

# Apple Inc Special Event

## Company Participants

- Angela J. Ahrendts, SVP of Retail
- John Ternus, VP of Hardware Engineering
- Laura Legros, VP of Hardware Engineering
- Shaan Pruden, Senior Director of Worldwide Developer Relations
- Timothy D. Cook, CEO & Director
- Tom Boger, Senior Director of Mac Product Marketing

## Other Participants

- Chantel Benson, Analyst, Unknown
- Greg Thomas, Analyst, Unknown
- Jamie Myrold, Analyst, Unknown
- Lana Del Rey, Analyst, Unknown

## Presentation

### Timothy D. Cook {BIO 14014370 <GO>}

(presentation)

Wow. Thank you. Good morning. It is so great to be in New York. We love New York. And it's so great to be here with all of you. New York is home to one of the most vibrant creative communities on the planet. And so it's only natural that it would have a very special place in our heart at Apple. Today, we are especially thrilled to be at The Brooklyn Academy of Music. This is a historic center for the arts. For over 150 years, it showcased the work of adventurous and cutting-edge performers all around the world while serving the creative community here in Brooklyn. Apple's focus has always been on providing people the tools to unleash their creativity. That's why we're here today to talk about our most creative products. And of course, that all starts with the Mac. The Mac was the first computer that was designed for creativity. And it's become one of the world's most essential creative tools. We are in awe of the creative things that people do every day all around the world with the Mac. So we made a video of just some of these special people. And I would love to play it for you now.

(presentation)

We are so inspired by these people and how the Mac has played such a vital role in their creativity. People love the Mac. And they use it to create all kinds of amazing

things every day. So it's not surprising to see that the Mac continues to attract so many new customers. In fact, over half of Mac buyers worldwide are new to Mac. And that number is a remarkable 76% in China. We're adding millions and millions of new customers every quarter, bringing our total active installed base to a new major milestone of 100 million Macs. But what's most important to us is that in survey after survey, the Mac continues to be rated the #1 in customer satisfaction, by far. We are just so incredibly proud of this. Of course, one of the drivers for Mac's high customer satisfaction is MacOS. MacOS is the soul of the Mac with its beautiful and easy to use interface. We just released MacOS Mojave. And it is the best version of MacOS by far. And people are really loving it. Great care has been taken to refine the look and feel and add more capability, all while preserving its legendary ease-of-use. MacOS Mojave brings new features that have been inspired by our pro users but designed for all of us, from the new gallery view, which allows you to scroll through your files and find exactly what you're looking for, to the dramatic new look of dark mode, which helps you focus right on your content. We've got a feature called Stacks, which is a brand-new way to make your desktop clutter-free. I really needed this. And it's really cool. And an entirely redesigned and personalized Mac App Store. MacOS Mojave helps our users get the most out of their Mac, whether they want a powerful desktop experience or the freedom that comes with the portability of a notebook, our customers love their Macs. And they especially love one Mac in particular, one that they take with them everywhere they go and use for everything they do. And that is the MacBook Air. When Steve pulled that MacBook Air out of that envelope, it was clear that things would never be the same. The MacBook Air's groundbreaking, incredibly thin wedge-shaped design not only influenced the rest of the Mac product line for years to come, it changed the industry. It had a breakthrough unibody design and new technologies like the first all-flash architecture. And it was the very first thin and light notebook with all-day battery life. MacBook Air truly embraced the notion that less, indeed, could be more. And it redefined the modern notebook in the process. Unlike any notebook that's come before or since, MacBook Air has become the most beloved notebook ever. Now it's time for a new MacBook Air, one that takes the MacBook Air experience even further in the areas that are most important to our customers. And of course, what we all want in a MacBook Air is a Retina display. And I'm incredibly excited today to introduce an all-new MacBook Air with a Retina display and a whole lot more. And here it is.

(presentation)

This is the new MacBook Air and I'd like to bring up Laura Legros, VP of Hardware Engineering, to tell you all about it. Laura?

## **Laura Legros**

I'm really excited to be here today to talk to you about the MacBook Air. Every part of the product has been redesigned and reengineered. Every detail has a remarkably precise fit and finish. And everything you see and touch has been carefully refined. It's absolutely beautiful.

