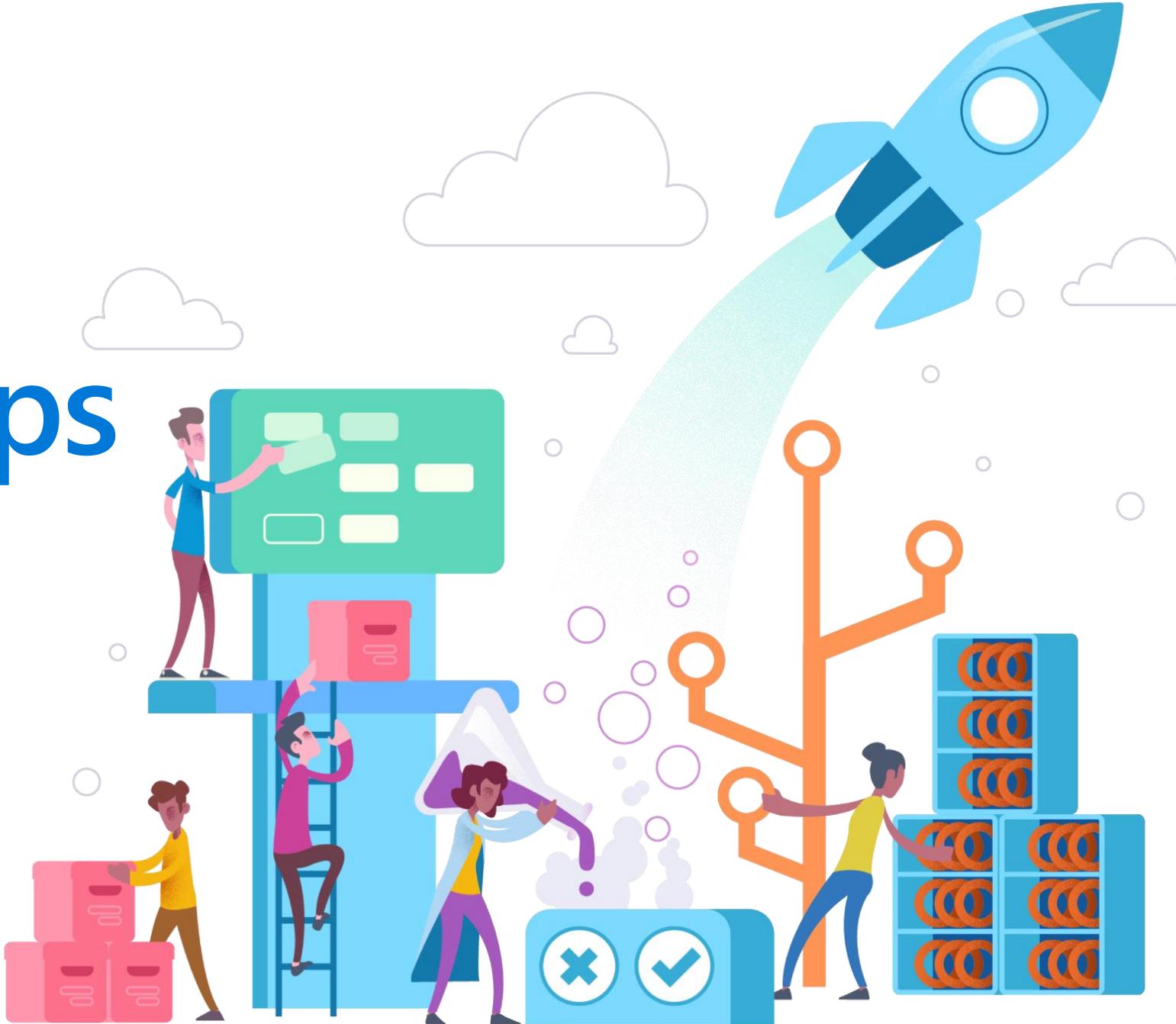


Azure DevOps

Randy Pagels

Azure Specialist - Application Development
US Great Lakes Region



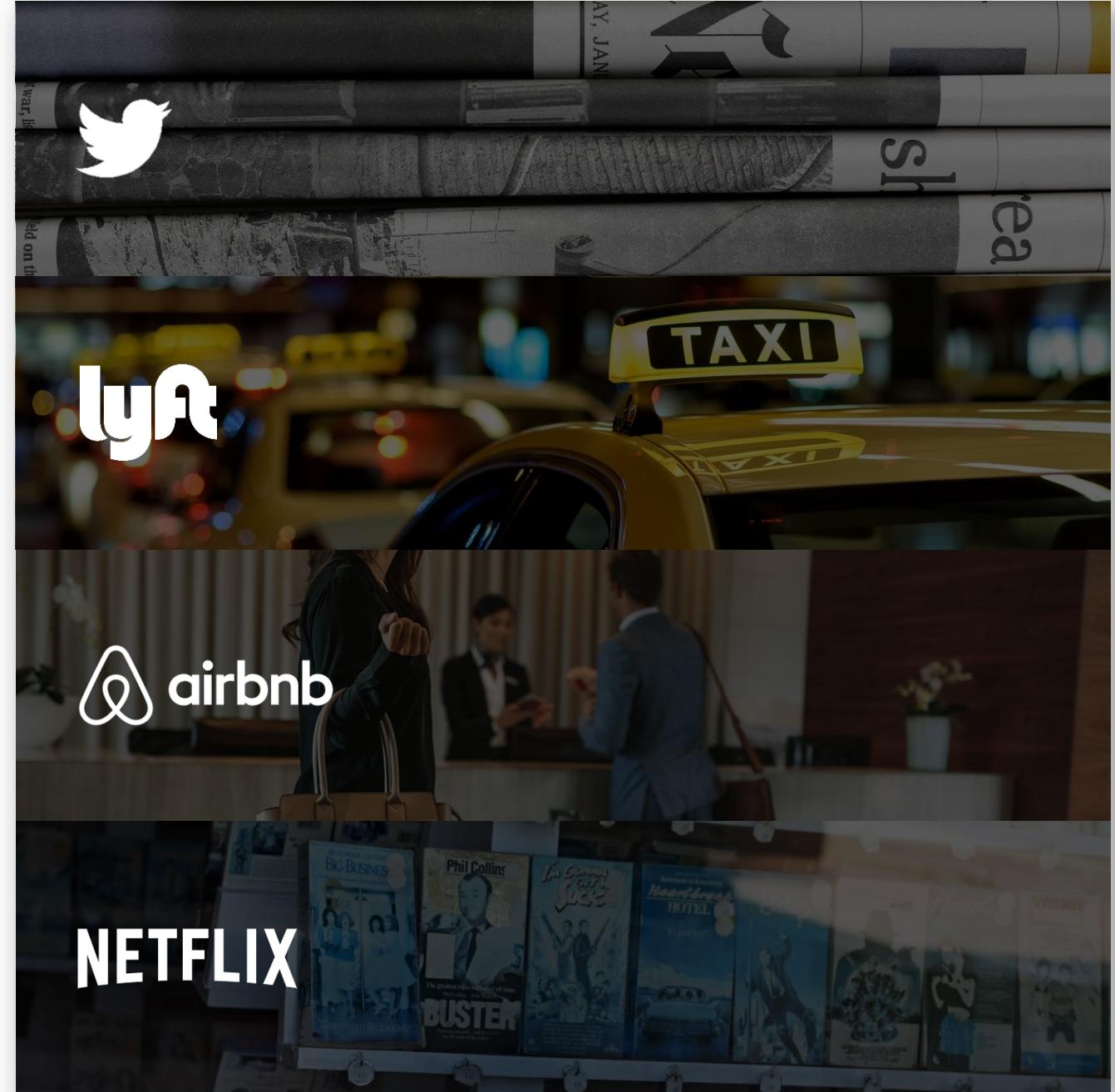
The Challenge

50% of Fortune 500 in 2000 now **replaced** by organizations that **use technology** to deliver customer value **faster, better, and cheaper**

