Apple Inc Special Event

Company Participants

- Jeffrey E. Williams, COO & Senior VP
- Kaiann Drance, Senior Director, Product Marketing (iPhone)
- Lisa Jackson, VP of Environment Policy & Social Initiatives
- Philip W. Schiller, SVP of Worldwide Marketing
- Timothy D. Cook, CEO & Director

Other Participants

- Atli Mar Sveinsson, CEO, Directive Games
- David Lee, CEO, NEX Team, Inc.
- Dr. Ivor J. Benjamin, President, American Heart Association
- Steve Nash, NBA player
- Todd Howard, Games Director and Executive Producer, Bethesda Softworks LLC
- Unidentified Participant, Analyst, Unknown

Presentation

Timothy D. Cook {BIO 14014370 <GO>}

Good morning. Thank you. Welcome to the Steve Jobs Theater. Wasn't that a fun video? Things certainly do get hectic around here leading up to days like this. But they're also magical days because we get to share our latest innovations with you.

As you know, Apple was founded to make the computer more personal, of course, first with the Apple II and then later with the Mac. Over the years, we've taken this mission further than anyone could have imagined. We've created several categories of technology that have had a profound impact on people's lives, from the iPod to the iPhone, to the iPad, to the Apple Watch.

And we've completely reinvented the retail experience, making it more personal and engaging. Our stores have become part of the community. They are open, beautiful and inspiring places to learn and gather, like this gorgeous store, the Apple Piazza Liberty, that's revitalizing a plaza in the heart of Milan. The store opened to thousands of customers who came to experience a weekend full of events. And we know it's going to be popular for years to come. In fact, our Apple stores are now welcoming over 500 million visitors per year. Thank you. We love that so many customers have the chance to experience our products firsthand and get the personal help that they need to get the most out of them.

Of course, we aim to put the customer at the center of everything that we do. That's why iOS is not just the world's most advanced mobile operating system, it's the most personal. We're about to hit a major milestone. We are about to ship our 2 billionth iOS device. This is astonishing. iOS has changed the way we live, from the way we learn, to the way we work, to how we're entertained, to how we shop, order our food, get our transportation and stay in touch with one another and of course, how we capture the moments of our lives and share them with those we love.

It's amazing how our mission started with personalizing technology for the desktop, to now seeing the many ways that we've made it more personal in so many aspects of our lives. So it's only fitting that today, we're going to tell you about 2 of our most personal products, the ones that are with you everywhere that you go and how we're going to take them even further.

So let's get started with the Apple Watch. Yes. We're thrilled by how much the Apple Watch has grown in such a short period of time. I mean, to think this category didn't even exist just a few years ago. And now Apple Watch is being embraced by so many people around the world. Apple Watch is not only the #1 smartwatch in the world, it's the #1 watch, period.

Apple Watch has redefined what a watch can do for you. It's the integration of breakthrough technology and powerful software and world-class services that bring it to life. For millions of people around the world, Apple Watch has become an indispensable part of their daily lives by helping them stay connected, to be more active and to live a healthier day.

To tell you how we're going to take Apple Watch to the next level, I'd like to invite Jeff up. Jeff?

Jeffrey E. Williams {BIO 16886071 <GO>}

Wow. Thank you. Thank you. We're humbled and inspired by how Apple Watch has become such an important and even essential part of people's lives. And it's becoming more indispensable in 3 areas in particular. It keeps you connected to the people and information you care about with phone calls and messages and notifications right on your wrist. And cellular lets you stay connected with just your Apple Watch even if you leave your phone behind.

Fitness is at the core of Apple Watch, encouraging you to be more active by closing your rings and tracking your workouts. And now you have built-in GPS. It's swim-proof. And it even automatically detects when you're working out.

And health. Health has been at the core of Apple Watch as well. Apple Watch put heart rate monitoring right on the wrist. And while you could always check your heart rate, Apple Watch now looks in the background and notifies you if it detects an elevated heart rate. This may seem like a simple change. But we see this in our customer letters. It's a profound change. Apple Watch has become an intelligent guardian for your health.

Today, in each of these areas, staying connected, living an active life and managing your health, we're taking Apple Watch to the next level.

And now I'd like to introduce the next generation of Apple Watch.

(video presentation)

Apple Watch Series 4. Everything about it has been redesigned and reengineered. Every detail has been thoughtfully considered. And it's just beautiful. It all starts with a stunning new display. We pushed the screens right to the edges and we curved the corners to perfectly match the shape of the watch. And the screens are significantly larger. In fact, they're over 30% larger. Thank you. And we've done this with minimal changes to the case size. Series 4 is thinner so there's actually less total volume than in Series 3. And to take advantage of the new display, every part of the UI has been redesigned.

You'll see more in Maps and photo and calendar. And we've created new complications. They look beautiful and they show even more information and detail. And we've also designed a brand-new watch face with up to 8 complications that really brings them to life. And you can customize it with the things you care about. Now you can add loved ones to your watch face and simply tap to connect with them. Or if you're traveling, you can customize a watch face to track the different time zones. Or maybe you want to create the ultimate health and fitness watch.

We also redesigned the modular face, with more detailed and graphical information from apps like Stocks and heart rate and activity and even apps from our developers. So now you can track the live score of your favorite team with MLB At Bat. Your boarding information will appear right on your watch face with the Qantas app. Or you can glance at nutritional intake with the LifeSum app.

Next, the Breathe app has been a popular way for people to take a moment to be more mindful. And now the app is available as a watch face. So with a simple raise of the wrist, the watch face will guide you through a deep breath. And there are 3 beautiful variations to choose from. It's a little hypnotic. It's kind of wonderful.

In addition, we've created some dynamic new watch faces that uniquely interact with the shape of the display. With a fire face, see how the flames subtly illuminate the ticks of the dial? And the new water face, notice how the bubbles splash off the edges? And the vapor face looks amazing with the rich, vibrant colors. We think you're going to love everything about the new displays on Series 4.

Next, let's turn to the Digital Crown. Digital Crown's been completely reengineered. And it now includes haptic feedback, giving you a more responsive and mechanical feel. It's especially great in apps like podcasts and calendar, where you precisely flip through each item.

The speaker has also been completely redesigned. It's 50% louder, which is great for phone calls and Walkie-Talkie or Siri requests. Yes. Ask Siri something on Series 4 and she comes back with volume. You just won't believe the sound you get out of such a small device. We moved the microphone on Series 4 to the opposite side as far away from the speaker as possible to reduce echo, making phone calls even clearer. And the back of Series 4 is absolutely beautiful. It's made entirely of black ceramic and sapphire crystal. And it's not only beautiful, it's highly functional. Radio waves can now pass through both the front and the back, resulting in improved cellular reception. So this, along with the new speaker and microphone, makes Series 4 even better for staying connected.

Series 4 is just as impressive on the inside. The brain of Series 4 is our fourth-generation silicon-in-package, or SiP. And we call it S4. And it allows us to build in so many capabilities in such a small device. S4 contains a powerful new dual-core 64-bit processor and a new GPU, both custom-designed by our Apple silicon team to deliver up to 2x faster performance.

