DevOps on the Microsoft Stack with VSTS and TFS

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Partner, MCW Technologies

Level: All

Brian.About();

- Partner with MCW Technologies, www.mcwtech.com
- Co-author Pro ALM 2013 from Wrox
- 15 year Microsoft MVP—Development Technologies
- Linked In Learning author
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  - Also Db DevOps with TFS 2018 http://bri.gd/lildbdevopstfs18
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Microsoft

Azure DevOps

The product formally known as VSTS ...

Azure DevOps

#AzureDevOps

🌐 https://azure.com/devops

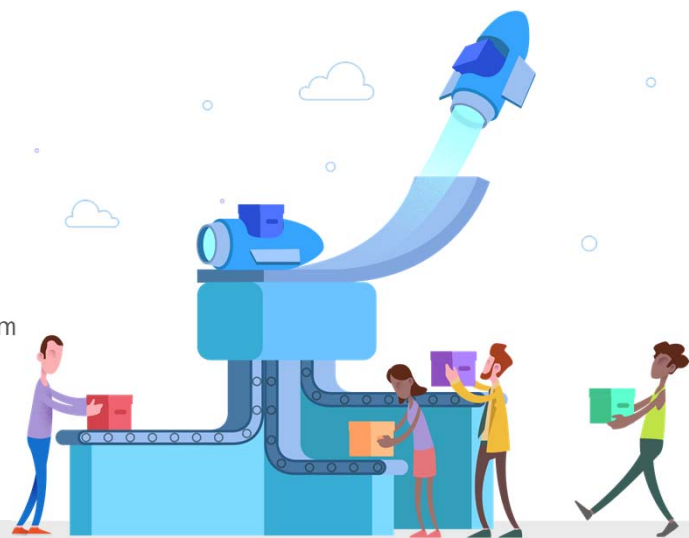🐦 @AzureDevOps

💬 https://aka.ms/AzureDevOpsForum
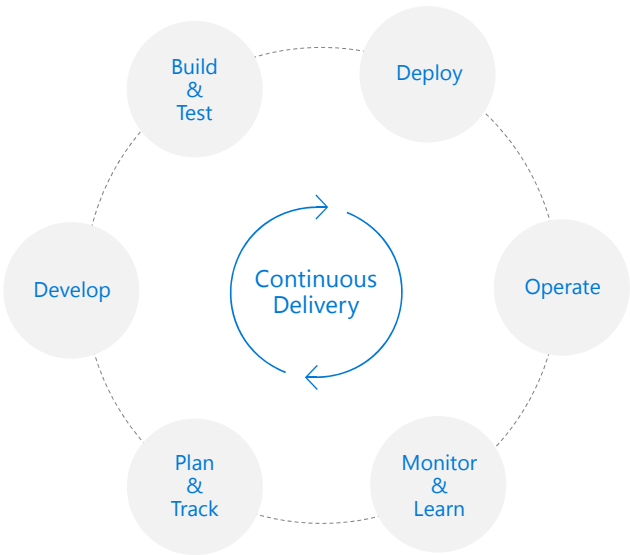
📄 https://aka.ms/DevOpsBlog/
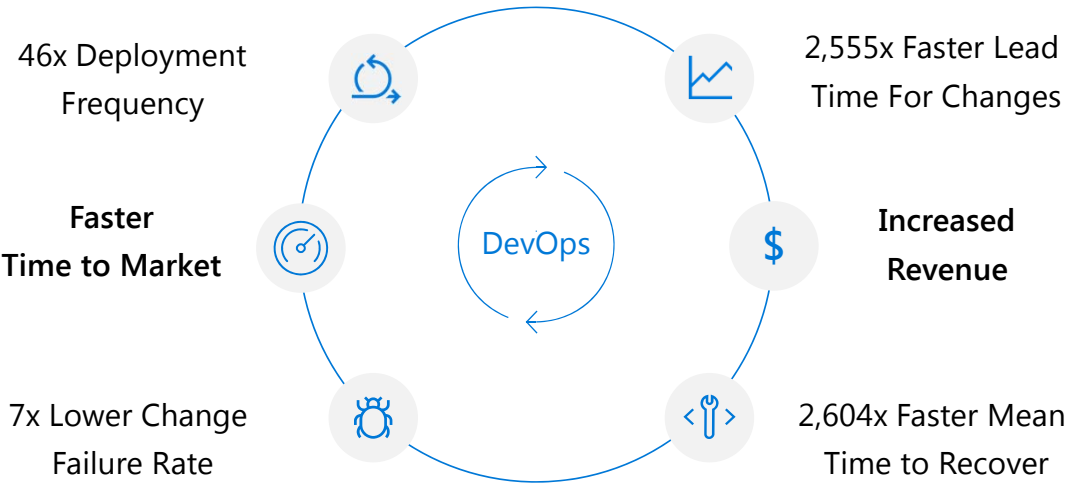
What is DevOps?

People. Process. Products.

"

DevOps is the union of **people**, **process**, and **products** to enable continuous delivery of value to your end users. "

Build & Test

Deploy

Develop

Continuous Delivery

Operate

Plan & Track

Monitor & Learn

High Performance DevOps Companies Achieve...

