

Serverless Application Integration

Azure and Power Platform

Emakina Europe



Wien

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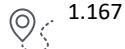


UND

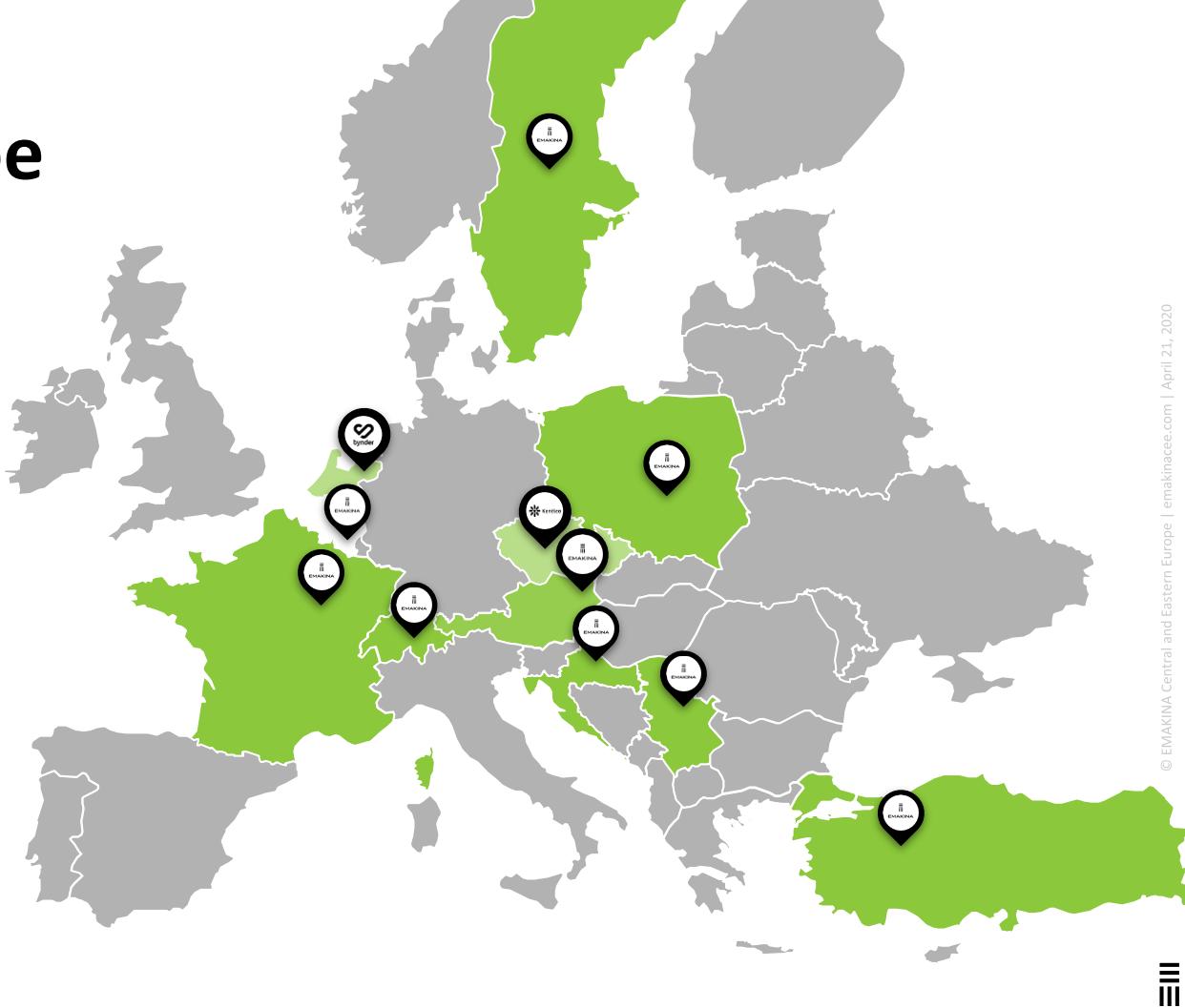
Emakina Offices weltweit



135 km zu Kentico in Brno, CZ



1.167 km zu Bynder in Amsterdam, NL



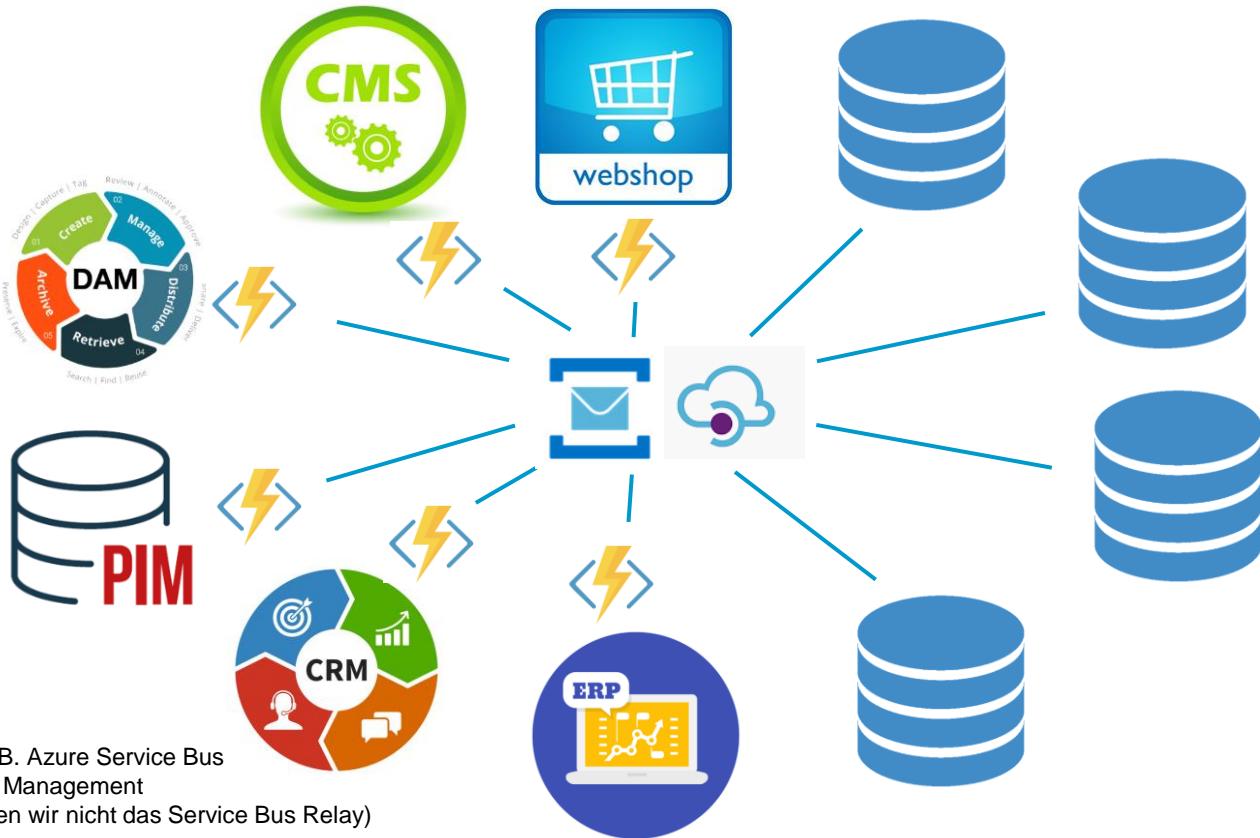
Emakina & technology



Start der meisten Projekte



Ziel der Projekte



Customer Relationship Management (CRM)



marketing cloud

Meine Abteilung in Wien

Customer Experience Solutions (CX)

- Dynamics 365 CE (= MS CRM)
- Dynamics 365 for Marketing
- Salesforce Sales, Commerce, Service Cloud
- Salesforce Marketing Cloud
- Integration
- Reporting

Ehemalige *k.section business solutions gmbh*

DI (FH) Christoph Stiedl



- MS CRM Team Lead
- Integration + Systemarchitektur
- Web Development
- Business Intelligence

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<https://emakinacee.com/>

<https://crm-rocks.com/>

https://www.xing.com/profile/Christoph_Stiedl

<https://github.com/cstiedl/>

Unser Thema heute – Integration mit Azure (Serverless)



Warum ich über Azure erzählen darf

Rebirth of Microsoft



Azure Service Bus und Azure Functions

Eine erste Demo zum Azure Service Bus und Azure Functions

Einfache Demo um zu verstehen was Azure Service Bus ist



„Deep“ Dive Messaging

Azure Service Bus is no Enterprise Service Bus / Smart Endpoints Dumb Pipes



Andere Möglichkeiten

Power Platform / Azure Logic Apps / Azure Event Grid

From: 03/13/1986

To: 01/04/2020

Zoom:

3M

YTD

1Y

2Y

5Y

10Y

20Y

All

Microsoft Aktienkurs





Satya Nadella

Rebirth of Microsoft

<https://www.youtube.com/watch?v=tbltn2ec67A>

Azure, Power Platform, ...