On Apple Watch, the accelerometer and gyroscope, they power important experiences like all-day activity tracking or even identifying your swim stroke. Well Series 4 has a next-generation accelerometer and gyroscope with twice the dynamic range, measuring up to 32 g-forces and can sample motion data 8x faster. You probably have no idea what any of that means. But that's okay because we do and it's allowed us to do something new.

One of the leading causes of injuries worldwide is falls. So whether you slip off a step ladder or you trip on a curb, a hard fall can be serious and it can be difficult to get immediate help. Well now Apple Watch Series 4 can detect a fall. It's interesting, identifying a fall may sound like a straightforward problem. But it requires a tremendous amount of data and analysis. We conducted studies with thousands of people over a long period of time. And we captured data on real-world falls. And we learned something. We learned that with falls, there's this repeatable motion pattern that happens. For example, when you trip, your body will naturally pitch forward and your arms will go out involuntarily to brace yourself. However, if you slip, there's a natural upward motion of the arms.

Well these are motions Series 4 is ideally suited to recognize. With a new accelerometer and gyroscope, the watch analyzes wrist trajectory and impact acceleration to determine when a fall occurs. And after detecting a fall, Series 4 delivers an alert. And from that alert, you can initiate an emergency call. However, if the watch senses you are immobile for 1 minute, it will start the call automatically. And it also sends a message with your location to your emergency contacts, using the SOS feature that is already built into Apple Watch. Fall detection is a feature that we hope you never need. But it's really nice to know it's there.

The optical heart sensor has been essential to Apple Watch from the beginning. And it allows us to calculate the calorie burn during your workouts. It allows us to determine your resting heart rate. And it's -- it also powers the high heart rate notification that's helped Apple Watch become an intelligent guardian for your

health. We wanted to do even more in this space. And so we're announcing 3 new heart features.

First, a notification if your heart rate appears to be too low. Now generally, a low heart rate is thought to be a good thing. But if it's too low, it might mean that your heart is not pumping enough blood to the body. And that could be a sign of something serious. And now Apple Watch can detect it.

The second feature is related to heart rhythm. And this is a big deal. Apple Watch can now screen your heart rhythm in the background. And it sends you a notification if it detects an irregular rhythm that appears to be atrial fibrillation. Now, it won't catch every instance of AFib. But we believe this is going to help a lot of people who didn't otherwise know they had an issue.

The first 2 features, they're powered by the optical sensor. The third feature is made possible by a new electrical heart sensor on Series 4. We've added electrodes into the back sapphire crystal and the Digital Crown, allowing you to take an electrocardiogram. It's otherwise known as an ECG. And this is the first ECG product offered over the counter, directly to consumers. An ECG measures the electrical activity of the heartbeat. And it's used by physicians to help diagnose certain heart diseases and other conditions. And so now you can take an ECG anytime, anywhere right from your wrist. You just open the app and you put your finger on the Digital Crown.

To show you how this works, let's take a closer look. The built-in electrodes in the back crystal and the Digital Crown, they detect electrical impulses from the heartbeat. They route them to the S4 chip, which converts them to signal for our algorithms. The entire process takes just 30 seconds. And at the completion of the ECG recording, you will receive a heart rhythm classification. If your heart is beating in a normal rhythm, the app will classify the measurement as sinus rhythm. And the app will also classify atrial fibrillation. All ECG recordings, their classifications, the noted symptoms, they're all stored right in the health app in a PDF you can share with your doctor. So now your doctor has a detailed picture of your heart rhythm similar to a Lead I ECG that is usually only obtained in the clinic.

And to give you his thoughts on this, I'd like to invite to the stage the President of the American Heart Association and also a practicing cardiologist, Dr. Ivor Benjamin.

Dr. Ivor J. Benjamin

Thank you, Jeff. I'm inspired by the lifesaving potential of technology and applaud Apple's innovation and commitment to health. Capturing meaningful data about a person's heart in real time is changing the way we practice medicine. In my experience, people often report symptoms that are absent during their medical visits. That is why information is vital, information about a person's daily lifestyle choices and their specific health data. The ability to access health data on an on-demand electrocardiogram, or ECG, is game-changing, especially when evaluating

atrial fibrillation, an irregular and often rapid heart rate that can increase a person's risk of stroke, heart failure and other health-related complications.

At the American Heart Association, we are committed to educate and empower people to be proactive in all areas of their health and general well-being. The American Heart Association is a relentless force for a world of longer, healthier lives. Products that seek to provide deeper health insights, like the Apple Watch Series 4, offer great potential in getting us there. Thank you. Back to you, Jeff.

Jeffrey E. Williams {BIO 16886071 <GO>}

Thank you. Thanks, Dr. Benjamin. It's great to have the support of the American Heart Association. And I'm also pleased to say we've received clearance from the FDA. And this is a de novo clearance, which means it's the first of its kind. Also, the irregular heart rhythm alert has also received FDA clearance. Both of these features will be available to U.S. customers later this year. And we're working hard to bring them to customers around the world.

I just have to show you, when you open the app, this is what you see on the watch face. It's really beautiful. People, in general, don't like things that are medical. This kind of makes you want to take an ECG. It's amazing to think that the same watch you wear every day to make phone calls and respond to messages, track your activity, like even run a marathon, can now take an ECG.

Apple Watch Series 4 is the ultimate guardian for your health, the best fitness companion and the most convenient way to stay connected. And with all these amazing features, of course, your data is still protected. At Apple, we believe your personal information belongs to you. You should decide who you share it with and who gets to see it, period. All your health and fitness data there, it's encrypted on the device and in the cloud.

So Apple Watch Series 4, larger display, brand-new UI, Digital Crown with haptics, up to 2x faster performance, a louder speaker, fall detection and an industry first, built-in electrical heart sensor capable of taking an ECG and of course, cellular, GPS, altimeters, swim-proof. And I've probably missed some things. We also have the most advanced wearable operating system, watchOS 5.

So with all of these features in a slimmer design, you're probably wondering about battery life. Well I'm pleased to tell you that Series 4 has the same 18-hour, all-day battery life that our customers enjoy on Apple Watch. And we've increased the outdoor workout time to 6 hours so you can have full GPS tracking which is perfect for those marathons or long bike rides. And of course, Apple Watch has been designed and manufactured in an environmentally friendly way.

We've created a video about Series 4. And I'd like to show that to you now.

(video presentation)

Series 4 will be available in 3 aluminum finishes: silver; gold; and space gray. And the stainless collection is absolutely beautiful, with polish in space black. We've shipped stainless before. But there's something about Series 4 that is even more gorgeous. And there's a brand-new finish, gold stainless, which is wonderful paired with this Milanese Loop.

All band colors and band styles fit any generation of Apple Watch. So all those Series 4 customers, all the bands that you already own will work just fine on the Series 4.

For customers who love Nike+, especially runners, it's been optimized for Series 4 with full screen watch faces that look great. And they've done something really cool with the Nike Sport Loop, they've added reflective yarn for nighttime visibility.

Apple Watch HermÃ¨s continues this fall with some bold new looks. There's these gorgeous color blocks on the watch face. And they change with the passage of time. And they look really wonderful paired with the new Double Tour bands.

