



Azure DevOps:

What is it? What can I do with it? Where Do I Start?

Microsoft
Partner



2018 Partner of the Year Finalist
Microsoft CityNext Award
Government Award

Microsoft
Partner



2017 Partner of the Year Finalist
Application Development Award
Public Sector: Public Safety and National Security Award

Who am I?

Consultant at Black Marble

Cloud and Datacenter Management MVP

UK PowerShell User Group Lead

Speaker on topics around Azure, PowerShell, SharePoint, Office 365, Identity & Security and is on Twitter/Slack and others.

@ryanyates1990



Ryan Yates

Consultant

Collaboration



Ad Hoc

Gold in Content and Collaboration

TAP – Participated in all
SharePoint

TAPs since 2007

TAP – Office 365



Software Development



Core

Gold in Application Development

Microsoft Partner of the Year – Public Sector
and National Security (Winner 2015 and Finalist
2017), CityNext (Finalist 2018) and Government
(Finalist 2018)

Building Industry Product Certification - RDL

NHS Online Licensing Project

Police Mobile Solution – tuServ

Rescue

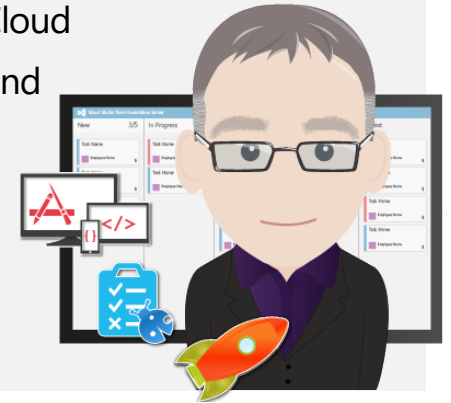


Azure DevOps

Gold in Azure DevOps

Dev and Test in the Cloud

Developer, Training and
Scrum Masters



Structured

Gold in Cloud Platform and Application
Integration

Silver in Data Analytics
and Data Platform



UX

Microsoft Partner of the Year - Application
Development (Winner 2015 and Finalist 2017)
and Development Platform (Winner 2016)

Microsoft Windows Insider Program

Universal Windows Platform

Touch/Interactive Development



Full Fat Rescue

Architects

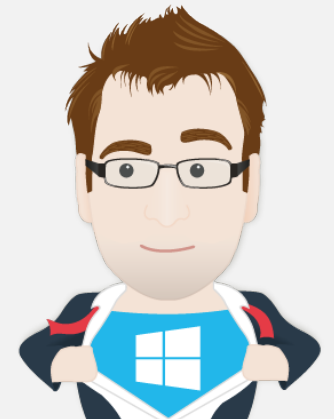
Developers

Project Managers

Team Lead

UX

Test





Intro to Azure DevOps

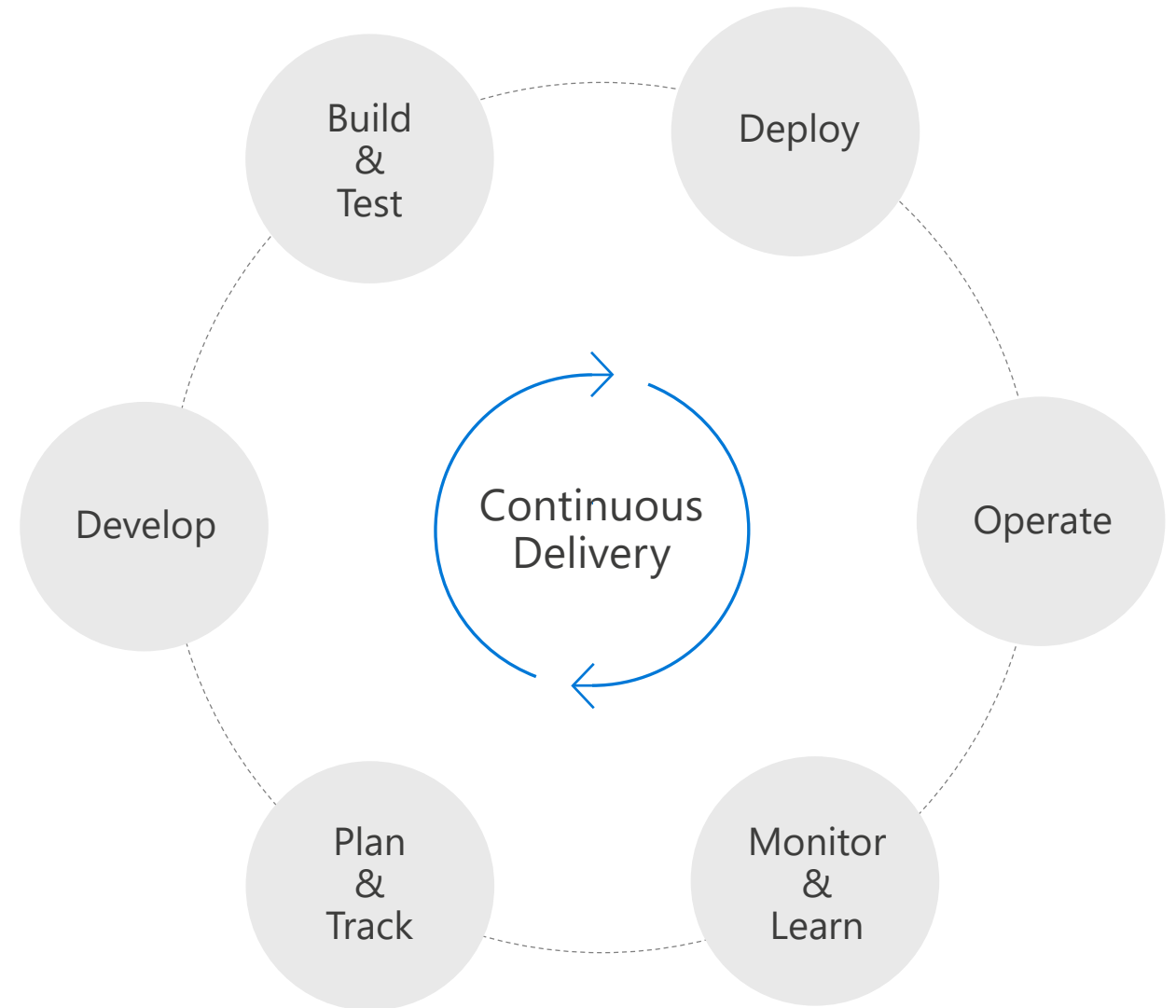


What is DevOps?

