



# Professionelle Desktop- und App-Entwicklung

04.04.2013

Meister werden – Training Stufe 1

Luzern



Michael Albertin

Requirements  
Engineer

Windows Store App  
Specialist

Roland  
Krummenacher

Senior Software  
Engineer

Windows Azure Trainer

Thorsten Ruf

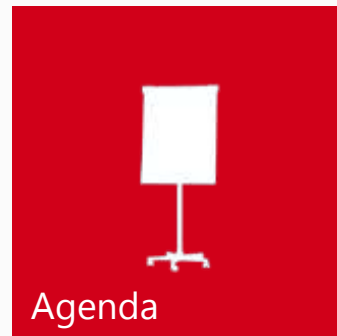
Senior Software  
Engineer

ALM TFS Consultant



# Agenda

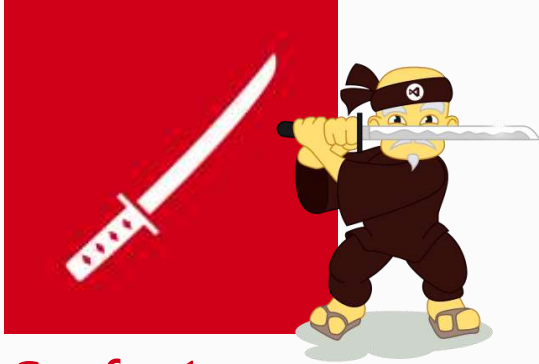
|                                                        |              |
|--------------------------------------------------------|--------------|
| Einführung                                             | 5'           |
| Application Lifecycle Management                       | 20'          |
| Web Development<br>Windows Azure<br>Windows Store Apps | 120'         |
| Meister-Tools                                          | 10'          |
| Apéro                                                  | ab ca. 16:00 |



# Einführung

Kapitel 1/3

# Übersicht Trainings



## Stufe 1

Professionelle Desktop- und App-Entwicklung

- ✦ Application Lifecycle Management
- ✦ Automatische Unittests
- ✦ Team Foundation Server



## Stufe 2

Agile Entwicklung und Qualitätssteigerung

- ✦ Statische Codeanalyse
- ✦ Testfunktionen mit Codecoverage
- ✦ Aufbau von Virtuellen Testumgebungen



## Stufe 3

Professionelle Integration von Entwicklung und Betrieb und Architekturanalyse

- ✦ Intellitrace
- ✦ Web- und Performancetesting
- ✦ Automatisches Deployment



Application Lifecycle Management

Web Development

Windows Azure

Windows Store Apps

Kapitel 2/3



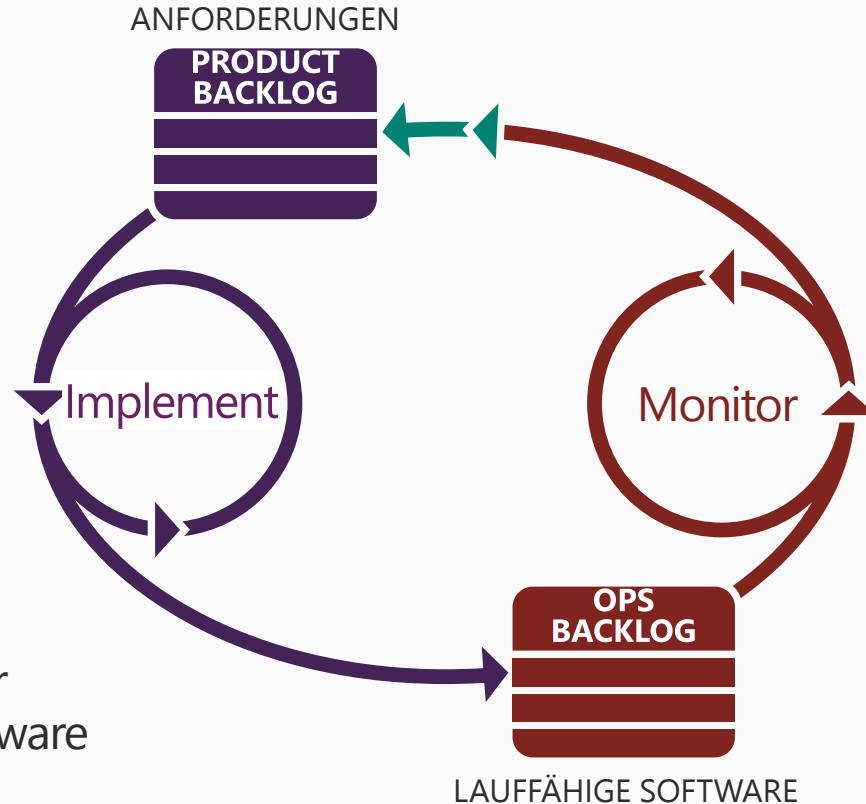
# Application Lifecycle



Define  
Ideenfindung



Develop  
Von der Idee zur  
lauffähigen Software



Operate  
Lauffähige Software  
im Betrieb  
Mehrwert generiert



# Application Lifecycle



## Define Ideenfindung

- Heterogene Plattformumgebungen
- diverse Tools für jeweilige Technologie
- Unit-Test schreiben aufwendig
- keine Integration Testing Framework
- keine Überprüfung Coding-Guidelines
- Fehlende Prozess Struktur



## Develop Von der Idee zur lauffähigen Software

Falsch  
verstandene  
Anforderungen

ANFORDERUNGEN

PRODUCT  
BACKLOG

Kein umsetzbares feedback

Implement

Monitor



Betrieb

Operate  
Lauffähige Software  
im Betrieb  
Mehrwert generiert

Fehler im Betrieb sind schwer  
zu debuggen und zu beheben

Unerfüllte  
Erwartungen der  
Anwender

LAUFFÄHIGE SOFTWARE

OPS  
BACKLOG

*"Visual Studio Team Foundation Server 2012 (TFS) is the collaboration platform at the core of Microsoft's application lifecycle management (ALM) solution.*

*TFS supports agile development practices, multiple IDEs and platforms locally or in the cloud and gives you the tools you need to effectively manage software development projects throughout the IT lifecycle."*

<http://msdn.microsoft.com/en-us/vstudio/ff637362.aspx>

# TFS Mythen und Ängste

- ✦ Nur für grosse Unternehmen
- ✦ Zu teuer
- ✦ Schwierig zu installieren und administrieren
- ✦ Schwierig in der Anwendung



# Team Foundation Server

TFS

TFS on  
Desktop

TFS Express

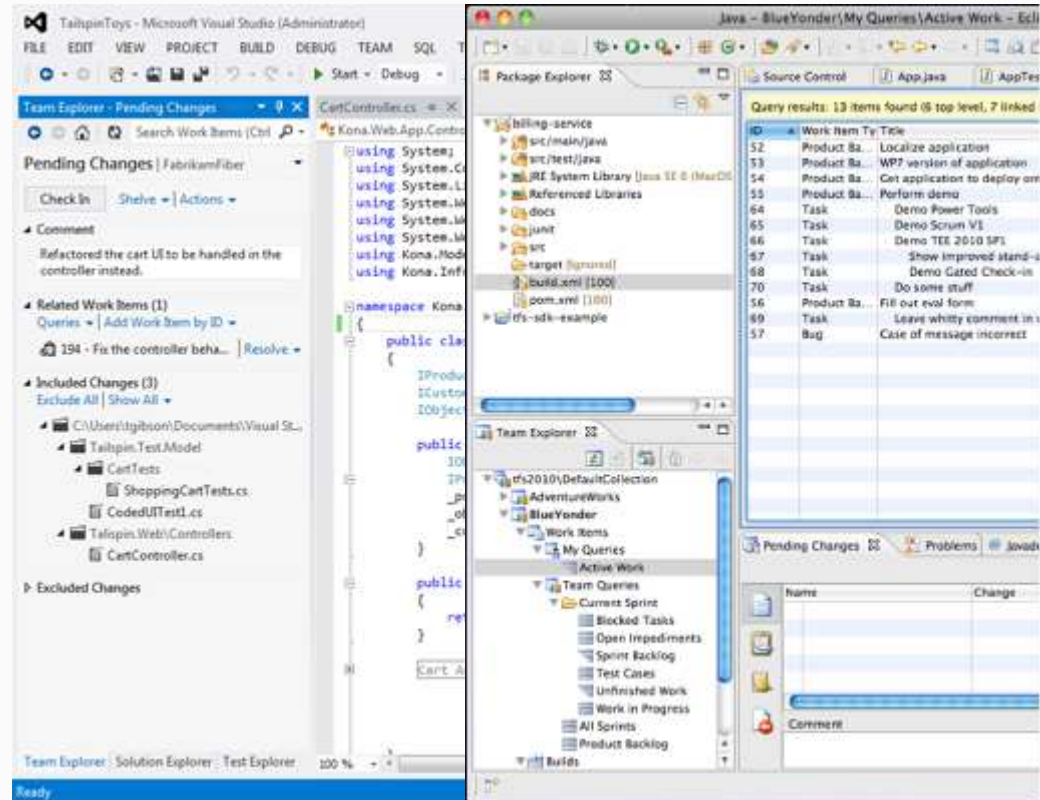


TF Service



# Team Foundation Service

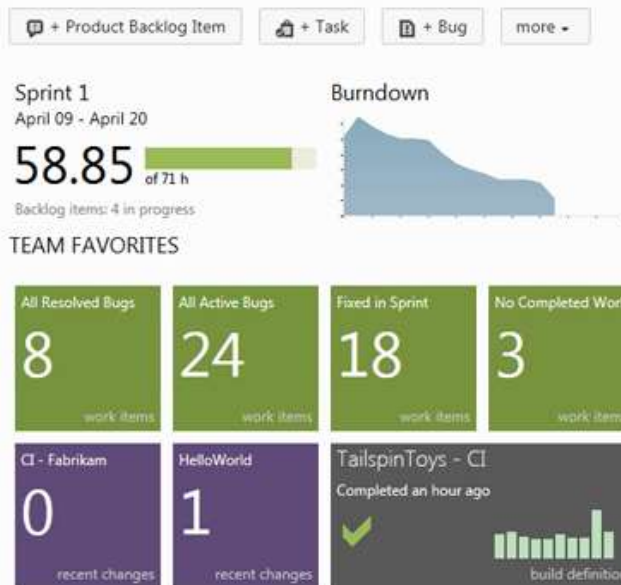
- ✦ Cloud basiertes Source Code Management
- ✦ Integration in Visual Studio und Eclipse