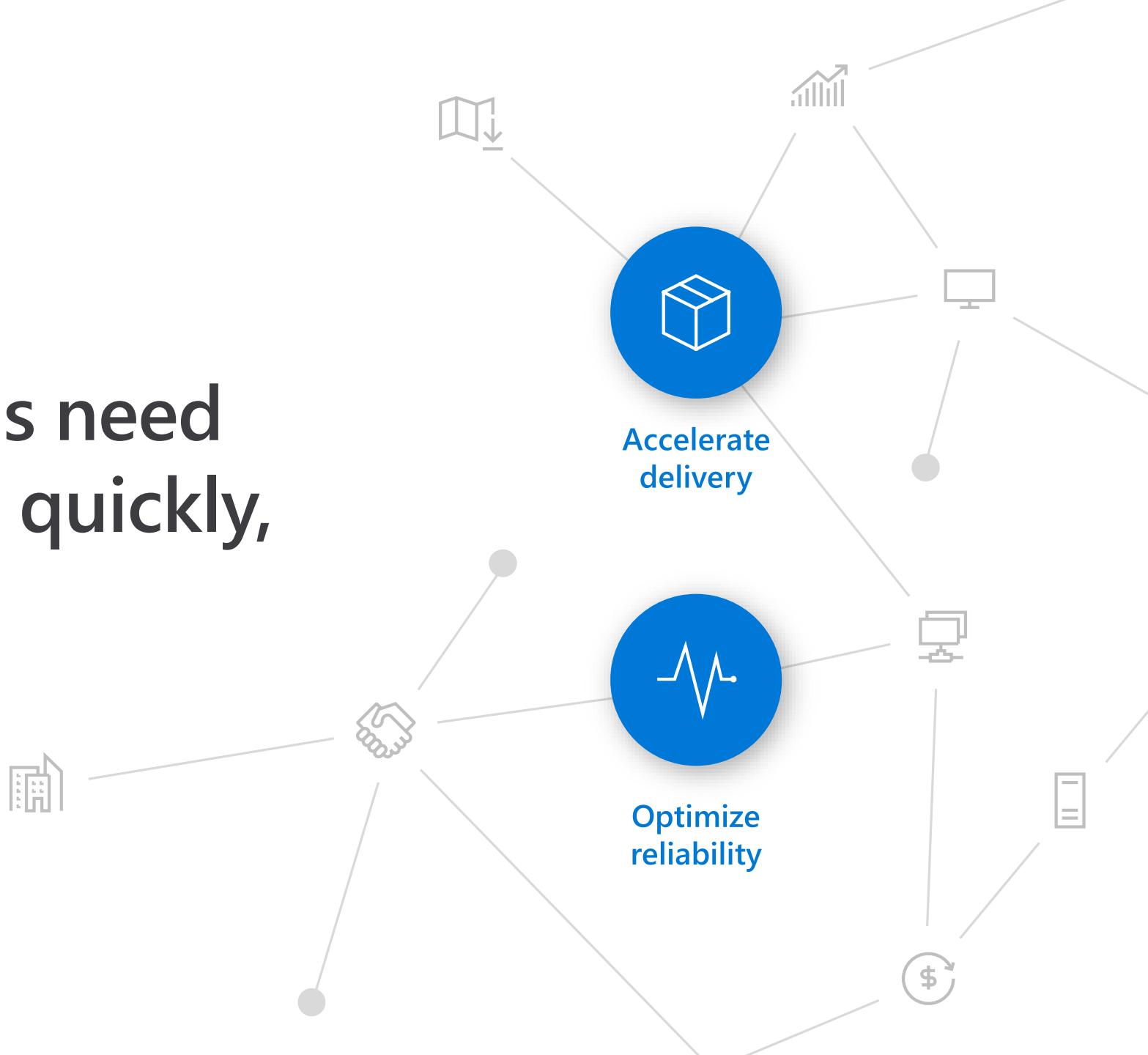
The Fortune 500 of today face the same challenge tomorrow