Apple Watch Series 4 with GPS starts at $399, Series 4 with cellular starts at $499. And we're keeping Series 3 in Milan at more affordable prices, starting at just $279. Series 4 GPS will be available in 26 markets at launch. Series 4 with cellular will start in 16 markets with 34 carriers. That's more than twice the number of carriers we had last year.

You can order Series 4 starting Friday. And it will be available the following Friday, September 21. Series 3 at the new prices is available right after the show. And watchOS 5, the most advanced wearable operating system, will be available on September 17.

That's Apple Watch. And now back to Tim.

Timothy D. Cook {BIO 14014370 <GO>}

Thank you. Thank you. I could not be more excited about the Apple Watch Series 4. Apple Watch is really redefining what a watch can do for you. Now we made a video about how the Apple Watch is inspiring people all around the world to be more active. And I'd love to run it for you now. I think you're going to get a kick out of it.

(video presentation)

We really love what the Apple Watch is doing to get the world moving. So that is Apple Watch. Now let's talk about iPhone.

iPhone X defined the future of the smartphone. It introduced new technologies that is at the cutting edge of what's possible, with a stunning all-screen design and intuitive gestures, with technologies like the TrueDepth camera system in Face ID, where your phone knows what you look like and your face becomes your password.

iPhone X has an incredible camera system that uses intelligent software to make the most stunning portraits. This was only previously possible with pro-level equipment. And there are so many other innovative technologies that are built right in. And of course, all of them are powered by the world's most advanced mobile operating system, iOS. iPhone X has changed the industry. And along the way, it became the #1 smartphone in the world. But what's most important to us is that it's the most loved smartphone with an amazing 98% customer satisfaction.

Now today, we're going to take iPhone X to the next level. I'm excited to show you what is by far the most advanced iPhone we have ever created.

(video presentation)

This is iPhone Xs. It is the most advanced iPhone we've ever created. And I'd like to invite Phil up to tell you all about it. Phil?

Philip W. Schiller {BIO 1921735 <GO>}

Thank you, Tim. Well. Good morning, everyone. I am so excited to tell you all about iPhone Xs. It is made of a surgical-grade stainless steel. It has a gorgeous new gold finish on the front and on the glass. It is the most beautiful iPhone we have ever made. The screen goes top to bottom, edge to edge, rounded into the corners. And it's covered on the front and the back with a new formulation of glass that is the most durable glass ever in a smartphone.

iPhone Xs comes in 3 finishes: gold; silver; and space gray. They are beautiful. And they're protected from dust and liquids to an even higher level now, IP68. That means it's protected to 2 meters for up to 30 minutes. So if you happen to be hanging by the pool, drop your phone in the water, don't worry. Dive down, grab it, rinse it, let it dry, you'll be fine. And the team tested it in many different liquids, in chlorinated water, salt water, orange juice, tea, lime, even beer. And this is some of the most fun, intense testing we get to do at Apple.

Now the screen on iPhone Xs is a Super Retina display, the best we've made yet. It's an OLED display, 5.8 inches on the diagonal. It has 2.7 million pixels, 458 pixels per inch, the highest-quality display on an iOS device.

Now let's put it side by side with our plus-size phone, an iPhone 8 Plus. And as you can see, it's as big a display as the plus-size phone. But in a smaller design. And so many customers love that about that, big display, easy, comfortable to hold in your hand. And it looks incredible. Watching movies on it, the latest HDR movies like Lego Batman, using the latest formats, Dolby Vision, HDR10. Your photos look stunning on iPhone Xs. You shoot them with beautiful wide color. And they display better than ever on the new Super Retina display because it has a 60% greater dynamic range for colors in your photos than the iPhone X's display. It is gorgeous.

Well the iPhone Xs has not just one. But 2 sizes of display, the 5.8-inch and a new 6.5-inch Super Retina display. This is the biggest display ever on an iPhone. It is an OLED display as well, 3.3 million pixels, 458 pixels per inch again.

Now a lot of our customers have loved the plus-size iPhones. So let's put that side by side. You can see, it's about the same-sized phone with a much larger display. We think there are a lot of customers who are going to love this larger display.

Now the 5.8-inch, we already said, was as big as a plus-size display. So what do you call a phone that's bigger than plus-size? Well we call it the iPhone Xs Max.

And the Max is an incredible experience. Watching videos on it is cinematic. Looking at your photos bigger than ever is incredible. Surfing the web, looking at flyovers and map, even when you're using some of the built-in apps, the team's taken advantage of the wider display when it's in horizontal mode to give you a split view like here in contacts. It's awesome for editing videos in iMovie, for creating songs with GarageBand. And even playing immersive killer games is so much fun on the iPhone Xs Max.

So there are 2 Super Retina displays now, 5.8-inch, 6.5-inch, both OLED displays, both 1 million:1 contrast ratio. They're HDR displays. They're fast, 120 hertz, touch-sensitive layer. That's how it gets its smooth scrolling, really fast typing and gaming response. They both have 3D touch for pressure sensitivity. They have tap to wake, they have incredible color management. They're a true-tone display. So the paper white looks just right in all the different lighting that you use it. And they have wide color. These are amazing displays.

And we've matched them to incredible sound systems as well, stereo sounds better than in any iPhone to date. Now with the Xs, you get a wider stereo field. The team has matched powerful speakers with great software to deliver an even richer sound experience. So watching movies sounds incredible. And playing games, like Alto Odyssey, which, previously, you tried to put on headphones, now you just want to listen through the speakers because of that beautiful wide stereo sound. Of course, listening to music and watching music videos like the Foo Fighters sounds better than ever.

All right. Let's talk about Face ID. Face ID is a huge step forward in biometric protection for all of our personal data on our devices. And customers love it. It is powered by our TrueDepth camera system. And there's so much technology in that little space right there: an infrared camera; flood illuminator; proximity sensor; ambient light sensor; dot projector; front camera; speaker; and microphone, all working together to give protection to the data on our devices. And they're designed with multiple neural networks. So it's secure and seamless in the iPhone experience.

With iPhone Xs, you just pick up your iPhone, look at it, it recognizes your face and unlocks your notifications and information. And it does it faster than ever before

because the Xs now has faster algorithms and runs on a faster version of the Secure Enclave. So it's gotten even better.

Face ID works remarkably well, in fact, we're proud to say it is the most secure facial authentication ever in a smartphone. And powering Face ID in everything we do on the iPhone is our A-series chip. And the team has worked so hard to make every generation of the A-series chip better than any in ever -- ever in a smartphone. And this year is no exception. What the team has done is truly, truly breakthrough. It's called the A12 Bionic.

And the A12 Bionic is the industry's first 7-nanometer chip. And that's a huge breakthrough, yes. Now the A12 Bionic is packed with 6.9 billion transistors. And what the team has done with all that is remarkable. So let's go through some of the things in this chip. We're talking about the CPU, the GPU and the Neural Engine.

Let's start with the CPU. It is an Apple-designed 6-core CPU, this is a fusion system, it has 2 high-performance cores, 4 high-efficiency cores. The 2 high-performance cores run up to 15% faster than the cores in the A11 Bionic, while also being 40% more energy-efficient. In the high efficiency cores, up to 50% more energy-efficient. And all 6 cores can run at once.