# Team Foundation Service

- ✦ Team Zusammenarbeit
- ✦ Anpassbares Dashboard
- ✦ Team Queries

FabrikamFiber



## ACTIVITIES

- [View backlog](#)
- [View board](#)
- [View work items](#)
- [Request feedback](#)
- [Open new instance of Visual Studio](#)

## MEMBERS (6)

- Adam Barr
- Chris Clements
- Cristina Potra
- Holly Holt
- Juan-Carlos Kivas
- Peter Waxman

[Manage all members...](#)

# Team Foundation Service

## Backlog Management

HOME **WORK** SOURCE BUILD

backlog **board** work items

Product Backlog

► Past

▲ Current

Sprint 3

▲ Future

Sprint 4

Sprint 5

Sprint 6

### Product Backlog

backlog items board

Create Backlog Query Column Options

Type: Product Backlog Item

Title

Add

Forecasting based on velocity of 10

| Forecast   | Order | Title                                                              | State | Effort | Iteration Path          |
|------------|-------|--------------------------------------------------------------------|-------|--------|-------------------------|
| ▼ Sprint 4 | 1     | Service rep can view service ticket details from the dashboard     | New   | 8      | FabrikamFiber\Release 1 |
|            | 2     | Technician can check on parts orders on Windows Phone.             | New   | 3      | FabrikamFiber\Release 1 |
| Sprint 5   | 3     | Technician can look for closest hardware store from Windows Phone. | New   | 3      | FabrikamFiber\Release 1 |
| Sprint 6   | 4     | Technician can submit invoices on Windows Phone.                   | New   | 16     | FabrikamFiber\Release 1 |
|            | 5     | Customer can view service invoices online.                         | New   | 4      | FabrikamFiber\Release 1 |
|            | 6     | Customer can pay invoices online.                                  | New   | 24     | FabrikamFiber\Release 1 |
|            | 7     | Customer can opt-in/opt-out of paper billing.                      | New   | 8      | FabrikamFiber\Release 1 |

# Team Foundation Service

## Taskboard

HOME **WORK** SOURCE BUILD

backlog **board** work items

Search work items 🔍

Sprint 3 May 07 - May 18  
3 work days remaining

backlog items **team members** person All

| TO DO 26 h                                                                                                                                                                                                                              | IN PROGRESS 13 h                                                                                                                                                                                                                                                                 | DONE                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Technician can see service tickets on Windows Phone.</li><li>Technician can report busy/late on Windows Phone.</li><li>Technician can send GPS location from Windows Phone. <b>12 h</b></li></ul> | <ul style="list-style-type: none"><li>Review new feature with technician early adopters. <b>2</b> Julia Ilyana</li><li>Write code to get GPS location and resolve to address. <b>5</b> Cameron Skinner</li><li>Design implementation of feature. <b>5</b> Brian Keller</li></ul> | <ul style="list-style-type: none"><li>Create UI for new feature. Annie Herriman</li></ul>                     |
| <ul style="list-style-type: none"><li>Customers with Canadian addresses not displaying properly. <b>4 h</b></li></ul>                                                                                                                   | <ul style="list-style-type: none"><li>Update stored procedures to return Canadian addresses. <b>3</b> Cameron Skinner</li></ul>                                                                                                                                                  | <ul style="list-style-type: none"><li>Fix UI to display Canadian addresses. <b>1</b> Annie Herriman</li></ul> |



# Team Foundation Service

## Build

The screenshot displays the TFS Build web interface. The browser address bar shows the URL `https://fabrikamfiber.tfspreview.com/DefaultCollection/FabrikamFiber`. The page title is "Team Foundation Service / FabrikamFiber". The user "Peter Waxman" is logged in. The navigation bar includes "HOME", "WORK", "SOURCE", and "BUILD". The "BUILD" section is active, showing "backlog", "board", and "work items".

On the left sidebar, under "Manage build qualities...", there is a search box and a list of build definitions. The "My favorites" section lists "TailspinToys - CI" (completed 2 hours ago). The "Team favorites" section lists "TailspinToys - CI" (completed 2 hours ago) and "TailspinToys - Nightly" (completed 2 hours ago). The "Build Definitions" section lists "All Build Definitions", "CI - Fabrikam nightly", "CIBuildDef", "Class1", "MyBuildDef", "MyCIBuild", "TailspinToys - CI", "TailspinToys - Nightly", "TailspinToys CI", "TailspinToys Gated", and "TailspinToys Nightly".

The main content area shows a build summary for "TailspinToys CI\_20120413.1 - Build succeeded". The build was triggered by "Chris Clements" for changeset 769, ran for 32 seconds, and completed 106.4 minutes ago. The build status is "Open drop folder" and "Retain indefinitely". The build quality is "No quality assigned".

The "Latest Activity" section shows "Build last modified by Elastic Build (FabrikamFiber) 2.5 hours ago". The "Associated Changesets" section shows "Changeset 743: Checked in by Chris Clements". The "Summary" section shows "Debug | Any CPU" with 0 errors, 0 warnings, and 1 test run(s) completed with a 100% average pass rate. The "Impacted Tests" section shows "No tests were impacted".

The footer includes the Microsoft logo and the text "© Microsoft Corporation. All rights reserved. Terms of Service | Privacy Statement | Service Notifications | Trademarks | Microsoft".

# Sensei-Tipp



Brian Harry's Blog  
für die aktuellsten Infos  
abonnieren

# Team Foundation Server

TFS

TFS on  
Desktop

TFS Express

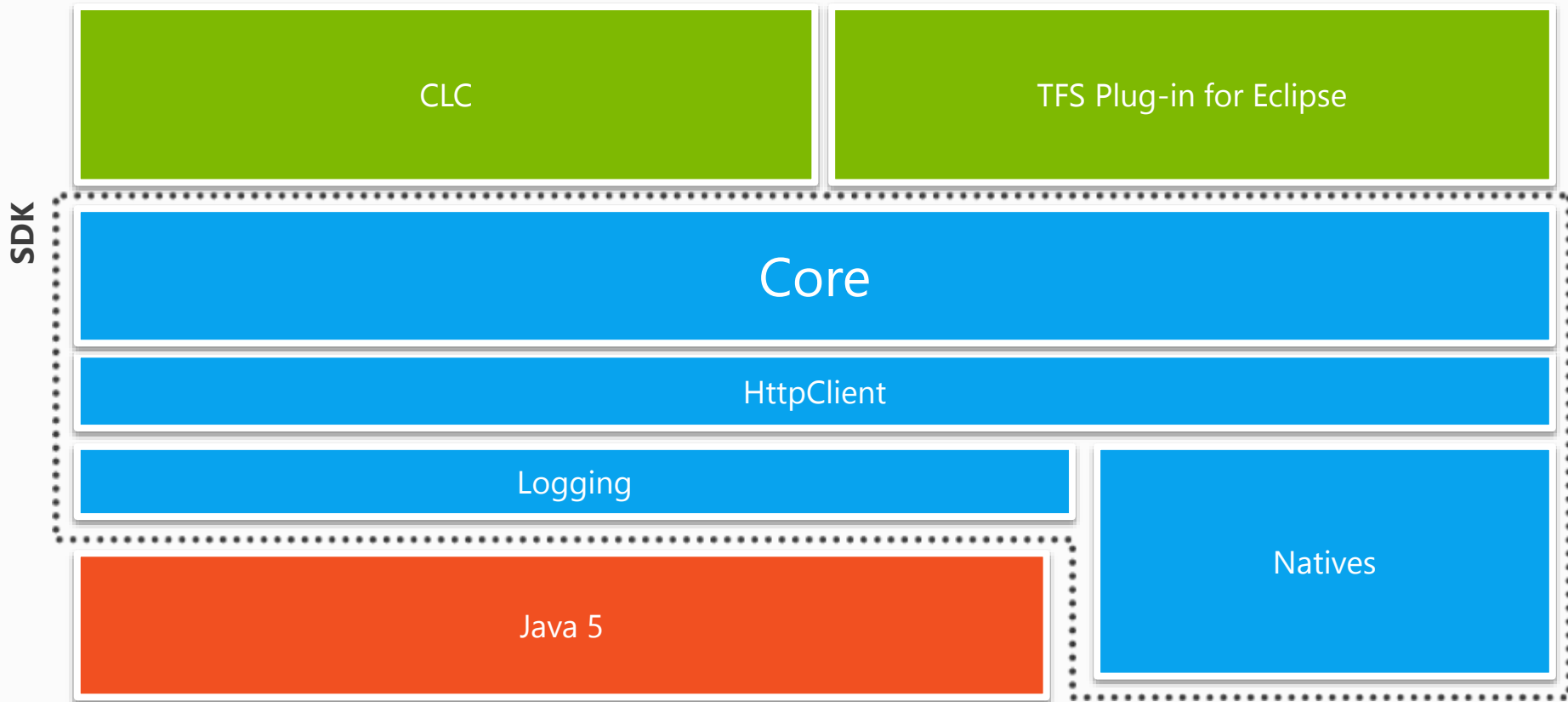


TFS Service





# Team Explorer Everywhere for Visual Studio Team Foundation Server 2012



Java - BlueYonder\My Queries\Active Work - Eclipse SDK - /Users/martin/ws/jazoon

Package Explorer

- billing-service
  - src/main/java
  - src/test/java
  - JRE System Library [Java SE 6 (MacOS)]
  - Referenced Libraries
  - docs
  - junit
  - src
  - target [Ignored]
  - build.xml [100]
  - pom.xml [100]
- tfs-sdk-example