Now as Tim said, the #1 feature customers have wanted in the MacBook Air has been a Retina display. But we've made the display better in every way. The familiar

aluminum bezel -- the familiar aluminum bezel of the current MacBook Air is gone. The new Air's sleek design takes the display glass right to the edge of the enclosure forming borders that are 50% narrower. It features a 13.3-inch display, which is the perfect size for such a portable notebook. And when it comes to resolution, we've taken the pixels and quadrupled them providing 4x the resolution for over 4 million pixels. So both text and images are sharper and more detailed. And with 48% more color, those images are more lifelike than ever. All of this comes together to give the new MacBook Air a Retina display we know our customers are going to love. And even with this narrower border design, we were still able to keep the FaceTime camera at the top of the display, which is exactly where you want it when making a FaceTime call. And now with the group FaceTime feature in MacOS Mojave, you can invite all your friends to the conversation.

Now next, the MacBook Air has another new feature that customers have been asking for. And that's Touch ID. So now with just the touch of the finger, you can unlock your MacBook Air, buy something cool on Apple Pay or use Touch ID with a third-party app like 1Password. With a durable sapphire crystal surface, we've put the Touch ID sensor right into the keyboard. And to enable Touch ID, the new Air comes with Apple's T2 security chip. T2 features a secure enclave, which protects Touch ID information. But it also ensures that software loaded during the boot process has not been tampered with, offering the Air the most secure boot process of any notebook.

T2 also features an SSD controller, which has automatic on-the-fly data encryption offering the most secure storage of any notebook. So you can feel confident that your files and data are safe.

In addition to security, T2 has a whole host of other features. It has a redesigned system management controller. It has an audio controller, which delivers wide stereo sound and an always-on processor that enables Hey Siri.

Next, the keyboard where we've gone way beyond just adding Touch ID. The new MacBook Air has a latest generation keyboard with keys that offer 4x the stability over the previous generation, creating a modern keyboard with a more precise and responsive typing experience and backlit with individual LEDs behind each and every key for more accurate illumination. And a modern keyboard deserves to be paired with a modern trackpad so we replaced the old diving board version with a new Force Touch trackpad. It has 20% more surface area, which extends the functionality of multi-touch gestures. And with pressure sensing capabilities and haptic feedback, it's quieter and more capable. So this delivers a trackpad experience that Apple is known for.

Now whether it's in dorm rooms or lounging on a sofa at home, we know customers spend a lot of time watching videos on their MacBook Air so we wanted to make a better sound experience. Our acoustic engineering team has made huge strides in audio performance in all of our products. And the MacBook Air is no exception. It is 25% louder. It has 2x more bass and wide stereo sound. In addition, it has a 3-microphone array, which will make those group FaceTime calls crystal clear. And it also improves the voice recognition of Siri. And the new MacBook Air needs next-

generation I/O. So the new MacBook Air has 2 Thunderbolt 3 ports. So from charging to data transfer, to video out, it's the most versatile port ever. And there's a whole host of devices you can connect. From Thunderbolt and USB-C external storage up to a 5K display or eGPU that can accelerate graphics up to 17x so the new Air can connect to just about anything.

So now let's talk about the specs. There is an eighth generation dual-core CPU along with the latest Intel integrated graphics. And it also supports up to 16 gigabytes of faster memory, which is double the capacity of the previous Air and SSDs that are up to 1.5 terabytes in capacity and 60% faster. So MacBook Air delivers the performance you need for all of your everyday tasks.

Now the MacBook Air set the bar for great battery life in a thin and light computer. And the new MacBook Air is no exception. It has the same great 12 hours of wireless web browsing but now has up to 13 hours of iTunes movie playback. The engineering teams at Apple love a great challenge. And so we thought what if we could add all these amazing new features while making the MacBook Air even more portable? Well the team responded. The new Air has an unbelievable 17% less volume than its predecessor. And it's incredibly thin. It's just 15.6 millimeters, which is 10% thinner than the previous Air. And yet with all of these new features, the new MacBook Air weighs just 2.75 pounds. That's 1/4 pound lighter than the previous Air, perfect for the notebook you want to take with you everywhere. So that's the new MacBook Air, with the stunning 13-inch Retina display, Touch ID, advanced security, a Force Touch trackpad and so much more.

And with all the care and attention that we put into design and engineering, our teams work just as hard to ensure that our products are environmentally friendly. In fact, on the new MacBook Air, we use 100% recycled tin in our logic board. And we have significantly increased the amount of post-consumer recycled plastic in our internal components such as the speakers. But there's one big goal that we've had for many years. Every Mac enclosure is made from aluminum. Now we use aluminum because it has incredible strength, durability and its sheer beauty. Now to achieve that, we've had to rely on mining high-purity ore, that is, until today. Apple's metallurgy team has designed an aluminum alloy that uses excess aluminum from the production process, delivering the same great characteristics we expect in all of our products. And this is a huge breakthrough. So we're really proud to say today that every new MacBook Air is made from 100% recycled aluminum.

