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## Foreword by Frank Shaw

Some of the best books turn into series, and our Book of News is no different. So, back by popular demand, we are excited to launch the next edition at Build. The 2019 Build Book of News is your guide to ALL announcements at our leading developer event where over 6,000 attendees — including nearly 500 student-age developers — will join us to learn about the latest developer, cloud, and collaboration trends and solutions.

Build has something for everyone. Whether you're a developer by training, a tech tinkerer or an inquisitive mind looking for novel solutions, we are delivering the cross-platform tools and cloud solutions, including low-code and no-code offerings, to empower all developers. Throughout the Build Book of News, you'll find news across our Microsoft 365 and Microsoft Azure cloud platforms that puts emerging technologies like AI, Blockchain, IoT and Mixed Reality in the hands of developers to create for the intelligent cloud and intelligent edge.

Importantly, technology is the enabler of new experiences at work and in our daily lives. At Build, we will showcase new possibilities across the web, collaboration solutions, and in our environments when we bring together physical and digital worlds with mixed reality and AI in the cloud and at the edge. These are just some of the scenarios we want to excite developers for, to go create what's next.

We hope you enjoy this next edition in our series. As always, send us your feedback and let us know what you think!

-fxs

# Build Fast Facts

## **Microsoft Build is in its 6th year**

The conference occupies over 200,000 square feet

Over 6,000 attendees

Nearly 500 student-age developers

Over 2,600 customers and partners in attendance

Over 25 million pixels of LED lights

Approximately 150 individual experiences

Furthest distance traveled: 10,000+ miles



CHAPTER 1

# Microsoft Cloud Ecosystem | Customer and Partner Enablement

build

# Microsoft Cloud Ecosystem | Customer and Partner Enablement

## Item 1.1 Marketplace and partner investments

Microsoft is expanding its marketplace investments to provide customers with faster and expanded access to innovation from its partner ecosystem with the introduction of transactable, seat-based SaaS capabilities for Azure Marketplace and AppSource. Customers in over 141 countries can either buy these partner solutions directly through our commercial marketplaces or through Microsoft's worldwide reseller channel.

Microsoft is also deepening its investments in partners — both independent software investors (ISVs) and the channel — and introducing significant new revenue streams for its partner ecosystem.

For its reseller channel, Microsoft is providing the ability to sell marketplace publisher solutions that can be sold independently or bundled with the Microsoft services they already sell.

ISVs and application developers transacting through Microsoft's commercial marketplaces now have access to a new global channel composed of tens of thousands of cloud solution providers. This expands the co-sell motion Microsoft announced two years ago with its field sellers, which has driven over \$5 billion in the past 12 months in partner annual contract value to now include its cloud reseller channel.

The co-sell program is also expanding to include Microsoft 365, Dynamics and the Power Platform, bringing new revenue streams and potential opportunities for both marketplace publishers and resellers. Publishers with transactable SaaS offers who participate in this co-sell program will now realize more gains from their sales with a significantly reduced transaction fee down to 10%.

All these partner ecosystem investments give Microsoft customers, large and small, a broader selection of technology solutions and faster access to innovation.

These will be available July 1 for all services and are coming soon for Office 365 and Dynamics 365 add-in services.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Power Platform, Azure Marketplace, Office 365, Dynamics 365**

CHAPTER 2

# Microsoft Cloud Ecosystem | Education

build

# Microsoft Cloud Ecosystem | Education

## Item 2.1 Imagine Cup

Founded in 2003, Microsoft's Imagine Cup is the company's premier student technology and innovation competition. It provides an opportunity for student technologists, developers and aspiring entrepreneurs from all academic backgrounds to collaborate, develop a technology application, create a business plan and gain a keen understanding of what is needed to bring a concept to market.

In Imagine Cup, the brightest young minds join to exemplify the power of student innovation.

Regional winners from APAC, EMEA and Americas will be onsite at Build, sharing their innovations. Judges will evaluate the entries and award the Imagine Cup's top prize. This year's Imagine Cup champion will receive \$100,000, a mentoring session with Microsoft CEO Satya Nadella, mentorship from M12 ventures and \$50,000 in Azure credits.

Go to [Student Developer Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Imagine Cup](#), [Azure](#), [student developers](#)

## Item 2.2 Student Developers Day

At Build, students can explore new technologies and development tools, helping them acquire skills that may shape their careers — and their participation is free. Parents can bring their children to help create a learn-together atmosphere.

Microsoft also will be welcoming local students from underserved school districts, giving those students a chance to experience a professional developer's conference and igniting their technology passion. Microsoft plans to host 350 to 450 student developers at the conference.

Go to the [Student Developer Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Student developers](#)

## Item 2.3 Minecraft: Education virtual machine for teachers

Teachers can now run multiplayer Minecraft: Education Edition sessions with the scalability, performance and security of Azure. Students need only log in with their school-issued email address to join the learning. And institutions that have a Minecraft: Education Edition license through select Microsoft 365 Education plans need only pay only what they use on the virtual machine itself.

Azure provides a \$200 credit and a free tier of services, including virtual machines, for educators and IT administrators with an [Azure Free Account](#). Students also can receive a \$100 credit and a free tier of services without requiring a credit card through academic verification with [Azure for Students](#).

Learn more about [Minecraft: Education Edition](#), [Microsoft 365 Education](#) and [Azure in Education](#) to try out this new offering in your classroom. Contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Minecraft](#), [education](#), [student developers](#), [Azure](#)

## **Item 2.4 How two organizations used AI for Accessibility grants to help children with disabilities**

Two organizations that help children with disabilities are reporting tangible impacts from grants they received from the AI for Accessibility program.

Zyrobotics is developing a reading-fluency solution based on STEM and aimed at improving early-education literacy skills for young children with varying abilities. iTherapy is enhancing its mobile application aimed at helping people with autism (among other cognitive disabilities) improve communication skills. Of note: Zyrobotics and iTherapy were among the very first grantees to join the AI for Accessibility program.

One year ago, Microsoft CEO Satya Nadella [announced](#) AI for Accessibility to put powerful technology in the hands of developers, universities, NGOs and inventors to accelerate the development of accessible and intelligent AI solutions to benefit people with disabilities around the world.

New program grantees will be announced May 16 to coincide with Global Accessibility Awareness Day.

**Go to the [AI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [AI, accessibility](#)**

CHAPTER 3

# Microsoft 365 Platform | Human-Centered Productivity

build

# Microsoft 365 Platform | Human-Centered Productivity

## Go to Item 3.1 Fluid Framework coming later this year

To give people and teams new ways to create together, today we are announcing **Fluid Framework**. This is a new web-based platform and componentized document model for shared, interactive experiences. Fluid will break down the barriers of the traditional document as we know it and usher in the beginning of the free-flowing canvas. Its capabilities include:

- Enabling content, from the web or productivity apps for example, to be deconstructed and reconstructed into modular components so people can more easily create together.
- Delivering high-performance, multi-person, co-authoring experiences at speeds not yet achieved in the industry.
- Creating room for intelligent agents to work alongside humans to co-author, fetch content, provide photo suggestions, identify experts, translate data and more.

Fluid is expected to be available to developers later this calendar year through a software development kit. Also, later this year we expect to deliver the first Microsoft 365 experiences powered by Fluid.

Go to the [Microsoft 365 Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Microsoft 365](#)

## Item 3.2 Next version of Microsoft Edge

New features for the next version of Microsoft Edge will help solve some of the fundamental frustrations with today's browsers.

Addressing more than 60% of the businesses that currently use multiple browsers, IE mode will integrate Internet Explorer directly into the new Microsoft Edge via a tab. This allows businesses to run legacy Internet Explorer-based apps in a modern browser.

The next version of Microsoft Edge also will offer additional privacy controls that allow customers to choose from three levels of privacy: Unrestricted, Balanced and Strict. Depending on the option you pick, Microsoft Edge will adjust how third parties can track you across the web, giving customers more choice and transparency for a more personalized experience.

Addressing the information overload that many customers feel with the web today, the new Collections feature will help customers collect, organize, share and export content more efficiently, and do it with Office integration.

These features and more will begin to roll out near the broader launch of the next version of Microsoft Edge.

To participate, visit the [Microsoft Edge Insider site](#) to download and begin testing and providing feedback on the available preview builds.

Go to the [Microsoft 365 Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Microsoft 365](#)

### Item 3.3 MyAnalytics Refresh

MyAnalytics has been updated to include re-oriented insights to focus on four outcome areas: focus, digital well-being, network and collaboration.

In addition, MyAnalytics now creates personal plans for each area, allowing you to set goals and take actionable steps toward habit change each day. MyAnalytics continues to provide insights and AI-powered suggestions to help you work smarter via a dashboard, an Outlook add-in and weekly digest emails.

The focus plan in MyAnalytics will be available in preview to Microsoft 365 and Office 365 customers in the next few months. It will first roll out to E5 customers, then other plans over time. Personal plans for digital well-being, network and collaboration will follow in the future.

Go to the [Microsoft 365 Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Microsoft 365](#)

### Item 3.4 Windows Hello FIDO2 certification and support across browsers

Microsoft has completed FIDO2 certification of Windows Hello with the Windows 10 May 2019 Update.

This means any website or application can now leverage password-less authentication with Windows Hello, and millions of OEM devices equipped with Windows Hello are joining the FIDO ecosystem. This marks a significant step in helping our partners move away from passwords.

After enabling password-less support for Microsoft accounts on the latest version of Edge, we also are extending that support to Firefox and other browsers, so users will soon be able to securely sign into their Microsoft account with Windows Hello from any major browser.

Windows Hello FIDO2 certification and support for Mozilla Firefox 66 are available with the Windows 10 May 2019 Update. Windows Hello support for other browsers will follow later this year.

Go to the [Microsoft 365 Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Microsoft 365](#)

### Item 3.5 Actionable Messages with Adaptive Cards coming to Outlook Mobile

Following its launch on Outlook for Windows and Outlook Web App, Actionable Messages with Adaptive Cards will now be supported on Outlook for iOS and Android.

When you receive a message with an action item, you will be able to follow up on it from Outlook mobile without leaving Outlook.

As mobile continues to play a critical role in our work and personal lives, Outlook is creating mobile-first experiences to help you focus and get things done faster. More and more services and partners — from SharePoint, Word and MyAnalytics to Sage, ServiceNow and SurveyMonkey — are building Actionable Messages by leveraging Adaptive Cards, enabling users to accomplish even more while staying in their workflow.

We've begun rolling out support for Actionable Messages in Outlook for iOS for customers, using the Microsoft sync technology. It will start to roll out this spring to Android customers using the Microsoft sync technology.

Go to the [Microsoft 365 Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

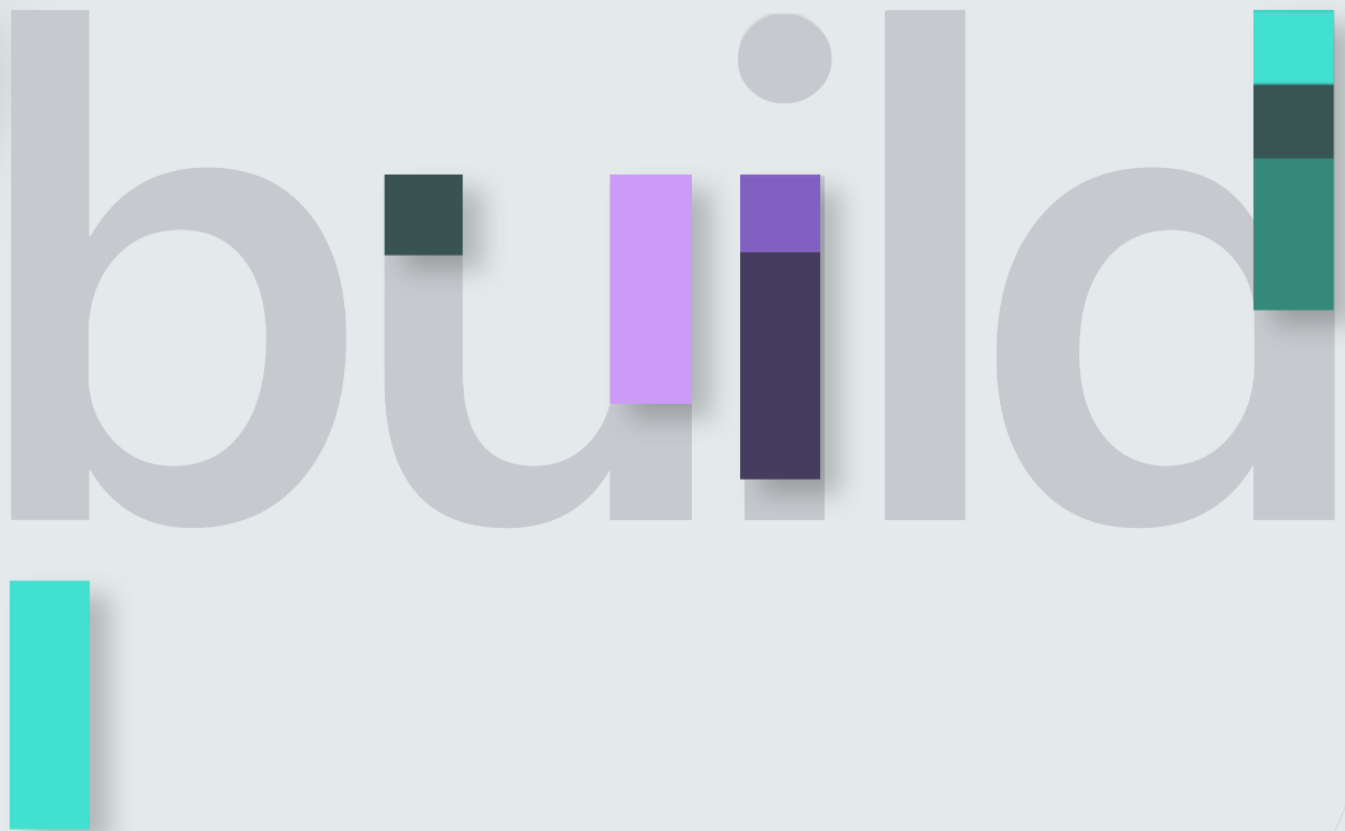
Tag: [Microsoft 365](#)



CHAPTER 4

# Microsoft 365 Platform | Services Powered by AI

build



# Microsoft 365 Platform | Services Powered by AI

## Item 4.1 Microsoft Graph data connect

Microsoft Graph data connect enables customers to provide managed access to their productivity data to big data and analytics applications. More broadly, Microsoft Graph data connect balances customers' demands for a new class of insight-powered applications — those driven by at-scale datasets — with IT administrators' needs to consider the challenges inherent to managing significant amounts of their organizational data.

