



# Best of Ignite 2017 Teil 2 Development

Andreas Gloor



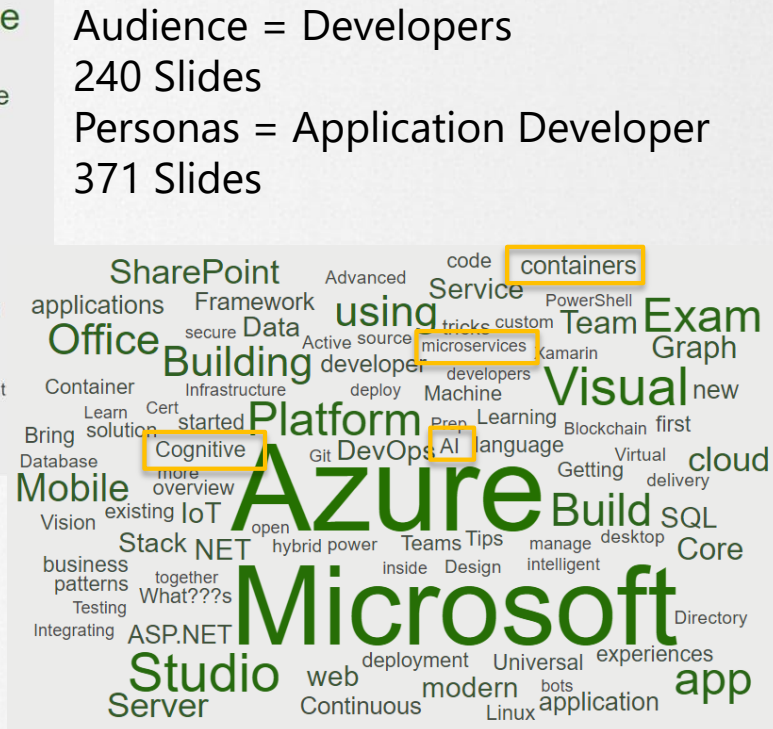
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# Andreas Gloor

Software Engineer itnetX AG  
Azure, Development, Bots  
Twitter: @AGloor



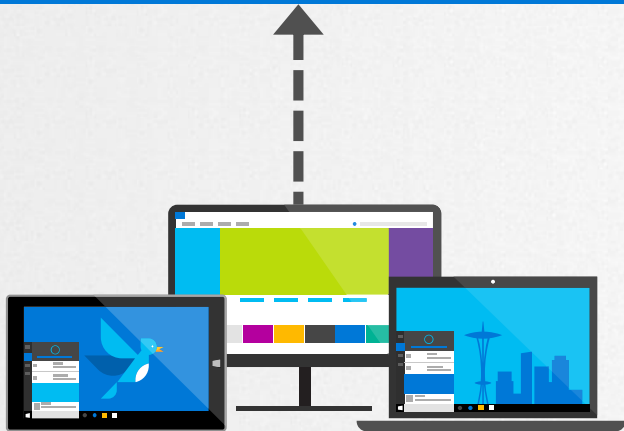




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# Microsoft Graph

[HTTPS://GRAPH.MICROSOFT.COM/](https://graph.microsoft.com/)



**One endpoint** to rule them all

**Single resource** that proxies multiple Microsoft services

Allows for **easy traversal** of objects and relationships

Access to **data and intelligence**

**Eliminates** the need for discovery endpoints

Only **one OAuth** access token needed

Available as a **public API**





# Microsoft Graph

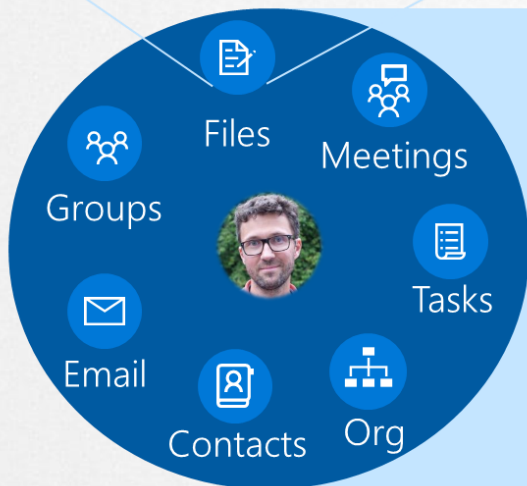
## File Enrichments



Item  
Metadata



Activity  
History



## Insight Data Sets



Used  
Documents



People I  
Work With



Trending  
Documents



Usage  
Statistics



Sites  
I Use



Suggested  
Sites







# Microsoft Graph – Query Format

Graph URL  
(Static)

Version  
(v1.0 or Beta)

Specific entity type /  
resource, such as users,  
groups, devices, etc.