Team Explorer

- tfs2010\DefaultCollection
  - AdventureWorks
  - BlueYonder
    - Work Items
      - My Queries
        - Active Work
          - Team Queries
            - Current Sprint
              - Blocked Tasks
              - Open Impediments
              - Sprint Backlog
              - Test Cases
              - Unfinished Work
              - Work in Progress
            - All Sprints
            - Product Backlog
- Builds

Source Control | App.java | AppTest.java | Active Work [Results]

Query results: 13 items found (6 top level, 7 linked items, 0 currently selected)

| ID | Work Item Ty  | Title                                     | Assigned To | State       |
|----|---------------|-------------------------------------------|-------------|-------------|
| 52 | Product Ba... | Localize application                      | martinwo    | New         |
| 53 | Product Ba... | WP7 version of application                | martinwo    | New         |
| 54 | Product Ba... | Get application to deploy onto Azure      |             | New         |
| 55 | Product Ba... | Perform demo                              | martinwo    | Committed   |
| 64 | Task          | Demo Power Tools                          | martinwo    | To Do       |
| 65 | Task          | Demo Scrum V1                             | martinwo    | In Progress |
| 66 | Task          | Demo TEE 2010 SP1                         | martinwo    | In Progress |
| 67 | Task          | Show improved stand-alone experience      | martinwo    | In Progress |
| 68 | Task          | Demo Gated Check-in                       | martinwo    | In Progress |
| 70 | Task          | Do some stuff                             | martinwo    | To Do       |
| 56 | Product Ba... | Fill out eval form                        |             | Committed   |
| 69 | Task          | Leave whitty comment in verbatims on eval |             | In Progress |
| 57 | Bug           | Case of message incorrect                 | martinwo    | Approved    |

Pending Changes | Problems | @ Javadoc | Declaration | History

MacBook | Check In | Shelf | Unshelve

| Name | Change | Folder |
|------|--------|--------|
|      |        |        |
|      |        |        |
|      |        |        |
|      |        |        |
|      |        |        |

Comment

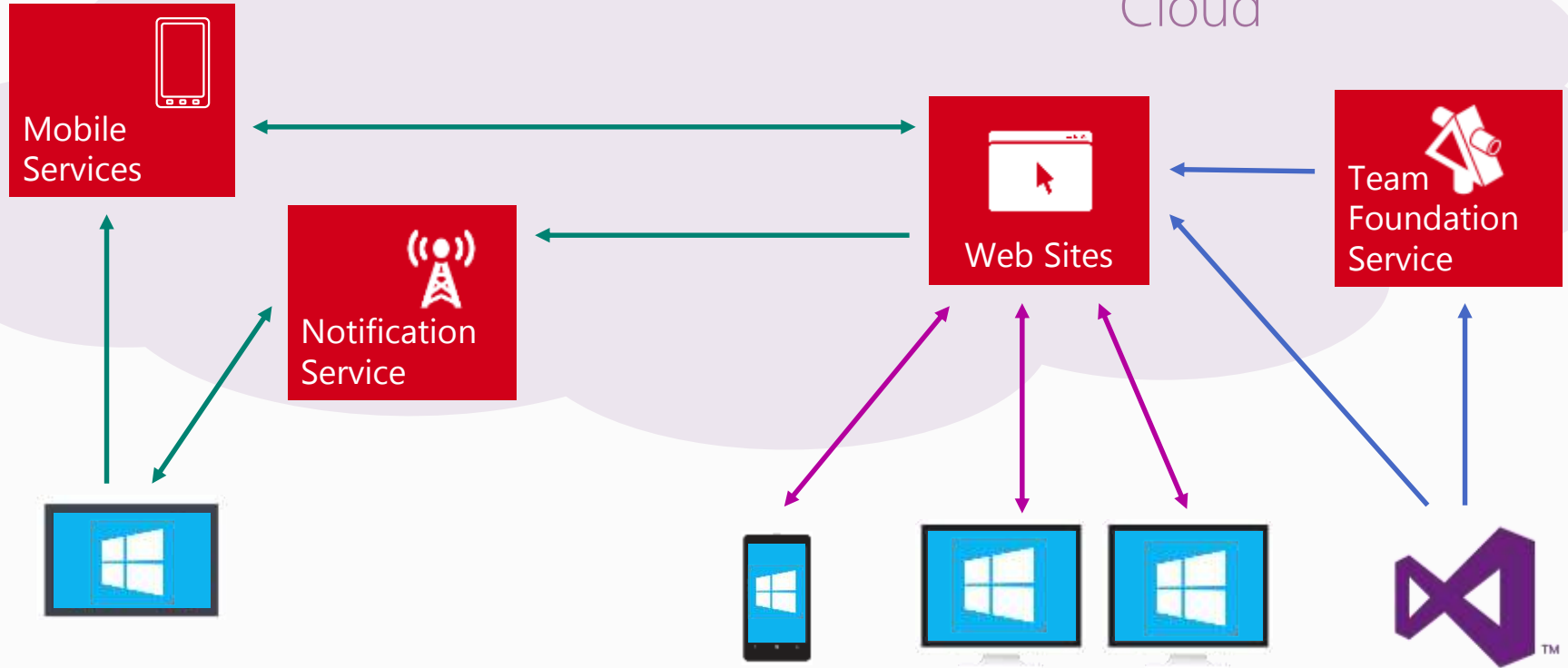
# Vergleich der TFS Versionen

|                                        | Express | Server | Service |
|----------------------------------------|---------|--------|---------|
| Work Items, Source Control, & Build    | +       | +      | +       |
| Agile Product/Project Management       | -       | +      | +       |
| Test Case Management                   | +       | +      | +       |
| Heterogeneous Development              | +       | +      | +       |
| Installation and Setup                 | +       | -      | +       |
| Collaborate with anyone, from anywhere | -       | -      | +       |
| Data stays inside your network         | +       | +      | -       |
| SharePoint Integration                 | -       | +      | -       |
| Data Warehouse & Reporting             | -       | +      | -       |



