

05192020 Build Welcome Satya Nadella

Build
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Satya Nadella
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SATYA NADELLA: Good morning and welcome to Build.

We're living through extraordinary times. I want to first extend my deepest sympathies to all who have been impacted by COVID-19, and deep gratitude to everyone working so tirelessly to get us through this crisis. While it's hard not to be together in person, I'm comforted by this community being gathered here virtually.

Build is one of my favorite events of the year. I've always said this, I marked each year of my own life at Microsoft through our developer events, and many of my fondest memories are from Build and before that Mix and PDC.

While this year feels different, coming together as a community is more important than ever. There are tens and thousands of you tuned in from dozens of countries around the world and it's fantastic to see.

Our industry has been called upon to help address the world's most acute needs through this crisis, and I'm proud of how all of you have raised the game and been there when the world needed you the most, serving as those digital first responders to the first responders out there for whom we are very thankful.

And for me, that's been a point of light amidst this crisis, seeing developers come together with those on the frontlines. At Johns Hopkins University, epidemiologists and software developers created that canonical dashboard to track the spread of COVID-19.

Adaptive Biotechnologies is using that cloud compute and AI to decode the immune system's response to the virus.

In the United Kingdom, a cross-section of manufacturers adjusted their production lines to build ventilators for the NHS, using mixed reality to guide workers through the process.

The NBA is using the power of the cloud and Xbox to engage fans and maintain the joy of the game.

Role of developers is more important than ever. Already, we've seen something like two years' worth of digital transformation in just two months. And we've seen how critical digital technology is in the three phases of this crisis, from emergency response to the recovery phase to the reimagining the world going forward.

Every organization will increasingly need the ability at a moment's notice to remote everything, from manufacturing to sales to customer support. They will also need the ability to simulate anything, from how the immune system responds to a virus, to how a fault in a wind turbine can impact our power supply. And they will need to be able to automate everywhere to enable faster, more agile response, from triage in healthcare to the maintenance in smart buildings to curb side pickup in retail.

I think that this opportunity is what grounds us in our mission at Microsoft to empower every person and organization on the planet to achieve more. And it starts by empowering you, the developers. Our platforms and tools are your building blocks in this era of the intelligent cloud and the intelligent edge. And our commitment to trust and security is at the core of all that we do and build. Over the next couple of days, you're going to hear about this new opportunity across the entire tech stack.

And I want to give you a bit of a thumbnail for it. Let's start with professional developers.

GitHub is the home for developers. It's where developers build software together. Fifty million developers use GitHub, and they're more active than ever.

And Visual Studio Code is the most popular code editor. In the past two months, we've seen increased developer activity, many multiple measures here, pull requests, pushers, collaboration. The adoption of CI/CD with GitHub actions to drive both quality and agility, so critical at a time of crisis.

And we're going further to give you new tools to power remote development productivity, wherever you are. We're building the most complete toolchain for developers, bringing together the best of GitHub, Visual Studio and Azure to help you to go from idea to code and code to cloud.

You already see this in action. Codespaces is a great example. It's coming to GitHub, allowing developers to quickly provision a dev box in the cloud, preinstalled with Visual Studio Code and fully configured for your dev stack. You can work from any device, just even the web browser, and be up and running with your right Python runtime, package managers, libraries, environment variables, config settings, faster, easier than you can ever imagine.

A developer can review a pull request with GitHub actions, kick off a build, check on quality, security checks, and then view even the app live in Azure.

With WSL2, Windows is the best developer environment for building apps even for Linux, with support for graphical interface applications and access to the GPU. Linux apps now run alongside Win32 as first class. It's great to see the progress.

The other area that I'm very excited about, and for the first time we're going to talk about this at a developer conference as another member of the toolchain, is Power Platform.

There are 3.5 million people using Power Platform today to create applications, bots, workflows, dashboards. And Power Platform as a tool for end users to build low-code/no-code applications and customize and extend Microsoft 365 and Dynamics 366.

But one of the most exciting things is how it's also a rapid application development tool for pro devs, right? ISVs can expose their applications through Power Platform connectors, and pro devs can do the same, using this as an extensibility framework so that citizen developers can amplify their work.

And we've seen tremendous momentum. During the month of March, we saw a 50% increase in first time Power Apps users, and this year, we've seen a 70% increase in professional developers and 70,000 organizations starting to use Power Apps. From New York to Washington, states are using Power Platform to inform citizens, providing these self-screening tools, tracking critical resources and supplies.