Microsoft Graph data connect is generally available as a feature in Workplace Analytics and as a standalone SKU for ISVs.

Go to the [Microsoft 365 Blog](#) and the [AI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Microsoft 365, Data, AI](#)

## Item 4.2 Future of Intelligent Agents

Microsoft is building a new, conversational AI technology that moves past the restriction of rules, intents and skills into a new, modern era of true language understanding, based on powerful AI algorithms and data-driven models where it can contextually understand people.

Last year, Microsoft acquired Semantic Machines as part of our ongoing goal to push what is possible with conversational AI. The Semantic Machines team, comprised of many of the world's top natural language researchers, is building these powerful conversational interfaces from data and learning. This technology will be integrated into our conversational AI moving forward, including Cortana.

A demo of voice-assisted calendar management using Cortana offers the first glimpse of this technology in action.

Go to the [Microsoft AI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Data, AI, conversational AI](#)

## Item 4.3 Microsoft Teams developer platform

New developer updates to Teams will allow Microsoft partners to create apps and publish them more easily to the collaboration app, bolstering their ability to stay organized and have team conversations — all in one place.

The updates include new ways to integrate your app into conversations. Examples include custom message actions, unfurling shared links relevant to your service, and the ability to reach users in 1:1, group and meeting chats. We're also improving how you publish, with Microsoft Partner Center offering a new place to submit and view insights into your app.

For IT admins, we're continuing to roll out new tools for managing apps and integrations, customizing the experience for users and driving awareness of key apps.

The developer updates and several features specific to certain organizations and industries are currently rolling out. The Teams Platform Academy is also generally available to boost your learning journey.

Go to the [Microsoft AI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Microsoft 365, Microsoft Teams](#)

### Item 4.4 Ideas in Word

Microsoft is bringing Ideas in Word to Word Online. Fueled by the Microsoft Graph, Ideas in Word will offer improved help for saving time, writing your best stories, presenting a polished document and designing with ease.

Ideas will bring many new features to Word Online, including Word Designer, Time-to-Read, Highlight Extraction and more. Beyond benefiting from the Microsoft Graph, some capabilities, such as rewrite suggestions, are powered by machine learning technologies.

Ideas in Word Online will begin rolling out to Insiders in June and will become generally available in Word Online in the fall.

**Go to the [Microsoft 365 Blog](#) and the [AI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Microsoft 365](#), [Data](#), [AI](#)**

### Item 4.5 Microsoft Search

Microsoft Search is a new enterprise search experience from Microsoft, that applies artificial intelligence (AI) technology from Bing and deep personalized insights surfaced by the Microsoft Graph, to make search in your organization even more effective.

With Microsoft Search, we're introducing new organizational search experiences into the apps you use every day, including SharePoint, OneDrive, Office, Bing, and Windows, and our vision to connect across your organization's network of data.

Microsoft Search will offer a range of features, including moving the search box to a prominent, consistent place across the apps you work with every day. It also will provide zero query typing, giving you personalized results as soon as you click in the search box — revealing people you share with the most and documents you were working on recently.

In addition, with a key-phrase suggestion feature, the search box itself will command the application where you are working. With a query history feature, personal search query history will be available to users. Administrators will have access to the history of popular searches for their organizations, but not to search history for individual users. And with its files/people/site/bookmark suggestions, searches will include results from across your organization.

Microsoft Search will begin publicly rolling out to all Microsoft 365 and Office 365 commercial subscriptions worldwide at the end of May. Third-party connectors will also be introduced in limited private preview later this year.

**Go to the [Microsoft 365 Blog](#) and contact [Microsoft Media Relations team](#) to learn more.**

**Tag: [Microsoft 365](#), [AI](#)**

### Item 4.6 Cortana Skills Kit for Enterprise updates

With Cortana Skills Kit for Enterprise, businesses now can build custom skills for their employees, enabling them to complete common tasks such as checking vacation balances, asking support questions and creating service tickets.

This new developer platform allows organizations to extend Cortana and provide a voice-driven experience for their employees to help boost productivity and finish line-of-business duties much faster.

The end-to-end solution is in limited private preview, available through Microsoft's Technology Adoption Program.

**Go to the [Microsoft 365 Blog](#) and contact [Microsoft Media Relations team](#) to learn more.**

**Tag: [Microsoft 365](#), [AI](#)**

## CHAPTER 5

# Microsoft 365 Platform | Expanding Developer Toolkit — Meeting Devs Where They Are



build



# Microsoft 365 Platform | Expanding Developer Toolkit — Meeting Devs Where They Are

## Item 5.1 Windows Terminal

Windows Terminal — a new application for Windows command-line users — will offer a user interface with emoji-rich fonts and graphics-processing-unit-accelerated text rendering. It also will provide multiple tab support as well as theming and customization, allowing users to personalize their Terminal.

Windows Terminal will elevate the command-line user experience on Windows, delivering a powerful environment for users of PowerShell, Cmd, Windows Subsystem for Linux (WSL) and all forms of command-line application.

Windows Terminal will arrive in mid-June.

Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Windows](#)

## Item 5.2 React Native for Windows

Developers who prefer to use the React/web ecosystem to write user-experience components can now leverage those skills and components on Windows by using a new performance-oriented “React Native for Windows” implementation.

The project is being developed on [GitHub](#), but developers can use it now. More mature releases will follow soon.

Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Windows](#)

## Item 5.3 Windows Subsystem for Linux 2

The next generation of the Windows Subsystem for Linux (WSL) will offer technology built for Microsoft Azure to the Windows Desktop to address the top customer requests for improved performance and compatibility.

With the release, developers will experience up to twice as much speed for file-system heavy operations, such as Node Package Manager install. Additionally, WSL now supports running Linux Docker containers.

The next generation of WSL arrives to Insiders in mid-June.

Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Windows](#)

### Item 5.4 Microsoft Identity platform enhancements

Improvements to the Microsoft identity platform include a unified app registrations experience, which authenticates any Microsoft identity.

Also new is Microsoft Authentication Libraries (MSAL) for .NET, which helps developers implement the right patterns, security features and integration points with the Microsoft identity platform.

The Microsoft identity platform now has over 1 million active, third-party applications built on the platform. The platform also is now OpenID Connect Certified, which gives developers a choice of using our MSAL libraries or any standards-compliant OIDC library.

Improvements to the Microsoft identity platform are generally available in the Azure portal. MSAL for .NET is also generally available.

MSAL for iOS, Android and JavaScript will become generally available in the coming months.

**Go to the [Azure Active Directory TechCommunity Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: Windows**

### Item 5.5 Windows UI Library 2.1 and 2.2

Announcing Native Windows UI controls and other user interface elements for Universal Windows Platform apps, including a new control that simplifies using 3-D models.

The Windows UI Library is now available; Version 2.1 was released recently and can be obtained in the [Windows Dev Center](#). Version 2.2 will be released this summer.

**Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.**

### Item 5.6 XAML Islands release

Developers are now able to use any part of the modern Windows platform with XAML Islands.

XAML Islands is a standard Universal Windows Platform control seamlessly composed inside any other UI framework.

It becomes available in May.

**Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: Windows**

### Item 5.7 MSIX Core

MSIX Core enables MSIX packages to be installed on supported Windows versions earlier than Windows 10. Developers can standardize on MSIX as their app installation technology and not need to manage multiple installers for different operating system versions.

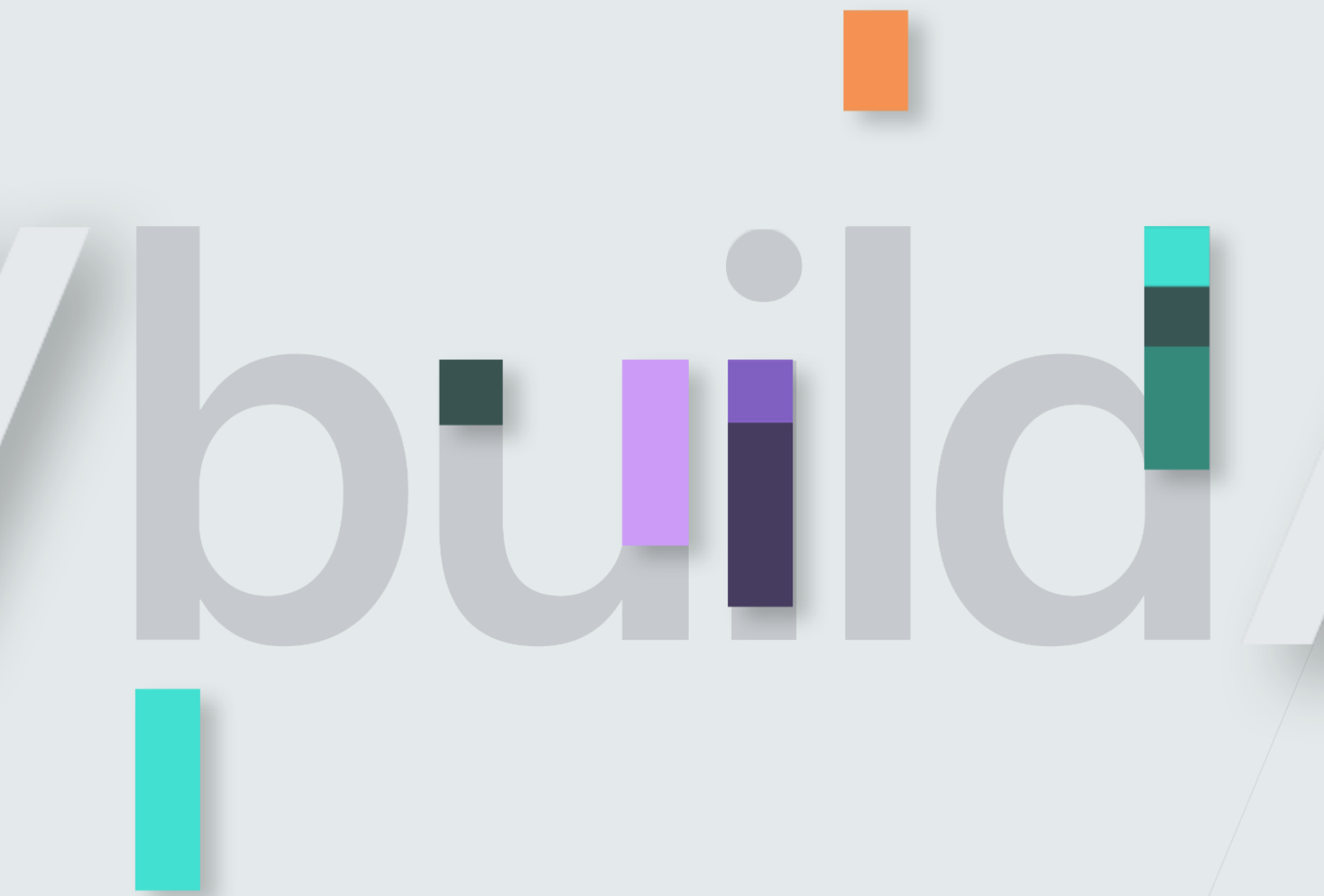
The developer preview is now available.

**Go to the [Microsoft Windows Blogs](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: Windows**

CHAPTER 6

# Microsoft Power Platform



# Microsoft Power Platform

## Item 6.1 Blockchain and Microsoft Power Platform integration

Blockchain is coming to the Power Platform with a new Ethereum connector for Microsoft Flow and PowerApps, new flow templates for common scenarios, and Visual Studio Code tooling to generate flows from smart contracts.

The low-code approach to blockchain is unique to Microsoft and visionary. The connector provides the ability to deploy, create, interact with or respond to events from a blockchain through simple configuration. Microsoft Power Platform democratizes blockchain development to let anyone with an idea become a blockchain developer.

This is available in public preview.

Go to [Microsoft PowerApps Blog](#) or the [Microsoft Flow Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Power Platform, Blockchain

## Item 6.2 PowerApps Component Framework

Professional developers can extend what's possible in PowerApps by building reusable, custom components that plug into low-code applications.

PowerApps Component Framework becomes generally available in June for model-driven apps, including Dynamics 365 applications. It is available in private preview for canvas-based apps.

Go to [Microsoft PowerApps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Power Platform, PowerApps

## Item 6.3 Visual Studio extensions for custom controls in PowerApps

New extensions for Visual Studio provide support for the latest version of Microsoft's integrated development environment, which developers use to build websites, mobile apps and more.

The Visual Studio extensions follow the recent release of tooling that also supports developers who build custom controls that leverage the PowerApps Component Framework. The new extensions add to Microsoft's investment to make tooling simple to access, intuitive to use and automatable by design.

The extensions are available in private preview.

Go to [Microsoft PowerApps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Power Platform, PowerApps, Visual Studio



### Item 6.4 PowerApps embedding SDK

PowerApps SDK gives developers the ability to embed pre-built PowerApps into their existing user experience.

The SDK also allows users to launch the PowerApps maker experience in their application, providing Microsoft's no-code, app-authoring capabilities to their user base.

For ISVs that host multitenant SaaS apps on Azure or any cloud service, the SDK also helps deliver more value at low cost or no cost.

This is now available for public preview.

Go to [Microsoft PowerApps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Power Platform, PowerApps

### Item 6.5 PowerApps quality checkers

PowerApps makers, including those who use PowerApps to customize Dynamics 365, now have rich analytical tools to identify performance, stability and usability risks down to the line of code.

PowerApps App Checker pinpoints errors, runtime performance issues and accessibility guidance directly inline when authoring an app.

PowerApps Solution Checker analyzes all the related components in a solution — such as apps, entities, business logic and plugins — spotting performance and stability risks line-by-line. It also offers in-context links to deep documentation that explains how to fix any issues.

