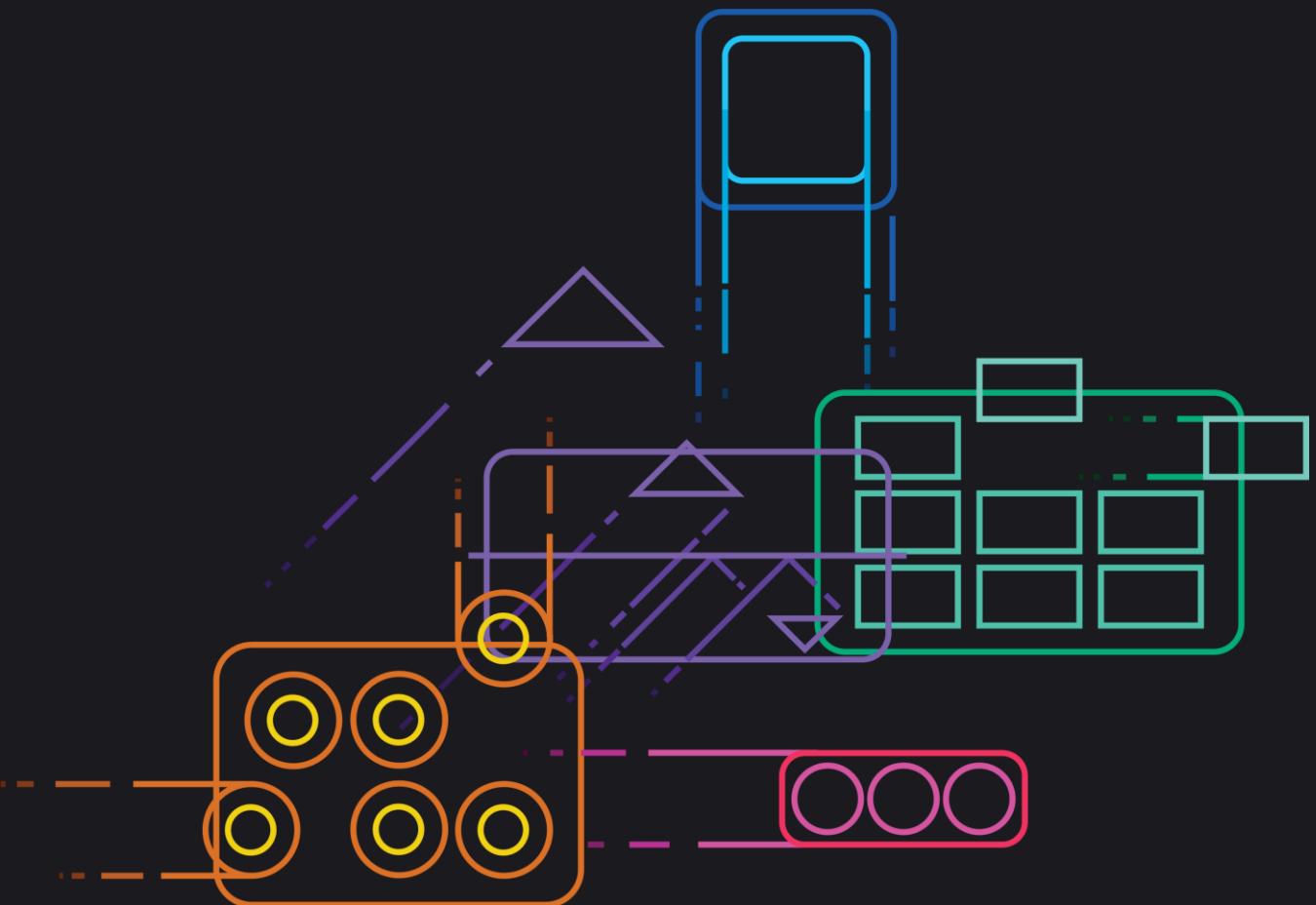
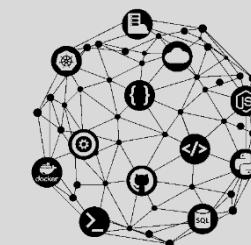


De cero a DevOps

con Azure DevOps y GitHub

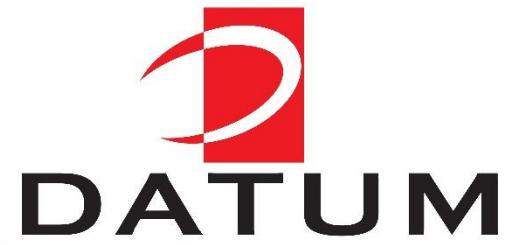
Guillermo Zepeda Selman
Microsoft MVP – Azure
@cloudzepeda





SQL.Connect()
[Code].{Build}.Connect();

