

Visual Studio Team Services
Team Foundation Server

Build & Release Management

Oliver Lintner
Gerwald Oberleitner

DX, Microsoft Österreich GmbH



Wer sind wir ?

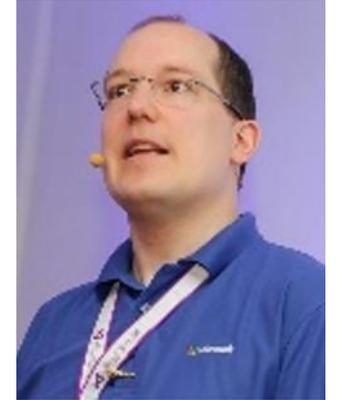
Oliver



Technical Evangelist & work aholic: ISVs,
Microsoft Azure, SW-Entwicklung allg.

Früher Premier Field Engineer

Gerwald



16-Jahre Microsoft, derzeit: Solution
Sales für Visual Studio, MSDN, DevOps,
ALM

„Ursprung“ in der Netzwerktechnik

Certified SCRUM Master – agile
Softwareentwicklung



DevOps Lebenszyklus



Warum ein neues Build & Release System?

Wie kann ich meine Build Definition anpassen um nach dem Build-Prozess ein Skript zu starten ?

Integration mit <Tool> ?

Brauche ich die aktuelle Version von Visual Studio um meine Build Definition zu ändern/erstellen ?

Wie baue ich meine iOS/Android/Java/... App ? Testen ?

Release ?

WebUI für Konfiguration (keine Abhängigkeit zu Visual Studio)

Build/Release Schritte (neuer Workflow um Build, Test, Release + vor- und nachbreitende Tasks auszuführen)

Variablen (gleicher Workflow für Testumgebung & Produktion - \$(variable) definiert das Umfeld)

Erweiterbarkeit: Service Hooks (Integration externer Services, Event trigger), eigene Build/Release Schritte, RESTful APIs, WebUI Erweiterungen, Marktplatz

X-Plattform Support

Werkzeuge & Dienste für jeden Entwickler, jede App



Windows



Linux



iOS



Android

.NET

C++

JavaScript

PHP

Python

Node.js

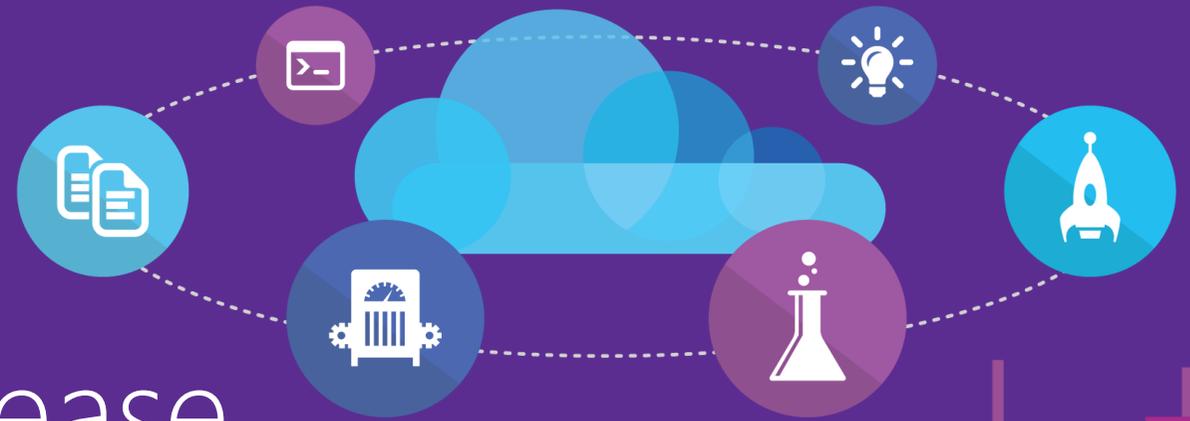
R

Cordova

Unity

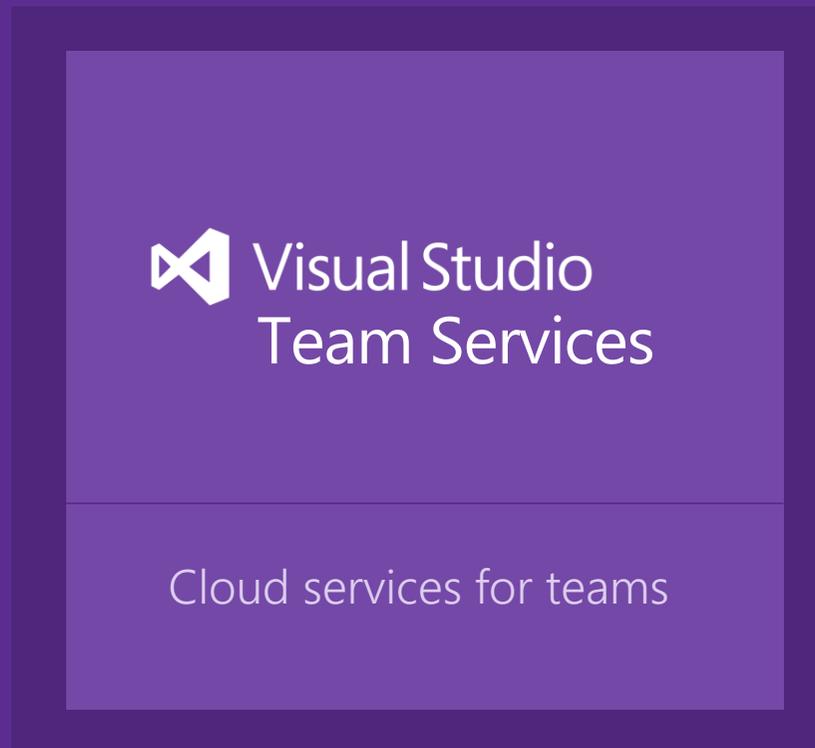
Team Foundation Server
Visual Studio Team Services

