



# Deutsche SQL Server Konferenz 2015

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## SQL Server goes WinPhone

Alexander Karl



# about me



Alexander Karl

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SQL + BI Consultant

**Microsoft**  
CERTIFIED

*Trainer*

**Microsoft**  
CERTIFIED  
*IT Professional*

Database Administrator 2008  
Server Administrator on Windows Server® 2008  
Database Administrator on SQL Server® 2005

... und „2012er“ Zertifizierungen



# publications

- Schulungs-Video: „SQL Integration Services“
- Kindle ebook: DQS step-by-step DE + EN
- session-ppts: Introduction + code samples



# SQL Server goes WinPhone

Diese Session zeigt in zwei steps eine End-to-End Lösung

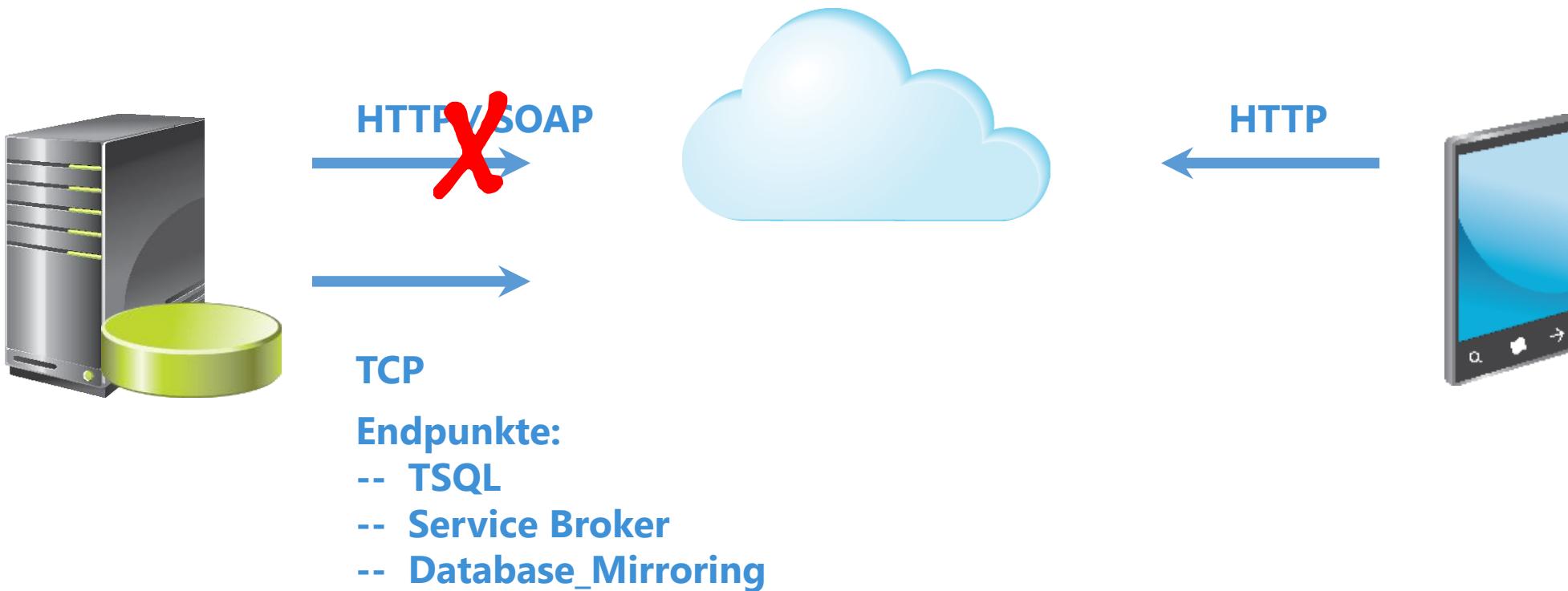
- zunächst die WinPhone Verbindung vom SQL-Server via ASP.net Web API zum WinPhone
- und im Anschluß eine mobile-to-mobile Verbindung mit den Azure mobile-Services und dem Servicebus.



# how to connect ??



# how to connect ??



# how to connect > ASP .NET Web-API



# API Documentation

Jobs

[POST jobs/{jobName}](#)

Client

[GET tables/Client](#)

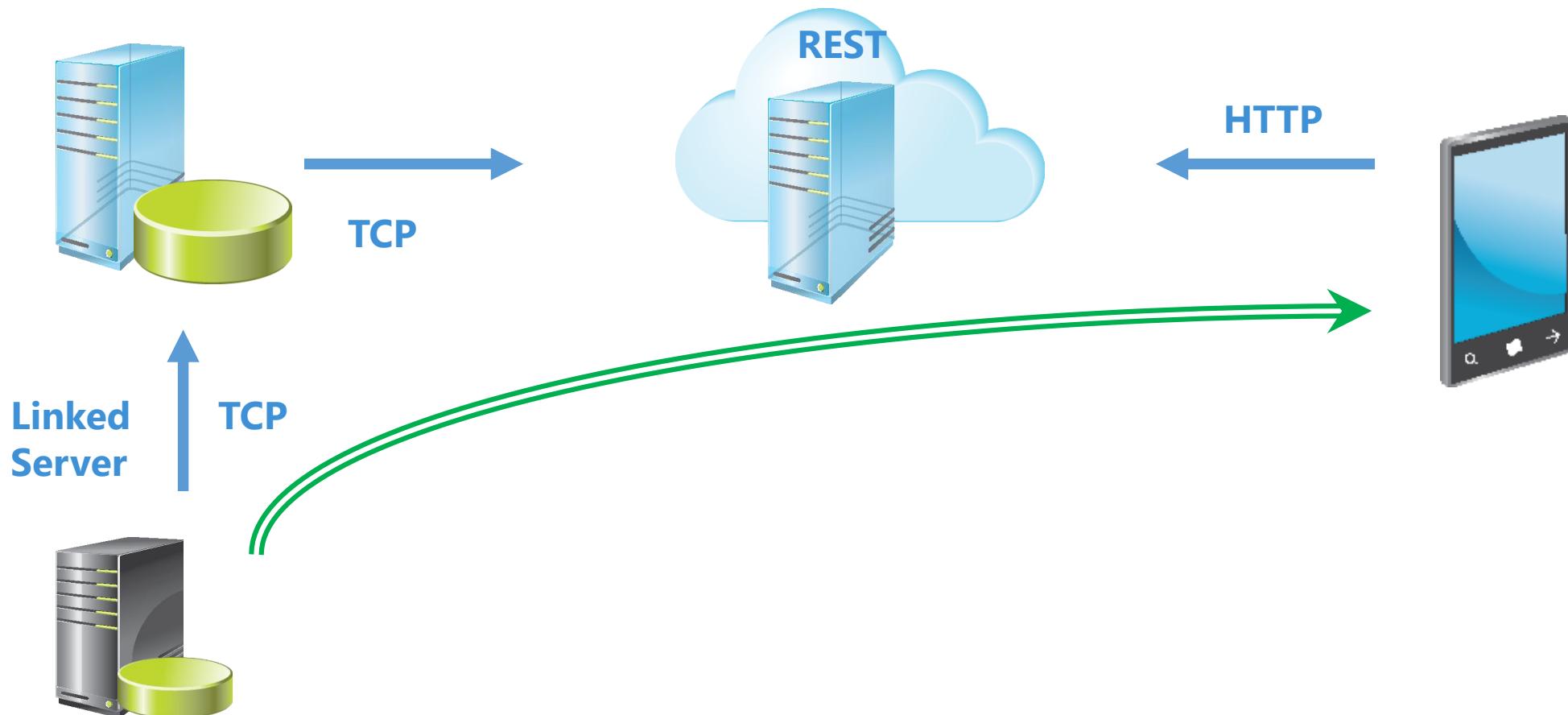
[GET tables/Client/{id}](#)