[https://graph.microsoft.com/v1.0/users?\\$filter=userPrincipalName eq 'bob@tenant.onmicrosoft.com'](https://graph.microsoft.com/v1.0/users?$filter=userPrincipalName eq 'bob@tenant.onmicrosoft.com')

Optional Odata query  
arguments: \$filter, \$top





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# Graph Explorer

<https://developer.microsoft.com/en-us/graph/graph-explorer>

The screenshot shows the Microsoft Graph Explorer interface. The top navigation bar includes Microsoft, Technologies, Documentation, and Resources. The main header displays 'Microsoft Graph' with tabs for Examples, Graph Explorer, Quick Start, Documentation, Samples & SDKs, and Support. The 'Graph Explorer' tab is active, showing a GET request to 'https://graph.microsoft.com/v1.0/me/'. The request body is empty, and the response is a JSON object representing the user's profile. A green success message indicates the request was successful with a status code of 200 and a response time of 270ms. The response preview shows the following JSON data:

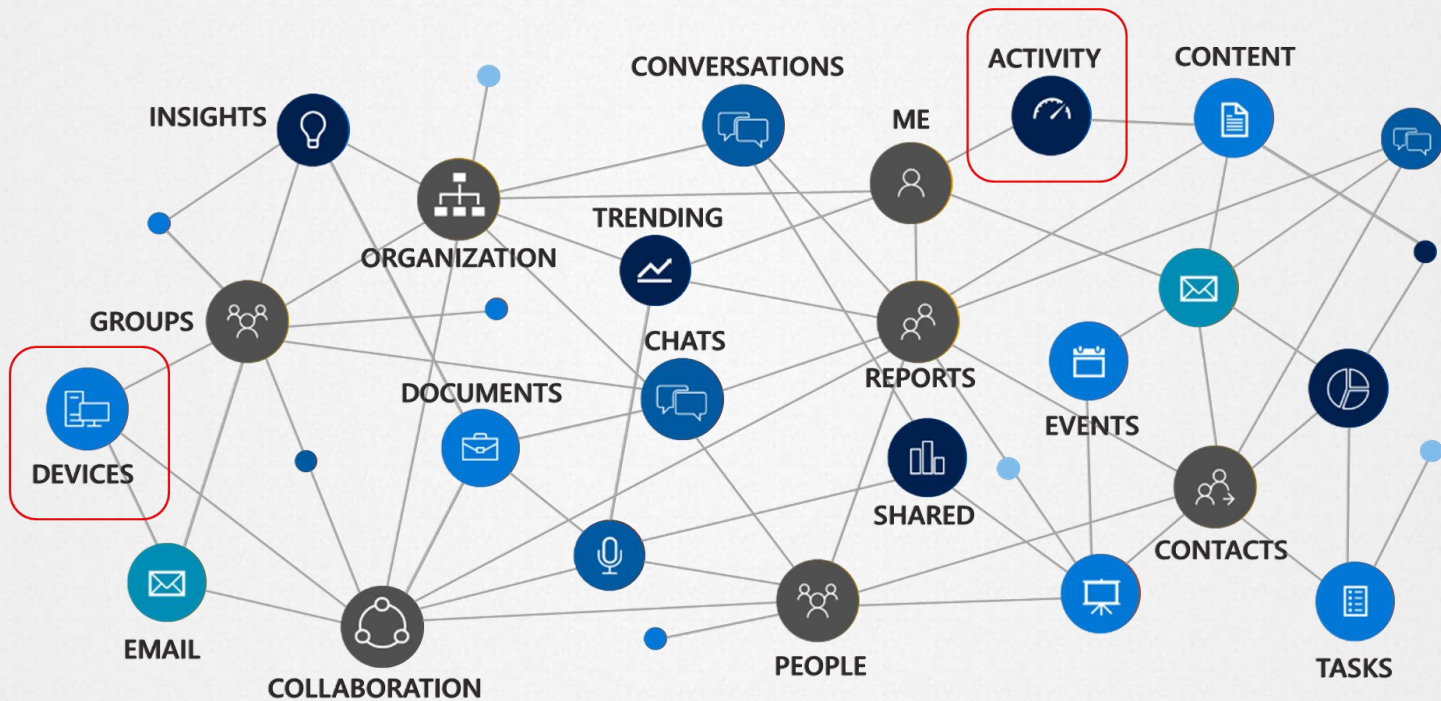
```
{
  "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#users/$entity",
  "id": "18804b84-4754-4268-a1c9-331d6f681f0b",
  "businessPhones": [],
  "displayName": "Andreas Gloor",
  "givenName": "Andreas",
  "jobTitle": null,
  "mail": "andreas@tryitout.ch",
  "mobilePhone": null,
  "officeLocation": null,
  "preferredLanguage": null,
  "surname": "Gloor",
  "userPrincipalName": "andreas@tryitout.ch"
}
```





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# Microsoft Graph







# Project Rome

- Andere App starten anstatt eine Website
- Remote eine App auf einem anderen Device starten
- App to App kommunikation





# Project Rome

- Devices
  - Arbeit an einem anderen Gerät weiter führen
  - Eigenes Gerät oder Interaktion mit anderen Geräten über eine App.
- Activity
  - Wiederaufnahme einer vorherigen Arbeit
  - UserActivity entspricht einer Arbeit
    - Deep-link URI, visuelle Elemente sowie content metadata





# Project Rome

Starten einer Webseite auf einem Gerät:

POST me/devices/{id}/commands

Authorization: Bearer Eaeou....