Gracias a nuestros patrocinadores



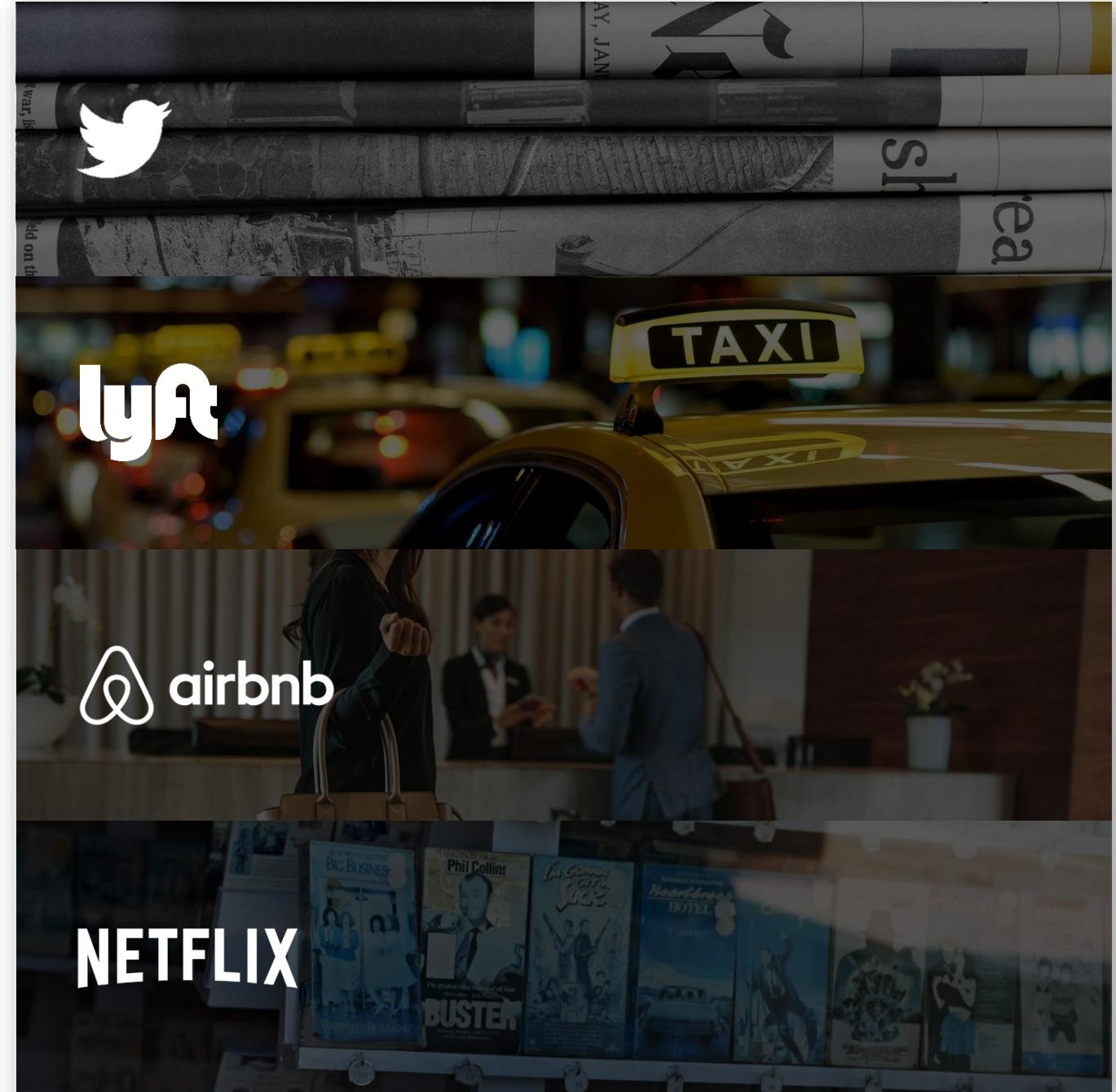
The Challenge

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

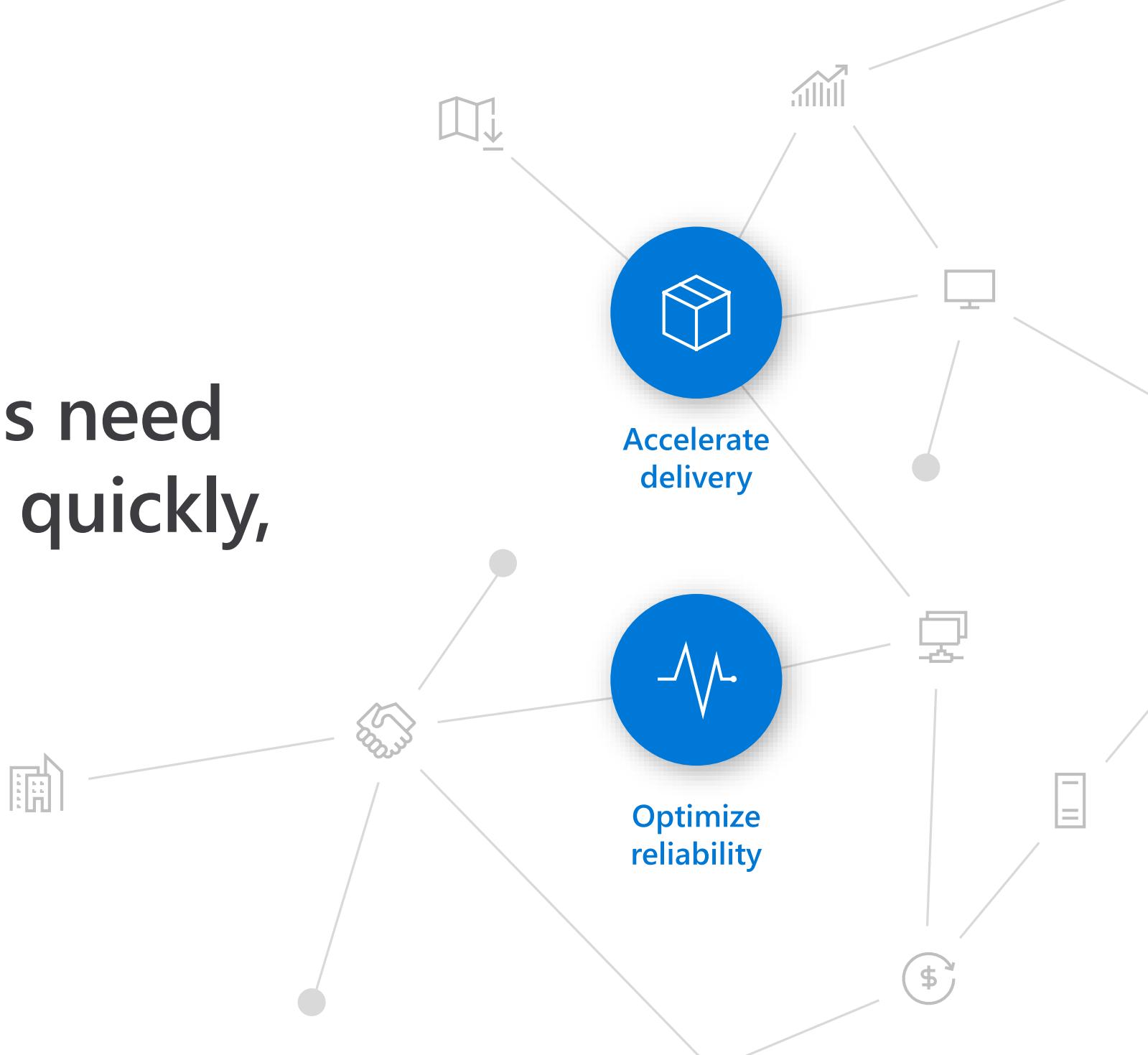
The Fortune 500 of today face the same challenge tomorrow