Innosight

Corporate Longevity: Turbulence Ahead for Large Organizations

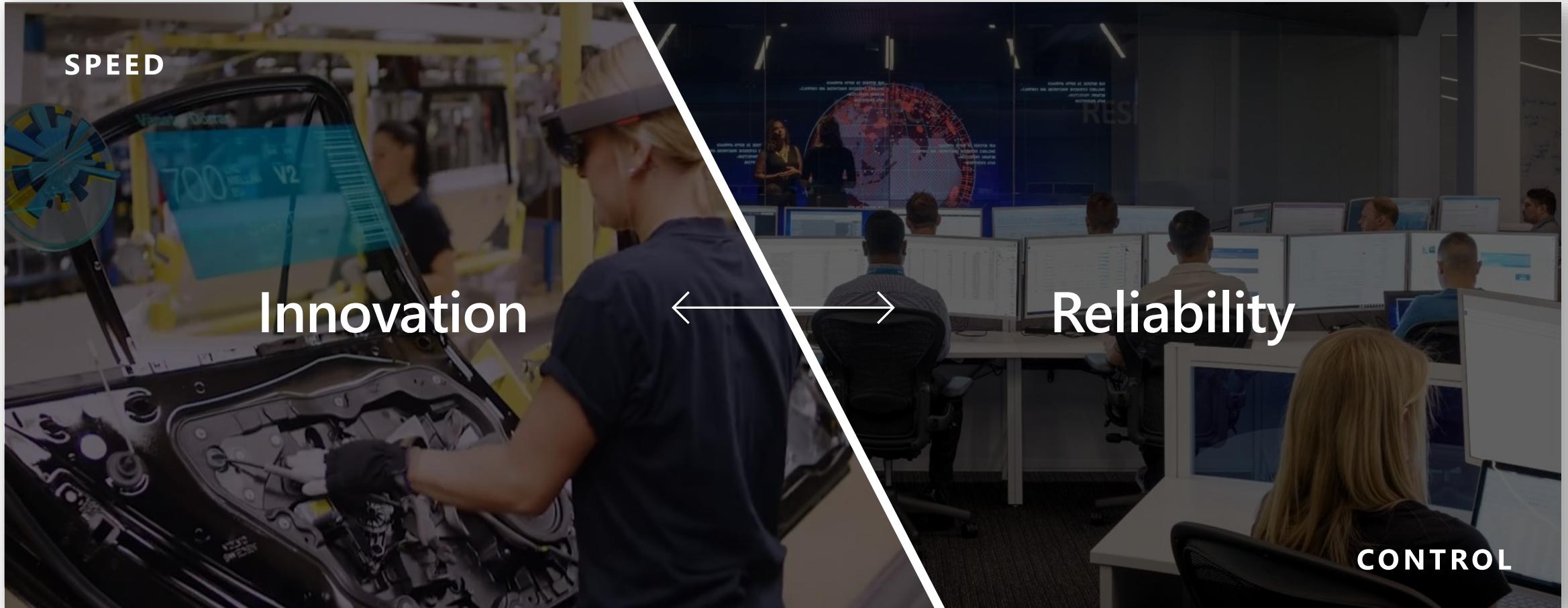


Product innovations need
to reach customers quickly,
and stay available

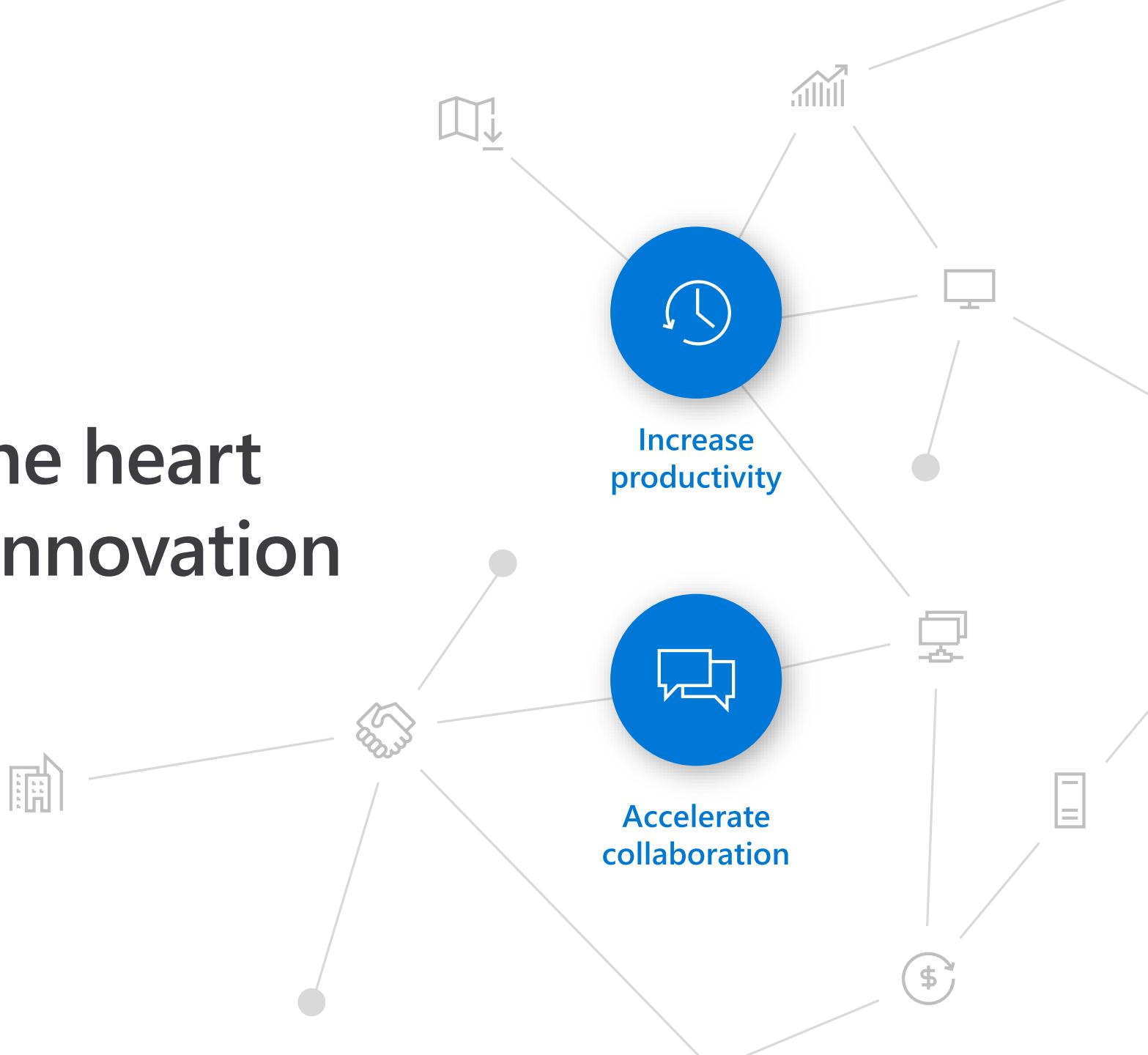


Software delivery paradox

Speed vs. control impedes innovation



Developers are at the heart of your company's innovation



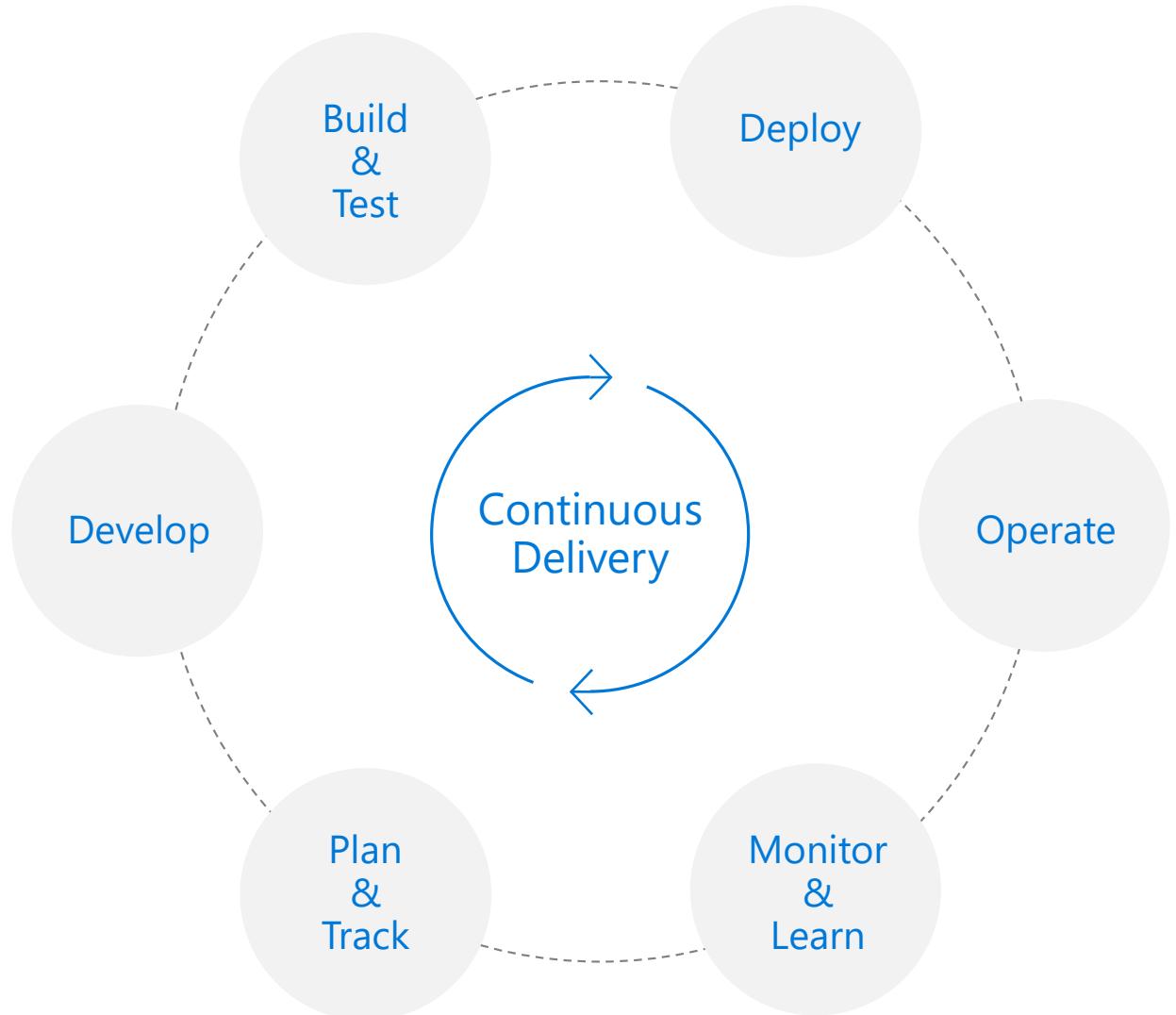
What is DevOps?

People. Process. Products.

“

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

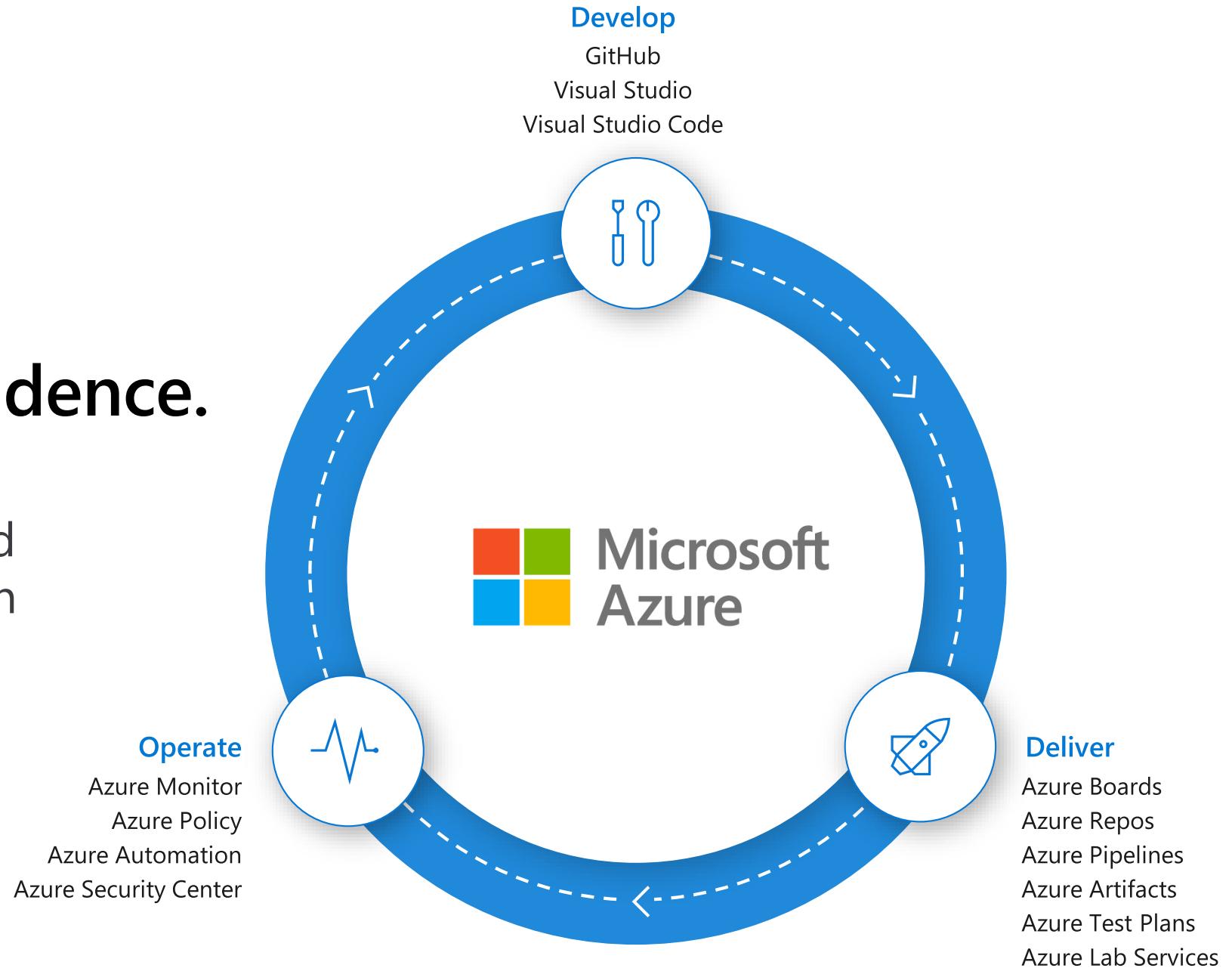
”



Our Solution

Innovate at scale. Deliver with confidence.

