Satya Nadella: Inspire 2019

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Satya Nadella, chief executive officer, Microsoft, speaks at Inspire 2019 in Las Vegas, Nevada, on July 17, 2019.

Microsoft Inspire & Ready 2019
Satya Nadella
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ANNOUNCER: Please welcome Satya Nadella.

(Cheers, applause.)

SATYA NADELLA: Good morning. Thank you so much. Good morning. (Cheers, applause.) Thank you so much. Thank you. Thank you. (Cheers, applause.)

It's so great to be back here at Inspire/Ready amongst all of you this week. We're going to celebrate the year we've had. We're going to look forward to the opportunity ahead.

You know, the momentum, whichever way you look at it, is palpable all around us. And it's really thanks to the hard work, the commitment, the persistence of this community.

And so, I want to really, really start by saying a big, heartfelt, sincere thank you for all that you do and who you are. You make all this possible. So, thank you so very much.

(Cheers, applause.)

It is about these three numbers: 100, 17, and 7. It's us coming together, that is the 100 and 17, to have the impact on the 7 billion people on the planet. But doing that with every community that we serve, the small businesses that we make productive, the large multinationals that we make competitive, public sector that we make more efficient, the health outcome, the educational outcomes.

That depth and breadth of opportunity is what we celebrate. That's what gives us meaning in our work, and that's what's captured in our mission, to empower every person and every organization on the planet to achieve more.

Now, when we look at the opportunity, it's pretty clear. It's two numbers again. It's 10 percent and 90 percent. Ten percent is the percentage of GDP that tech spend represents by 2030. In fact, it's around 5 percent today. It's going to double by 2030 to 10 percent.

That's going to be a humongous number, $14 trillion is going to be the spend in technology.

But the real opportunity is that other 90 percent. It's that other 90 percent of the GDP that's all going to be digitally driven, software driven. Like that to me is what we are all going to enable.

And we're going to do that by riding what is the most -- the most amazing technological change that I have witnessed, which is this intelligent cloud, intelligent edge era.

Computing is getting embedded in the world, it's ubiquitous, it's distributed, it's in the cloud, it's in the edge.

AI and machine learning is being infused into every experience in a deep way, and you're going to see a lot of that.

The experience itself is no longer bound to one device, it's becoming multi-sense and multi-device.

It's that rich technology that we have to take and create tech intensity in every customer. We've talked about tech intensity in the past. It's a simple formula but it's subtle. We have to come together to help every business become great at digital technology. That means we need to help them adopt the latest and greatest tech as fast as they can, right? You don't want anyone to re-create the wheel, you want the best tech inside every company, small, large, public sector, private sector.

But then the most critical thing is in a world where everybody is a software business, they will need to build their own technology, their own software capability.

And, of course, you've got to do this with trust. That's what tech intensity is all about.

And you heard from Judson earlier in the week that we're going to go deliver all this through all of our solution areas, right? The way we're going to infuse tech intensity, democratize digital transformation is by delivering these solution areas across all businesses.

And what I want to do today is spend some time talking about some of the key tech breakthroughs across the solution areas. In fact, I want to walk up the tech stack from GitHub to Microsoft 365.

Now, before we do that, I want to talk a little bit about trust. Brad Smith is going to come right after me and talk about trust in great detail. It's one of the most critical things.

A couple of things. One, you can't claim trust, you have to earn it, each day. (Applause.) That's right.

That means the decisions we make, the approach we have, the consistency of it over time is what's going to really build trust.

And it starts with, in fact, our mission and our business model. We want to ensure that we are fully aligned with the success of our partners and customers at all times. That is the key, key two ingredients. We cannot ever have these states where we are thinking something, saying something else, and doing something else. That's just not the way to build trust. We have to have that consistency in the core approach, sense of purpose and mission and business model.

And, of course trust in the technology we build. We have to treat privacy as a human right. We have to have end-to-end cybersecurity built into technology. We have to have both a set of ethical principles that guide our AI, but most importantly we have to translate that into engineering practices that are there, that are part of everyday engineering. So, trust is going to be key.

So, let's have some fun with some numbers as we move along across the tech stack. Let's start with 11 percent and 3X.

When we say every business is going to be a software business, it's really captured by this 11 percent number. Tech hiring in the non-tech industry is growing 11 percent faster than the tech hiring in the tech industry. Like that captures the essence of what's happening around us.

In fact, if you want to get an atomic example of it, the 3X number, in the auto industry this year, the number of software engineers is going to be 3X the number of mechanical engineers. Like that's the transformation that's taking place.

And it all starts with this Octocat. If you're not familiar with this, you will be. It's GitHub. (Cheers, applause.)

There are 36 million developers who call this home. They have their core, their workflows, their collaboration all encapsulated. If you're a student getting started in your first CS class in middle school or high school or you're a professional developer at the largest of corporations, your core workflows are in GitHub.

And in fact, it's just not about developers. In a software-driven company what developers are doing influences every function: marketing, sales, finance, HR.

And a great example of this is actually Ford Motor Company. An average car has 150 million lines of code. Ford has 8,000 developers on GitHub with 4,500 repos or repositories of code.

In fact, one of the things that really GitHub does is it drives the agility of your development. And not just agility inside the company, because GitHub is a community. You're always collaborating. What used to take months now takes hours in terms of

onboarding a third-party developer to contribute, collaborate. It's just phenomenal. I mean, GitHub is a way of life, at least as far as I'm concerned.

Now, it's not just GitHub. When we think about developers, developer productivity, we have the most complete toolchain for developers. VS Code and Visual Studio are the two very best tools for developers. We have Azure DevOps, right, for you to be able to do continuous integration, continuous deployment, integrate it with GitHub. That drives the core productivity of every developer inside of your organizations and with our customers.

Now, there is a new tool that I want to talk about today. It's Azure PlayFab. Just like DevOps, one thing that we're all going to know is LiveOps. This comes from our gaming group. Think about it, when you build a game, the real work in some sense starts the day you ship the game, because you are going to take the real-time data and change the gameplay. That's how games work. And that's what we're going to do with every website, with every mobile app, pretty much every application.

In fact, Universal Studios is using already Azure PlayFab to take their mobile application, unlock these new experiences as you use it. When you're standing in a line to go on a ride, not a fun thing to do, but they made it fun using Azure PlayFab, because an experience unlocks, you can play with others standing in the line, you can put up your scores on a leaderboard. That's the type of real-time gameplay that's going to be brought to every application using LiveOps.