Innosight

Corporate Longevity: Turbulence Ahead for Large Organizations

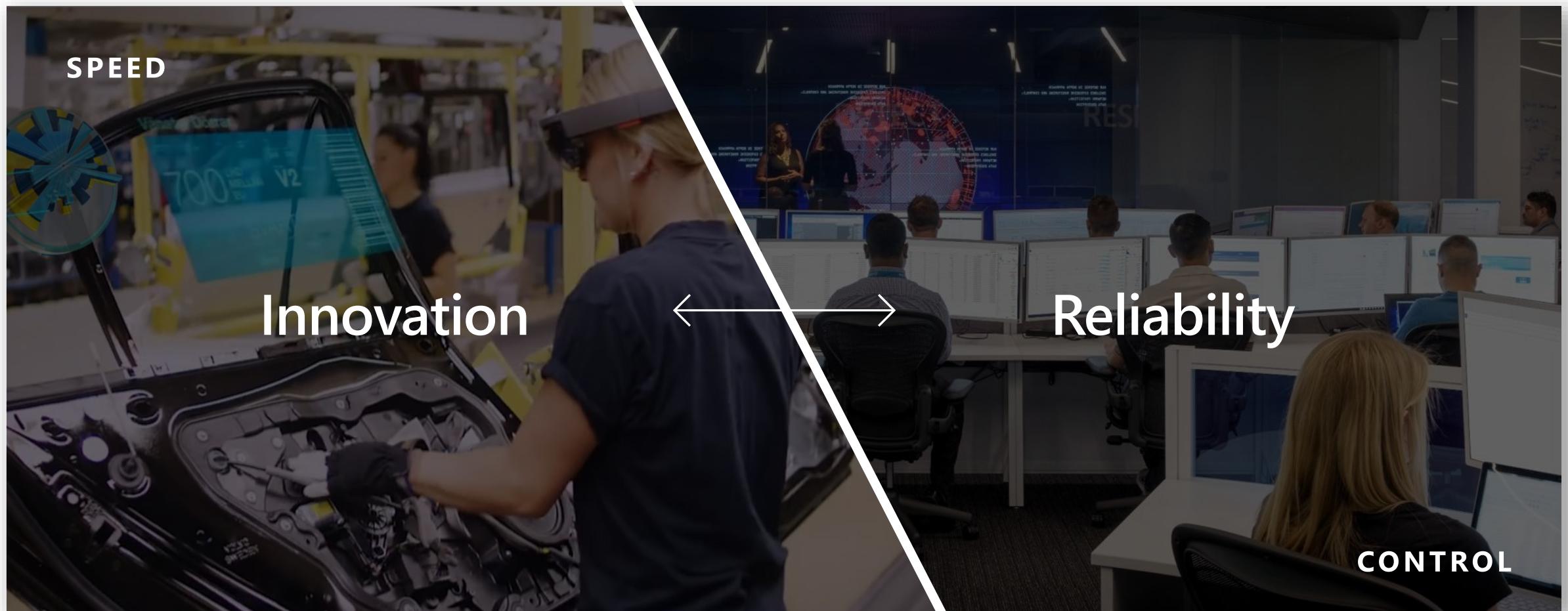


**Product innovations need
to reach customers quickly,
and stay available**

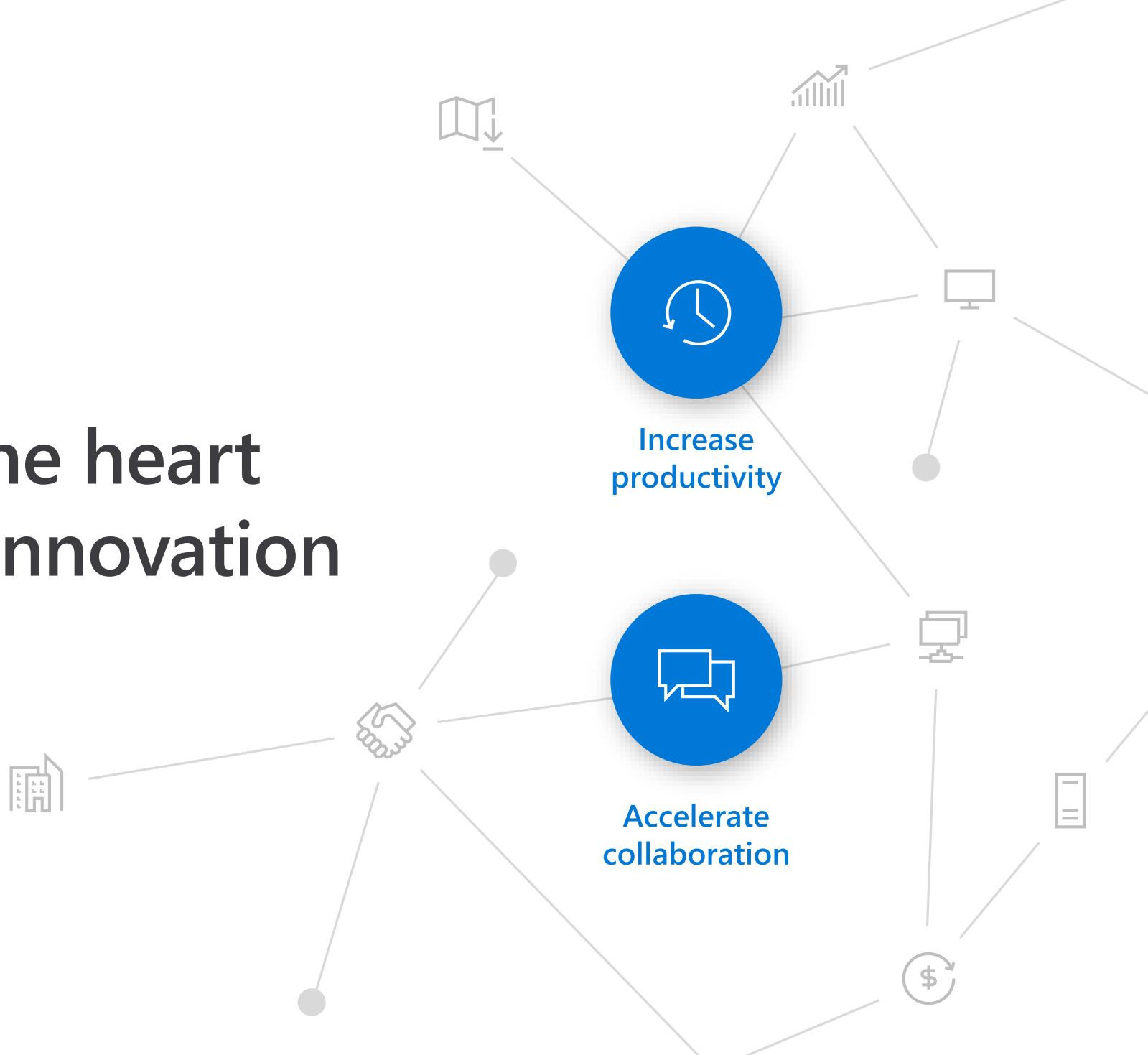


Software delivery paradox

Speed vs. control impedes innovation



Developers are at the heart of your company's innovation

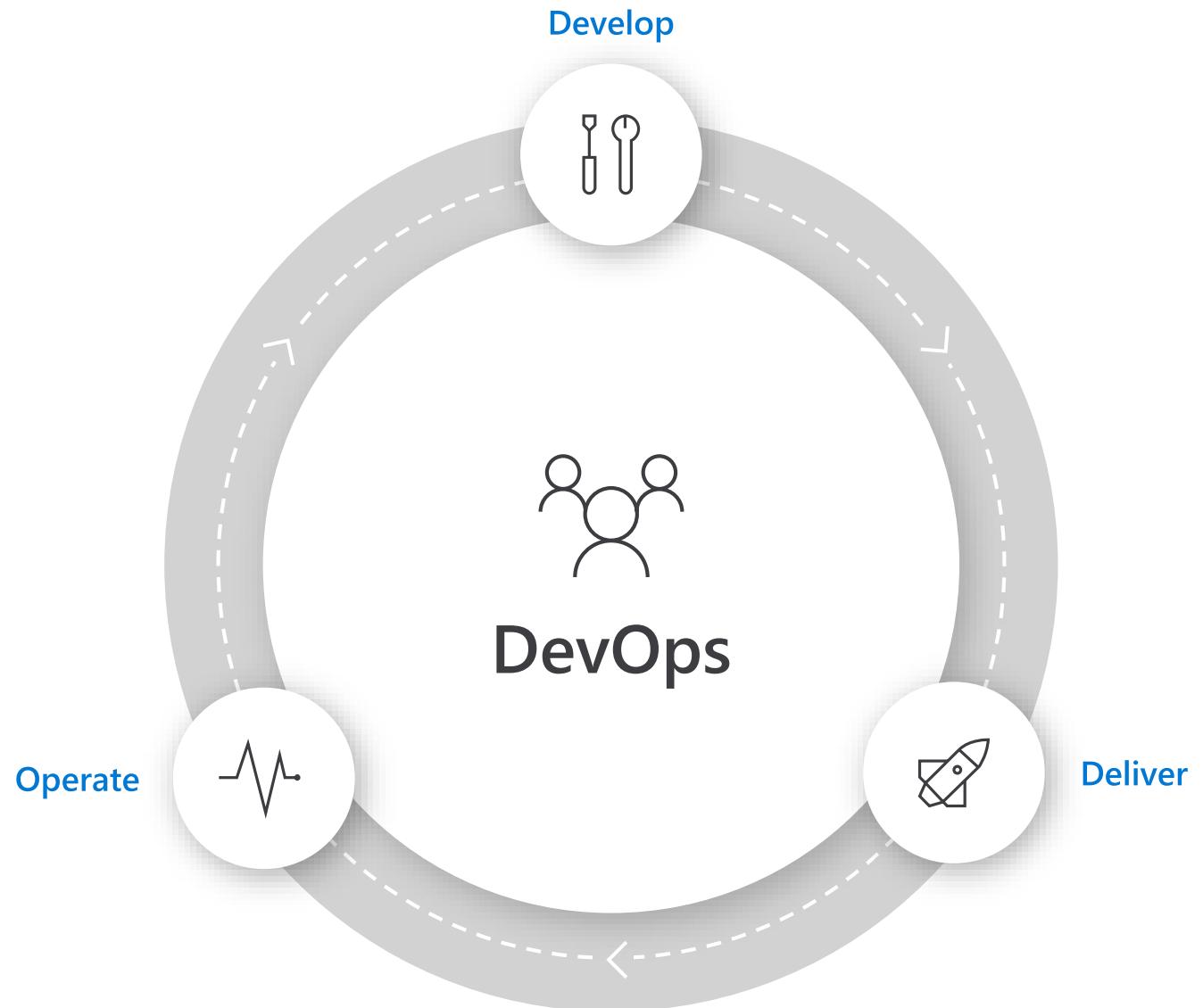


Accelerating Delivery with DevOps

