

## **Build 2017**

**Terry Myerson, Executive Vice President, Windows and Devices Group**

**May 11, 2017**

Terry Myerson, Executive Vice President, Windows and Devices Group, delivers a keynote address at the Build 2017 Conference in Seattle.

**TERRY MYERSON:** Good morning. (Applause.)

The spirit of creativity really does live in each of us. It's what fundamentally defines us as humans. So often, our lives are given meaning by creating something out of nothing from a big idea, a dream, or just a simple thought.

It is the very essence that allows us to define our shared future, and like many of you, I experience my own personal creativity through software development.

From creating that first line of code, seeing how that code grows and connects with other code, composing in your mind how it will all fit together.

When I started, I remember what it was like to watch it compile, eventually seeing it come to life on the screen as something more than just lines of code.

There's just this amazing feeling of creativity that comes with software development. And I see that spark of creativity in our Windows community here at Build, and I've seen it in our community around the world. And this continues to inspire us and form the focus of all of our investments that we make in Windows. Because Windows, at its very foundation, since its inception, has been a place to unlock creativity.

And we continue to make great progress on that foundation. The Windows 10 Creators Update is now rolling out to over 500 million people around the world.

Windows 10 is now the most-used version of Windows on the planet. Windows 10 customers are spending more time using Windows PCs, have higher customer satisfaction, and are more engaged with your apps from the Windows Store than any previous version of Windows ever before.

Yesterday, Satya and Harry talked through these amazing advances in AI where we can all look forward to the benefits of these intelligent machines.

But we're going to build on that today with a focus not on the machines, but on your creativity.

Today, we're going to share three big investments we are making in our Windows developer community. First, with new capabilities in the next major update of Windows 10, we're going to help you drive love and app engagement for our shared customers in a growing device, input and platform-diverse world.

Platform wars have made it harder for customers and more difficult for us as creators to reach our customers with clear, consistent experiences, customized for each device.

We're going to show you how we are fully embracing three paths -- .NET, web, and C++ to help you create great app experiences that span across all platforms and all devices.

Second, with new capabilities in the Windows Store and Visual Studio, we have built the most seamless build, test and deploy workflow for your work on any platform.

But even more importantly, we now have this amazing feedback loop that removes the guesswork of what your users want, driving quality into our apps, and driving that customer love and engagement.

Thirdly, we are all creators. And we all know that amazing feeling when we have the absolute best tool, the right tool for the job. It gets out of the way and just lets our creativity flow.

And that is why we continue to invest in the pairing of Windows and Visual Studio to be our home for all of our development, not only for apps on Windows, but for apps that span across all platforms and devices.

And then we're going to bring all of these investments together to accelerate the next wave of computing: mixed reality.

With that, I'm excited to share the next major update of Windows: The Windows 10 Fall Creators Update.

It's designed to help you unlock your creativity as a developer and drive love and engagement for our shared customers, whether they be commercial or consumer, regardless of what device they are on.

Now, to give you a sense of what's possible with the Fall Creators Update, I want to show you a new experience. It's built on .NET, enables experiences across devices. It's built on the Microsoft Graph, it's distributed through the Windows Store, and it's a Universal Windows Application.

Let me introduce you to a new way to transform your photos and videos, Windows Story Remix.

(Video: Windows Story Remix.)

**LORRAINE BARDEEN:** (Applause.) Hi, everyone. I'm Lorraine Bardeen, and I work on the engineering team in Windows who brought you 3D for everyone as part of the Windows 10 Creators Update.

And we also build all of our first-party mixed-reality experiences.

Now, as the first-party experiences team, our role is to bring love and engagement to Windows and to Windows devices. Our team is laser focused on enabling the creator in everyone.

Our journey started last year when we announced the Windows 10 Creators Update including Paint 3D and the Remix3D.com community. And today, I am delighted to share with you how we're further extending creativity by transforming the photos and videos experience in Windows with Story Remix, which includes a brand new video creator.

We believe that to be truly creative, people need inspiration and they need materials to work with and they need tools to help them be successful.

In Story Remix, working together with Remix3D provides all three of those. You can use Story Remix to relive your memories, or to create entirely new stories of your own. Whether you have an idea or you have no idea how to get started, Story Remix is fun and it's a collaborative way to create stories that you will love. Let's go check it out.

So I'm starting here on the "explore" tab. This is where we can browse my entire collection of photos and videos.

Now, if you have a large collection, it can be really hard to find what you're looking for. So we've made it easy by allowing you to search for people like my son Oliver, or places like New York City, and even for things you love, like dogs.