46x Deployment Frequency

2,555x Faster Lead Time For Changes

Faster Time to Market

DevOps

Increased Revenue

7x Lower Change Failure Rate

2,604x Faster Mean Time to Recover

Source: 2018 Accelerate: State of DevOps: Strategies for a New Economy." N. Forsgren, J. Humble, G. Kim. DevOps Research and Assessment (DORA)

How Microsoft can help

Microsoft Azure is a powerful and flexible foundation for past, present, and future apps – easily build, manage, and deploy any application and any stack on a massive, global network using your favorite tools and frameworks.

Flexible

Choice of IaaS, PaaS, public cloud or hybrid.

Mirror or modernize app infrastructure with VMs, containers, microservices or serverless.

Supports all stages of the app modernization journey – from lift-and-shift to Cloud-Native.
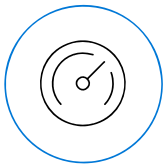
Powerful

Instantly improve the performance, scalability and resiliency of your apps by moving them to the cloud.

Increase business agility with Cloud-Native capabilities and built-in DevOps for continuous innovation.
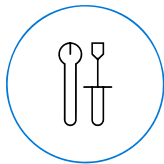
Open

Bring your stack, we bring a cloud that runs any app, on any platform, and any language.

Build applications using the language and tools of your choice - Azure supports what you already use and love so you can get up and running fast – just bring code.

What technologies do I need to support DevOps?

DevOps brings together people, processes, and technology, automating software delivery to provide continuous value to your users. Using Azure DevOps, you can deliver software faster and more reliably - no matter how big your IT department or what tools you're using.

Continuous Integration (CI)

- Improve software development quality and speed.
- When you use Azure Pipelines or Jenkins to build apps in the cloud and deploy to Azure, each time you commit code, it's automatically built and tested and bugs are detected faster.

Continuous Deployment (CD)

- By combining continuous integration and infrastructure as code (IaC), you'll achieve identical deployments and the confidence to deploy to production at any time.
- With continuous deployment, you can automate the entire process from code commit to production if your CI/CD tests are successful.

Continuous Learning & Monitoring

- With Azure Application Insights you can identify how your applications are performing and test if the recent deployment made things better or worse.
- Using CI/CD practices, paired with monitoring tools, you'll be able to safely deliver features to your customers as soon as they're ready.

Introducing Azure DevOps

Azure Boards

Deliver value to your users faster using proven agile tools to plan, track, and discuss work across your teams.

Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.

Azure Repos

Get unlimited, cloud-hosted private Git repos and collaborate to build better code with pull requests and advanced file management.

Azure Test Plans

Test and ship with confidence using manual and exploratory testing tools.

Azure Artifacts

Create, host, and share packages with your team, and add artifacts to your CI/CD pipelines with a single click.

https://azure.com/devops

Azure Pipelines

Cloud-hosted pipelines for Linux, Windows and macOS, with unlimited minutes for open source

Any language, any platform, any cloud
Build, test, and deploy Node.js, Python, Java, PHP, Ruby, C/C++, .NET, Android, and iOS apps. Run in parallel on Linux, macOS, and Windows. Deploy to Azure, AWS, GCP or on-premises

Extensible
Explore and implement a wide range of community-built build, test, and deployment tasks, along with hundreds of extensions from Slack to SonarCloud. Support for YAML, reporting and more

