Microsoft

Azure

Azure DevOps – taking VSTS to the next level
Deliver faster and more reliably.

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Agenda

1. Challenge
2. Solution intro
3. Solution conceptual overview
4. Solution details & architecture
5. Demo
6. Solution differentiation
7. Customer stories
8. Call to action

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The Challenge

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Digital innovation is accelerating

Organizations of all sizes and shapes across industries and verticals are adjusting and re-aligning their business around digital experiences because they realize that the majority of customer interactions going forward will be different – using applications, services and digital channels. Are your systems ready for this challenge?

"

Silicon Valley is coming. We are going to work hard to make our services as seamless and competitive as theirs.

Jamie Dimon
CEO, JP Morgan

"

We are putting 70% of our applications in the cloud to improve flexibility. And, we are launching truly game-changing applications to improve efficiency.

Jeffrey Immelt
CEO, GE

"

Walmart is re-defining the next generation of retail growth and is the best-positioned retailer to win at the convergence of digital and physical retail.

Doug McMillon
CEO, Walmart

"

It's about looking ahead to the changes coming to the automobile business, particularly from potential 'disruptors' in Silicon Valley - and preparing Ford to thrive through those changes.

Mark Fields
CEO, Ford Motor Company

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Common Software Delivery Challenges

Low Deployment Frequency

High Lead Time For Changes

High Change Failure Rate

Long Mean Time To Recover

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High Performance DevOps Companies Achieve…

46x Deployment Frequency

2,555x Faster Lead Time For Changes

Faster Time to Market

Increased Revenue

7x Lower Change Failure Rate

2,604x Faster Mean Time to Recover

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

What is DevOps?

What is DevOps?

People. Process. Products.

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

“

A team that simply launches 10 ideas without measuring their impact may have about 1/3 be good, 1/3 flat, and 1/3 negative.

… the ability to abort bad features early and fail fast can save significant time and allow teams to focus on the truly useful features.

Ronny Kohavi, Thomas Crook, Roger Longbotham, Brian Frasca, Randy Henne, Juan Lavista Ferrs, Tamir Melamed
Online Experimentation at Microsoft (Research Paper), 2009

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Why DevOps?

Business benefits

- **A faster, more agile, and more flexible business** capable of adapting quickly and rolling out new apps and services to meet new demands and business opportunities at speed.
- A platform for operational improvement and **continuous innovation** that enables organizations to rapidly innovate and scale new products.
- The ability to **replace elements in the value creation chain** when something better comes along, rather than being locked into past technology choices.

Technology benefits

- A software delivery pipeline that enables **more frequent and more stable releases**.
- Through automation of software testing and deployment, **lower change failure rates** and in the case of a failure, **faster mean time to recovery**.
- **A faster, more collaborative, and more empowered development team** that is able to innovate with ease.

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because he codes with one hand and deploys with the other

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Our Solution

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Azure—cloud for all

Azure

Tools

Developer tools • DevOps • Management tools

Advanced workloads (PaaS)

Web
Mobile
Microservices
Containers
Integration services
Media
Analytics
Databases
Internet of Things
AI + Machine Learning

Core infrastructure (IaaS)

Compute • Networking • Storage • Security • Identity

Azure Stack + Hybrid

Solution Conceptual Overview

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DevOps on Azure framework

What do I need to implement 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 Visual Studio Team Services 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 delivery (CD)

- Ensures that code and infrastructure are always in a production-deployable state.
- By combining continuous integration and infrastructure as code (IaC), you'll achieve identical deployments and the confidence to deploy to production at any time.

Continuous deployment with CI/CD

- With continuous deployment, you can automate the entire process from code commit to production if your CI/CD tests are successful.
- 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.

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Solution Details & Architecture

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“

Instead of telling people to wait for **six months** for a new feature, we can give it to them in **a few weeks**. Our **lead cycles are getting much shorter**, and we have business stakeholders involved so that our solutions are more aligned with business requirements.

Johan Krebbers
IT Chief Technology Office, Royal Dutch Shell

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DevOps tools and services for any app and any platform

Azure DevOps

- **CI/CD.** Test and deploy your code to production at lightning speed with high-performance pipelines.
- **Agile.** Start doing agile on your own terms with configurable Kanban boards, interactive backlogs, simple planning tools, and out-of-the-box support for Scrum.
- **Test.** Test early and often and release your app with confidence. Setup test plans and track and report manual tests, run automated test suites, and run cloud-based load tests.

Visual Studio App Center

Mobile CI/CD

- **Continuous Integration (CI):** Build Swift, Objective-C, Java, React Native, Xamarin, and UWP apps with every commit or on demand. Automate UI tests on thousands of real devices and hundreds of configs in the cloud.
- **Continuous Delivery (CD):** Put apps in the hands of your beta testers or release to app stores automatically.
- **Continuous learning.** Monitor the health of your app and get real-time crash reports and advanced analytics to quickly diagnose and fix problems in beta or production apps.

Open Source DevOps

- **Works with your tools.** Build applications in your team's favorite language, IDE, and DevOps toolchain - whether or not they're from Microsoft.
- **Deploy to any platform.** Deploy your app to any platform, cloud or app store, using your existing DevOps toolchain - all with ready-made or custom-built tasks.

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DevOps in the Azure Ecosystem

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Azure DevOps

Azure Boards

Plan, track, and discuss work across teams, deliver value to your users faster.

Azure Repos

Unlimited cloud-hosted private Git repos. Collaborative pull requests, advanced file management, and more.