[PATCH tables/Client/{id}](#)

[POST tables/Client](#)

[DELETE tables/Client/{id}](#)

# how to connect > ASP .NET Web-API



# REST service

- REST ist eine Abstraktion der Struktur und des Verhaltens des World Wide Web.
- Jeder REST-konforme Dienst hat eine eindeutige Adresse, den Uniform Resource Locator (URL)
- Zusätzlich zum URL verwendet REST auch Uniform Resource Identifier (URI), um einzelne Ressourcen zu bezeichnen.
- [http://de.wikipedia.org/wiki/Representational State Transfer](http://de.wikipedia.org/wiki/Representational_State_Transfer)

# REST service in der Praxis

- Adresse: `http://test ... .azurewebsites.net/api/books`
- `http://test ... .azurewebsites.net/api/books/2`
- vgl. bisherige parametrische Aufrufe:  
`http:// ... .aspx?Id=2&parameter=abc`



# T-SQL vs. REST und http-Verben

- INSERT C POST
- **SELECT** R **GET**
- UPDATE U PUT
- DELETE D DELETE



# Create ASP .NET Web-API in 5 steps

- Web.config
- Models / class.cs
- Models / Context.cs
- Controllers / classController.cs
- App\_Start / WebApiConfig.cs

then „Publish“ to Azure



Installed packages

Online

All

nuget.org

Microsoft and .NET

Updates

Include Prerelease

Sort by: Most Downloads

Search Online (Ctrl+E)

**EntityFramework**

Entity Framework is Microsoft's recommended data access technology for new applications.

**Json.NET**

Json.NET is a popular high-performance JSON framework for .NET

**jQuery**

jQuery is a new kind of JavaScript Library.

jQuery is a fast and concise JavaScript Library that simplifies HTML document traversing, event handling...

**DataAnnotationsExtensions**

Validation attributes that can be used in any .NET 4.0 project to supplement the existing Data Annotations attributes.

**Microsoft ASP.NET MVC**

This package contains the runtime assemblies for ASP.NET MVC.

Prerelease

**Bootstrap**

Sleek, intuitive, and powerful mobile first front-end framework for faster and easier web development.

**WebGrease**

Web Grease is a suite of tools for optimizing javascript, css files and images.

1 2 3 4 5 ▶

Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.

Settings

Close

**Created by:** Microsoft**Id:** EntityFramework**Version:** 6.1.2**Last Published:** 22.12.2014**Downloads:** 8943857**License**[View License](#)[Project Information](#)[Report Abuse](#)**Description:**

Entity Framework is Microsoft's recommended data access technology for new applications.

**Tags:** Microsoft EF Database Data O/RM  
ADO.NET**Dependencies:***No Dependencies*

```
Web.config # X
1 <?xml version="1.0" encoding="utf-8"?>
2 <!--
3   For more information on how to configure your ASP.NET application, please visit
4   http://go.microsoft.com/fwlink/?LinkId=301879
5 -->
6 <configuration>
7 <configSections>
8   <!-- For more information on Entity Framework configuration, visit http://go.microsoft.com/fwlink/?LinkID=237468 -->
9   <section name="entityFramework" type="System.Data.Entity.Internal.ConfigFile.EntityFrameworkSection, EntityFramework, Version=6.0
10 </configSections>
11 <connectionStrings>
12   <add name="dbWebAPI" providerName="System.Data.SqlClient"
13     connectionString="Data Source=ra[REDACTED].database.windows.net;
14               Initial Catalog=testfabrik-[REDACTED]_db;
15               User ID=A[REDACTED]09;
16               Password=P[REDACTED];
17               Encrypt=true;
18               Trusted_Connection=false;">
19 </connectionStrings>
20 <appSettings></appSettings>
21 <system.web>
22   <compilation debug="true" targetFramework="4.5" />
23   <httpRuntime targetFramework="4.5" />
24 <httpModules>
```



Book.cs Web.config

testfabrik-verlag testfabrik\_webapi.Models.book

Id

```
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Web;
5
6  namespace testfabrik_webapi.Models
7  {
8      public class book
9      {
10         public int Id { get; set; }
11         public string Title { get; set; }
12         public string Autor { get; set; }
13         public string Reihe { get; set; }
14         public string ISBN { get; set; }
15         public decimal Preis { get; set; }
16     }
17 }
```



VerlagContext.cs X Book.cs Web.config

testfabrik-verlag testfabrik\_webapi.Models.VerlagContext VerlagContext()

```
1  using System;
2  using System.Data.Entity; //--
3  using System.Collections.Generic;
4  using System.Linq;
5  using System.Web;
6  using System.Text; //--
7
8  namespace testfabrik_webapi.Models
9  {
10     public class VerlagContext : DbContext
11     {
12         public VerlagContext() :base("name=dbWebAPI")
13         {
14             //----
15         }
16
17         public DbSet<book> books { get; set; }
18     }
19
20 }
```



BooksController.cs VerlagContext.cs Book.cs Web.config

testfabrik-verlag testfabrik\_webapi.Controllers.BooksController Get()

```
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Net;
5  using System.Net.Http;
6  using System.Web.Http;
7  using System.Data.Entity;
8  using testfabrik_webapi.Models;
9
10 namespace testfabrik_webapi.Controllers
11 {
12     public class BooksController : ApiController
13     {
14         // GET api/books
15         public IEnumerable<Models.book> Get()...
16
17         // GET api/books/2
18         public Models.book Get(int Id)
19         {
20             using (var db = new VerlagContext())
21             {
22                 return db.books.SingleOrDefault(t => t.Id == Id);
23             }
24         }
25     }
26 }
```



```
BooksController.cs VeragContext.cs Book.cs Web.config
testfabrik-verlag testfabrik_webapi.Controllers.BooksController Get()
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Net;
5 using System.Net.Http;
6 using System.Web.Http;
7 using System.Data.Entity;
8 using testfabrik_webapi.Models;
9
10 namespace testfabrik_webapi.Controllers
11 {
12     public class BooksController : ApiController
13     {
14         // GET api/books
15         public IEnumerable<Models.book> Get()
16         {
17             using (var db = new VeragContext())
18             {
19                 return db.books.ToList();
20             }
21         }
22
23         // GET api/books/2
24         public Models.book Get(int Id)...
25     }
26 }
```