Containers and Kubernetes
Easily build and push images to container registries like Docker Hub and Azure Container Registry. Deploy containers to individual hosts or Kubernetes.
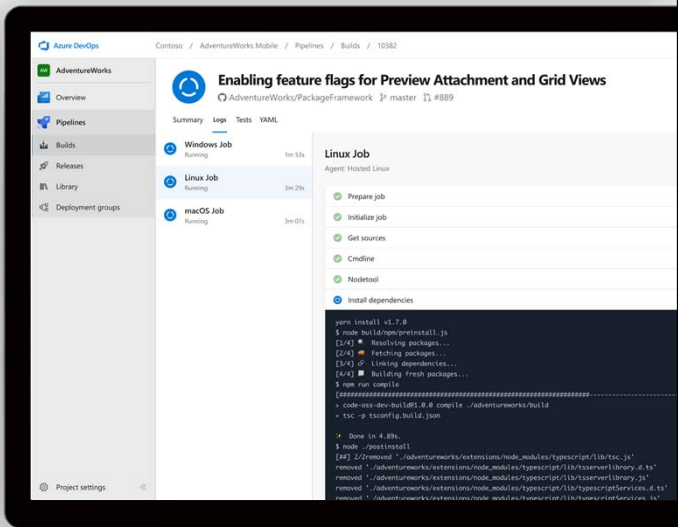
Best-in-class for open source
Ensure fast continuous integration/continuous delivery (CI/CD) pipelines for every open source project. Get unlimited build minutes for all open source projects with up to 10 free parallel jobs across Linux, macOS and Windows
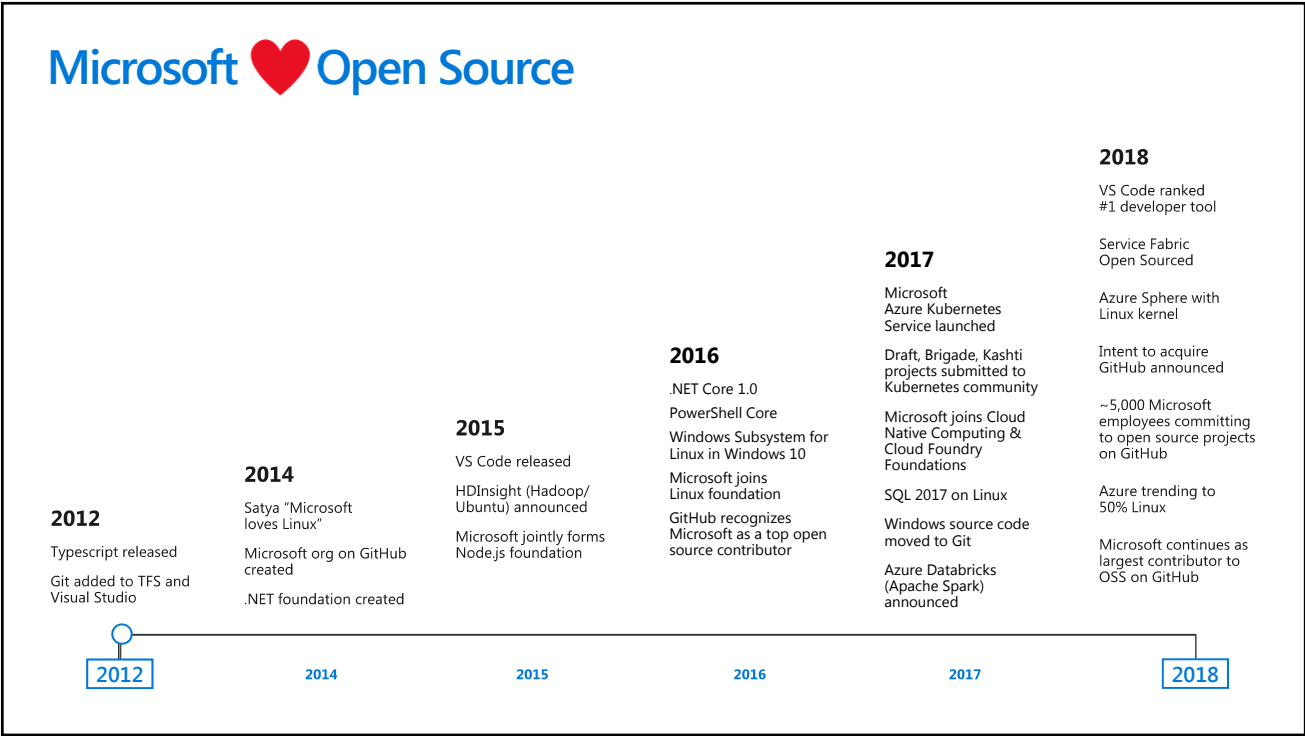
https://azure.com/pipelines

"Judge us by the actions we have taken in the recent past, our actions today and in the future"

—Satya Nadella, CEO
Microsoft

2018

Microsoft ♥ Open Source

2012

Typescript released

Git added to TFS and Visual Studio

2014

Satya "Microsoft loves Linux"

Microsoft org on GitHub created

.NET foundation created

2015

VS Code released

HDInsight (Hadoop/Ubuntu) announced

Microsoft jointly forms Node.js foundation

2016

.NET Core 1.0

PowerShell Core

Windows Subsystem for Linux in Windows 10

Microsoft joins Linux foundation

GitHub recognizes Microsoft as a top open source contributor

2017

Microsoft Azure Kubernetes Service launched

Draft, Brigade, Kashti projects submitted to Kubernetes community

Microsoft joins Cloud Native Computing & Cloud Foundry Foundations

SQL 2017 on Linux

Windows source code moved to Git

Azure Databricks (Apache Spark) announced

2018

VS Code ranked #1 developer tool

Service Fabric Open Sourced

Azure Sphere with Linux kernel

Intent to acquire GitHub announced

~5,000 Microsoft employees committing to open source projects on GitHub

Azure trending to 50% Linux

Microsoft continues as largest contributor to OSS on GitHub

| 2012 | 2014 | 2015 | 2016 | 2017 | 2018 |

Azure Pipelines

Free **unlimited** build minutes for public projects

Up to 10 free parallel jobs across Windows, Linux and macOS
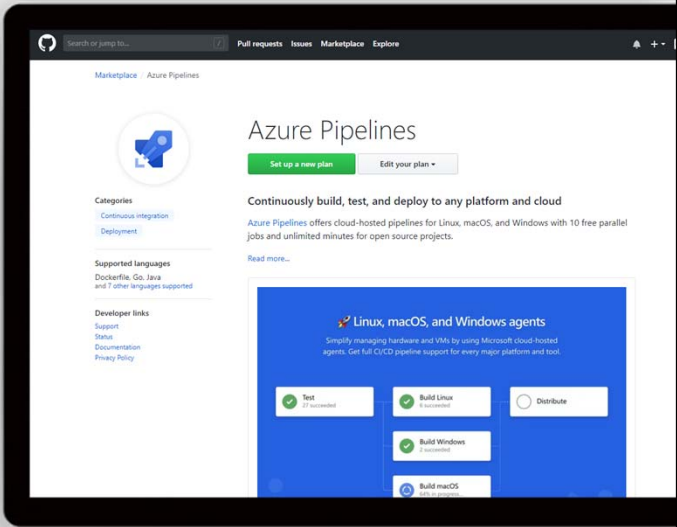
https://azure.com/pipelines

Microsoft ♥ Open Source

Integrated with GitHub

Azure Pipelines available now to any developer from the GitHub Marketplace

Azure DevOps

Azure Boards

Deliver value to your users faster using proven agile tools to plan, track, and discuss work across your teams.

Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.

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Azure Test Plans

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Azure Artifacts

Create, host, and share packages with your team, and add artifacts to your CI/CD pipelines with a single click.

https://azure.com/devops

Azure Boards

Track work with Kanban boards, backlogs, team dashboards, and custom reporting

Connected from idea to release

Track all your ideas at every development stage and keep your team aligned with all code changes linked directly to work items.

Scrum ready

Use built-in scrum boards and planning tools to help your teams run sprints, stand-ups, and planning meetings.

Project insights

Gain new insights into the health and status of your project with powerful analytics tools and dashboard widgets.

https://azure.com/devops
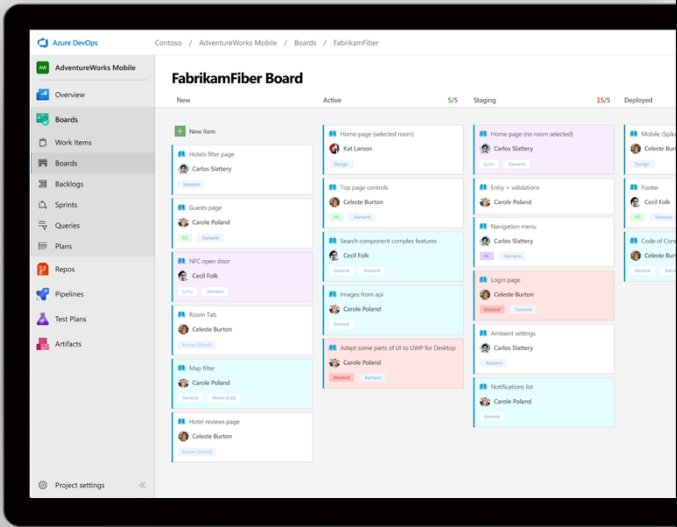
Azure Repos

Unlimited private Git repo hosting and support for TFVC that scales from a hobby project to the world's largest Git repositories

Works with your Git client
Securely connect with and push code into your Git repos from any IDE, editor, or Git client.

Web hooks and API integration
Add validations and extensions from the marketplace or build your own using web hooks and REST APIs.
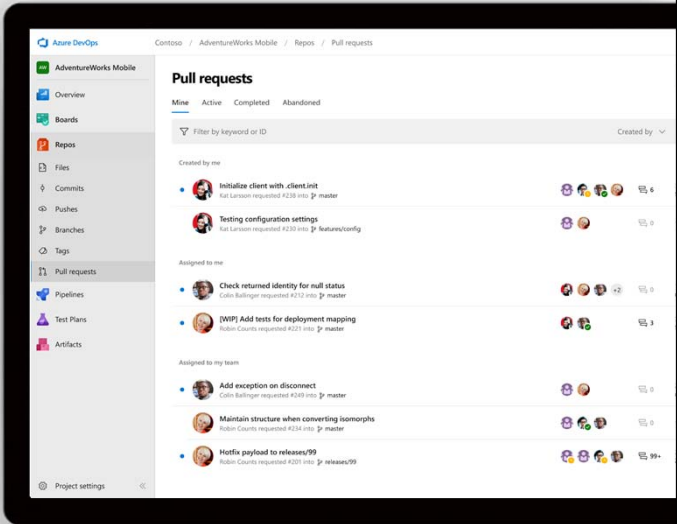
Semantic code search
Quickly find what you're looking for with code-aware search that understands classes and variables.

https://azure.com/devops

Azure Test Plans

Get end-to-end traceability. Run tests and log defects from your browser. Track and assess quality throughout your testing lifecycle.

Capture rich data
Capture rich scenario data as you execute tests to make discovered defects actionable. Explore user stories without test cases or test steps. You can create test cases directly from your exploratory test sessions.

Test across web and desktop
Test your application where it lives. Complete scripted tests across desktop or web scenarios. Test on-premises application from the cloud and vice-versa.

Get end-to-end traceability
Leverage the same test tools across your engineers and user acceptance testing stakeholders. Pay for the tools only when you need them.

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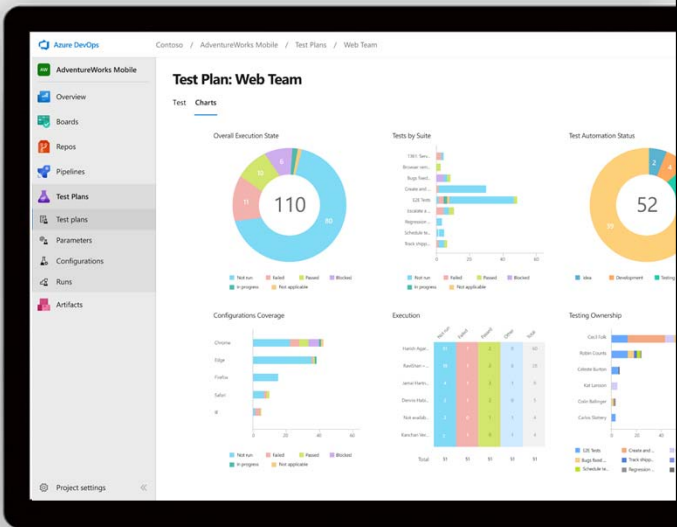
Azure Artifacts

Create and share Maven, npm, and NuGet package feeds from public and private sources – fully integrated into CI/CD pipelines

Manage all package types
Get universal artifact management for Maven, npm, and NuGet.