Architektur Build & Release Management

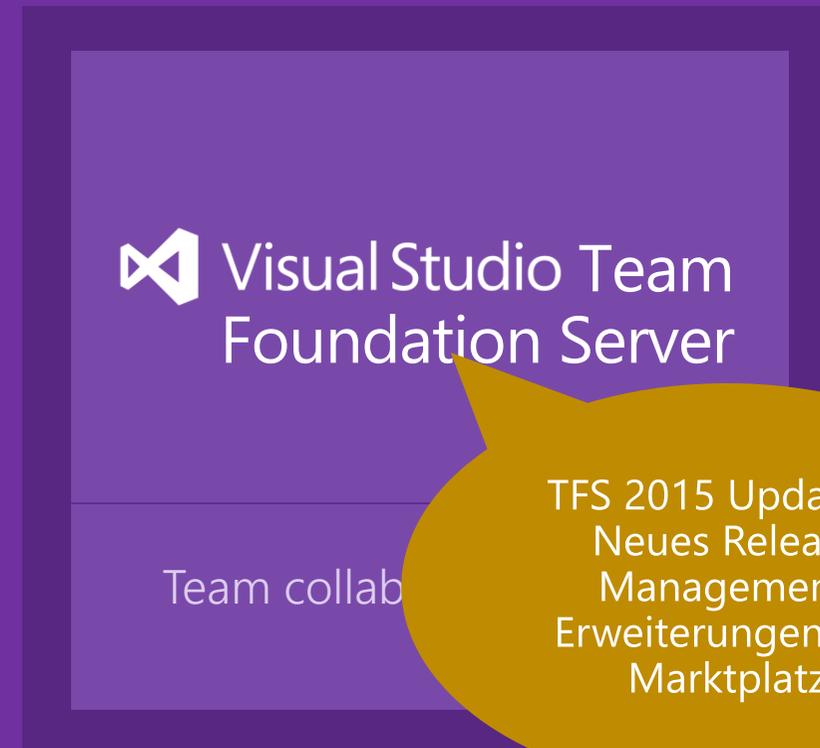


Verfügbarkeit

Hosted by Microsoft
Visual Studio Team Services



Hosted in your data center
Team Foundation Server



TFS 2015 Update 2:
Neues Release
Management,
Erweiterungen aus
Marktplatz

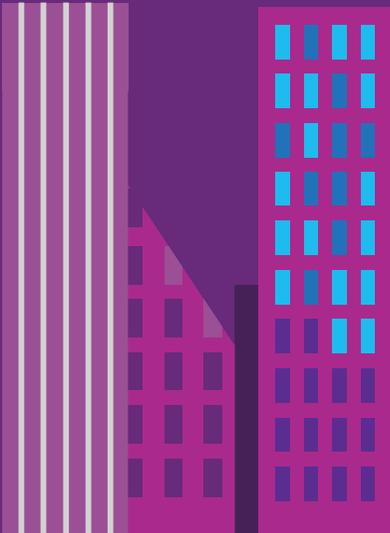
A yellow speech bubble pointing to the right side of the TFS logo box. It contains the text 'TFS 2015 Update 2: Neues Release Management, Erweiterungen aus Marktplatz'.



Visual Studio
Team Services



Team Foundation
Server



Plan & Track Work
Source Code Management
Package Management
Quality Management
Cross-platform Build
Continuous Deployment
Release Management
Feedback Management
Application Telemetry
Extend, Customize & Integrate

 <p>Code Search Microsoft</p> <p>Code Search provides fast, flexible and accurate search across all your code</p> <p>7035 PREVIEW</p>	 <p>Exploratory Testing - Cre Microsoft</p> <p>Exploratory Testing for everyone</p> <p>3723 PREVIEW</p>	 <p>Package Management Microsoft</p> <p>Build, manage, secure, and share your team's software components.</p> <p>3245 PREVIEW</p>	 <p>TFS Timetracker Berichthaus Software</p> <p>Track and manage working time on work items, with rich features and reports.</p> <p>1870 PREVIEW</p>	 <p>Folder Management Microsoft DevLabs</p> <p>Quickly create a folder in your Visual Studio Team Services source repositories from the</p> <p>1541 FREE</p>	 <p>Work Item Visualization Microsoft DevLabs</p> <p>Visualize relationships between work items from within the work item form.</p> <p>1369 FREE</p>	 <p>Codenvy Agile Plugin for Codenvy</p> <p>Codenvy's team workspaces allow developers, stakeholders and users</p> <p>22 FREE</p>	 <p>GitHub Integration Microsoft</p> <p>Continuous integration and deployment for your .NET, Java, Node.js, Android, iOS,</p> <p>FREE</p>	 <p>Slack Integration Microsoft</p> <p>Team communication for the 21st century integrated with your software development</p> <p>FREE</p>
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Visual Studio Extensions

65
Visual Studio Code
Extensions

5,910
Visual Studio
Gallery Extensions

48
VS Team Services
Extensions

 <p>HockeyApp Microsoft</p> <p>Distribute your builds, collect crash reports, and get feedback from your users.</p> <p>847 FREE</p>	 <p>Octopus Deploy Build and Octopus Deploy</p> <p>Build and Release tasks for integrating with Octopus Deploy</p> <p>410 FREE</p>	 <p>Perfecto</p> <p>Mobile Testing Lab Perfecto Mobile</p> <p>Extend your CI and execute your tests on real devices.</p> <p>169 FREE</p>	 <p>GitHub Widget Gordon Beeming</p> <p>An unofficial GitHub widget to show some general information for your GitHub repository.</p> <p>81 PREVIEW</p>	 <p>GitHub Stats Widget Yod Labs</p> <p>Dashboard widget to show stats from a GitHub public repository.</p> <p>42 FREE</p>	 <p>Azure Service Bus Integra Microsoft</p> <p>Make events happening in Visual Studio Team Services projects instantly available to</p> <p>FREE</p>	 <p>Tasktop Sync Tasktop</p> <p>Connect Microsoft TFS and Visual Studio Online to JIRA, HP ALM and QC, IBM RTC,</p> <p>FREE</p>	 <p>Azuqua Integration Microsoft</p> <p>Connect the services your teams and customers use, automating business</p> <p>FREE</p>	 <p>Zapier Integration Microsoft</p> <p>Connect and automate tasks between Visual Studio Team Services and hundreds of</p> <p>FREE</p>
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Agents