Thanks to Windows and the power of AI and deep learning, Story Remix can recognize people and objects in photos and videos.

So now I want to use my collection to create my own story. So I'm going to go to the "create" tab.

Now, up at the top, there are stories that are already assembled based on this understanding of my collection. I could relive this day in history or I could check out all the pictures of food that I've taken right before I ate it.

And then down below, I have projects I'm working on like this story about a girls' soccer team that I coach on the weekends.

I really like to make videos as often as I can because it connects the kids and the parents into the team. Let's open that one.

So here we have a video that Story Remix has already made for me. And what's really unique about it is the footage was captured collaboratively by all the parents who were at

that game. I just set up a story, and I invited them to join. And then they used Story Remix on their phones to contribute all of their footage.

So what this means is I have the best photos and videos regardless of what device they were captured on.

We've built Story Remix as a Universal Windows App, using .NET and XAML and then we extended it to Android and iOS thanks to Xamarin.

In fact, let's check it out on my iPhone. I'm going to open it up here. OK, so notice how it knew exactly what I was working on on my PC and it opened me to the spot where I can pick up right where I left off.

What I want to do is I want to add a video that someone sent me of one of my players, Gina, that would be really good for my story. So I'm going to find it, and done.

OK. So notice how it shows up right in my story, right on my PC. So I can keep going.

We've added pen and ink support to Story Remix. And I'm going to show you with this clip. First, I'm going to move forward to a good spot for a note. And then I'm going to write a fun note right into the video.

You might have seen inking on photos and videos before, but this is new. I'm going to anchor this note to Gina.

OK, now check out how the note follows her as she moves down the field and evades this defender. (Cheers, applause.)

So I think we need this clip. Let's save it.

Gina had a phenomenal game. So I'm going to make a highlight video to really celebrate her performance. And I could start making that video totally from scratch, but since Story Remix has already made a montage for me, I'm going to check that out first.

(Video plays.)

Using AI, Story Remix has picked just the best cuts with smiles and action and then trimmed the clips to just the best moments.

So with no work from me at all, I have a great video with music to match. Because of this tool, it took me from inspiration to actually making a video.

But I want this video to be all about Gina, my MVP. So to do that, I just touch her thumbnail, and Story Remix will redo the entire video with her as the star.

(Video plays.)

But I want a different vibe. (Applause.) Let's try an even different vibe because Story Remix can do that, too. It can give you a whole new look and feel for your video by just touching the Remix button. Story Remix is going to change the cuts, the filters, the music.

(Video plays.)

OK. So I've got a great video, right? (Applause.) But what if I want to go even further and make more changes to make this personal? I want to customize it.

So to do that, I'm going to open up the story editor. This is brand new. And this is a storyboard interface where I can easily add or edit or remove clips. It's really easy to use, even if you have never used any video editor before. I'll show you what I mean.

So, first thing, there's this clip at the end where the other team scores a goal which is unacceptable for my highlight video. Let's get rid of that. OK.

And then I'm going to find the clip where I inked right into the video, move that to the front here, OK.

Now, this one I'm so proud of. So we need to let it breathe more, I'm going to extend the duration. OK.

And then if I want to customize it more, I can change up the filters. I can add text throughout the video, I can even add motion like panning and zooming. And these changes make it feel more personal to me, like I'm telling the story I want to tell.

OK. And then if I want to change up the song, I can do that thanks to Groove. Just open it up, think about what theme I'm looking for. I think I want cinematic. So let's try film. (Music plays.)

OK, let's amp up the intensity on that one. (Music plays.)

OK, now I'm going to select that one, and watch how Story Remix redoes all of the cuts to match the beats of the song. This saves me a ton of time because it means I don't have to reedit my video every time I change the song.

OK, so there's one more clip that I really want to add. You'll never guess who scored the game-winning goal. It was Gina. So let's pull that to the end, there we go.

Now, on this clip, I want to do something really special to make the ending epic. I'd like to try mixed reality, but I don't really know how to get started.

So for inspiration, I'm going to go and open the Remix3D communication. This is the community site that is packed with the cool things people have been making and remixing in 3D.

And you can see, I opened it up right here in Story Remix just like I would in Paint 3D. That means that I can get cool ideas and content without even having to leave the app.

And, of course, I'm showing this to you in our first-party experience, but I am thrilled to tell you that we'll be releasing all of these APIs so that all Windows developers can have access to our 3D cloud in their apps. (Applause.)

We want this content, these creations to be easy to share across apps and the web just like any other type of content. So we're part of the Chronos community. We support glTF like many industry leaders in 3D as an open standard file format for 3D objects in apps. And we also support the BabylonJS Web 3D Engine so that these creations show up beautifully across the web.