Both are now generally available.

Go to [Microsoft PowerApps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Power Platform, PowerApps

### Item 6.6 Unified Lifecycle Management for PowerApps

PowerApps canvas apps and flows can now be included in the same enterprise-grade solution system that underpins Dynamics 365 applications. Solutions allow developers to package and move all app types along with their related dependencies such as entities, forms, views, plugins and other components.

PowerApps customers can now manage the lifecycle of their applications through development, testing (including user acceptance testing), and production by using the Solution system.

The system will become generally available for PowerApps in June.

Go to [Microsoft PowerApps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Power Platform, PowerApps

### Item 6.7 Power BI Python

Python, a high-level, data science language, is now available in Power BI for data transformation and visualization.

This enhancement enables you to share, publish and view Python visuals in your Power BI reports and dashboards. You also can use Python scripts to prepare your dataset.

Python is generally available in the Power BI service.

**Go to [Microsoft Power BI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Power Platform, Power BI, Python**

### Item 6.8 Azure services connector

A new feature in the PowerApps and Flow portals allows users to browse the Azure services they already have and create a custom connection to that service — all in one place.

This will allow our customers to create custom connectors to Azure resources for both Flow and PowerApps all at once, saving time.

The new feature, now generally available, also will make Azure services more visible to Flow and PowerApps users.

**Go to [Microsoft Flow Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Power Platform, PowerApps, Microsoft Flow**

### Item 6.9 Power BI enhancements

Power BI Embedded now offers AI through a drag-and-drop experience as well as paginated report support.

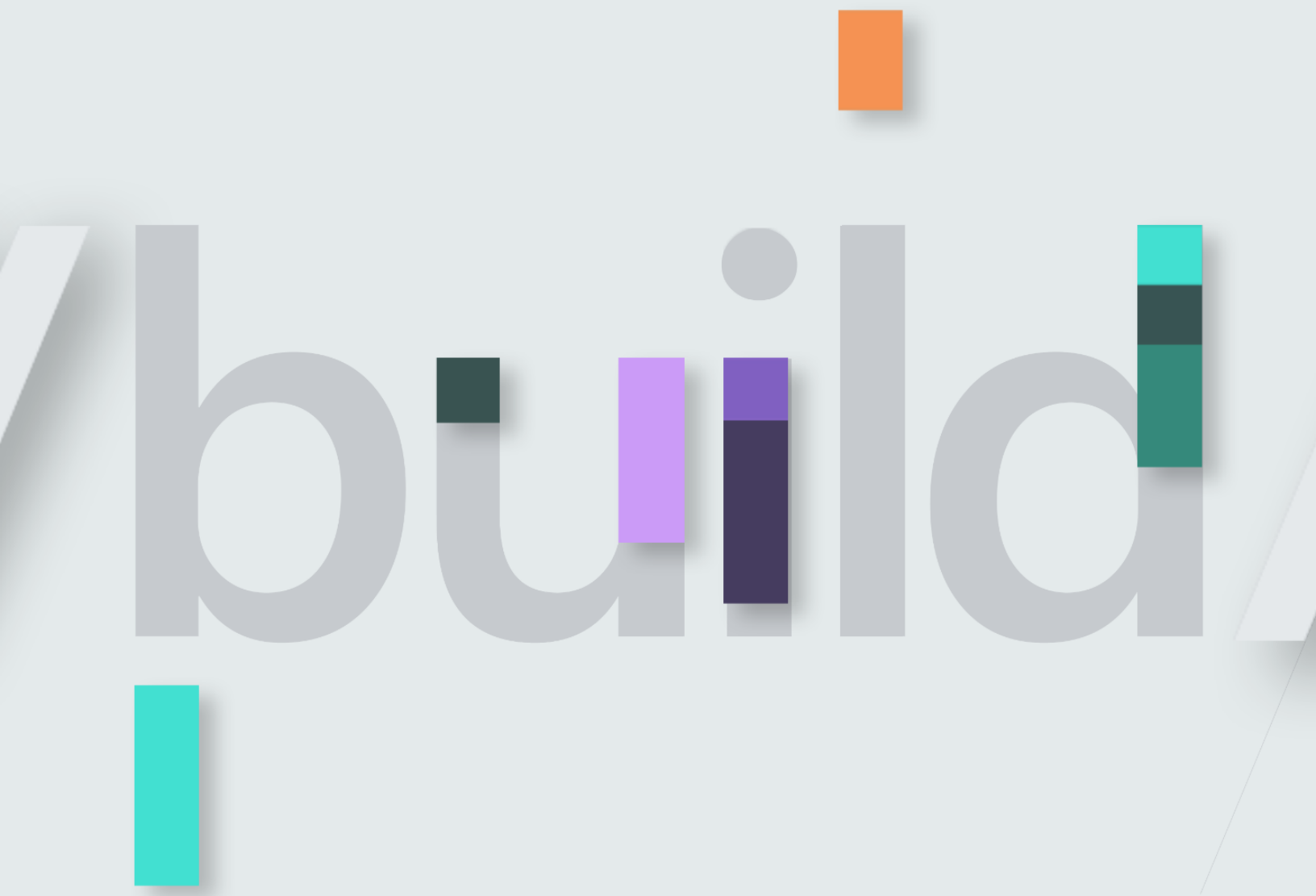
The enhancement provides compelling analytics for your SaaS apps at a fraction of what it would cost to develop the solution yourself.

In addition, Power BI Template apps now enable ISVs to supply out-of-the-box analytics to customers that already use Power BI. And new Python support in Power BI lets you leverage the rich set of Python libraries for data transformation, AI and visualization directly in Power BI.

The Power BI-embedded enhancement becomes generally available in June. The Power BI Template apps enhancement is generally available.

**Go to [Microsoft Power BI Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Power Platform, Power BI**

# Microsoft Azure | AI



# Microsoft Azure | AI

## Item 7.1 Significant new updates to Azure Cognitive Services

We are introducing a new category in Cognitive Services called Decision that reflects the evolution of the product portfolio. Services in this category deliver a specific recommendation to end users for them to act on. This is a higher-level category than Vision, Speech and Language, which are used to “observe” the world. Services such as Content Moderator, the recently announced Anomaly Detector and a new service called Personalizer will be part of this new category. Personalizer provides users with a specific recommendation to enable quick and informed decision-making. With Personalizer, Microsoft is the first company to offer businesses the power of reinforcement learning through a simple-to-use API.

We are also introducing two new services under the Vision category. Ink Recognizer enables developers to combine the benefits of physical pen and paper with the best of digital by embedding digital ink recognition capabilities. Form Recognizer automates data entry by extracting text, key-value pairs and tables from documents.

In Speech, we are introducing an advanced speed-to-text capability called Conversation Transcription that catalyzes meeting efficiency by transcribing conversations in real time so participants can fully engage in the discussion, know who said what when and quickly follow up on next steps.

We are adding additional capabilities in the Language category as well. Language Understanding will have a new analytics dashboard to evaluate the quality of language models. In addition, QnA Maker now supports multiturn dialogs. The named entity extraction capability of Text Analytics is also now generally available.

Finally, we are continuing to make more Cognitive Services available on the edge and on-premises through the use of containers.

Personalizer, Ink Recognizer and Form Recognizer are available in preview.

Conversation Transcription capability of Speech Service is available in preview.

Language Understanding and QnA Maker updates are available in preview.

Named entity extraction capability of Text Analytics is generally available.

Container support for Speech-to-Text, Text-to-Speech, Form Recognizer and Anomaly Detector is available in preview.

Neural Text To Speech capability and Speech Service Device SDK are now both generally available.

Computer Vision Read capability is now generally available.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure](#), [Data](#), [AI](#), [Cognitive Services](#)**

## Item 7.2 New knowledge mining capabilities in Azure Search

Cognitive search capability, the content-understanding feature within Azure Search, now offers a single mechanism to apply a series of pre-built and custom AI models to data. Microsoft is the first company to offer an AI-integrated approach to its search service, which allows developers to identify and explore information at scale across information ranging from images to CAD files to videos.

In addition, a new knowledge store capability in cognitive search enables developers to further leverage the insights and metadata they extracted from the cognitive search pipeline. Developers can store the enriched metadata they created with cognitive search and apply it to any variety of scenarios such as Power BI visualizations, custom knowledge graphs, triggered actions within an application, or build machine learning models.

The cognitive search capability is generally available. The knowledge store capability is in preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [Azure Search](#), [Data](#), [AI](#)

## Item 7.3 Innovations in Azure Machine Learning

New updates to Azure Machine Learning simplify the building, training and deployment of machine learning models for enterprises.

New capabilities simplify the development of machine learning models. These include an automated machine learning user interface for a zero-code model creation experience, a new visual machine learning workspace that provides a drag-and-drop authoring environment, and new machine learning notebooks for code-first model development. All these capabilities are available in preview.

There are also new capabilities to operationalize models at scale. New MLOps, or DevOps for Machine Learning capabilities, simplify end-to-end lifecycle from model creation to deployment and monitoring with Azure DevOps integration.

Finally, there is now high-speed inferencing from cloud to edge. This enables low-latency and low-cost inferencing with the general availability of hardware-accelerated models that run on FPGAs in Azure. This capability is also available in preview in Data Box edge. ONNX Runtime support for NVIDIA TensorRT and Intel nGraph enables high-speed inferencing on NVIDIA and Intel chipsets.

Azure Machine Learning helps data scientists and developers build and train AI models faster, then easily deploy those models to the cloud or the edge.

The updates in Azure Machine Learning are all currently available.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [machine learning](#), [Data](#), [AI](#)

## Item 7.4 Azure Open Datasets

Azure Open Datasets helps customers improve machine learning model accuracy by providing rich, curated open data. This saves customers the time normally spent on both data discovery and preparation.

Azure Open Datasets is available in preview.

Go to the [Microsoft Azure Blog](#) and contact [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [machine learning](#)

### Item 7.5 Microsoft Bot Framework enhancements

New feature enhancements to the Microsoft Bot Framework allow developers to handle complex dialogs with users while also enjoying more natural language experiences.

The updates include the ability to improve the dialog management process — necessitating less code by using adaptive dialogs. Additionally, Language Generation allows developers to decouple language resources for their bot and then manage those resources in separate files, avoiding the need to hardcode bot responses. Finally, Emulator now has improved fidelity for debugging channels to more easily test on your respective channel.

The updates are available in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Microsoft Bot Framework, AI](#)

### Item 7.6 Virtual assistant solution accelerator enhancements

New feature enhancements to virtual assistant solution accelerator include the preview of a skills template to create new skills and add these easily to your assistant. Skills included in preview: Calendar, Email, Task for productivity along with Point of Interest and Automotive skills.

The updates are available in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Data, AI](#)

### Item 7.7 Autonomous systems

Microsoft is making it easy for every organization to create autonomous systems powered by AI for their real-world business scenarios. From smart buildings to industrial machinery to robotics, Microsoft is democratizing the development of any autonomous system.

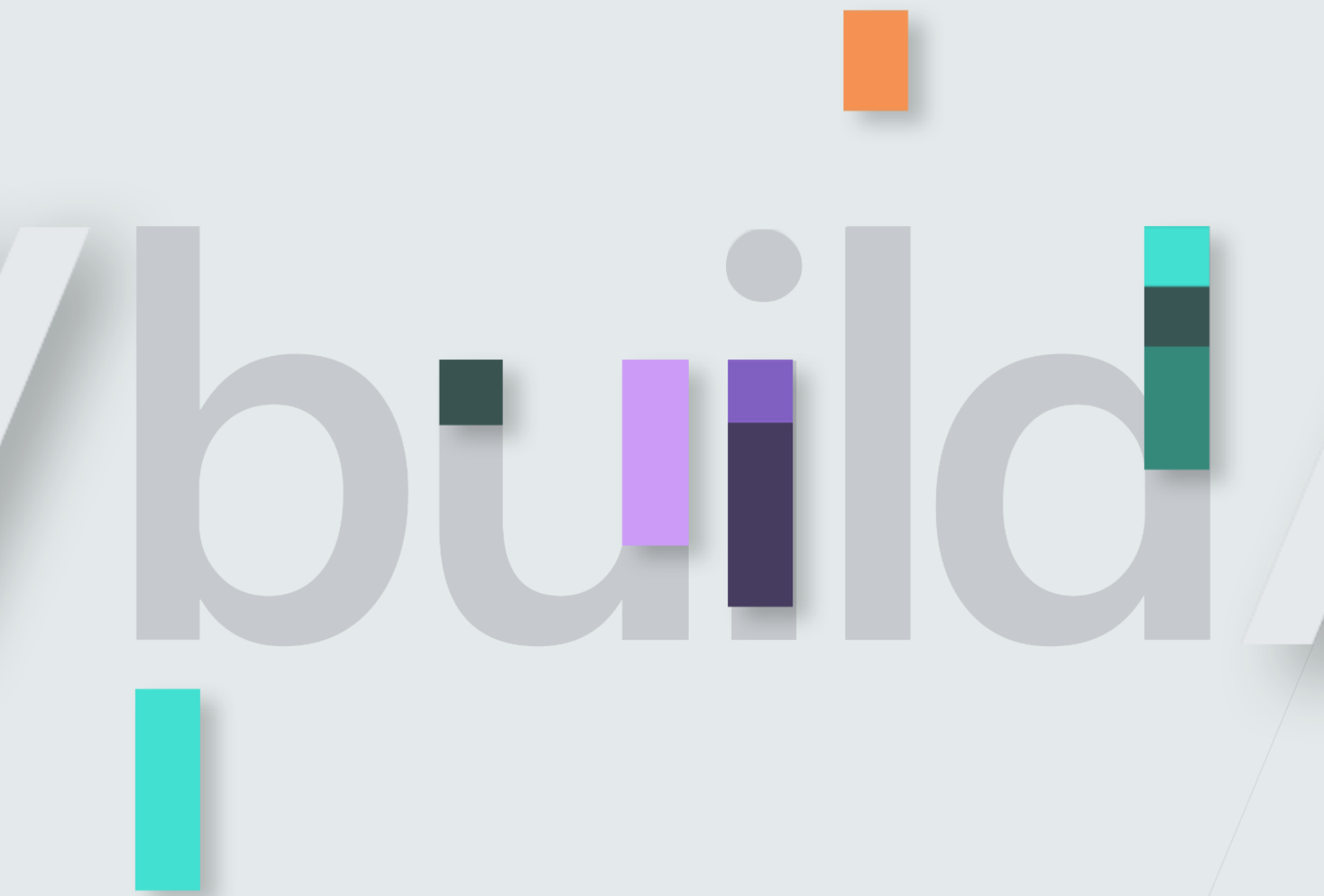
Microsoft's solution is based on a new approach to AI development called machine teaching. With machine teaching, domain experts can leverage their knowledge to teach these systems without expertise in the complex techniques underneath. Systems can be safely trained in a virtual environment and deployed to the real world with explainable and auditable predictions, as well as fail-safe mechanisms that keep humans in the loop.