Ein Agent für Build & Release Management

Derzeit: Microsoft & Node.js

<https://www.npmjs.com/package/vsoagent-installer>

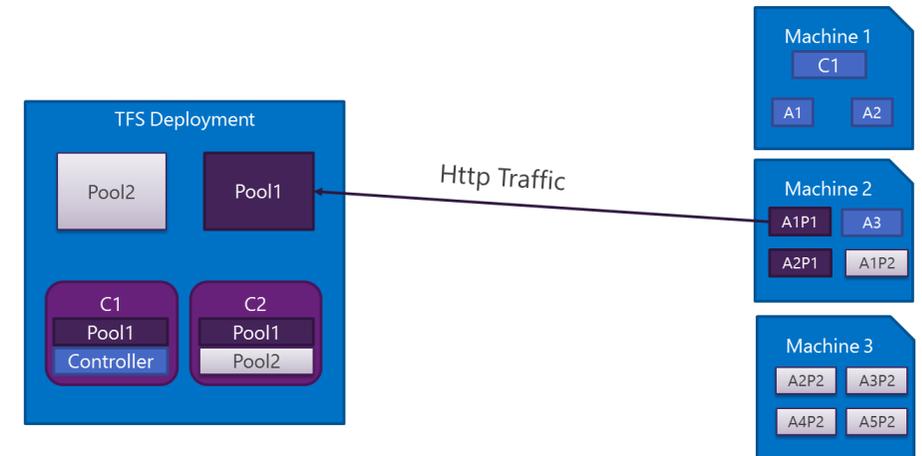
Nahe Zukunft:

Ein Agent basierend auf der CoreCLR (Linux, MacOS, Windows)

<https://github.com/Microsoft/vsts-agent/blob/master/README.md>

Kein zentraler Controller mehr – Agents sind in Pools organisiert
(„alte Welt“ kann noch parallel betrieben werden, aber keine neuen Agents ansprechen)

Agents können lokal betrieben werden oder in der Cloud (Hosted/Private Agent)



Hosted Pool

Vorkonfigurierter Agent

Limitierungen: 360 Minuten maximale Build-Laufzeit, <10GB lokaler Speicher, kein Admin, kein lokales Log, nur [vorkonfigurierte Software](#) (Windows Server 2012 R2 mit .NET, Java SE, Azure SDK, Ant, Maven, Git, Node.js,

Private Agent um Limitierungen des Hosted Agent aufzuheben, muss selbst betrieben werden (lokal oder Azure VM)

Dienste pro VSTS Account

Cloud Build

Kostenlos: 240 Minuten/Monat, hosted build agent (30 Min. max. Laufzeit für einen Build-Vorgang)

Kostenlos: 1 private agent (neues Build System) oder XAML controller (altes Build System)

Danach:

Hosted build agent, \$40/Monat (1 bis n Agents, Serverkosten inkl., 360 Min. max. Laufzeit, "fair use" Minuten/Monat)

Private agent, \$15/Monat + Azure VM/Server

XAML controller, \$15/Monat (Endet September 2016)

Cloud Load Testing*

Kostenlos: 20,000 virtuelle Benutzerminuten (VBM) pro Monat

Danach:

\$0.004/virtuelle Benutzerminute für 20,001-2M VBMs

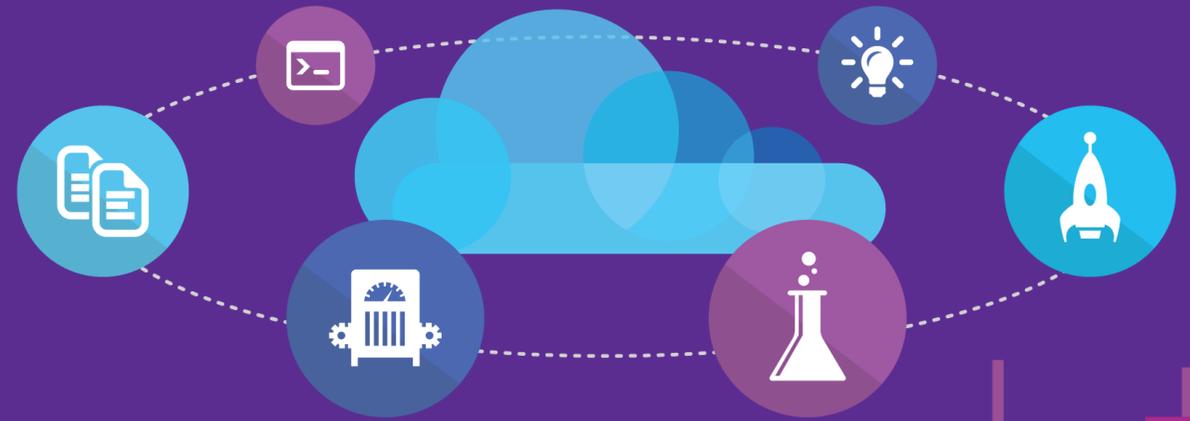
\$0.002/VBM für 2,000,001-10M VBMs

\$0.001/VBM für jede Nutzung über 10M VBMs/Monat

* Requires Visual Studio Enterprise

- Services purchased via Microsoft Azure based on actual usage
- Additional services are accessible to all users on the account and shared among them
- Build time is actual computing time required to run the build, and does not include queuing time (if any)
- Load test runs specify the number of virtual users and duration in minutes
Virtual users x minutes = virtual user minutes (VUM)

Team Foundation Server
Visual Studio Team Services
Build



Continuous Integration

Erstellen und verwalten eines automatisierten Prozesses um Applikationen zu kompilieren & testen

Enterprise ready

Rechtmanagement für Build/Queues/Ressourcen, Zugriff durch interne Mitarbeiter oder externe Zulieferer, Erweiterbarkeit, keine Installation