“

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

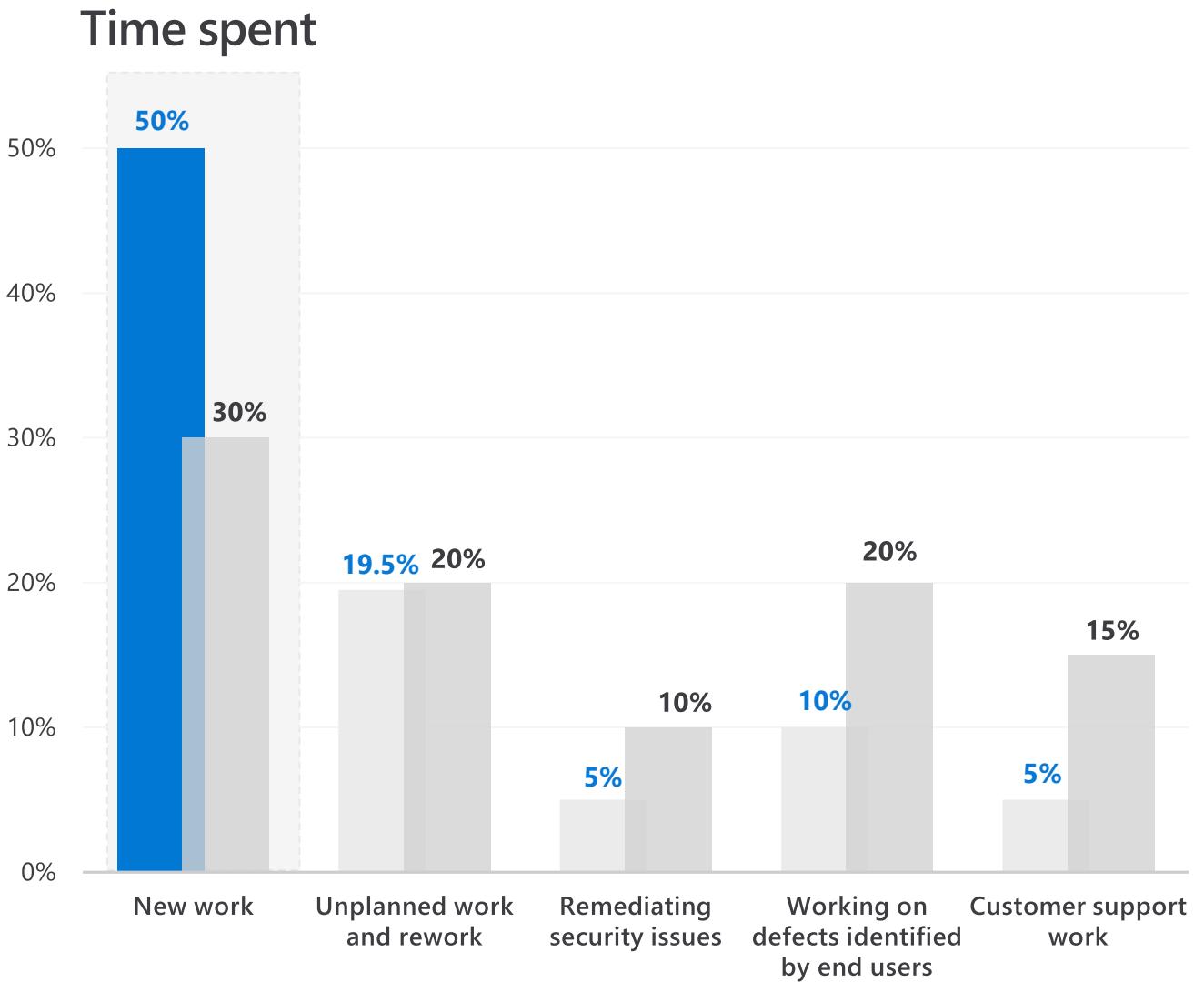
”



Innovation with oversight

Top performing DevOps companies spend more time innovating and less time “keeping the lights on”.

The result: better products, delivered faster, to happier customers by more engaged teams



Our Solution

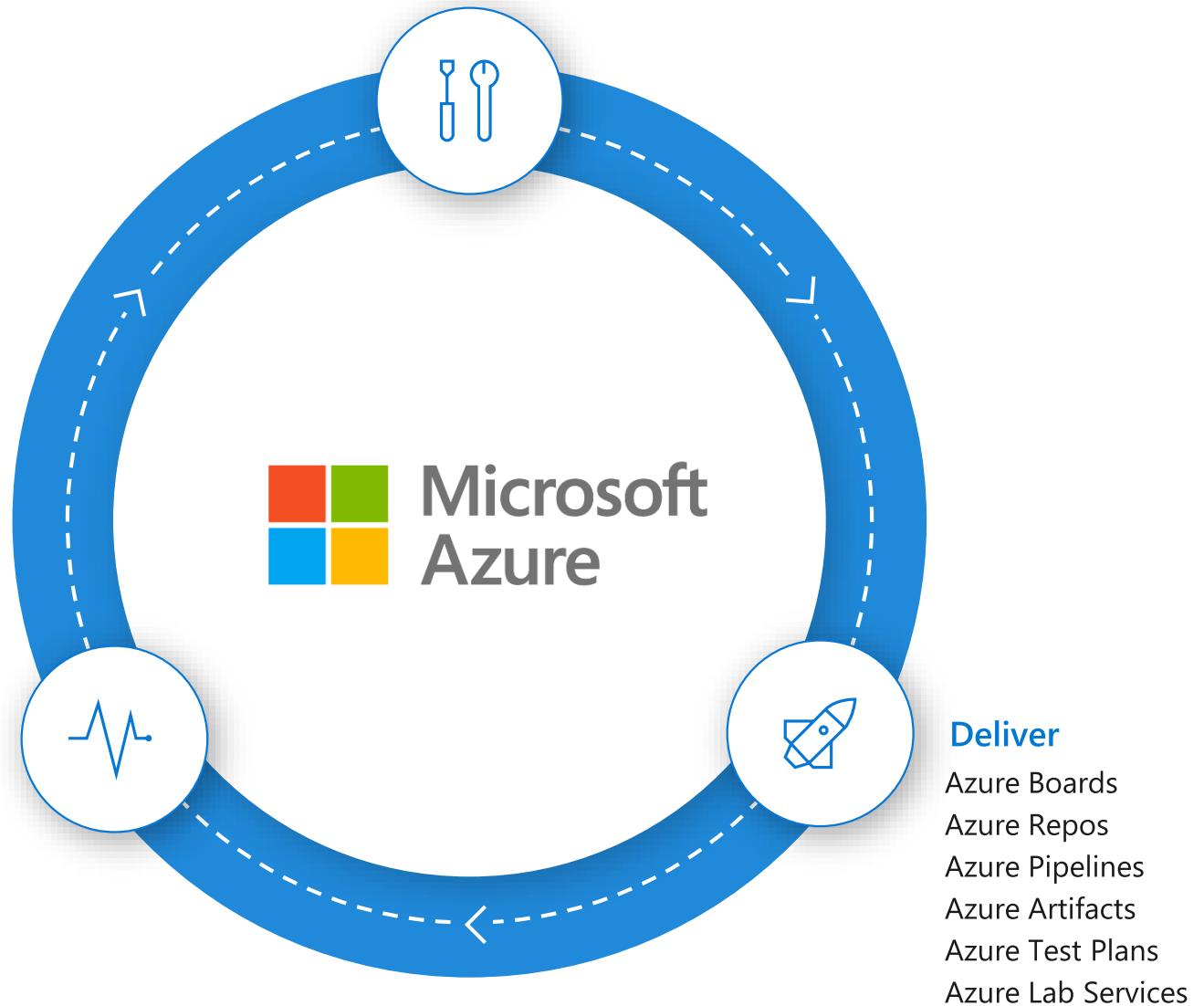
Innovate at scale. Deliver with confidence.