The first component of this platform is in private preview to select customers.

Go to the [Innovation Stories Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Machine teaching, AI](#)

CHAPTER 8

# Mixed Reality



# Mixed Reality

## Item 8.1 HoloLens 2 Development Edition

The new HoloLens 2 Development Edition is designed to help developers quickly build mixed-reality apps and experiences.

The development edition includes a HoloLens 2 device, \$500 in Azure credits and three-months-free trials of Unity Pro and Unity PiXYZ Plugin for CAD data, starting at \$3,500 or as low as \$99 per month.

The HoloLens 2 Development Edition will be available for preorder soon and will ship later this year. To be notified when the HoloLens2 Development Edition becomes available for pre-order, join the Mixed Reality Developer Program.

Contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Mixed Reality](#)

## Item 8.2 Unreal Engine support for HoloLens 2

Unreal Engine is a full product suite of creation tools designed to meet ambitious, artistic visions while being flexible enough to ensure success for teams of all sizes.

Unreal Engine support for streaming and native platform integration will be available for HoloLens 2 by the end of May.

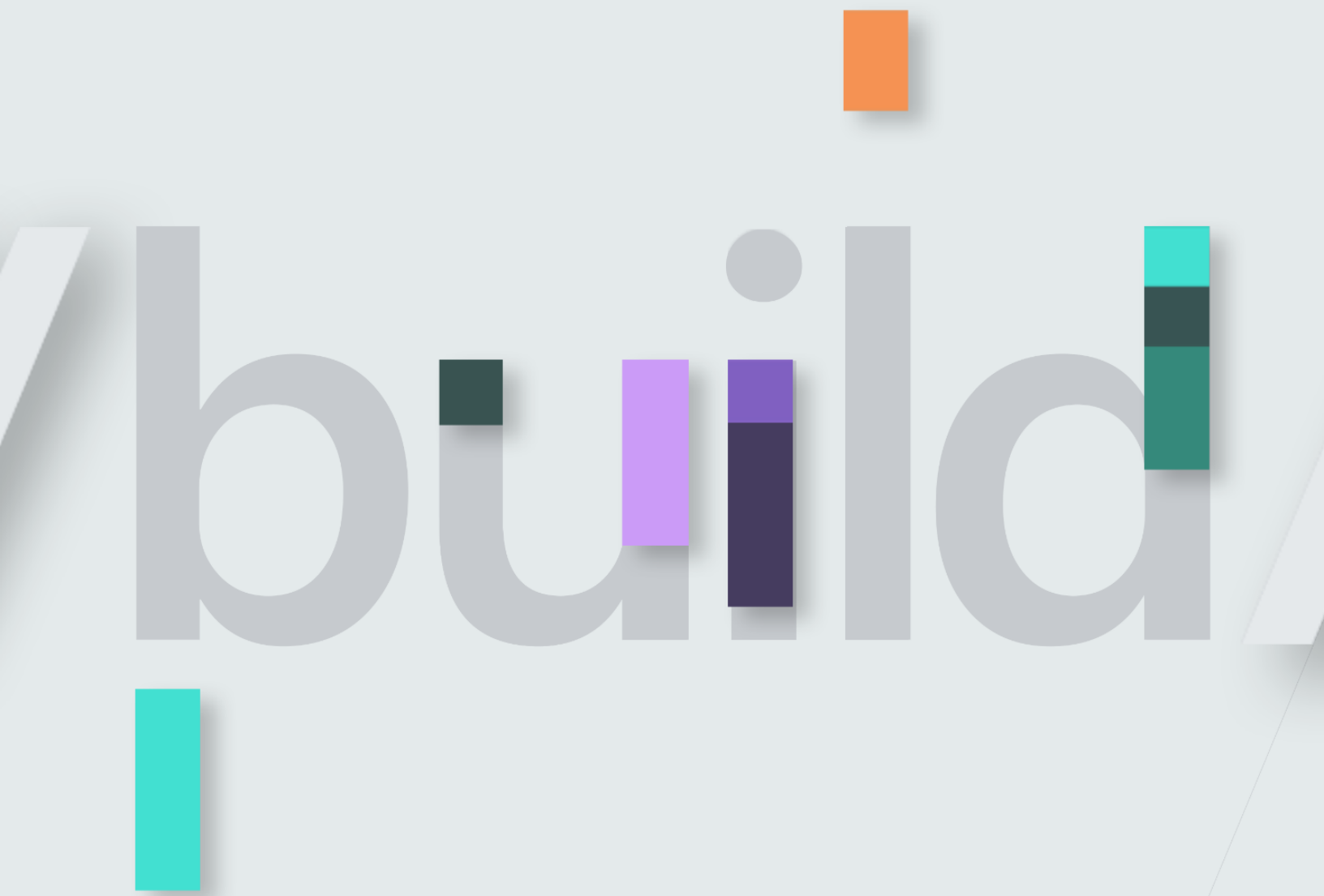
Contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Mixed Reality](#)



CHAPTER 9

# Blockchain



# Blockchain

## Item 9.1 Azure Blockchain Service

Building with blockchain just got easier with Azure Blockchain Service, which simplifies the formation, management and governance of consortium blockchain networks, allowing businesses to focus on workflow logic and app development.

Azure Blockchain Service enables developers to deploy a fully managed consortium network in a few simple clicks and leverage built-in governance to add new members, set permissions and authenticate user applications. Developers also can monitor network health and activity.

The open and extensible design of Azure Blockchain Service also eases consortium growth, letting new members work with the dev tools, off-chain databases and SaaS applications they use to manage their workflows today.

This available in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure, blockchain](#)

## Item 9.2 Visual Studio code extension for Azure Blockchain

The Visual Studio Code Extension for Azure Blockchain provides an end-to-end & Apps developer experience for building blockchain apps on Azure Blockchain Service or on public Ethereum, using the best of Azure and popular open-source tools such as Truffle and Solidity.

The extension, now available, streamlines the development tasks associated with blockchain in the familiar interface of Visual Studio. Developers can create and compile Ethereum smart contracts, choosing from a variety of deployment environments, such as public Ethereum, a permissioned network in Azure Blockchain Service, or locally.

Developers also can expose those smart contracts as a web service, making it easy to push ledger data to applications (such as Dynamics) or off-chain databases (such as Azure SQL Database), using pre-built commands and serverless tools such as Logic Apps, all within Visual Studio Code.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure, blockchain](#)

## Item 9.3 J.P. Morgan blockchain partnership

Microsoft has entered a memorandum of understanding to establish a strategic partnership with J.P. Morgan to accelerate the adoption of blockchain technology. Through this partnership, Quorum, the first fully managed ledger available in the new Azure Blockchain Service.

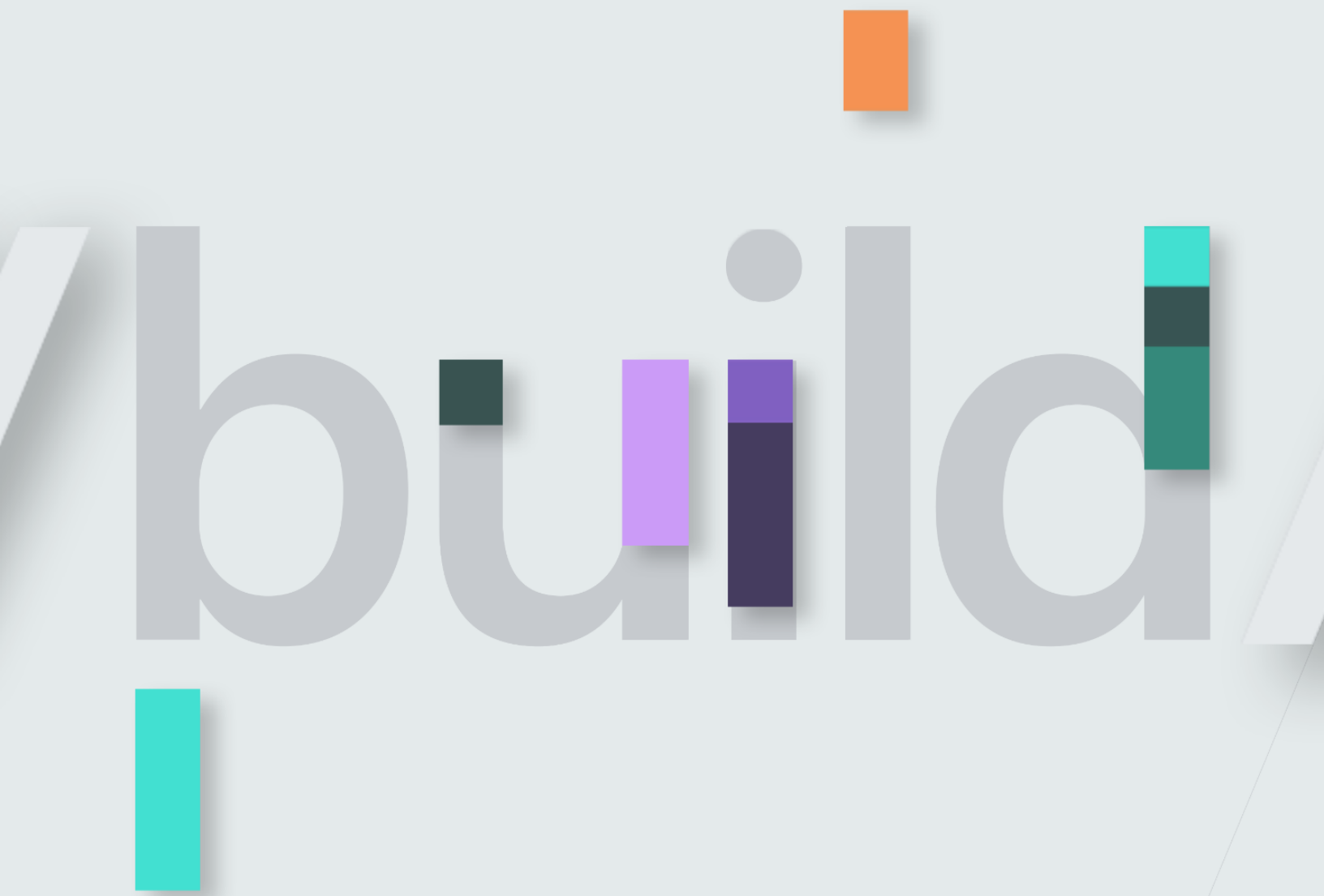
Over the past four years, Ethereum has grown the largest community of open-source developers working on blockchain applications. For enterprise customers, Quorum has become the preferred Ethereum distribution for its support of confidential transactions.

With Azure Blockchain Service, Quorum customers can now rapidly expand their networks with lower costs, simplified deployment, built-in governance and extensible design, allowing developers to shift their focus from infrastructure management to application development.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure, blockchain](#)

CHAPTER 10

# Intelligent Edge and IoT



# Intelligent Edge and IoT

## Item 10.1 Azure SQL Database Edge

Azure SQL Database Edge is a small footprint database engine with built-in AI that is optimized for the intelligent edge. This new product combines data streaming and time series with in-database machine learning and graph to unlock intelligence on the edge with a simplified architecture.

It is now available in preview via an early-adopter program.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, intelligent edge

## Item 10.2 IoT Plug and Play

One of the biggest challenges for enterprises to scale IoT deployments is to connect IoT devices to the cloud due to heterogeneous nature of devices today such as different form factors, processing capabilities, operational system, memory and capabilities.

IoT Plug and Play offers a new, open modeling language to connect IoT devices to the cloud seamlessly. With IoT Plug and Play, developers can connect IoT devices to the cloud, without having to write a single line of embedded code. IoT Plug and Play also enables device manufacturers to build smarter IoT devices that just work with the cloud.

In the past, Microsoft introduced the Plug and Play technology that allowed PC users to quickly connect peripherals without having to perform complex hardware and software configurations. Similarly, with IoT Plug and Play, Microsoft is simplifying IoT to accelerate adoption for enterprises who will be able to prototype and move to full scale deployments much faster.

At Build, we are announcing that cloud developers will be able to find IoT Plug and Play enable devices in our [Azure IoT Device Catalog](#). The first wave includes dozens of device partners including: Compal, Kyocera and STMicroelectronics.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, IoT, intelligent edge

## Item 10.3 Azure IoT Edge integration with Kubernetes clusters

Many IoT solutions are business-critical systems that must be reliable and available at the edge. With this new integration, users can use a modern, feature-rich and resilient infrastructure layer that Kubernetes provides to run their edge applications.

These applications are powered by Azure IoT Edge, which provides cloud-managed intelligence by deploying and running AI, Azure services and custom logic directly on the cluster. Edge applications can continue to be managed remotely, securely and at-scale, using the simple and familiar deployments from Azure IoT Hub.

The feature is in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, IoT

### Item 10.4 Azure IoT Central new features

Azure IoT Central is a fully managed, global IoT software-as-a-service solution that helps you connect, monitor and manage your IoT assets at scale.

We are announcing new capabilities that enable IoT Central to more seamlessly integrate with existing enterprise systems and extend the platform to provide insights and actions in the full context of your business environment.

These features include: 1) Better rules processing and custom rules that deliver clean, consistent data to line of business applications with services like Azure Functions or Azure Stream Analytics. 2) Multiple dashboards and data visualization options for different types of users of your application. 3) Inbound and outbound data connectors, so that operators can integrate with third-party systems. 4) Ability to add custom branding and operator resources to your IoT Central application with our new white labeling options for a better visual fit with your organization's other applications.