So I came here to look for inspiration for that final clip. And there's this fireball here that's intriguing to me. Let's open it up and take a look.

OK, so this fireball is in a scene. And scenes are made up of parts. And I can see all the parts that make up that scene, as well as their creators, and I could use any part as a starting point for my creation.

And thanks to a new feature of Remix 3D, the original creators will get credit anytime I build something new.

So there's that fireball that caught my eye. Let's open it up. And then if I want more ideas, I can see all the ways other people have been remixing the fireball right below it.

And I do have an idea of what I want to do with this fireball. So let me move the video to right where she kicks her soccer ball. OK. Now, let's put the fireball in the project, move it over to the soccer ball, and then I'm going to anchor it to the object.

Let's see how this looks.

(Video plays.) (Cheers, applause.)

That's good. But not enough. I want to go even bigger and I want to end this video with a bang. So I'm going to go back -- wait, let's end this video right here with a bang. I'll put it right there.

I'm going to go back to our Remix community, open it up, and this time I'm going to search for "explosion." (Laughter.)

Ah-hah, here's an explosion that'll do. Place it in my project, move it into the goal. And this time, I'm going to anchor it to the surface, so that means it'll stay in place even when the camera moves during the video.

OK, who wants to see the epic ending to my highlight video? (Cheers, applause.) Let's watch it.

(Video plays.) (Cheers, applause.)

Gina's going to love that video. Incredible effects like these where you can mix the real world with the completely impossible used to be available only to professionals. But with Story Remix and with the Windows 10 Fall Creators Update, they will be available to everyone.

We believe that everyone has ideas to share, everyone has stories to tell, and everyone has the desire to create. And we want to help you get started.

Thank you very much.

(Cheers, applause.)

**TERRY MYERSON:** What we just saw with the Windows 10 Fall Creator's Update, it isn't just the next update coming this fall. This is a big opportunity. It's an opportunity for us to keep our customers close to the content, files and activities they've grown to use and love. It's an opportunity for us as creators to easily modernize our apps and build this new virtuous cycle where the Microsoft Graph and the Windows Shell, we connect your customers to your apps. And it's an opportunity through Windows to drive engagement across the diverse devices and platforms our shared customers are using every day.

Now let's talk about our next investment, continuous delivery of your app through the Windows Store. With Visual Studio and the Windows Store, we now have the most comprehensive workflow solution for apps to be built, tested and published to any platform with unmatched feedback cycles to drive love and engagement.

We're not just talking about consumer apps, but also commercial apps for use inside and enterprise or out. Today we're very happy to announce that full UWP capabilities are coming to Visual Studio Mobile Center this fall, including automated build support and a full range of Windows devices available in our test cloud.

You can set up an automated build pipeline with just one click from any source repro in Visual Studio Team Services, GitHub or BitBucket. Once your app is building in the cloud on every commit you're able to easily run this full battery of tests on real devices in our test cloud. You can see how the apps look on the devices, whether the tests are passing or failing, and even get detailed logs and performance data to pinpoint any issues. And, of course, once you're satisfied your tests are passing, you can automate publishing of the app right into the Windows Store.

As a developer, the most exciting thing to me is the feedback cycle the Windows Store provides. This ability to listen to your users and continuously improve. And just last week we announced a new Windows 10 experience, Windows 10S. We believe Windows 10S will become popular in schools around the world, and we're now receiving strong interest from the enterprise. Customers see the clear benefits of the improved security and performance.

But what I hope you see is a Windows experience where your apps from the Windows Store take center stage. Windows 10S is just one of 500 million reasons companies like Spotify announced that they will be in the Windows Store last week. And they are not alone. Today I'm excited to announce that iTunes will be coming to the Windows Store. (Applause.) Windows 10 and Windows 10S users will get the complete iTunes experience, including Apple Music as well as full support for the iPhone. We are serious about enabling the best experience for Windows users and we're thrilled to have iTunes be a part of that.

Now not only is the store great for consumer apps and games, we're also working hard to make the store the best place for commercial software. On that front, I'm happy to announce that SAP's Digital Boardroom will be coming to the Windows Store. This is one of the most popular apps from SAP enabling real-time interactive boardroom presentations, but technically I love that this app is a web app, a progressive web app, allowing SAP to reuse their web content and take advantage of deeper integration with Windows 10.

Next I would like to introduce you to a customer who is already driving success for their business using the Windows Store building an amazing experience in C++. Please welcome to the stage Andy Mott from Autodesk.