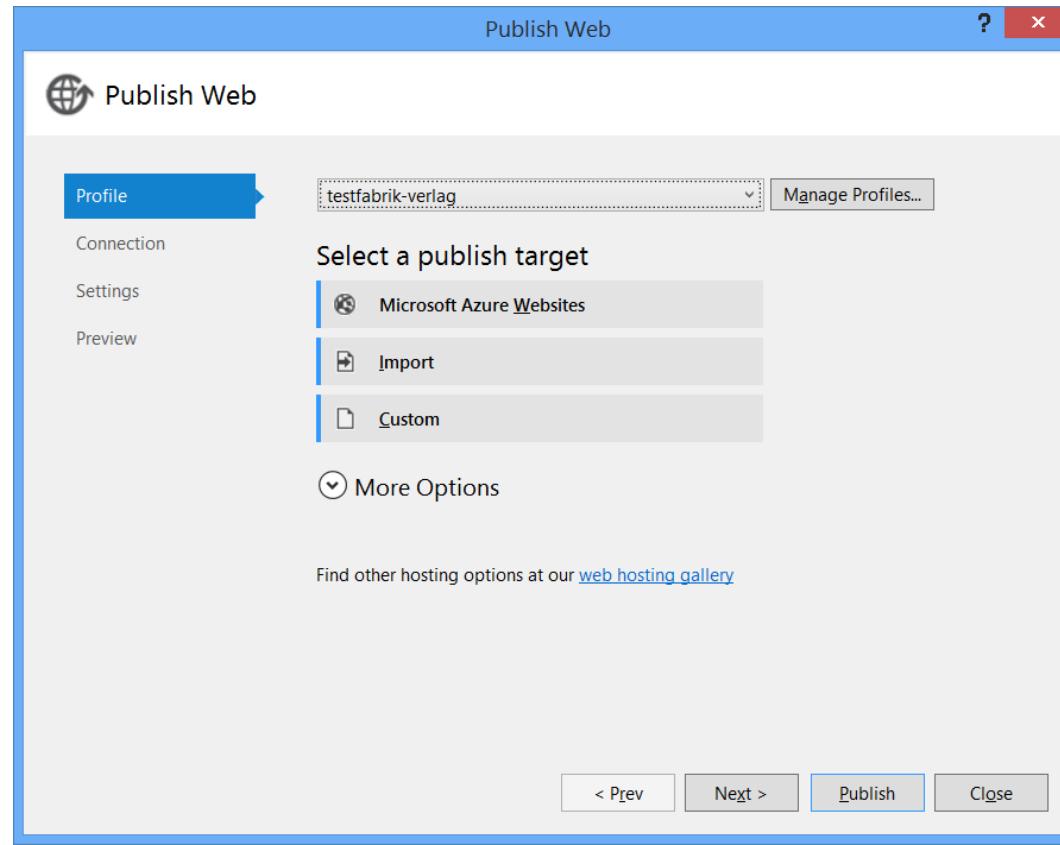


```
WebApiConfig.cs  X BooksController.cs      VerlagContext.cs    Book.cs     Web.config
testfabrik-verlag                                     testfabrik_webapi.WebApiConfig
Register(HttpConfiguration config)

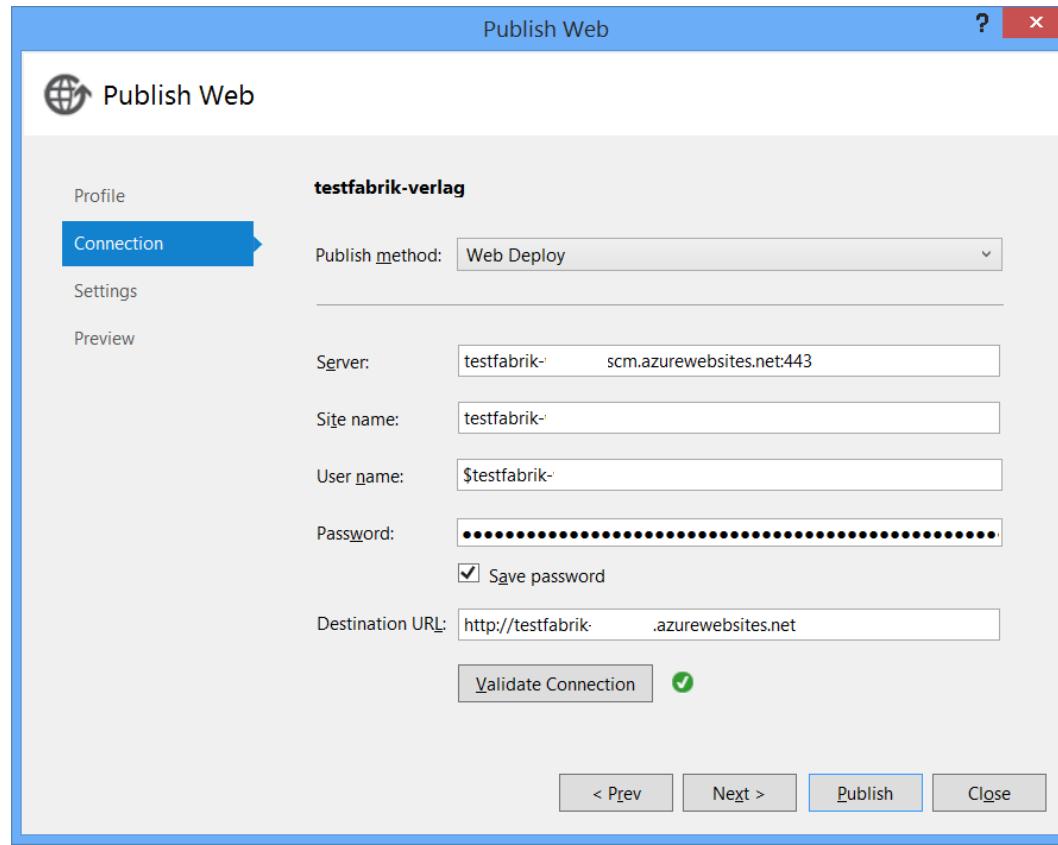
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Web.Http;
5
6  namespace testfabrik_webapi
7  {
8      public static class WebApiConfig
9      {
10         public static void Register(HttpConfiguration config)
11         {
12             // Web API configuration and services
13
14             // Web API routes
15             config.MapHttpAttributeRoutes();
16
17             config.Routes.MapHttpRoute(
18                 name: "DefaultApi",
19                 routeTemplate: "api/{controller}/{id}",
20                 defaults: new { id = RouteParameter.Optional }
21             );
22         }
23     }
24 }
25 }
```