This helps reduce the carbon footprint of the new Air by nearly 50% and makes it the greenest Mac ever. So to hear more about this alloy and all of the new features of the MacBook Air, we've created a video that I'd like to play for you now.

(presentation)

What a huge leap forward for MacBook Air. So the new MacBook Air is configured with 8 gigabytes of memory, a 1.6GHz Core i5 processor with turbo up to 3.6GHz

and 128 gigs of storage and will start at \$1,199, making it the most affordable retina Mac we've ever offered.

You can order it starting today. And it will be available next week. So that's the redesigned, reengineered MacBook Air. So whether you're a student, a writer, an entrepreneur or simply new to Mac, we think you're going to love it.

Now back to Tim.

### **Timothy D. Cook** {BIO 14014370 <GO>}

Thank you. Thank you, Laura. What a fantastic and beautiful new MacBook Air. I can't wait for you to get your hands on this. I really think you're going to love it.

Now there is another small but mighty Mac our users have been waiting for. And here it comes.

(presentation)

The new Mac mini. Now I'd like to introduce you to Tom Boger, our Head of Mac Product Marketing, to tell you all about the new Mac mini. Tom.

### **Tom Boger** {BIO 2224833 <GO>}

Thank you, Tim. I can't wait to tell you about the biggest update ever to the new Mac mini.

Now I'm sure you've noticed that we've given it an awesome space gray finish. For one, we know our Pro customers are going to love that; but two, this new Mac mini is an absolute beast on the inside. Here's why. The #1 thing our customers wanted us to do is give it more powerful processors so now every Mac mini starts with 4 Cores, taking performance to a whole new level. But we didn't think that was far enough so we're also giving Mac mini 6 Cores processors as well. And these aren't mobile parts, no. These are high-power 8th-generation CPUs with faster graphics, too. So the performance boost is incredible, making the Mac mini up to, wait for it, 5x faster than before.

Think about that. 5x faster, ripping through traditional desktop apps like Logic and Photoshop and workflow apps like MainStage and Compressor making this, by far, the most powerful Mac mini we've ever made.

Next up is memory. Now the previous Mac mini went up to 16 gigabytes of memory. So naturally, the new Mac mini goes to 32 gigs of memory. But we didn't want to stop there either. So the new Mac mini can now go up to 64 gigs of memory. And not only is this memory faster, it's also in SO-DIMMS, something we know our Mac mini customers will really appreciate.

Next up is storage. Now many Mac mini customers depend on the speed and reliability of SSDs. So now every Mac mini has all-flash storage. With SSDs that are up to 4x faster and capacities up to 2 terabytes. And that's double the capacity of the previous Mac mini. And every new Mac mini also has the Apple T2 security chip with its many new features including the HEVC video encode that's, get this, 30x faster.

It's incredible. So to cool all this new powerful technology, the new Mac mini has an entirely new thermal system with double the airflow while still being super quiet.

And finally, connectivity. Mac mini customers love having lots and lots of ports. And the new Mac mini delivers with gigabit Ethernet, 4, count them, 4 Thunderbolt 3 ports, an HDMI port, 2 USB A ports, it can connect to almost anything. And not only that, you can configure the Mac mini with 10-gigabit Ethernet as well for superfast networking performance. So now the Mac mini is a much faster, way more capable Mac desktop that allows you to choose your own display keyboard and mouse. But the Mac mini can go so much further. Small yet powerful, the Mac mini is the perfect component for many creative uses like running MainStage in a sound rig for live performances or using it for the production of a live interactive art performance as students are doing today at the California Institute of the Arts or use more than one so you can fly through video encoding faster in applications like Compressor. And on a movie set as Paramount pictures is doing in the filming of Rocket Man, their musical fantasy about Sir Elton John, or use Mac mini to compile code from a MacBook Pro so it can do other tasks, or string a number of Mac Minis together so you can form your own build farm, or rack thousands of them together like Mac Stadium, a company that has nearly 8,000 Mac minis. 8,000 that developers use to make some of your favorite apps like Candy Crush, Shopify, BayOne and more. They run 24/7 in data centers around the world. It's the very definition of mission-critical. And it all runs on Mac mini. So that's the new Mac mini with all these great new features. The entry config has 8 gigs of memory, a 3.6GHz Quad-core processor and 128-gigabyte SSD. And it starts at just \$799. And with those performance and features it's, by far, the best value that we've ever offered in a Mac mini. You can configure it up to 64 gigs of memory, a higher frequency Core i7 processor up to 2-terabyte SSD and with 10-gigabit Ethernet. You can order it starting today. And it will be available next week.