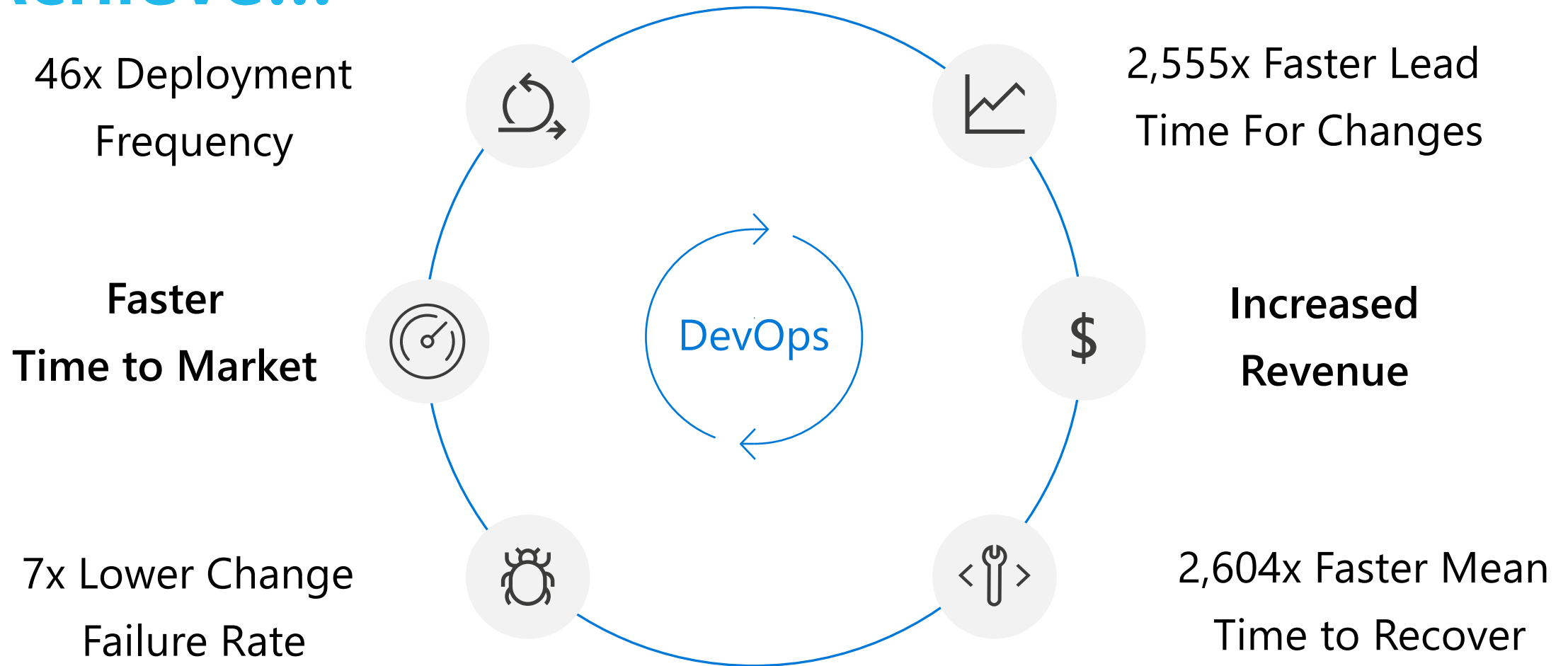
People. Process. Products.



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

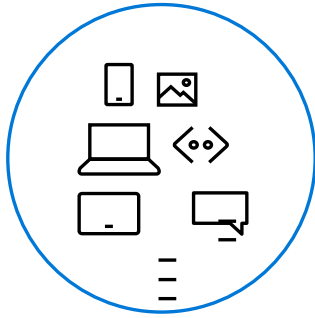


High Performance DevOps Companies Achieve...



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.

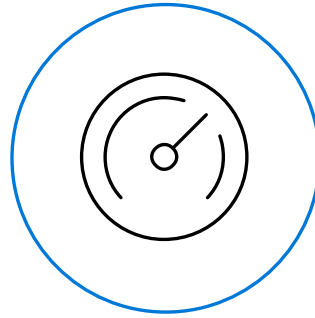


Flexible

Choice of IaaS, PaaS, public cloud or hybrid.

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

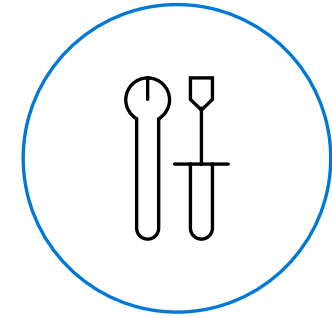
Supports all stages of the app modernization journey – from lift-and-shift to Cloud-Native.



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.



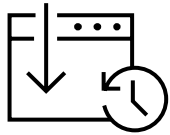
Open

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.

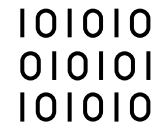
What technologies do I need to support DevOps?

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.



DevOps at Microsoft

Azure DevOps is the toolchain of choice for Microsoft engineering with over 90,000 internal users



<https://aka.ms/DevOpsAtMicrosoft>

372k

Pull Requests per month

4.4m

Builds per month

5m

Work items viewed per day

2m

Git commits per month

500m

Test executions per day

500k

Work items updated per day

78,000

Deployments per day

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. ”



“ 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. ”



“ 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. ”



“ 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. ”



Introducing Azure DevOps



Azure Repos

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



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.



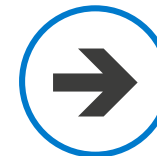
Azure Test Plans

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 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.