Azure Service Bus - DEMO

Hinweis: Die DEMOs sind auf den nachfolgenden Folien dokumentiert

Setup

The screenshot shows the Azure portal interface for creating a new Service Bus namespace.

Create namespace (Service Bus)

- Name ***: CS-GlobalAzureBootcamp-SlidePrep .servicebus.windows.net
- Pricing tier (View full pricing details) ***: Standard
- Subscription ***: emakinaCEE_6000dollar_Sponsorship
- Resource group ***: CX_playground
- Create new**
- Location ***: (Europe) West Europe

Choose your pricing tier

Browse the available plans and their features

Basic	Standard	Premium
Shared capacity	Shared capacity	Dedicated capacity
Max message size 256 KB	Max message size 256 KB	Max message size 1024 KB
Queues	Queues	Queues
Topics	Topics	Topics
Messaging operations 12.5M Ops/Month	Messaging operations 12.5M Ops/Month	Messaging operations Free
Variable pricing	Variable pricing	Fixed pricing
		Recommended For Production Workloads

Estimated Costs:

- Basic**: 0.05 USD/MILLION/MONTH (ESTIMATED)
- Standard**: 10.00 USD/12.5MILLION/MONTH (ESTIMATED)
- Premium**: 668.00 USD/MESSAGING UNIT/MONTH (ESTIMATED)

Preise

service bus

<https://azure.microsoft.com/de-de/pricing/calculator/>

Service Bus

Verbindung zwischen privaten und öffentlichen
Cloudumgebungen

Messagingvorgänge

0 + 0,013 \$
Millionen/Monat

x

1
Grundtarif
Months ▾

= 9,81 \$

Annahme:
1 Mio
Messages

Nachrichten

1000
Tausend/Monat

x

0,01 \$
Pro 10.000 Nachrichten

= 1,00 \$

Zwischensumme 10,81 \$

Admin Zugang

CS-GlobalAzureBootcamp-SlidePrep - Shared access policies

Service Bus Namespace

Search (Ctrl+I)

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Service Bus Explorer

File Edit Actions View Help

Connect to a Service Bus Namespace

Service Bus Namespaces

Enter connection string...

Filter Expressions

Selected Entities:
Queues, Topics, Event Hubs, Notification Hubs, Relays

Connection Settings

Connection String:

```
Endpoint=sb://cs-globalazurebootcamp-
slideprep.servicebus.windows.net/SharedAccessKeyName=RootMa-
nageSharedAccessKey;SharedAccessKey=tAIxYU2L3kHiU6VkJTK1O-
51w=
```

Microsoft Azure

SAS Policy: RootManageSharedAccessKey

Save Discard Delete ...

 Manage

 Send

 Listen

Primary Key

tAIxYU2L3kHiU6VkJTK1O+2mBXd+ +qKhxPMRr1DIA...

Secondary Key

KTrbvgj4m9XegHmyMLoGugXwLFjWJLYnrfOj3Q9ef...

Primary Connection String

Endpoint=sb://cs-globalazurebootcamp-slideprep.s...

Secondary Connection String

Endpoint=sb://cs-globalazurebootcamp-slideprep.s...

Topic

Mehrere Empfänger

- Publish – Subscribe

Create topic X

Service Bus

Name * (i)

 ✓

Max topic size

 ▼

Message time to live (i)

Days	Hours	Minutes	Seconds
365	0	0	0

Hinweise:

- **Queue:** 1 Empfänger
- **„accountInternal“ als Name in unserem Beispiel:** Interne CRM Repräsentation vom Account Objekt (= Firma/Kunde)

Subscriptions

Hinweise:

- Log:** Nachricht soll 1 Tag abholbar sein, dann wird gelöscht
- Func:** Gedacht für unsere Azure Function. Nachricht bleibt 365 Tage verfügbar zum Abholen und falls nicht geholt, kommt in Dead Letter Queue
- Session:** Session Handling wird seit diesem Jahr in Azure Functions unterstützt. Damit kann bei paralleler Verarbeitung Nachrichtenreihenfolge eingehalten werden.

Create subscription		X	Create subscription	X	
accountinternal			accountinternal		
Name *	accountinternal-log	✓	Name *	accountinternal-func	✓
Message time to live (default) *	1 days		Message time to live (default) *	365 days	
Lock duration *	30 seconds		Lock duration *	5 minutes	
max delivery count *	10		max delivery count *	10	
<input type="checkbox"/> Move expired messages to the dead-letter subqueue			<input checked="" type="checkbox"/> Move expired messages to the dead-letter subqueue		
<input type="checkbox"/> Move messages that cause filter evaluation exceptions to the dead-letter subqueue			<input type="checkbox"/> Move messages that cause filter evaluation exceptions to the dead-letter subqueue		
<input type="checkbox"/> Enable sessions			<input type="checkbox"/> Enable sessions		

Zugangs Key

Schlüssel für CRM Applikation / Azure Function um Nachrichten auf Azure Service Bus auf dieses Topic zu senden bzw. von einer Subscription zu lesen.

Hinweise:

SAS Policy: accountinternal_key X

Save Discard Delete ...

Settings Shared access policies

Add SAS Policy Service Bus

Policy name * accountinternal_key

Manage

Send

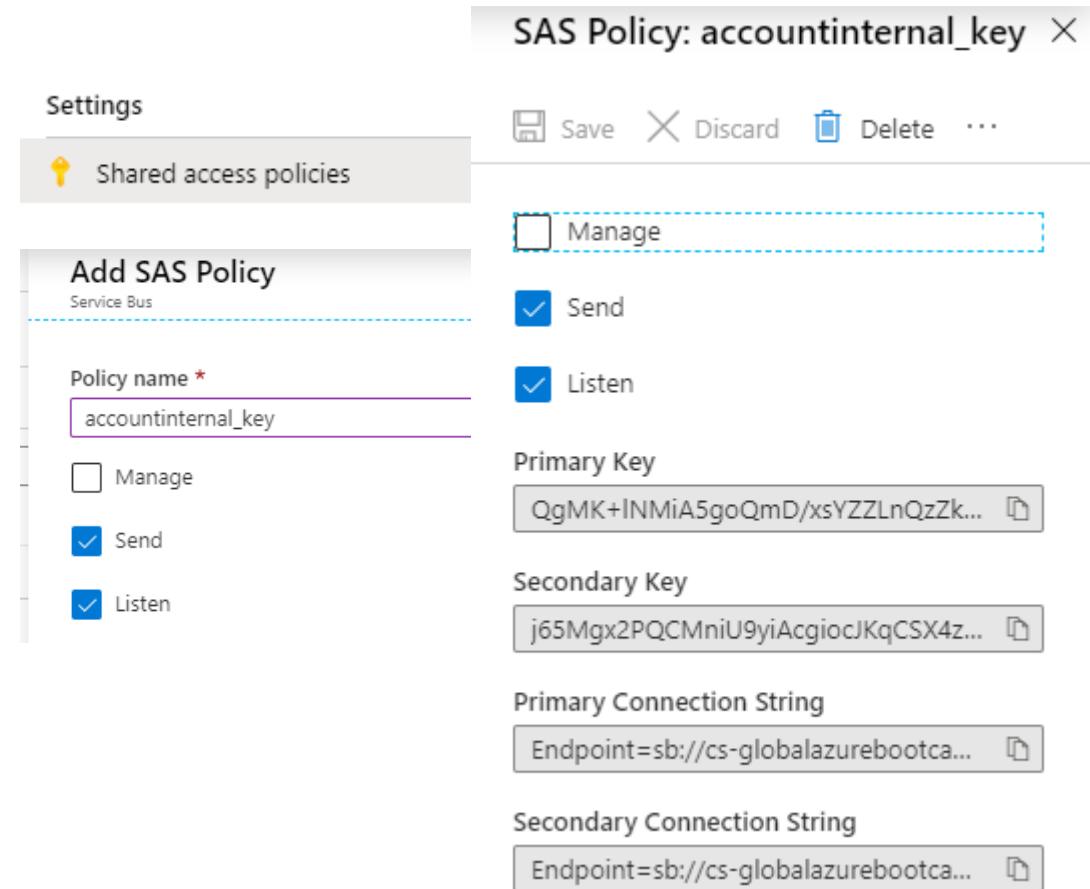
Listen

Primary Key QgMK+INMiA5goQmD/xsYZZLnQzZk... 

Secondary Key j65Mgx2PQCMniU9yiAcgiocJKqCSX4z... 

Primary Connection String Endpoint=sb://cs-globalazurebootca... 

Secondary Connection String Endpoint=sb://cs-globalazurebootca... 