Now, when we talk about developers, and to me whenever I talk about developers, I feel like I've come home, because that's what Microsoft got started with. This company got created building dev tools, and to sort of in 2019 see that passion, that ethos of building the best tools for developers is fantastic to see.

Now -- yeah, go ahead, clap for that. (Cheers, applause.) It's good to see that there are developers in the audience. (Laughter.) I was getting a little worried.

The next set of numbers is 50 billion and 90 percent, right, 50 billion connected devices by 2030, and 90 percent of the data that we have today was created in the last two years. That's the explosion of compute and data, right? I mean, we have a billion users of Windows, a couple of billion smartphones, but 50 billion is how we should think about when we think about end points -- of course all connected to the cloud.

Now, that's what's leading to us building out Azure as the world's computer. We now have 54 data center regions. In fact, we are very, very thrilled to have the latest regions in the Middle East and in Africa; it's so exciting. (Cheers, applause.)

And we're also building everything that we are doing across Azure with openness, right? There is Windows and Linux as first class, Java, .NET is first class, SQL Server 2016 Postgres are first class, Red Hat, VMware, Oracle, all of these applications and infrastructure can be first class on Azure.

This doesn't mean we don't have a very opinionated view on what a modern application that is event-driven, serverless, could look like. We have a fantastic app model with all the toolchains around it.

But the thing that we have ensured is that this new generation app model composes with everything that you have done in the past. That to me is the key of how we're going to move tech intensity in every corporation, every company, every institution.

But we're not stopping at the cloud. We're taking the cloud to the edge with consistency, consistency in operating model, that means management security, consistency in the development environment and the tech stacks.

… We talked about the edge the last couple of years, but in the last year, it's become real. I mean, Airbus has Azure Stack powering many of their critical operations. And Azure Stack is the only consistent stack at the edge of any public cloud with full operational sovereignty. And as we meet the real world needs of the world today, this is going to be so critical.

Kroger has Azure Data Box Edge both at the endcaps and powering their smart shelf, right, with computer vision.

Shell, in fact, has commodity cameras in every gas station, with again containers with computer vision to drive safety.

Ocuvera is a startup that's taking Azure Kinect and ensuring that safety of patients in hospitals.

Starbucks has an Azure Sphere, right? So this is an Azure Sphere, a microcontroller that's connected to Azure. So, think of it the smallest compute node of Azure. It's in every espresso machine. It's pretty awesome. (Applause.)

There are 9 billion microcontrollers that are shipped each year. Just imagine all of those getting connected, becoming first-class compute nodes on an Azure fabric. And in the case of Starbucks they collect a half a dozen or so data points from each one of these machines. They're using it to analyze everything from water quality to the … (?) of the espresso and making it possible for them and their partners in every Starbucks to personalize that coffeemaking at scale. That's the power of ubiquitous computing, that's the power of Azure and its edge.

But it's not just hybrid computing. In fact, one of the areas in the last year that I've been just thrilled to see is the progress we have made in data. We are building out a limitless data estate.

If you look at the types of data workloads today, you have millions of transactions, in fact trillions of requests per second. You need amazing capacity from an operational store

perspective. You're moving petabytes of data, a lot of it in real time, for your analytic pipelines.

It's unlike anything in the past. It's going to be fueled, every workload, every application is going to be fueled by data, and you need that scale.

And so, what we have been working on actually for perhaps the last seven years actually is completely rewriting the data stack using the new memory hierarchy, from core storage to sort of the compute node, completely rethinking what a database looks like.

And that's what's really led to SQL Hyperscale. SQL Hyperscale -- yeah, go ahead and clap for SQL Hyperscale. (Applause.)

SQL Hyperscale brings that really limitless scale capability to SQL Server with full compatibility to every application you wrote for SQL Server, right, so you can now linearly scale your compute and your storage.

And this hyper-scale capability is also going to come to non-SQL Server databases. That means Postgres is already out there, and we're going to bring it to MySQL as well. So, you're going to be getting these hyper-scale capabilities to any relational database, which is so exciting to see. And it's not just SQL Hyperscale, we also have Cosmos DB, which is the first multimodal, multi-region database built for low latency.

In fact, we used to do a billion transactions a couple of years ago when we launched it, and we now have a trillion transactions a day. It's just stunning to see Cosmos -- (applause).

And that means everything, whether it's a document database, a key value pairs database, whether it is a graph database, can all take advantage of Cosmos.

Walmart's a great example of all of this. But before I get to Walmart, I should talk about two other things. One is that we now have this database technology not just in the cloud but at the edge. You now have SQL DB, Azure SQL DB running on an ARM processor at the edge, again with all of the compatibility. That means you can not only run the database but you can also run AI where you're generating the data, which is going to be so key to all of our applications.

And Walmart's using all of these capabilities. In fact, all of their stores use Azure DB, that's how they coordinate a lot of what's happening in store and across stores. And Walmart sees something like 85 percent of the U.S. population in a week … And so the scale of Walmart really defines what the modern data estate needs to support.

And they're using Cosmos DB to consolidate, in fact, all of the different databases, non-relational databases -- Cassandra, Mongo, and other databases into one data estate. It's a fantastic example of how to build out a data estate to fuel the experiences going forward.

And to show you some of this in action, I wanted to have Rohan Kumar join us to show you SQL at this scale. Rohan, take it away. (Cheers, applause.)

ROHAN KUMAR: Well, thank you, Satya, and good morning, everyone. For the purposes of this demo, please imagine that I'm an operations manager in a European auto company. We're going to launch a new line of autonomous vehicles shortly. And our team of solution architects has been working on applications to monitor these connected cars.

As you see on the screen, we have a few hundred connected cars being monitored already in Europe. Let's deep dive into one of the cars to see what type and volume of data we're collecting.

As you can see on the screen, you're collecting hundreds of gigabytes of sensor data every day. Now, to support a scenario like autonomous driving, the data-processing engine inside the car needs to support two things. First, it needs to be edge optimized to run really well on the intelligent control unit of the car. And second, it needs to be powerful enough to support real-time decision-making right inside the car.

Azure SQL Database Edge is the perfect fit for this scenario. It supports native coding right inside the relational database to enable real-time decisions. It can handle tens of thousands of events a second, it shares the same relational engine as the SQL Server that you know and love, enabling a level of consistency with the developers across the intelligent cloud and the intelligent edge that is unparalleled in the industry. And best of all, Azure SQL Database Edge, a fully functional, performant relational database now can run really well on palm devices like the one I'm holding in my hand. (Cheers, applause.)