DEMO  
bbv TextMe

# Architekturübersicht





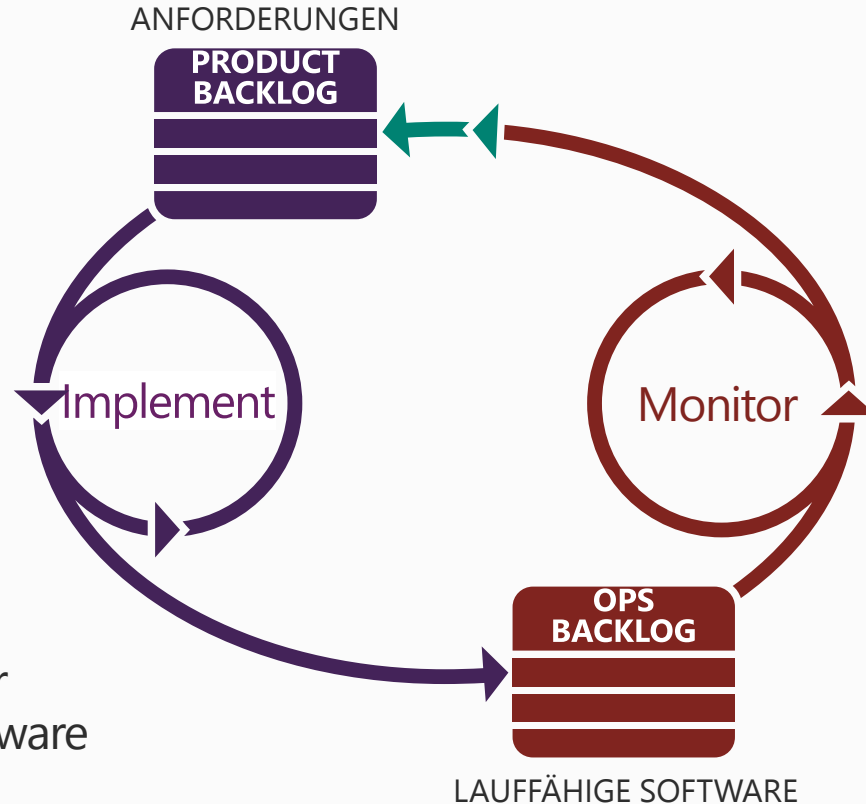
# Application Lifecycle



Define  
Ideenfindung

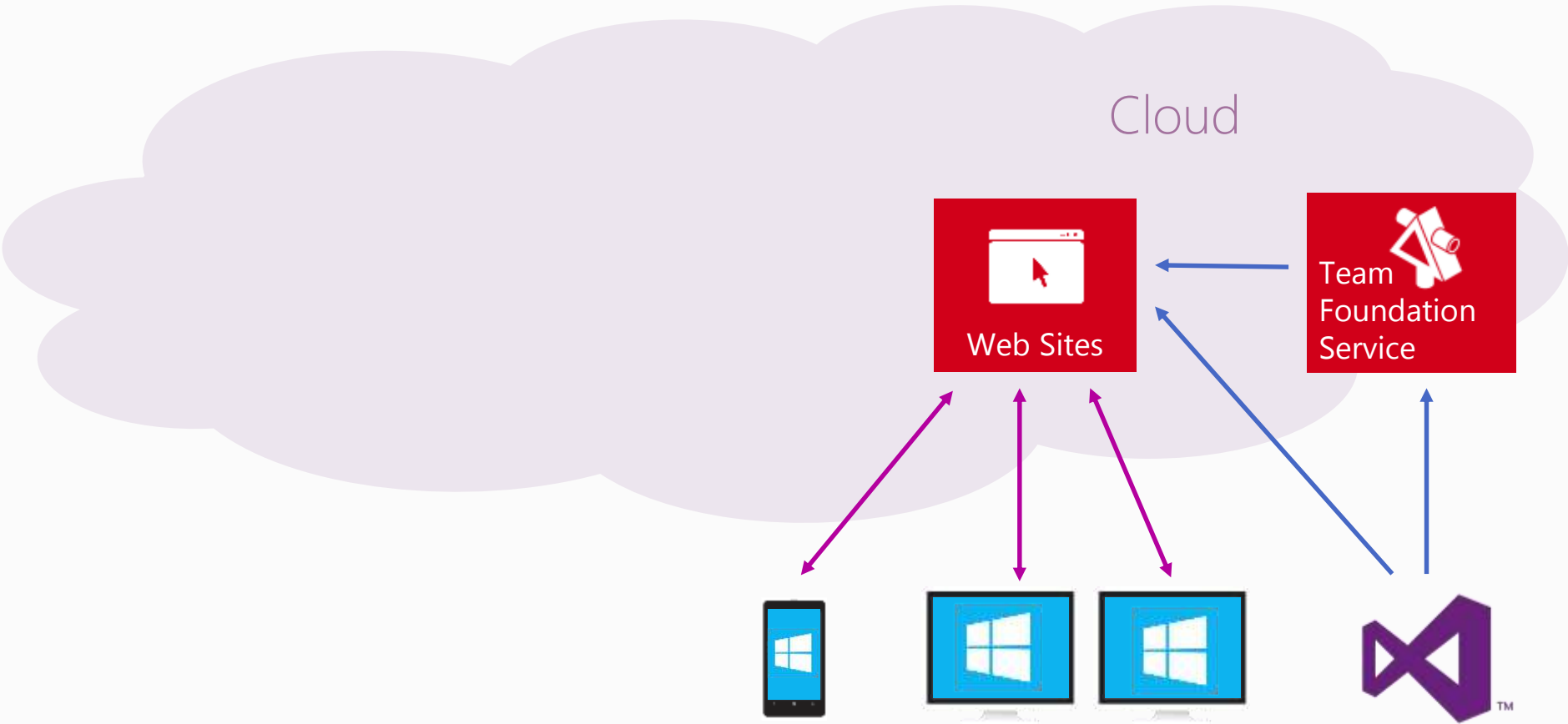


Develop  
Von der Idee zur  
lauffähigen Software

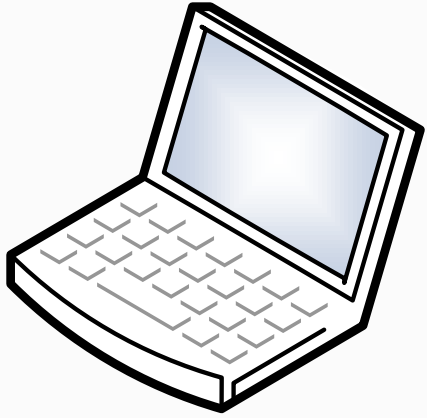


Operate  
Lauffähige Software  
im Betrieb  
Mehrwert generiert

# Sprint 1 – Web Development



# SignalR



# Lösungsansätze



Am meisten  
verbreitet

Interval Polling

**SignalR**

Long Polling

WebSockets

Am wenigsten  
verbreitet



# Sensei-Tipp



SignalR kann diverse  
Clients unterstützen

ASP.NET  
**SignalR**

Incredibly simple real-time features  
for your web apps

Gratis E-Book auf [www.campusmvp.net](http://www.campusmvp.net)

# Sensei-Tipp



Installiere SignalR mit  
den «ASP.NET and Web  
Tools 2012.2»