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

```
{ "type" : "LaunchUri", "payload" :  
  {"uri":"http://bing.com"}}
```





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# Cosmos DB

A globally distributed, massively scalable, multi-model database service

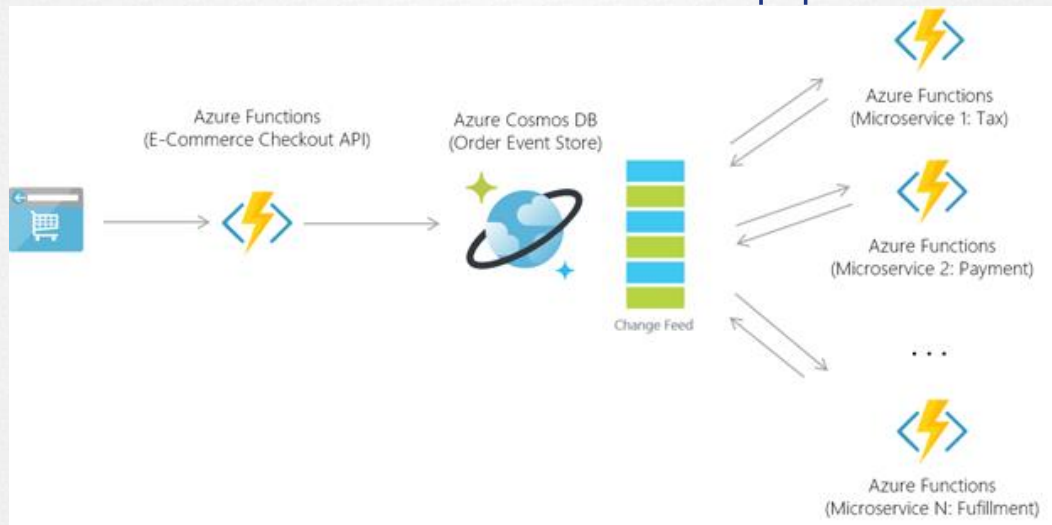




# Cosmos DB + Azure Functions

Native Integration

Serverless Event-Driven Apps





# Application Insights

## Health Check

- Azure Metrics & Dashboards **NEW!**
- Synthetic Monitoring
- Live Metrics Stream
- Smart Detection

## Take Actions

- Alerts - Emails, Webhooks & Azure Mobile App **NEW!**
- Azure Monitor Auto-scaling
- Microsoft Flow & Logic Apps

## Diagnostics & Optimizations

- Application Map
- Performance Monitoring & Profiling **NEW!**
- Failure Diagnostics & Snapshot Debugging **NEW!**
- CodeLens Integration

## Customer Insights

- User/Session/Event Monitoring
- Cohorts & Funnels **NEW!**
- Customer Retention
- User Flows **NEW!**
- Workbooks

## Ad-Hoc Analytics

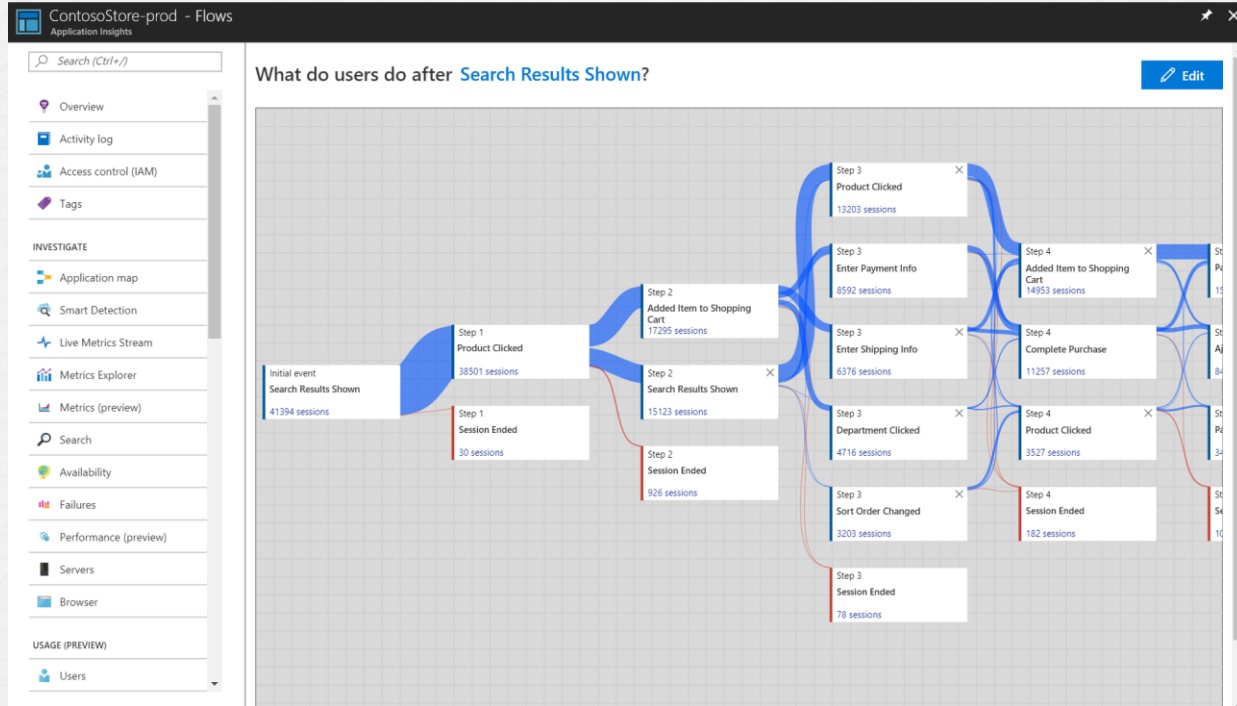
- Application Insights Analytics Queries **NEW!**
- Smart Analytics with Machine Learning