(Applause.)

Thanks for coming, Andy.

**ANDY MOTT:** Thanks.

**TERRY MYERSON:** So when Autodesk decided to bring Sketchbook to the Windows Store, why did you decide to build a Universal Windows Platform app?

**ANDY MOTT:** So our teams at Autodesk choose the Universal Windows Platform because we're interested in providing design software to artists and designers on every type of device with all the different types of form factors and input types that are available.

So as an example, the UWP version of Sketchbook was built from the ground up to take advantage of these Windows 10 creative experiences for pen and touch. That enabled us to support devices like Surface Studio and Surface Dial shortly after their introduction.



We also choose UWP because we're interested in providing design software, of course, in all kinds of markets, and the distribution capabilities of the Windows Store help us reach new markets and grow our business.

**TERRY MYERSON:** And so what's your experience been distributing Autodesk and Sketchbook through the Windows Store?

**ANDY MOTT:** So we introduced our UWP version of Sketchbook last summer. It became the fastest growing new platform introduction ever with an average of 35 percent month over month bills growth throughout 2016. In fact, sales in the Windows Store grew faster than even our mobile apps last year.

The Windows Store gives us an easy way to reach and address our target customers and our target markets all over the world. When we introduced Windows subscription, we saw an immediate difference in the international market, like Germany, China and Australia where subscriptions grew faster on the Windows Store than any other platform.

We also like the insights that we get from the Windows Store which help us make sure that we match our product and offer to the markets and customers we serve so that we have an offer that meets the needs of our customers, meets the needs of our business in every market around the world.

**TERRY MYERSON:** Just so awesome. So where do you guys want to go next?

**ANDY MOTT:** Well, at Autodesk we've been testing new ideas and adding support for Windows Mixed Reality in the Autodesk Stingray Real Time Engine. Together these allow our customers to build immersive experiences like never before. So take a look at this example of how we're simulating factories, merging our design tools with the immersive capabilities of Stingray.

(Video segment.)

**TERRY MYERSON:** That's great. Thanks, Andy, for coming.

**ANDY MOTT:** Thanks so much.

(Applause.)

**TERRY MYERSON:** So let's all work together to make the Windows Store a success for your Windows apps and the 500 million Windows 10 customers that are looking for them.

Now let's talk about our investments to make Windows 10 the best damn dev box on the planet. It was last year at Build where Kevin Gallo introduced that we were bringing Bash to Windows 10. You were able to download Ubuntu and set it up, and that's as you

know the first step on this journey. We're truly recommitting to make Windows 10 this amazing dev box.

Well, we've got a bunch of new things to share with you today. The first thing I would share is we're making it much easier to set up Ubuntu on Windows 10 by bringing Ubuntu to the Windows Store. So with one click you can easily download and set up Ubuntu on your Windows 10 device. (Applause.) I mean, it's amazing to think when Dave Cutler, who is by the way still on our team writing code every day, envisioned the design of Windows NT, he thought about this OS that could support multiple personalities, and there it was with the Ubuntu shells running the Bash Shell on Windows 10.

Well, we also have some new partnerships on the front this year. SUSE Linux will also be coming to the Windows Store so you can download that and have that shell available for your use to run Linux apps. And we are also working with Fedora.

So you have now four personalities on top of this one OS making it the only OS where you can run Linux applications and Windows applications, making it the most productive development environment ever.

(Applause.)

Now there's one capability we've heard a lot about that people wanted. You wanted to be able to develop an iOS application from Visual Studio on your Windows PC. Well, let me introduce you to the Xamarin Live Player.

Xamarin Live Player is an application here on this iPhone. And what I'm going to do is I'm going to pair it with Visual Studio here on this PC. By simply running the app here on the iPhone, I'm going to press pair to Visual Studio, boom; those two things are now connected. And what that's enabled me to do now is very easily deploy this .NET, C# Northland Project to the iOS device.

Let's take a look at that. Let's come here. It is now downloading the application to the phone. And you can see I have the full debugging capabilities of Visual Studio and .NET right here. I have a breakpoint on line 25. (Applause.) So let's just click on Kevin Gallo and there it goes. The code advances right to the breakpoint and I can debug. You have full, the entire capabilities of the Visual Studio .NET debugger with this iOS application.

Now of course I expect more when I'm working with .NET and Visual Studio. I expect to do live edit and continue. So let's take a look at that. I'm going to come here and I'm going to put the live player into that mode. Now this list view I have here is kind of dry. So let's add a header. Let's just add some header code quickly in here. What you see here it's just like that for these phone apps, new downloaded. And this really is the full interactivity you'd expect. Let's change the color of the header. Let's go over here, change some of the code. All right, there you go, so the full capability to build rich iOS applications directly from Visual Studio on your PC. (Applause.)