Microsoft Azure is the cloud
with DevOps tooling built in

Operate
Azure Monitor
Azure Policy
Azure Automation
Azure Security Center

Develop

GitHub
Visual Studio
Visual Studio Code





Deliver with Azure DevOps



Azure Boards



Azure Repos



Azure Pipelines



Azure Artifacts



Azure Test Plans



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 left sidebar lists navigation options: Overview, Boards (selected), Work Items, Boards, Backlogs, Sprints, Queries, Plans, Repos, Pipelines, Test Plans, and Artifacts. The main area is titled 'FabrikamFiber Board' and shows a Kanban-style view of work items across four columns: New, Active, Staging, and Deployed. The 'Active' column contains 5/5 items. The 'Deployed' column shows 3/3 items. Work items include: 'Home page (selected room)' by Kat Larson (Design); 'Top page controls' by Carlos Slattery (Spike, Xamarin); 'Entry + validations' by Carole Poland (ML, Xamarin); 'Navigation menu' by Carlos Slattery (ML, Xamarin); 'Search component complex features' by Cecil Folk (General, Xamarin); 'Login page' by Celeste Burton (Blocked, Xamarin); 'Ambient settings' by Carlos Slattery (Xamarin); and 'Notifications list' by Carole Poland (General). Other items listed are 'Guests page', 'NFC open door', 'Room Tab', 'Map filter', and 'Hotel reviews page'. The interface includes a top navigation bar for 'Contoso / AdventureWorks Mobile / Boards / FabrikamFiber' and various search/filter icons.

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

Category	Pull Request Details	Date
Mine	Initialize client with .client.init Kat Larsson requested #238 into master	3 minutes ago
Active	Testing configuration settings Kat Larsson requested #230 into features/config	1 hour ago
Assigned to me	Check returned identity for null status Colin Ballinger requested #212 into master	15 minutes ago
Assigned to me	[WIP] Add tests for deployment mapping Robin Counts requested #221 into master	7/9/2018
Assigned to my team	Add exception on disconnect Colin Ballinger requested #249 into master	2 minutes ago
Assigned to my team	Maintain structure when converting isomorphs Robin Counts requested #234 into master	15 minutes ago
Abandoned	Hotfix payload to releases/99 Robin Counts requested #201 into releases/99	20 minutes ago

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' project. The left sidebar includes links for Overview, Pipelines (selected), Builds, Releases, Library, and Deployment groups. The main area displays a build titled 'Enabling feature flags for Preview Attachment and Grid Views' for the 'AdventureWorks/PackageFramework' repository. It shows three parallel jobs: 'Windows Job' (Running, 1m 53s), 'Linux Job' (Running, 3m 29s), and 'macOS Job' (Running, 3m 07s). The 'Linux Job' details are expanded, showing steps like 'Prepare job', 'Initialize job', 'Get sources', 'Cmdline', 'Nodetool', and 'Install dependencies'. The terminal output shows commands like 'yarn install v1.7.0', 'node build/npm/preinstall.js', and 'tsc -p tsconfig.build.json'. The pipeline was started on Sep 5 at 11:12am.

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



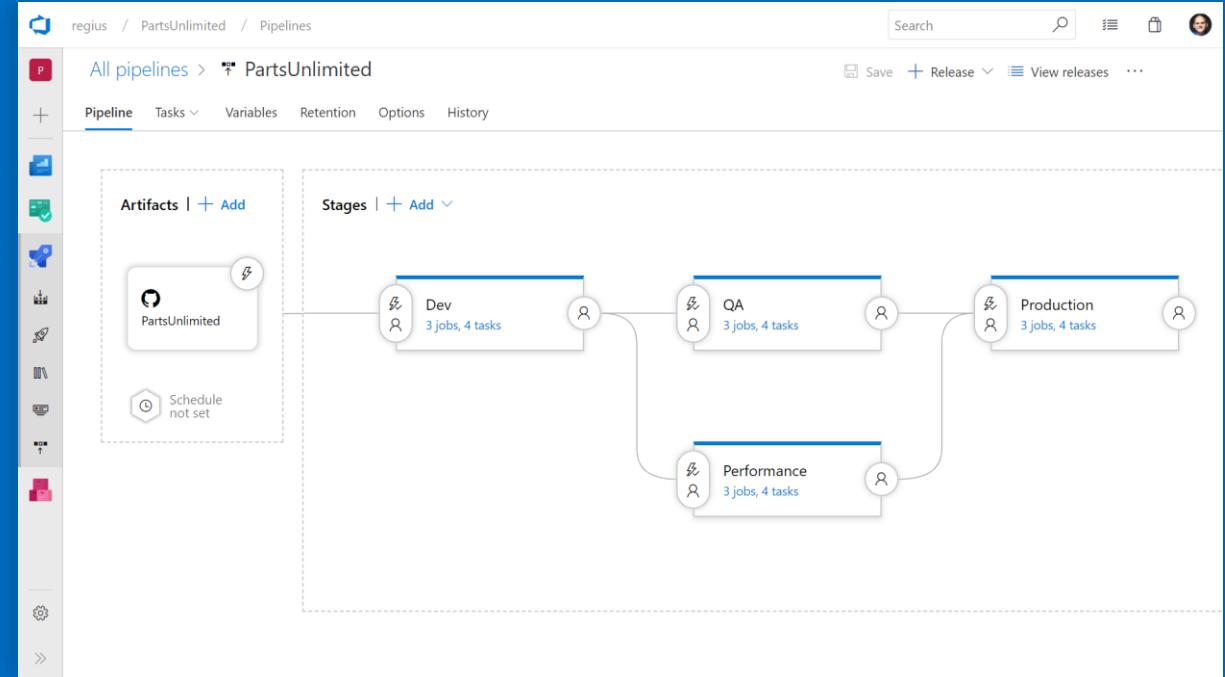
Azure Pipelines



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. At the top, there's a navigation bar with the Azure DevOps logo, the organization name "Contoso / AdventureWorks Mobile / Artifacts", and icons for search, refresh, and user profile. Below the navigation is a sidebar with links: Overview, Boards, Repos, Pipelines, Test Plans, and Artifacts (which is highlighted). The main area is titled "Artifacts" with options to "Connect to feed" and "Recycle Bin". A table lists nine packages, each with a small icon, the package name, version, source, last pushed date, and a brief description. The packages listed are: abbrev (Version 1.1.0, nuget), accepts (Version 1.3.3, npmjs), acorn (Version 5.0.3, MyFeed), acorn-dynamic-import (Version 2.0.2, maven), aclr-jsx (Version 3.0.1, nuget), acorn-object-spread (Version 1.0.0, maven), ajv (Version 4.11.7, npmjs), ajv-keywords (Version 1.5.1, nuget), and alphanum-sort (Version 1.4.0, npmjs).

Package	Views	Source	Last pushed	Description
abbrev Version 1.1.0		nuget	a year ago	Like ruby's abbrev module, but in js
accepts Version 1.3.3		npmjs	a year ago	Higher-level content negotiation
acorn Version 5.0.3		MyFeed	a year ago	ECMAScript parser
acorn-dynamic-import Version 2.0.2		maven	a year ago	Support dynamic imports in acorn
aclr-jsx Version 3.0.1		nuget	a year ago	Alternative, faster React.js JSX parser
acorn-object-spread Version 1.0.0		maven	a year ago	Custom JSON-Schema keywords for ajv validator
ajv Version 4.11.7		npmjs	a year ago	Alphanumeric sorting algorithm
ajv-keywords Version 1.5.1		nuget	a year ago	ANSI escape codes for manipulating the terminal
alphanum-sort Version 1.4.0		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