Add packages to any pipeline
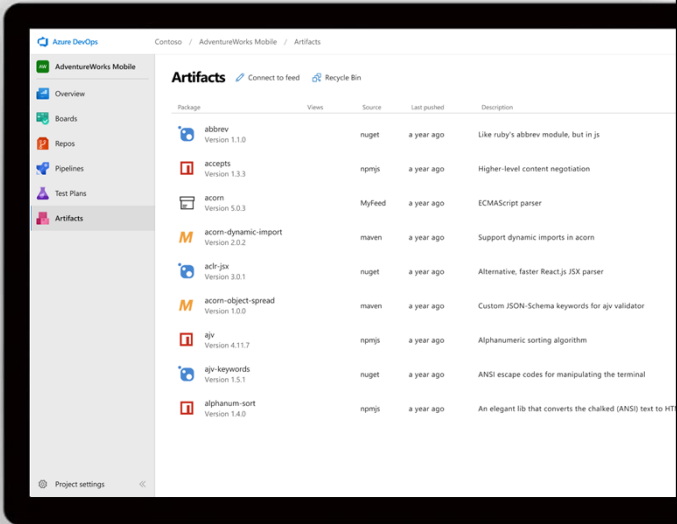Share packages, and use built-in CI/CD, versioning, and testing.

Share code efficiently
Easily share code across small teams and large enterprises.

→ **https://azure.com/devops**

#AzureDevOps

Demo
Azure DevOps

Azure DevOps
Better together

Azure Boards   **Azure Repos**   **Azure Pipelines**   **Azure Test Plans**   **Azure Artifacts**

An end-to-end solution for organizations looking for an enterprise-grade toolchain

Fully Integrated with end to end traceability	Scalable to any team and project size	Highly available, multi region, hybrid cloud & on-prem	Customer Support	Consistent admin and access control

https://azure.com/devops

Broadening the Azure Ecosystem

Jenkins

Terraform

ANSIBLE

puppet

CHEF
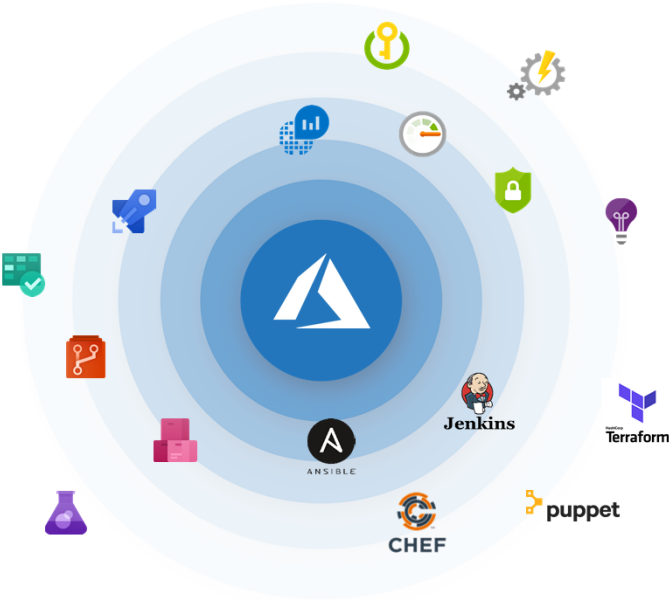
Self-Service Dev/Test Environments

Azure Lab Services

→ Simplify cloud environment management for developers and testers.

→ Enforce policies and control costs with full visibility

→ Use templates, custom images and formulas to reproduce environments.

→ Orchestrate with Azure Pipelines or integrate using REST API
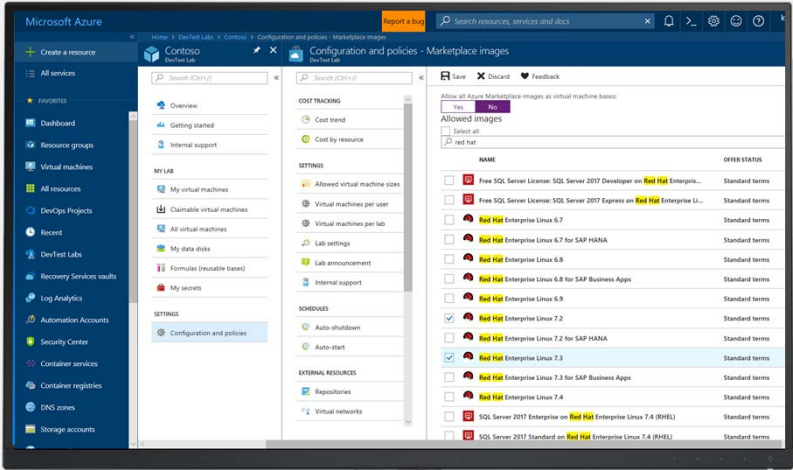
Infrastructure and Configuration as Code