And like all of our products, it checks all of the boxes on the environmental checklist. And like the new Air, we're using more and more postconsumer recycled plastics in parts like the foot. And every Mac mini enclosure is made from, you guessed it, 100% recycled aluminum, helping to reduce its carbon footprint by nearly 50%. So that's the new Mac mini. It's the biggest update ever. And we can't wait to get it into the hands of all those customers out there that are so passionate about the Mac mini.

And now, back to Tim.

**Timothy D. Cook** {BIO 14014370 <GO>}

All right. Thank you, Tom. And thanks, again, Laura. The new MacBook Air and Mac mini, they are absolutely amazing. These new Macs are going to help our customers

be even more productive and more creative. Now there are ways that Apple aims to inspire creativity in our users, including in our stores. The mission of our stores has always been to enrich the lives of our customers by educating and inspiring them to go even further. One of the new ways that we're taking their creativity even further is through our Today at Apple sessions. Yes.

To share more with you about the latest on Today at Apple, I'd like to invite up Angela. Angela?

**Angela J. Ahrendts** {BIO 2065695 <GO>}

Thank you. Good morning. It is so great to be back in New York. And we especially love being a part of the creative energy here in Brooklyn. This is what we're trying to replicate all over the world. You've heard us talk about retail as our largest product, how we think about the architecture as our hardware and the experience inside like our software. We call it Today at Apple. We started with the things that are core to Apple's DNA, things people most use their devices for and trust us to teach them like photography, music, gaming and app development. And as Apple continues to develop curriculum like Everyone Can Code and Everyone Can Create, we embed these lessons and techniques into our Today at Apple programming for all customers, including educators and entrepreneurs. And we hold all of our sessions in all 505 retail locations, like at Apple Cotai Central in Macau, which opened a few months ago. Here, customers are attending a session called Photo Box where they learn new features like portrait lighting and depth control while exploring the city together in a real social way. Or Apple Garosugil in Seoul, which opened this past spring where customers participate in labs, our most advanced sessions, like a music lab called Building Your Sound co-created with Florence of Florence + the Machine where our creative programs help customers compose a song using GarageBand. And also this month, as a part of EU Code Week, we hosted sessions like Swift on iPad and Xcode on Mac, teaching over 2,000 coding sessions throughout Europe.

And at Apple Piazza Liberty in Milan, which just opened this past summer, customers are loving sketch walks where they learn to capture the city through drawing and painting on iPad. And we're especially thrilled when our sessions inspire customers to even go even further with their passions like Sarah here who after attending a few live art sessions and a lab in Florence, illustrated and published her first children's book.

And as we continue to push the design of our flagships to be even greater gathering places where everyone is welcome, we're also creating global platforms for local talent. Photographers, musicians, developers and artists share their creative gifts. This month, in partnership with The Big Draw Festival, local artists have been leading sessions in our flagships globally, teaching and celebrating drawing, like Josh Cochran, a local New York artist, who's leading a session across the street this afternoon. Since the launch of Today at Apple only 18 months ago, we have held over 18,000 sessions a week attended by millions of curious creatives around the world.

And with the newest release of the Apple Store app, we've made it even easier for you to find out what's happening near you. Just tap on the Sessions tab. And you'll see a spotlight of the newest Today at Apple sessions in your city. It will also recommend sessions based on the products that you own and signature programs like music labs, kids' hour and photo walks.