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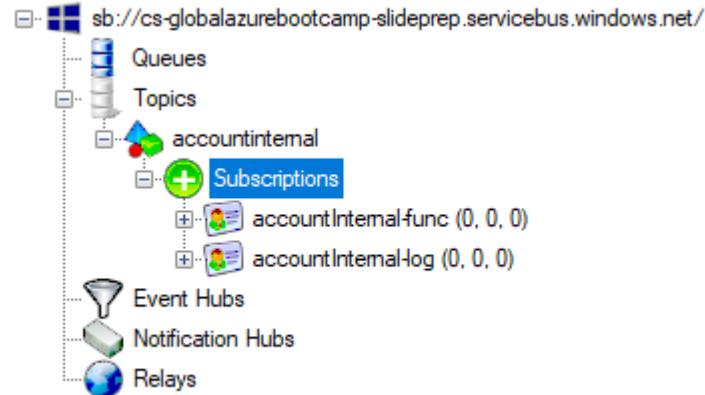
Ergebnis

1 Topic

2 Subscriptions auf diesem Topic

Hinweise:

- **Log:** Die Nachricht von dieser Subscription werden wir nicht lesen, dient nur zum Debuggen (daher nach 1 Tag automatisch entfernt)
- **Func:** Wird unsere Azure Function lesen



CRM als Sender - DEMO

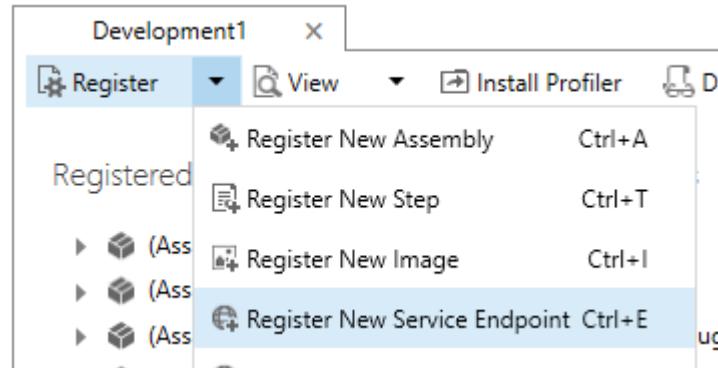
CRM als Sender

CRM Plugin Registration Tool

Service Endpoint Registration

Configure a connection to Azure Service Bus to which plug-in events can be sent.

Name	accountinternal cs-globalazurebootcamp-slideprep
NameSpace Address	slideprep.servicebus.windows.net/
Designation Type	Topic
Topic Name	accountinternal
Message Format	JSON
Authorization Type	SASKey
SAS Key Name	accountinternal_key
SAS Key	*****
User Information Sent	UserId



Let's Start with the connection string from the Azure Service Bus Portal...

```
Endpoint=sb://cs-globalazurebootcamp-slideprep.servicebus.windows.net/;SharedAccessKeyName=accountinternal_key;SharedAccessKey=QgMh*****/k4;EntityPath=accountinternal
```

CRM als Sender

CRM Plugin Registration Tool

Register New Step

General Configuration Information

Message	Update
Primary Entity	account
Secondary Entity	
Filtering Attributes	All Attributes

◀ (ServiceEndpoint) accountinternal cs-globalazurebootcamp-slideprep

📄 (Step) accountinternal cs-globalazurebootcamp-slideprep: Create of account

📄 (Step) accountinternal cs-globalazurebootcamp-slideprep: Update of account

Register New Step

General Configuration Information

Message	Create
Primary Entity	account
Secondary Entity	
Filtering Attributes	Message does not support Filtered Attributes
Event Handler	(ServiceEndpoint) accountinternal cs-globalazurebootcamp-sl
Step Name	accountinternal cs-globalazurebootcamp-slideprep: Create of acco
Run in User's Context	Calling User
Execution Order	1
Description	accountinternal cs-globalazurebootcamp-slideprep: Create of acco

Event Pipeline Stage of Execution

PostOperation

Execution Mode

Asynchronous

Deployment

Server

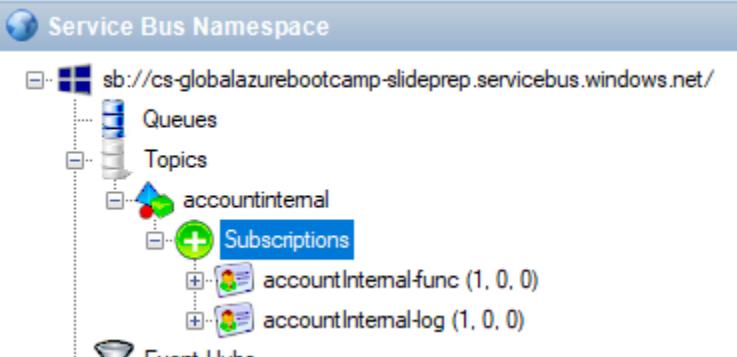
Synchronous

Offline



Erster Test

CRM Plugin Registration Tool



Dynamics 365 Sales Hub

New Account

Summary Details Files

ACCOUNT INFORMATION

Account Name	* Gobal Azure Bootcamp
Phone	---
Fax	---
Website	---
Parent Account	---
Ticker Symbol	---

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Erster Test

Nachricht wurde gesendet

Message List

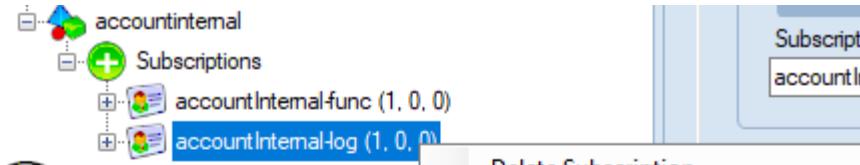
Messageld	Seq	Size	Label	End
4624d27f127b4065ac1d3d...	1	11468		04.0

Message Text

```

376     "InitiatingUserId": "8262f123-a7d6-4d5c-9c51-51746
377     "InputParameters": [
378         {
379             "key": "Target",
380             "value": {
381                 "__type": "Entity:http://schemas.microsoft.c
382             "Attributes": [
383                 {
384                     "key": "name",
385                     "value": "Gobal Azure Bootcamp"
386                 },
387                 {
388                     "key": "creditonhold",
389                     "value": false
390                 },

```



▲ Retrieve messages from subscription

Receive Mode

 Peek Receive and Delete

Message Count

 All Top 10

C# als Sender

Get started with Service Bus topics

11/27/2019 • 8 minutes to read •  +6

NET ▾

This tutorial covers the following steps:

1. Write a .NET Core console application to send a set of messages to the topic.
2. Write a .NET Core console application to receive those messages from the subscription.

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-dotnet-how-to-use-topics-subscriptions>



Azure Function als Consumer

- DEMO

Preise

<https://azure.microsoft.com/en-in/pricing/details/functions/>

Neues Visual Studio Projekt

Configure your new project

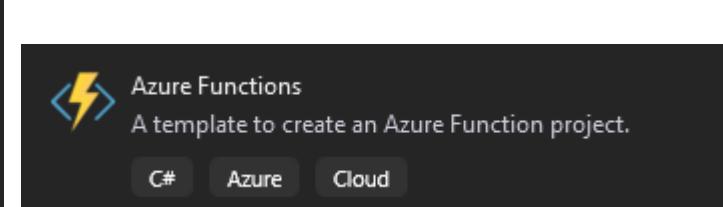
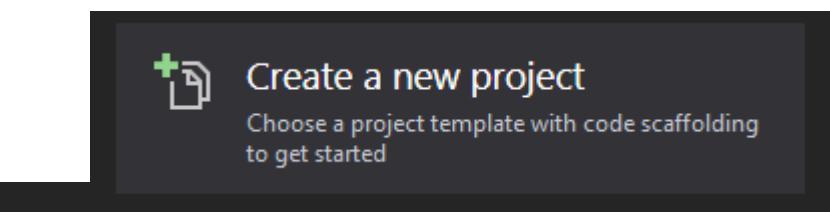
Azure Functions C# Azure Cloud

Project name

CS-GlobalAzureBootcamp-SlidePrep-Consumer

Location

D:\projects\cstiedl\GlobalAzureBootcamp\



Solution name i

CS-GlobalAzureBootcamp-SlidePrep-Consumer

Place solution and project in the same directory



Neues Visual Studio Projekt

Hinweis:

- **Storage:** Wird auf Azure verwendet zur Überwachung der Aufrufe, etc.