Infos und Download unter  
<http://www.asp.net/vnext>

# Windows Azure: Die Cloud von Microsoft











Bild: Global Foundation Services









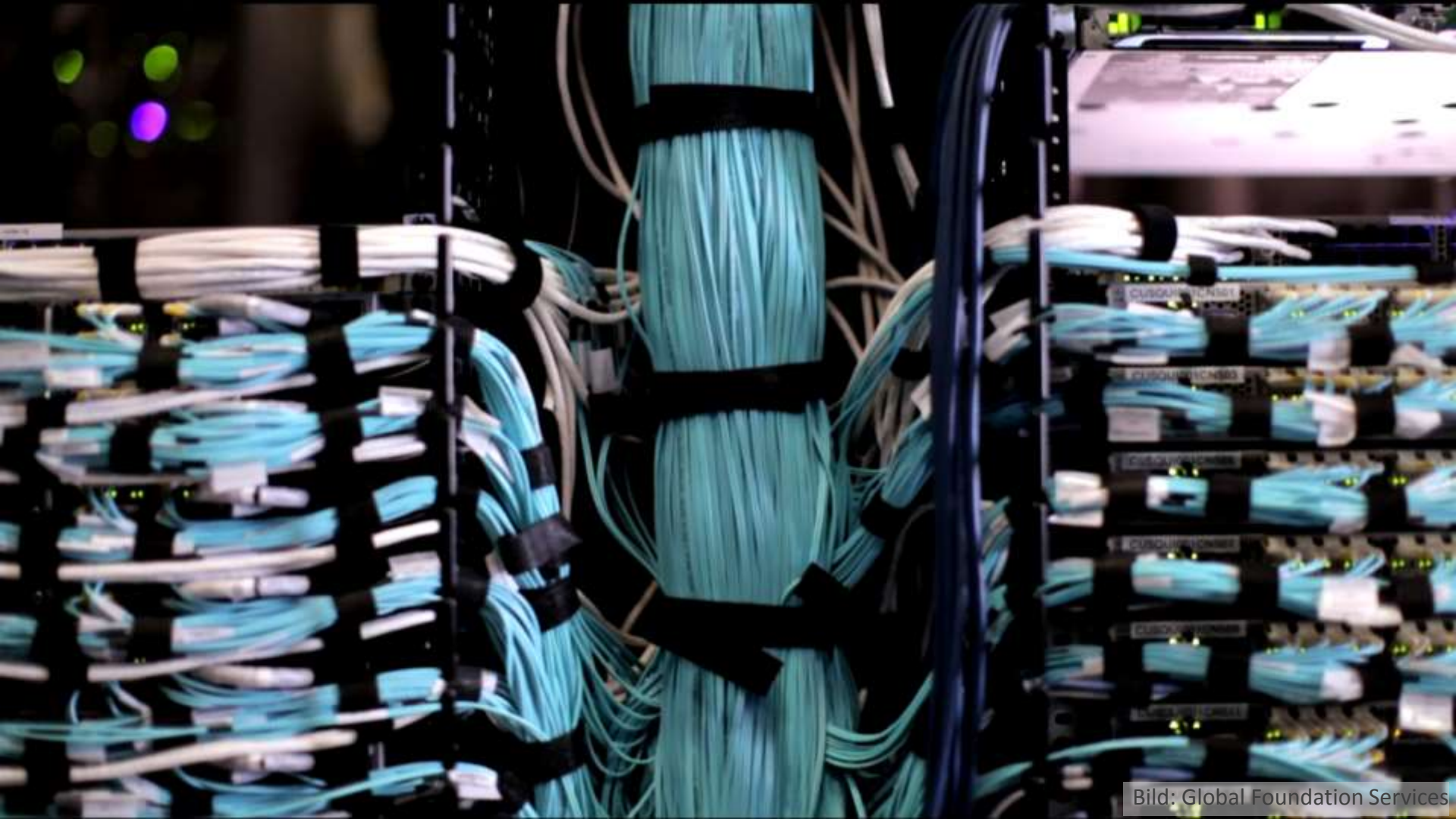




Bild: Global Foundation Services

# Windows Azure Overview





# Sensei-Tipp



Erfinde das Rad nicht neu  
- nutze Windows Azure

Kostenlose 90-tägige Testversion unter  
<http://www.windowsazure.com>



# Sprint 1 – Visual Studio Features

## Web Development Tools von Visual Studio

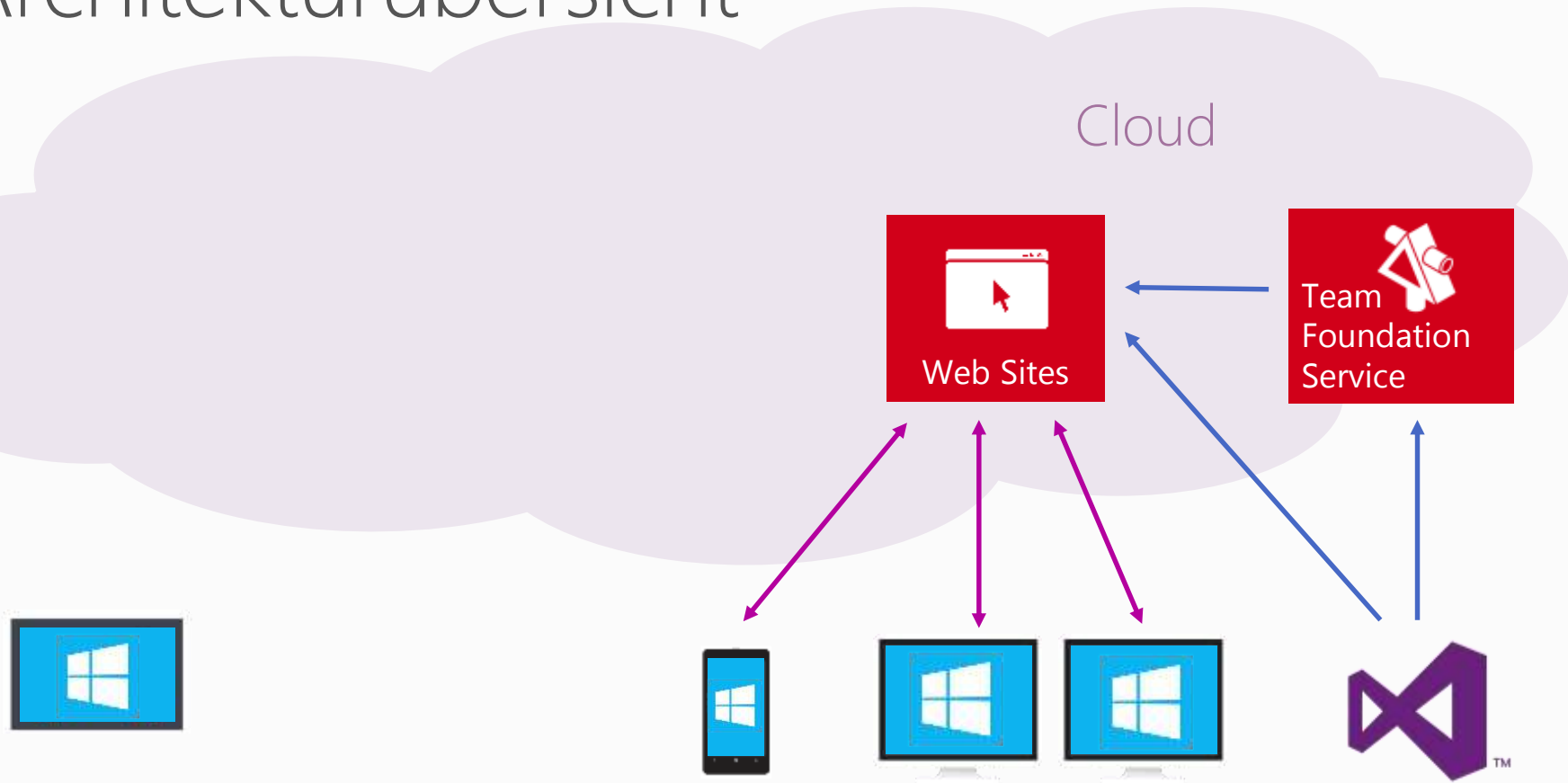
- ✦ SignalR
- ✦ JQuery mobile
- ✦ Page Inspector

## Windows Azure Websites

- ✦ Web Deploy
- ✦ Continuous Deployment

# Pause 10 Minuten

# Architekturübersicht



# Sprint 2 - Windows Store App

## Windows Store Apps

- ✦ *WinRT vs. Klassische Entwicklung*
- ✦ *UI: Reduziert auf das Wesentliche*
- ✦ *Sandbox mit definierten Schnittstellen*
- ✦ *Lebenszyklus*
- ✦ *Windows Store*

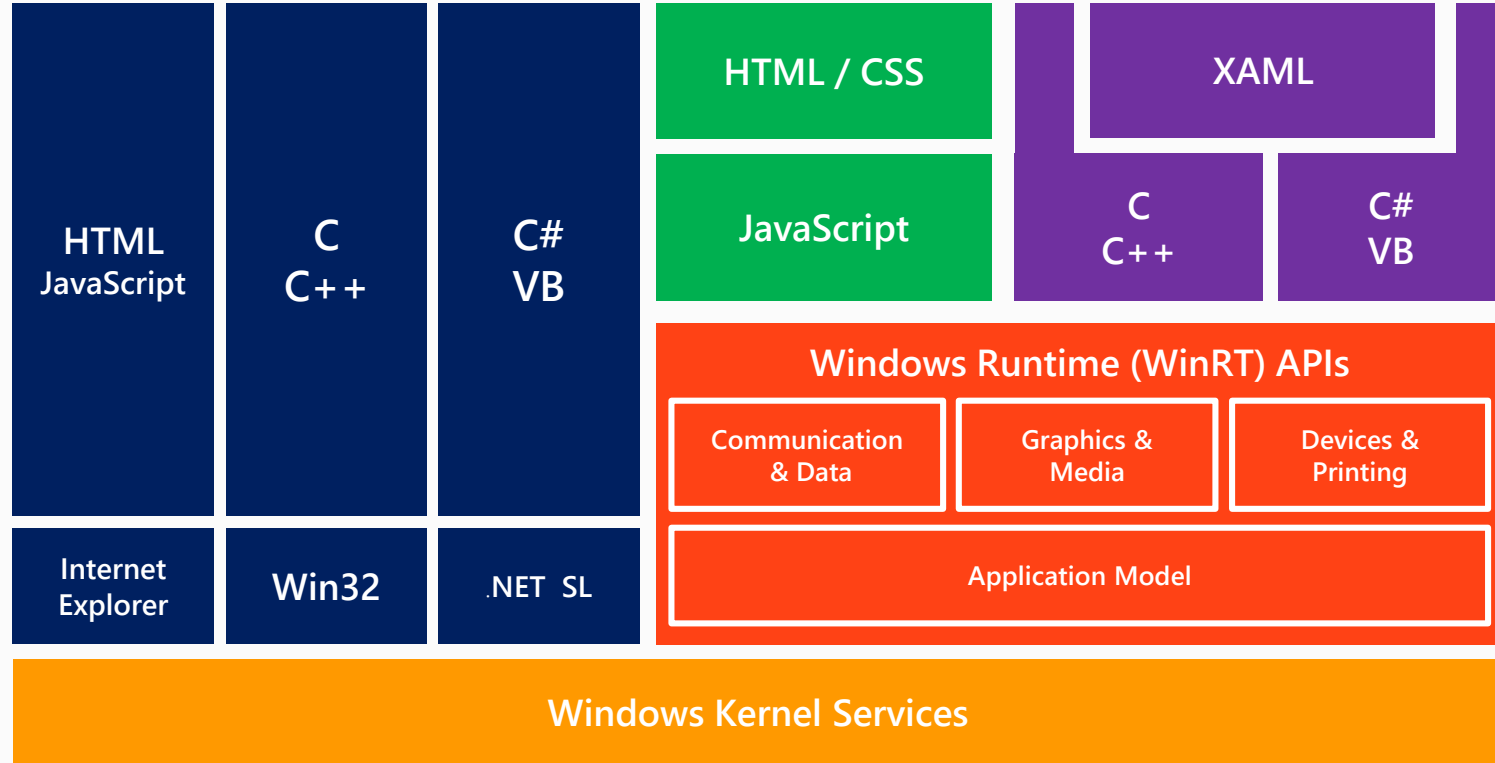
## XAML-UI

- ✦ Windows Store App-Projekt
- ✦ Einfaches XAML-UI
- ✦ Mehrsprachige Oberfläche
  - automatisch über XAML
  - manuell in C#