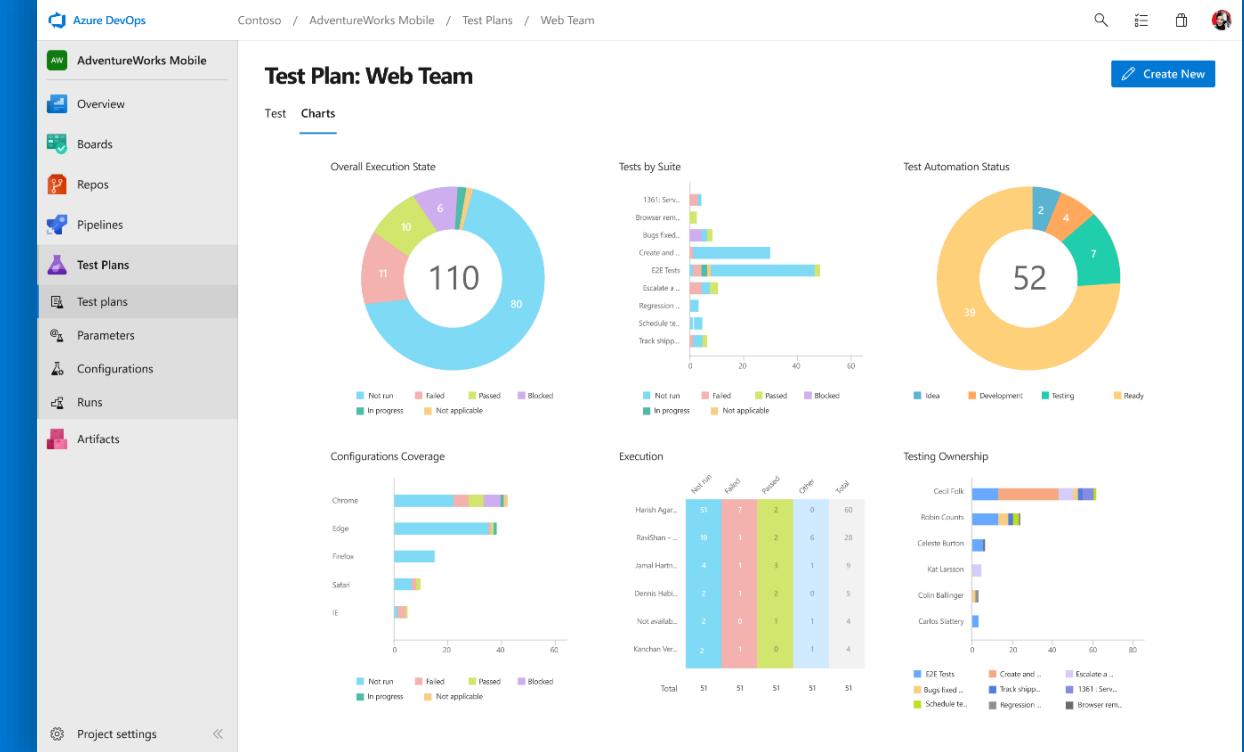
Azure Pipelines



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



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

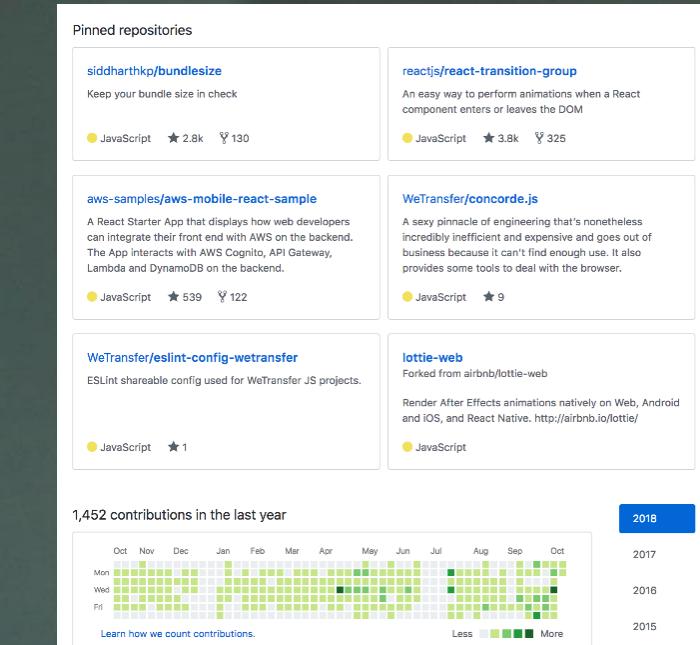


Winning the war for talent

The world's leading companies use and contribute to open source software. It is also how they attract and retain talent

Developers want to:

- Solve interesting problems
 - Collaborate with other developers
 - Grow their skills
 - Use tools they love





Azure DevOps Integrated with GitHub

Rich integration with Azure Pipelines
and Azure Boards

The screenshot shows the GitHub Marketplace page for Azure Pipelines. At the top, there's a search bar and navigation links for Pull requests, Issues, Marketplace, and Explore. Below the header, the Azure Pipelines card is displayed with the title "Azure Pipelines", a "Set up a new plan" button, and an "Edit your plan" button. A descriptive text block states: "Continuously build, test, and deploy to any platform and cloud". It highlights that Azure Pipelines offers cloud-hosted pipelines for Linux, macOS, and Windows with 10 free parallel jobs and unlimited minutes for open source projects. There are also "Read more..." and "Developer links" sections. On the right, a large blue callout box titled "Linux, macOS, and Windows agents" explains how it simplifies managing hardware and VMs using Microsoft cloud-hosted agents. It shows a pipeline with stages: "Test" (27 succeeded), "Build Linux" (6 succeeded), "Build Windows" (2 succeeded), "Build macOS" (64% in progress...), and a final "Distribute" step.