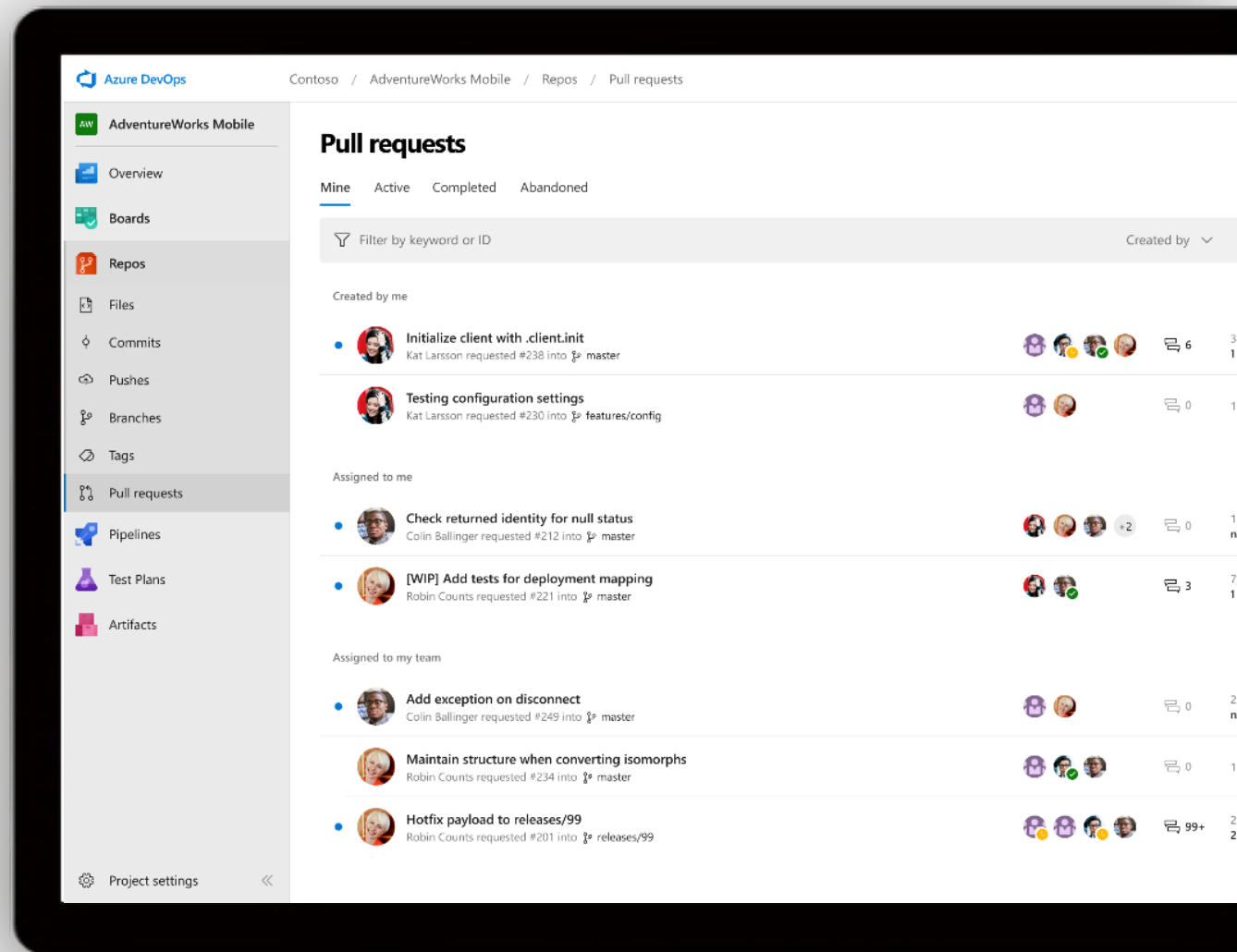


Semantic code search

Quickly find what you're looking for with code-aware search that understands classes and variables.



<https://azure.com/devops>





Azure 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.

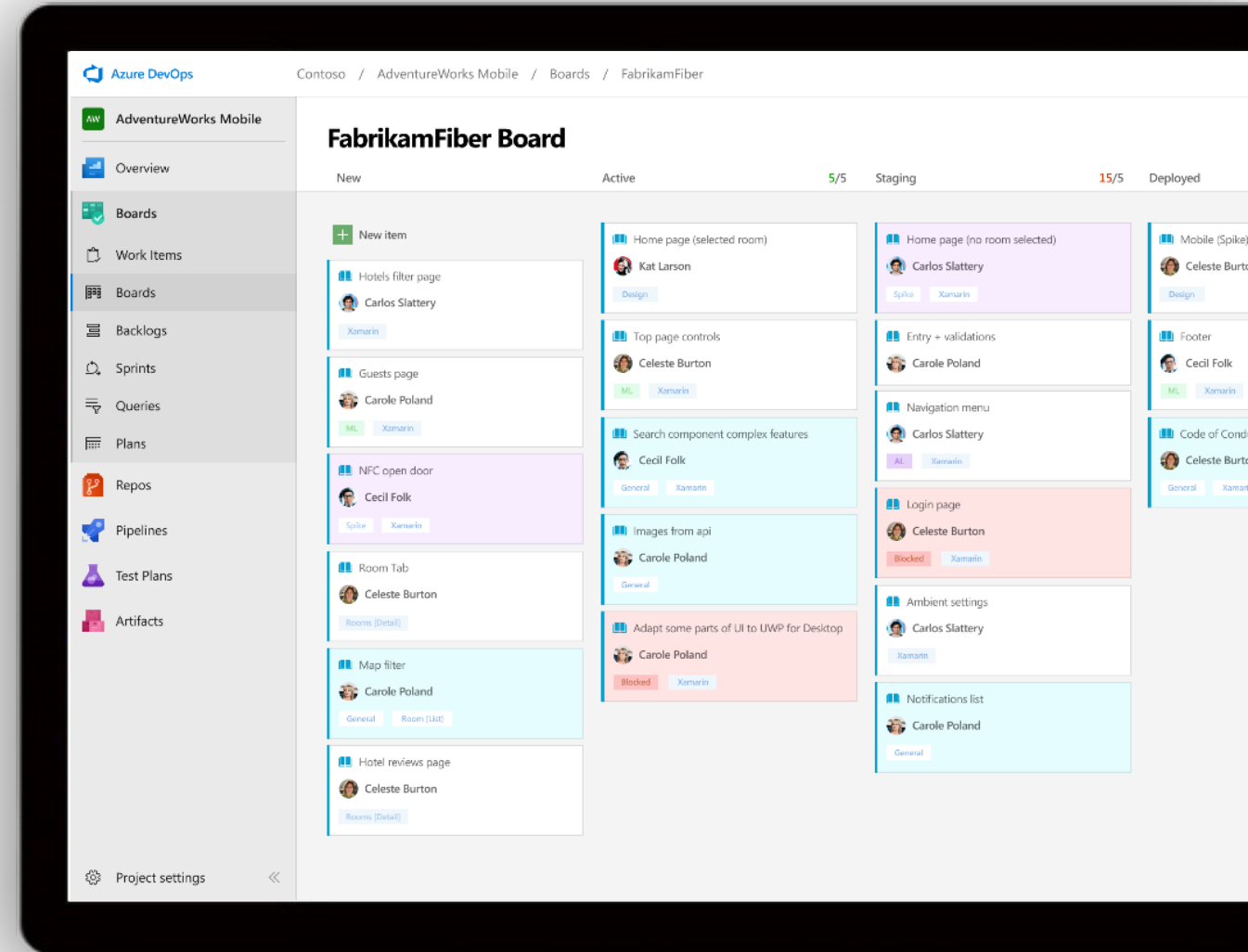


Project insights

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



<https://azure.com/devops>





Azure 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.