These new Azure IoT Central features are available for customer trials.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, IoT

### Item 10.5 Azure Sphere new modules

We're announcing a new set of hardware solutions that can be integrated into legacy IoT devices, retrofitting them to ensure they are secure. The new modules give customers the secure connectivity and development experience of Azure Sphere while scaling its features and functionality to meet specific use cases, allowing customers to get to market faster.

The modules now are available for prototyping and production use.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, IoT, intelligent edge

### Item 10.6 Azure Maps Mobility Service

Azure Maps is announcing a new API, the Azure Maps Mobility Service. This service will provide real-time public transit information, including nearby stops, routes and trip intelligence. This API also will provide transit services that enable routing and intelligence services to help with city planning, logistics and transportation.

Azure Maps Mobility Service is a key tool for field service and public-sector applications. It will enable route planning by using real-time transit intelligence, powered by leading transit provider Moovit.

Azure Maps Mobility Service will be in public preview in June.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: Azure, IoT

## Item 10.7 New Bing Maps releases

The Bing Maps team continues to add developer-friendly features to its enterprise-mapping platform. Three new releases deepen the commitment to make geospatial services available across multiple platforms — and all mark fresh investments in routing capabilities and fleet-management services.

The Bing Maps SDK provides a new library for building mapping applications in Android and iOS, featuring new controls powered by a full-vector 3-D map engine with a number of standard mapping capabilities running with native performance. It enables you to maintain consistent user experiences, including custom styling, across platforms.

Also new is an SDK for mixed-reality scenarios that can be consumed in Unity. Maps SDK provides a control to visualize a 3-D map in Unity. The map control handles streaming and rendering of 3-D terrain data with worldwide coverage, including select high-level detail of cities. Users can easily integrate maps into mixed-reality apps.

The third new release is Bing Maps Multi-Itinerary Optimization API. It will help drivers, planners and dispatchers automate planning while optimizing their fleets, based on drivers' shift schedules, service time windows, duration and priorities. It also factors in predicated traffic on the route. It reduces the time spent on manual planning and helps cut down operational costs related to driving time, distance and resources.

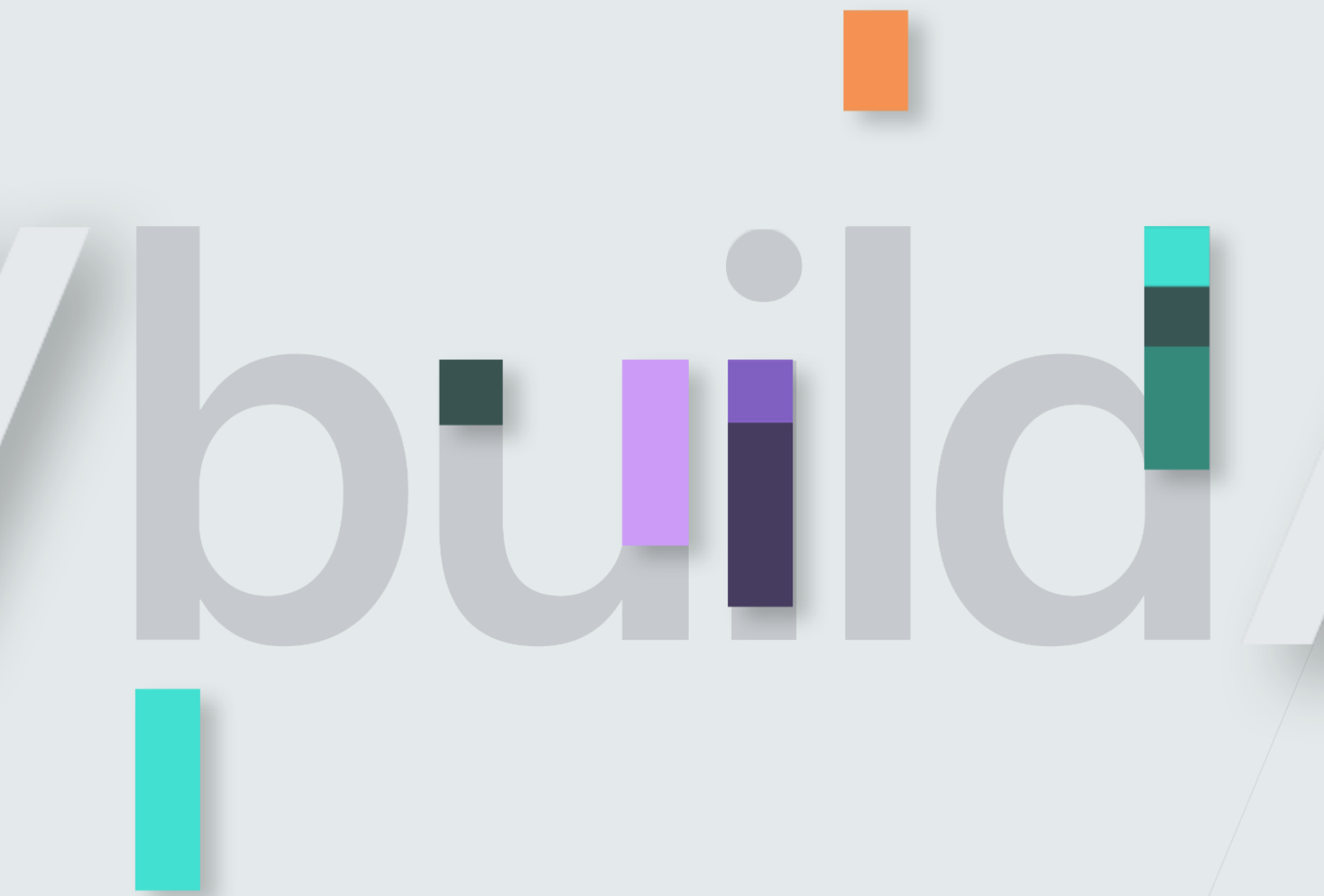
All three Bing Maps releases are currently available.

Contact the [Microsoft Media Relations team](#) to learn more.

Tag: Bing, Developer Tools

CHAPTER 11

# Databases



# Databases

## Item 11.1 Hyperscale service tier for select Azure database engines

A new Hyperscale service tier in Azure Database for PostgreSQL joins Azure SQL Database Hyperscale to enable developers to build highly scalable, low latency applications using their existing skills.

Azure Databases with Hyperscale significantly scales out compute, storage and memory resources as needed, allowing developers to focus on building app experiences without worrying about performance and scale limitations. Azure is the only cloud that lets developers scale across multiple engines – both proprietary SQL databases and open source databases, such as PostgreSQL.

This service tier is currently in public preview as Hyperscale (Citius) for Azure Database for PostgreSQL and is generally available as Azure SQL Database Hyperscale.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, database](#)

## Item 11.2 Azure Cosmos DB API for Spark and etcd

Azure Cosmos DB, a globally distributed multi-model database service, now offers APIs for Apache Spark and for etcd, a distributed key-value store designed to securely store data across a cluster.

These updates bolster the abilities of Cosmos DB users to build and manage operational analytics workloads that run real time over globally distributed data.

Both APIs are available in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, database](#)

## Item 11.3 Azure Cosmos DB notebook experience

Azure Cosmos DB now provides a notebook experience for all APIs.

The feature allows Python developers to enjoy a supported notebook experience for native APIs in Azure Cosmos DB. Notebooks are popular because they offer developers an easy way to share code and collaborate.

This feature is available in public preview.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, database](#)



### Item 11.4 Oracle migration to Azure Database for PostgreSQL

Users now can perform online migrations of Oracle databases to Azure Database for PostgreSQL by using [Azure Database Migration Service](#). The Oracle databases can be hosted on-premises or on a virtual machine.

When paired with a new preview of Hyperscale in Azure Database for PostgreSQL, customers now have a destination for reliable, online migrations of Oracle to Azure.

This capability is available in public preview.

Go to [Azure Data Migration Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, database](#)

### Item 11.5 Azure SQL Database serverless

Azure SQL Database is offering a new serverless compute tier that optimizes price performance and simplifies performance management for databases with intermittent, unpredictable usage. It helps customers focus on building apps faster and more efficiently.

This new tier automatically scales compute for single databases based on workload demand and pauses during periods of inactivity. SQL Database serverless is also cost-efficient - it bills for compute usage by the second, so customers only pay for the resources they use.

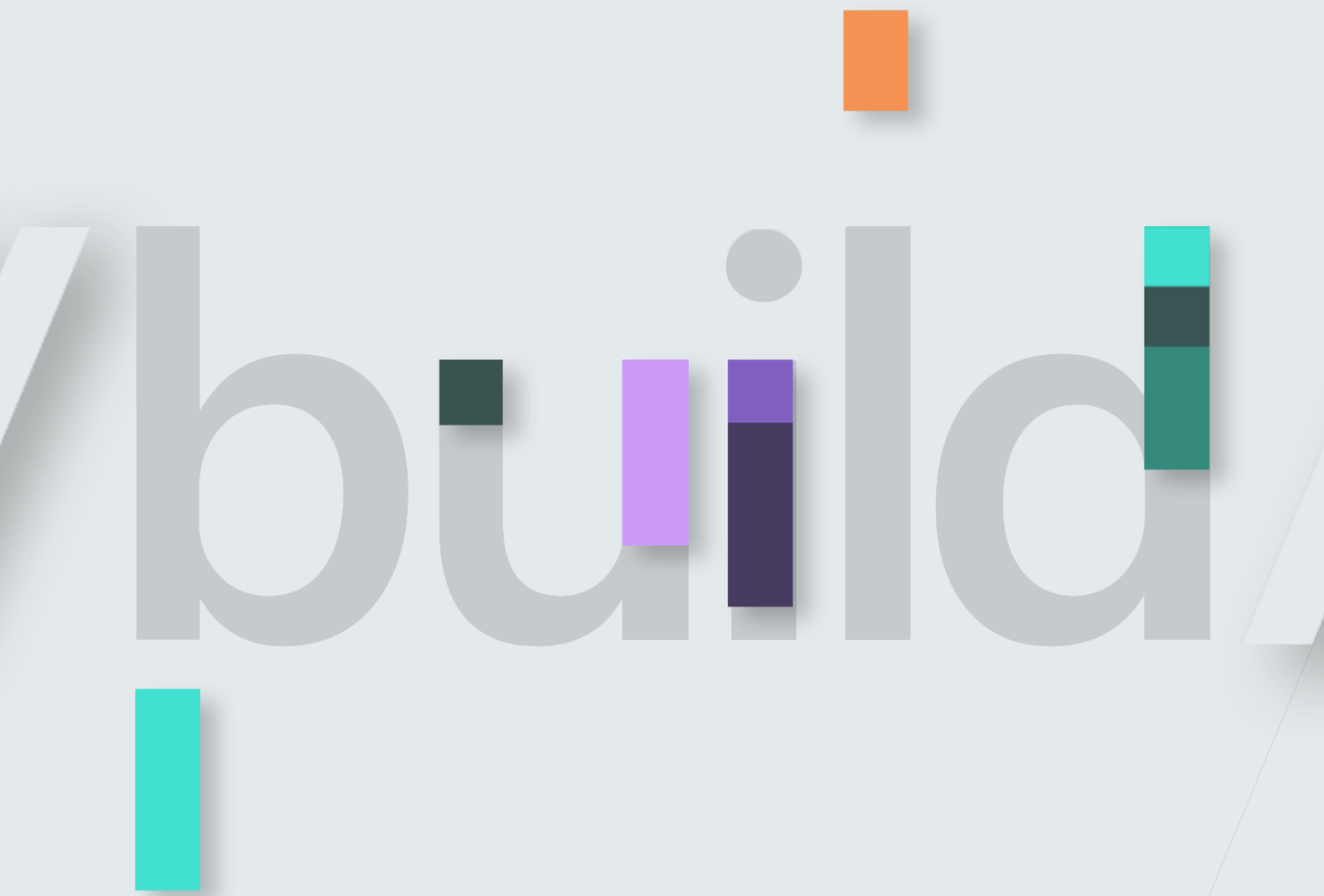
The serverless tier will be announced in public preview for single databases.

Go to [Microsoft Azure blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, database](#)

CHAPTER 12

# Analytics



# Analytics

## Item 12.1 Azure Data Factory enhancements

Two feature enhancements to Azure Data Factory allow developers to be more productive by visually transforming their data at big-data scale without any code.

The launch of Mapping Data Flows makes Azure Data Factory a full ETL/ELT (extract/transform/load and extract/load/transform) service. Additionally, Wrangling Data Flows, now in private preview, offers a code-free way to visually discover and prepare data without writing code.

Mapping Data Flows in Azure Data Factory is now in public preview.

Go to [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, data, analytics](#)

## Item 12.2 Azure SQL Data Warehouse updates

New features in Azure SQL Data Warehouse strengthen its position as a fast, flexible and highly secure analytics platform.

The enhancements include support for native semistructure (JSON) data. Security and privacy are also improved with Dynamic Data Masking.

In addition, users now have access to near-instantaneous query processing for business intelligence with Results Sets Caching and Materialized Views. Finally, Workload Management Importance allows administrators different query priorities.

The updates are currently in private preview.

Go to [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, data, analytics](#)

## Item 12.3 Azure Data Lake Storage update

A new feature in Azure Data Lake Storage (ADLS) Gen2 — a highly scalable, cost-effective data lake solution for big data analytics — gives users a single endpoint API for data lake analytics and object storage.

ADLS Gen2 Interoperability with Blobs offers users Azure Blob Storage and ADLS API access to the same data while providing a no-compromise object store and data lake.

This feature is currently in private preview.

Go to [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, data, analytics](#)

### Item 12.4 Azure Data Explorer update

Azure Data Explorer, a lightning-fast indexing and querying service, now supports the ability to query directly from a data lake.

Previously, the service provided native support from incoming, raw, streaming data. With this update, Azure Data Explorer also can explore for insights from a data lake, enabling more organizations to explore historical data.