Integration

Buids stehen in Relation zu Testergebnissen, Arbeitsaufgaben/Tickets, Quellcode & Releases

X-Plattform

Nachvollziehbarkeit & Qualität

Audit/Historie für Build Definitionen

Real Time Logging

nur Code der „kompiliert“ kommt in die Quellcodeverwaltung

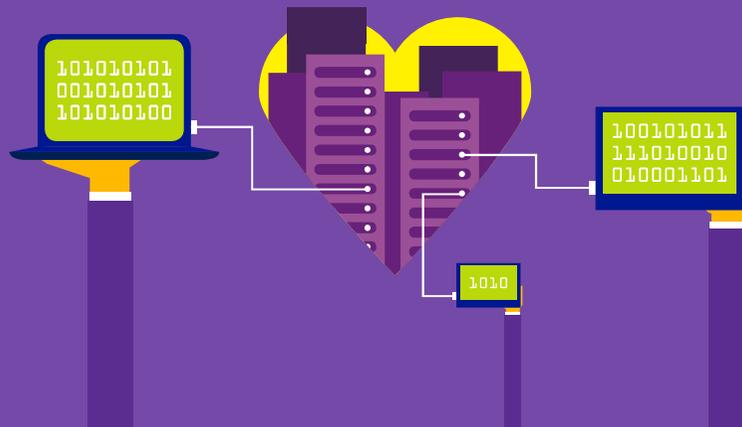


Continuous Integration mit VSTS/TFS Build

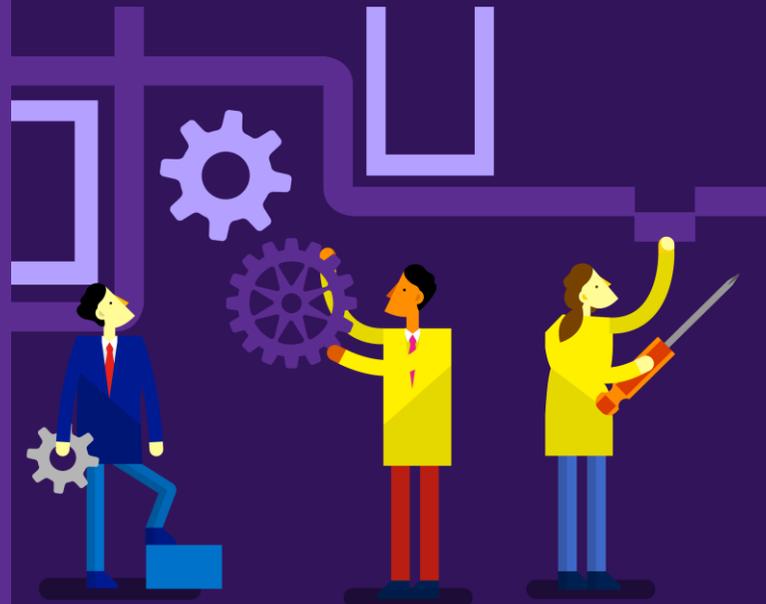
Egal welche Werkzeuge, Sprachen, Quellcodeverwaltung - Team Foundation

Build baut Ihre Applikation auf Ihrer Plattform.

X-Plattform Build für
iOS, Java und Android



Flexibel, Erweiterbar und
anpassbare Builds



Cloud, hybrid oder on-
premises Infrastruktur



Team Foundation Build

→ Cross-Plattform Build

Build steps für eine Vielzahl an Technologien wie Ant, CMake, Maven, Xcode Build, Android Build, und vieles mehr

Kein Visual Studio zur Erstellung einer Build definition notwendig – Web-basierend

→ Build/Release-Steps

können beinhalten: Build, Test, Packages, Deployment & zusätzliche Tools (Batch Scripts, Lizenzaktivierung, ..)

→ Real Time Logging

Ergebnisse direkt im Webinterface sichtbar, auch von x-Plattform Agents, zentrales Repository für Reporting

→ Sicherheit

Jeder Build läuft in eigenem Prozess

Zugriffskontrolle & Rechtemanagement, auch Integration in AD/Azure AD möglich

The screenshot displays the 'DEFINITION TEMPLATES' window in Team Foundation Build. It is divided into two panes: 'Build' and 'Deployment'. The 'Build' pane lists several templates: Visual Studio, Xamarin.Android, and Xcode. The 'Deployment' pane is currently active, showing a list of build steps with their respective icons and descriptions. Each step has an 'Add' button to its right. The steps listed are: Android Build, Android Signing, Ant, CMake, Cmd Script, Gradle, Jake, and Maven. Below the templates, the build name 'FabrikamFiber.CI / Build FabrikamFiber.CI_20160118.15' is shown. There are buttons for 'Queue new build...' and 'Download all logs as zip'. A prominent orange banner indicates 'Build Partially succeeded'. Below this, a bar chart shows the build progress. The build summary section includes tabs for 'Summary', 'Timeline', and 'Tests*'. The 'Tests*' tab is selected, showing a donut chart for 'Total tests' (102, +0) and 'Failed tests' (15, -6). The 'Total tests' chart is broken down into Passed (87), Failed (15), and Others (0). The 'Failed tests' chart is broken down into New (4) and Existing (11). The 'Pass percentage' is 85.29% (+5.9%).

DEFINITION TEMPLATES

Build Deployment

Visual Studio
Build and run tests using Visual Studio

Xamarin.Android
Build and sign Xamarin.Android

Xcode
build your xcode and test

Android Build
Run an Android build using Gradle and optionally start the emulator for unit tests

Android Signing
Signing and aligning APK

Ant
Build with Apache Ant

CMake
Cross platform build system

Cmd Script
Run a windows cmd or bat script and optionally allow it to change the environment

Gradle
Run a build using Gradle wrapper

Jake
JavaScript build tool, similar to Make or Rake. Built to work with Node.js.