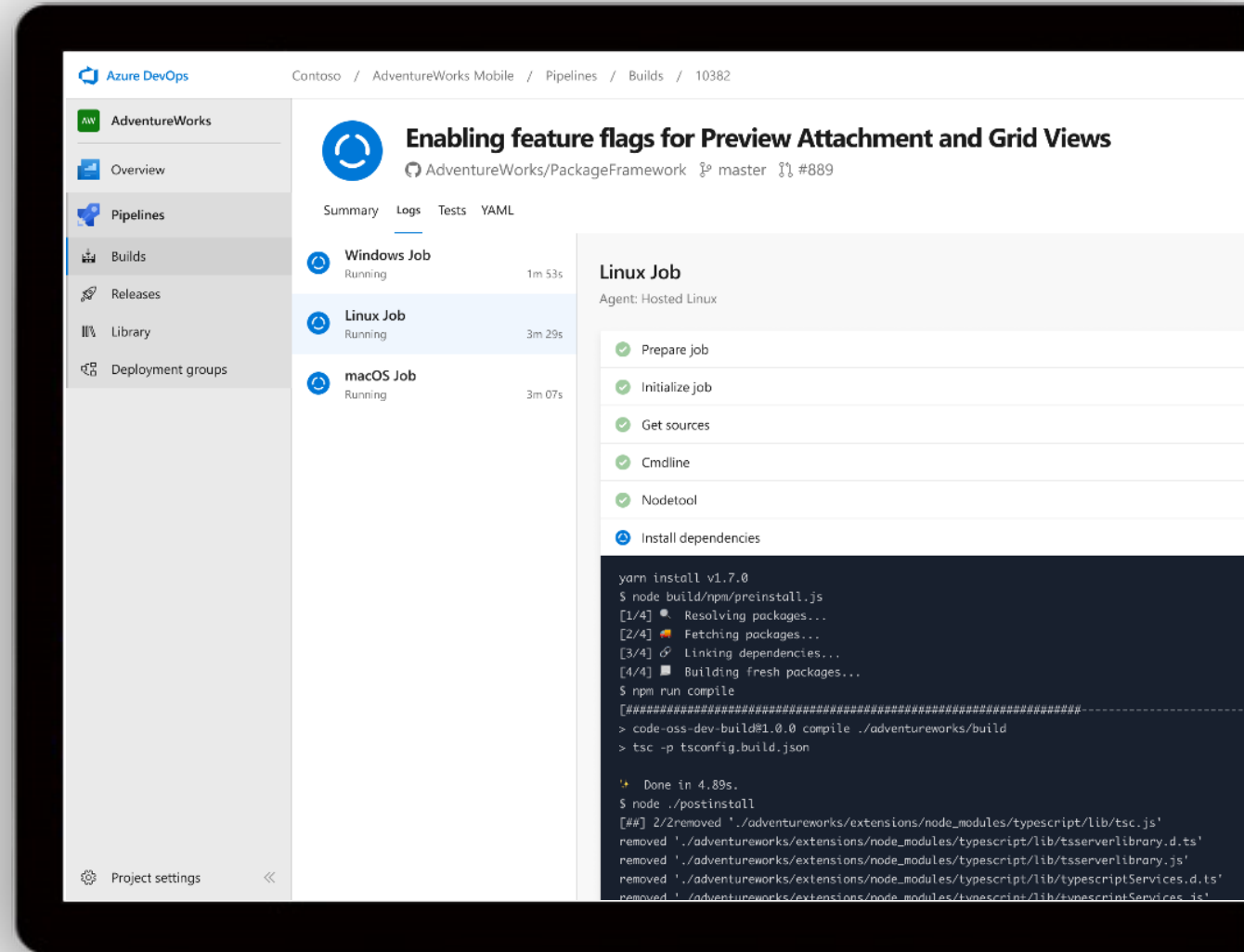


Best-in-class for open source

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>





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.

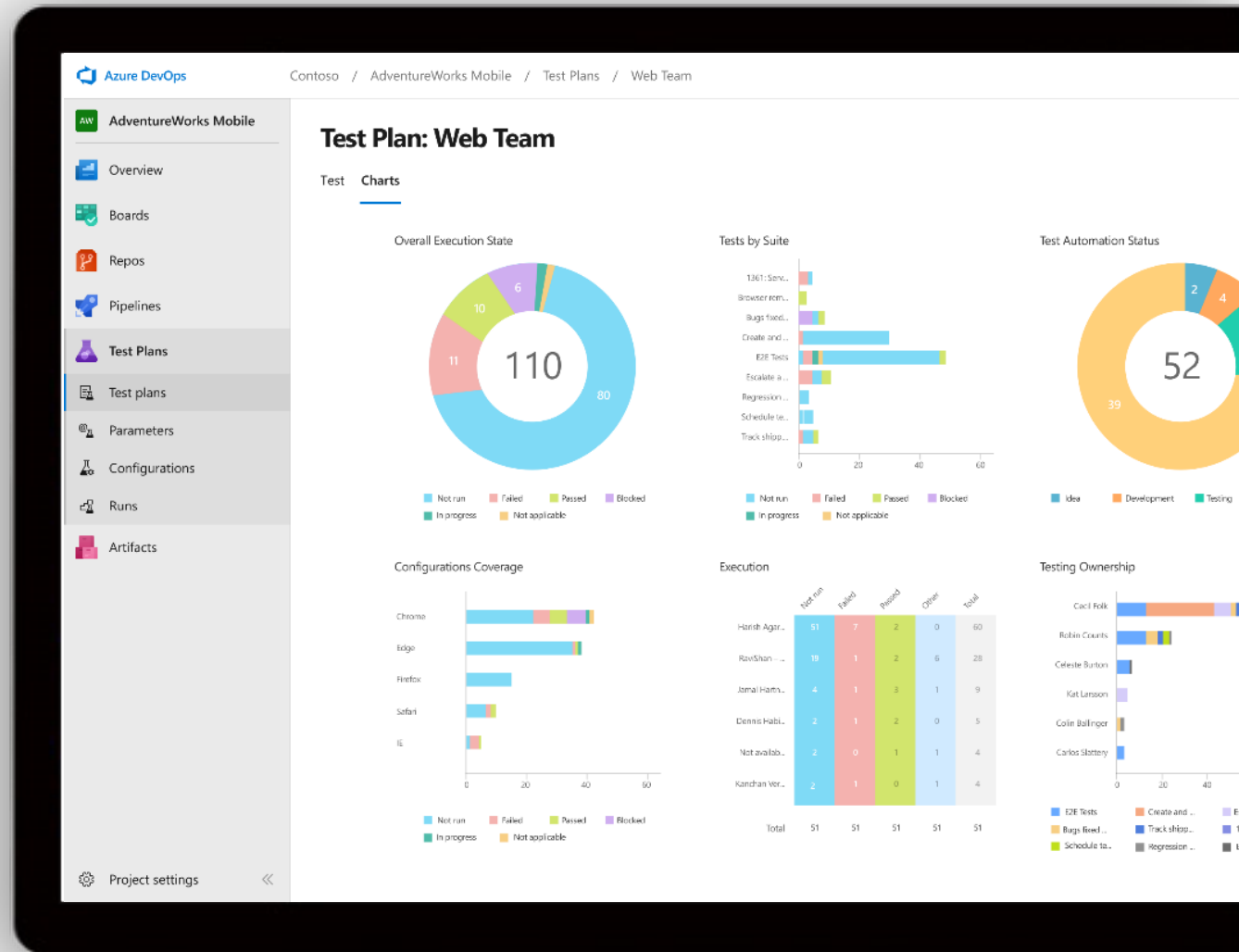


Get end-to-end traceability

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



<https://azure.com/devops>





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.