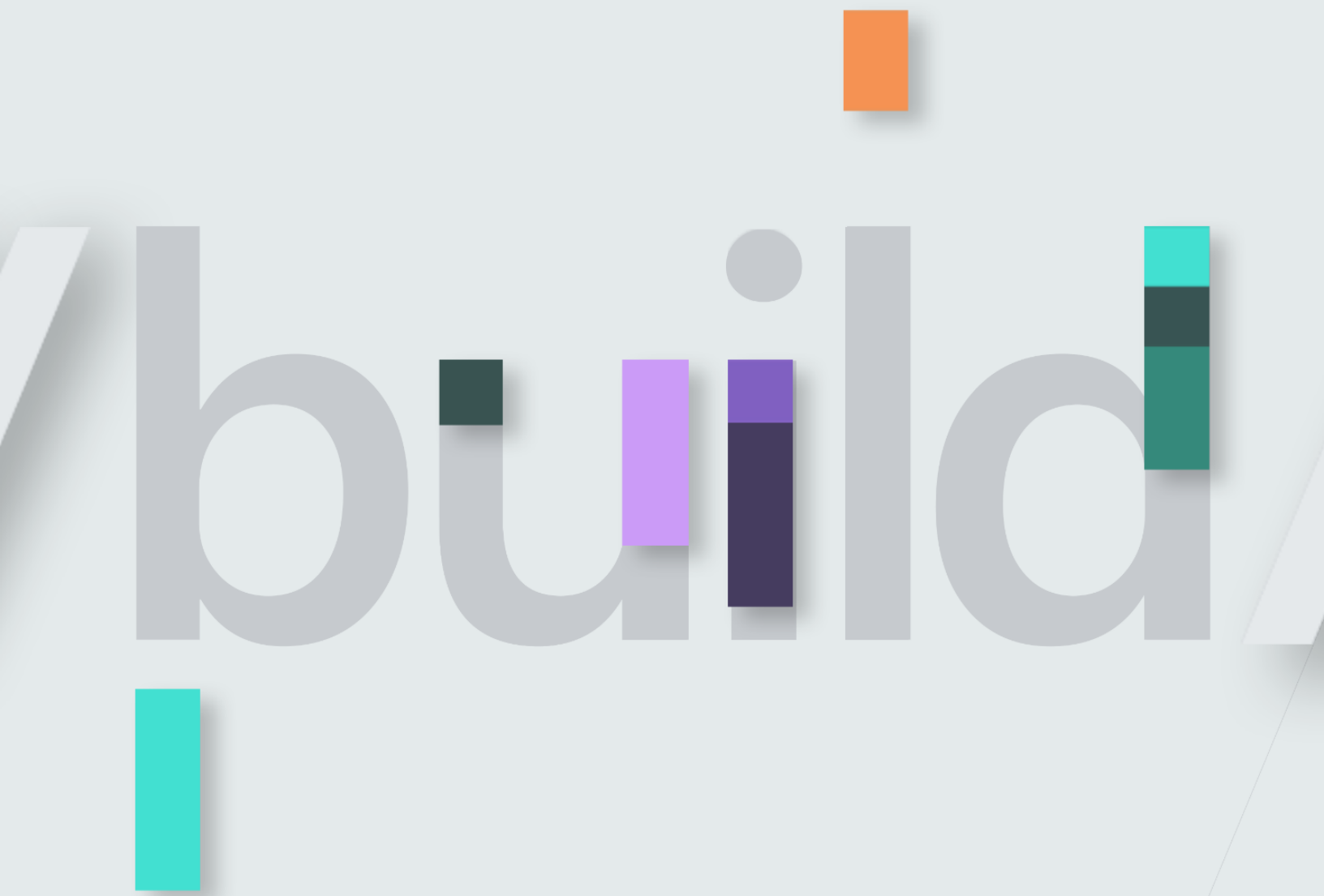
This update is currently in private preview.

Go to [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure, data, analytics](#)

CHAPTER 13

# Kubernetes and Serverless



# Kubernetes and Serverless

## Item 13.1 Azure Container Registry updates

We are announcing a new capability that allows customers to automate continuous integration/continuous deployment workflows [based on Helm chart updates in Azure Container Registry](#). This feature is now in public preview. Also, by using [Tag locking](#) you can build a stable workflow by having an immutable container image that can't be accidentally deleted or overwritten.

Tag locking is now generally available.

Go to [Microsoft Azure Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [Kubernetes](#)

## Item 13.2 Azure Kubernetes Service virtual nodes

Azure Kubernetes Service (AKS) virtual nodes allow users to elastically provision additional pods in seconds in response to a spike in demand.

With a few clicks in the Azure portal, users can turn on the virtual node feature and get the flexibility and portability of a serverless container experience in an AKS environment — and there's no need to manage additional compute resources.

This feature, previewed [in December](#), is powered by the open source [Virtual Kubelet](#) technology donated to Cloud Native Computing Foundation. It is now generally available.

Go to [Microsoft Azure Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [Kubernetes](#)

## Item 13.3 Azure Dev Spaces for Azure Kubernetes Service

Azure Dev Spaces provides an easy way to build and debug applications for Kubernetes.

With Dev Spaces, developers can rapidly iterate and debug different parts of an application in parallel in the same Azure Kubernetes Service (AKS) cluster. They can also test their code end-to-end without replicating or mocking up dependencies.

It is now generally available for AKS.

Go to [Microsoft Azure Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Azure](#), [Kubernetes](#)

### Item 13.4 KEDA: Kubernetes-based event-driven autoscaling

Microsoft and Red Hat collaborated to create an open-sourced project that supports the deployment of serverless, event-driven containers on Kubernetes. Kubernetes-based event-driven autoscaling (KEDA) can be used in any Kubernetes environment — in any public/private cloud or on-premises such as Azure Kubernetes Service (AKS) and Red Hat OpenShift.

Customers can build event-driven scenarios in Kubernetes environments benefiting from both the automated consumption-based scaling — including scale to zero — and event-based programming model. KEDA has support for built-in triggers to respond to events happening in other services or components. This allows the container to consume events directly from the source, instead of routing through HTTP. Any Kubernetes workload that requires scaling based on events instead of traditional CPU or memory scaling can leverage this component.

KEDA also presents a new hosting option for Azure Functions that can be deployed as a container in Kubernetes clusters, bringing the Azure Functions programming model and scale controller to any Kubernetes implementation in any cloud, public or on-premises.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Azure, Kubernetes**

### Item 13.5 Azure Policy integration and enhanced network security for Azure Kubernetes Service

Azure Policy integration for Azure Kubernetes Service (AKS) allows users to apply at-scale enforcements and safeguards for AKS clusters in a centralized, consistent manner. It is now in public preview.

We are also introducing new capabilities to help secure communication paths for Kubernetes applications. Authenticated IP in AKS allows organizations to restrict access to their Kubernetes control plane to specific IP addresses or IP ranges. This feature is in public preview.

User-defined network policy in AKS enables cluster operators to control which pods can communicate with each other and with resources outside the cluster. Network policy is now generally available.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Azure, Kubernetes**

### Item 13.6 Enterprise capabilities through Azure Functions Premium Plan

The Azure Functions Premium plan offers a new hosting option for function apps, providing pre-warmed compute instances to run your application with zero startup-related delay even after being idle. This allows customers to combine the ease of use of an event-driven programming model and the consistent performance guarantee of dedicated compute resources, while still benefitting from the dynamic scale promised by serverless Azure Functions. This new plan also offers virtual-network connectivity enabling customers to use Functions in enterprise scenarios.

Functions Premium plan is available in public preview.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**  
**Tag: Azure, serverless**

### Item 13.7 Serverless capabilities in Azure API Management

The new consumption tier in Azure API Management makes it easy for companies to manage, secure and analyze their APIs in a variety of new scenarios that require consumption-based usage. In addition to pricing on a per-usage basis, this tier scales dynamically with API usage, reducing the operational overhead associated with managing scale. The consumption-pricing tier will be generally available at the end of May.

Additionally, developers can now easily use API Management capabilities for the serverless APIs built using Azure Functions, from within the context of a function app. The Azure Functions user interface now allows users to expose a function app through API Management and manage its API. This capability is in public preview.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Azure, serverless](#)**

### Item 13.8 Deeper enterprise integration capabilities through Azure Logic Apps

Integrated Service Environment for Azure Logic Apps provides a fully isolated and dedicated environment for enterprise-scale integration needs. Customers that need highly secure access to virtual network resources, consistent and reliable performance, isolated storage, and predictable pricing can now use Logic Apps for their integration needs. This capability is now generally available.

Another common requirement from enterprise customers is the ability to integrate with SAP systems. The improved SAP connector enables seamless integration between SAP and other applications or data sources. The SAP connector is generally available.

Logic Apps now provides support for RosettaNet, an Electronic Data Interchange (EDI) standard created by a consortium of IT, electronic and manufacturing companies. This allows customers to encode and decode data based on the RosettaNet standard from within their Logic Apps workflows, unlocking a variety of supply-chain and EDI-related scenarios. This support is in public preview.

Finally, Logic Apps is now introducing a new capability for developers to write custom code from within the Logic Apps interface. This new inline code capability enables developers to create workflows that massage and transform data, perform complex calculations, or complete any other scenarios in which existing connectors don't suffice or code is the preferred choice. This feature brings additional power to workflows in addition to the productivity benefits already provided by hundreds of out-of-the-box connectors. Inline code is in public preview.

**Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Azure, serverless](#)**



### Item 13.9 Expanded support for different kinds of web applications through Azure App Service and a free tier

Azure App Service on Linux has expanded its language support by adding Python 2.6, 3.6 and 3.7 versions as well as Java 11. The new language support also comes with a simplified build experience allowing customers to build their apps directly on App Service instances. Customers building web apps with Python or Java can now enjoy the fully managed experience of hosting applications, with free security patches and platform bug fixes. This support is now generally available.

App Service on Linux now supports a breadth of web applications from very simple to very complex. For customers needing an easy and inexpensive on-ramp, we are introducing a perpetually free tier, so customers can experiment with their Linux-based web apps, before investing fully. To support enterprise-grade workloads, we are introducing features like VNet Integration, a common request from advanced customers. This feature enables Linux-based web applications to access resources in virtual networks, service-endpoint-secured entities, and on-premises locations through ExpressRoute or site-to-site VPN. VNet Integration is available in standard and premium Azure App Service plans and is now in public preview.

Go to the [App Service page](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure, App Service](#)

### Item 13.10 Azure App Configuration

A new Azure service called App Configuration enables fast, scalable parameter storage for all your app configurations.

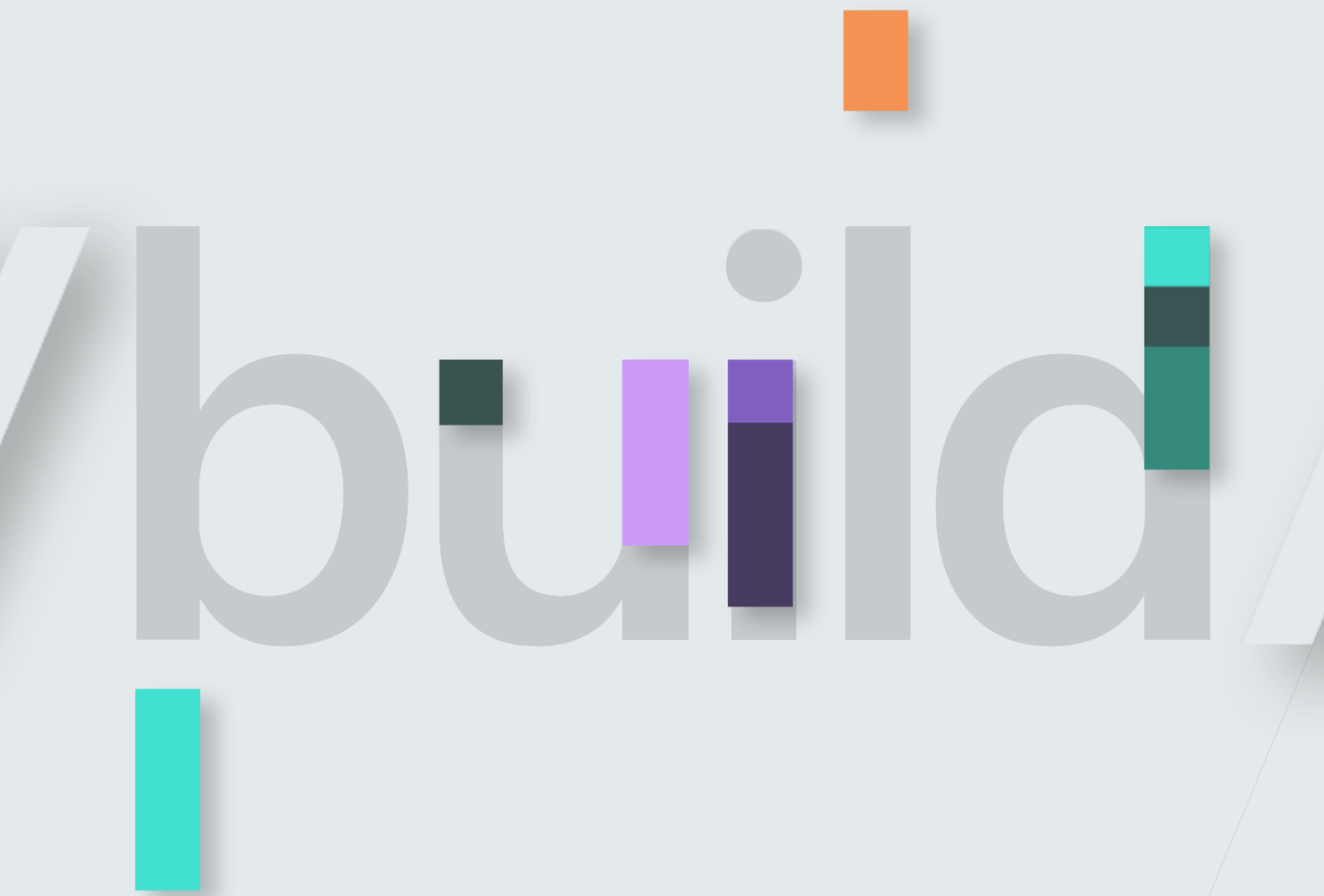
Previously, developers had to store app configurations with their code. This was both difficult to take to scale and promoted poor security practices. App Configuration solves this problem by letting developers scale app configurations across multiple environments, eliminating difficult-to-track errors across environments while also helping ensure that app configuration data is stored securely away from the code.