Microsoft Azure is the cloud
with DevOps tooling built in





Deliver with Azure DevOps



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

DevOps at Microsoft

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

→ <https://aka.ms/DevOpsAtMicrosoft>

442k

Pull Requests per month

4.6m

Builds per month

25k

Work items created/day

500k

Work items updated/day

2.4m

Private Git commits per month

3.5k

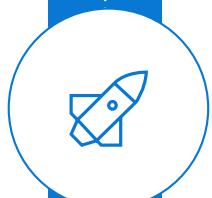
Open Source Repos

12k

Employees contributing to open source

82,000

Deployments per day



Deliver



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

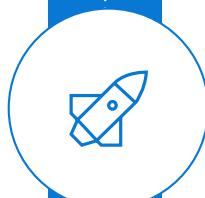
The screenshot shows the Azure DevOps Boards interface for the 'FabrikamFiber' project. The board is organized into columns: New (5/5), Active (15/5), Staging (3/3), and Deployed (3/3). The Active column contains work items such as 'Home page (selected room)', 'Top page controls', 'Entry + validations', 'Navigation menu', 'Search component complex features', 'Login page', 'Ambient settings', and 'Notifications list'. Each item has a small icon, a title, a description, and a status indicator (e.g., 'Design', 'Blocked'). The interface includes a sidebar with links to Overview, Boards, Work Items, Backlogs, Sprints, Queries, Plans, Repos, Pipelines, Test Plans, and Artifacts.

Connecting ideas to releases

Scrum ready to help your teams run sprints, stand-ups, and plan work

Integrated with GitHub commits and pull requests

Insights into project status and health



Deliver



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

Azure DevOps

Contoso / AdventureWorks Mobile / Repos / Pull requests

Pull requests

Mine Active Completed Abandoned

Filter by keyword or ID

Created by me

- Initialize client with client.init Kat Larsson requested #238 into master 3 minutes ago 1 vote
- Testing configuration settings Kat Larsson requested #230 into features/config 1 hour ago
- Check returned identity for null status Colin Ballinger requested #212 into master 15 minutes ago new pull request
- [WIP] Add tests for deployment mapping Robin Counts requested #221 into master 7/9/2018 1 update, 2 others
- Add exception on disconnect Colin Ballinger requested #249 into master 2 minutes ago new pull request
- Maintain structure when converting isomorphs Robin Counts requested #234 into master 15 minutes ago
- Hotfix payload to releases/99 Robin Counts requested #201 into releases/99 20 minutes ago 2 updates

Assigned to me

Assigned to my team

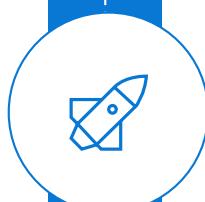
Project settings

Private Git and TFVC repos for your teams

Code review via branch pull requests

Branch policies and build validation

Easy migration path to / from GitHub



Deliver



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

The screenshot shows the Azure DevOps Pipelines interface for the 'AdventureWorks/PackageFramework' repository. The pipeline consists of three parallel jobs: 'Windows Job' (Running, 1m 53s), 'Linux Job' (Running, 3m 29s), and 'macOS Job' (Running, 3m 07s). Each job has a series of steps: 'Prepare job', 'Initialize job', 'Get sources', 'Cmdline', 'Nodetool', and 'Install dependencies'. The 'Install dependencies' step for the Linux job shows a command-line log output for a Node.js build, including 'yarn install v1.7.0', 'node build/npm/preinstall.js', and 'Done in 4.89s.'

Cloud-hosted pipelines for Linux, macOS and Windows

Any language, any platform, any cloud

Native support for containers and Kubernetes

Best-in-class for open source





Deliver



Azure Boards



Azure Repos



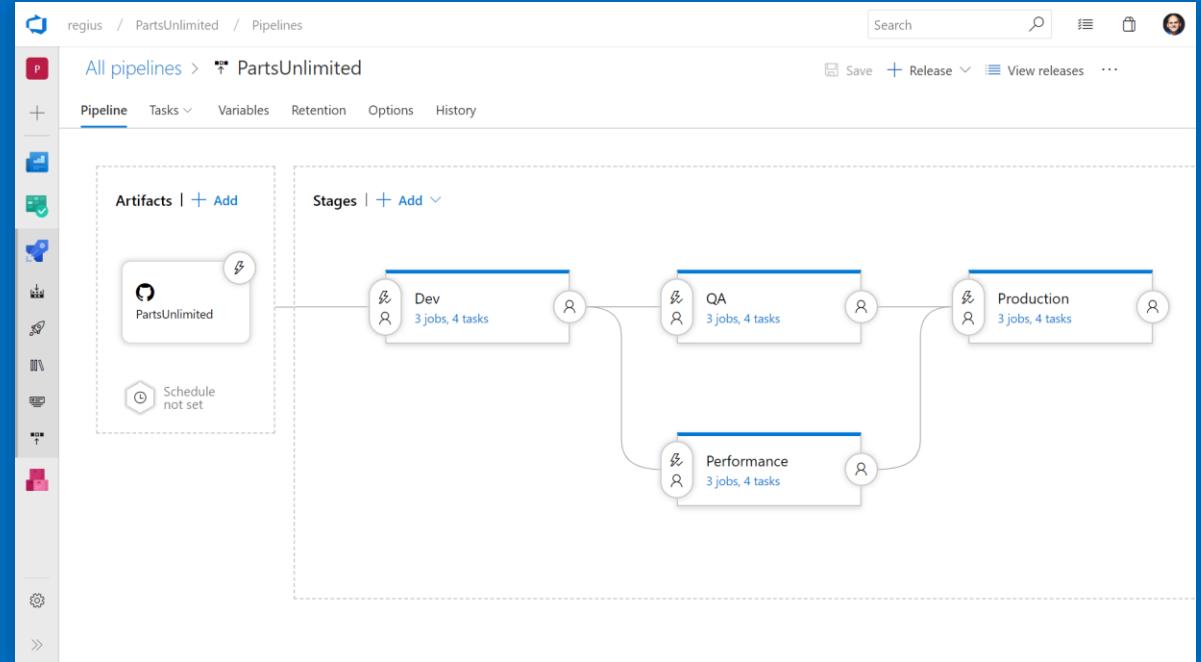
Azure Pipelines



Azure Artifacts



Azure Test Plans

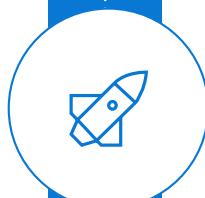


Deploy to on-premises, ANY cloud or a hybrid of cloud and on-prem

Staged environment releases

Pre and post deployment approvals with gates to automate approval based on conditions





Deliver



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

The screenshot shows the Azure DevOps Artifacts interface. The left sidebar includes links for Overview, Boards, Repos, Pipelines, Test Plans, and Artifacts. The main content area is titled "Artifacts" and shows a list of packages with columns for Package, Views, Source, Last pushed, and Description. The packages listed are:

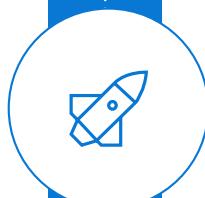
Package	Views	Source	Last pushed	Description
abbrev	nuget	a year ago	Like ruby's abbrev module, but in js	
accepts	npmjs	a year ago	Higher-level content negotiation	
acorn	MyFeed	a year ago	ECMAScript parser	
acorn-dynamic-import	maven	a year ago	Support dynamic imports in acorn	
aclr-jsx	nuget	a year ago	Alternative, faster React.js JSX parser	
acorn-object-spread	maven	a year ago	Custom JSON-Schema keywords for ajv validator	
ajv	npmjs	a year ago	Alphanumeric sorting algorithm	
ajv-keywords	nuget	a year ago	ANSI escape codes for manipulating the terminal	
alphanum-sort	npmjs	a year ago	An elegant lib that converts the chalked (ANSI) text to HTML.	