The GPU, well, this is an Apple-designed GPU. It is so powerful. Now the A11 GPU was already ahead of anything else in the industry. The A12 GPU is now up to 50% faster than the A11. So a huge jump in graphics performance.

But the real advancement, the real blow-away thing is this Neural Engine. And you know we introduced the first Neural Engine last year with the A11 Bionic. With the A12 Bionic, we take it much further. The A11 was a 2-core design. This is an 8-core dedicated machine learning engine to power all that great machine learning software on our systems. And it has a smart compute system. What that means, it's able to analyze the neural network data and figure out on the fly whether to run it on the CPU, the GPU or the Neural Engine. I mean, this is breakthrough. And the performance is unmatched. We told you, last year, the A11 Bionic could process an insane 600 billion operations per second. Well the A12 Bionic is able to process 5 trillion operations per second. Unbelievable.

Now the A12 Bionic is a complete system-on-a-chip. So there's so much more. And the team works very hard to be just as innovative at every one of these things in the A12 Bionic. It has a next-generation Image Signal Processor, incredible video coders and decoders. There's our display engine, our audio system. Of course, it has the secure enclave. It has memory controllers, storage controllers. The Apple-designed storage controller in the A12 Bionic can now address twice as much internal storage as previously. So now you can have up to 512 gigabytes of internal storage if you want. So that's 0.5 terabyte on your iPhone in your pocket. That's enough for over 200,000 photos stored on your iPhone. It is incredible.

This A12 Bionic is, without question, the smartest and most powerful chip ever in a smartphone. Because so much of the experience we have with iPhone is driven by this chip. And it is going to enable us to have so many great new experiences not possible before. So I'm very excited to bring out Kaiann Drance to show you just what we can do with iPhone. And Kaiann is our Senior Director of iPhone Product Marketing. Kaiann?

Kaiann Drance

Thank you, Phil. Thank you. A12 Bionic was designed for iPhone, not any other smartphone. This is one of the reasons why our team can deliver a chip designed for incredible performance, great battery life for everything iPhone needs, from our everyday tasks, to our most advanced technologies. Such as every time you look at your phone and unlock it with Face ID or play an immersive game on our edge-to-edge Super Retina display and each time you take a remarkable photo. Every single thing you do touches the chip, the CPU, the GPU or any other powerful component all throughout, best-in-class and designed for iPhone for the very best performance.

So next time you unlock your phone, perhaps launch Photo, searching through the thousands of photos you have, find just the one you're looking for, deciding how to share it amongst different apps, such as Messages. And then moving on to the next thing with multitasking, perhaps landing in Maps to find directions. A12 Bionic makes these everyday tasks feel fast and effortless. And A12 Bionic, with the performance updates in iOS 12, helps apps launch up to 30% faster.

So we're focused on these everyday experiences. But even beyond that, such as those that make use of machine learning. Now we've used machine learning for a number of years now to make our features even better: such as QuickType suggestions in Messages; in Memories, how we curate your photos and videos; getting real time suggestions in Maps when you need them; our true-tone adaptive display; of course, finding the very best photo of your cat or other pets.

But what's really remarkable this year is that our next-generation Neural Engine unlocks the power of real time machine learning. This is incredibly important for apps like camera. And we use that depth information for portrait mode and portrait lighting, in Animojis, mapping those 50 different facial muscles over your face in a live FaceTime call. That is computationally really intense. And of course, our immersive AR experiences, our fun new Memoji. And the new Clips app launching this fall will make use of portrait segmentation on the Neural Engine for even better selfie scenes like the one you see here in Incredibles 2.

In iOS 12, we're also announcing and launching Siri Shortcuts. So you can get even more done with just a tap or by asking Siri to help. You can easily create a shortcut with multiple steps like the one I used this morning. Let's take a look.

I just press and hold or ask Siri to run my Keynote Day shortcut. Now the first thing it will do, it will kick off my HomeKit-enabled accessories and then will order my morning coffee. It will tell me how long it takes for me to go pick it up. Then it will

kick off the reminder I set to not forget my badge, get me driving directions and start my music playlist. And here we go. And this is just one of many things that you can do with Siri Shortcuts.

We're really excited this year to be opening up our Neural Engine to Core ML. And Core ML is going to get a lot faster. It's going to get up to 9x faster. But it's going to run with as little as 1/10 the energy. This is tremendous. It means developers can run their most complex, most advanced neural networks in their apps and do so even more often, then freeing up the power of the GPU for more immersive graphics like never before, which, by the way, is really useful for augmented reality. And this is another area that we're focused on. That camera viewfinder has turned into a wonderful window to these new AR experiences, such as this app here called FishingGO, that lets you turn your surroundings into this immersive marine aquarium where you can discover more than 200 species of sea life.

iPhone Xs is the best platform for AR. We custom calibrate our cameras and sensors for the best AR experience. And A12 Bionic, the GPU, helps us render realistic graphics, the ISP for real-world lighting and the Neural Engine for object deflection and more. And it joins the best AR software with ARKit 2, where apps can access enhanced surface and object detection, persistent experiences, multiple users. And we've even included a new measure app built-in.

And with AR Quick Look, you can look at a 3D object like this one here in Safari. And with just a tap, bring it out into the real world. Isn't that amazing?

So you've heard some examples today of how A12 Bionic is accelerating real-world everyday scenarios. But also enabling new experiences. But it doesn't end with us. It also extends out to our talented pool of developers in that wonderful ecosystem, where they have access to the best software with iOS 12 and the A12 Bionic. This takes us to the next generation of apps. And we're thrilled to have 3 developers here today to show you what's possible in just a short amount of time.

Now our first developer is making use of the CPU and GPU to take their game to the next level of impact. Please welcome Todd Howard, Game Director of Bethesda Game Studios.

Todd Howard {BIO 16405628 <GO>}

Thanks, Kaiann. Thank you. I wrote my first game when I was 12 on an Apple II. And I got to tell you, I took full advantage of every single one of those low-res 40-by-40 pixels. And it's amazing how far we've come. With the technology that is packed into our phones, we can now start reaching for games that are more than simple diversions. But experiences that can truly transport you. And in the new iPhone, we've been able to do just that. Let's take a look at our new Elder Scrolls game, Blades. Like this series is known for, it is a massive first-person role-playing game full of stories, quests and an incredible world to explore. You play one of the Blades, the empire's elite warriors. And you will define your own character and how you want to engage in combat. You can use defense, melee or magic.

And on the iPhone's OLED screen, we can pull out all of the detail that you would usually miss in the bright and the dark areas. You can see the lighting from these crystals bloom, reflect off of the water. We can have that lighting bounce off of the walls. And we can even have it reflect off of your sword.

Additionally, we can use the new stereo-widening on the iPhone so you can hear the forest around you, all without headphones. And scenes like this used to only be possible in your living room on a high-end gaming console. We can do them now on your phone while doing full-screen post-processing, all while rendering 40% faster than before.

You'll see the sword follows Craig's specific movements and timing. It feels incredible. And that new depth-of-field camera effect really lets you focus your actions during combat. And the spiders are just terrifying.