Maven
Build with Apache Maven

FabrikamFiber.CI / Build FabrikamFiber.CI_20160118.15

Queue new build... Download all logs as zip

Build Partially succeeded

Build FabrikamFiber.CI_20160118.15
Ran for 37 seconds (Default), completed 90.2 minutes ago

Summary Timeline Tests*

Total tests 102 (+0)
Failed tests 15 (-6)

Pass percentage 85.29% (+5.9%)

Passed (87)
Failed (15)
Others (0)

New (4)
Existing (11)

Demo

Oliver

Team Foundation Server
Visual Studio Team Services
Release Management



Continuous Delivery

Standardisiertes, häufiges zur Verfügung stellen von Applikationen

DevOps Prozess nach CI

Standardisierung

Ermöglicht rasche Reaktion (mobile Apps), läuft immer gleich (Testumgebung, Produktion), keine Installationsanleitung mehr für den Betrieb

Templates/Infrastruktur als Code

Vielfältige Deployment-Ziele

Lokal, Cloud, Applikationsmarktplätze

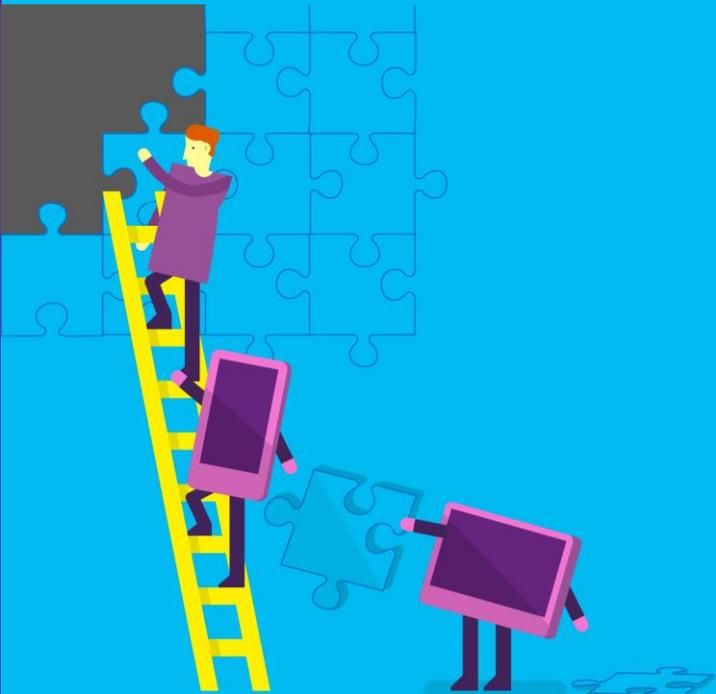
Überwachung im Betrieb

Haben sich Parameter/Performance nach dem Deployment verändert

Continuous Delivery mit VSTS/TFS Rel Mgmt

Standardisierter & Automatisierter Workflow zwischen Entwicklung & IT Betrieb um hochqualitative Software, mit wenig Risiko häufiger auszuliefern

Continuous Integration



Release Management



Continuous Quality



Release Management

→ Release Pipeline

Autom. Anstoßen eines Release nach dem Build-Prozess

Beschreibt Weg durch die internen Umgebungen (Entwicklung, Test, QA, Produktion)

→ Genehmigungs Workflow

Workflow zur Genehmigung eines Release in der Release Pipeline (nach dem Build wird autom. In die Testumgebung deployed aber die weiteren Schritte erfordern eine Freigabe durch eine Person oder Personengruppe)