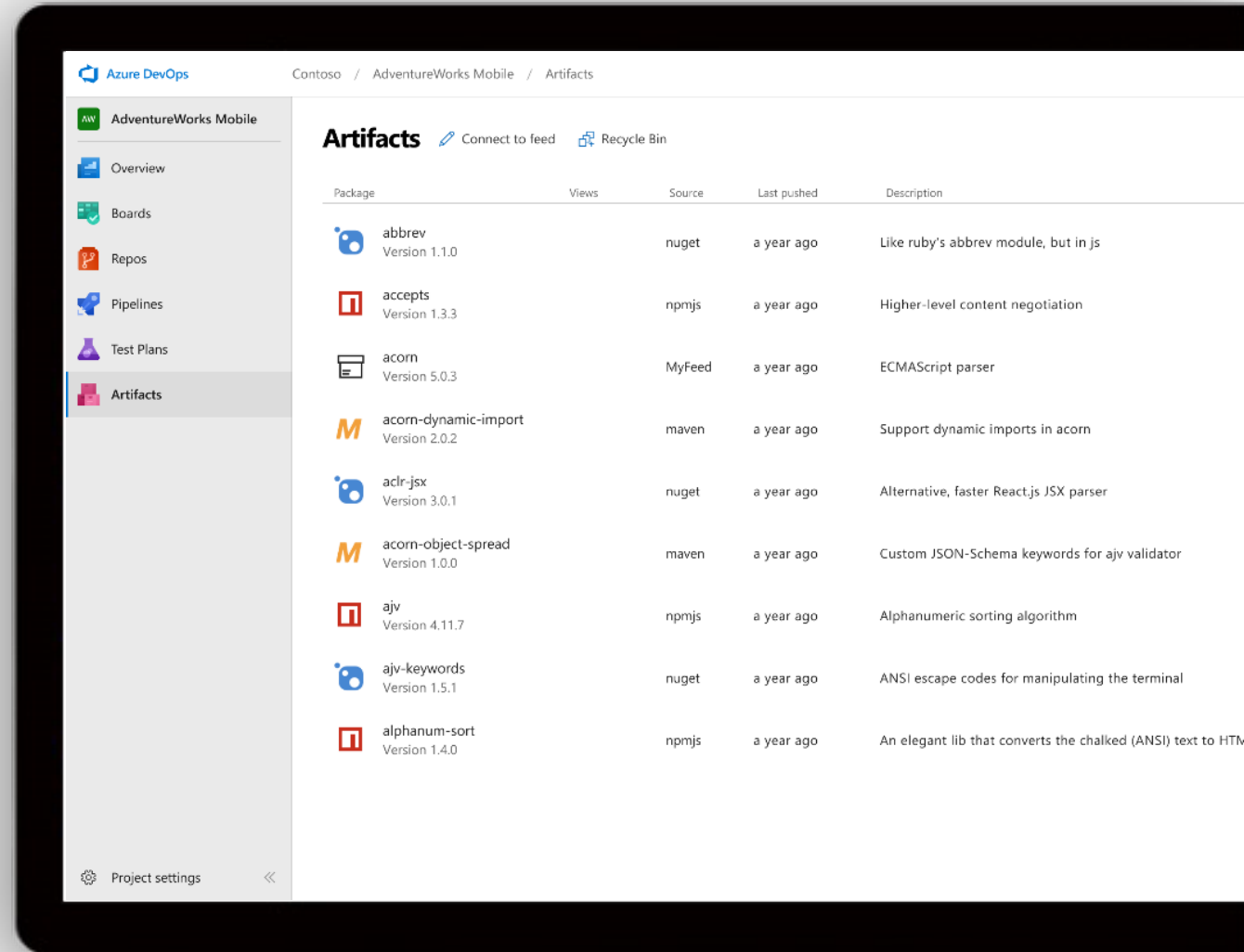


Share code efficiently

Easily share code across small teams and large enterprises.



<https://azure.com/devops>





Early adopters

GitHub projects already powered
by Azure Pipelines for CI



atom/atom



python/cpython



microsoft/vscode



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
GitHub intent to acquire 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



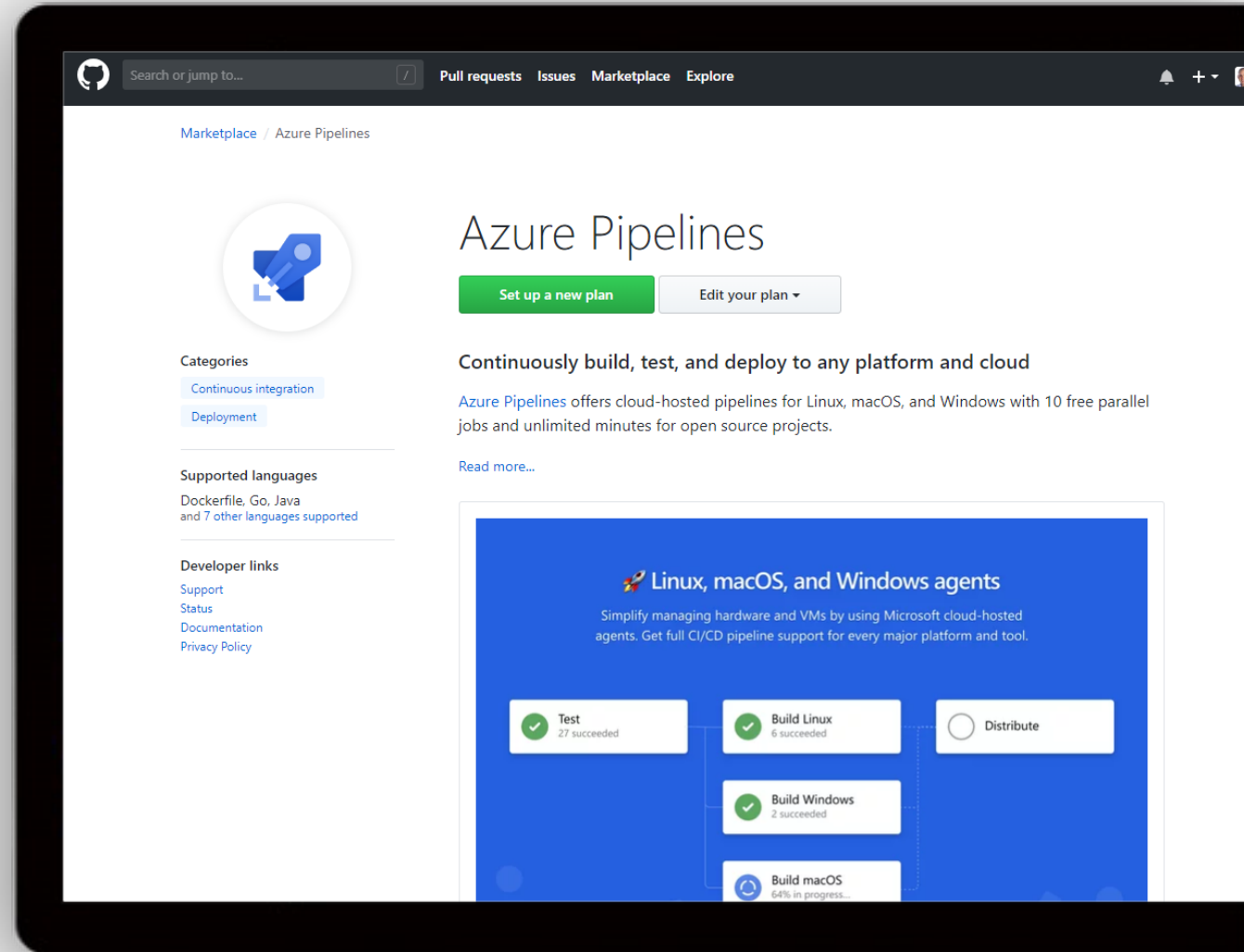
<https://azure.com/pipelines>

Microsoft ❤️ Open Source



Integrated with GitHub

Azure Pipelines available now to
any developer from the GitHub
Marketplace



Azure DevOps

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>

The diagram illustrates Docker as the central component of a DevOps ecosystem. At the center is the Docker logo (a white sailboat on a blue circle). Surrounding this are several concentric light blue circles. Various icons and logos are arranged around the central Docker logo, representing different tools and concepts in the DevOps pipeline:

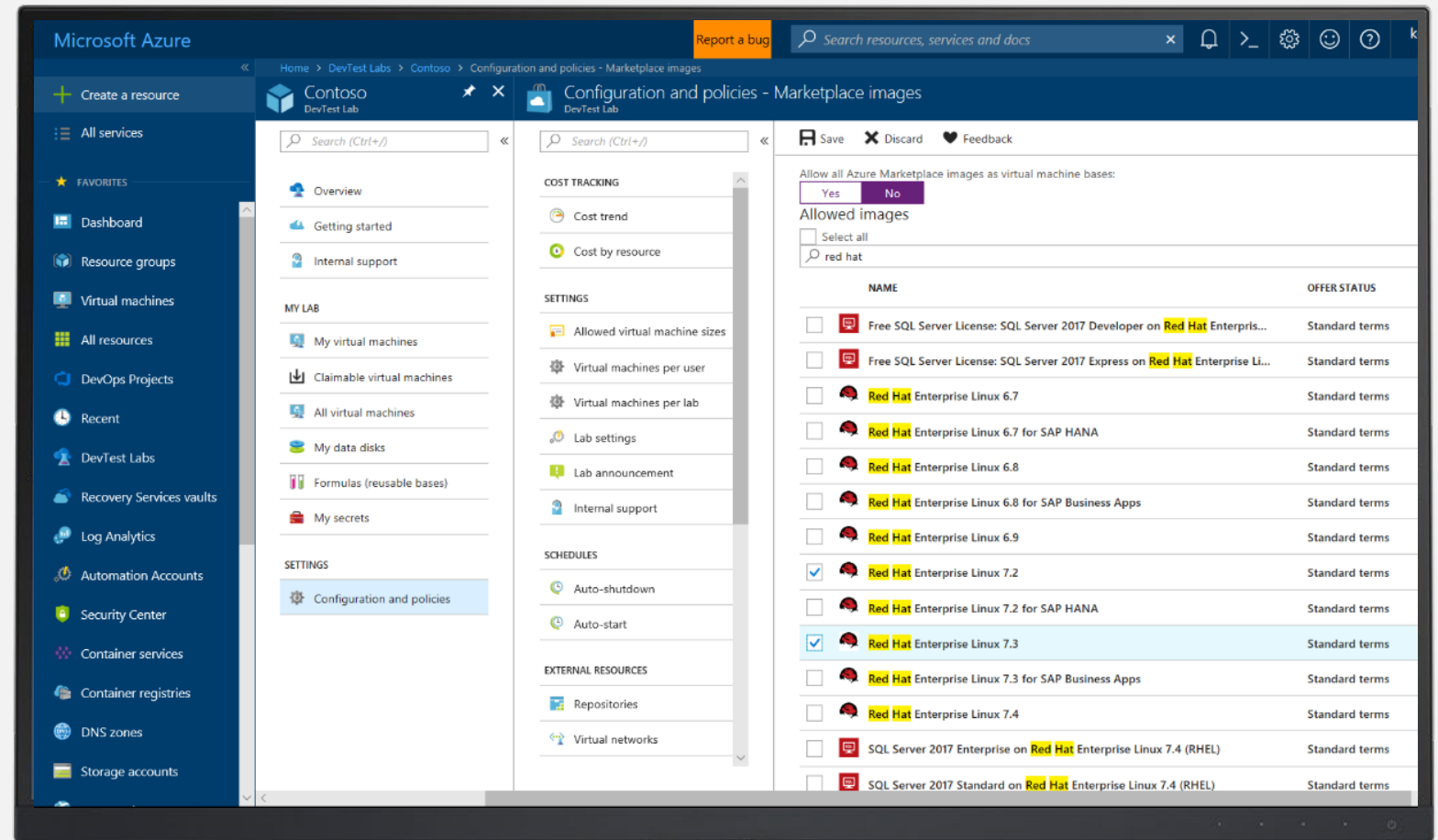
- Top:** A green key icon, a gear with a lightning bolt, and a lightbulb.
- Right:** A green shield with a lock, the Jenkins logo (a cartoon man), and the Terraform logo (a blue 'Y' shape).
- Bottom Right:** The Puppet logo (an orange 'P' shape) and the Chef logo (an orange 'C' shape).
- Bottom:** The Ansible logo (a black circle with a white 'A').
- Bottom Left:** A purple flask icon.
- Left:** A red icon with a white key, a pink server rack icon, and a green checkmark icon.
- Top Left:** A blue icon with a white key and a blue icon with a white bar chart.