We're also streaming a small subset of the process data in every car to a relational database in the cloud to generate operational insights on every car and across the entire fleet. Let's take a look at a dashboard that captures the key performance KPIs of this relational database in the cloud.

As you can tell, we are currently running this application against AWS RDS for SQL Server.

More and more cars are coming online in our simulation, and the volume of data being ingested is growing rapidly. As the database grows, it's become very clear that we've reached the limit with the current design. It cannot handle data volumes greater than 16 terabytes.

As we reach this limit, all the right transactions, all the updates to the database fail, which essentially means we cannot add any more cars to the fleet being monitored. This is a very common challenge with all relational databases. Managing very large relational databases is a complex challenge, and more often than not, developers are left with no choice but to completely rewrite and rearchitect their applications with concepts like application-level database charting, which are very complex to get right.

The reality is, there is a very clear need for a relational database that can break through all these limits. Do you guys think we have such a database in Azure? (Cheers, applause.) Yes, we absolutely do! It's Azure SQL Database Hyperscale.

Now, let's take a look. I also have the same applications running against Hyperscale. Let's see how that performs. As you can tell, we're very easily to go past the 16-terabyte limit, both the read and write performance of the application workloads are doing great, and the database is healthy.

Well, we're currently monitoring just 1,000 cars. What if we wanted to monitor a million? Can Azure SQL Database Hyperscale handle that? Let's take a look. This is the part of the demo I start feeling a little nervous, by the way, we're going from 1,000 cars to a million. Let's see if that works. Well, a million cars is not a problem for Azure SQL Database Hyperscale. As you can tell, the number of cars are rapidly getting added to the (inaudible) monitored, the read and the write performance is looking healthy. Now, of course, it's going to take a while before all the million cars get to a steady state of data ingestion.

Now, in the interest of time, we actually ran this demo earlier against a different type of scaled relational database and got it to a steady state. Any guesses on how large the relational database back to Hyperscale in Azure is when it gets data being ingested from a million cars? Let's take a look. It's a little over 200 terabytes. That's 200 terabytes in a single relational database back to Hyperscale in Azure. (Cheers, applause.)

Now, you may be wondering, what's the magic behind Hyperscale? There are three key pieces of innovation that we've worked on for the last several years. The first one is we've completely rearchitected the core database engine to separate out the processing layer, compute layer from the storage management layer to be totally cloud native so that each layer can be scaled out independently.

Now, this is an extremely hard challenge to get right for relational databases that support high-performance operational workloads. Second, we built out the intelligent caching hierarchy to leverage the memory hierarchy in a very efficient way to get you the best performance for workloads of any size and scale.

And, finally, we have technology now that guarantees that databases of any size, scale, and state can recover in constant time.

We made all these groundbreaking changes while maintaining complete compatibility with the SQL Server ecosystem that has served our customers well for the last 25-plus years.

Now, some of you may be wondering, what about core database operations like backup and restore on these very large databases? Well, backup is a managed service, it utilizes snapshots, it's instantaneous, and almost has zero impact on the other bandwidth. But

what about restore? How long does it take to restore such a large database backed by Hyperscale? Well, my friends, it doesn't take weeks, it doesn't take days, it doesn't even take hours the way it used to managing these large databases on prem. With the hyperscale architecture, it takes less than 10 minutes. (Cheers, applause.)

Now, finally, we'd like to provide personalized insights to all our millions of users of these autonomous vehicles. Now, you can imagine the amount of query processing power you'd need to actually get back to scale on a relational database. Let's see if Azure SQL Database Hyperscale can handle that.

Now, what you're seeing on the screen is the Azure Portal Experience, which allows me to create 30 replicas on a single relational database backed by Hyperscale. To put that in perspective, that's 2400 cores of processing power on a single relational database back to Hyperscale.

With that amount of computing power in a single relational database, you can handle -- you can easily satisfy the scenario to give out personalized recommendations to all the millions of users.

Azure is the only public cloud that supports scaling SQL relational workloads at this scale and magnitude. Our customers can build their solutions on Azure with confidence that we'll be able to meet their needs today and in the future.

We can't wait to see what kind of innovation you build on the Azure Data Platform. Back to you, Satya.

(Cheers, applause.)

SATYA NADELLA: I must say, this limitless, transparent scale-out has been a dream for a long, long time. And Bill Gates recently met with the team that was building all of this and he sent a mail. Usually, when you get a weekend mail from Bill, you kind of wait and see, "Do I really want to open it now?" (Laughter.) And I opened it, and I've been working with Bill for a long time, and it started by saying, "Wow." I've never seen those words from him, I've never heard those words, and he was really thrilled to see us make progress. Of course he had a long list of other things we need to be working on as well. (Laughter.)

Now, talking about what's happening with data means -- we talked about the world's computer, this limitless data estate. This is all a setup for creating AI and machine learning in your applications. Microsoft Research has been at the frontier of these AI breakthroughs, whether it's object recognition, speech recognition, hitting these human parity milestones. In fact, just this year there was a milestone hit on conversational Q&A. So, this is about a core dialogue with the computer.

Now, for us, of course, our real mission is not about celebrating any of these big research breakthroughs, it's about democratizing AI so that every developer can build out these

applications. That means having the best, world-class infrastructure for training and for inference, whether it's GPUs or FPGAs. Having a tool chain as well as the framework, all the framework support.

In fact, one of the features that we've launched at Build this year is something that's so key for AI, which is machine learning DevOps, right? Just like how we have all of what we do with other code, we need the same rigor and the same productivity when it comes to AI creation.

And lastly, it's the services. Right? So, all these breakthroughs in speech and object recognition and machine translation are all available as Cognitive Services, … (?) can in fact customize by just doing task-specific training, last-layer customization.

In the last year, one of the things that started to happen is assembling multiple models to put speech together with computer vision, put it together with machine translation. And once you do these multi-model trainings, you see some amazing, amazing things.

And to show you one such mind-blowing experience, let me invite up on stage Julia White to show you Neural TTS. Take it away, Julia. (Applause.)

JULIA WHITE: Thanks, Satya. Now, it's a pleasure to be here in Las Vegas to present to you. I get invited to these keynotes across the globe. And while it's easy for me to be here in Las Vegas, it isn't always easy for me to travel across the world. And even when I do, I can't always speak the local language.