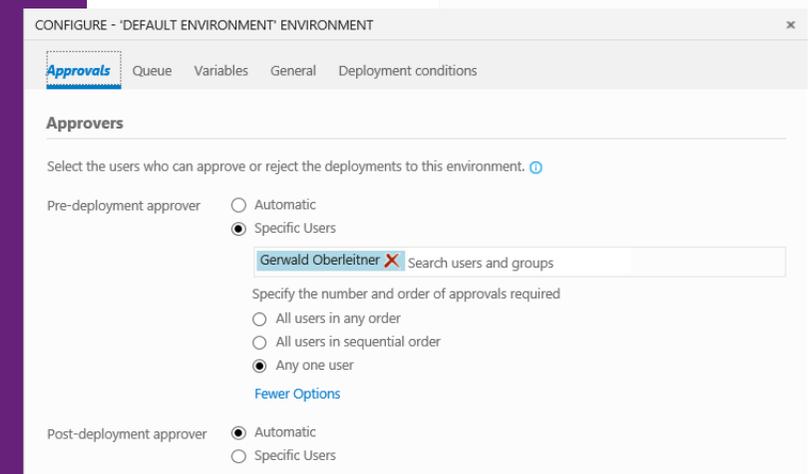
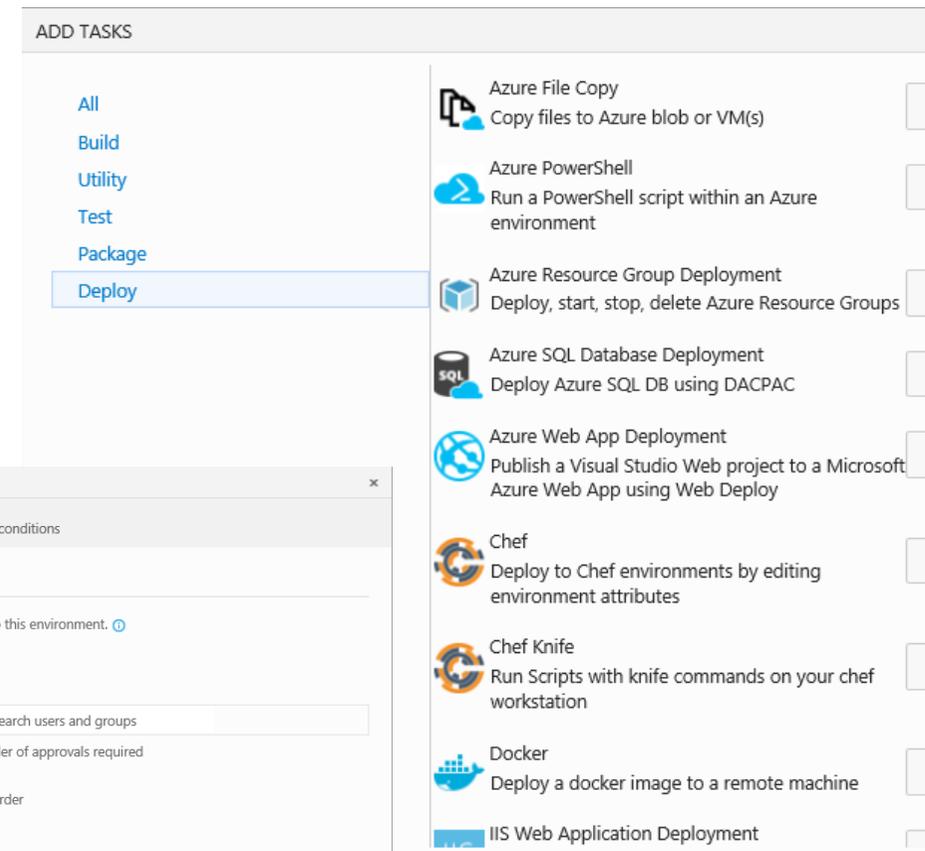
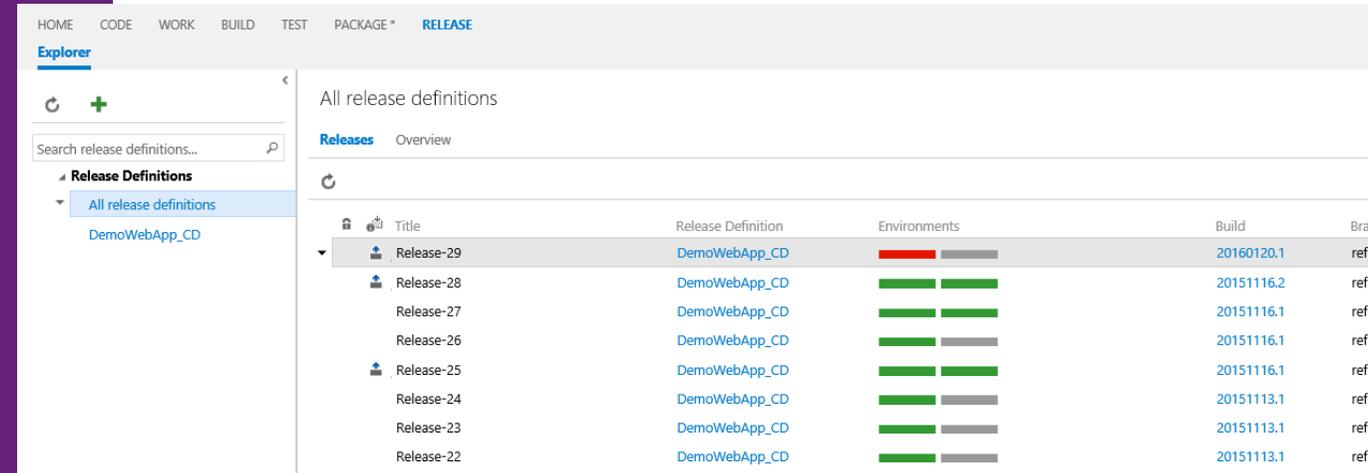
→ Deployment-Ziele

Lokal, Microsoft Azure, Chef, Docker, VMware, ... wofür es einen Deployment Schritt oder ein Script gibt

→ Nachvollziehbarkeit/Reporting

Jederzeit Staus eines Deployments im WebUI

Codeänderungen und work items (Tickets) assoziiert



HockeyApp: mobile DevOps

Beta Distribution, Crash Reporting, Benutzermetriken/Telemetrie, Analyse, Feedback & Workflow

Native Support & Open Source SDKs

iOS, Android, Mac OS X & Windows

Cordova, React Native, Unity and Xamarin

Integration in ALM Tools

App Deployment direkt durch **VSTS Build Service** in HockeyApp (App zur Betaverwaltung & Feedback)

Unterstützung für **Work Item Tracking** mit VSO, JIRA, GitHub, Mantis, ...

Webhooks für Benachrichtigungen: neue Version, Crashed, Feedback, ...

HockeyApp für mobile & Desktop

iOS, Android, Windows Phone & OS X, Windows

Für Entwickler und Feedbackgeber

Überwachen App/Daten, Beta-Installation aus dem HockeyPortal, Feedback



Demo

Oliver

Microsoft Azure als Deployment-Ziel

Testumgebungen in Azure betreiben

VMs werden pro Minute abgerechnet

Azure DevTest Labs

Unternehmen mit Azure in einem EA und MSDN Abos können auf ein spezielles Angebot zurückgreifen

Azure MSDN EA Dev/Test Angebot

Software wird über die MSDN abgedeckt

Nur HW-Preise in Azure müssen bezahlt werden

Azure DevTest Labs

Self-service ohne Sorgen

Kostenkontrolle durch Ausgabenlimits

Zeitpläne zum Herunterfahren aller Testsysteme
(Wochenende)

Einschränkung von Ressourcen (VM Typen, Anzahl pro
Benutzer/Lab)

Ready to test!