Then there's one more area where we really invested this year to make Windows the best dev box ever and that is it's really in line with our mission to empower every person on the planet. We do quite a bit of work here to -- I didn't know that photo was going to get put in there. But we do quite a bit of work to make all of our software accessible to everyone. There's a billion people in the world with disabilities. And so that's an incredible group of people that want to have access to all these great capabilities of our apps.

So when it comes to creating a dev platform we want to create the tools that help us and you build applications that are accessible to all of those people. And so in Windows we've been investing quite a bit in Narrator. So Narrator is on every Windows 10 PC. You can run it and you can hear what somewhat who is visually impaired will experience when using your applications on the PC.

When someone you actually know has had a good experience they can hear your app, but can they -- so now with Narrator we've introduced, we continue to invest, in developer mode. So what's happening now is -- there we go. So what I'm able to do now is navigate my application as if I was visually impaired, put myself in the shoes of someone -- some of the billion people that will be using my application in this way. And speaking on behalf of our developers this is an unbelievable game changer to understand how to make your application great for all those people all over the world. (Applause.)

So to quickly recap, we are just going to keep investing to make Windows 10 the best dev box ever. We've simplified the install of Ubuntu by bringing it to the Windows Store. SUSE is coming to the Windows Store. We're working with Fedora to bring them to the Windows Store. And now Windows is the only platform that can run both Windows and Linux apps. The Xamarin Live Player will enable you to build, test and debug your iPhone applications from your Windows PC. And with Narrator accessibility mode you can develop for people of all abilities.

So please keep the feedback coming. We're just going to keep investing in making Windows 10 your home for development of apps that run on any platform.

Now each of those three investments, they're pretty cool, right? (Applause.) Each of those investments we're making in our developer communities, they individually are valuable. But sometimes it's when you put all these pieces together that you can see the whole picture. And there's just no better way to do that than looking through the lens of the next frontier of computing, mixed reality.

My first experience in mixed reality was a little over seven years ago. Joe Belfiore came into my office, this is a true story, and told me Alex Kipman just showed me a lobster dancing right in front of my eyes on this bench. You've got to go see this lobster. Since that magical moment I've seen how mixed reality has taught surgeons how to save lives. How it's inspired architects to build masterpieces and it's dramatically improved the processes of some of our toughest manufacturing challenges.

Mixed reality's path, it's still being written. But I truly believe it is going to change everything. I'm so excited to see what mixed reality, where it's going to go with gaming and entertainment. But I'm even more inspired to see how mixed reality is already digitally transforming businesses around the world. I mean it's amazing to think visionary Windows developers jumped in just a year ago when we started shipping HoloLens and now it's paying off for them. I get so much inspiration from this work.

Consider Japan Airlines. Repairing a jet engine is hard. Training people to repair a jet engine is unbelievably expensive. You're taking these jet engines and the jets offline and how long can you train while it's offline. It's this huge thick manual that's kind of a mess consistently so you get a little out of date. Well, at Japan Airlines that's not how it works anymore. Their employees are taking these HoloLenses out and they're training with as much time and as much space as they need to learn how to repair jet engines and keep their fleet safe.

Then you have Mod Pizza, an incredible pizza chain here in the Seattle area, if you're looking for a place to have dinner tonight I recommend it. But they're opening 100 stores per year. It's a huge success story here locally. But the challenge of opening 100 stores per year it's pretty expensive, because every retail space is different. The kitchen has got to be in a different place, a different size. What's the flow of the people in the restaurant, how do people fit, how do we get the ambiance just right? Well, if you have to go physically create the props and move them around and try them out that is slow and expensive. Now they're able to do all that retail space planning with HoloLens.

And there's ThyssenKrupp. They build commercial elevators. But the group in ThyssenKrupp that builds elevators for the home, for those that need elevators to help them move around their homes, it's amazing what they've done. I mean it's truly inspirational. They used to take all these measurements and then iterate to get everything right. But now they've built an application with HoloLens where the installers go onsite, visually map the space and they've already reduced the delivery times of home elevators by 4X.

It's companies like these that saw the possibilities that I saw in the lobster. It's companies like Intel, Acer, ASUS, Dell, HP, Lenovo and Three Glasses (ph), and many others that are accelerating mixed reality and creativity, making it possible for you to leverage your Windows development skills for this next wave of computing. And this incredible opportunity is in front of us today.

END