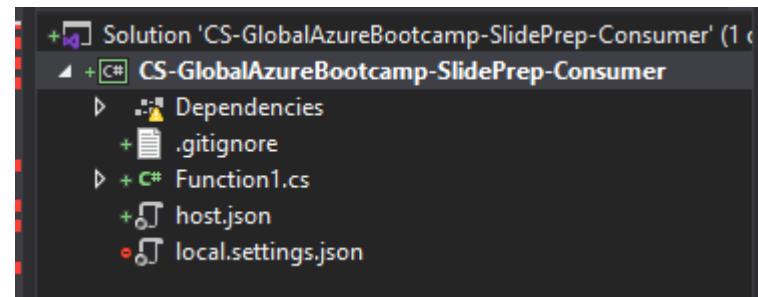
Create a new Azure Functions Application

Azure Functions v2 (.NET Core)

- Http trigger**
A C# function that will be run whenever it receives an HTTP request
- IoT Hub trigger**
A C# function that will be run whenever an iot hub receives a new event on the event hub endpoint.
- Queue trigger**
A C# function that will be run whenever a message is added to a specified Azure Queue Storage
- Service Bus Queue trigger**
A C# function that will be run whenever a message is added to a specified Service Bus queue
- Service Bus Topic trigger**
A C# function that will be run whenever a message is added to the specified Service Bus topic

Storage Account (AzureWebJobsStorage)
Storage Emulator
⚠ Some capabilities may require an Azure storage account.
Connection string setting name
cs-globalazurebootcamp-slideprep
Topic name
accountinternal
Subscription name
accountinternal-func

Neues Visual Studio Projekt



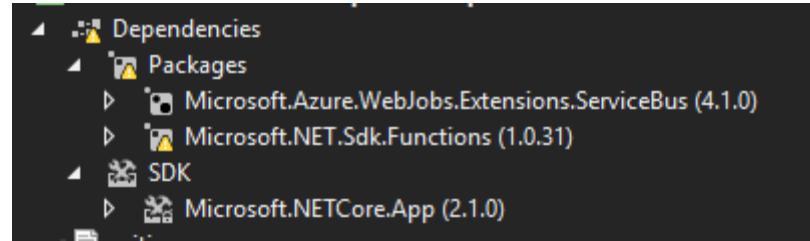
```
Function1.cs  ✘ CS-GlobalAzureBootcamp-SlidePrep-Consumer  CS_GlobalAzureBootcamp_SlidePrep_Consumer.Function1  Run(string mySbMsg, ILogger log)
```

Server Explorer Toolbox Test Explorer

```
1 using System;
2 using Microsoft.Azure.WebJobs;
3 using Microsoft.Azure.WebJobs.Host;
4 using Microsoft.Extensions.Logging;
5
6 namespace CS_GlobalAzureBootcamp_SlidePrep_Consumer
7 {
8     public static class Function1
9     {
10         [FunctionName("Function1")]
11         public static void Run([ServiceBusTrigger("accountinternal", "accountinternal-func", Connection = "cs-globalazurebootcamp-slideprep")]string mySbMsg, ILogger log)
12         {
13             log.LogInformation($"C# ServiceBus topic trigger function processed message: {mySbMsg}");
14         }
15     }
16 }
17 }
```

Ziel unserer Function

- Nachricht von CRM lesen
- Internes CRM JSON lesen
- Account Nachricht in Common Data Model Format senden



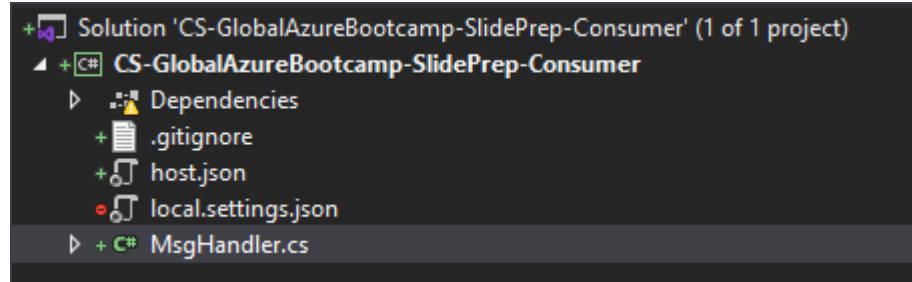
Hinweis:

- **Fehler:** Wenn wir die Azure Function so starten, fehlt der Connection String zum Azure Service Bus.

```
[04.03.2020 09:53:52] 
[04.03.2020 09:53:52] A host error has occurred during startup operation 'f4cbc221-9849-47e2-b03b-0443a973cff8'.
[04.03.2020 09:53:52] Microsoft.Azure.WebJobs.ServiceBus: Microsoft Azure WebJobs SDK ServiceBus connection string 'cs-globalazurebootcamp-slideprep' is missing or empty.
```

Erste Schritte

- Umbenennung unserer Function Klasse
- Umbenennen der Funktion selbst
- Connection String einfügen
(ohne „;EntityPath=accountinternal“, da dies über Topic und Subscription in der Function im Attribut angegeben wird)



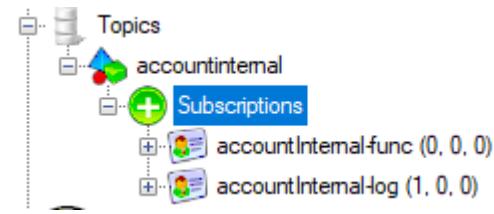
```
[FunctionName("ProcessInternalCRMMsg")]
0 references | 0 changes | 0 authors, 0 changes
```

```
local.settings.json* host.json MsgHandler.cs*
Schema: <No Schema Selected>
1 { "IsEncrypted": false,
2   "Values": {
3     "AzureWebJobsStorage": "UseDevelopmentStorage=true",
4     "FUNCTIONS_WORKER_RUNTIME": "dotnet",
5     "cs-globalazurebootcamp-slideprep": "Endpoint=sb://cs-globalazurebootcamp-slideprep.servicebus.windows.net/;SharedAccessKeyName=accountinternal_key;SharedAccessKey=QgMK-o/k4="
6   }
7 }
8 }
9 }
```



Function Lokal starten

- Nachricht wird nun von Function von Subscription „accountInternal-func“ gelesen (siehe rechts)
 - Auf Subscription „accountInternal-log“ ist die Nachricht noch verfügbar

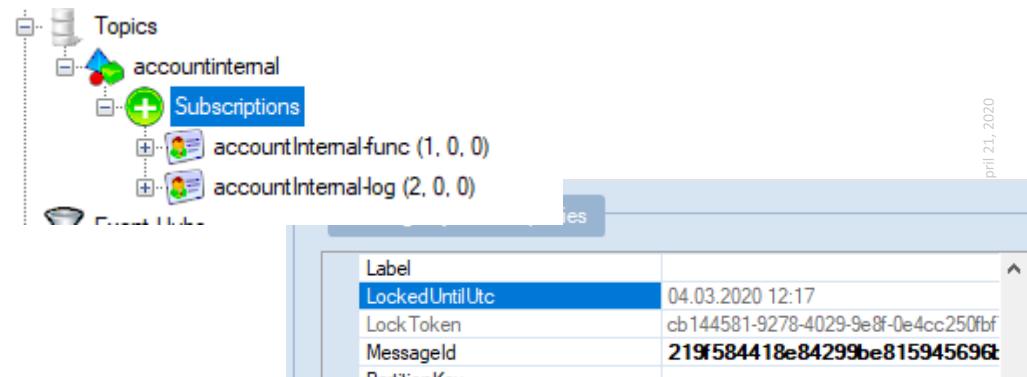


Hinweis:

Log: Nachricht wurde lokal in der Console geloggt

Locking – Wo ist meine Nachricht ?

1. Breakpoint setzen
2. Function starten und Debuggen
3. Function stoppen
4. Function erneut starten
5. Es kommt keine Nachricht. Warum ?
Wo ist die Nachricht ?



Hinweis:

- Nachricht ist noch am Azure Service Bus gespeichert (siehe Service Bus Explorer)
- Nachricht ist gelockt und daher nicht abholbar (siehe Lock Time Setting)
- PeekLock Mode → Transaktion. Nur wenn Function erfolgreich beendet, wird Nachricht entfernt. Wenn abbricht, bleibt gelockt.
- Wenn Exception → 10 Versuche, dann Dead Letter Queue

Nachricht senden

- Neues Topic „account“
- Neue Subscription „account-log“
- Key auf neuem Topic für Connection String

Hinweis:

- Wir wollen eine „Account“ Nachricht in einem allgemeinen Format schicken (Common Data Model)
- Diese publizieren wir auf einem neuen Topic „account“
- Für jedes Empfangssystem legen wir eine Subscription an. Hier zur Demo eine „log“ subscription zum Debuggen

The screenshot shows the Azure portal interface for creating a new topic and a new subscription.

Topic Configuration:

- Name ***: account
- Max topic size**: 1 GB
- Message time to live**: 365 Days, 0 Hours, 0 Minutes, 0 Seconds
- Enable duplicate detection**: Unchecked
- Enable partitioning**: Unchecked

Create subscription (account)

Subscription Configuration:

- Name ***: account-log
- SAS Policy: account-key** (Manage, Send, Listen selected)
- Message time to live (default) ***: 1 days
- Primary Key**: quAkka... (copy link)
- Secondary Key**: aWqtTrgEtTdiuC6GmijmuYCOM1jU4ul... (copy link)
- Primary Connection String**: Endpoint=sb://cs-globalazurebootca... (copy link)
- Secondary Connection String**: Endpoint=sb://cs-globalazurebootca... (copy link)

On the right side of the screenshot, there is a vertical scroll bar and a timestamp: ril 21.2020.