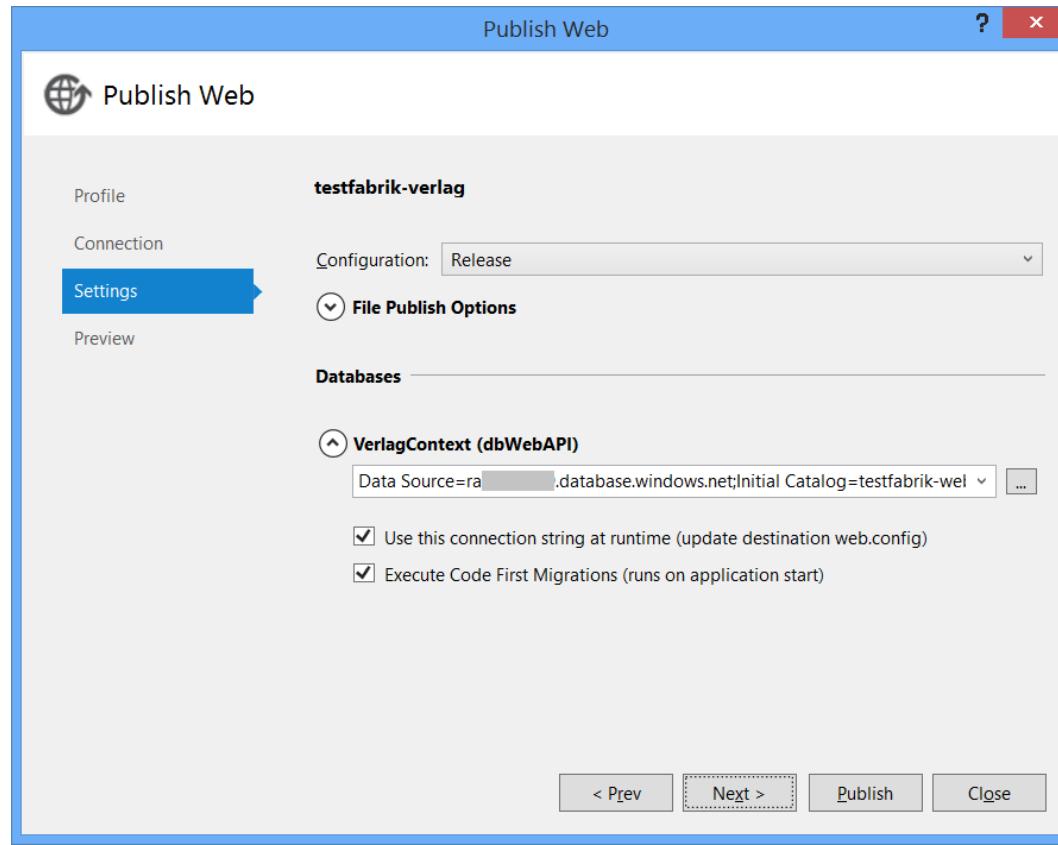
# Publish Web to Azure



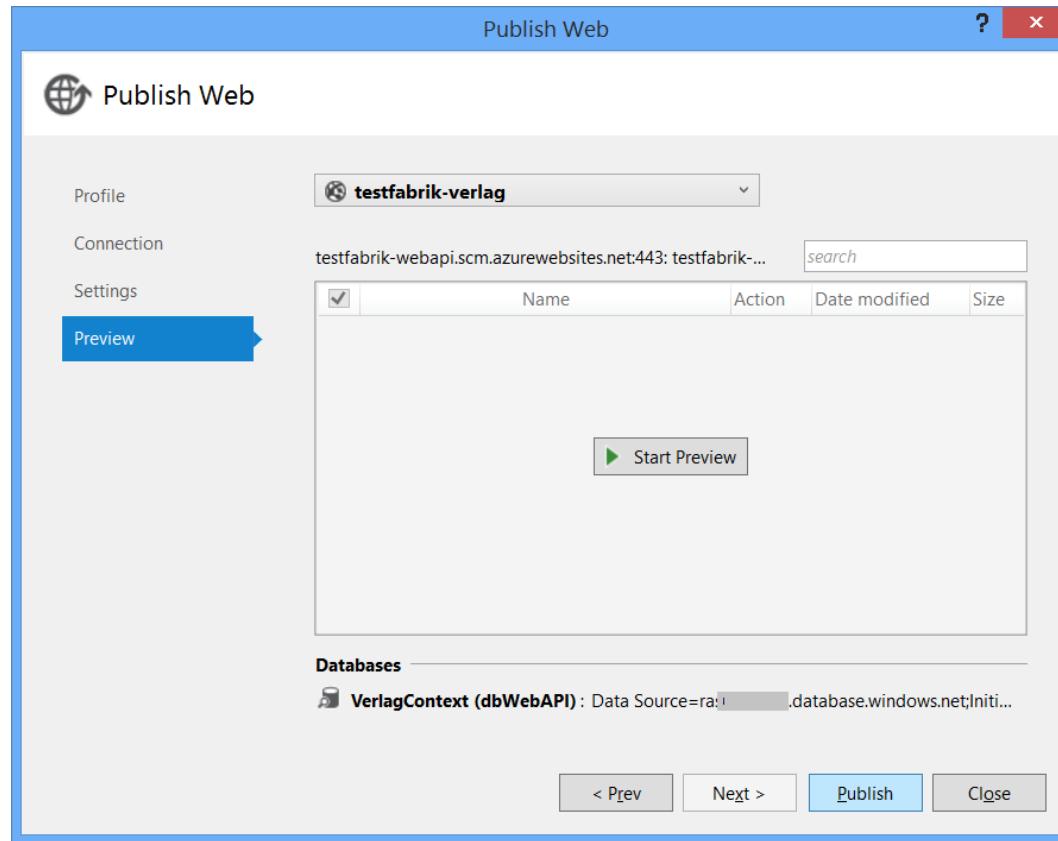
# Publish Web to Azure



# Publish Web to Azure



# Publish Web to Azure



# Demo

testfabrik-msbooks - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM DESIGN FORMAT TOOLS TEST ANALYZE WINDOW HELP

Device Release

MainPage.xaml

phone:PhoneApplicationPage

```
1 <phone:PhoneApplicationPage
2     x:Class="msbooks.MainPage"
3     xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
4     xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
5     xmlns:phone="clr-namespace:Microsoft.Phone.Controls;assembly=Microsoft.Phone"
6     xmlns:shell="clr-namespace:Microsoft.Phone.Shell;assembly=Microsoft.Phone"
7     xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
8     xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
9     xmlns:telerikPrimitives="clr-namespace:Telerik.Windows.Controls;assembly=Telerik.Windows.Controls.Primitives"
10    mc:Ignorable="d"
11    d:DataContext="{d:DesignData SampleData/MainViewModelSampleData.xml}"
12    FontFamily="{StaticResource PhoneFontFamilyNormal}"
13    FontSize="{StaticResource PhoneFontSizeNormal}"
14    Foreground="{StaticResource PhoneForegroundBrush}"
15    SupportedOrientations="Portrait" Orientation="Portrait"
16    shell:SystemTray.IsVisible="True">
17        <telerikPrimitives:RadTransitionControl.Transition>
18            <telerikPrimitives:RadTileTransition/>
19        </telerikPrimitives:RadTransitionControl.Transition>
20
21
22        <!--Data context is set to sample data above and LayoutRoot-->
23        <Grid x:Name="LayoutRoot" Background="Transparent">
24            <Grid.RowDefinitions>...
25
26                <!--TitlePanel contains the name of the application and the back button-->
27                <StackPanel Grid.Row="0" Margin="12,17,0,28">
28                    <TextBlock Text="Verlag Demo" Style="{StaticResource PhoneTextLargeStyle}"/>
29                    <TextBlock x:Name="a" Text="Bücherliste" Margin="24,0,0,0" Style="{StaticResource PhoneTextSubtleStyle}"/>
30                </StackPanel>
31
32                <!--ContentPanel contains LongListSelector and LongListSelector's ItemTemplate-->
33                <Grid x:Name="ContentPanel" Grid.Row="1" Margin="12,0,12,0">
34                    <phone:LongListSelector x:Name="MainLongListSelector" Margin="0,0,0,0">
35                        <phone:LongListSelector.ItemTemplate>
36                            <DataTemplate>
37                                <Grid x:Name="DataGrid">
38                                    <Grid.ColumnDefinitions>
39                                        <ColumnDefinition Width="70"/>
40                                        <ColumnDefinition Width="400" />
41                                    </Grid.ColumnDefinitions>
42                                    <Grid.RowDefinitions>
43                                        <RowDefinition Height="100" />
44                                    </Grid.RowDefinitions>
45                                </Grid>
46                            </DataTemplate>
47                        </phone:LongListSelector.ItemTemplate>
48                    </phone:LongListSelector>
49                </Grid>
50            </Grid>
51        </Grid>
52    </phone:PhoneApplicationPage>
```

MainPage.xaml.cs

Solution Explorer

Search Solution Explorer (Ctrl+U)

Solution 'testfabrik-msbooks' (1 project)

msbooks (Windows Phone Silverlight 8.1)

- Properties
- References
- Assets
- Models
- Resources
- SampleData
- ViewModels
  - ItemViewModel.cs
  - MainViewModel.cs
- App.xaml
- ApplicationInsights.config
- DetailsPage.xaml
  - DetailsPage.xaml.cs
- LocalizedStrings.cs
- LocalizedStrings
  - \_localizedResources : AppResources
  - LocalizedResources : AppResources