WinRT mit C# und XAML  
für Windows 8 32/64bit & ARM

# Windows RT vs. Klassische Entwicklung



# Sensei-Tipp



Zielsprache über  
Tastatur-Layout wählen

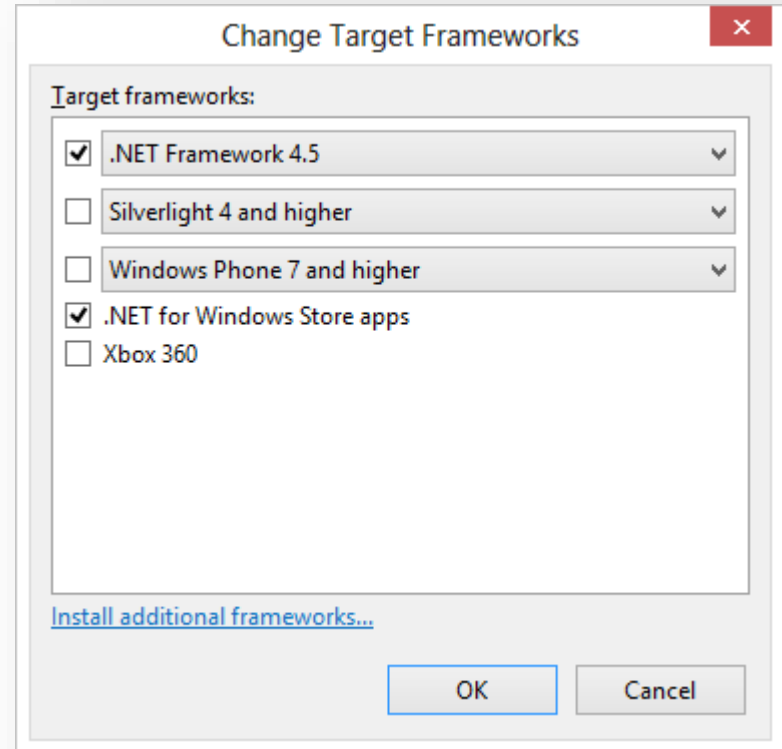


# Sprint 2 - Portable Class Library

## Portable Class Library

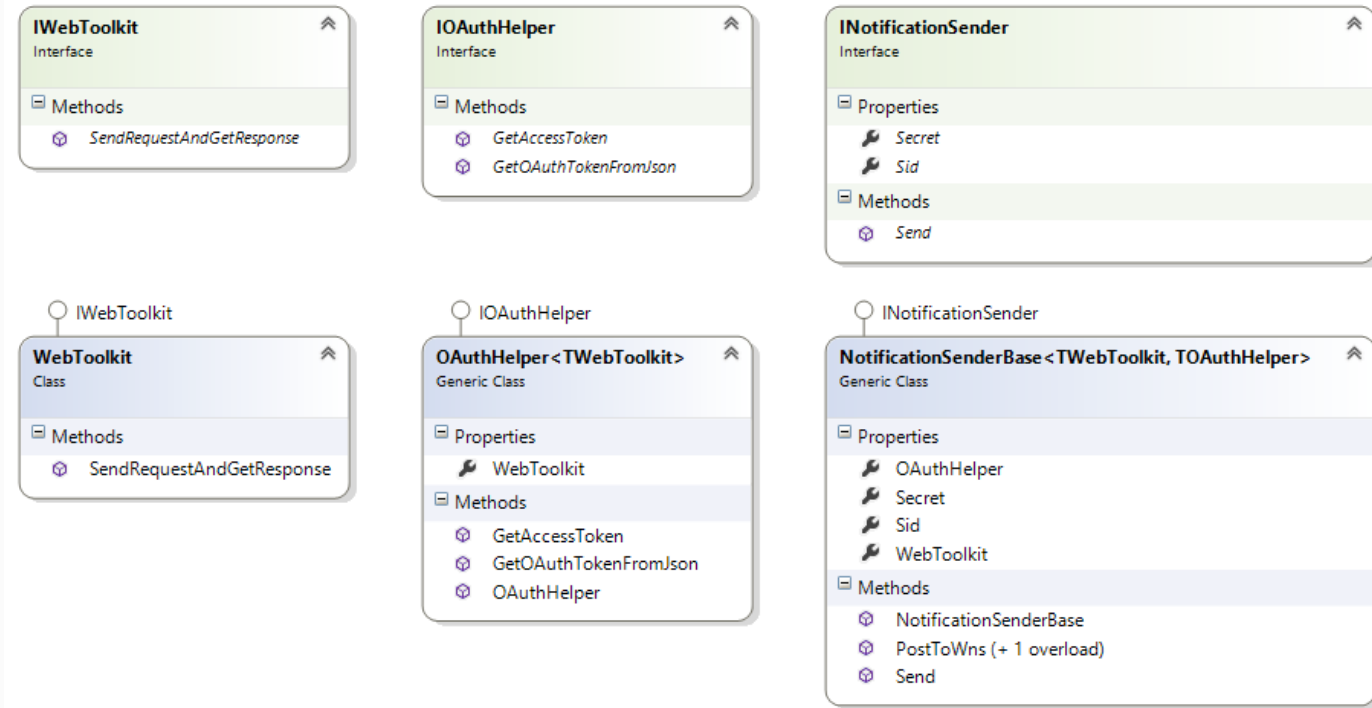
- ✦ *Ist ein Subset der verfügbaren Ziel-Frameworks*
- ✦ *Gemeinsamen Code für verschiedene Frameworks*
- ✦ *Plattform-spezifischer Code über abstrakte Klassen/Methoden und konkreten Ableitungen*

✦ <http://msdn.microsoft.com/en-us/library/gg597391.aspx>



# Sprint 2 - Portable Class Library

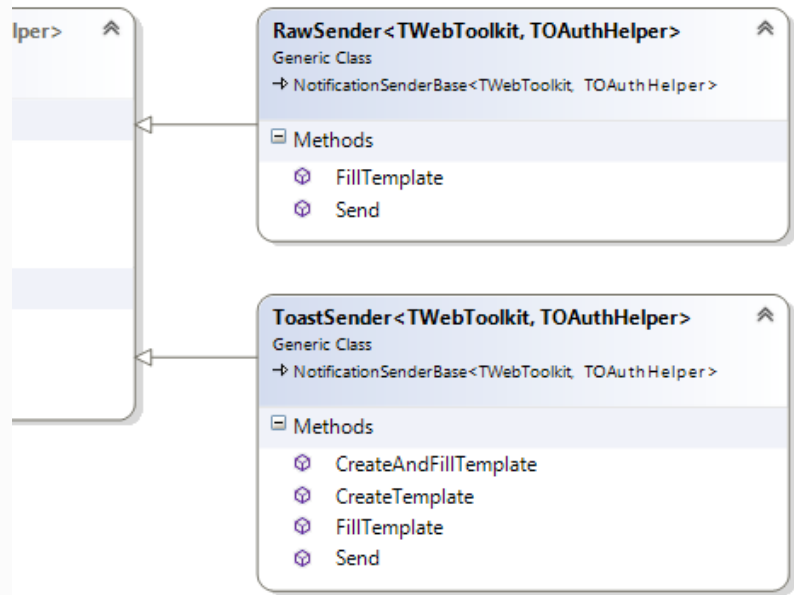
## Portable



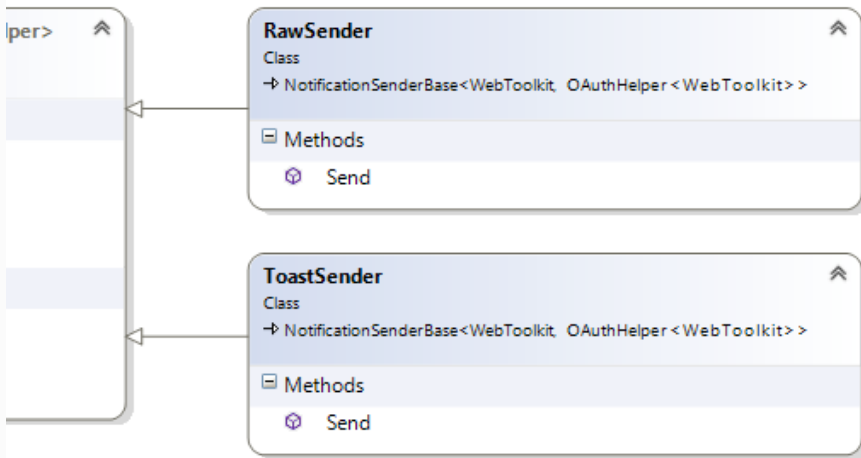


# Sprint 2 - Portable Class Library

## WinRT



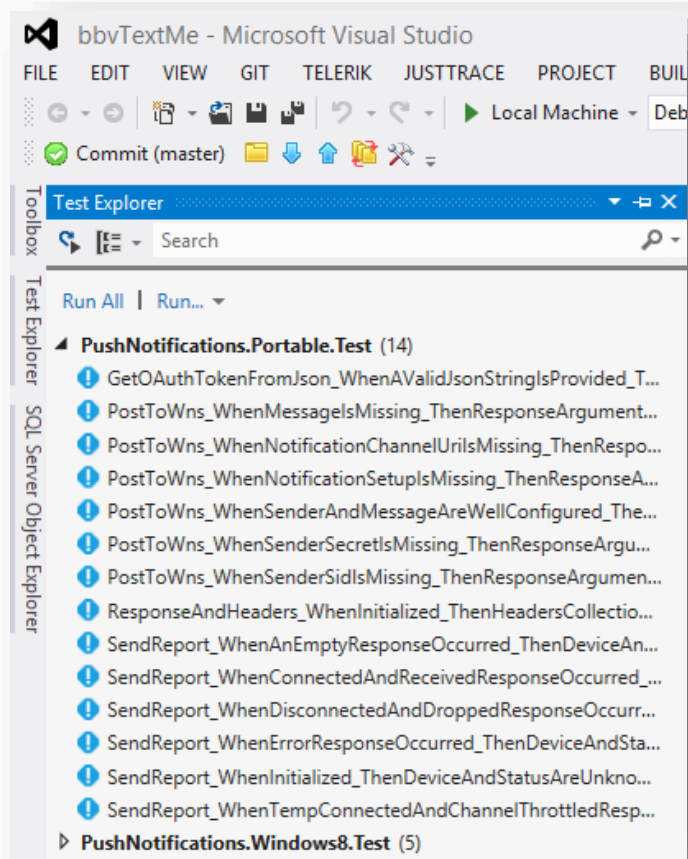
## .NET 4.5



# Sprint 2 – Unit Tests

## Unit Tests

- ✦ Tests für Portable Class Library
- ✦ Tests für Windows Store App
- ✦ Unit Tests im Test Explorer



# Unit Testing Architektur

Visual Studio Unit Test  
Explorer

Command Line  
Runner

TeamBuild Unit Test  
Activity

Visual Studio Unit Test Platform

MS-Test  
Managed

MS-Test  
Native

NUnit

xUnit.net

QUnit

...mehr!

# Sensei-Tipp



Verwende Dein  
bevorzugtes Unit  
Testing Framework!