## Getting Started

- Visual Studio
- Status Monitor
- Azure Extensions



# Application Insights User Flow

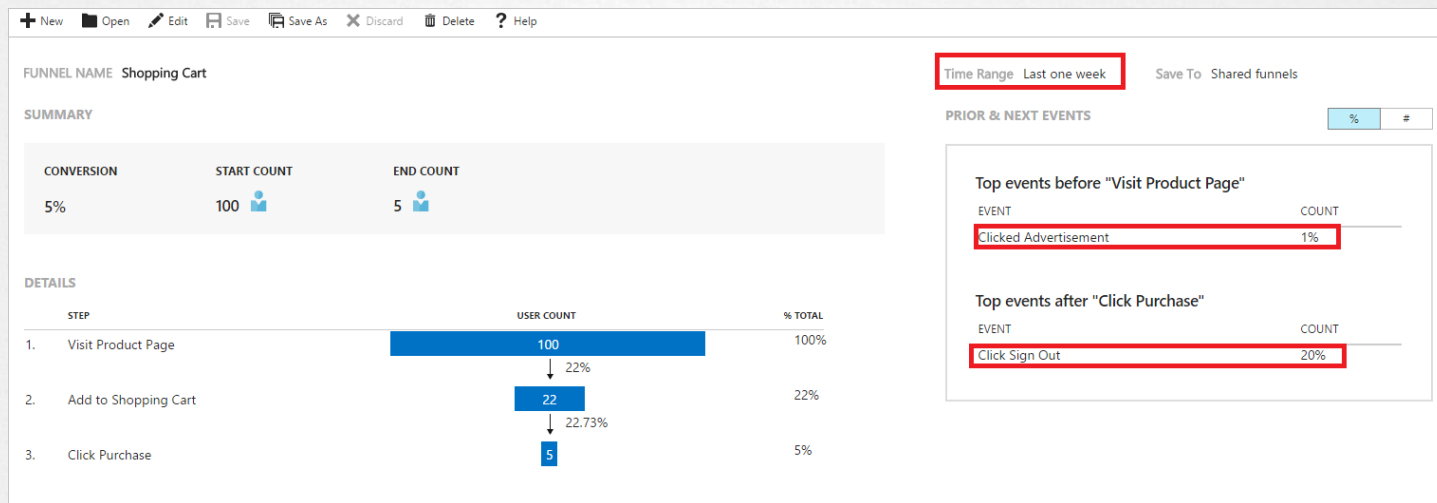


Quelle: <https://docs.microsoft.com/en-us/azure/application-insights/app-insights-usage-flows>





# Application Insights Funnel



Quelle: <https://docs.microsoft.com/en-us/azure/application-insights/usage-funnels>



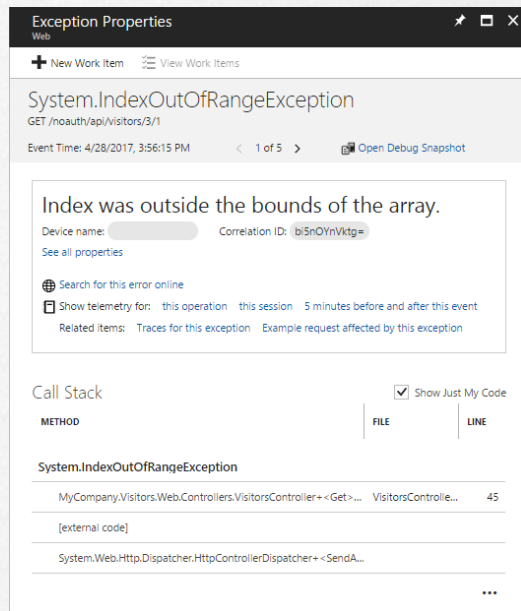


# Application Insights

## Kann Debug Snapshot erstellen einer Live Applikation

Voraussetzung:

- App Insight ist aktiviert auf der Applikation
- NuGet Package:  
Microsoft.ApplicationInsights.SnapshotCollector