Wiederverwendbare Templates

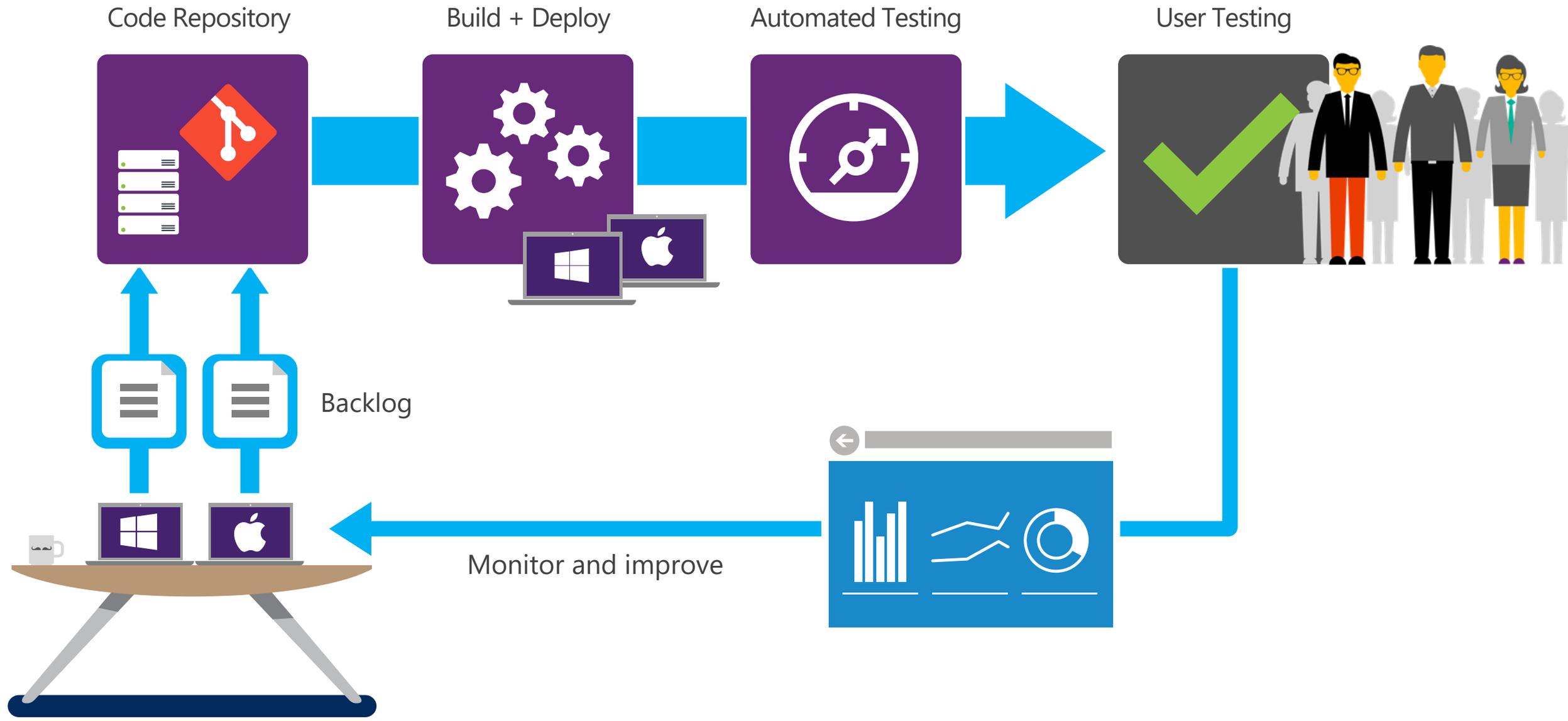
Mit wenigen clicks zum "last good Build" g

The screenshot displays the Azure DevTest Labs interface for a user named 'FabrikamLab'. The top navigation bar includes 'FabrikamLab > Settings', a 'Report bug' button, and a search bar. Below the navigation bar, there are icons for 'Settings', 'Refresh', 'Lab VM', and 'Delete'. The main content area is titled 'Essentials' and features a 'My VMs' section with a table of virtual machines. The table has columns for 'NAME', 'STATUS', and 'TEMPLATE'. Below the table, there are three tiles: 'Getting started', 'MSDN forum', and 'Feedback'. A right-hand sidebar contains various settings and management options, including 'Properties', 'All VMs', 'Templates', 'Artifact repository', 'COST POLICIES', 'VM POLICIES', and 'RESOURCE MANAGEMENT'.

NAME	STATUS	TEMPLATE
FabDevLatest23	Running	Fabrikam Dev
FabLatest11	Running	Fabrikam Latest Build
FabTestLatest17	Stopped	Fabrikam Test
FabTestWin39	Stopped	Windows Server 2012...

- Properties
- All VMs
- Templates
- Artifact repository
- COST POLICIES
 - Cost thresholds
- VM POLICIES
 - Allowed VM sizes
 - Maximum VMs per user
 - Total VMs allowed
 - Auto shutdown
- RESOURCE MANAGEMENT
 - Users
 - Tags

DevOps Kreislauf: CI & CD



Microsoft Tooling

People | Process | Tools



Develop

Developer IDE



Team Collaboration

- Visual Studio Team Services
- Visual Studio Team Foundation Server

Build + Test

Build/CI

- Visual Studio Team Services
- Visual Studio Team Foundation Server

Test

- Visual Studio Team Services
- Visual Studio Team Foundation Server
- Microsoft Test Manager

Deploy

Release/CD

Microsoft System Center

Release Management for Visual Studio



PowerShell | WAML



xPlat Command Line

Monitor + Learn

Monitor

Microsoft System Center

- Visual Studio Team Services
- Visual Studio Team Foundation Server

Application Insights



On-Premises | Hybrid | Cloud



OSS Tooling

People | Process | Tools



Develop

Developer IDE



Team Collaboration

GitHub
CodePlex

Build + Test

Build/CI

gradle

GRUNT

Jenkins

Hudson

Test

gradle

GRUNT

Deploy

Configuration

puppet labs

CHEF

Release

gradle

GRUNT

Jenkins

Hudson

VAGRANT

Monitor + Learn

Monitor

Nagios

ZABBIX

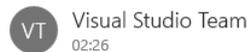
HockeyApp

Application Insights

On-Premises | Hybrid | Cloud



Feedback macht unseren Backlog!



[visualstudio.uservoice.com] completed: 'Provide the ability to convert a work...'
An: GO



Status update

An idea you supported has been closed. Thank you for your feedback.

[Give feedback on other ideas](#) to help us decide what to build next.