Nachricht senden - Function

- Klasse für JSON Objekt („Account“)
- Connection String eintragen (siehe unterhalb)
- Output Binding „return“
- public static **Account** Run
- Return von Objekt in Function

```
[FunctionName("ProcessInternalCRMMsg")]
[return: ServiceBus("account", Connection = "cs-globalazurebootcamp-slideprep-account", EntityType = EntityType.Topic)]
0 references | 0 changes | 0 authors, 0 changes
public static Account Run([ServiceBusTrigger("accountinternal", "accountinternal-func", Connection = "cs-globalazurebootcamp-
{
    ...
}
```

2 references | 0 changes | 0 authors, 0 changes

```
public class Account
{
    ...
    1 reference | 0 changes | 0 authors, 0 changes
    public string Name { get; set; }
}
```

```
var body = Encoding.Default.GetString(message.Body);
var jobject = JObject.Parse(body);
var name = string.Empty;
var inputParams = jobject["InputParameters"];
var attributes = inputParams.First["value"]["Attributes"];
foreach (var attr in attributes)
{
    if ((string) attr["key"] != "name") continue;
    name = (string) attr["value"];
}
return new Account { Name = name };
```

local.settings.json host.json MsgHandler.cs

Schema: <No Schema Selected>

```
1  {
2      "IsEncrypted": false,
3      "Values": {
4          "AzureWebJobsStorage": "UseDevelopmentStorage=true",
5          "FUNCTIONS_WORKER_RUNTIME": "dotnet",
6          "cs-globalazurebootcamp-slideprep": "Endpoint=sb://cs-globalazurebootcamp-slideprep.servicebus.windows.net;/SharedAccessKeyName=accountinternal_key;SharedAccessKey=QgHk+
7          "cs-globalazurebootcamp-slideprep-account": "Endpoint=sb://cs-globalazurebootcamp-slideprep.servicebus.windows.net;/SharedAccessKeyName=account-key;SharedAccessKey=quAkk
8      }
9 }
```

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Nachricht senden - Function

```
[FunctionName("ProcessInternalCRMMsg")]
[return: ServiceBus("account", Connection = "cs-globalazurebootcamp-slideprep-account", EntityType = EntityType.Topic)]
0 references | 0 changes | 0 authors, 0 changes
public static Account Run([ServiceBusTrigger("accountinternal", "accountinternal-func", Connection = "cs-globalazurebootcamp-slideprep")] Message message, ILogger log)
{
    var body = Encoding.Default.GetString(message.Body);
    //log.LogInformation($"C# ServiceBus topic trigger function processed message: {body}");

    var jobject = JObject.Parse(body);
    var name = string.Empty;
    var inputParams = jobject["InputParameters"];
    var attributes = inputParams.First()["value"]["Attributes"];
    foreach (var attr in attributes)
    {
        if ((string) attr["key"] != "name") continue;
        name = (string) attr["value"];
    }
    return new Account { Name = name };
}

2 references | 0 changes | 0 authors, 0 changes
public class Account
{
    1 reference | 0 changes | 0 authors, 0 changes
    public string Name { get; set; }
}
```



Resultat

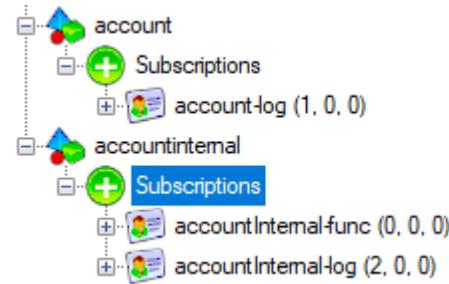
- Eine „Account“ Nachricht auf der Subscription „account-log“

Message List

Messageld	Seq	Size	Label
b967b8c03c83483ea87403...	1	207	

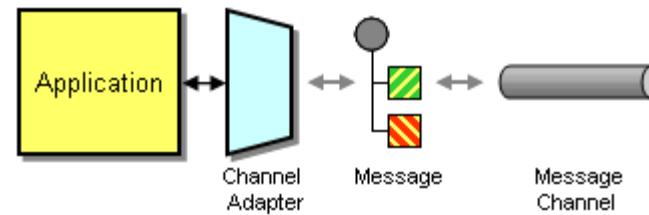
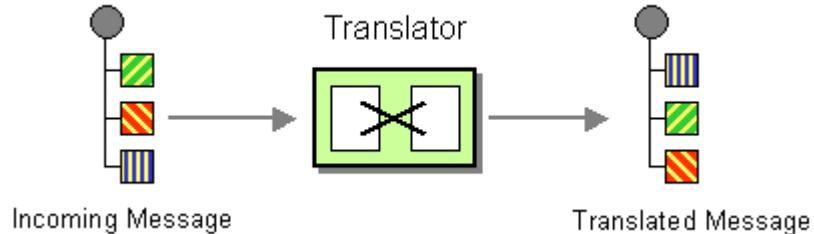
Message Text

```
1 {  
2   "Name": "Global Azure Bootcamp1"  
3 }
```



Resultat

Implementierung des Message Translator / Adapter Pattern



<https://www.enterpriseintegrationpatterns.com/>

Serverless - DEMO

Deployment auf Azure

Pick a publish target

- Azure Functions Consumption Plan
- Azure Functions Premium Plan
- Azure App Service Plan
- Azure App Service Plan Linux
- Folder

Azure Functions Consumption Plan
Serverless compute that scales dynamically and runs code on-demand

Create New
 Select Existing
 Run from package file (recommended)

Hinweis:

- Consumption Plan für „Serverless“
- App Service Plan, wenn ständig laufen soll (kein „Cold Start“ Problem)
- Premium: Kombination

Deployment auf Azure

App Service  Create new

Name: CS-GlobalAzureBootcamp-SlidePrep-Consumer

Subscription: emakinaCEE_6000dollar_Sponsorship

Resource group: CX_playground (West Europe)

Location: West Europe

Azure Storage: csglobalazurebootcamp* (West Europe) [New...](#)

Explore additional Azure services:

-  Create a storage account
-  Create a SQL Database

Clicking the Create button will create the following Azure resources:

- Azure Storage - csglobalazurebootcamp  
- App Service - CS-GlobalAzureBootcamp-SlidePrep-Consumer

Azure Storage

Create new

Account name: csglobalazurebootcamp

Location: West Europe

Account type: Standard - Locally Redundant Storage

Deployment auf Azure

CS-GlobalAzureBo...lidePrep-Consumer X local.settings.json host.json MsgHandler.cs

Connected Services Service References Publish

Deploy your app to a folder, IIS, Azure, or another destination. [More info](#)

⚡ CS-GlobalAzureBootcamp-SlidePrep-Consumer - Zip Deploy ▼

New Edit Rename Delete Publish

Summary

Site URL	https://cs-globalazurebootcamp-slideprep-consumer.azurewebsites.net □
Configuration	Release ✎
Username	\$CS-GlobalAzureBootcamp-SlidePrep-Consumer ✎
Password	***** ✎

Actions

[Manage in Cloud Explorer](#) [Edit Azure App Service settings](#)

Dependencies + Add

Azure Storage: csglobalazurebootcamp ▲ X



Deployment auf Azure

Hinweis:

- Der kleine Zusatz „(Consumption)“ ist hier entscheidend für **Serverless** Functions

CS-GlobalAzureBootcamp-SlidePrep-Consumer

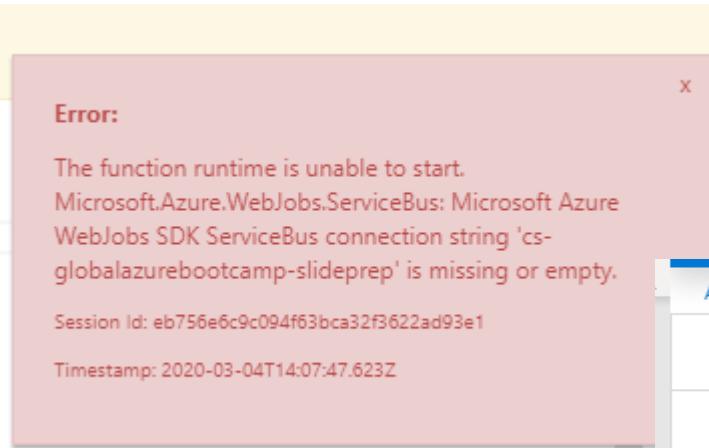
Function Apps

The screenshot shows the Azure Function App Overview page for the 'CS-GlobalAzureBootcamp-SlidePrep-Consumer' app. The left sidebar lists various sections: All subscriptions, Function Apps (selected), CS-GlobalAzureBootcamp-SlidePrep-Consumer (selected), Functions (Read Only), ProcessInternalCRMMsg, Integrate, Manage, Monitor, Proxies (Read Only), and Slots. The main content area has tabs for Overview and Platform features. The Overview tab displays the following information:

Status	Subscription	Resource group	URL
Running	emakinaCEE_6000dollar_Sponsorship	CX_playground	https://cs-globalazurebootcamp-slideprep-consumer.azurewebsites.net
	Subscription ID	Location	App Service plan / pricing tier
	dadfd5e8-f898-4d2c-98ac-0739b7190383	West Europe	WestEuropePlan (Consumption)

The Platform features tab shows 'Configured features' with links to 'Function app settings' and 'Configuration'.