MainPage.xaml

- MainPage.xaml.cs
- Package.appxmanifest
- packages.config

Server Explorer

Toolbox

Device

Document Outline

SQL Server Object Explorer

testfabrik-msbooks - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP

Device Release

Sign in

MainPage.xaml.cs MainPage.xaml

msbooks msbooks.MainPage MainPage()

```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Net;
5 using System.Windows;
6 using System.Windows.Controls;
7 using System.Windows.Navigation;
8 using Microsoft.Phone.Controls;
9 using Microsoft.Phone.Shell;
10 using msbooks.Resources;
11 using msbooks.ViewModels;
12 using Telerik.Windows.Controls;
13
14 namespace msbooks
15 {
16     public partial class MainPage : PhoneApplicationPage
17     {
18         // Constructor
19         public MainPage()...
20
21         private void ViewModel_PropertyChanged(object sender, System.ComponentModel.PropertyChangedEventArgs e)...
22
23         // Load data for the ViewModel Items
24         protected override void OnNavigatedTo(NavigationEventArgs e)...
25
26         // Handle selection changed on LongListSelector
27         private void MainLongListSelector_SelectionChanged(object sender, SelectionChangedEventArgs e)
28         {
29             // If selected item is null (no selection) do nothing
30             if (MainLongListSelector.SelectedItem == null)
31                 return;
32
33             // Navigate to the new page
34             //NavigationService.Navigate(new Uri("/DetailsPage.xaml?selectedItem=" + (MainLongListSelector.SelectedItem as ItemViewModel).ID, UriKind.Relative));
35
36             RadPhoneApplicationFrame frame = App.Current.RootVisual as RadPhoneApplicationFrame;
37             frame.Navigate(new Uri("/DetailsPage.xaml?selectedItem=" + (MainLongListSelector.SelectedItem as ItemViewModel).ID, UriKind.Relative));
38
39             // Reset selected item to null (no selection)
40             MainLongListSelector.SelectedItem = null;
41         }
42
43         // ...
44
45         // ...
46
47         // ...
48
49         // ...
50
51         // ...
52
53         // ...
54
55         // ...
56
57         // ...
58
59         // ...
60
61         // ...
62
63         // ...
64
65         // ...
66
67         // ...
68 }
```

Solution Explorer

Search Solution Explorer (Ctrl+U)

- Solution 'testfabrik-msbooks' (1 project)
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    - Properties
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    - Assets
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testfabrik-msbooks - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP

Device Release

DetailsPage.xaml.cs\* DetailsPage.xaml MainPage.xaml.cs MainPage.xaml msbooks.DetalisPage DetailsPage()

Server Explorer Toolbox SQL Server Object Explorer

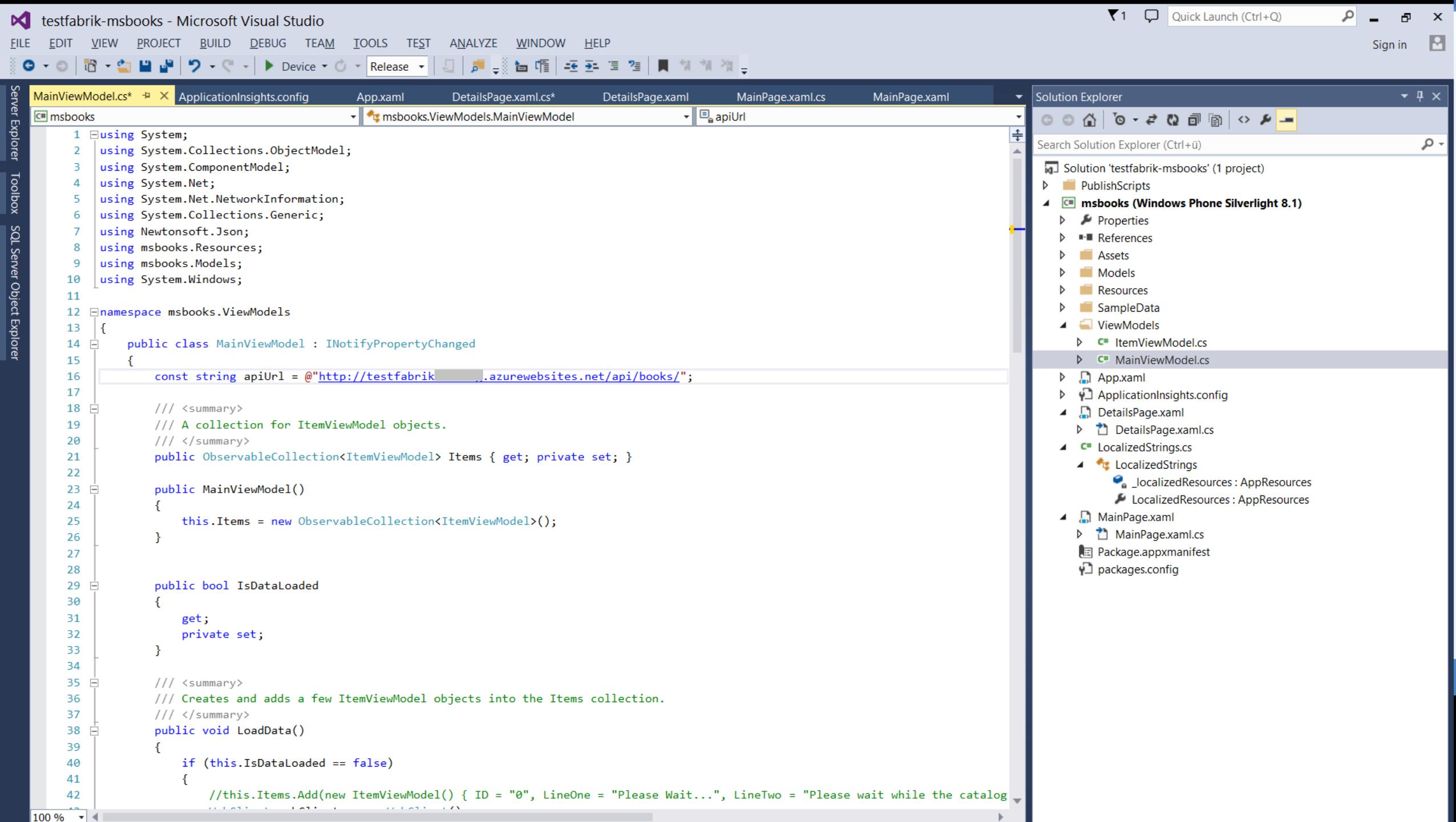
```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Net;
5 using System.Windows;
6 using System.Windows.Controls;
7 using System.Windows.Navigation;
8 using Microsoft.Phone.Controls;
9 using Microsoft.Phone.Shell;
10 using msbooks.Resources;
11 using Telerik.Windows.Controls;

12 namespace msbooks
13 {
14     public partial class DetailsPage : PhoneApplicationPage
15     {
16         // Constructor
17         public DetailsPage()
18         {
19             InitializeComponent();
20
21             this.SetValue(RadTileAnimation.ContainerToAnimateProperty, this.ContentPanel);
22
23             // Sample code to localize the ApplicationBar
24             //BuildLocalizedApplicationBar();
25         }
26
27
28         // When page is navigated to set data context to selected item in list
29         protected override void OnNavigatedTo(NavigationEventArgs e)
30         {
31             if (DataContext == null)
32             {
33                 string selectedIndex = "";
34                 if (NavigationContext.QueryString.TryGetValue("selectedItem", out selectedIndex))
35                 {
36                     int index = int.Parse(selectedIndex);
37                     DataContext = App.ViewModel.Items[--index];
38                 }
39             }
40         }
41
42         // Sample code for building a localized ApplicationBar
43         // ...
44     }
45 }
```