Share code efficiently

Keep your Maven, npm, NuGet and Python packages and more in the same place

Aggregate from public registries and internal teams

Publish and track from any pipeline



Deliver



Azure Boards



Azure Repos



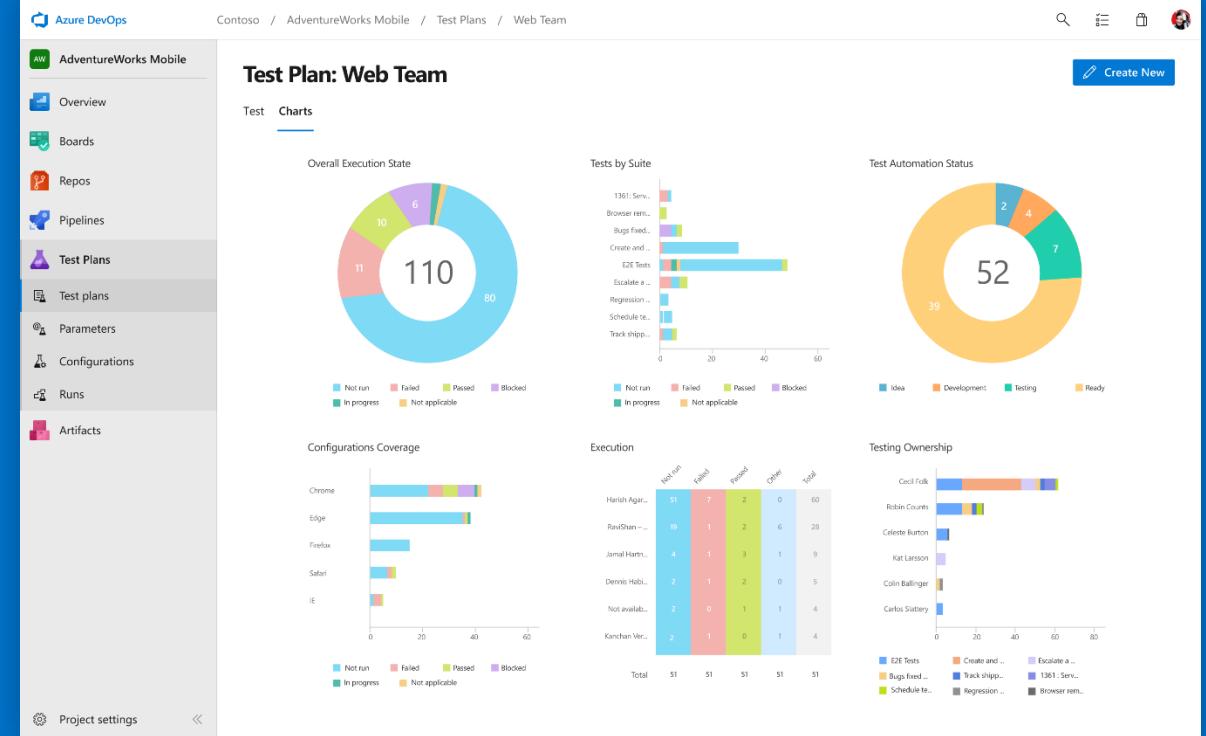
Azure Pipelines



Azure Artifacts



Azure Test Plans



Run tests and log defects from your browser

Track and assess quality throughout your lifecycle

Capture rich data for reproducibility

Create tests directly from exploratory sessions

Demo:
Azure DevOps Project with Azure DevOps



Deliver with



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans

GitHub

GitHub brings the **premier** social coding workflows to your team, breaking down silos and enabling Inner Source through:

- Expertise sharing
- Cross-team collaboration
- Improved code reuse
- Increased velocity



GitHub

The #1 developer
community on the planet

Most contributions **1.1B in 2018**

Most developers **33M**

Most Repos **100M**

Most secure **5M vulnerability alerts in 2018**

Home to the most
important and popular
open source projects
on the planet





Azure DevOps Integrated with GitHub

Rich integration with Azure Pipelines
and Azure Boards

A screenshot of a laptop screen displaying the GitHub Marketplace. The URL in the address bar is 'Marketplace / Azure Pipelines'. The page features a large 'Azure Pipelines' logo with a blue rocket icon. Below it are two buttons: 'Set up a new plan' (green) and 'Edit your plan ▾'. A descriptive text block says: 'Continuously build, test, and deploy to any platform and cloud. Azure Pipelines offers cloud-hosted pipelines for Linux, macOS, and Windows with 10 free parallel jobs and unlimited minutes for open source projects.' There is a 'Read more...' link. At the bottom, there is a large blue box titled 'Linux, macOS, and Windows agents' with sub-sections for 'Test', 'Build Linux', 'Build Windows', and 'Build macOS'.



Azure Pipelines

Free **unlimited** build minutes for
public projects

Up to 10 free parallel jobs across
Windows, Linux and macOS

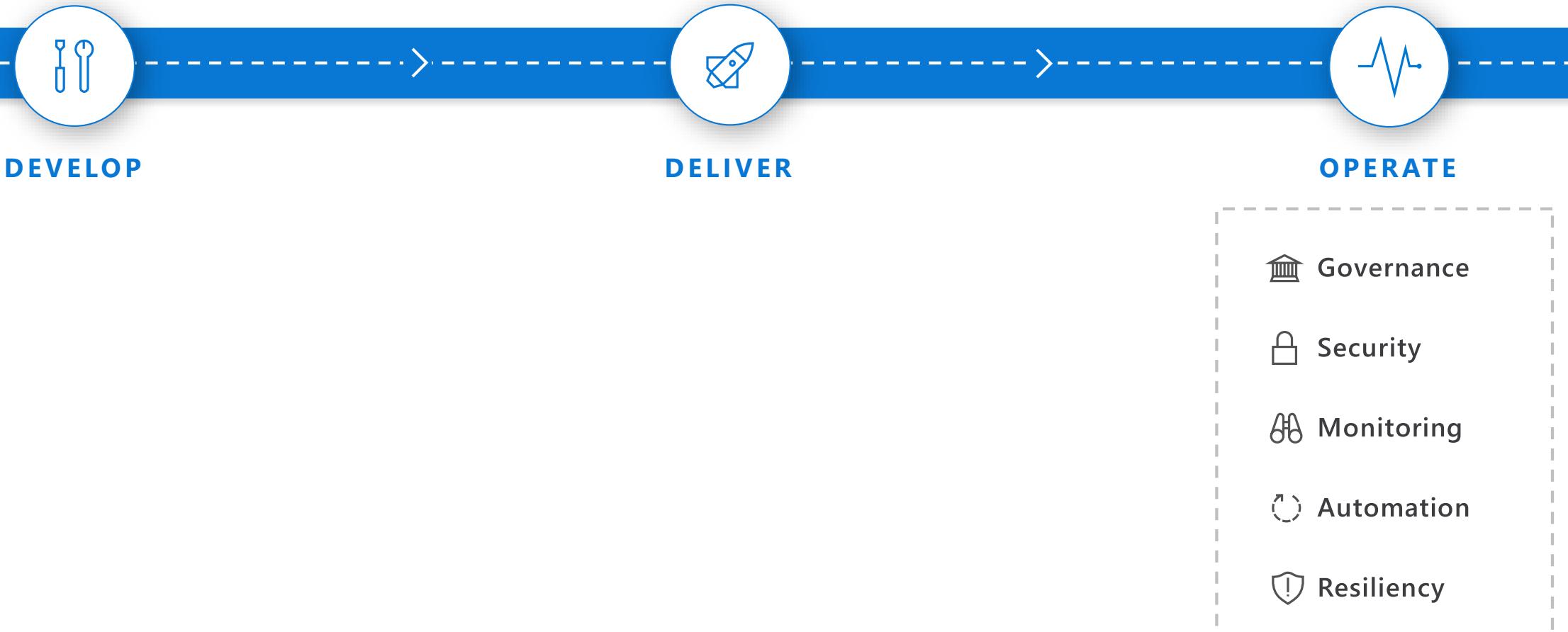


<https://azure.com/pipelines>

Microsoft ❤️ Open Source

Demo:
Azure DevOps with GitHub

Reactive operations



Moving to proactive operations with Azure

“Shifting left”