We've been able to pull off some incredible environments that just weren't possible before. 12-year old me would not be able to comprehend all of these pixels, all 2.7 million of them. As we battle this witch, we can use the power of the phone to bring all those parts together, the visuals, the sound and even haptic feedback on your attacks. It's not just immersive, it transports you. You may have fought dragons in Skyrim. But you've never experienced the Elder Scrolls like this and on your phone. Blades is coming to iOS this fall. It's available for preorder right now. We'll see you out there.

Kaiann Drance

Thank you, Todd. Now our next developer is going to enable an entirely new use case for the iPhone camera using Core ML. Here's David Lee, CEO of NEX Team; and Steve Nash, 2x NBA MVP and a new member of the Basketball Hall of Fame.

David Lee {BIO 17122194 <GO>}

Thanks, Kaiann. HomeCourt is an app that uses Core ML to take basketball shots by simply pointing your iPhone at a court.

Steve Nash {BIO 1745155 <GO>}

When I was young and learning the game, I never really knew if I was doing the right things to improve my game. I would spend hours and hours shooting by myself, just hoping I was refining the techniques that would take me to the next level. I've been working closely with the HomeCourt team on a tool that will revolutionize basketball training. And I can't wait to show you what we can do with the new iPhone.

David Lee {BIO 17122194 <GO>}

We couldn't bring a basketball court here. So we went out last week and saw Steve training athletes. We now have a screen recording of our app running on the new iPhone. Let's take a look.

The app recognizes the hoop and the court automatically. Tap start and it will start tracking basketball shot attempts. The makes indicated by the bounce on the floor and misses by the red Xs drawn as an overlay right on the court.

With the new iPhone and Core ML 2, we see a massive performance gain that allow us to do a lot more. The powerful A12 Bionic in our Core ML models run up to 9x faster. And then unlocks new feature that were not possible before.

Let's take a look at what's going on under the hood. Only on the new iPhone, we can run real-time player tracking, real-time post estimation, real-time ball detection and trajectory estimation all at the same time. We call this real-time shot science that tracks 6 metrics for every single shot the player takes. These insights are not visible to the naked eye.

Steve Nash {BIO 1745155 <GO>}

To become a great shooter, you need to practice every day. You need to shoot at game speed and with the right posture. I focus my students on staying low and stable when they shoot.

HomeCourt is giving players immediate feedback to help them understand if they are practicing with the right form. Release time is also a great indicator of whether the player is shooting at game speed while staying low. These meaningful insights and feedback just weren't possible before.

David Lee {BIO 17122194 <GO>}

When you see that release time from the set, it will be displayed on screen. And the app can also give audio feedback for the built-in stereo speaker or your AirPods.

Steve Nash {BIO 1745155 <GO>}

As players train with real-time feedback, they build muscle memory. I really wish that when I was younger, we had these tools. HomeCourt is great for every basketball player who wants to get better, whether you're a beginner or a pro.

David Lee {BIO 17122194 <GO>}

The most amazing part is this is all done with just your new iPhone. There are no sensor on the player, no sensor on the ball and no sensor on the court. And that's HomeCourt, real-time shot science, shipping, as an update, this fall. Thank you.

Kaiann Drance

Thank you, David and Steve. Wow, that was something.

Okay. So our third app makes use of AR to do even more in a game. Here's Atli Mar, CEO of Directive Games.

Atli Mar Sveinsson

Thanks, Kaiann. Playing with friends at the arcades has always been a lot of fun. Generations of gamers have enjoyed countless hours playing some of the world's best titles. And now in AR, we are able to have our own arcade cabinet wherever and whenever we want. And with ARKit 2, multiple players are able to share the same AR experience. Joining me here are my friends. And they are eager to climb the leader boards. (Andrea), (July), (Alexandra), are you guys ready?

Unidentified Participant

We're ready to battle, Atli.

Atli Mar Sveinsson

This is Gallica AR. Just like the classic, you eliminate your enemies. You avoid being attacked. And you've got (power ups).

With the additional GPU core, we are able to render scenes like the (stun effect). This is something that we could not do before. And the new iPhone stereo widening makes things sound really immersive. Just listen to this epic (fought) battle.

Last year, we shipped our first AR game. And now, with new features of ARKit 2 and the power of the new iPhone, we are able to craft experiences at a much higher fidelity as well as connect players, both digitally and in the physical world. Look for the first game in our AR arcade series on the App Store later this year. Thank you.

Kaiann Drance

Wow. Well we can't wait for you guys to experience those apps and games. This is really just the beginning. We're scratching the surface of what's going to be possible on the iPhone Xs and the A12 Bionic. No other chip in the world would allow us to do this. Thank you. And now back to Phil.

Philip W. Schiller {BIO 1921735 <GO>}

Thank you, Kaiann. The A12 Bionic just powers so many incredible new experiences and that includes the camera. We all love the cameras in our iPhone. No doubt, you all know it is the world's most popular camera. And for great reason. Over 10 years, customers have been taking incredible photographs with their iPhone cameras like this. And sharing them with us around the world and telling us stories with them. And we're so proud of all the people who use the iPhone camera, from consumers to even, increasingly, professionals are using them for photos like this.

This is a beautiful portrait photo. But what makes us so proud of it is that it appeared on the cover of Time Magazine. Now this is their issue for women who are changing the world. And we couldn't be prouder to be part of that story.

Well you are going to be blown away with the pictures you can take with the iPhone Xs's camera. It is a remarkable new dual-camera system. It has a 12-megapixel wide camera, a 12-megapixel telephoto camera and an even more improved true tone flash. The 12-megapixel wide camera has a new sensor, a larger sensor with bigger, deeper pixels that has optical image stabilization in our fast 1.8 aperture lens, Apple's 6-element lens. The wide -- the telephoto camera is also a 12-megapixel camera, also optical image stabilization f/2.4 Apple-designed lens.

On the front side, you have the TrueDepth camera system. And that's a new sensor as well, a 7-megapixel sensor that's twice as fast. And it works together with the AR camera and the dot projector so it can create depth in your portrait mode photos.

And as we talk about cameras, of course, everyone talks about the sensors and the lens. And rightly so, they're an important part of the camera system. But increasingly, what makes incredible photos possible aren't just the sensor and the lens. But it's the chip and the software that runs on it. And this is so true with iPhone photography.

So for example, in the A12 Bionic is the image single processor working together with the CPU. And it does so many things every time we take a picture. It automatically sets exposure, white balance, sets the focus. There's noise reduction and low-light photography that brings out highlights and details. And it can fuse multiple images together like when you do an HDR photo or create a beautiful panorama.

And the ISP and the A12 Bionic does all of these better than ever before. But what it does that is entirely new is connect together the ISP with that neural engine to use them together to make our photos incredible. So for example, the CPU and the Neural Engine can work together to do detection of people's faces and bodies to understand the scene that you're shooting. And it can do facial landmarking. So it recognizes exactly where the eyes are and does instant red eye reduction that looks perfect. And it creates better segmentation masks. So even in portrait mode, the hair and the glasses are better than ever before. This is an amazing amount of power for our camera team. In fact, when you take a photo, it's capable of doing 1 trillion operations on every photo you take.