# Statische Code-Analyse

## ✦ Bekannte Qualitätsprobleme?

- Stürzt ab
- Bleibt hängen
- Ist zu langsam
- Hat Sicherheitslücken

# Statische Code-Analyse

- ✦ Frühe Fehlererkennung zur Compile-Zeit
- ✦ Suche nach bekannten Fehlermuster
- ✦ Komplettierung traditioneller Testing Aktivitäten
- ✦ Konfiguration
  - Nach jedem Build
  - Integration in Build-Prozess
  - Eigene Rule-Sets

# Sensei-Tipp



Statische Code-Analyse  
bei jedem Build

# Sprint 2 – Visual Studio Features

## Windows Store Apps

- ✦ XAML-Editor
- ✦ Sprach-Ressourcen

## Portable Class Library

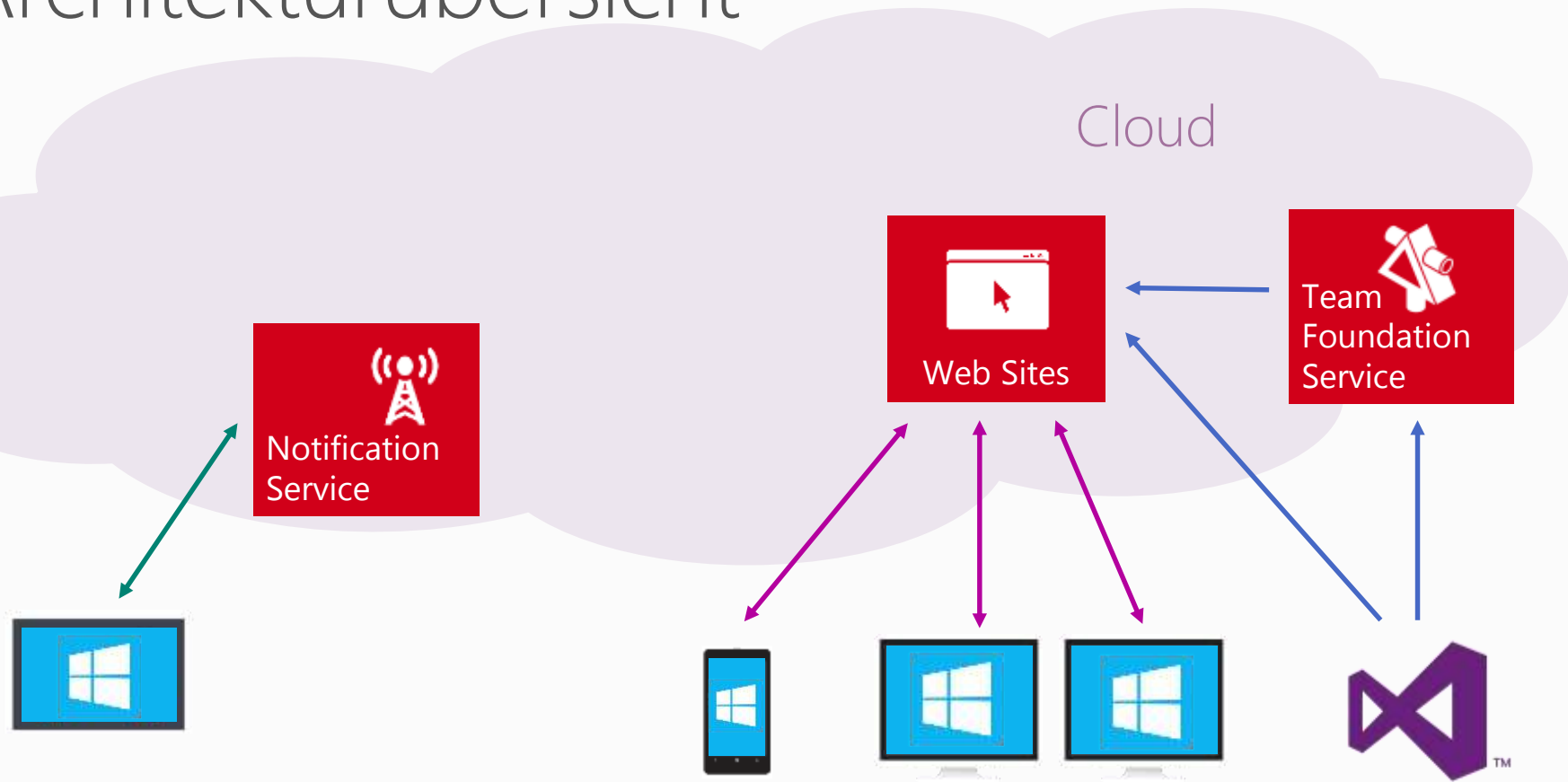
## Unit Tests

- ✦ Test-Projekte für .NET 4.5 und WinRT
- ✦ Test-Explorer
- ✦ Unit Tests lokal und in TF Service ausführen

## Statische Code-Analyse



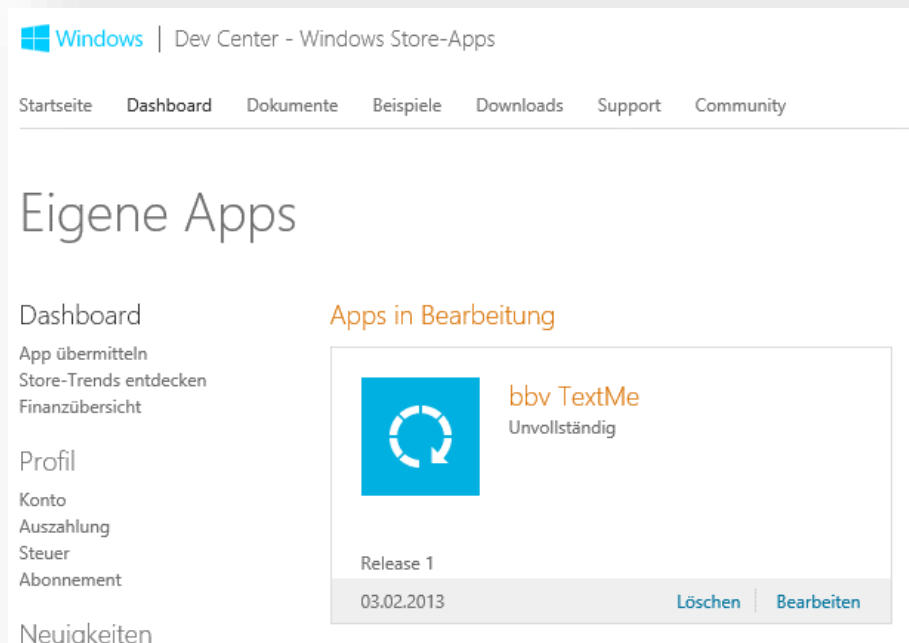
# Architekturübersicht



# Sprint 3 - Windows Store App

## Windows Store

- ✦ *Zentraler Ort für App-Deployment*
- ✦ *Signiert & verifiziert Windows Store Apps*
- ✦ *Verbreitung, Preis und In-App-Verkäufe konfigurierbar*
  
- ✦ Name im Windows Store reservieren
- ✦ App mit dem Windows Store verknüpfen
- ✦ App hochladen
  
- ✦ Push Notification Keys auslesen



# Sprint 3 - Windows Store App

## Debugging

### ✦ Simulator

- Touch- & Lokationsfunktionalitäten
- unterschiedliche Auflösungen
- integrierte Screenshots

### ✦ Remote debugging

- direktes Deployment auf Zweitgerät
- remote ausgeführt
- lokale Debug-Kontrolle



# Sensei-Tipp



Das UI von Windows Store  
Apps muss jederzeit  
«responsive» sein

# Sprint 3 – Visual Studio Features

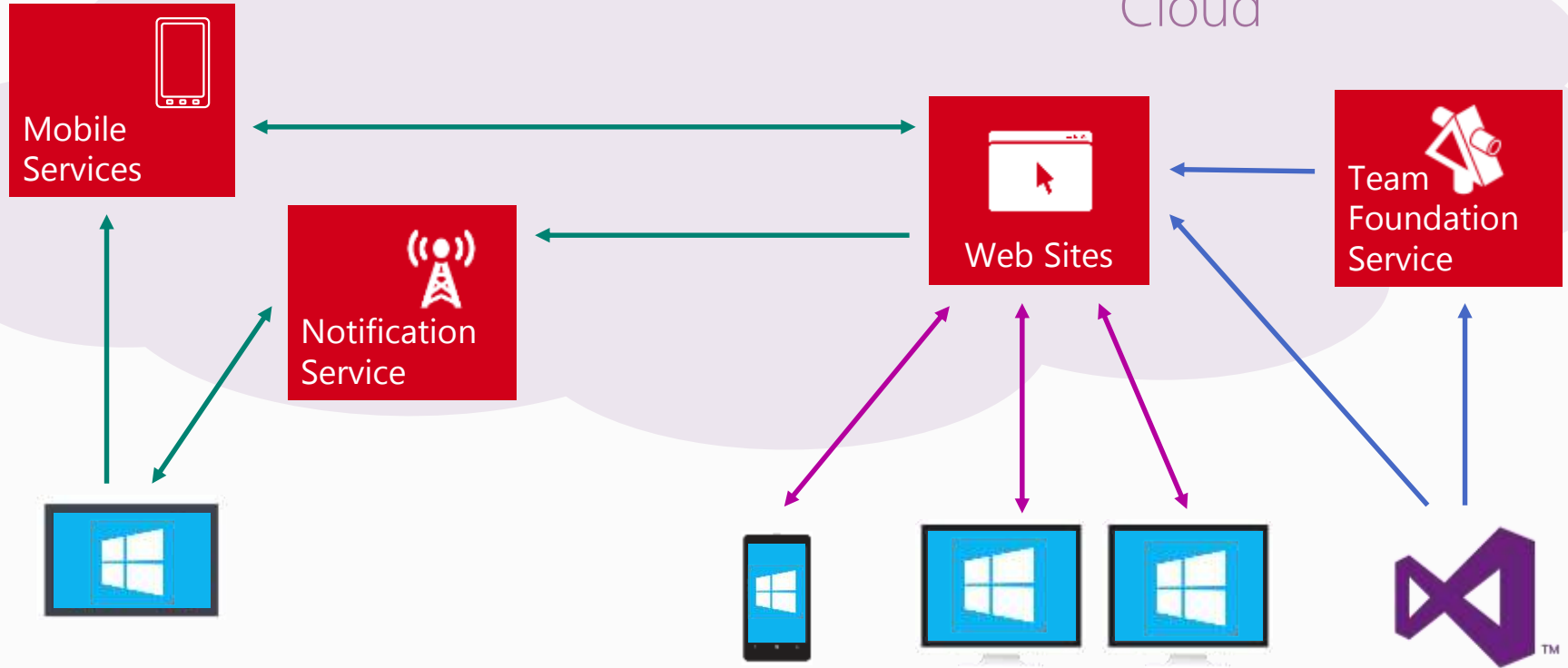
## Windows Store

- ✦ Name reservieren
- ✦ Projekt mit Store verknüpfen
- ✦ Publishing-Workflow
- ✦ Push-Notification Credentials auslesen