# Service Fabric

- Service Fabric enables you to easily build and manage mission-critical, scalable applications that can run anywhere
- Service Fabric is a container orchestrator for both Windows and Linux



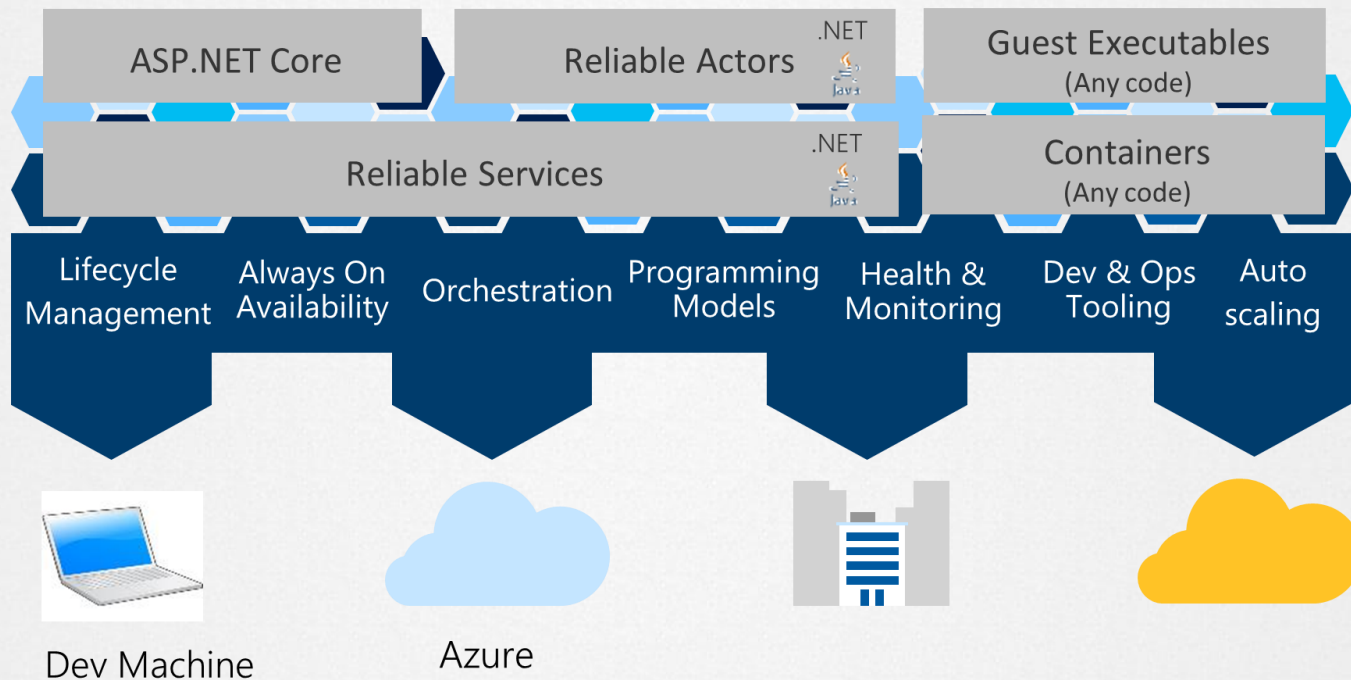




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# Azure Service Fabric

Any OS, Any Cloud





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# Services Powered by Service Fabric



SQL Database

2.1 million DBs



Cosmos DB

Billions transactions/day



IoT Hub

Millions of messages



Event Hubs

640bn events/day



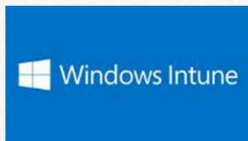
Event Grid



Skype



Cortana



Intune



Dynamics



Power BI

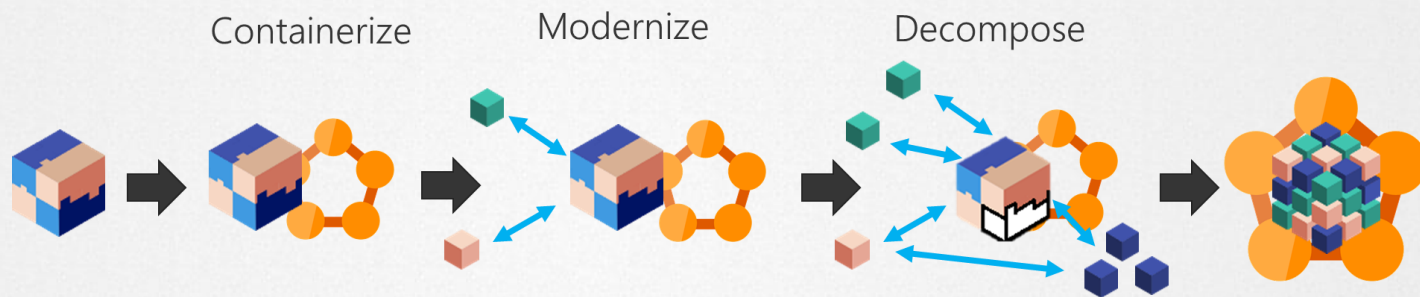
Designed for mission critical tier 1 workloads