Azure Resource Manager, Automation & 3rd Party Integrations

→ Infrastructure as Code, built-in

→ Azure Config & Automation

→ Support for 3rd party and OSS tooling such as Terraform, Ansible, Chef, Puppet & SaltStack
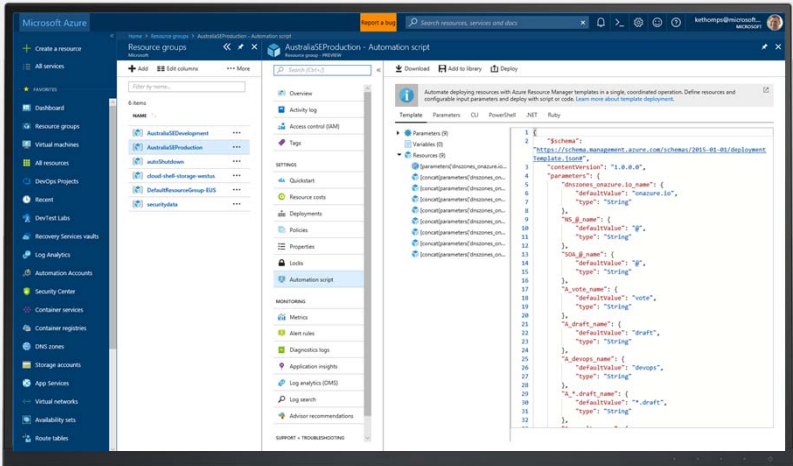
Continuous Security

Azure Security Center

→ Gain full visibility and control of your cloud security state

→ Leverage ML to Proactively identify and mitigate risks to reduce exposure to attacks

→ Quickly detect and respond to threats with advanced analytics
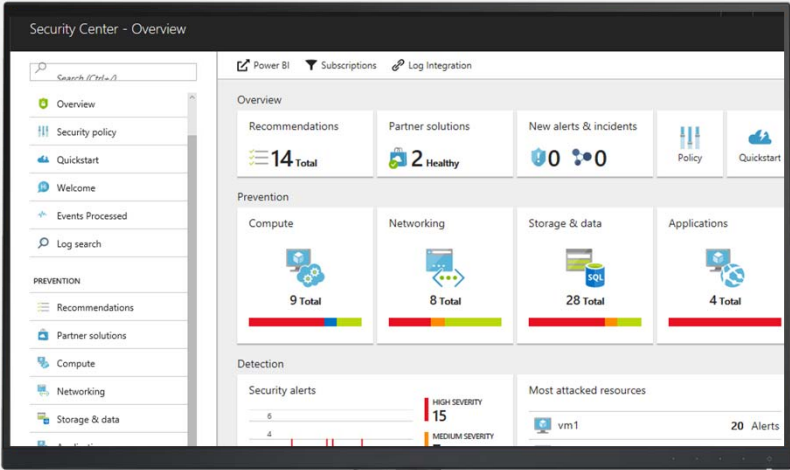
Smarter Insights, Faster

Azure Monitor, Application Insights & Log Analytics

→ Pre-defined solutions with smart thresholds

→ Visualize data in intuitive and customizable dashboards

→ Separate the signal from the noise and accelerate root-cause analysis

→ Integrate your existing processes & tools like Service Now

Azure DevOps: Choose the tools and clouds you love

Azure DevOps lets developers choose the tools that are right for them

Mix and match to create workflows with tools from Microsoft, open source or your favorite 3rd party tools

Target any cloud, on-prem or both and deploy to the servers you need
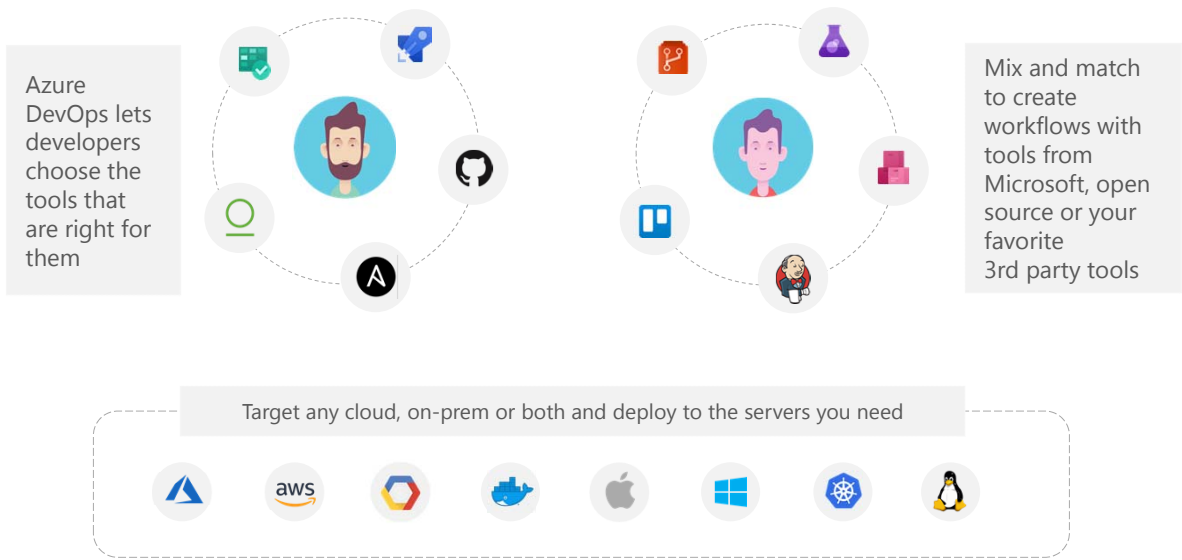
Azure DevOps supports small teams to largest enterprises