Well, what if neither language nor distance mattered for me to deliver a fantastic keynote? What if technology could help me be anywhere I needed to be and speak any language I wanted? Well, it can. We are bringing together the power of measure and Azure AI Services to create a truly game-changing experience.

What you're about to see is an exact hologram of me wearing the same outfit that we recently captured at a mixed reality studio. And I don't speak Japanese, so what if I wanted to deliver my keynote in Japanese? Using Azure AI technology, I can translate my English into Japanese and train it to sound exactly like me, the same voice tone, the same inflection.

Now, we've brought this together, my hologram and Azure AI, to show you what's possible. First, I'm going to put on my HoloLens 2 here, and then we'll put in the room a special camera so you can see exactly what I'm seeing. Let's get started.

First, let me introduce you to Mini Me. There she is, my perfect hologram. And thanks to the power of HoloLens 2, and literally, holding my hologram, so natural.

She's a little small to do a keynote, so let's see what she can do full-sized Japanese keynote. Render Keynote. (Cheers, applause.) (Japanese.)

Now, as you can see, this is mind-blowing technology. And what you just saw was my life-sized hologram rendered here in real time, speaking Japanese with my unique voice signature. To do this, we used mixed reality technology to create my hologram and render it here live, and we used Azure's speech-to-text capability and English transcription to get my speech, then use Azure Translate to get the speech into Japanese, and finally applied Neural Text to Speech Technology so it sounded exactly like me, just speaking Japanese.

And the most amazing part, all of these technologies exist today. The future is here. Back to you, Satya. (Cheers, applause.)

SATYA NADELLA: Thank you. It's mind blowing. (Laughter.) So, we have amazing momentum in Azure. Every brand across every industry is on Azure. We have 95 percent of the Fortune 500 running on Azure today, and it's amazing to see.

But there's this one particular story that I wanted to highlight to especially think about that 100, 17 and seven, this story comes to mind. Let's go to South Africa. Let's roll the video.

(Video: Azure Heart Story.)

(Cheers, applause.)

SATYA NADELLA: I'm here with Dr. Raymond Campbell. Dr. Campbell, it's so great to have you here. Thank you for being here. The work you're doing is just so inspiring. Why don't you tell us a little bit about how this all came about?

DR. RAYMOND CAMPBELL: Thank you, Satya. Thanks for having me. Growing up, I always knew that I wanted to help people. It's one of the reasons I became a doctor, but the limitation with that is I can only see so many people in one day.

So, through technology and partnering with Microsoft, I'm now able to empower thousands of health workers and impact millions of lives every day.

SATYA NADELLA: That's amazing. What's there in the backpack?

DR. RAYMOND CAMPBELL: So in the backpack, it's a solar-powered-connected case with a tablet, Bluetooth-enabled measuring devices, as well as point-of-care blood testing capabilities. And this essentially allows for one to be screened at a very affordable way in their homes, wherever that home is, and literally make the health worker an agent for change.

SATYA NADELLA: So that's amazing. That means pretty much all of the cutting-edge diagnostic capability can go into this backpack connected to the cloud with the health worker?

DR. RAYMOND CAMPBELL: Exactly.

SATYA NADELLA: That's wonderful. So, what's next?

DR. RAYMOND CAMPBELL: We've deployed quite extensively back home in primary healthcare, mining, and agriculture space. And some of our modules like HIV, pregnant mom, and mental health are amazing. The platform's constantly evolving. So, we've now onboarded vision, hearing, as well as X-ray capability. And this allows healthcare companies in Africa to address issues that aren't necessarily unique to Africa alone.

These are issues that exist all over the world. So, if you were to ask me what's next, I'd like to start with Microsoft to solve for these problems wherever it exists in the world.

SATYA NADELLA: Absolutely. Affordable healthcare is so key. Thank you so much. It's such a pleasure having you here. (Cheers, applause.)

It's the type of innovation that you just saw from Dr. Campbell that can then have the scale impact in South Africa and the rest of the world that really inspires us. And that's what all of what we're doing with Azure is built to really enable.

I want to move to the next set of numbers -- 500 million apps and 73 percent data. That is 500 million new apps are going to get created in the next five years. Think about that, that's more apps than the last 40 years. And 73 percent of the data, though, is still left unanalyzed because they're all in silos in each of these applications.

It's this dual challenge of how do we help create all these applications and then bring all the data together that's inspiring us to build out the Power Platform and Dynamics 365 as the world's connected business cloud. (Cheers, applause.)

It all starts by thinking about how to create a digital feedback loop. The entirety of the enterprise needs to get connected, the data itself has to be related, whether it's operations with customers, people, the core product creation and the rest of the enterprise operations all have to become one digital feedback loop.

Of course, once you have this digital feedback loop, that creates the core platform for you to be able to take any domain expert inside your organization and build out applications because when you think about this challenge of 500 million applications, we're just not going to have professional developers to build these applications, so we need citizen developers. Empowering citizen developers is what the Power Platform has been built for. It's great to see. (Applause.)

It's great to see the momentum, whether it's on Power BI, whether it's Flow or PowerApps, all of these are coming together to drive the domain-specific development by citizen developers.

And it's built. In fact, if you look at the architecture, it composes, it builds on Azure Services, it has this common data model, it has connectivity back to Dynamics 365 and Microsoft 365 so you can think of all of the applications inside of Microsoft 365 and Dynamics 365 as micro services and data that's available for any PowerApp developer.

You have connectors to all the popular apps -- SAP, Adobe, Workday, Salesforce -- any application you want, you can consume data and logic from them.

And, of course, you can do the same with your own application. This is, perhaps, the best composition from Azure all the way to citizen developers. In fact, there can be workflow between professional developers, working on Azure, who can then create a micro service and expose it to a PowerApp developer. That's the type of developer activity that we see. And, in fact, we have a new addition to the PowerApp family, it's the AI Builder. It takes some of those magical AI Cognitive Services capabilities and brings it to any application that you may want to build. And to show you this in action, I want to invite up Ryan and Eric. Ryan and Eric, take it away.

RYAN CUNNINGHAM: Thank you, Satya, and thank you, Eric, for coming out to share your story with us today.

ERIC MCKINNEY: Okay.

RYAN CUNNINGHAM: Tell us just a little bit about Pepsi.

ERIC MCKINNEY: Yeah, G&J Pepsi is the largest family-owned bottler in the Pepsi system. We have about 1600 employees in Kentucky and Ohio.

RYAN CUNNINGHAM: Okay. So, private company, regional focus here in the U.S. Tell us how you're using AI in the context of PowerApps.