DEVELOP



DELIVER



OPERATE

 Resiliency

 Monitoring

 Security

 Governance

 Automation

Deploy continuously and compliantly

Enterprise-grade security, monitoring, and management services built-in



Governance

Proactively apply policies and enable compliant releases

Azure Policy & Blueprints



Security

Industry leading Security with Advanced Threat Protection

Azure Security Center



Resiliency

High availability and protection for VMs, apps and data

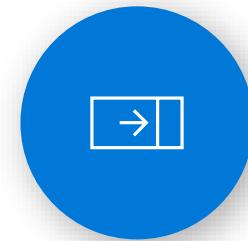
Azure Backup & Site Recovery



Monitoring

Deep operational insights with rich intelligence

Azure Monitor



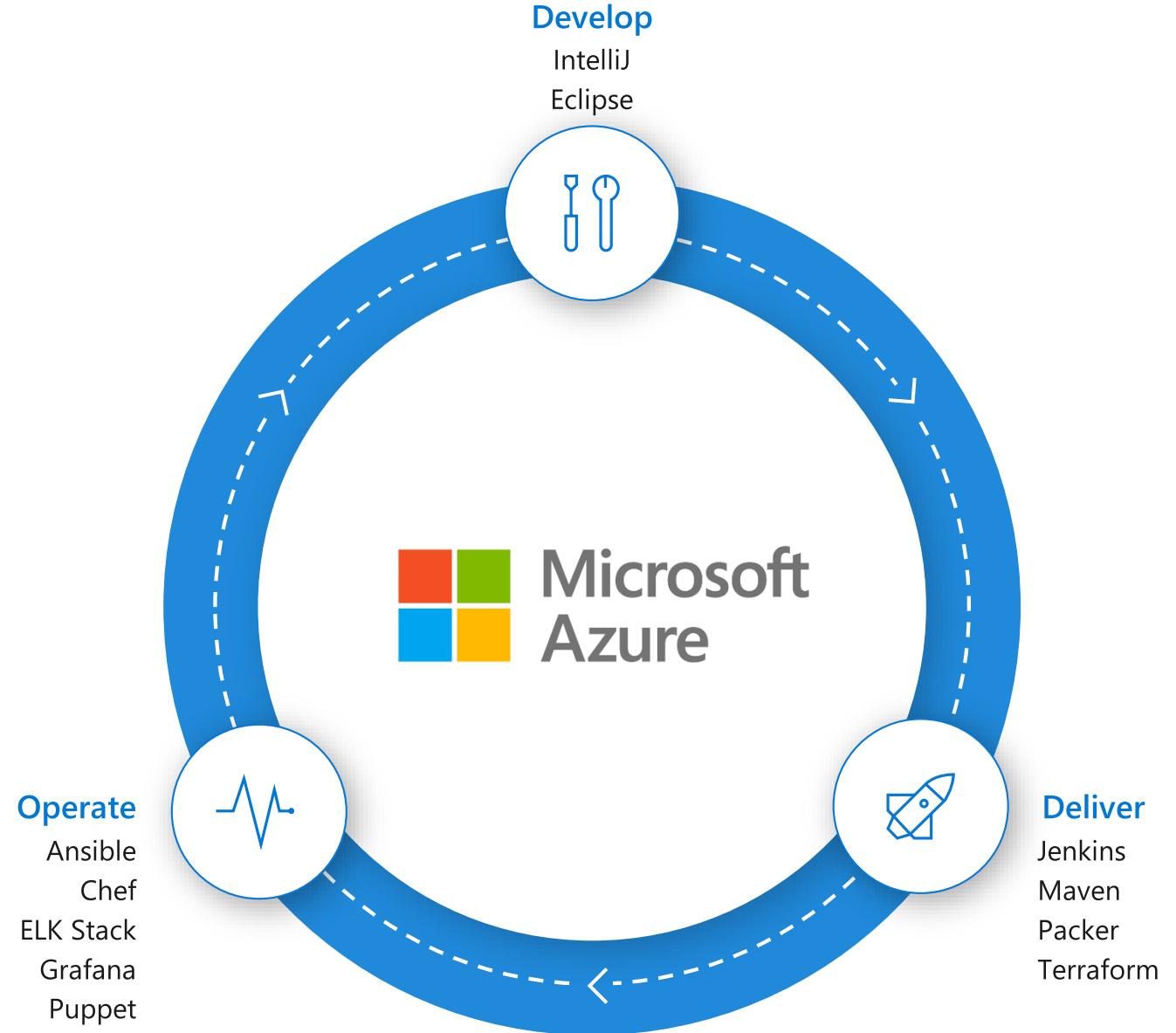
Automate

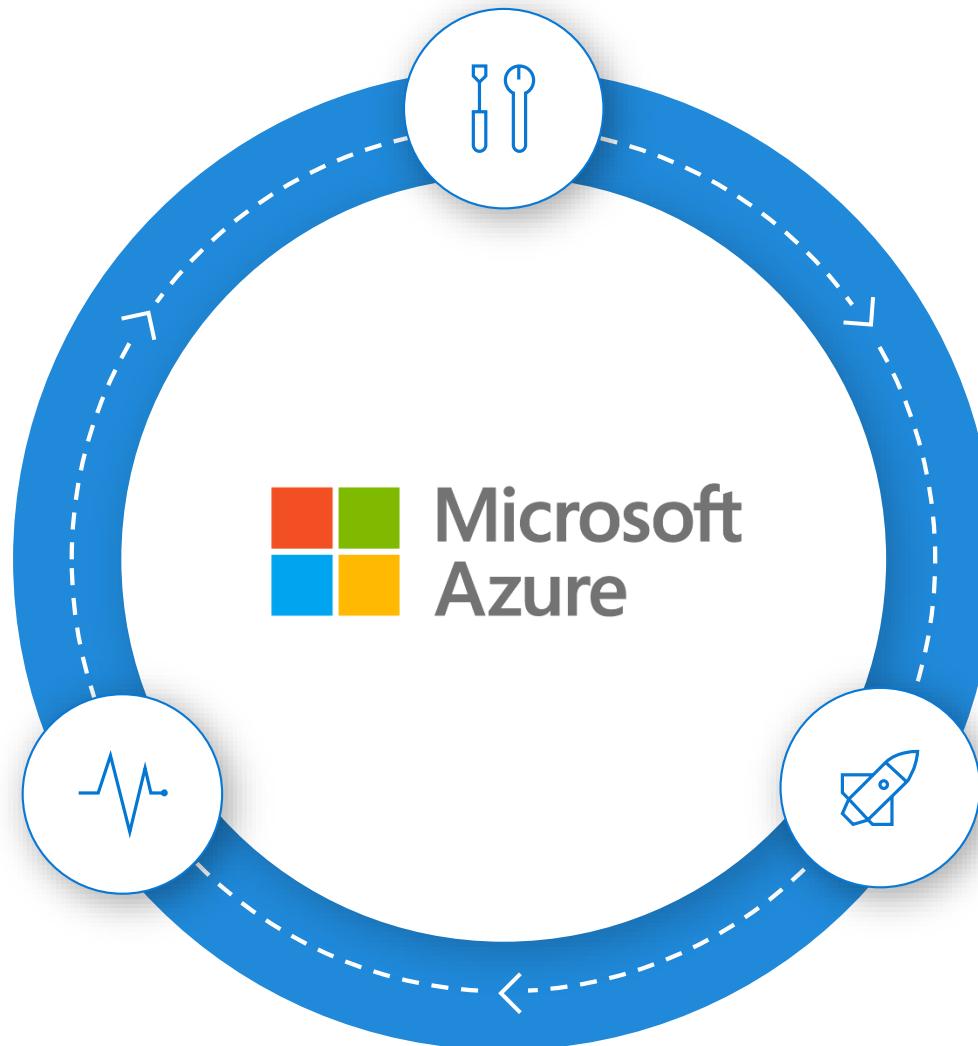
Powerful scripting, configuration and update management

Azure Automation

Use the tools you know and love

Azure and GitHub are fully integrated with your existing tools and workflow





The cloud with DevOps tools built in

Core Infrastructure

Compute
Security
Storage
Management
Networking

Advanced Workloads

Web + Mobile
Internet of Things
Microservices
Containers
Serverless
Identity
Data + Analytics
Artificial Intelligence
Cognitive Services
High Performance Computing