30% of Azure cores run Service Fabric





# Modernize Applications



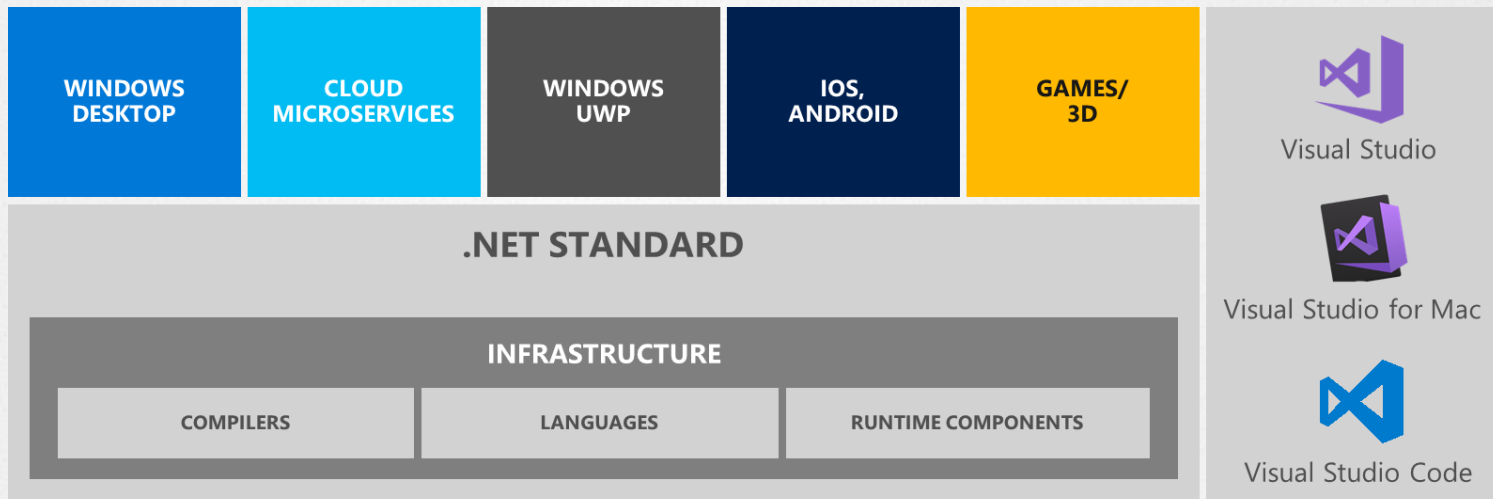
1. Traditional application
2. Hosted as guest executables or containers in Service Fabric
3. Modernization by adding new microservices
4. Innovate by decomposing application into microservices
5. Transformed into microservices or new greenfield application

...You can stop at any stage





# .Net Standard



.Net Standard erlaubt das teilen von Code, Binaries und Kenntnisse zwischen .Net Client, Server etc.

.Net Standard liefert eine Spezifikation für alle Plattformen

.Net runtimes von Microsoft implementieren .Net Standard





# .Net Standard 2.0

## DATA

DataSet • DataTable • SQLClient

## XML

XLinq • XML Document • XPath • Schema • XSL

## SERIALIZATION

BinaryFormatter • Data Contract • XML

## NETWORKING

Sockets • HTTP • Mail • WebSockets

## IO

Files • Compression • MMF

## THREADING

Threads • Thread Pool • Tasks

## CORE

Primitives • Collections • Reflection • Interop • Linq







# App Streaming Installation

- Streaming Install allows users to launch apps before they are fully downloaded
- Apps continue to download in the background after launch
- Users can interact with their apps faster





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# Dividing App into Content Groups



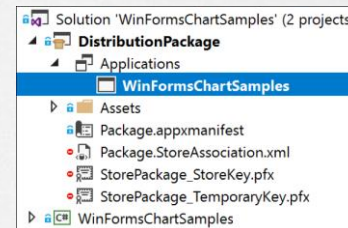
Automatic	Automatic
Automatic	Automatic
Automatic	Required

Apple App is launched!..



# Desktop Bridge

- Windows Desktop Applikation (WPF, Winforms, Win32, etc.) modernisieren mit der Universal Windows Platform (UWP)
- Kann über den Windows Store verteilt werden
- Neue APIs und Feature von Windows 10 können verwendet werden





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# DevOps Transformation

Session BRK2174:

Moving 65,000 Microsofties to DevOps  
with Visual Studio Team Services (Martin  
Woodward)





# Problems

"One time" deployment commands in OneNote or email

Set-Options "-p 0"

Imagine a dozen more steps like that...  
And then...someone misses a step half way through