Deployment auf Azure



Hinweis:

- Connection Strings eintragen vor dem Starten (siehe nächste Folie)

Configured features

Function app settings

Configuration

Application Insights

All services > CS-GlobalAzureBootcamp-SlidePrep-Consumer > Configuration

Configuration

Refresh Save Discard

[Application settings](#) [General settings](#)

Application settings

Application settings are encrypted at rest and transmitted over an encrypted channel.

New application setting Show values Advanced edit Filter

Deployment auf Azure

Home > Function App > CS-GlobalAzureBootcamp-SlidePrep-Consumer > Configuration

Configuration

 Refresh  Save  Discard

cs-globalazurebootcamp-slideprep	 Endpoint=sb://cs-globalazurebootcamp-slideprep.
cs-globalazurebootcamp-slideprep-account	 Endpoint=sb://cs-globalazurebootcamp-slideprep.



Deployment auf Azure

All services > CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMsg

CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMsg

Function Apps

 "CS-GlobalAzureBootcamp-Slid... 

 Refresh

All subscriptions

 Function Apps

▼  CS-GlobalAzureBootca...

▼  Functions (Read Only)

▼  ProcessInternalCRMMsg

 Integrate

 Manage

 Monitor

▶  Proxies (Read Only)

▶  Slots

Configure Application Insights to capture invocation logs

Azure Functions now supports Application Insights as the preferred monitoring solution for apps under construction and in production. App Insights offers powerful analytics, notifications, and

 Configure

Deployment auf Azure

All services > CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMsg > Application Insights



Application Insights



Application Insights

Application Insights helps you detect and diagnose quality issues in your web apps and web services, and helps you ur

Create new resource

New resource name *

CS-GlobalAzureBootcamp-SlidePrep-Consumer



Deployment auf Azure

Hinweis:

- Live app metrics klicken

CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMMsg

Function Apps

Refresh Live app metrics

i Results may be delayed for up to 5 minutes.

Application Insights Instance	Success count
CS-GlobalAzureBootcamp-SlidePrep-Consumer	0

DATE (UTC)	SUCCESS
No results	

CS-GlobalAzureBootcamp-SlidePrep-Consumer

All subscriptions

Function Apps

CS-GlobalAzureBootca...

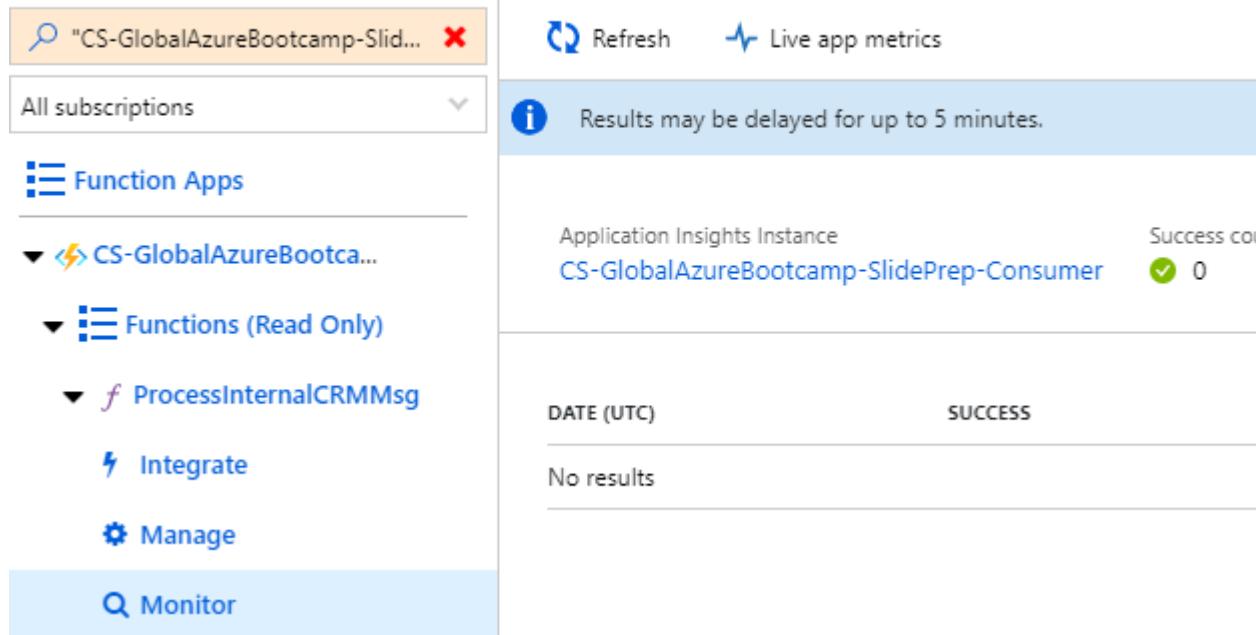
Functions (Read Only)

ProcessInternalCRMMsg

Integrate

Manage

Monitor



Live Metrics

All services > CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMMsg > Live Metrics Stream



Not available: your app is offline or using an older SDK

Hinweis:

- Live Metrics nur verfügbar, wenn läuft. Daher zum Testen auf „Run“ klicken bzw. Message schicken.

CS-GlobalAzureBootcamp-SlidePrep-Consumer - ProcessInternalCRMMMsg

Function Apps

All subscriptions

Function Apps

CS-GlobalAzureBootca...

Functions (Read Only)