ERIC MCKINNEY: Yeah, you know, Ryan, I'd rather show you.

RYAN CUNNINGHAM: All right, let's do it.

ERIC MCKINNEY: Let's give the people what they want, right? So, we live and die by counting our retail space, it's really important, right? We do a lot of counting, we do a lot of auditing and that's a time-consuming process.

RYAN CUNNINGHAM: I imagine.

ERIC MCKINNEY: With this application, we can offload a lot of that workload. So, I'm going to go ahead and do this, right? So, I'm just going to go ahead and hit detect on here. I'm going to take a picture, we've got some beautiful bottles of Mountain Dew here.

RYAN CUNNINGHAM: I'm thirsty already.

ERIC MCKINNEY: Me too. So, I'm going to go take this photo and we're going to just go ahead and -- I want you to think about this at scale, right? I just have a couple of Mountain Dew bottles here. We have hundreds of products, thousands of customers, right?

RYAN CUNNINGHAM: Yes.

ERIC MCKINNEY: Imagine.

RYAN CUNNINGHAM: That's a lot of manual counting.

ERIC MCKINNEY: Yes, absolutely. It's a Herculean effort to do this. But as you can see, the application has done this for us.

RYAN CUNNINGHAM: Wow.

ERIC MCKINNEY: And we can go ahead and submit these records, and then we can analyze the sales and do a lot with that, right?

RYAN CUNNINGHAM: That's amazing. But level with me here --

ERIC MCKINNEY: And submit your model to be published into an app.

RYAN CUNNINGHAM: Cool. So you upload a bunch of images, you tag them, you train the model, you feel good. How do you actually put it on a mobile device?

ERIC MCKINNEY: This is great. The process gets even easier. I know it's hard to believe, but it gets even easier. I'm going to go ahead and go to my Maker screen here, my Maker canvas, and I'm going to go ahead and just click on the AI Builder Control, add the Object Detector, and then I'm just going to simply resize this to where I want and then bind that to my model and we're ready to go.

RYAN CUNNINGHAM: And you're ready. That's amazing. So, you're just visually building an AI-infused application right in front of your eyes?

ERIC MCKINNEY: Yes.

RYAN CUNNINGHAM: That's impressive. How many people out there can take an AI project from a pile of photos? (Cheers, applause.) Yeah. That's impressive. But you know what? There's more. Do you mind if I cut in?

ERIC MCKINNEY: Yeah. I don't like to give up the stage, it's all yours.

RYAN CUNNINGHAM: So detecting objects and images is just one thing that AI Builder can do at PowerApps.com right now for anybody out there. Right? We can also classify text, understand and tag meaning in any blob of words. We can predict

outcomes, right? Any yes or no answer, any column on any entity in your common data service, will we get paid on time, will the customer convert? Will the customer churn? Really common business scenarios we can predict. And this one is particularly cool, we can process any physical form, piece of paper, PDF, you name it.

Now, I know you've been building a lot of apps, but there are probably a few sheets of paper still in your business, right?

ERIC MCKINNEY: Yeah, we're still churning through that. Yeah.

RYAN CUNNINGHAM: Yeah, I bet you're not the only one, right? Invoices, work orders, purchase orders, they're everywhere. AI Builder can understand and lift facts right off of the page, not just the characters, what they mean. This is a due date, this is a table with quantity and units of price, this is a subtotal, sales tax, actual quantity and totals. And then lift that all right into the Common Data Service and build it into all of the processes we use downstream. Right? So, we can build apps like you showed us, it can also automate business processes.

Let me show you Microsoft Flow, right? So, we've counted bottles on the shelf, now we're ordering more inventory. Every time an order hits an inbox, we can lift that order out, understand the products and the line items and the quantities and then further use AI Builder to predict how likely are we to be able to fill that order on time based on past performance? Right? And if the answer is no, we can actually kick off an approval process downstream, right, and get that order filled, ramp up that production on time, and build that into everything people are already using, whether that's another mobile app or into the Microsoft 365 experience.

In this case, … (?) drop that actionable approval card right into Microsoft Teams, approve it where people are already working, and be on our way, right? And all of this, everything we've shown you, not a single line of code. (Cheers, applause.)

That's the power of the platform that's driving tech intensity at the largest family-owned Pepsi bottler in Ohio and Kentucky, and thousands of organizations large and small around the planet right now. And the question to this room is: Where will you take it next? Thank you, Eric.

ERIC MCKINNEY: Thank you.

RYAN CUNNINGHAM: Thank you, Satya, back to you. (Cheers, applause.)

SATYA NADELLA: Eric yesterday, when we were doing a rehearsal, gave me this thing, it's this PowerApps Champs Card, he's autographed it, his message to me was "keep refreshing." (Laughter.)

And then an entire deck of cards which had all these PowerApps, and now I have my tasks cut out, I've got to go get autographs from all of them.

But I wanted to share one story. This is from the U.K., let's roll the video.

(Video segment.)

(Cheers, applause.)

SATYA NADELLA: To hear him say that last line, it's just what we live for. It's just so great to see the impact this next-generation platform for citizen developers is already having. And we build on that with Dynamics. With Dynamics 365, we now have these modular, modern modules for all of the functions, whether it's sales, whether it's finance, operations, support.

And it's great to see these getting deployed at scale. And one of the other things that's happened in the last year is AI across all of these functions, in fact, there's a complete new set of modules that are these insights modules. You can predict your sales pipeline and drive sales efficiency. You can improve your customer service because of insights. You can improve your customer 360 view. These are all real insight modules that are part of Dynamics.

In fact, you can deploy them with any customer who may have a different business system, because there's no one who's deployed these AI-first modules. This is the best opportunity for everyone in this room to become a strategic partner for our customers, to be able to infuse into every customer these AI-first modules. This is just I think in the next year, hopefully all of you will discover this opportunity to be a great way for you to grow your own strategic business.

In fact, Crane Worldwide Logistics is an amazing example of this. It is a startup in the last ten years that's scaled. They are using customer insights and sales insights. In fact, sales insights is helping them really take even data out of their Office 365 instance to improve the predictability of their sales pipeline, right? So community channels in many cases has the signal to help you with your sales insight.

In fact, one of the things that we've found is the internal network you have is probably more predictive of even your ability to close a sale. These are the types of things that you can get in an AI-first company. Data in one system is helping you optimize the outcome of another system. That's what an AI-first company does, that's what an AI-first software product does.