1038
votes

[Provide the ability to convert a work item to a different type](#)

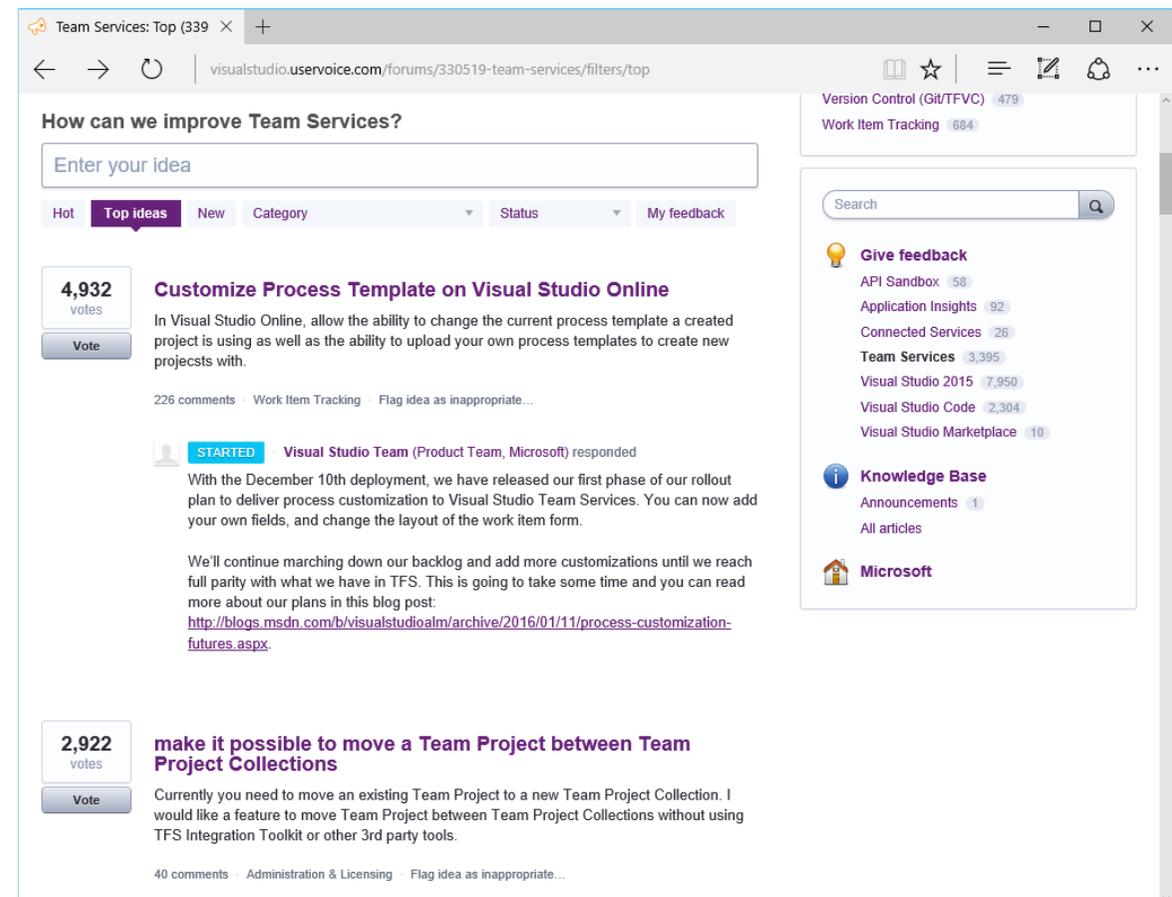
Started → Completed

You can now easily change the type of a work item, or multiple work items. Simply select your preferred type, add a comment (optional), and hit change. The form will update as a result of the selected type and you will have a chance to review before saving to commit the change.

See also the [APIs](#) and [documentation](#)

Sondra Batbold
Program Manager

 **Visual Studio Team**
Product Team, Microsoft



The screenshot shows a web browser window displaying the Visual Studio Team Services forum. The main content area features a list of ideas under the heading "How can we improve Team Services?". The top idea is "Customize Process Template on Visual Studio Online" with 4,932 votes. Below it is "make it possible to move a Team Project between Team Project Collections" with 2,922 votes. The right sidebar contains navigation links for "Version Control (Git/TFVC)", "Work Item Tracking", "Give feedback", and "Knowledge Base".

Team Services: Top (339)

visualstudio.uservoice.com/forums/330519-team-services/filters/top

How can we improve Team Services?

Enter your idea

Hot **Top ideas** New Category Status My feedback

4,932 votes
Vote

Customize Process Template on Visual Studio Online

In Visual Studio Online, allow the ability to change the current process template a created project is using as well as the ability to upload your own process templates to create new projects with.

226 comments · Work Item Tracking · Flag idea as inappropriate...

STARTED · **Visual Studio Team** (Product Team, Microsoft) responded

With the December 10th deployment, we have released our first phase of our rollout plan to deliver process customization to Visual Studio Team Services. You can now add your own fields, and change the layout of the work item form.

We'll continue marching down our backlog and add more customizations until we reach full parity with what we have in TFS. This is going to take some time and you can read more about our plans in this blog post:
<http://blogs.msdn.com/b/visualstudioalm/archive/2016/01/11/process-customization-futures.aspx>.

2,922 votes
Vote

make it possible to move a Team Project between Team Project Collections

Currently you need to move an existing Team Project to a new Team Project Collection. I would like a feature to move Team Project between Team Project Collections without using TFS Integration Toolkit or other 3rd party tools.

40 comments · Administration & Licensing · Flag idea as inappropriate...

Version Control (Git/TFVC) 479
Work Item Tracking 684

Search

Give feedback

- API Sandbox 58
- Application Insights 92
- Connected Services 26
- Team Services 3,395**
- Visual Studio 2015 7,950
- Visual Studio Code 2,304
- Visual Studio Marketplace 10

Knowledge Base

- Announcements 1
- All articles

Microsoft

Linksammlung

[Microsoft Virtual Academy](#): kostenlose Onlinekurse
[Visual Studio](#)

[Visual Studio Team Services](#) (bis zu 5 Benutzer gratis)

[Build](#) (Continuous Integration)

[Release Management](#) (Continuous Deployment)

[Azure Dev/Test Lab](#)

[MSDN EA Offer](#) (für Enterprise Agreement Kunden)

[HockeyApp](#) (Einblick in Ihre Applikation, iOS, Android, Windows 10, OS X)



www.visualstudio.com