And what the team is doing with that power is truly remarkable. We have a brand-new feature we call Smart HDR. And we all know what HDR is, right? You can take a couple of photos and merge them together to bring out highlights and shadows. And keep your subject looking great. Well Smart HDR takes this idea so much further. So let's say, you're taking a picture and the camera recognizes you're shooting a subject. And the subject's moving. You go to press down on the shutter and you get a picture instantly. It's called zero shutter lag. What the A12 Bionic is actually doing is shooting a 4-frame buffer so it can capture that critical moment. The

A12 Bionic is doing even more than that. It's also capturing secondary inter frames at the same time. And those inter frames are shot at a different exposure, able to bring out highlight details. And it's doing more than that. It's shooting a long exposure so it can get better shadow detail as well. And when you're taking that picture, it's analyzing all of those, finding out how to match up the best parts of each and merge them into one perfect photo. That's Smart HDR. It is a breakthrough. And it makes taking photos easier than ever and to get beautiful results.

So let me show you a few photos shot with iPhone Xs, not retouched in any way, no exterior lighting used, anything else, it's just straight from the camera. So here is one. This is stunning. Your subject, beautifully lit with natural light, beautiful skin tones, great detail and a nice beautiful soft background. What's remarkable about this photo is that it was a windy day by the water and her hair was blowing, yet you still get that incredible detail in her hair in a Smart HDR photo.

Here's another example. As you can see, this is what you're not supposed to do, right, shooting a photo into the sun, because that's going to blow out the exposure. But Smart HDR makes sure we've got a great sky, you have detail on the shadows on the water. But most of all, look at the water drops coming off of his hair and how crisp and detailed they are. And that's incredible. All your photos come out so much better now with iPhone Xs, no matter what your subject matter, people, pets. Look at the skin detail and the hair and the beautiful sky.

As we said, it shoots wide color photos as well. Look at the color range in this photo, shot straight off iPhone Xs. And it looks even better with the higher dynamic range display on the iPhone Xs when you look at it there.

We introduced portrait mode and portrait lighting photos. Those are better than ever before. Here's an example. It's incredible, the level of detail. This is the stage light feature in the portrait lighting. It looks so beautiful. Here's another portrait lighting photo -- excuse me, portrait mode photo, beautiful, soft background. These are better than ever before. And there's a huge advancement here.

Remember the area on the background of the photo, the quality of that blur is what the industry calls bokeh. And the team wanted to make a big advancement in what can be done with bokeh. And they've done some amazing work here. They studied some of the highest-end full frame cameras and expensive fast lenses to characterize the quality of professional bokeh and then bring that capability to more and more of us through the portrait mode photos we can take with iPhone. And what they've achieved is really breakthrough.

So I'm going to show you a photo now. I'll just tell you right up front, this was not shot with a high-end expensive camera. This is shot with an iPhone Xs. And it is breakthrough. It is absolutely beautiful. The detail on her face, the great skin tones, obviously reflecting from the surface of the car to light it up. But that background and the quality of that bokeh is remarkable. This is a breakthrough in photography for a smartphone.

But further than that, the team discovered something remarkable. This is so. So exciting. I can't tell if you can tell I'm excited about this. But this is -- so when you take the picture with portrait mode and then you go into the photos app and you tap edit, you're going to see a new slider on the bottom that says depth. Yes, someone said no. Get ready for this because -- and let me pull it up, you have to watch 2 things at once. You're going to watch the depth and you're going to watch the background. You can, after taking a picture, adjust the depth of field, from f/1.4 to f/16. And the background is changing with it. Let me -- let's do that again. We're going to slide the depth of field and watch the background as it changes the depth of field of your photo. This is done after you've taken it. This had not been possible in photography with any kind of camera. This is something that iPhone can now do with the power of the A12 Bionic chip.

Let me show you one more example. Here's another photo shot with iPhone Xs. And that's a beautiful background, an incredible higher quality bokeh. And as we looked at it, we slide and we selected f/2.0 because we thought it had just the right depth of field we want in the photo. And this is a new era of photography. Some people call it computational photography, with the power of not only the sensor and the lens. But the A12 Bionic and incredible software and the care the camera team has put into creating high-quality photography is making images possible now that weren't before. And the benefits of this are not only for photography but for video as well, it's a new era of videography as well with this new sensor and the power of that A12 Bionic chip. And it can do many things. It has a twice-as-fast sensor. We can take advantage of a lot of this technology to give better image quality in our videos.

And there's something else the team has done, too, taking advantage of the 4 microphones built into iPhone Xs, we can record stereo sound with your videos as well. And it replays back to that beautiful wide stereos field and it sounds amazing. So let me show you a quick video that we shot with iPhone Xs, just natively shot on it, nothing done to it other than we edit it for length. And it's shot in little light and it's -- creates images that weren't possible before. Here we go.

(Presentation)

And that's a beautiful video. You just shoot it 4K. But there's a lot going on that the system's doing for us: auto focus, auto exposure, bringing up the highlight details, the shadow details, with wider dynamic range, amazing color rendering and tone mapping and stereo sound being recorded automatically. So that's photography. That's video, that's our camera.

Now I'll talk about battery life. Increasingly all smart phone users want more performance, bigger screens. But longer battery life, too. The teams really worked hard on this. iPhone Xs is able to, compared to iPhone X, get you up to 30 minutes

longer in your day than iPhone X did. And that's really great.

iPhone Xs Max has the biggest battery we've ever put into an iPhone. And it can get you up to 1.5 hour longer in your day.

And there's a lot more new with iPhone Xs and Xs Max; a faster networking, gigabit-class LTE. They have more bands than any other smartphone. So they have the best worldwide roaming.

And speaking of worldwide capabilities, one thing we've had requests for is dual SIM capability. Well some of you know what this is for. For the rest, here are some reasons people want dual SIM. Some people want 2 phone numbers on their phone. It may be a home number and a work number. Some want 2 different plans depending on the region of the world they're in and what they need. And many of us like to travel and want to keep our local phone number. But may need to get a data plan in the region we're in. So we can have access to fast data there.

To do this into iPhone Xs and Xs Max, we built a technology called DSDS or Dual SIM Dual Standby. This means that you have both phone numbers there in your phone, waiting to get the call. Whichever one gets it becomes the active line.

And to enable that, we've added our eSIM technology, eSIM. eSIM is a standard that we've been working with carriers to promote around the world. We've actually already been shipping it in cellular iPads, in cellular watches. And now we're bringing it to iPhone. So with eSIM, it's built in, easy to set up a second line. You can point your camera at a QR code from a carrier and set it up. And the team has worked to make sure in the software, that the fact that you have 2 different phone numbers is understood. And you can name them home and work, primary and secondary, whatever. Then throughout the user experience, you'll see that a phone call is coming in on a certain line. And you'll know how to deal with that.

Now support for eSIM requires support from carriers. And we've been working with many great carrier partners. And they're going to be rolling out eSIM support throughout the fall and many more into next year. We're really, really happy to be working with them on this.

So that's how we're going to provide Dual SIM support around the world. We will have a single physical SIM and an eSIM in both iPhone Xs and Xs Max.

In China, where we can't bring eSIM into iPhone yet, we're making a special model of the iPhone Xs Max that has 2 physical SIMs, actually one on each side of the SIM tray. It's a really smart implementation. And we think they're going to love that.