Azure App Configuration is available in public preview.

Go to the [App Configuration page](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Azure](#)

CHAPTER 14

# OSS and Open Ecosystem



# OSS and Open Ecosystem

## Item 14.1 Microsoft Quantum

Microsoft soon will open source its Q# compiler and the quantum simulators provided in the Quantum Development Kit. This will make quantum computing and algorithm development easier and more transparent for developers.

Open sourcing these elements of the Quantum Development Kit in GitHub will provide the Microsoft Quantum Network affiliates and startup organizations with more opportunities to leverage Q# and enhance their quantum solutions.

It also will give academic institutions that require OSS the ability to leverage Q# for their quantum development. Additionally, it will enable a community of developers to contribute their improvements and ideas via their own code.

These changes will take place in the coming months.

**Go to the [Quantum Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Quantum, open source](#)**

## Item 14.2 New PostgreSQL extension for automating failover

Microsoft is releasing a new PostgreSQL extension that provides PostgreSQL developers with a simple and consistent way to automate failovers.

PostgreSQL extension for automating failover provides a simple, reliable solution focused on automating failover for on-premises and unmanaged-PostgreSQL environments and that have no other third-party dependencies beyond PostgreSQL itself.

Developers of PostgreSQL are often challenged by the complexity of manually implementing failover and high availability, or HA. Developers' productivity suffers when they must maintain a complex setup of automated failover and HA scripts, manually monitor PostgreSQL, and manage multiple dependencies for database failovers. PostgreSQL is an open-source, object-relational database.

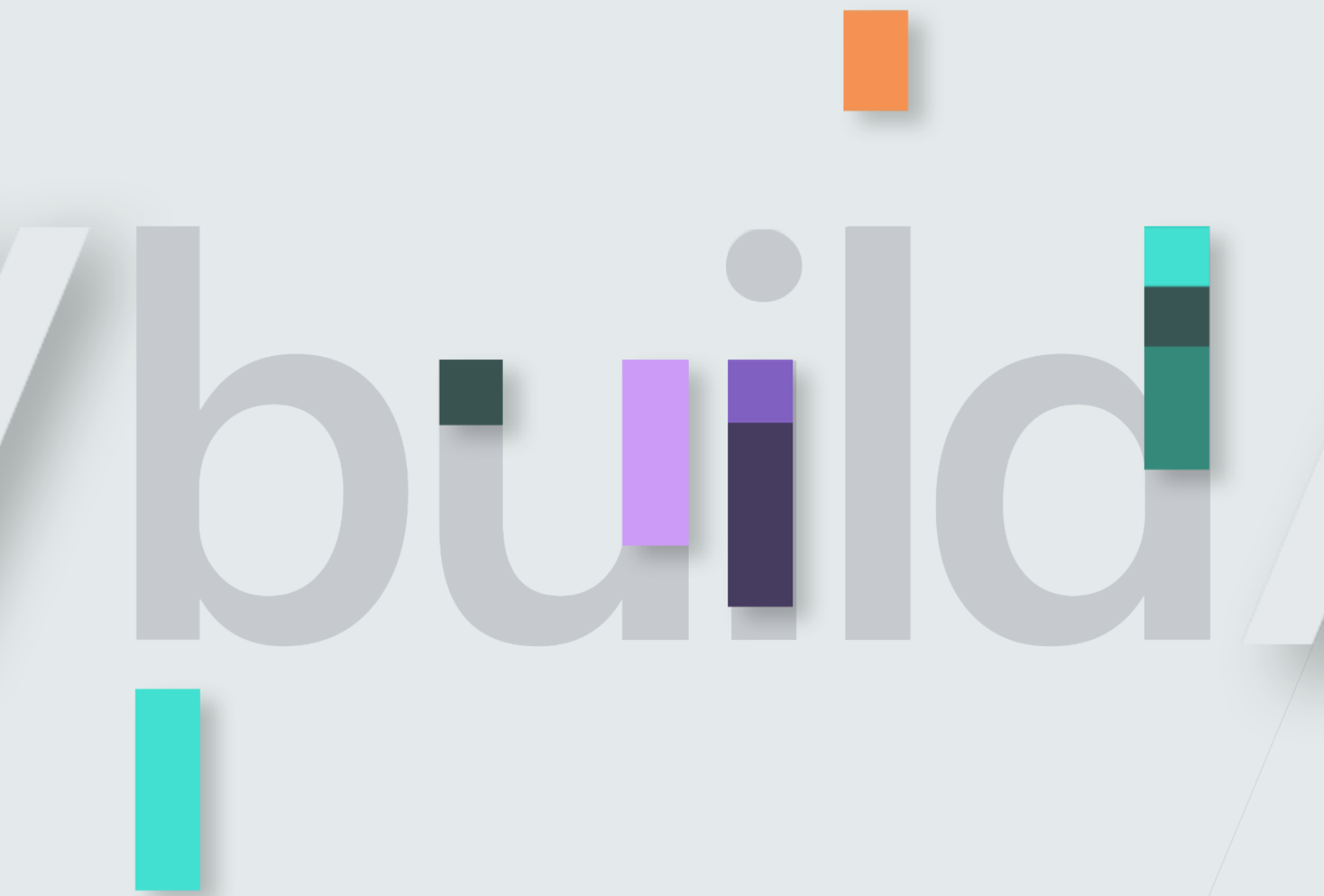
This extension — `pg_auto_failover` — is released under the PostgreSQL license and is now available.

**Contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Data, open source](#)**

CHAPTER 15

# Developer Tools



# Developer Tools

## Item 15.1 Visual Studio Subscription with GitHub Enterprise

The new Visual Studio Subscription with GitHub Enterprise offering gives enterprise customers a simple and economical way to purchase GitHub Enterprise through Visual Studio subscriptions. The offering enables customers to innovate at scale by securely bringing open-source code, community and best practices into the Visual Studio integrated development environment and workflows.

As of May 1, this offer is available for purchase on the Enterprise Agreements (EA and EAS). New or renewing EA customers can purchase either the Visual Studio Enterprise Subscription with GitHub Enterprise SKU or the Visual Studio Professional Subscription with GitHub Enterprise SKU. Visual Studio Enterprise and Professional subscribers on mid-term EA can upgrade their license to the Visual Studio Subscription with GitHub Enterprise offering by purchasing the GitHub Enterprise Step-up SKU.

Go to the [Visual Studio webpage](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Visual Studio, GitHub, developer tools

## Item 15.2 Visual Studio IntelliCode

Visual Studio IntelliCode's AI-assisted development capabilities, such as enhanced IntelliSense, save time by putting what you're most likely to use at the top of your completion list. Those recommendations are based on thousands of open-source projects on GitHub — each with over 100 stars. When combined with the context of your code, that completion list is customized to promote common practices.

IntelliCode's capabilities for assisted IntelliSense are now generally available for C# and XAML for Visual Studio and Java, JavaScript, TypeScript, and Python for Visual Studio Code. IntelliCode also is included by default in Visual Studio 2019, starting in version 16.1 Preview 2. Additional capabilities, such as custom models, remain in public preview.

Go to the [Visual Studio IntelliCode page](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Visual Studio, developer tools

# Developer Tools

## Item 15.3 Visual Studio Code Remote Development extensions

Developers now can use Remote Development extensions for Visual Studio Code to edit and debug code running inside Docker containers, in Windows Subsystem for Linux, or on a remote environment such as another machine or a virtual machine over Secure Shell.

Remote Development enables a number of scenarios on your local instance of Visual Studio Code. It's ideal for developers who work on remote servers and who lack either a graphical user interface or specialized hardware or who want to isolate separate development environments for security or simple configuration.

The Remote Development extension pack is available from the [Visual Studio marketplace](#) or within Visual Studio Code's extensions pane.

Go to [the Visual Studio Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Visual Studio, developer tools](#)

## Item 15.4 Visual Studio Online

Visual Studio Online, a web-based companion to Visual Studio and Visual Studio Code, enables developers to work on and edit code from any device with a modern web browser.

Built for productivity while on the go, this solution helps developers perform quick tasks, join Visual Studio Live Share sessions, or perform pull request reviews at times and in places where they may not have access to their development environment.

**This is available in private preview.**

Go to the [Visual Studio Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: [Visual Studio, developer tools](#)

### Item 15.5 .NET 5 arrives in 2020

.NET 5, the next major version of the .NET Platform, will have one Base Class Library containing APIs for building any type of application. All .NET workloads are supported with application frameworks, including cross-platform web development with ASP.NET, iOS and Android mobile development with Xamarin, Windows Desktop, and cross-platform IoT.

.NET 5 will provide both Just-in-Time (JIT) and Ahead-of-Time (AOT) compilation models to support multiple compute and device scenarios. JIT has better performance for server and desktop workloads as well as development environments. AOT has better startup and a small footprint, and is required for mobile and IoT devices.

.NET 5 also will offer one unified toolchain supported by new SDK project types as well as a flexible deployment model (side-by-side and self-contained EXEs), and it will continue .NET Core's high performance for server and cloud workloads.

.NET 5 is set to release in 2020.

**Go to the [.NET Team Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [.NET, developer tools](#)**

### Item 15.6 ML.NET 1.0

ML.NET lets developers create models targeting scenarios based on ML tasks, such as classification, regression, clustering, ranking, recommendations and anomaly detection. It also provides integration with other deep-learning frameworks, such as TensorFlow, and it offers interoperability through ONNX.

By using ML.NET, developers can accomplish those tasks without the need for high expertise in data science or machine learning.

ML.NET, an open-source and cross-platform framework that runs on Windows, Linux and macOS, makes machine learning accessible for .NET developers who can build and infuse custom AI into their applications by creating custom machine learning models.

This is generally available.

**Go to the [.NET Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [.NET, machine learning, developer tools](#)**

### Item 15.7 ASP.NET support for Azure SignalR Service

With new ASP.NET support — which includes SDK and service-side support — ASP.NET SignalR applications now can use Azure SignalR Service without code change in most scenarios.

Azure SignalR Service is built on ASP.NET Core SignalR, which is not fully backward compatible with ASP.NET SignalR. Additionally, existing ASP.NET SignalR applications don't work with Azure SignalR Service directly.

This new level of support is now generally available.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [developer tools](#)

### Item 15.8 .NET Core 3.0 Preview 5

.NET Core 3.0 now supports Windows desktop workloads.

Preview 5 of .NET Core 3.0 includes the addition of full stack C# web development capabilities with ASP.NET Core Blazor. Using Razor and C# syntax, developers can write C# code that they normally would need to write in JavaScript. .NET Core 3.0 supports server-side Blazor as work continues with the open-source WebAssembly project to provide native browser support.

.NET Core 3.0 will also support the open source gRPC for high-performance remote procedure calls as well as other enhancements for building cloud-native and high-performance web applications and services.

.NET Core 3.0 is the next major version of the .NET Core platform, an open-source, general-purpose development platform maintained by Microsoft and the .NET community on GitHub.

Preview 5 of .NET Core 3.0 is now available.

Go to [.NET Team Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [.NET Core, developer tools](#)

### Item 15.9 .NET for Apache Spark

A new OSS library adds .NET support to Apache Spark, enabling developers to build solutions with Apache Spark without having to learn new languages.

This new capability is currently available.

Contact the Microsoft Media Relations team to learn more.

Tag: [Developer Tools](#)

### Item 15.10 Microsoft Authentication Libraries for .NET

Microsoft Authentication Libraries (MSAL) helps developers implement the right patterns, security features and integration points with the Microsoft identity platform, hiding the complexity to keep the task of integration simple.

Microsoft Authentication Libraries for .NET is generally available.

Contact the [Microsoft Media](#)



### Item 15.11 Visual Studio Tools for Containers extension

The Visual Studio Tools for Containers extension provides a graphical user interface experience within Visual Studio, enabling developers in building and diagnosing their containerized applications.

This preview feature shows a list of stopped and running containers, offers the ability to start or stop an existing container, provides a view of container logs, and opens files from a container, among other capabilities.

This is available as an extension in the Visual Studio marketplace.

Go to the [Visual Studio Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Visual Studio, developer tools](#)

### Item 15.12 Xamarin.Forms 4.0

Xamarin.Forms 4.0 introduces a new era of productivity and performance for cross-platform mobile developers, helping them build fast, mobile applications.

The new Xamarin.Forms Shell provides a simple way to describe the structure of the application and immediately see full-featured navigation, such as a flyout menu, bottom tabs and top tabs. Shell also introduces URI-based navigation with a convenient routing API, integrated search handling, and next-generation performance for Android by minimizing GPU overdraw and optimizing template loading.

Xamarin.Forms 4.0 also ships with CollectionView, a faster and more efficient control that displaces ListView. It will introduce new layout options for vertical stacks, horizontal stacks, grids and custom layouts.

This is available in public preview.

Go to the [Xamarin Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Developer tools](#)

### Item 15.13 Visual Studio 2019 for Mac version 8.1

The Preview 3 release of Visual Studio 2019 for Mac includes the new C#/XAML editor.

The editor provides an enhanced experience with smooth editing and navigation and comes with the IntelliSense (code completion) and quick-fix suggestions already available in a Visual Studio editor. The release also includes new support for bi-directional text, multicaret, word wrapping and more. Users who update to version 8.1 will get the new editor as a default.

This release is now available.

Go to the [Visual Studio for Mac Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Visual Studio, developer tools](#)

### **Item 15.14 Visual Studio 2019 version 16.1 Preview**

Visual Studio 2019 version 16.1 Preview continues to give developers a glimpse into upcoming features that will compose the latest of Visual Studio 2019.

The version 16.1 release will include IntelliCode and the GitHub extensions by default. It will bring out of preview the Time Travel Debugging feature introduced with version 16.0. It will also contain a number of performance and productivity improvements for .NET and C++ developers.

Visual Studio Preview gives developers early access to the latest features and improvements not yet available in the release channel.