To us, seeing that in action in this customer's case is awesome. And it's great to see them not only use the sales insights, but they're also using Dynamics 365 Sales. In fact, they're also using LinkedIn Sales Navigator to drive relationship selling. And so the idea of taking these new modules, bringing them together to drive the next generation of business process is what Dynamics is enabling.

And we see tremendous momentum. 91 percent of the Fortune 500 are already using Dynamics 365. So, it's fantastic to see the impact it's having, but just to see one story in particular, I wanted to thank you to Japan. Let's roll the video.

(Video segment.)

(Cheers, applause.)

SATYA NADELLA: There is a new commercial opportunity that's getting unlocked in the mixed reality cloud. It's bringing of business process and any application across the boundaries of what's virtual and what's physical.

HoloLens 2 is an absolute breakthrough. It's got twice the field of view, twice the comfort, we've also now built applications right into Dynamics 365 -- Layout, Guides, Remote Assistance, Product Visualizer, these are all out-of-the-box applications that take advantage of this new medium, of mixed reality. And we have many, many third-party applications from industrial automation to architecture.

We've also built out a new service in Azure, Azure Spatial Anchors. The combination of Azure Spatial Anchors, applications in Dynamics 365, a device like HoloLens 2, and any phone with an AR framework can all come together to power this next generation of mixed reality apps and unlock an amazing opportunity for all of you.

Just to give you an example of this, take a retailer. Natuzzi is an iconic Italian furniture maker. They worked with a partner building out a new store in Manhattan, which is a mixed reality store.

So, you walk into the store, you put on a HoloLens or bring up your phone and you have an infinite catalog. You're not limited. In fact, the store format here is much smaller than their traditional stores. So, they're now seeing 30 percent more sales in those stores because you now have the ability to walk into the store, put on a HoloLens, see all of the catalogs, build your space, that is all the furniture assembled the way you want it.

Here's the interesting part: You can take the space you built home and see it at home using your phone. Or because of Azure spatial anchors, you can bring your home into the store. You're not bound by space anymore. And that's what the cloud enables. Think of that. Think about all of the business processes that would bridge what is physical, what is virtual, and is going to transcend space. That's the commercial opportunity. That's the business applications opportunity and we're leading the way here.

But I thought, you know what, to give you a real feel for this, we should have some fun. We said let's take the bestselling game ever on the PC, on the console, on the phone, Minecraft, and Minecraft Earth and show that to you. (Cheers, applause.)

So, I'll have my friends Saxs and Neena take it over.

SAXS PERSSON: Thank you, Satya. We're here to show our new team Minecraft Earth. The Minecraft team has been passionate about mixed reality for quite some time. We've been wanting to bring Minecraft to the real world for a long time.

The challenges we needed to overcome were how to do that in a way that we can have holograms, mixed reality experiences that are consistent for everybody in every place. Doing that at earth scale is quite a hard problem.

NEENA KAMATH: This is where Azure Spatial Anchors comes in. With our service, players can share mixed reality experiences and persist them in exact spots in the real world.

So, if you're looking for the park, GPS can get you there. But if you're looking for the mushroom under the tree at the park, you're going to need something a lot more precise than what GPS can do.

SAXS PERSSON: And with Minecraft Earth, we're going to put real Minecraft experiences anchored right in your local neighborhood so when you and your friends play, they get a chance to see what you've built exactly where you've placed it.

NEENA KAMATH: So, for today, we've built something over there on the table. Let's go check it out.

SAXS PERSSON: I'll ask Satya to step in and be a part of it. So, we scanned the table in Azure Spatial Anchor and as Neena scans and Satya scans, they're going to get the exact same experience that I'm seeing. So, this is a real living, breathing Minecraft world right on your tabletop. If there's anything that you would expect in Minecraft, we can make a little waterfall.

SATYA NADELLA: This is awesome.

NEENA KAMATH: So, when I get close to the parrots, I can let them out.

SAXS PERSSON: Let them all out. Come on, little guys. If I look over at Satya, I can see what he's holding, I can see his game tag. We can build anything we want to, put a little pillar in there and then a little avatar like that. That looks pretty much like you, Satya.

SATYA NADELLA: Yeah, that's me. (Laughter.)

NEENA KAMATH: What do you think this would look like in full size?

SAXS PERSSON: Well, let's try to put him on this.

SATYA NADELLA: So, you're going to make it bigger?

SAXS S PERSSON: This is a real Minecraft full scale, everything we just saw on the tabletop, but with our friends Satya and Neena right inside it. (Cheers, applause.)

SATYA NADELLA: That is so cool.

SAXS PERSSON: You look awesome in there.

SATYA NADELLA: I know. This feels like home.

NEENA KAMATH: With a common shared anchor, we were all able to just scan and jump into play. And with Azure Spatial Anchors, when we come back here tomorrow, the game will be exactly where we left it.

SAXS PERSSON: I see those chickens there.

NEENA KAMATH: Do you want to let them out?

SATYA NADELLA: Yeah, let's let them out.

SAXS PERSSON: Let them out. (Laughter.)

SATYA NADELLA: Can I feed them? I'll let you do that.

NEENA KAMATH: They like you the best. I see a mineshaft over here, can we go explore that?

SAXS PERSSON: Generally closed mineshafts are not the friendliest places.

NEENA KAMANH: No, no, I think there are diamonds, let's try it.

SATYA NADELLA: Diamonds?

SAXS PERSSON: Satya, I'm going to defend you, don't worry.

SATYA NADELLA: Thank you, Saxs.

SAXS PERSSON: I'm not going to let our CEO perish to spiders.

SATYA NADELLA: You would have had someone very worried.

NEENA KAMATH: Sorry. I think we're good.

SATYA NADELLA: Are we on a clock here for the keynote or can I just continue to play? (Laughter.)

SAXS PERSSON: Well -- (Cheers, applause.) We figured Minecraft Earth, your imagination is your only limit. So we rebuilt the famous Las Vegas sign hovering up over the audience, you can see it perfectly up there.

NEENA KAMANH: Why don't we go to the Bellagio?

SAXS PERSSON: Yeah, let's see if we can find the magic button over here. Bellagio, complete with the fountains. (Music.) (Applause.) We added fireworks.

SATYA NADELLA: That's so awesome. Thank you, Saxs.

SAXS PERSSON: Thank you.

SATYA NADELLA: Thank you, Neena. Thank you so much. (Cheers, applause.) Each time we rehearsed that, we started playing and we lost track of time.