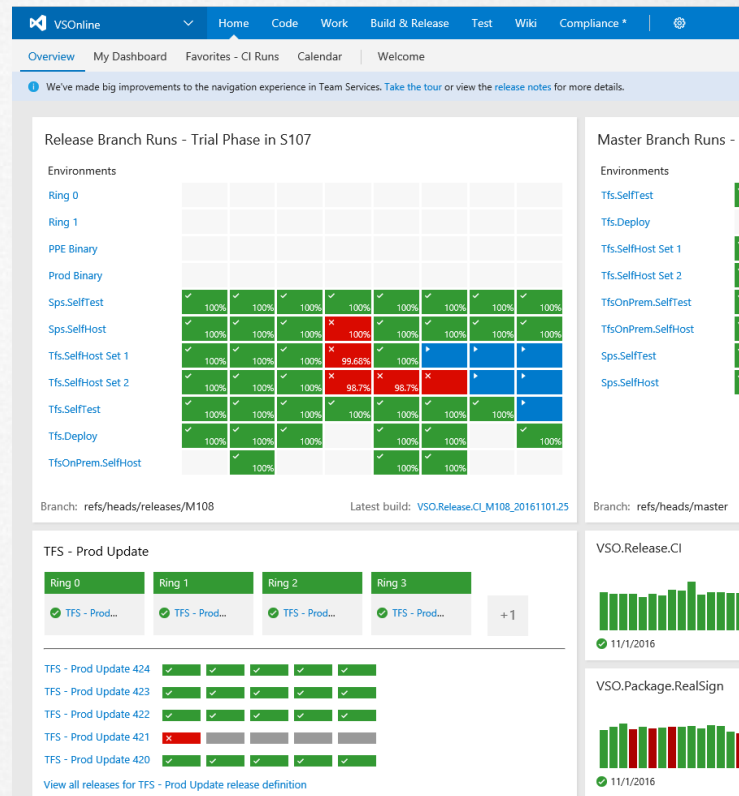
We once broke pre-production for a day





# Automate completely

- No more “one time” commands run manually
- Every command goes in PowerShell scripts that are checked in
- Deployment to pre-production & canary is the same as deployment to production every time
- All orchestrated with Release Management in VSTS



# Tracking Deployments to Production (5 Rings)

← → ↺ 🔒 msimg.visualstudio.com/VSSOnline/Service%20Insight/\_apps/hub/ms-ins-releaseManagement-web-hub-explorer?definitionId=1206...as-release

Home Code Work Build & Release Test Wiki Compliance

Builds Releases Task Groups Packages Explorer

TFS - Prod Config Change | Edit

Search release definitions...

Releases

Release	Environments	Build	Branch	Created	Created By	Description
Drish-2501	...			just now	Hitesh Sajani	
TFS - Prod Config Change 2358	...	VSO/Release CI_M...	ref/heads/relas...	2 hours ago	Joe Zhang (VSC)	Add targeting exception for sp...
TFS - Prod Config Change 2357	...	VSO/Release CI_M...	ref/heads/relas...	7 hours ago	Praveen Agarwal	
TFS - Prod Config Change 2356	...	VSO/Release CI_M...	ref/heads/relas...	18 hours ago	Rishik Saxena	
Drish-2487	...			18 hours ago	Rishik Saxena	
TFS - Prod Config Change 2355	...	VSO/Release CI_M...	ref/heads/relas...	21 hours ago	Amit Inamdar	
TFS - Prod Config Change 2354	...	VSO/Release CI_M...	ref/heads/relas...	21 hours ago	Naveen Gupta	Disabling transaction collection f...
TFS - Prod Config Change 2353	...	VSO/Release CI_M...	ref/heads/relas...	22 hours ago	Amit Inamdar	
TFS - Prod Config Change 2352	...	VSO/Release CI_M...	ref/heads/relas...	22 hours ago	Naveen Gupta	[Bypass] Enabling Tracepoint co...
TFS - Prod Config Change 2351	...	VSO/Release CI_M...	ref/heads/relas...	23 hours ago	Jeff Russell	Fix State Constants for CTS #58...
TFS - Prod Config Change 2350	...	VSO/Release CI_M...	ref/heads/relas...	23 hours ago	Sam Shaw	Enable limiting the number of l...
TFS - Prod Config Change 2349	...	VSO/Release CI_M...	ref/heads/relas...	Tuesday	Sanyogita Ramade	Queue a retention job on MSing
TFS - Prod Config Change 2348	...	VSO/Release CI_M...	ref/heads/relas...	Tuesday	Tinghao Huang	2.107.1 to SBR1
TFS - Prod Config Change 2347	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Chendru Ramani...	Disable RLS on MS_DatabasePer...
TFS - Prod Config Change 2346	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Richard Mohan...	Config Change to set SmtPass...
TFS - Prod Config Change 2345	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Dan Hellem	polarisat - increase attachme...
TFS - Prod Config Change 2344	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Hitesh Sajani	Disable AnalyticsTagDefinitionC...
TFS - Prod Config Change 2343	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Hitesh Sajani	Enabling AnalyticsWorkItemCh...
TFS - Prod Config Change 2342	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Tinghao Huang	
TFS - Prod Config Change 2341	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Dan Hellem	Walrus - process mapping for...
TFS - Prod Config Change 2340	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Kavipriya Adhina...	
TFS - Prod Config Change 2339	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Kavipriya Adhina...	
TFS - Prod Config Change 2338	...	VSO/Release CI_M...	ref/heads/relas...	Monday	Pawan Kumar Ade...	Enabling the auto SPN across bl...
TFS - Prod Config Change 2337	...	VSO/Release CI_M...	ref/heads/relas...	10/7/2016	Rogan Ferguson	Turn on fix and red rules on im...
TFS - Prod Config Change 2336	...	VSO/Release CI_M...	ref/heads/relas...	10/7/2016	Patrick Canavan	Patch prj_SqlBuilds on SBR