Solution Explorer

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testfabrik-msbooks - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP

Device Release

BookDetails.cs\* AppResources.resx ItemViewModel.cs MainViewModel.cs\* ApplicationInsights.config App.xaml DetailsPage.xaml.cs\*

msbooks

```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5 using System.Threading.Tasks;
6
7 namespace msbooks.Models
8 {
9     /// <summary>
10    /// Define a class that will hold the detailed information for a book.
11    /// </summary>
12    class BookDetails
13    {
14        public String Id { get; set; }
15        public String ISBN { get; set; }
16        public String Title { get; set; }
17        public String Autor { get; set; }
18        public String Reihe { get; set; }
19        public Decimal Preis { get; set; }
20    }
21 }
22
23
```

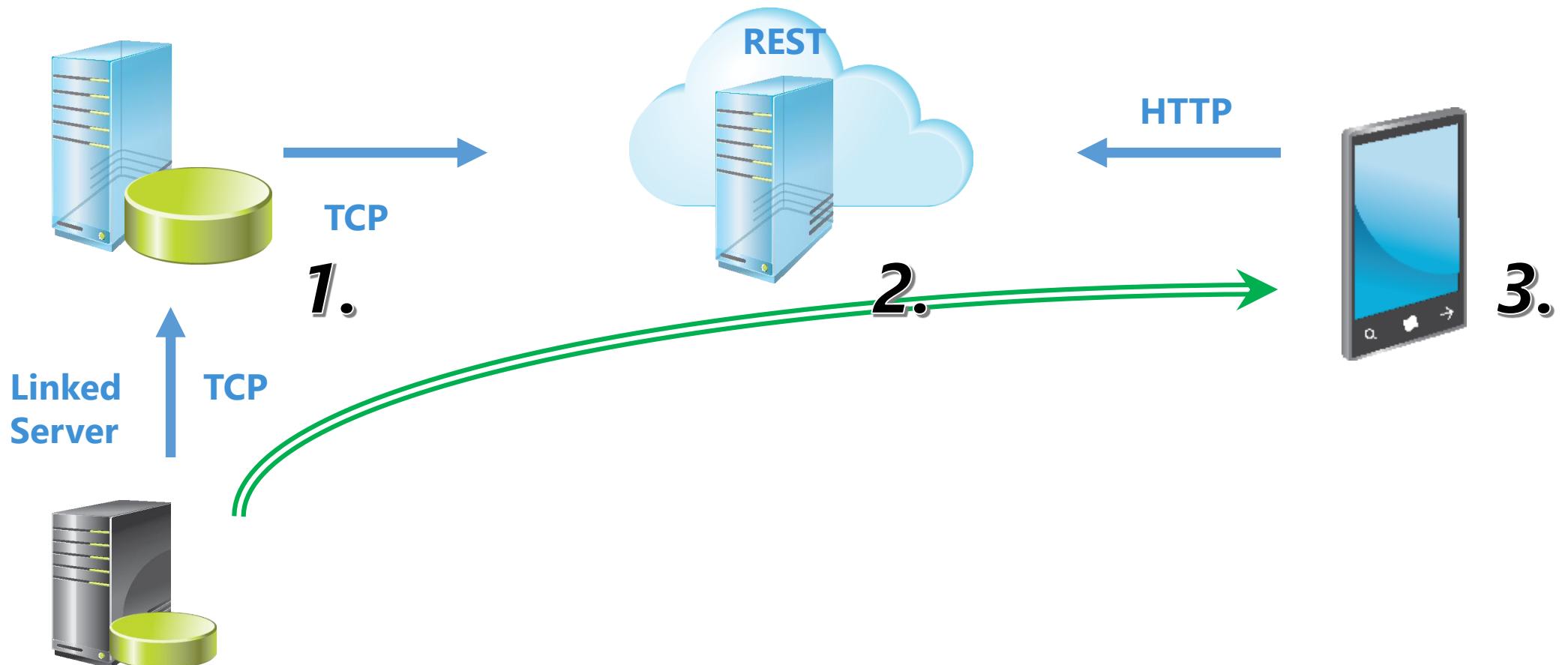
Solution Explorer

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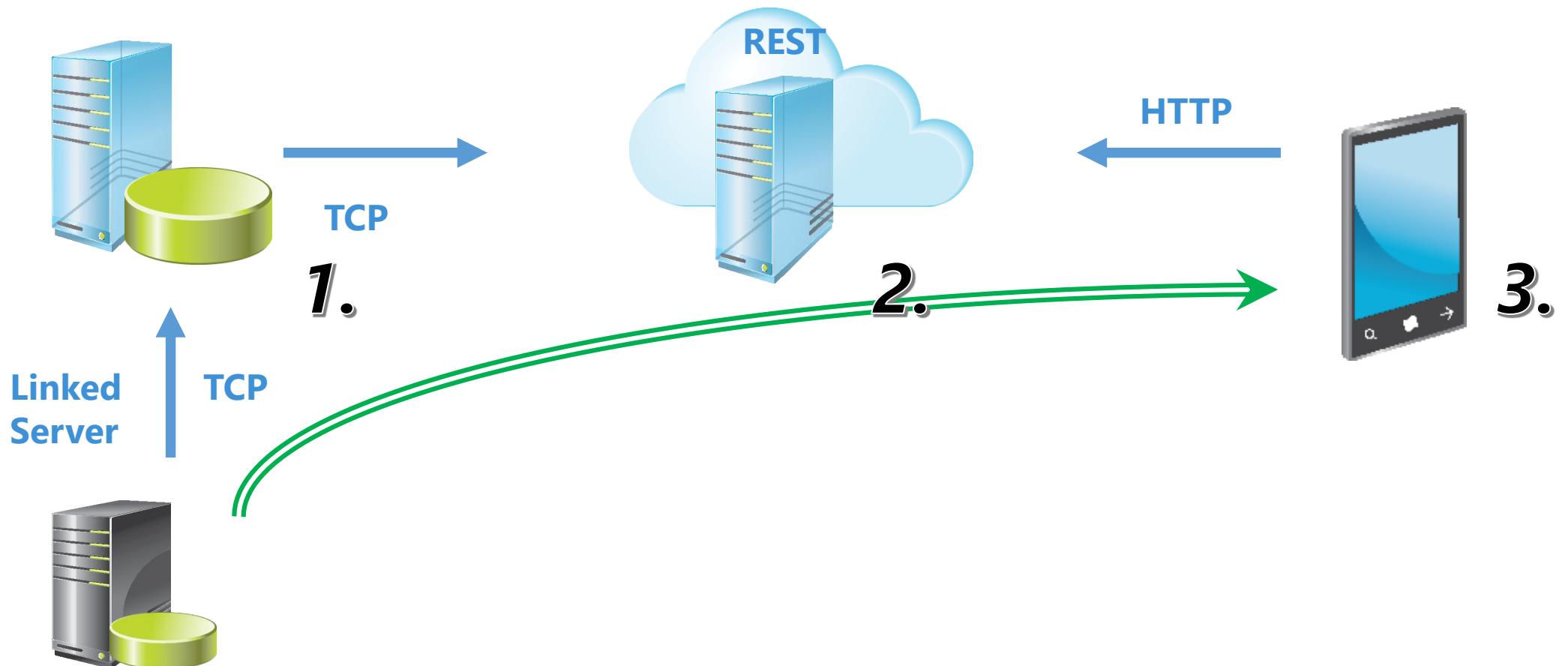