SAXS PERSSON: This demo is much better when we don't rehearse. Minecraft takes on its biggest dimension yet. Our closed beta started yesterday. Sign up on Minecraft.net and join us in Minecraft.

SATYA NADELLA: Thank you so much.

NEENA KAMATH: And with Azure Spatial Anchors, which is in public preview, it provides real-world context into your application -- could be enterprise or gaming. Come build with us.

SAXS PERSSON: Thank you. (Cheers, applause.)

SATYA NADELLA: The commercial opportunity here is really already in front of us. In fact, in Barcelona when we launched HoloLens 2, we had many industry partners across every vertical, in retail, in architecture -- every IoT vendor out there is thinking about visualizing whether it's sensor data or playing Minecraft, effectively, from a logic perspective, it's exactly the same.

And so we're very excited about this opportunity. I can't wait to see what you all create in the coming year around mixed reality.

The last set of numbers I want to talk about is two billion first-line workers and 77 percent of these two billion workers who feel they don't have the tools. We've always focused with our tools, the knowledge worker. But the real opportunity for us is to bring knowledge workers and first-line workers together to empower companies and people. And that's what we're doing with Microsoft 365. When we say we want to build out the world's productivity cloud, it's about bringing that knowledge worker and first-line worker and empowering them.

And in the last year, we've had tremendous momentum. The world's brands, 95 percent of the Fortune 500 are using Microsoft 365. And all that is fueling, in fact, more and more rapid innovation. Windows 10 and its adoption in the enterprise, it's the fastest growth we've seen in the last year. Innovation in devices, small devices like Surface Go or Surface Hub and our OEM partners who are continuing to innovate around devices.

AI that's getting infused into all of the Office applications. Video has become first class with Stream. Security compliance, huge value proposition of Microsoft 365. That's what's fueling all of this growth and adoption.

Go ahead and clap for Microsoft 365. (Cheers, applause.)

The one product that has had an absolute breakout year is Teams. (Cheers, applause.) Teams is the hub for teamwork. It's really four things in one, right? It has chat, it has meetings, it brings together collaboration using all the richness of Office tools within that same scaffolding. It's the business process workflow. That's what Teams is about. It defies, even the category definitions that are there out in the marketplace. And that's what's driving this tremendous momentum.

To show you what's possible with Microsoft 365, Teams, and pretty much the entirety of the stack I talked about this morning, I wanted to invite up Raanah Amjadi, Dr. David Kellermann, and Yousaf Sajid to show you all of this at work. (Cheers, applause.)

RAANAH AMJADI: Hey, everyone. We're here at the Modern Workplace Hub at the Mandalay Bay Convention Center, where you can come check out some of the experiences I'm about to show you.

Today, new generations of workers use their phone and pictures as the primary way to communicate with their teams. We want to make that process a little bit simpler by adding some AI into the mix.

Right on my phone, I can use Office to take a picture of this data that I want to share with my team. Now, Office will be able to intelligently convert this data into a real table in Excel, automatically.

I don't have to go through the process of manually entering line item by line item, it's all going to happen for me using AI.

Now, this is something I can enter into Excel. I can start to work with it right here on my phone, or I can work with it on my laptop. Now that it's in Excel, I can start to co-edit and co-author with my team, I can format it as a table, manipulate this data, sort, and work this in ways I just couldn't do with a static image.

Now, this intelligence is also powering new experiences in PowerPoint with Presenter Coach, which gives me valuable insights as I rehearse my presentation, like this one, helping me show up more prepared every single time. Let's check it out.

So, I'm going to say rehearse with coach. Now, before we get started here, what's going to happen is that as I rehearse my presentation, it's going to give me real-time feedback on all of the different ways I can improve, whether it's language choice or pacing. Let's see what that looks like.

It is so great to be here with you guys and be able to share this presentation. Um, I mean, you know, we had a really, really great year and I think there's some incredible research we can share to really kickstart FY20 -- and yeah, you know, we had an incredible year, surpassing $500 million in revenue for the first time as a result of our team's focus on customer success and commit to deliver quality.

All right, let's finish there. Now, you may have noticed that it was giving me that feedback in real time. That's also been summarized in this report here. It picked up that I said, "you guys," which isn't super gender-inclusive language, and recommended that I say "you all" instead. It caught some of my filler words like "um" and "I mean" and even let me know my pace was a little bit too fast, a great reminder to slow down.

It even recognized when I was too dependent on the slide content itself, reading word for word, and even let me know exactly which slide I should probably familiarize myself with a little bit more. Pretty cool, right?

But how do we bring the same intelligence into the things we most often do at work -- meetings? Most of us here collaborate in mixed scenarios, where some of us are in a meeting room and some of us are dialing in remotely. The challenge with these types of meetings is that when the people in the room get up to do something like brainstorm on a physical whiteboard, the team online can't really see what's going on or engage with the content, and it's hard to feel included.

Microsoft Teams want to ensure everyone is equally engaged in the brainstorming process, so check that out.

This Microsoft Teams room has a dedicated whiteboard camera that we can connect. Using AI, the camera will be able to find the whiteboard image and pull it into focus for the team online, helping them engage with the content. It also protects people and makes them transparent. So, as I walk in front of the whiteboard to write something, the team online will be able to see the content right through me. Like, literally right through me.

This is all we have for you today here at the Hub, but we encourage you to come check out this space. Now, let's go to the arena where we can see Dr. Kellermann share how he uses Microsoft Teams and AI across Microsoft 365 at the UNSW Sydney to engage with students and empower collaboration. Back to the arena.

(Cheers, applause.)

DR. DAVID KELLERMANN: Thanks, Raanah. My name's Dave, g'day, everyone. Today, I'm going to talk to you about teamwork and collaboration with 500 students on and off campus.

So, I come from UNSW Sydney, a big Australian university. We have 65,000 students. Our engineering faculty has 17,000 students, that makes just our engineering school bigger than the whole of Stanford University.

We've got classes of 500-plus. In fact, this is my own class of engineering students. But that's 500 islands, right? 500 people looking down, taking down notes from the document projector, consuming PDFs, watching canned content.

So, here's the challenge: How do you get 500 students to work together as a single team, as a learning community, whether they're on campus or off campus?

I'm going to talk to you today about modern digital education at UNSW. Well, the first thing I wanted to do was digitize and integrate the system. I replaced the document scanner with digital ink, just like the Surface Pen here, I'm using it as a remote.