1. Canary (internal users)
2. Smallest external data center
3. Largest external data center
4. International data centers
5. All the rest





# Sprints

Microsoft arbeitet in 3 Wochen Sprints

Einfache Regeln wie z.B. "Bug Cap":

$$\# \text{ engineers on your team} \times 5 = ?$$





# Bug Cap

Wenn Anzahl Bugs grösser ist als der Bug Cap... Dann wird aufgehört an neuen Features zu arbeiten bis man wieder unter dem Count ist.

$$10 \times 5 = 50$$





# DevOps Transformation

## Before

- 4-6 month milestones
- Horizontal teams
- Personal offices
- Long planning cycles
- PM, Dev, Test
- Yearly customer engagement
- Feature branches
- 20+ person teams
- Secret roadmap
- Bug debt
- 100 page spec documents
- Private repositories
- Deep organizational hierarchy
- Success is a measure of install numbers
- Features shipped once a year

## After

- 3-week sprints
- Vertical teams
- Team rooms
- Continual Planning & Learning
- PM & Engineering
- Continual customer engagement
- Everyone in master
- 8-12 person teams
- Publicly shared roadmap
- Zero debt
- Mockups in PPT
- Inner source
- Flattened organization hierarchy
- User satisfaction determines success
- Features shipped every sprint







# Azure Machine Learning (ML)

- Neue IDE für Data Preprocessing
- Trainierte ML Modelle können als Docker Container deployed werden

Azure Machine Learning Workbench (Preview)

Project Dashboard TrainDataV6 bikes BostonWeather

BostonWeather

DERIVE COLUMN BY EXAMPLE: You have selected 1 source column and provided 1 example.  
Analyzing Data [Advanced mode](#)

Cancel OK

STEPS

Reference dataset  
Derive column by example

	DATE	abc Column	abc REPORTTP...	abc HOURLYD...	abc HOURLYRe...	abc
1	2015-01-01 00:54:00	Thursday -- 00:00-02:00	FM-15	22	50	10
2	2015-01-01 01:00:00	Thursday -- 00:00-02:00	FM-12	22	50	10
3	2015-01-01 01:54:00	Thursday -- 00:00-02:00	FM-15	22	50	10
4	2015-01-01 02:54:00	Thursday -- 02:00-04:00	FM-15	22	50	11
5	2015-01-01 03:54:00	Thursday -- 02:00-04:00	FM-15	24	46	13
6	2015-01-01 04:00:00	Thursday -- 04:00-06:00	FM-12	24	46	13
7	2015-01-01 04:54:00	Thursday -- 04:00-06:00	FM-15	22	52	15
8	2015-01-01 05:54:00	Thursday -- 04:00-06:00	FM-15	23	48	17
9	2015-01-01 06:54:00	Thursday -- 06:00-08:00	FM-15	23	50	14
10	2015-01-01 07:00:00	Thursday -- 06:00-08:00	FM-12	23	50	14
11	2015-01-01 07:54:00	Thursday -- 06:00-08:00	FM-15	22	52	13
12	2015-01-01 08:54:00	Thursday -- 08:00-10:00	FM-15	25	44	16
13	2015-01-01 09:54:00	Thursday -- 08:00-10:00	FM-15	28	39	14
14	2015-01-01 10:00:00	Thursday -- 10:00-12:00	FM-12	28	39	14
15	2015-01-01 10:54:00	Thursday -- 10:00-12:00	FM-15	30	34	18
16	2015-01-01 11:54:00	Thursday -- 10:00-12:00	FM-15	31	35	17
17	2015-01-01 12:54:00	Thursday -- 12:00-14:00	FM-15	32	33	16
18	2015-01-01 13:00:00	Thursday -- 12:00-14:00	FM-12	32	33	16
19	2015-01-01 13:54:00	Thursday -- 12:00-14:00	FM-15	33	32	14
20	2015-01-01 14:54:00	Thursday -- 14:00-16:00	FM-15	33	33	16
21	2015-01-01 15:54:00	Thursday -- 14:00-16:00	FM-15	31	36	13
22	2015-01-01 16:00:00	Thursday -- 16:00-18:00	FM-12	31	36	13

INSPECTORS

Quelle: <https://azure.microsoft.com/en-us/blog/tools-for-the-ai-driven-digital-transformation/>





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# Danke