And you'll hear more about the advances in Power Platform broadly, but there are two in particular I want to call out. First is how we are bringing RPA or robotic process automation connectivity to legacy apps and services with our acquisition of Softomotive; and the second, how we're adding new professional developer extensibility to power virtual agents, which is really getting used extensively even through this COVID crisis.

The next building block I want to talk about is that distributed infrastructure, the fabric that every developer needs for their applications.

Today, over 95% of the Fortune 500 use Azure, and now more than ever, organizations in every industry are relying on Azure to support their critical workloads, from healthcare triage with AI-assisted bots, to digital twins in manufacturing, to e-commerce and retail. This infrastructure enables you to remote, simulate and automate any activity.

We're building Azure as the world's computer. We have 61 datacenter regions, more than any other cloud provider, and we are the only cloud that extends to the edge, with all the flexibility you need, from Azure Edge Zones for 5G, to Azure Sphere for secure IoT.

Over the next two days, you'll see how we're innovating at every layer, from edge to hybrid to data and AI. We've always led with hybrid computing. Azure Arc is the first control plane built for a multi-cloud, multi-edge world, and today, we're taking it further with Azure Arc enabled for Kubernetes.

At the data layer, Azure is the first cloud with limitless data and analytics capabilities that can deliver a cloud-native data estate for every organization. We literally rebuilt and reimaged the cloud data estate using the new memory hierarchy of the cloud.

And today, you'll see Azure Synapse Link, a new architecture that helps developers do live analytics on real-time transactional data. Bringing Cosmos DB and Synapse together is just, I think, going to be a pattern that we're going to see increasingly.

In AI we have the most comprehensive portfolio of tools, frameworks and infrastructure. You'll hear about updates to Azure Cognitive Services for speech, the Bot Framework, from Project Bonzai, which brings intelligence to physical systems.

We will also have new capabilities in Azure Machine Learning to better understand the interpretability of models, protect using differential privacy, control and the auditability of data, as well as models. This is all very critical for building responsible AI.

And finally, we'll share the progress with the world's first AI supercomputer in the cloud. This is something that we started last Build, and we've made tremendous progress, everything from the infrastructure to large scale multimodal models acting as platforms themselves that other developers can use.

Moving to Microsoft 365, we are building the world's productivity cloud as a people-centric, multidevice, multi-sense experience. We've seen tremendous scale and intensity of usage with Microsoft 365. There are over 75 million daily active users of Teams and 1 billion monthly active devices running Windows 10 today. And moreover, we have seen 75% increase in the minutes spent on Windows 10 in a month. This translates to a rich opportunity for developers to create both new applications and extend the reach of their existing applications.

Let's start with Teams, a rich scaffolding for your apps. Every time someone uses Teams, before a meeting, during a meeting, after a meeting, in our case it's driving the intensity of all of the Office applications.

And the same is true for every application of yours. In fact, the number of organizations integrating third-party line of business apps with Teams has tripled in the past couple of months.

And we're taking this to the next level. With Teams and the Fluid Framework you can build Teams apps with new collaborative canvas, right? Collaboration now is first class in any application you build.

With Teams and Power Platform, you can build and embed powerful apps, bots, workflows, dashboards for business process. With one-click add to Teams experience, I think this is going to completely change how frontline in particular uses Teams. And with Teams and Visual Studio professional developers have the ability to now have integrated workflows to build apps in Teams.

And now to Windows. At Build. Windows has always been the most important platform for us, and we are seeing more developers across a variety of frameworks use Windows as their dev box.

And now we are unifying the Windows platform, allowing for seamless integration across both Win32 and UWP APIs using Project Reunion. It's an exciting announcement and I'm looking forward to what you as developers can do with Project Reunion.

And with Windows Virtual Desktop, you can now stream your apps built for the Windows 10 install base beyond the 1 billion Windows installed base because of streaming and its reach.

This is just a snapshot of what we will share with you over the next 48 hours.

These are your tools, your platforms to build the world we all want to live in.

We are at an inflection point. As developers you have that opportunity, as well as a responsibility to define what should be rebuilt, what should be reimaged and what should be left behind.

And we are already seeing developers have this impact. Folding@home is an amazing project. It's a distributed computing project that harnesses the collective power of millions of volunteers to aid COVID-19 research efforts. Let's take a look.

(Video segment.)

ANDREA HARRISON: Welcome, Greg. It's great to talk to you on Teams. It's really inspirational to see the progress you have made in such a short time. It's really remarkable.