Azure Pipelines

Free **unlimited** build minutes for
public projects

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

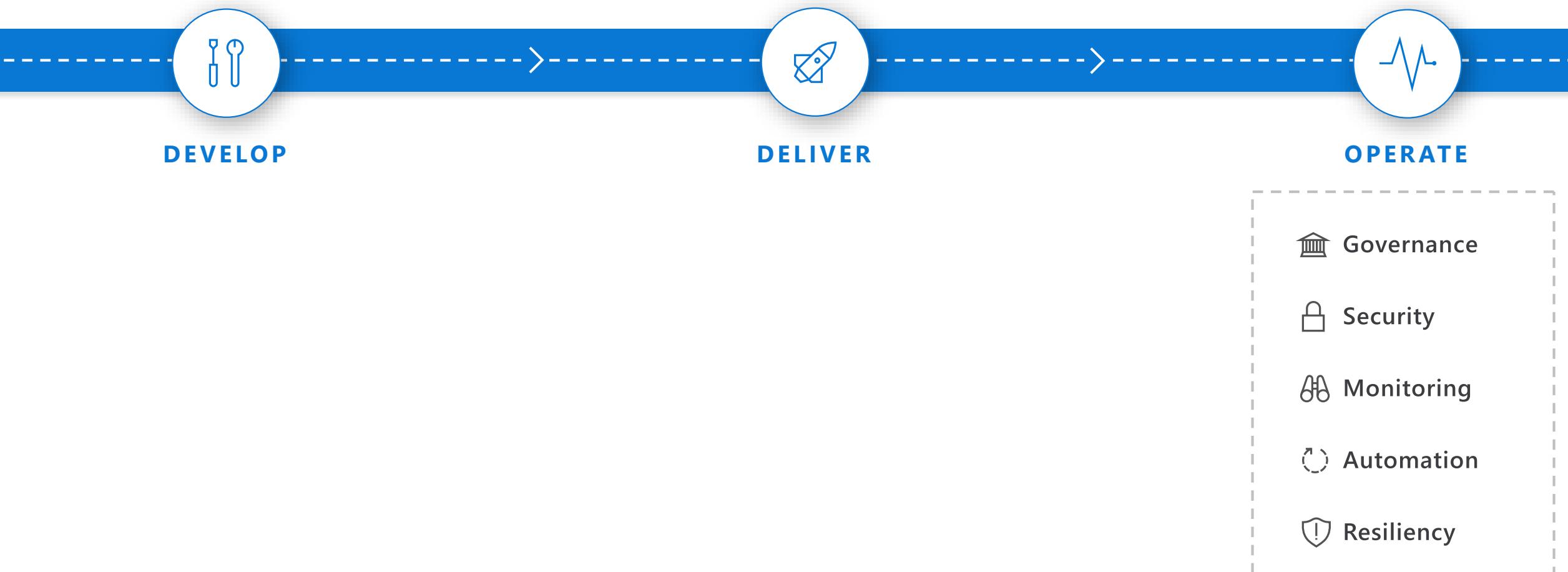


<https://azure.com/pipelines>

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

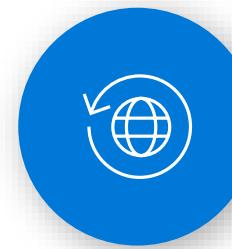
Azure Policy & Blueprints



Security

Industry leading Security with Advanced Threat Protection

Azure Security Center



Resiliency

High availability and protection for VMs, apps and data

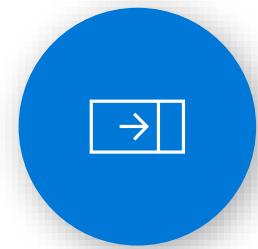
Azure Backup & Site Recovery



Monitoring

Deep operational insights with rich intelligence

Azure Monitor



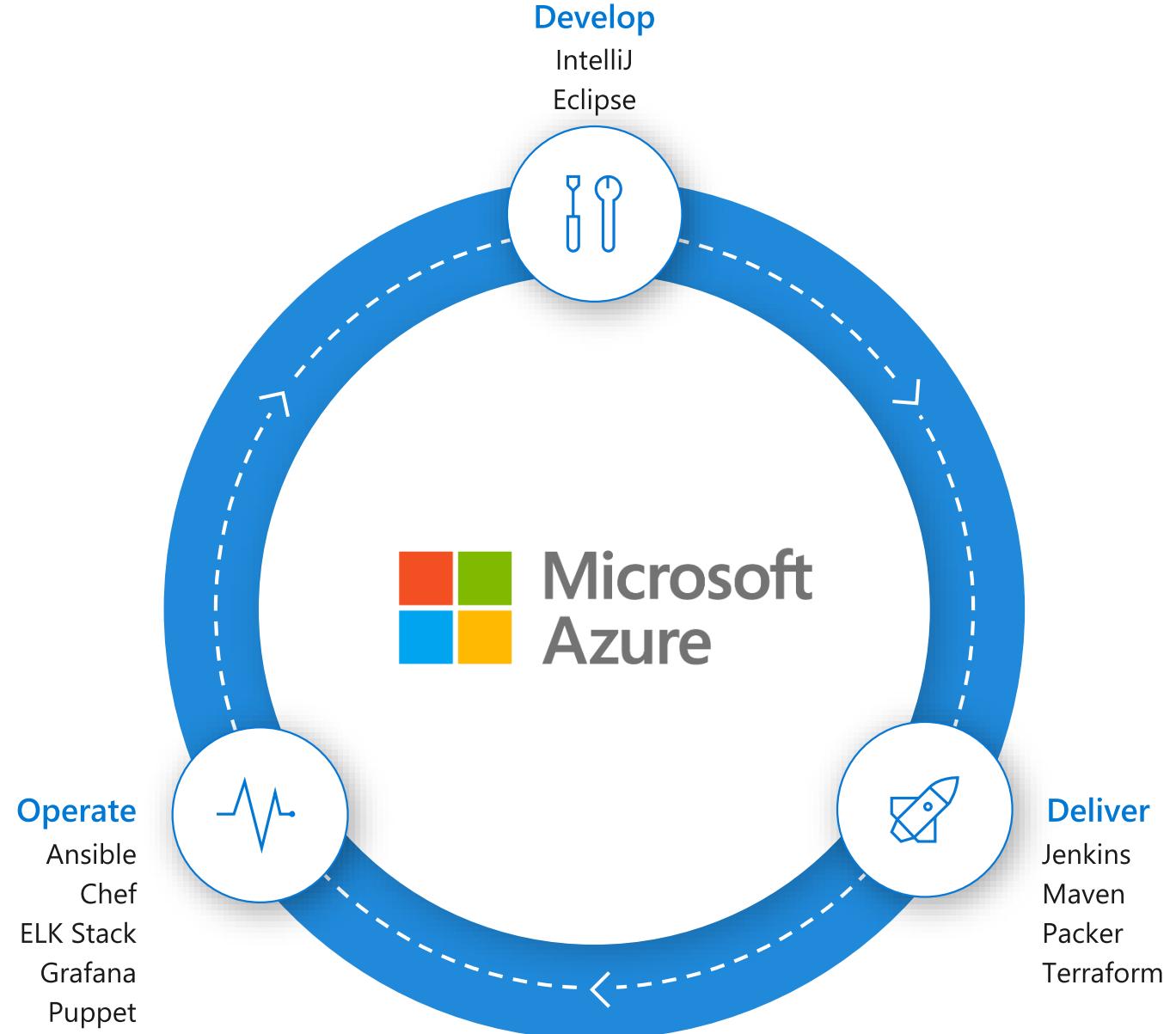
Automate

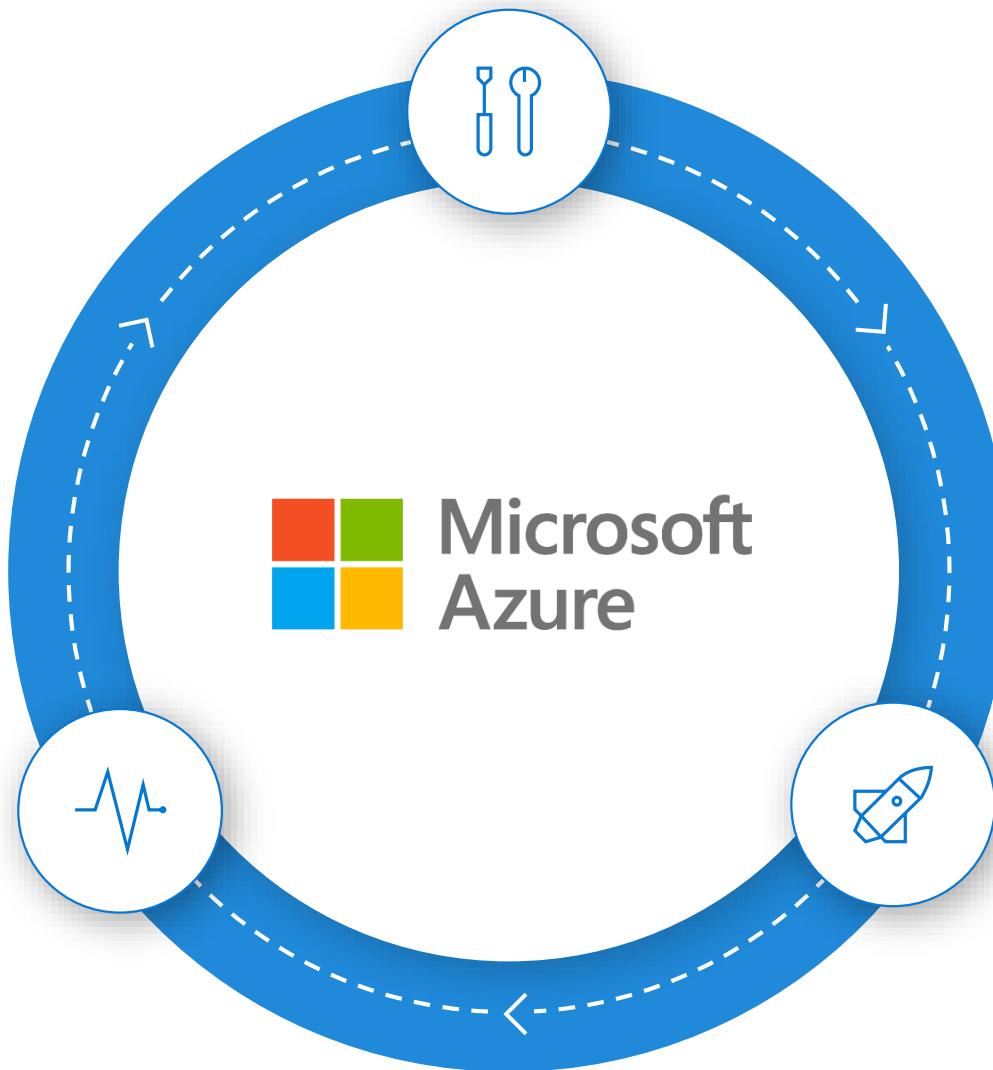
Powerful scripting, configuration and update management