"Instead of telling people to wait for 6 months for a new feature, we can give it to them in a few weeks...Our 2800 worldwide developers can use the same backlog, user stories and tests whether they're on Windows or Linux... building for iOS or Android."

"Speed is gained in moving to the PaaS offering of Azure DevOps. PaaS provides regularly released features and a future-proof capability, eliminating the need for Accenture to maintain infrastructure and go through upgrade cycles."

Columbia

"Microsoft made it really easy to break outside the silos... and tie the DevOps process into the fulfilment of business process. Without the tools that we have today, we would not be successful."

HAWAIIAN AIRLINES

"Branches sync 500 percent faster. Builds are 400 percent faster, with the typically six-hour process reduced to 90 minutes. We (now have) a highly streamlined process that operates with a few button clicks—and one-button deployment."
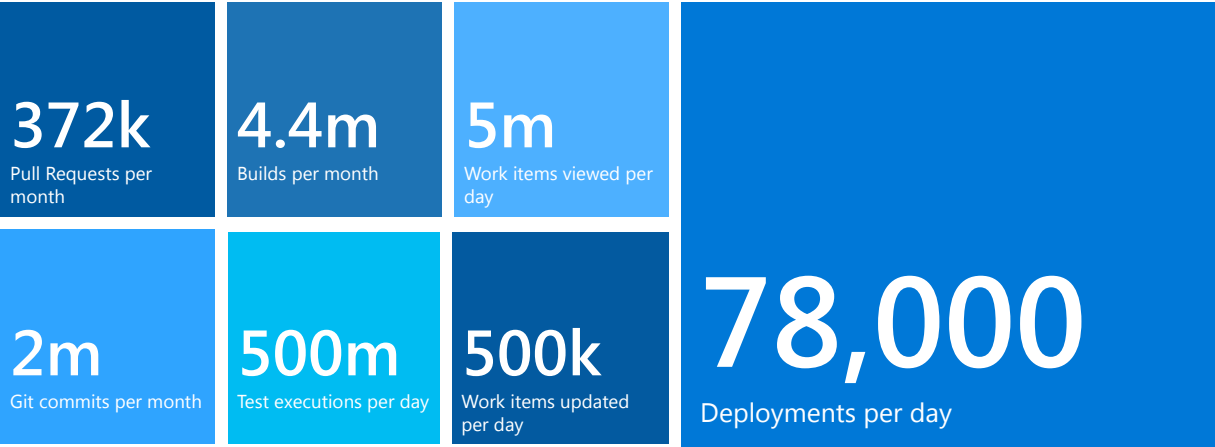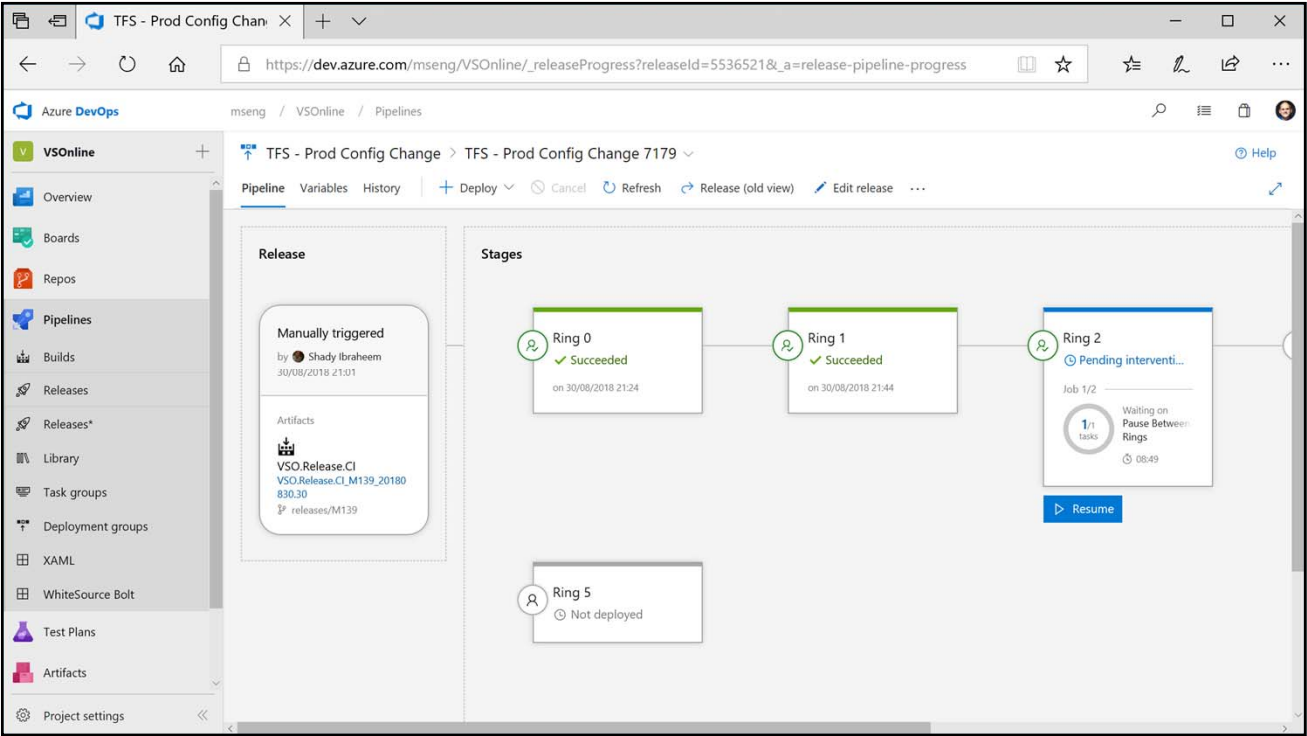
Changes for existing VSTS / TFS customers