For more details see the Visual Studio Preview [FAQ page](#).

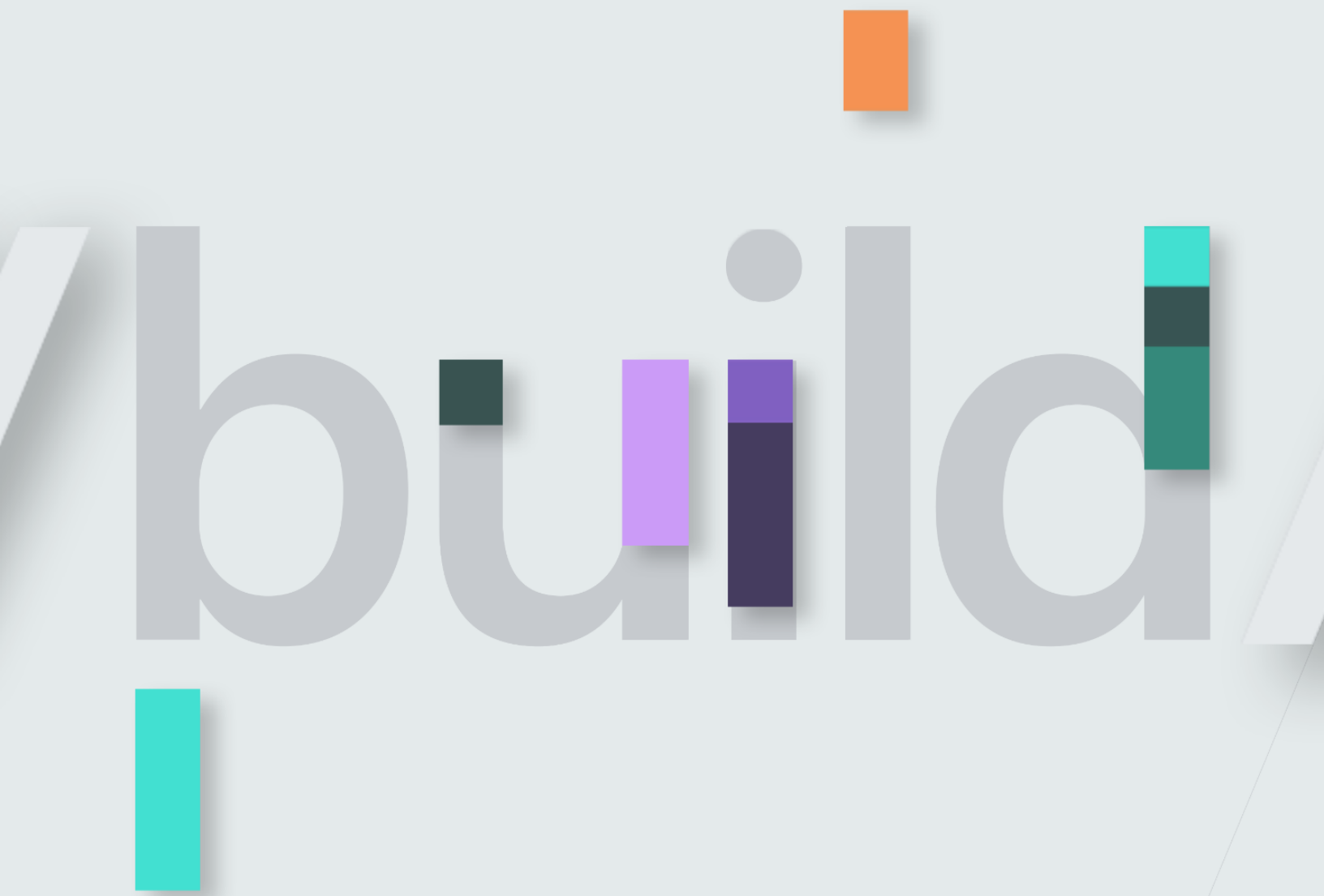
Visual Studio 2019 version 16.1 Preview is now available.

**Go to the [Visual Studio Blog](#) and the [Visual Studio 2019 Preview page](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: [Visual Studio, developer tools](#)**

CHAPTER 16

# DevOps



# DevOps

## Item 16.1 Azure Active Directory support in GitHub Enterprise

To support the needs of enterprise customers, GitHub Enterprise customers can now synchronize groups of GitHub users with Azure Active Directory (AAD) and thus enforce a secure workplace identity.

AAD synchronization allows GitHub customers to leverage their existing AAD solution for group membership so that their administrators and developers can focus on their application development. As a result, the AAD synchronization capability enables customers to reduce their administrative time, improve auditability and increase user security.

This will be available in public preview May 23.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [DevOps](#), [GitHub](#), [developer tools](#)

## Item 16.2 GitHub Identity support for Azure

GitHub users now can sign into Microsoft applications, including Azure Portal and Azure DevOps using their GitHub account. This update enables developers to go from repository to deployment with just their GitHub account. This is the first step toward improving Microsoft services for GitHub users.

The new login system will try to match a user's GitHub account to an existing Microsoft identity with access to Azure. If the system can't find one, it creates one for the user that's keyed to their GitHub account, providing a seamless login experience.

Go to the [Azure DevOps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [GitHub](#), [developer tools](#)

## Item 16.3 Unified pipelines

Azure Pipelines offers the ability to create Continuous Integration Pipelines — called "Build Pipelines" — in a declarative way, using a YAML file. We're now extending support to Continuous Delivery Pipelines — called "Release Pipelines" — and defined via a YAML document, which can be checked into source control. In addition, the same YAML file can contain the definition for both CI and CD pipelines.

This improves the collaboration between developers and DevOps professionals in the implementation of automation of their CI/CD workflows.

The feature is now in public preview.

Go to the [Azure DevOps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [DevOps](#)

# DevOps

## Item 16.4 Azure Pipelines update for Kubernetes deployments

A new feature in Azure Pipelines makes it easier for developers to deploy to a Kubernetes environment on any public cloud or on-premises such as AKS and Red Hat OpenShift — by offering an optimized, integrated solution with pre-built templates and support for multiple deployment strategies. In addition, Azure Pipelines now gives the ability to monitor the state of deployments to Kubernetes clusters.

The feature is now in preview.

Go to the [Azure DevOps Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: DevOps, Kubernetes

## Item 16.5 Visual Studio App Center MBaaS integration

Visual Studio App Center is introducing support for Mobile Backend as a Service (MBaaS) capabilities on Azure, helping developers build applications faster without the need for managing infrastructure.

These capabilities make it easier for App Center customers to leverage Azure App Service's Mobile Apps capabilities for identity, push notifications and data synchronization.

This solution is available in public preview.

Go to the [App Center Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: Visual Studio

## Item 16.6 DevOps best practices for API Management

The Azure API Management team has released a new set of guidelines and tools to assist in the creation of a CI/CD pipeline for API Management.

CI/CD and DevOps are a critical component for development workflow. API Management's opinionated approach offers developers and solution creators the necessary guidance to get started on this objective in an easy and tangible manner.

The resources are now publicly available.

Go to the [Microsoft Azure Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.  
Tag: DevOps, developer tools

# DevOps

## Item 16.7 PowerShell support in Azure Functions

PowerShell support in Azure Functions enables the automatic management of Azure modules within the Azure Functions service. This means users don't need to include Azure modules when writing functions and don't need to update them for critical security updates.

In addition, customers now can take a serverless, event-driven approach for automation scenarios. This lets them manage resources of their solution automatically by responding to events or alerts from other cloud services.

PowerShell support in Azure Functions is now in public preview, including native support for PowerShell Core 6 and for the Azure modules.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Serverless](#), [DevOps](#)

## Item 16.8 Unified app registrations

Developers now can register, manage and configure all their apps that authenticate with any Microsoft identity through the unified app registrations experience in the Azure portal.

With this release, developers no longer have multiple portals to register and manage apps. The new app registration portal provides documentation, samples and tools to help developers along the way. Developers also can manage and configure apps via an API.

This is generally available.

Go to the [Microsoft Azure Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Developer tools](#)

## Item 16.9 Azure Boards App in GitHub Marketplace

Azure Boards App provides a streamlined acquisition experience directly in the GitHub Marketplace. This allows more development teams using GitHub to access the rich, project-management capabilities offered by Azure Boards, including Kanban boards, backlogs, sprint planning tools, queries and multiple work item types.

This enables deeper integration between GitHub commits and pull requests to work items in Azure Boards, the enterprise-class, project-management solution for software development teams.

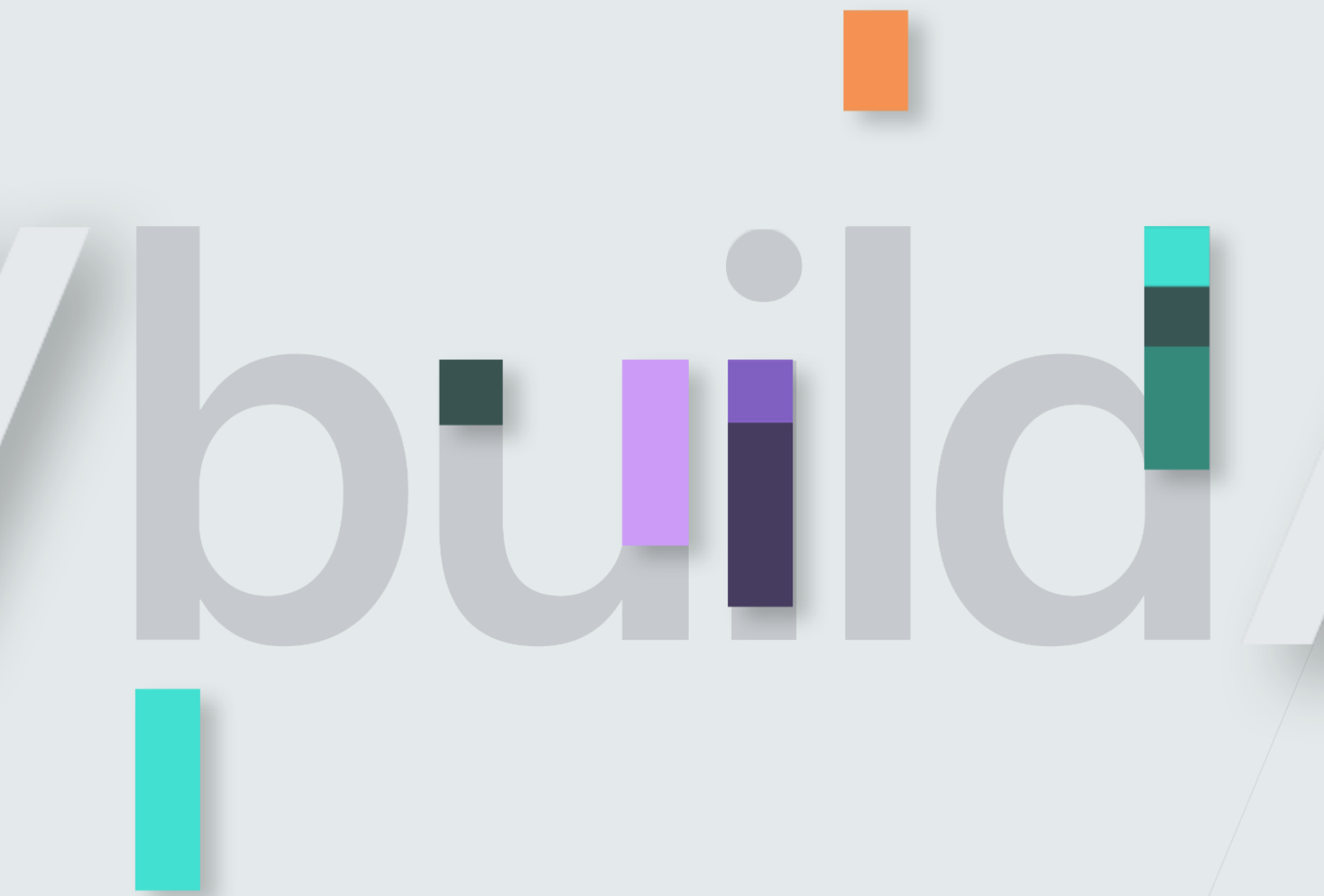
Azure Boards App is now available in the GitHub Marketplace.

Go to the [Microsoft Azure Blog](#) to learn more and contact the [Microsoft Media Relations team](#) to learn more.

Tag: [Developer tools](#), [GitHub](#)

CHAPTER 17

# Tools to Secure Elections



# Tools to Secure Elections

## Item 17.1 ElectionGuard SDK is coming in June

The ElectionGuard is designed to help secure voting systems and increase trust in election outcomes by making election results publicly verifiable for voters, campaigns, election officials and the public. It is an open-source SDK and voting system reference implementation that was developed in partnership with Galois.

The ElectionGuard SDK will provide voting system vendors with the ability to enable end-to-end verifiability and improved risk-limiting audit capabilities for elections in their systems.

The ElectionGuard reference implementation will provide recommended security practices on Windows 10 as well as a modern voting application integrated with the Xbox Adaptive Controller to improve accessibility.

The SDK will be offered free to voting system vendors either to integrate into their existing systems or to use to underpin all-new election systems. The accompanying reference implementation provides guidance on how to set up a system built with the SDK on a Windows 10 platform for maximum security and accessibility.

The ElectionGuard SDK and reference implementation will be available on GitHub this summer. This is an extension of the [Defending Democracy Program](#) first announced in 2018.

**Go to the [Microsoft On the Issues Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: Developer tools**

## Item 17.2 Microsoft 365 for Campaigns is coming in June

M365 for Campaigns provides the high-end security capabilities of our M365 Business offering to political parties and individual candidates with security settings optimized for the threats they face.

More than 90% of successful hacks start with a phishing message. The security of the email systems used by those seeking elected office is paramount to ensuring a secure democracy.

M365 for Campaigns is an extension of the Defending Democracy Program first announced in 2018.

M365 for Campaigns will be rolled out to customers this summer at a significantly discounted price.

**Go to the [Microsoft On the Issues Blog](#) and contact the [Microsoft Media Relations team](#) to learn more.**

**Tag: Microsoft 365**