# how to connect >> ASP Web-API



# Demo

# how to connect >> ASP Web-API

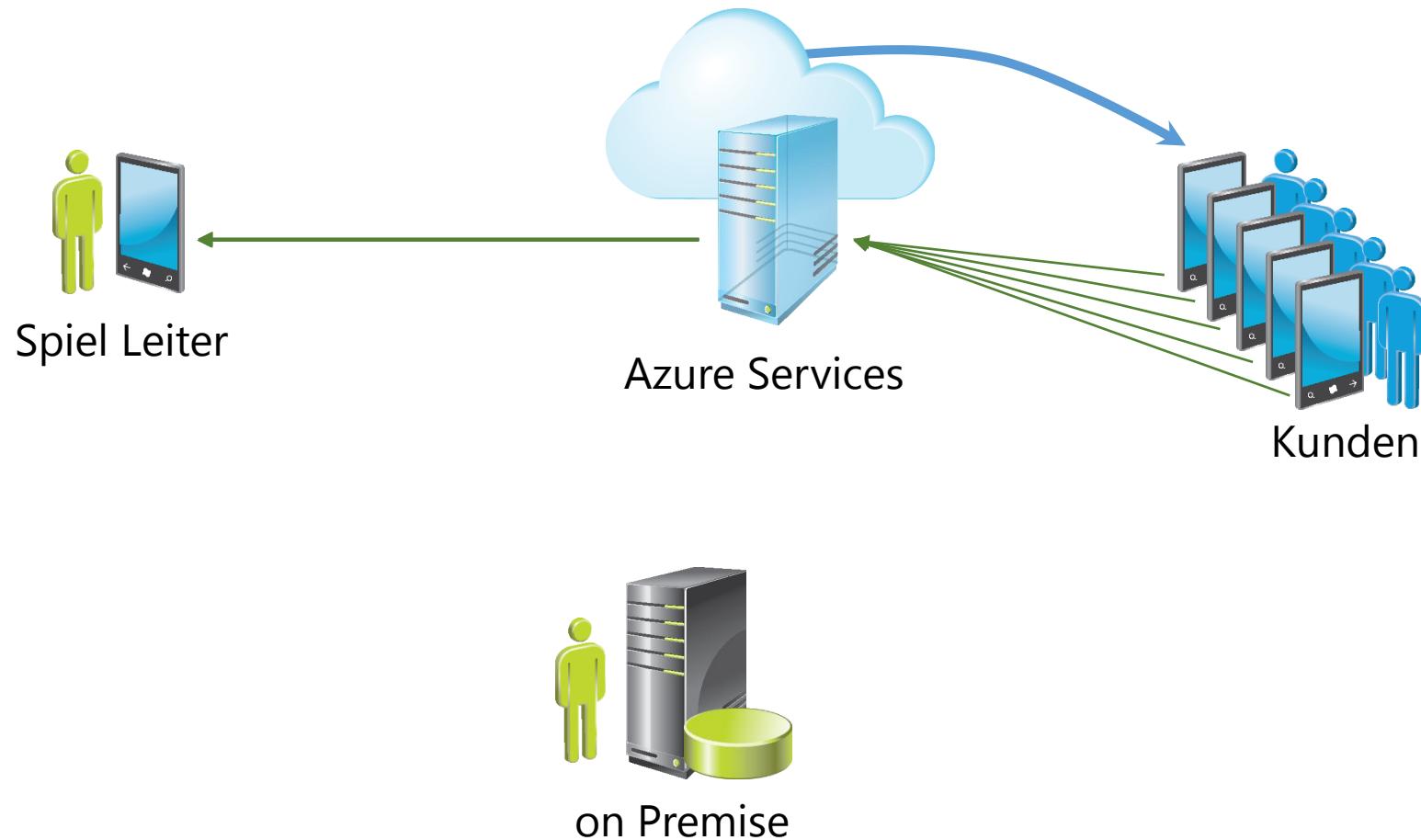


# Demo

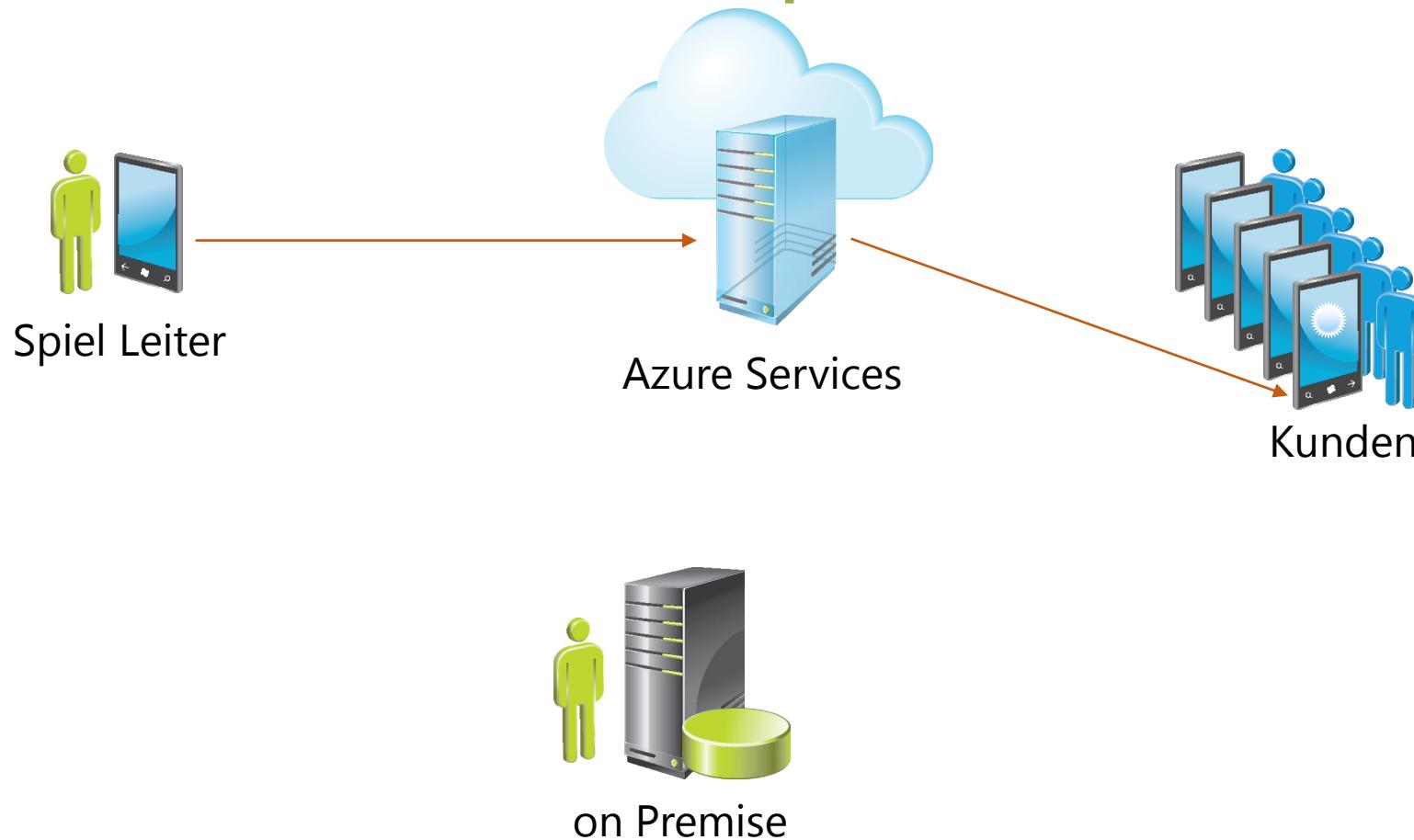
# „Schoko Demo“



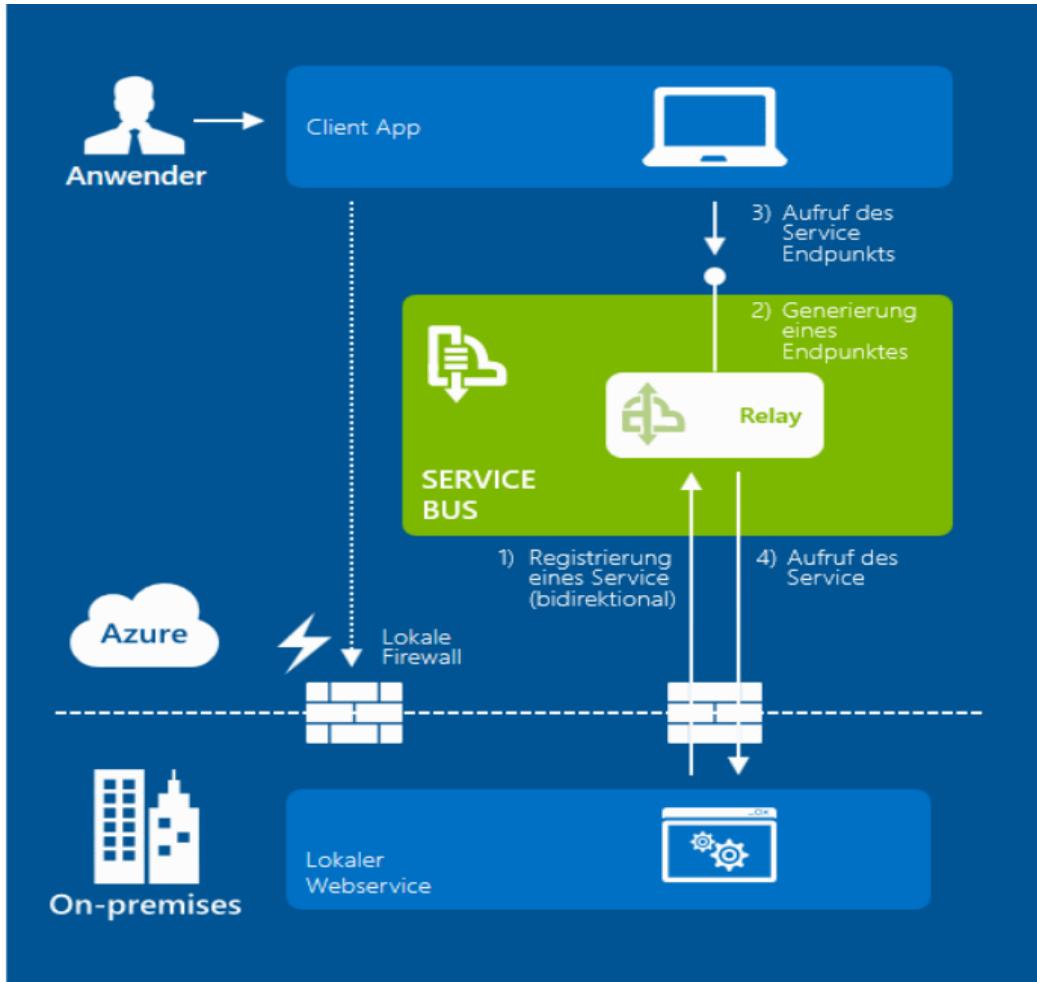
# „Schoko Demo“ step1 registration



# „Schoko Demo“ step2 notification

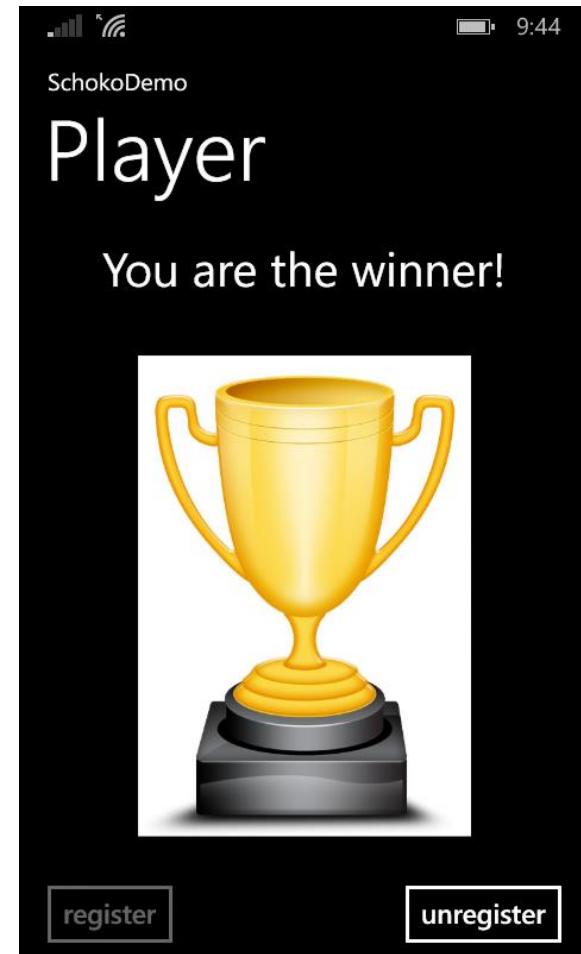