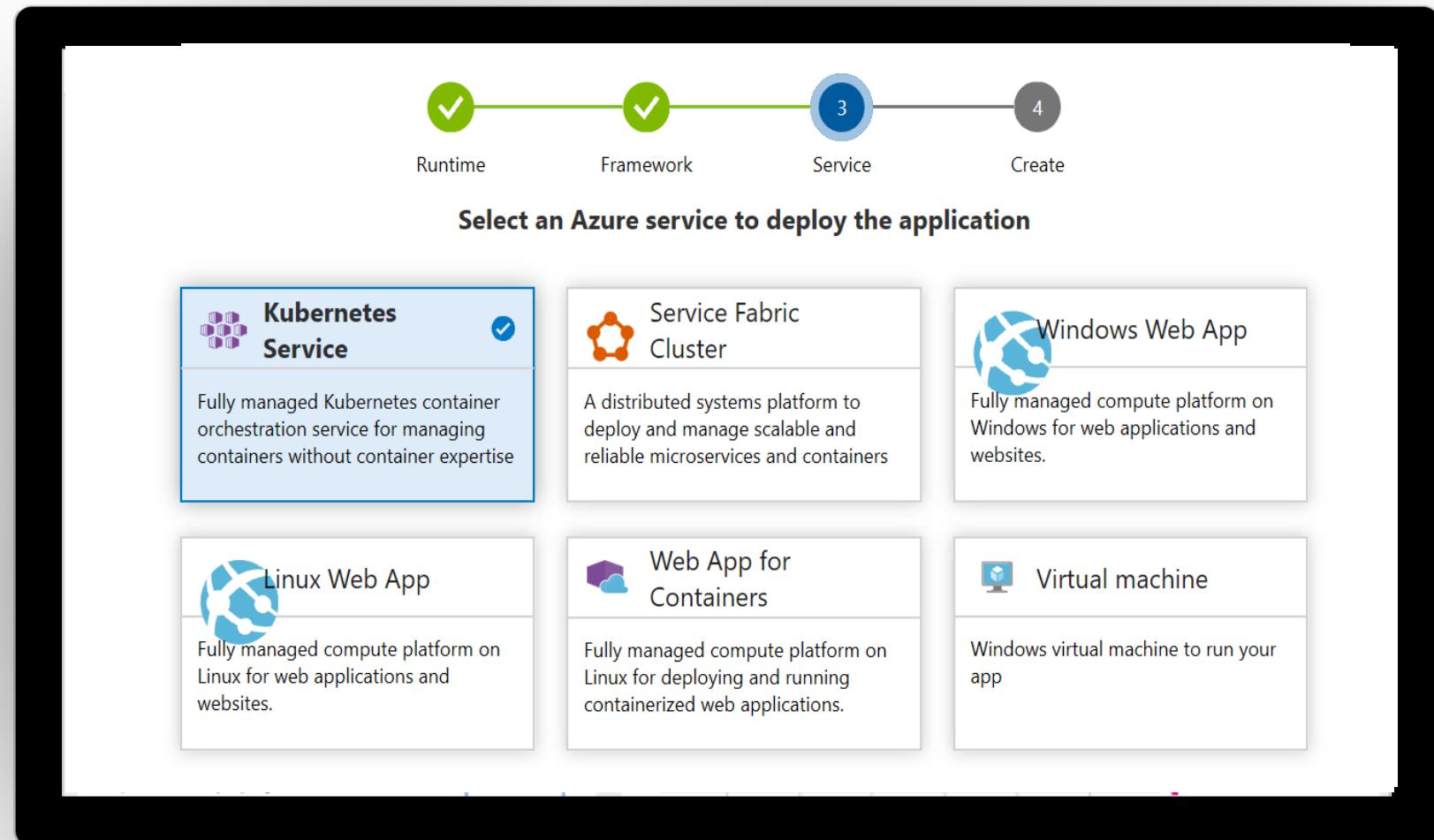
Azure Stack + Hybrid

Azure Ecosystem

Azure DevOps Projects

DevOps Pipelines in Minutes

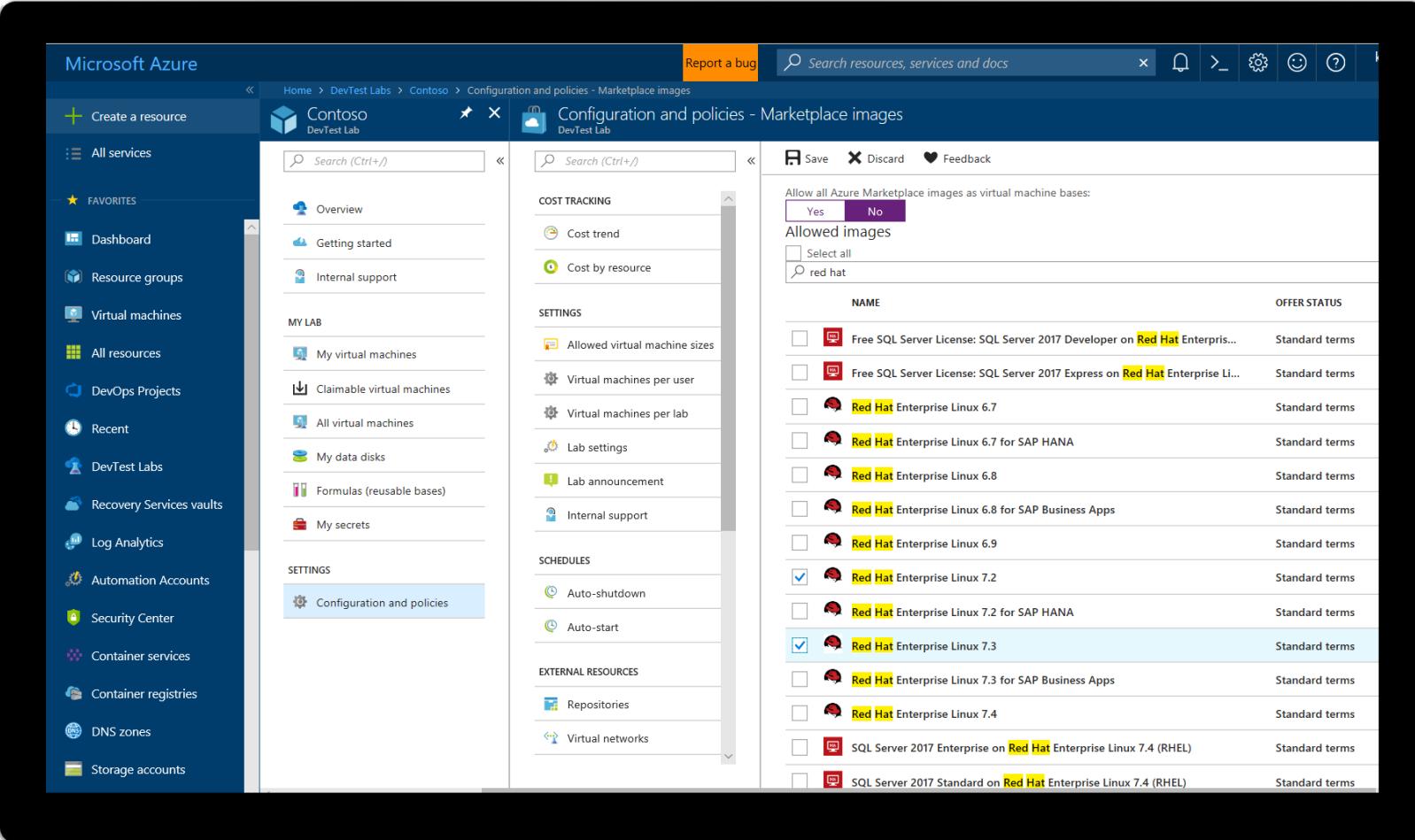
- Create a full DevOps pipeline with 3 easy steps from the Azure Portal
- Start with a Git repo and any source language
- Web apps, Kubernetes, soon VMs and more.
- Customize, extend and scale when needed.



Azure Lab Services

Self-Service Dev/Test Environments

- 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



The screenshot shows the Microsoft Azure portal interface. On the left, the Azure navigation bar is visible with options like 'Create a resource', 'All services', 'FAVORITES', 'Dashboard', 'Resource groups', 'Virtual machines', 'All resources', 'DevOps Projects', 'Recent', 'DevTest Labs', 'Recovery Services vaults', 'Log Analytics', 'Automation Accounts', 'Security Center', 'Container services', 'Container registries', 'DNS zones', and 'Storage accounts'. The 'DevTest Labs' option is highlighted. The main content area shows the 'Contoso DevTest Lab' configuration page. The 'Configuration and policies' section is selected. The 'Allowed images' section lists various Red Hat Enterprise Linux and SQL Server options. The 'NAME' column lists the image names, the 'OFFER STATUS' column indicates they are 'Standard terms', and the 'Red Hat' logo is present in the 'Offer' column.