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



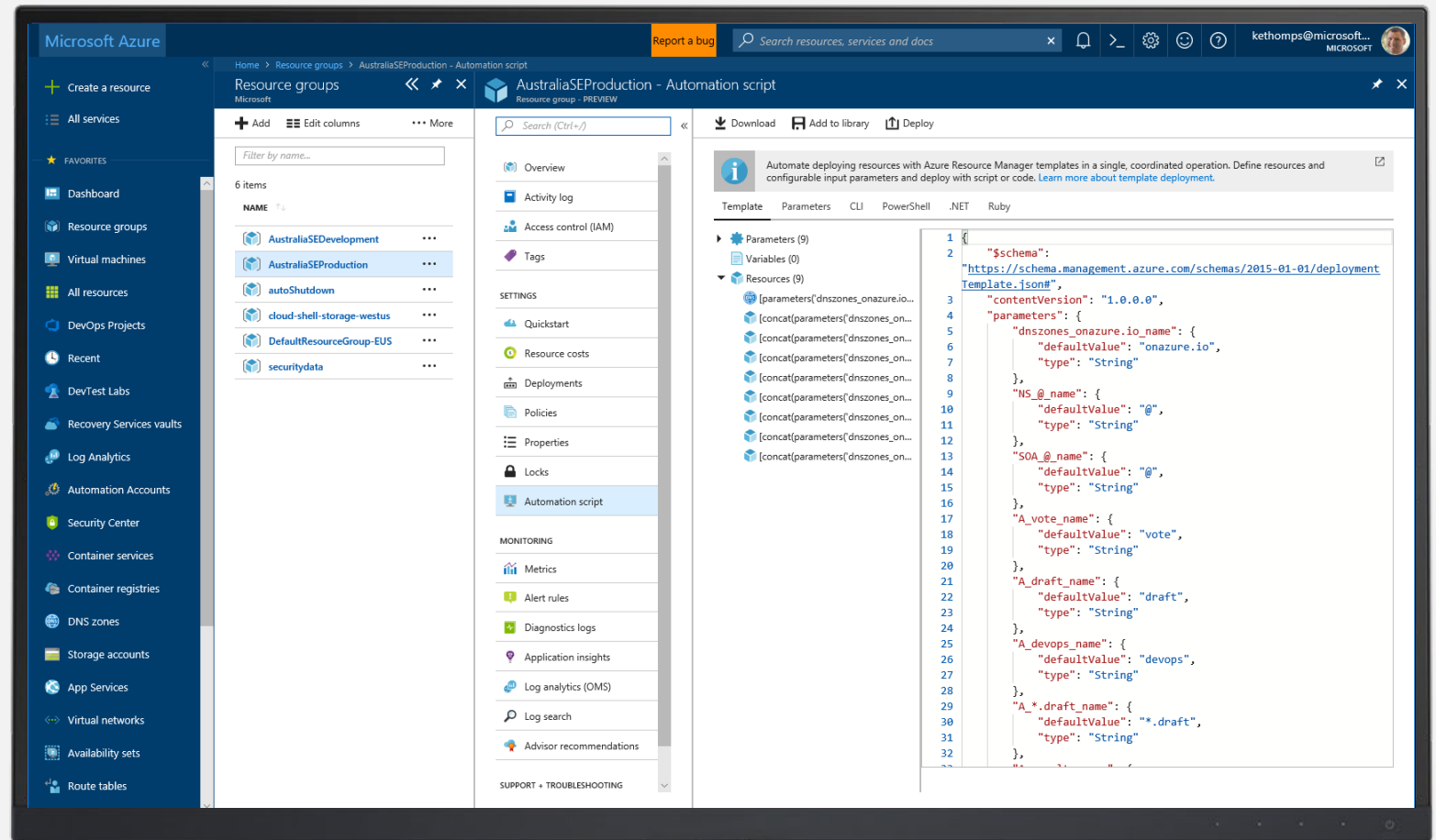
Infrastructure as Code,
built-in



Azure Config & Automation



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

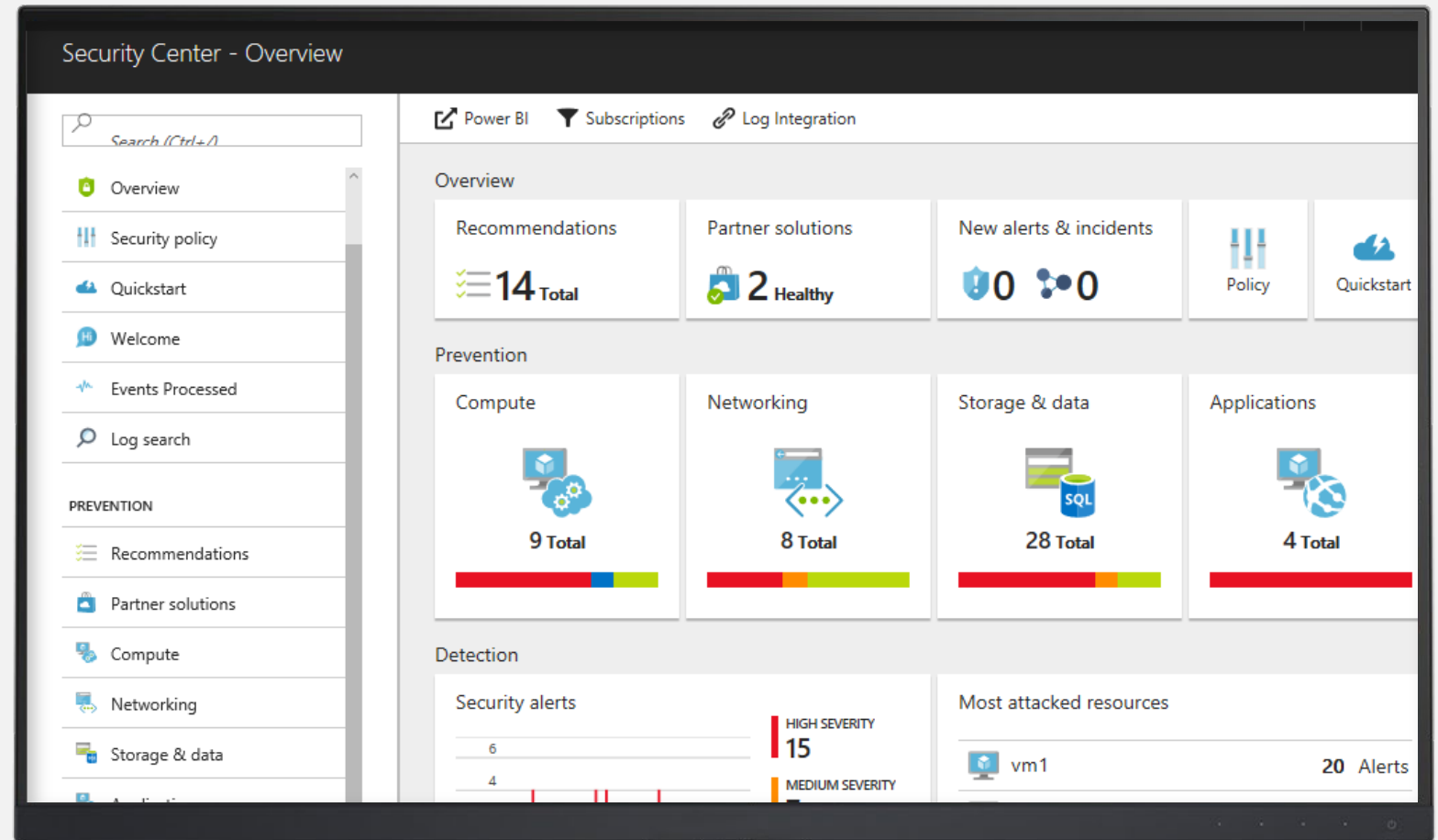




Continuous Security

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

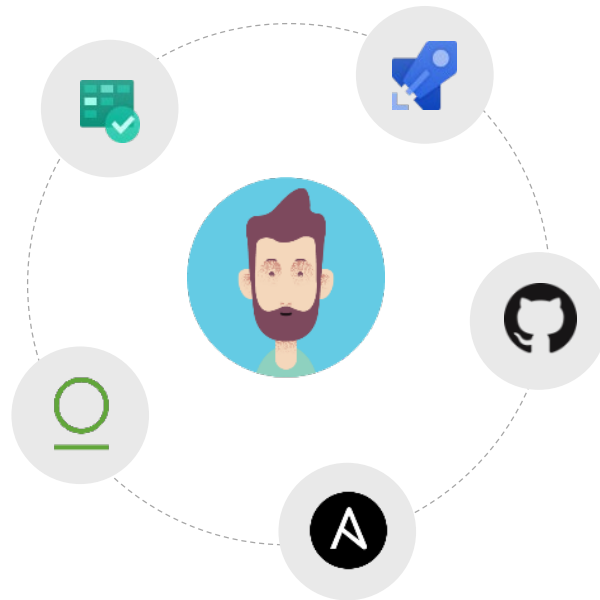
Azure Monitor, Application Insights & Log Analytics

- 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

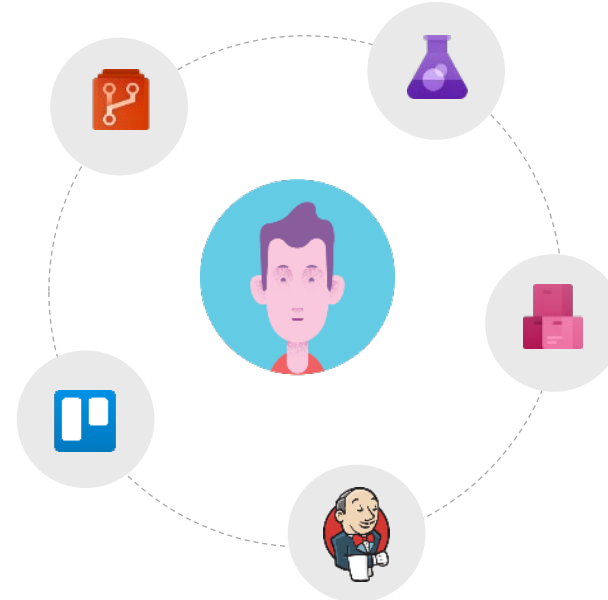


Azure DevOps: Choose the tools and clouds you love

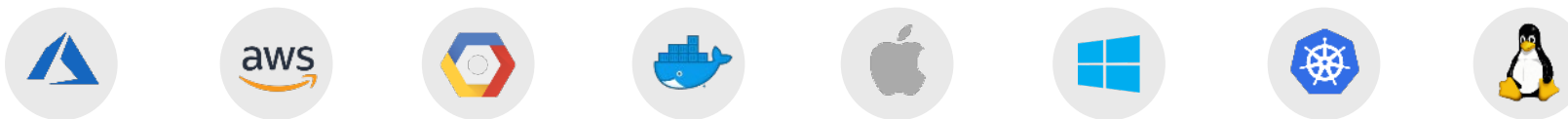
Azure DevOps lets developers choose the tools that are right for them