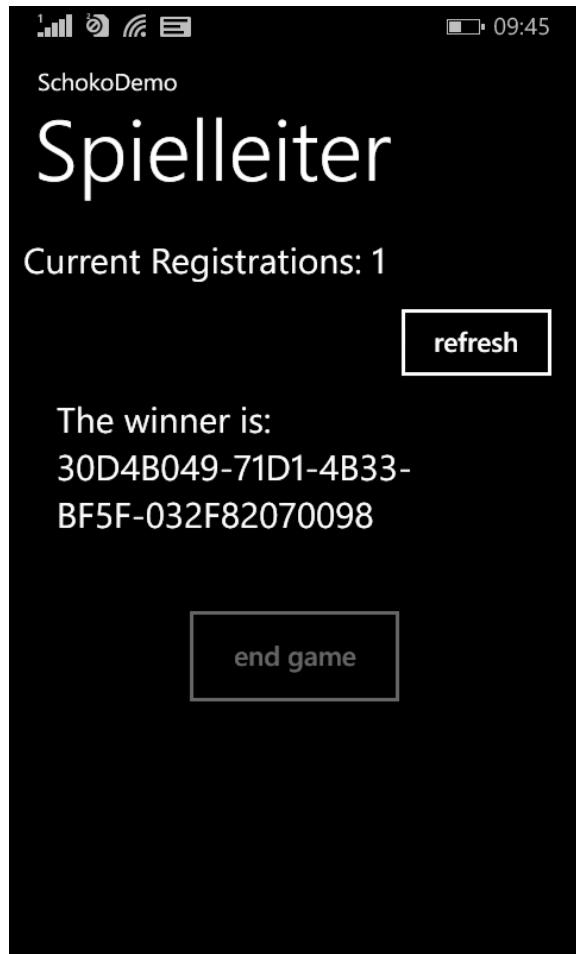


# Azure Service Bus



Service Bus





# Questions ??



# thanks ...

- to my co-programmer Andreas Wendl
- to all the Sponsors
- to SQL PASS Germany
- and  
to you for joining my session.





DEUTSCHLAND e.V.