Maybe you can start by telling us more about the technology behind Folding@home.

GREG BOWMAN (Director, Folding@home): So Folding@home is a distributed computing project for understanding all the moving parts of proteins and how we can control them.

The basic idea behind the technology is to build what is essentially a map of the different structures that a protein can adopt as it goes about its function and has all of these moving parts.

And so we've called out on the internet for citizen scientists around the world to contribute their computing power to running simulations of how all atoms in a protein move over time. And on the server side, we collect all that data and build up these maps and identify the interesting features like new therapeutic targets.

SATYA NADELLA: This is where you're going to start using more of some of the Azure and GitHub. From what I understand, you're going to even use that to sort of go to the next phase of this.

GREG BOWMAN: Exactly. Exactly. Azure has been huge. We've got these active learning algorithms that let us focus our compute resources on the structures that are most useful to us, running on Azure, and along with that running servers that let us collect all that data and productively engage with all of our volunteers.

We have a real opportunity to impact COVID-19, but this is also a general platform that we can bring to bear on Alzheimer's disease and antibiotic resistance and cancer and a long list of other things. So, I'm excited about the engagement we're getting.

SATYA NADELLA: No, that's fantastic to hear, Greg. How can people get involved in your project?

GREG BOWMAN: Yeah, there's a wide variety of ways. The first thing is to go to [Folding@home.org/start-folding](https://folding@home.org/start-folding), and you can download our software and start contributing your personal computing power.

But if you want to get more involved, there are a variety of ways. We have a huge need for developers right now and to help build out this platform and scale it in response to all the interest that COVID-19 has generated in the opportunity we have to make a difference.

SATYA NADELLA: Yeah, no, tremendous. Thank you so much, Greg. It's such a great example of how you and a small group of developers and scientists working together can make such a big difference. Thank you for sharing your story and good luck going forward, and we love to be involved deeply with you.

GREG BOWMAN: Thank you. I'm excited and look forward to it.

SATYA NADELLA: It's incredible how a small group of developers and scientists working together can make such a huge difference.

And reflecting on this power of community, music has always been a unifying force in connecting us, and it's inspiring to see musicians and developers at the San Francisco Conservatory of Music working together to teach and perform virtually.

Let's take a look.

(Video segment.)

SATYA NADELLA: Welcome, Allie and Todor. I've learned how teaching and performing music virtually is a huge challenge.

Allie, maybe we can start with you. How are you currently using technology to address this issue?

ALLIE SIMPSON (Student, SFCM): When my calendar first kind of evaporated, I started doing livestream performances, and I realized pretty quickly that something was missing. I realized that the thrill of performing for me is not being seen but seeing my audience.

And so the beauty of Teams in performing is that I can look out and see in these windows the reaction and the collaborative effort I make with my audience.

SATYA NADELLA: Yeah, no, that's fantastic.

And so, Todor, why did you choose to build this app and what is that inspiration? And obviously, you chose to integrate it with Teams, and Allie already talked a little bit about why that is the

case, but maybe you want to share a little bit from your perspective what those choices, design centers were all about.

TODOR FAY (CEO, NewBlue Inc.): Well, I'll start with something she just said, inspiration is to enable people like her, to enable people to effectively communicate through video. It's very exciting that this has come together.

When we talk about Teams and Microsoft, Microsoft 365 offers a very rich source of highly useful, relevant information, everything from spreadsheets, notes, who's on my team, what's being said on chat, what kind of reactions do people have.

And then Microsoft Graph APIs give us quick, intelligent access to this data so that people like Allie can then communicate effectively.

But it's really exciting when you combine that with the power of Teams, which is the core communication infrastructure in Microsoft, so that you're able to effectively bring together this kind of communication that she needs to be able to do.

SATYA NADELLA: No, I think that beautifully captures it, because it's not just the one Teams session, it's what happens before the session, after the session, and all of it being constructed together.

And maybe, Allie, how has this benefited you as a performer? Has this new medium of instruction performance changed how you approach it?

ALLIE SIMPSON: Yeah, definitely. It's kind of this new frontier of performing to any place in the world now. It's opened up opportunities that I wouldn't have thought of usually as somebody who performs mostly in person. Suddenly, I'm using the medium of video and live streaming performance and in ways that I've never even considered possible before.

SATYA NADELLA: No, that's tremendous. Thanks so much, Allie and Todor, for what you're doing and inspiring us to think about this new medium in new ways.

Thank you so much and have a fantastic Build. I'm looking forward to watching alongside you.

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