ProcessInternalCRMMMsg

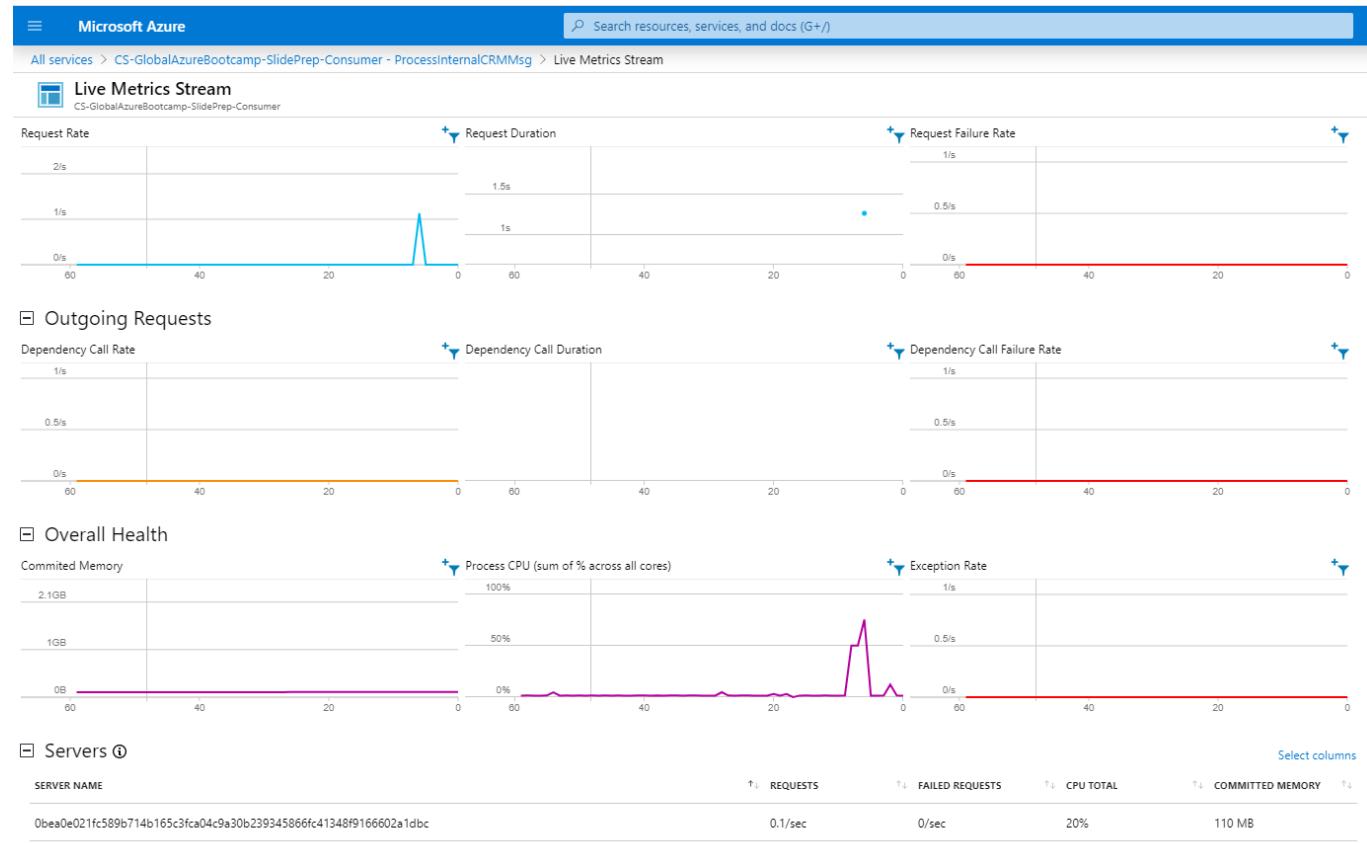
function.json

Save

Run

```
1 {  
2   "generatedBy": "Microsoft.NET.Sdk.Functions-1.0.31"  
3   "configurationSource": "attributes",  
4   "bindings": [  
5     {
```

Live Metrics



Live Metrics

▀ Servers ⓘ

SERVER NAME

305fe17c2342f2c842652dcae6a67ca566d70322d2d95b4c530234815276e536

↑↓ REQUESTS	↑↓ FAILED REQUESTS	↑↓ CPU TOTAL	↑↓ COMMITTED MEMORY ↑
0/sec	0/sec	1%	93 MB

Hinweis:

- Liste der Server ist hier interessant. Kann auch leer sein, wenn Live Metrics bereits offen und zu lange keine Nachrichten. → Serverless = automatische Function Instanzierung und Skalierung



Live Metrics

☰ Servers ⓘ

SERVER NAME

4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Disposing FunctionDispatcher	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Disposing ScriptHost.	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Hosting stopped	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Job host stopped	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Stopping JobHost	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Draining invocations from language worker ...ting down	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Waiting for RpcFunctionInvocationDispatcher to	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Stopping file watchers.	
4:15:37 PM Trace	@305fe17c2342f2c...30234815276e536
Hosting stopping	

Hinweis:

- Nach einiger Zeit ohne Nachrichten am Service Bus, wird der Azure Function Host automatisch runtergefahren und es sind keine Server mehr aufgelistet.



Live Metrics

Hinweis:

- [Microsoft.ApplicationInsights.PerfCounterCollector](#)

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/live-stream#get-started>

Serverless ?

Was bitte ist „Serverless“ ?

Serverless computing is a cloud computing execution model in which the cloud provider runs the server, and dynamically manages the allocation of machine resources. Pricing is based on the actual amount of resources consumed by an application

Cold Start „Problem“

Zeit für Start-Up der Triggered Function.

Alternative: Stattdessen oder in Kombination mit App Service Plan, bzw. Premium Variante.

“Deep” Dive Messaging

Warum wir ASB verwenden ?

- **Decoupling of Systems**
(Development, Upgrades, etc.)
- **Einfaches Setup**
- **Kostengünstig**
- **AMQP Standard** (Wechsel auf andere Message Broker einfach möglich während des Projektes)
- Einfache **Anbindung neuer Systeme**
- **Smart Endpoints – Dumb Pipes**

Smart Endpoints and Dumb Pipes

- Orchestration vs. Choreography
- keine Zentrale Komponente, die zum Bottleneck wird (sowohl in Komplexität als auch in Projektmgmt)
- Microservices für Transformation, Adapter, etc. anstatt SOA

<https://martinfowler.com/articles/microservices.html>



ASB vs. ESB

Azure Service Bus (ASB)
is NO
Enterprise Service Bus (ESB)

Azure Service Bus ist “nur” ein Message Broker
-> *speichert Nachrichten*

Enterprise Service Bus:

- Orchestration (BPEL, etc.)
- Transformation
- Error Handling and Monitoring
- Routing

FIFO - Sessions

- **Single Threaded Consumer -> FIFO**
- **Multi Threading -> Sessions für FIFO notwendig**

Power Platform

Microsoft Power Platform

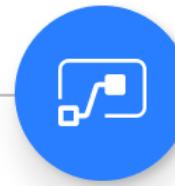
The low-code platform that spans Office 365, Azure, Dynamics 365, and standalone applications
Innovation anywhere. Unlocks value everywhere.



Power BI
Business analytics



Power Apps
Application development



Power Automate
Process automation



Power Virtual Agents
Intelligent virtual agents



Data connectors



Portals

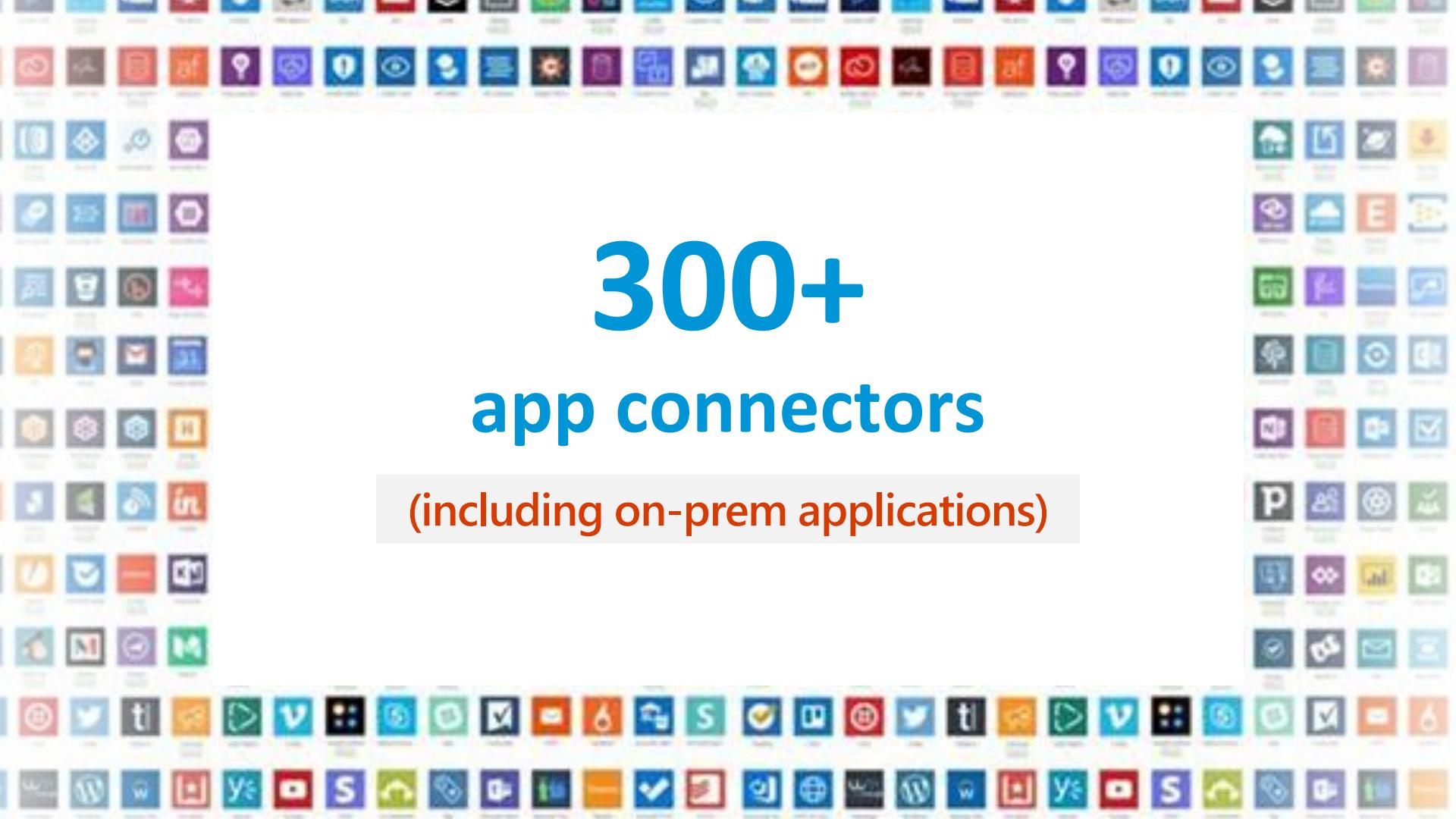


AI Builder



Common Data Service

Power Automate (Flow)



300+

app connectors

(including on-prem applications)

Power Automate

Example

Connect your favorite services

Set up a connection to access your web services, files, or cloud-based data to put them to work in your flow.