## Debugging

- ✦ Lokal
- ✦ Simulator
- ✦ Remote auf ARM-Plattform

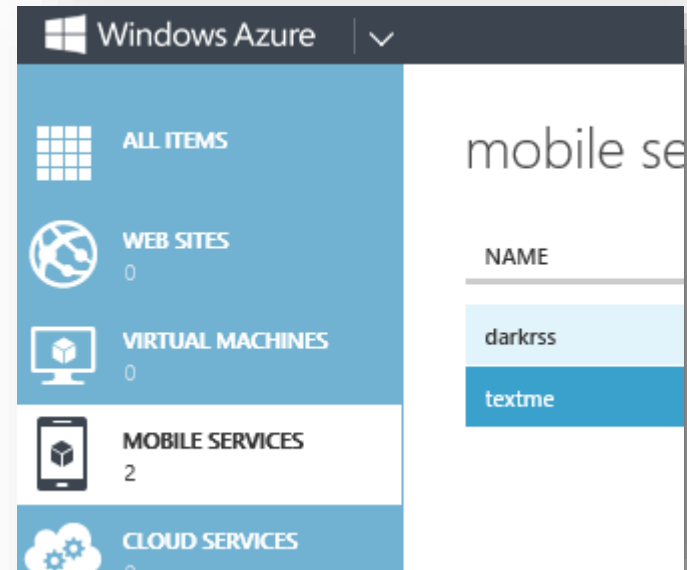
# Architekturübersicht



# Sprint 4 – Windows Azure

## Windows Azure Mobile Services

- ✦ *Back-end für mobile und stationäre Apps*
- ✦ *Vereinfachte Datenhaltung*
- ✦ *OAuth-Provider zur Anwender-Authentifizierung*
- ✦ *Erweiterte Push Notifications*
- ✦ Mobile Service erstellen ([Link](#))
- ✦ Datenspeicher einrichten & berechtigen
- ✦ Zugriffs-Schlüssel auslesen
- ✦ Datenzugriff über Mobile Services SDK aus Windows Store App



# Sprint 4 – Visual Studio Features

## Windows Azure Mobile Services

- ✦ Windows Azure Mobile Services-Portal
- ✦ Datentabellen

## Windows Store App

- ✦ Mobile Services mit Mobile Services SDK

## Web-Applikation

- ✦ Mobile Services mit REST



# Professionelle Desktop- und App-Entwicklung

## Learnings

- ✦ Application Life Cycle Management
- ✦ Team Foundation Server/Service Überblick
- ✦ Windows Store Apps
- ✦ Windows Azure WebSites
- ✦ Windows Azure Mobile Services
- ✦ Web-Entwicklung (SignalR)

## Visual Studio

- ✦ Zentrale Source- und Arbeitspaketverwaltung mit Team Foundation Service
- ✦ integrierte Entwicklungsumgebung (IDE), für Entwicklung für Web, Desktop, Cloud, Server und Smartphone
- ✦ Sicherstellen der Codequalität mit erweiterbarem Testframework
- ✦ Statische Code-Analyse
- ✦ Debugger
- ✦ Win8 Simulator

# Sensei-Tipp



Go and try it!

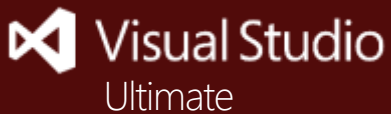
# Sensei-Tipp



Go and buy it!

# Meister-Tools

Kapitel 3/3



## Mission-critical scale and complexity

- IntelliTrace Anywhere
- Web Performance Testing
- Load Testing
- Architecture Explorer, Progressive Reveal, and Standard Graphs
- UML 2.0 Compliant Diagrams (Activity, Use Case, Sequence, Class, Component)
- Layer Diagram and Dependency Validation

Microsoft  
**Expression Studio 4**  
Ultimate



## Quality enabled team development

- Code Metrics
- Code Coverage
- Coded UI Testing
- Code Clone
- Code Review
- Task Suspend/Resume

Microsoft  
**Expression Studio 4**  
Web Professional



## Continuous quality enablement

- Test Case Management
- Manual Testing and Fast-Forward
- Exploratory Testing
- Lab Management
- PowerPoint Storyboarding
- Backlog Management
- Sprint Planning
- Feedback Manager



## Development productivity everywhere

- Windows Desktop and Phone Apps
- Windows 8 Metro Style Apps
- Web and Cloud Websites and Services
- Office and SharePoint Development
- Blend for Visual Studio
- LightSwitch
- Extensible Testing Framework
- Static Code Analysis
- Advanced Profiling
- Refactoring
- Graphics Debugging
- Third-Party Extensibility
- Read-Only Diagrams
- Team Explorer



## Integrated teams continuous value delivery

- Project Management
- Work Item Tracking
- SCM

- Reporting
- Build Services
- PreEmptive Analytics

- Agile Task Boards
- System Center Integration

# Was braucht's für Stufe 1?



## Stufe 1

Professionelle Desktop- und App-Entwicklung

- ✦ Application Lifecycle Management
- ✦ Automatische Unittests
- ✦ Team Foundation Server



## Devtools

Die gezeigten Beispiele setzen folgende Lizenzen voraus

- ✦ Visual Studio Professional w/MSDN
- ✦ Team Foundation Server CAL



## Investitionen

Für den aufgezeigten Produktivitätsgewinn braucht's:

- ✦ Bsp.: 4 Developer, 1 Projektleiter
- ✦ ca. 70 CHF pro Dev/Monat\*
- ✦ ca. 36 CHF pro PL/Monat\*

\* unverbindliches Preisbeispiel

# Softwarebeschaffung/-Compliance

## Softwarebeschaffung

- ✦ Zahlreiche Lizenzprogramme und Lizenzierungsformen
- ✦ Je nach Anforderungen und Rahmenbedingungen des Unternehmens

## Lizenzberatung

- ✦ Lassen Sie sich durch den Fachhändler beraten!
- ✦ Beste Lösung für Sie für den günstigsten Preis...
- ✦ ... und Sicherstellung der korrekten Lizenzierung

<http://www.microsoft.com/de-ch/visualstudio/buy>



# Ihre MSDN Vorteile

## Software Assurance für Visual Studio

- ✦ Immer die neuesten Werkzeuge und Technologien verwenden können
- ✦ Immer korrekt, legal und günstig lizenziert bleiben

## Fast alle Microsoft Produkte für Test- und Entwicklungszwecke

- ✦ Team Foundation Server 2012
- ✦ Alle gängigen Windows-Betriebssysteme, z.B. Windows 8, Windows Server 2012
- ✦ SQL Server (und alle weiteren Server ab Premium)
- ✦ Office, Visio und Project (ab Premium)
- ✦ Expression Studio (ab Premium)
- ✦ Azure-Serverzeit für Cloud Computing

## Downgrade-Rechte für ältere Versionen von Visual Studio

## Profi-Support & Trainingsinhalte

The MSDN logo is a purple square with the lowercase text "msdn" in white, positioned in the center of the square.

msdn



# Sensei-Tipp



MSDN: Schon ab einer  
Lizenz mehr Leistung  
für weniger Geld!

# Sparen Sie bis zu 30%!

## Premium Upgrade

- ✦ Gültig für Kunden von Visual Studio Professional mit MSDN-Abonnement
- ✦ Bis zu 30 % sparen beim Upgrade auf Visual Studio Premium
- ✦ Weltweit gültig bis zum 30. Juni 2013
- ✦ Über verschiedene Volumenlizenzprogramme erhältlich: Enterprise Agreement, EAP, Select Plus, Open Value und Open Value Subscription
- ✦ Kontaktieren Sie Ihren Software-/Handelspartner für Ihr individuelles Angebot (Stichwort: „SA Step Up“)

Professional

Premium



# Ihre Kontakte

Für weitere Fragen stehen wir Ihnen jederzeit gerne zur Verfügung.

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## UNSERE BOOKLETS

Free brain food: [www.bbv.ch/booklets](http://www.bbv.ch/booklets)





### **Agile Softwareentwicklung**

- Guidelines für eine erfolgreiche Scrum-Einführung
- Agiles Requirements Engineering
- Agiles Testen – Qualitätssicherung in agilen Projekten
- Agile Entwicklung von Embedded Software
- Introduction to Continuous Integration
- Quality-Driven Development in Brownfield-Projekten
- Continuous Integration für Embedded Systeme
- ALM – Application Life Cycle Management

### **.NET in der Praxis**

- WPF – Styles & Templates
- UI Design Cookbook
- Windows 8, Windows Store Apps

### **Windows Azure in der Praxis**

- Die Windows-Azure-Plattform
- Softwaremigration nach Windows Azure

### **C++ in der Praxis**

- C++11 – Sprach- und Standard-Library-Erweiterungen
- Embedded Scripting mit Lua

**Unsere Booklets und vieles mehr auf: [www.bbv.ch](http://www.bbv.ch)**

Besten Dank für Ihre  
Aufmerksamkeit!