So this is iPhone Xs and Xs Max. They are packed with so many new advancements: better Super Retina displays, 5.8 inch and the new 6.5-inch OLED displays; our next-generation 7-nanometer, A12 Bionic chip with faster CPU, GPU, Neural Engine and helping us to deliver even longer battery life; our new generation dual camera system, with a bigger sensor, Smart HDR, portrait mode with more beautiful bokeh, dynamic depth of field, higher quality videos with HD and 4K; new TrueDepth

camera system that's faster for Face ID; gigabit-class LTE, with beautiful new gold finish; protection to IP68 and so much more. These are incredible new iPhones. And the team works really hard to make these iPhones in the most environmentally-friendly manner possible. To tell you a little bit more about that, I'm really excited to bring out Lisa.

Lisa Jackson {BIO 7568663 <GO>}

Thanks, Phil. We never stop thinking about what's best for the planet. This starts with our products but it extends to everything we do at Apple.

So for instance, earlier this year, we announced something pretty amazing. You may have heard about it already. But we can't help repeating ourselves, because we now run Apple on 100% renewable energy in all of our facilities worldwide. Now of course that includes the gorgeous campus that we're on right now. It's powered by our own solar panels and directed biogas fuel cells. But it's also about the facilities that you don't often see, like our data centers, which use lots of clean energy to support services like iMessage. And that means every time you send an iMessage or make a FaceTime video call, we're using lots of clean energy to make that happen.

Now when we set out to do this, people said it couldn't be done. And if you know Apple, those are exactly the kinds of challenges that we love. So we've done it and we're really, really proud of it. And now we're on to the next challenge.

We hope to, one day, eliminate our need to mine new materials from the Earth. Now as you can imagine, this is a massive effort. So to reach that goal, we'll have to do 3 things.

First we'll have to find new ways to make our products with recycled or renewable materials that are sourced responsibly. Then we'll have to ensure that our products last as long as possible. Then finally after a long life of use, we have to ensure that they're recycled properly.

So let's take a look at some of the material innovations within the new iPhones that we've just announced. We've transitioned to using recycled tin in the main logic board of iPhone, including the new iPhone Xs. And of course, this is with no reduction in quality or performance. This one change will prevent the mining of over 10,000 tons of tin ore in a single year. And we're doing this with other materials as well. We have a better plastics program. And through that, we're reducing our use of traditional plastics and transitioning to recycled and bio-based materials. For example, the speaker enclosure for iPhone Xs is now made with 35% post-consumer recycled plastics. And the cover -- yes, good. And the cover glass frame is made with 32% bio-based plastic. It's better for the planet. But it's also tougher and it performs better.

Second, we also make sure to design and build durable products that last as long as possible. That means long-lasting hardware coupled with our amazing software. All of these devices, including the iPhone 5s, run iOS 12. And iOS 12 is designed to

make your iPhone and iPad experience even better, even more responsive, faster, just better. And because they last longer, you can keep using them. And keeping using them is the best thing for the planet.

And finally, when it comes time to reuse and recycle, we have Apple GiveBack. This is something I'm really proud of. With Apple GiveBack, it doesn't matter what device you have or what condition it's in. Bring it in or mail it in to us. We'll assess it. And if it can be used by someone else, we'll give you the value. If not, we'll recycle it properly for free.

Maybe we'll even use a robot. Who remembers Liam? Well meet his sister, Daisy, who can disassemble 9 different models of iPhone. Using Daisy, we can reuse those recycled materials in future products. And the more we do this, the less we'll have to mine from the Earth.

So that iPhone 5s, with Apple GiveBack, it can go on to another user when you're ready to switch to a new iPhone. And when it comes to the new iPhone Xs, you can feel confident that it, too, was designed for another long life of use. Either way, it's good for you. But it is a huge win for the planet. Thank you.

Philip W. Schiller {BIO 1921735 <GO>}

Thank you, Lisa. This work is really important to all the teams at Apple. And it's a great example of a collaboration between all the teams, who do everything from reducing the amount of tin in products to the GiveBack program. Just great work. And we're really proud of everything they do.

So iPhone Xs, iPhone Xs Max, they are stunning, the best iPhones we've ever made by a long shot. We are so excited about the technologies in here, the experiences they're going to bring to people. And we hope customers love them just as much as we do. And we want to reach as many customers as we can with this incredible technology. So that's why we are very excited to show you one more iPhone.

(presentation)

It is incredible. And we are so excited to introduce you to the iPhone XR. And we hope it reaches even more customers with this amazing, incredible technology. It's made from 7000 series aerospace-grade aluminum and has more durable glass. It is absolutely stunning. And it comes in incredible new finishes: white, black, blue, coral, yellow, each beautifully designed with that aluminum finish, the glass in the back. The screen goes edge-to-edge and top-to-bottom. There's even an incredible Product Red one as well. And it is beautiful.

All these are protected from dust and liquids to IP67. They're designed end-to-end with the most incredible technology.

This display is really what strikes you, though. It's an LCD display that, for the first time, goes edge-to-edge. It took advanced new engineering and technology to do pixel masking and pixel anti-aliasing and to have LEDs that fit into a smaller space than ever before. This is the most advanced LCD ever in a smartphone. And it's so cool, we had to give it its own cool new name. It's called the Liquid Retina display. The Liquid Retina display is 6.1 inches on the diagonal. Now let's bring -- well, first, it's 1.4 million pixels and it's 326 pixels per inch. So true retina image quality.

Now let's bring that iPhone 8 Plus next to it, because it's really interesting. It is a bigger display than the iPhone 8 Plus, in a smaller design. The design actually fits perfectly between the size of an 8 and an 8 Plus. So we think it's going to make a lot of customers really happy.

So a 6.1-inch Liquid Retina display, an LCD display, 1.4 million pixels, it supports tap to wake. It has that 120-hertz touch-sensitive layer. So it scrolls superfast. It has great color management, color accuracy. It is a wide-color display. And it has true tone support. So the whites, the paper white, in all the lights you use them.

And it is an iPhone X experience on an LCD display. So that means you tap it to wake it up. There's no home button. You swipe up to go to the home screen, first for an LCD display. Swipe down to get your notifications. Swipe down to get to control center from the right corner.

Now it doesn't have 3D touch. But here again, the team came up with something really smart. It has a new feature we call Haptic touch. So to get to the camera from the home screen, you just press on it. You feel a Haptic tap. And you're taken right to the camera. This is a similar technology to what we do with the Trackpad in the MacBook Pro that we all love so much. It is a great experience.

And like every iPhone X new experience, it has Face ID. And there's a TrueDepth camera system, the same TrueDepth camera system in iPhone Xs and Xs Max. So it's an infrared camera, flood illuminator, proximity sensor, ambient light sensor, dot projector, front camera, speaker, microphone, all the technology to have an incredible Face ID experience. So you look at iPhone XR to unlock it. You look at it to pay with Apple Pay. And like iPhone Xs and Xs Max, it's faster with its faster algorithms running on a faster Secure Enclave.

And inside the iPhone XR is nothing but the best chip we make, our brand-new 7-nanometer A12 Bionic chip. So this is a powerhouse, faster CPU, faster GPU, faster Neural Engine. And it can do all those experiences that Kaiann showed you earlier, including real time machine learning. It is an incredible new phone.