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

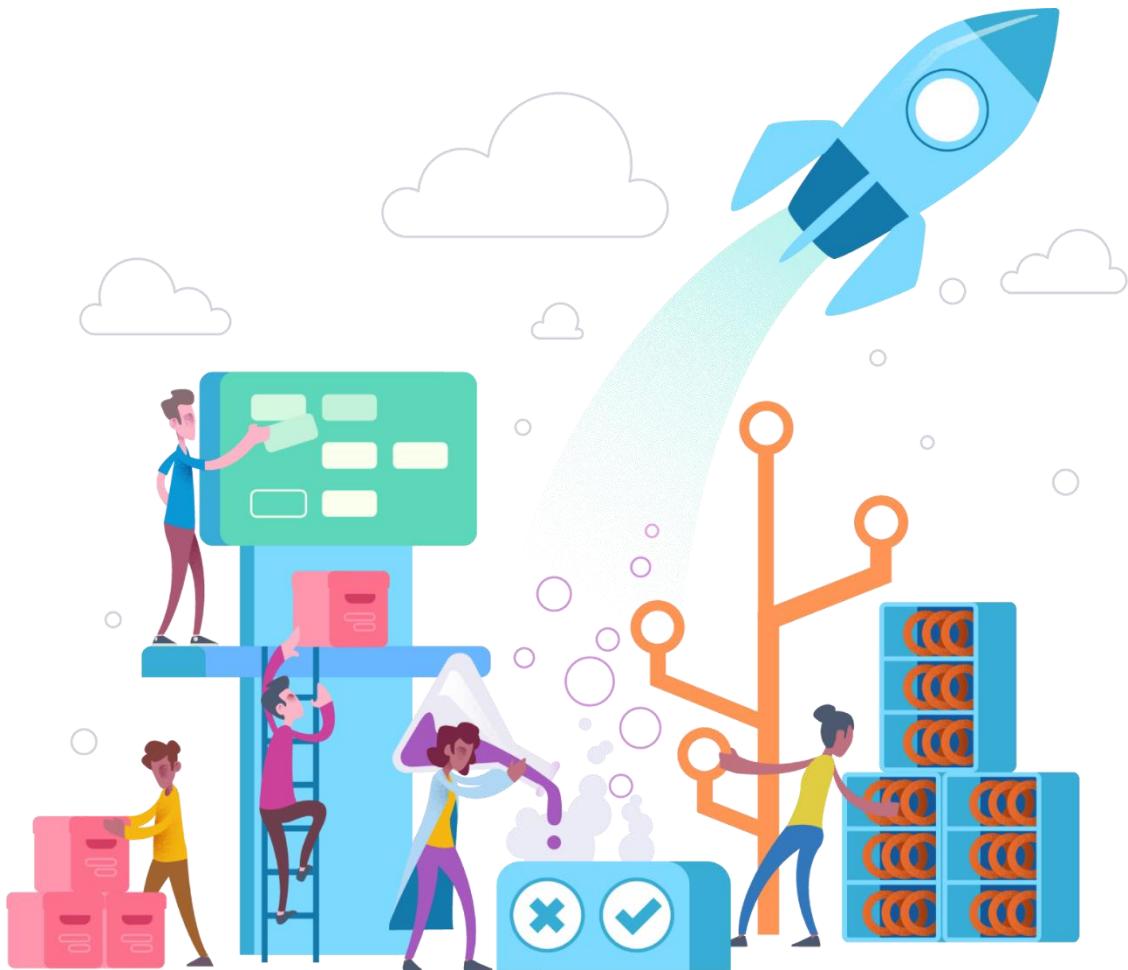
Compute
Security
Storage
Management
Networking

Advanced Workloads

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

Azure Stack + Hybrid

Azure 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>

Azure DevOps supports small teams and the 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. ”



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



“ 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. ”

DevOps at Microsoft

Azure DevOps is the toolchain of choice for Microsoft engineering with over 100,000 internal users



<https://aka.ms/DevOpsAtMicrosoft>

442k

Pull Requests per month

4.6m

Builds per month

28k

Work items created per day

2.4m

Private Git commits per month

3.5k

Open Source repos

12k

Employees contributing to open source

82,000

Deployments per day

Data: Internal Microsoft engineering system activity, March 2019

TFS - Prod Config Change X +

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

Azure DevOps mseng / VSOnline / Pipelines

V VSO Online Pipeline Variables History + Deploy Cancel Refresh Release (old view) Edit release ... Help

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 intervention... Job 1/2 1/1 tasks Waiting on Pause Between Rings 08:49

Ring 5 ⏲ Not deployed

Resume

Project settings

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

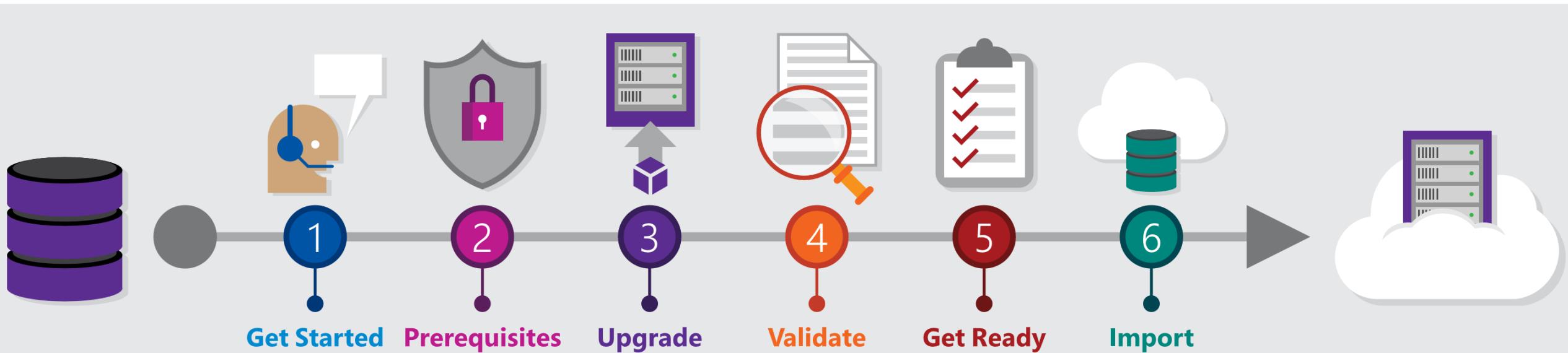
- Global availability
- Hosted and maintained by Microsoft with 99.9% uptime guarantee and 24x7 support
- Immediate access to latest features
- Simplified deployment to Azure

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>



Thank You!

ευχαριστώ Salamat Po متشرّم شكرًا Grazie

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

ឧបម្ពាយទំរូ Obrigado شكريه Terima Kasih Dziękuję

Hvala Köszönöm Tak Dank u Wel дякую Tack

Mulțumesc спасибо Danke Cám ơn Gracias

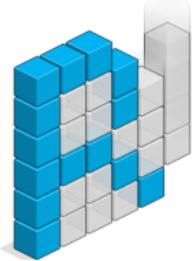
多謝晒 Ďakujem הַתָּה තුළු Děkuji 감사합니다

Open Source Adoption



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



Visual Studio Code



webpack



NE~~X~~T.js



OptiKey



PARCEL

Azure DevOps Futures



First Party is
Third Party



Continuous
Delivery



Secure &
Compliant DevOps



NextGen Agile

Containers

Actionable
Insights



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.