NAME	OFFER STATUS
Free SQL Server License: SQL Server 2017 Developer on Red Hat Enterprise Linux 7.3	Standard terms
Free SQL Server License: SQL Server 2017 Express on Red Hat Enterprise Linux 7.3	Standard terms
Red Hat Enterprise Linux 6.7	Standard terms
Red Hat Enterprise Linux 6.7 for SAP HANA	Standard terms
Red Hat Enterprise Linux 6.8	Standard terms
Red Hat Enterprise Linux 6.8 for SAP Business Apps	Standard terms
Red Hat Enterprise Linux 6.9	Standard terms
Red Hat Enterprise Linux 7.2	Standard terms
Red Hat Enterprise Linux 7.2 for SAP HANA	Standard terms
Red Hat Enterprise Linux 7.3	Standard terms
Red Hat Enterprise Linux 7.3 for SAP Business Apps	Standard terms
Red Hat Enterprise Linux 7.4	Standard terms
SQL Server 2017 Enterprise on Red Hat Enterprise Linux 7.4 (RHEL)	Standard terms
SQL Server 2017 Standard on Red Hat Enterprise Linux 7.4 (RHEL)	Standard terms

Application Insights

Get actionable insights through application performance management and instant analytics

→ Visibility – Get the big picture

→ Insights – Find & fix problems.
Detect and diagnose exceptions and application performance issues

→ Integration – Seamlessly integrate with your DevOps pipeline using Azure DevOps, GitHub, and our webhooks

→ Monitor – Azure websites, including those hosted in containers, websites on-premises and with other cloud providers

→ Get started from within Visual Studio, or monitor existing apps without redeploying



Azure DevOps



- Continued heavy investment in Azure DevOps
- Best in class CI/CD solution across the industry
- Best & most loved solution for managing development teams
- Tight integrations with GitHub
- Provide enterprise scalable package management



<https://azure.com/devops>

Thank You!

ευχαριστώ

Salamat Po

متشكر

شکرًا

Grazie

благодаря

ありがとうございます

Kiitos

Teşekkürler

謝謝

ខុបគុណគុប

Obrigado

شکریہ

Terima Kasih

Dziękuję

Hvala

Köszönöm

Tak

Dank u Wel

дякую

Tack

Mulțumesc

спасибо

Danke

Cám ơn

Gracias

多謝晒

Ďakujem

הודות

ശ്രദ്ധി

Děkuji

감사합니다

Global Reach

Azure DevOps has more global regions than any other cloud provider



Migrating from On-Prem to the Cloud

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

Benefits of Cloud Hosted Azure DevOps Services

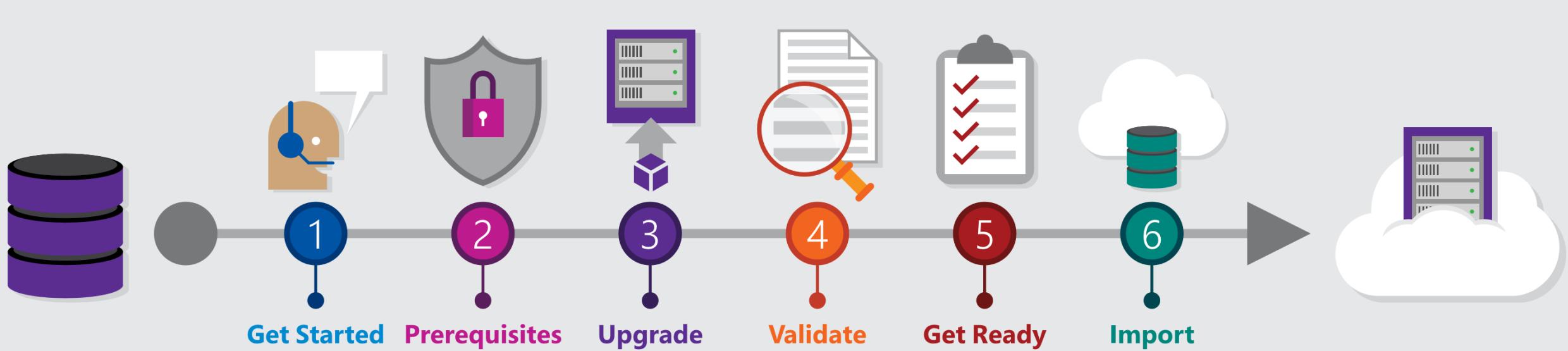
- Global availability
- Hosted and maintained by Microsoft with 99.9% uptime guarantee and 24x7 support
- Immediate access to latest features
- Simplified deployment to Azure

Azure DevOps Import Service

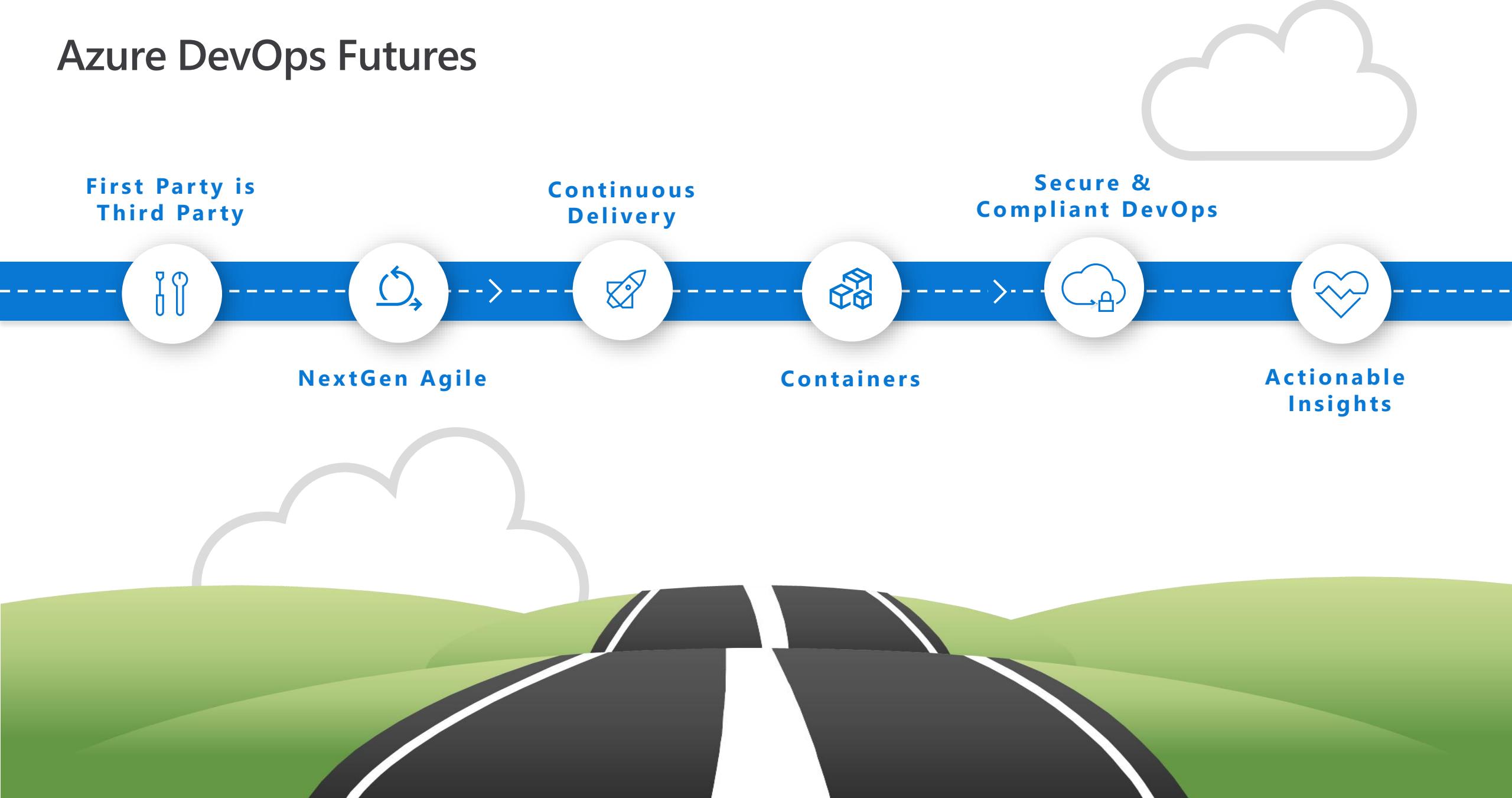
- Fully supported high fidelity migration path
- Trusted by many large enterprises
- Now faster and easier to use



<https://aka.ms/tfsimport>



Azure DevOps Futures



Azure DevOps Services Pricing

Open Source Projects	Small Teams	Teams of any size
<p>Free</p> <p>Unlimited users and build time</p> <ul style="list-style-type: none">• 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	<p>Free</p> <p>Start free with up to 5 users</p> <ul style="list-style-type: none">• 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	<p>Starts at \$6</p> <p>per user, per month for Boards & Repos*</p> <p>Easy pricing that grows with your team</p> <ul style="list-style-type: none">• 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.

Q&A