And it has a great new camera system as well. It's a single-camera system, our best single-camera system that we've ever made. It's a 12-megapixel wide-angle camera, the exact same wide-angle camera in the Xs and Xs Max. So it's our new generation sensor that's larger with bigger pixels, optical image stabilization, twice as many focus pixels, fast f/1.8 aperture, Apple-designed lens. And a new improved true tone

flash as well. And it takes beautiful photos like this one. So this was taken from an iPhone XR. It is stunning, incredible detail, beautiful tone mapping. There's probably something you've noticed about this photo, though. It's a portrait mode photo with that beautiful background blur, taken from a single camera system. This is remarkable. What the team is able to do is combine hardware and software to create a depth segmentation map using the focus pixels and Neuro Net software so that we can create portrait mode photos on the brand-new iPhone XR.

Here's another example. Just incredible, beautiful, beautiful focus on the subject, great lighting, beautiful background bokeh. Yes. It gets the same advanced bokeh technology we talked about with iPhone Xs and Xs Max. And it gets depth control dynamically after taking the picture. So all the breakthrough features and capabilities that you want are right here.

Here's some other photo examples taken from iPhone XR. They are absolutely beautiful. It has Smart HDR as well, helps to bring out highlights and shadows even in low-light photos. It has wide color as well. So you get stunning, beautiful, rich color photographs.

On the front side is the same TrueDepth camera system as iPhone Xs and Xs Max. But it's the latest technology. So you get full support for portrait mode and portrait lighting. It can take some of the best selfies you've ever seen. These are shot off the TrueDepth camera on iPhone XR.

But what about battery life? Well here, the story continues to be just great. With this performance and this big screen, the teams worked hard to give great battery life. So let's compare it to the iPhone 8 Plus. So many customers love the long battery life of that. Well iPhone XR gives you up to 1.5 hours more in your day than the iPhone 8 Plus.

So this is the brand-new iPhone XR. It's a 6.1-inch liquid retina display, an LCD display, the most advanced ever in the industry. It is our latest 7-nanometer A12 Bionic chip with its faster CPU and GPU. And that breakthrough Neural Engine and helping deliver even longer battery life. It's the best single-camera system we've ever made with our new generation 12-megapixel sensor, with support for Smart HDR, portrait mode, beautiful bokeh, dynamic depth control, incredible video. It has the same TrueDepth camera system as iPhone Xs and Xs Max with faster Face ID and on and on. These 6 beautiful new finishes, that incredible 7000 series aerospace-grade aluminum. And IP67 protection from liquids and dust.

iPhone Xs, Xs Max and iPhone XR have arsenic-free display glass, mercury-free display, BFR-free, PVC-free, beryllium-free. They're designed and manufactured in a low-carbon process and they're highly recyclable. We're so proud of all that work the team does.

And this is a huge day for iPhone. We now have iPhone Xs, Xs Max and XR, 3 new models of iPhone. We have a product video about it to tell you a little bit more. And

they're amazing.

(presentation)

Thank you. The iPhone XR will come in 6 finishes and in 3 sizes: 64 gigabytes, 128 gigabytes and 256 gigabytes of storage. And it will start at $749. That's less expensive than the iPhone 8 Plus. I'm really proud of the work the team has done on that. You can order it in just over a month, October 19. And it will start to ship a week later than that, October 26.

IPhone Xs will come in 3 configurations: 64 gigs, 256 gigs and that new 512-gigabyte storage capacity. It starts at $999.

The iPhone Xs Max, same 3 configurations with its largest screen, larger battery, will be just $100 more, starting at $1,099.

The iPhone Xs and Xs Max, you can start preordering on Friday, September 14. And it'll ship a week later, September 21. And it'll start shipping in all of these markets, a nice long list. But if you don't see your favorite location there, don't worry. A week later, it'll start shipping in all of these locations as well. This is -- yes, somebody saw their favorite country or location. This is the fastest roll-out geographically we've ever had for a new iPhone. That's really great. So this holiday, we have an unbelievable line-up of iPhones.

iPhone 7 starts now at just $449 and there are models of iPhone 7 and 7 Plus. iPhone 8 at $599, models of 8 and 8 Plus. The brand new iPhone XR, starting at $749; Xs at $999; and Xs Max at $1,099. They're all running iOS 12, the world's most advanced mobile operating system. And we can all upgrade to its performance and its great features, AR, Animoji, Memoji, screen time and more next week, September 17.

So that is our news on iPhone, back to Tim.

Timothy D. Cook {BIO 14014370 <GO>}

Thank you, Phil. What a fantastic new line-up of iPhones. It's clearly the best line-up we've had by far. Taking the breakthroughs of iPhone X even further than before and making them available to even more people.

Now before we close this morning, I've got a few more updates to give you. We've got an update to the HomePod, our breakthrough home speaker. We recently added stereo pairs in AirPlay 2. So now when you add a second HomePod, you create a stereo pair. It creates this incredible wide immersive soundstage. You really have to hear this to believe it. It's really awesome.

And with Airplay 2, HomePod becomes the best multiroom audio experience. We've got some other great features that we're bringing to HomePod. You'll be able to search for your favorite songs by lyrics, create multiple timers, make and receive

phone calls right from your HomePod. And just like your Apple Watch, you can ping your iPhone or any of your Apple devices to help find them around your house. It's incredibly useful at my house. And we couldn't be more excited about how Siri Shortcuts will open up a world of apps for the HomePod.

Also, we'll be shipping a new update to tvOS with support for Dolby Atmos for Apple TV 4K. It has stunning new 4K aerials and with access to a wide range of live sports and news programs, there are now well over 100 video partners available through the TV app. Both the HomePod and the tvOS updates will be available on Monday, September 17.

Then the following week, we've got a great new update for the Mac with macOS Mojave; all-new dark mode and updates to desktop and Finder; enhanced privacy and security; and a completely redesigned Mac App Store. macOS Mojave will be available on September 24.

We're excited about this huge month and all of these big releases that we've got. So what a great morning.

We introduced the Apple Watch Series 4, newly designed and reengineered to help you stay even more active, healthy and connected. It is the most capable Apple Watch yet.

We showed you the new iPhone Xs, the most advanced smartphone in the world with the Super Retina display; advanced Face ID; a breakthrough dual camera system; and the smartest, most powerful chip ever in a smartphone. And iPhone Xs is not just 1 phone, it's 2. With the iPhone Xs Max, the biggest screen ever in an iPhone; the biggest battery ever in an iPhone; and of course, the biggest experience ever in an iPhone.

And the iPhone XR with the new Liquid Retina display, it shares so many of the advanced features of iPhone Xs. And it is just stunning, with 6 beautiful new finishes to choose from. iPhone XR will allow us to deliver the future of the smartphone to even more people.

At Apple, we are always pushing our products forward and making technology more personal. We hope that you love these new products as much as we do.

We've got a hands-on area just upstairs. It's going to open in a moment. And we hope that you'll take time to get your hands on them and experience them for yourselves.

I'd like to thank everyone for joining us this morning, including those watching us online. And I'd especially like to thank all the people at Apple who made this magical day possible. Thank you.