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



TFS - Prod Config Chan

+

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←

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↺

🏠

🔒

https://dev.azure.com/mseng/VSONline/_releaseProgress?releaseId=5536521&a=release-pipeline-progress

📖

★

☆

🖋

📄

⋮

Azure DevOps

mseng / VSONline / Pipelines

🔍

☰

📁

V

VSONline

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Overview

Boards

Repos

Pipelines

Builds

Releases

Releases*

Library

Task groups

Deployment groups

XAML

WhiteSource Bolt

Test Plans

Artifacts

Project settings

TFS - Prod Config Change > TFS - Prod Config Change 7179

🔗 Help

Pipeline

Variables

History

+ Deploy

⏹ Cancel

↺ Refresh

→ Release (old view)

✎ Edit release

⋮

Release

Manually triggered

by Shady Ibraheem

30/08/2018 21:01

Artifacts

VSO.Release.CI

VSO.Release.CI_M139_20180830.30

🔗 releases/M139

Stages

👤

Ring 0

✓ Succeeded

on 30/08/2018 21:24

👤

Ring 1

✓ Succeeded

on 30/08/2018 21:44

👤

Ring 2

⌚ Pending interventi...

Job 1/2

1/1

tasks

Waiting on Pause Between Rings

⌚ 08:49

▶ Resume

👤

Ring 5

⌚ Not deployed



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

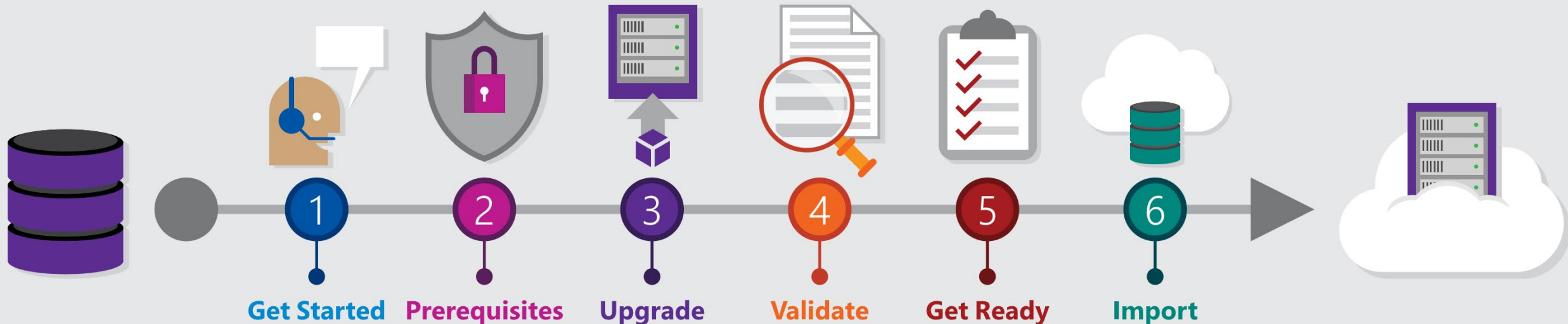
Benefits of Cloud Hosted Azure DevOps Services

- 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>



Azure DevOps Services Pricing

Open Source Projects

Free

Unlimited users and build time

- **Azure Pipelines:** 10 parallel jobs with unlimited minutes for CI/CD
- **Azure Boards:** Work item tracking and Kanban boards
- **Azure Repos:** Unlimited public Git repos

Small Teams

Free

Start free with up to 5 users

- **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 Repos:** Unlimited public Git repos
- **Azure Artifacts:** package management
- Unlimited stakeholders

Teams of any size

Starts at \$6

per user, per month for Boards & Repos*

Easy pricing that grows with your team

- **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 Repos:** Unlimited public Git repos
- **Azure Artifacts:** package management
- 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.



DevOps Pipelines in Minutes

Azure DevOps Projects

- Create a full DevOps pipeline with 3 easy steps from the Azure Portal
- Start with a Git repo and any source language
- Web apps, Kubernetes, soon VMs and more.
- Customize, extend and scale when needed.

The screenshot displays the Azure DevOps Projects interface for a project named 'nodesampleproject'. The top navigation bar includes links for Refresh, Project homepage, Repositories, Build Pipelines, Release Pipelines, Agile Backlogs, Users & Groups, and Delete.

CI/CD Pipeline

- Code**: nodesampleproject (master) - updated style by Alok Agrawal 3 d ago (commit 411c6bfa).
- Build**: nodesampleproject - Build 20171109.1 Succeeded 1 min ago.
- Production**: nodesampleproject - Production In Progress 1 min ago.

Azure resources

- Application endpoint**: <http://nodesampleprojectsite.azurewebsites.net> (Browse).
- App Service**: nodesampleprojectsite (Running).

Application Insights

- nodesampleprojectsite (Monitoring chart showing SERVER REQUEST and FAILED REQUEST over time).

Repository

- nodesampleproject (1 commits in past 7 days) (Code).



Demo

Getting Started

- Sign up for Azure DevOps (<https://azure.com/devops>)
- Demo Project Generators - <https://azureddevopsdemogenerator.azurewebsites.net/>
- Play with Azure DevOps
- Integrate with GitHub for Public repositories – Very easy to do!!
- Check out and follow the Azure DevOps Blog - <https://azure.microsoft.com/en-us/blog/topics/devops/>
- Service Blog - <https://blogs.msdn.microsoft.com/vsoservice>

Call to Action

- Look at Azure DevOps (<https://azure.com/devops>)
- Look at TFS Migration (<https://aka.ms/tfsimport>)
- Talk to Black Marble on how we can help you with any part of adoption
- Play with Azure DevOps

Microsoft
Partner



Gold Application Development
Gold Application Integration
Gold Cloud Platform
Gold Collaboration and Content
Gold DevOps

Other Events @ Black Marble

What's New in Azure DevOps – ½ day - October 24th

Next Generation Business Productivity with Office 365 and Teams – ½ day - October 25th

Modernising Enterprise Information Architecture – ½ day - November 21st

Architecture Forum in the North – full day – December 12th

Details and sign up are at <http://www.blackmarble.com/events/>

Interested in PowerShell?

User groups in the UK - Leeds & Manchester
coming soon! – <https://powershell.org.uk>

Slack team sign up –
<https://slofile.com/slack/get-psuguk>

Slides at <https://github.com/kilasuit/presentations>



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blogs.blackmarble.co.uk



Black Marble

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Microsoft MVP
(Cloud and Datacentre Management)





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Black Marble Ltd.



Black Marble



**black
marble**

**Microsoft
Partner**



Gold Application Development
Gold Application Integration
Gold Cloud Platform
Gold Collaboration and Content
Gold DevOps