"/> search?order=date&part=snip...				
<input type="checkbox"/> HttpTriggerCSharp1?code=sbt1...				
<input type="checkbox"/> groups?group_urlname=Softw...				
<input type="checkbox"/> events?group_urlname=Softwa...				

[{"ID": "86798446", "Title": "Legacy code - Taming The Beast", "..."}]

0: {"ID": "86798446", "Title": "Legacy code - Taming The Beast", "..."}]

1: {"ID": "80885697", "Title": "Big Data @Bukalapak ", "..."}]

2: {"ID": "80885695", "Title": "The Jungle of Big Data", "..."}]

3: {"ID": "80385830", "Title": "The Role of IT Architect in Enterprise C", "..."}]

4: {"ID": "80347204", "Title": "The Role of IT Architect in Startup Comp", "..."}]

5: {"ID": "80347201", "Title": "The Role of IT Architect in Enterprise C", "..."}]

6: {"ID": "74730382", "Title": "Blibli Web Application Security Policy I", "..."}]

7: {"ID": "74730279", "Title": "Implement OpenSAMM on blibli.com", "..."}]

8: {"ID": "72306481", "Title": "Architecting for Hyper Growth and Great", "..."}]

9: {"ID": "72305428", "Title": "Software Architecture Inter...", "..."}]

10: {"ID": "7230635", "Title": "Software Architecture Final...", "..."}]

11: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

12: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

13: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

14: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

15: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

16: {"ID": "72306300", "Title": "Telco Business & Technology", "..."}]

17: {"ID": "72305501", "Title": "Managing Security in Agile Culture", "..."}]

Hi this is trigger by Azure Function

sarccom.org