Office 365



Twitter



OneDrive



Dropbox



Google Drive



Slack



Mailchimp



Github



Dynamics CRM



SharePoint



Salesforce



SQL



Global Azure Bootcamp

Account · Account

Summary Details Files Related

ACCOUNT INFORMATION

Account Name

* Global Azure Bootcamp



Christoph Stiedl 3:25 PM

Account was updated

Name: Global Azure Bootcamp

URL: [Link](#)

Reply

When a record is updated

* Environment: Development1 (emakina-development)

* Entity Name: Accounts

* Scope: Organization

Show advanced options

Post message (Preview)

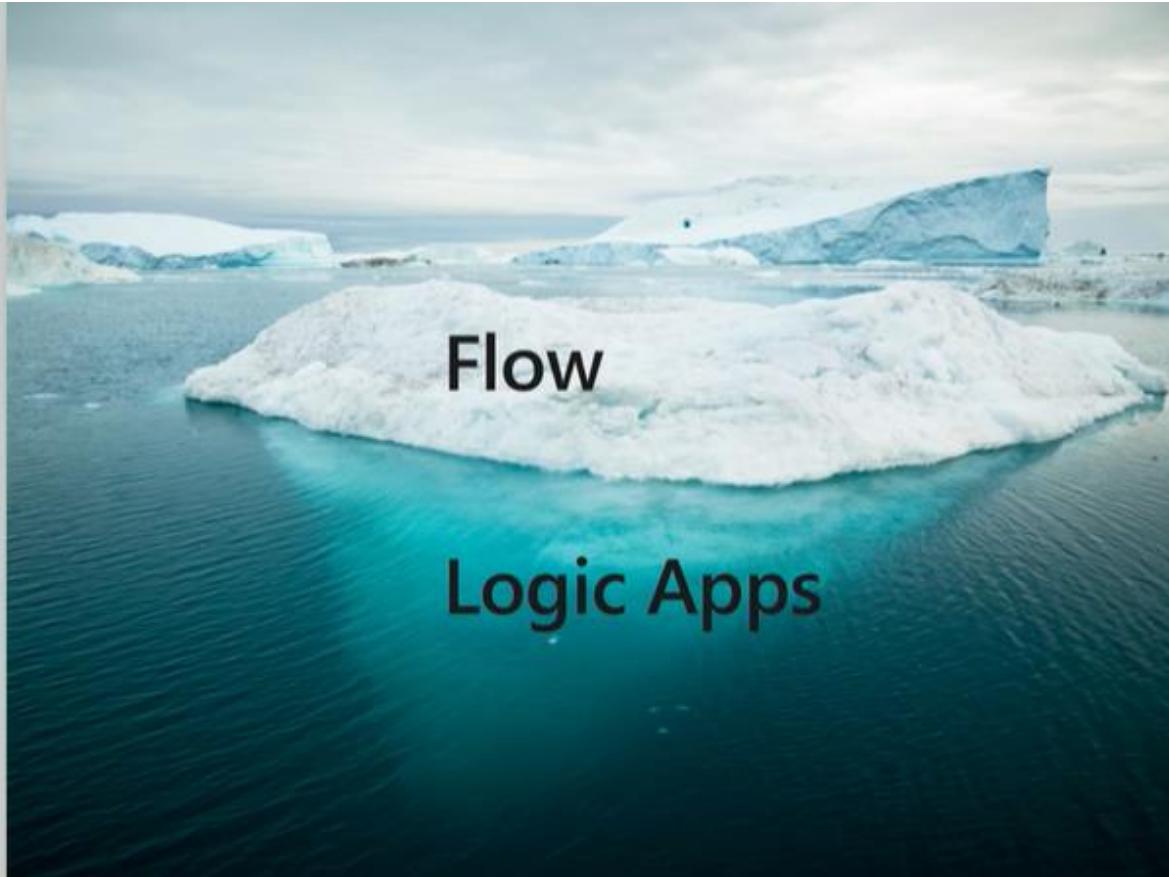
* Team: CX

* Channel: General

* Message:

```
</>
Account was updated <br/>
Name:  name <br/>
URL: <a href="#" fx concat(...) >Link</a>
```

Azure Logic Apps



Microsoft Flow vs. Logic Apps WHEN?

Microsoft Flow	Logic Apps
<ul style="list-style-type: none">• Business User• Citizen Developer/Integrator• Developers?• IT Pros?• My Grandmother?	<ul style="list-style-type: none">• Developers• IT Pros
Automating Workflows	Extending Microsoft Flow
Simple Integration	Extend/Advanced Integration

Used in Combination with Azure Service Bus and Functions

- **Power Automate Flows** -> End User
- **Azure Logic Apps** -> Power User/Developer (No/Less Coding)
- **Azure Functions** -> more flexibility for developers
- Combination is powerful
- Take care to not put Orchestration inside -> For Microservices -> Smart Endpoints and Dumb Pipes (at least my opinion)



Azure Event Grid & Event Hub

Azure Event Grid & Event Hub

- Service Bus --> Polling for messages
- Event Grid --> Push of messages (HTTP)
- Event Hub --> Streaming (for IoT, etc.)

<https://www.serverless360.com/blog/azure-service-bus-topics-vs-event-grid>



Azure API Mgmt

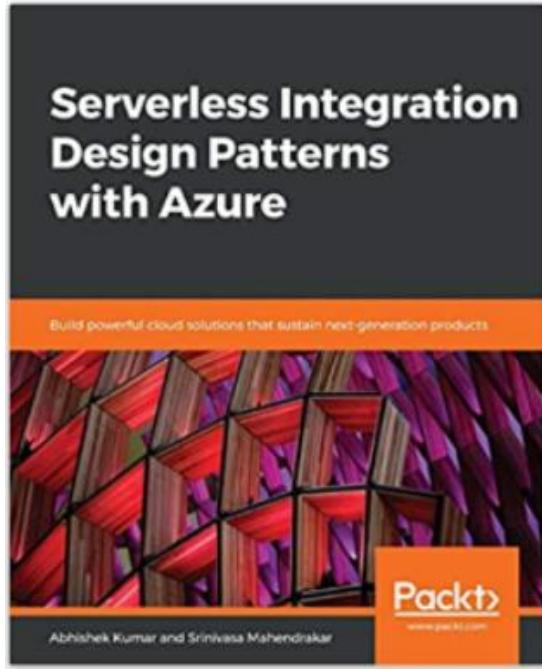
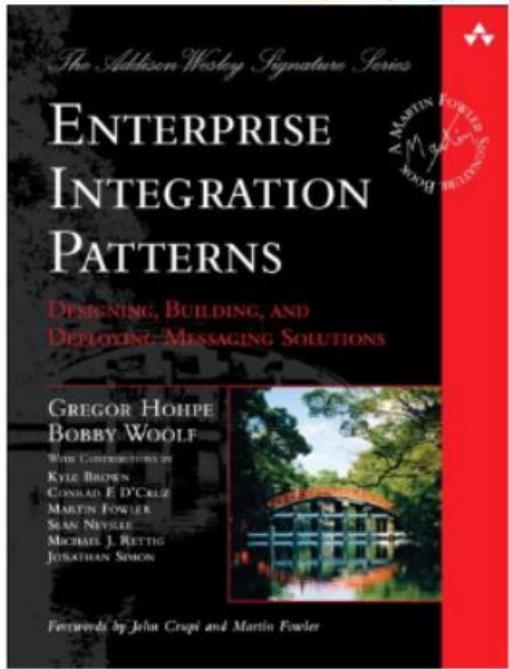
API Gateway

- Für Synchrone Integration (REST)
- Open API Standard
- Einfaches Routing
- Dokumentation



Lernmaterialien

Gute Bücher



Pluralsight Training

The screenshot shows a course card for 'Microsoft Azure Service Bus Brokered Messaging In-depth' on the Pluralsight platform. The title is prominently displayed at the top in large white font. Below the title, there is a five-star rating icon followed by the text 'By Alan Smith'. A descriptive text block below the author's name states: 'This course provides deep and detailed coverage of the brokered messaging capabilities of the Azure Service Bus.' To the right of the text, there is a small thumbnail image showing a line graph with several peaks and troughs, likely representing message flow or data processing.

Microsoft Azure Service Bus Brokered Messaging In-depth

★★★★★ By Alan Smith

This course provides deep and detailed coverage of the brokered messaging capabilities of the Azure Service Bus.

<https://www.pluralsight.com/courses/microsoft-azure-service-brokered-messaging>



Code Beispiele + Präsentation

<https://github.com/cstiedl/GlobalAzureBootcamp>

10

JOB ? → EMAKINA CEE

VIENNA, AUSTRIA



EMAKINA

EMPOWER
YOUR RELATIONS

#Done



EMAKINA

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Microsoft Dynamics CRM Team Lead
EMAKINA CEE
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