Then I started streaming my lectures live over YouTube, students could comment even if they're off campus and get an answer from me straight to the camera. In 2017, I switched to Microsoft Teams. I told the students, "Hey, we're going to use this new tool," 60 seconds later, they started posting. They logged in, downloaded the app, no change management required.

Engagement and rich community followed. Engineering diagrams, mathematics, code, students taking photos with their phone of engineering structures. Even taking photographs of handwritten mathematics on paper. I use channels for weekly content like lecture notes. Here's the channel for week 11, tabs for week 11 notes, and there it is. But this is more than just aggregation of material into one place, it also creates a data schema, and you'll understand that in a minute.

I could embed and share my OneNote using Class Notebook right into teams. The notebook sections created by the channel, all of this inking done live, just like we are now, but working together and collaboratively. And those 500 students, they all own the notebook, it's being synched in real time.

Then Stream launched on Office 365 and I used it instead of YouTube to livestream my videos, but now I had all of the same power of the back end, but I also had analytics and content control.

I could even embed lecture clips inside the OneNote notebook inside Teams all in a single login experience. Student documents could be created natively in Teams, whether they're on an iPad, any device at all. And we've got more than just the final document, we've got the entire version history and the telemetry. Our learning management system turned into an app for Teams embedded natively within that environment.

Forms became the fastest way to make a quiz. I could even run full power engineering software as a tab. A single integrated solution resulted in a 900 percent increase in the number of student posts per student per week, and massive increases in engagement.

But you know what? I actually created my own problem. We couldn't keep up with all of the questions. Sometimes we would miss them. And you know when one student reaches out and asks a question and you miss it, that's a lost opportunity to connect with that single person.

So, I want to talk about leveraging AI for a second, what's possible with an integrated system? Well, meet Question Bot. Question Bot is a bot that we created in order to solve this problem and it was built by partners who are right here today. (Cheers, applause.)

So, it's a simple value proposition, right? Students tag the Question Bot, it looks up which tutorial group they're in, looks up who their TA is, tags it, TA gets a notification on their phone, answers wherever they're at, and Question Bot closes the service ticket by being told what the correct answer was. So, it's actually keeping track of question and answer pairs, it's helping everyone connect, and every Q&A pair is there inside the specific topic.

And, of course, today if it doesn't work on mobile, it doesn't work. So, Question Bot is actually creating a study resource for the students filtered by topic. It's not a textbook, it's made out of their own collaboration, their own discussion automatically. In fact, in the first two weeks alone, Question Bot created 200 high-quality topic filtered question and answer pairs. Now, imagine six times that.

So, I use QnA Maker, a Cognitive Service on Azure, in order to train the AI of the bot. And within a couple of weeks, it started answering questions on its own. But not just that, Question Bot was also able to direct the students back to the conversations where their peers had been talking about similar problems. That's reconnecting people and building learning communities.

So, there's another problem. A lot of students would upload photos with their questions. And there's no context within the question that they've asked to build a high-quality question and answer pair. So, I started putting QR codes on all of the learning material. And using a vision Cognitive Service, Question Bot was able to see what question the students were working on and say, "Hey, I see you're working on Question 4.1" Pull relevant information from its own knowledge base, deliver a more useful asset to the students.

And remember those lecture recordings that were on Stream? Well, it's a SharePoint asset. And Question Bot could find it there with on configuration. It's able to search the transcript, and if the answer to a student's question happens to be in the lecture, it can deliver a time-stamped video link to the exact second. (Cheers, applause.)

So, using Graph API and Bot Framework, we built and deployed this with just one developer in eight weeks.

You know, the firehose of conversation turned from a problem into a digital asset for us and the students.

So, lastly, I want to talk about closing the loop. We've leveraged this value that we have, we've leveraged all of these digital assets, and we've integrated our solution. How can we turn all of that data into new material? In fact, by integrating all these systems, I have very highly structured data on SQL. And I can create a one-click Power BI dashboard for students to get their marks. So maybe a student might think they did poorly in this particular topic, but because the data is there, they can see that they're actually in the 75th quartile, maybe it was just a tough question. And the dashboard flows on mobile.

So I used 2017 data to train an Azure Machine Learning model to correlate all of the information against student performance. And using a database of competency-ranked resources -- every single topic against every difficulty level, and an algorithm on .NET, we automatically assembled 500 individual personalized optimized study packs for every student based on the prediction of not only their exam results, but their exam results for every individual question two weeks before. And uploaded to SharePoint with personal access, one click in Teams. Pretty cool, right? (Cheers, applause.)

So, we built a learning community of 500 students. They're working together. And doing that, we managed to achieve a satisfaction ratio of 99 percent. And that's because we're personalizing this experience to every student. We're actually able to identify at-risk students by week four of the course when they could still drop it, when it still mattered. I reach out personally to every one of those at-risk students to say, "Hey, how can I help?"

What about that challenge? 500 students working together as a team? Well, I asked them, "Do you feel part of a learning community?" 100.0 said yes.

You know the most valuable thing in that room? It's the people. Every student has got 499 other brilliant young people there to collaborate with to work together, to create new material, their own course, creating rather than consuming.

But you know what's really interesting is this artificial intelligence that we think of as being inhuman, it's actually allowing us to achieve an incredibly humanistic goal -- … people together, personalizing their experience, and reaching out to those people in need.

So, that's what we've been working on at UNSW Engineering, and you know, it's really only just the beginning for us. Thanks, everyone, for listening. (Cheers, applause.)

YOUSAF SAJID Wow. Now, what Dr. Kellermann just showed us was how he used Teams to foster collaboration and AI to leverage the collective knowledge of his classroom. But these same experiences can be applied across any industry, like in

healthcare, where clinicians can bring in data from electronic health records to coordinate patient care, for retail, where first-line workers can have access to shifts, communications in one place so they can focus on providing the best customer service.

So, let's take a look at another example in Iceland and see how Teams is for every worker across all industries.

(Video segment.)

(Applause.)

SATYA NADELLA: And so you saw how all of what we talked about can come together to transform every individual organization.

I want to close where I started -- 100, 17, 7. The stories we heard in Iceland, Dr. Campbell from South Africa, Martin in the U.K., Shinobu-san (ph.) in Japan, Dr. Kellermann from Australia. These are the stories that give us meaning in our work. They inspired us to pursue our mission to empower every person and every organization on the planet to achieve more.

I can't wait to see what we, the 100,000 and the 17 million, do to empower the seven billion. Thank you all very, very much. Have a fantastic day, thank you.

(Cheers, applause.)

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