The same functionality you know and love today, with greater openness, flexibility and focus

Existing Accounts

- Existing **https://contoso.visualstudio.com** URL continues to work. **https://dev.azure.com/contoso** available for opt-in.

- New **UI opt-in** per user as preview feature. Will start advertising new UI once feedback from new accounts and early adopters has been incorporated.

- Can disable services on a per project basis for new UI

- New Azure branding in communications and documentation (emails, alerts etc).

- Websites and documentation will move from Visual Studio to Azure based locations (with redirects in place).

- Redirects available for some time.

- TFS will remain the on-premises brand until the next major version in 2019. The new UI will be enabled in that release.

- Existing TFS branded information and downloads remain in Visual Studio locations until next release.

Pricing

- **Public project usage is now free.**

- The free tier for Pipelines now includes **1,800** minutes per month, up from 240.

- Pipelines can be used independently from Repos — so if you are only using Pipelines and your repos are hosted on GitHub you don't need to pay for Repos or Boards (Basic) users.

New Accounts

- https://dev.azure.com/contoso based URL.

- New navigation & branding by default.

Migrating from TFS to Azure DevOps

Move from Team Foundation Server to Azure DevOps and bring your data along

Benefits of Cloud Hosted Azure DevOps Services

- Global availability

- Hosted and maintained by Microsoft with 99.9% uptime guarantee and 24x7 support

- Immediate access to latest features

- Simplified deployment to Azure

TFS Import Service

- Fully supported high fidelity migration path

- Trusted by many large enterprises

- Now faster and easier to use

  https://aka.ms/tfsimport

Get Started **Prerequisites** **Upgrade** **Validate** **Get Ready** **Import**

Azure DevOps

Azure Boards

Azure Repos

Azure Pipelines

Azure Test Plans

Azure Artifacts

Plan smarter, collaborate better, and ship faster with a set of modern dev services

Any developer, any platform, any cloud. Full support for hybrid cloud, on-premises & containers.

Use all the Azure DevOps services or choose just what you need to complement your existing workflows

Best in class builds for open source. Free unlimited build minutes for public projects and up to 10 free concurrent jobs across Windows, Linux and macOS

Get started for free for small teams, scales to support the largest enterprises

Start free today   https://azure.com/devops

Azure DevOps Services Pricing

Open Source Projects	Small Teams	Teams of any size
Free	**Free**	**Starts at $6**
Unlimited users and build time	Start free with up to 5 users	per user, per month for Boards & Repos*
		Easy pricing that grows with your team
• **Azure Pipelines:** 10 parallel jobs with unlimited minutes for CI/CD	• **Azure Pipelines:** Run 1 Microsoft-hosted job for 1,800 minutes per month and 1 self-hosted job for any amount of time	• **Azure Pipelines:** Run 1 Microsoft-hosted job for 1,800 minutes per month and 1 self-hosted job for any amount of time
• **Azure Boards:** Work item tracking and Kanban boards	• **Azure Boards:** Work item tracking and Kanban boards	• **Azure Boards:** Work item tracking and Kanban boards
• **Azure Repos:** Unlimited public Git repos	• **Azure Repos:** Unlimited public Git repos	• **Azure Repos:** Unlimited public Git repos
	• **Azure Artifacts**: package management	• **Azure Artifacts**: package management
	• Unlimited stakeholders	• Unlimited stakeholders
		• Boards & Repos included for Visual Studio subscribers

https://azure.com/pricing/details/devops/

* 5 Boards & Repos users and 5 Artifacts users free. Pipelines with unlimited minutes, Test Plans users and additional Artifacts users also available. Please see the Azure pricing calculator for details.

Thank You

ευχαριστώ   Salamat Po   شكراً   متشكرم   Grazie

благодаря   ありがとうございます   Kiitos   Teşekkürler   谢谢

ขอบคุณครับ   Obrigado   شكريه   Terima Kasih   Dziękuję

Hvala   Köszönöm   Tak   Dank u wel   дякую   Tack

Mulţumesc   спасибо   Danke   Cảm ơn   Gracias

多謝晒   Ďakujem   תודה   நன்றி   Děkuji   감사합니다

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