Azure Pipelines

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

Azure Test Plans

The test management and exploratory testing toolkit that lets you ship with confidence.

Azure Artifacts

Create, host, and share packages. Easily add artifacts to CI/CD pipelines.

https://azure.com/devops

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Azure DevOps: Choose what you love

Your tools, languages, and clouds

Azure DevOps lets developers choose the tools and languages 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 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 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.

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

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

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Enterprise Level Compliance

Azure Policy

- Turn on built-in policies or build custom ones for all resource types
- Real-time policy evaluation and enforcement
- Periodic & on-demand compliance evaluation

Enforcement & Compliance

- Apply policies to a Management Group with control across your entire organization
- Apply multiple policies and & aggregate policy states with policy initiative
- Exclusion Scope

Apply policies at scale

- Real time remediation
- Remediation on existing resources (Coming Soon)

Remediation

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Deploy Repeatedly & Reliably

Azure Resource Manager & DevOps Tool Integrations

Infrastructure as Code, built-in with Azure Resource Manager

Use Azure Automation & Config to automate repetitive tasks

Support for DevOps tool integrations and OSS tooling such as Terraform, Ansible & Chef

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Smart Insights, Faster

Azure Monitor, Log Analytics & Application Insights

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

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Demo

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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.”

“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.”

“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.”

© Micros

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

Data: Internal Microsoft engineering system activity, August 2018

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.

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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.

Customer Stories

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Jet.com

Customer need

"We realized that we simply did not have the resources to build and manage the kind of datacenters and development infrastructure to meet our growth strategy," says Mike Hanrahan, CTO at Jet, "So we quickly decided on a cloud model."

Results

- Jet.com was able to take advantage of Azure and Visual Studio to go from zero to a full-fledged e-commerce marketplace in just over 12 months
- "To be one of the best e-commerce destinations in the US, we will have to handle millions of customers, placing tens of thousands of orders a day. That requires a top-class e-commerce system built on a flexible, open cloud platform. That is exactly what we got with Azure," says Hanrahan.

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Source: https://customers.microsoft.com/en-gb/story/jetcustomerstory

Geico

Customer need

Challenged by increased customer appetite for 24/7 digital engagement, Geico needed to deliver new services and features to customers faster.

Traditionally new feature rollouts to their tier 1 business systems often results in downtime that could be devastating to their online business

Results

- By adopting a DevOps development strategy and transitioning development to Microsoft Azure, GEICO is working to engage customers more personally and dynamically.
- "With DevOps and Azure, we're able to reduce our new-feature release cycle down to one week, and we think we can even speed that up."
  – Fikri Larguet, Director of Cloud Services

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Source: https://customers.microsoft.com/en-us/story/geico

Ambit Energy

Customer need

Ambit developers could move very fast on the software side but had to wait months for servers to be ordered and provisioned. “We wanted our infrastructure velocity to match our software velocity,”
– Robert Rudduck, Director of Architecture and DevOps at Ambit Energy.

Results

- “Speeding up our software delivery engine has had a huge impact on our business,” Phillips says. “It’s enabled us to introduce new services faster, move into new markets, and respond to the everyday needs of the business.”
- “Electricity is a very competitive market, so the lower operational costs we achieve with Azure help us price our service more competitively and earn higher profits,”

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Source: http://customers.microsoft.com/en-us/story/ambit-energy

Alaska Airlines

Customer need

Alaska has requirements to build mobile apps for both their customers as well as their internal employees. Alaska needed an end-to-end platform to manage their development process, and build, test, deployment and monitoring across a variety of devices.

Results

- Used Visual Studio Team Services, Xamarin and Visual Studio App Center (formerly Xamarin Test Cloud)
- "With Xamarin, we deliver value quickly, integrating native experiences like Touch ID and push notifications, and using Xamarin Test Cloud automation to run our test suite on thousands of devices. We don't think about the tools anymore, we think about what experience we want to deliver to our users."
  – Mike Lorengo, Director IT Enterprise Architecture

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Source: https://customers.microsoft.com/en-us/story/visual-studio-alaska-airlines

RMS

Customer need

Before adopting Azure and Azure DevTest Labs, getting hardware deployed for dev/test could take a month or more.

Results

- Now, the time between request and delivery of environments for app development is hours if not minutes. At RMS, IT is supporting the mission and helping the business get more done.

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Source: https://customers.microsoft.com/en-us/story/risk-management-solutions

Next steps

Let's get started on your journey to the Cloud …

Identify potential scenarios for a **pilot/POC**.

Partner with Microsoft Consulting Services or a Microsoft Partner.

Complete a **DevOps Assessment**.

Create your **roadmap to implement DevOps**.

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Don’t turn DevOps into DevOops – some common anti-patterns

https://hackernoon.com/devoops-some-common-anti-patterns-1850ac2f5074

Author: Gary Watts

1 — Implement DevOps and a Toolchain in the Dev team, away from that Ops team over there

2 — Implement DevOps and a Toolchain in the Ops team, away from that Dev team over there

3 — Hire DevOps Engineers

4 — Thinking, you build it, you run it, will work in the long term

5 — Implement Ansible, Puppet, Chef, Kubernetes, OpenShift, Terraform…

6 — Assess your maturity and think you’re done when you’re a 4 or 5

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Thank You

ευχαριστώ Salamat Po متشكرم شكراً Grazie

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

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多謝晒 Ďakujem תודה நன்றி Děkuji 감사합니다

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Q&A

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