That's a quick update on Today at Apple, our new in-store experience since we launched. But we're not stopping here. Today, we're announcing 60 newly designed sessions. Video -- video, music and design have all been expanded and we're adding walks and labs to most categories. And of course, we're using Apple's latest technologies like AR and Siri Shortcuts. We're creating our first video lab called Small Screen Magic co-created with videomaker Zach King. You'll learn how to shoot and edit fun videos using the Clips app. We're also introducing a new photo lab called Fun Family Portraits. You'll use live photos to capture action, experiment with filters and use Apple Pencil to make your portraits even more fun. And we're introducing a design lab called Drawing Treehouses co-created with architects Foster + Partners where you learn architectural principles through lens of fantasy. And for the Mac, we're launching a new Pro Series like this video lab called Color and Mood with Final Cut Pro. You'll learn how to use color to enhance the visual feeling of your footage. And a music lab called Advanced Beat Making with Logic Pro where you'll sample audio, design sounds and program different styles of beats. So that's a sneak peek of the a few of the new sessions launching the new year. And to further scale Today at Apple in every city, every day and every store, we're also upgrading our existing fleet, creating forums in over 70 stores a year like this recent renovation of Apple Covent Garden in London, just reopened a few days ago and they're live streaming the event today. And we'll continue to open flagships designed to amplify Today at Apple around the world. In June, we opened our first flagship in Seattle, Apple University Village. And on November 10, we're launching Today at Apple at our first store, Apple Iconsiam in Bangkok, Thailand. And we're excited to be a part of the creative energy in this city. And a few weeks later, we open Apple Champs-Élysées with one of our grandest forums in Europe to further be a part of the creative renaissance in Paris. And just like all of our Apple products, we continue to minimize our environmental footprint. In fact, all of our retail locations run on 100% renewable energy.

We feel that Today at Apple could be retail's greatest platform for enriching lives. It's designed to encourage human connection, inspire new learning and unlock creativity and creative thinking for all generations.

And Today at Apple is brought to life by our 3,000 Apple creatives and the entire retail team whose passion, energy and commitment to humanize technology helps unleash the creative potential in us all.

Thank you. So much. Back to you, Tim.

**Timothy D. Cook** {BIO 14014370 <GO>}



Wow. No one else has anything like Today at Apple. In addition to the 3,000 creative pros, we have over 70,000 team members that are dedicated to help you get the most out of your products. And they are the best team on the planet.

I am moving to New York. I am moving to New York.

Now let's talk about another powerful creative product, iPad. iPad is a magical piece of glass that transforms instantly into anything you want it to be. Portable, versatile and powerful while at the same time being incredibly easy to use. We've now sold well over 400 million iPads, making it the most popular tablet, by far. No one else is even close. But what you might not know is we've sold more iPads in the last year than the entire notebook lineup of all of the biggest notebook manufacturers. This makes iPad not only the most popular tablet but the most popular computer in the world. It's pretty phenomenal.

Now iPad line today is comprised of the iPad mini, the iPad and the iPad Pro. The iPad mini and the iPad, our most affordable iPads. And they bring versatility and capability to as many users as possible. While iPad Pro pushes the boundaries to deliver our most cutting-edge creative iPad experience. It includes our most advanced technologies and our highest performance. iPad Pro delivers so much capability to our users. And we have been absolutely amazed at the creative things they've done with it. That's why we created iPad Pro.

Today, we're announcing an all-new iPad Pro. It's going to push what you can do on iPad or on any computer even further. And here it is.

(presentation)

This is the new iPad Pro. And to tell you all about it, I want to bring up my colleague, John Ternus, Vice President of Hardware Engineering. John?

### **John Ternus** {BIO 22135753 <GO>}

Thank you, Tim. I am thrilled to be able to tell you about this new iPad Pro. It marks the biggest change since the original iPad. And we have made it better in every possible way. In fact, this really is the iPad we dreamed about building from the very beginning. We've always felt that the iPad should be all about the display. And with this new iPad Pro, we have an LCD that stretches from edge-to-edge and top to bottom. Now we achieved this design by rounding the corners of display using the same pixel masking and antialiasing technology that we introduced in the iPhone XR. And just like in the XR, we call it a Liquid Retina display.

It is packed with our most advanced technologies like wide color, true tone, ProMotion and, of course, support for Apple Pencil. And this all comes together to deliver the most accurate, responsive and beautiful display we have ever made.

Now the narrow border design gave us an opportunity to take a fresh look at our iPad Pro sizes. The original 10.5-inch iPad Pro is an amazing device that offers plenty of area to get your work done and an enclosure that's large enough to support a full-size keyboard. But it's still just one pound and super portable. It really has been the ideal option for most of our iPad Pro customers. So we decided to maintain that perfect footprint but give you an even bigger display. This is the same take-anywhere size you loved in a 10.5-inch design but now with an 11-inch display. And it has a 0.25 million more pixels. But of course, for customers who want even larger canvas, we also offer the 12.9-inch display. All that real estate makes multitasking and working with Apple Pencil an incredible experience. With this new iPad Pro, we're able to offer that same large band experience in a much more portable package. And this is the new 12.9-inch iPad Pro.

It is dramatically smaller. In fact, it's now almost exactly the same size as an 8.5 by 11 piece paper. And it's not just smaller. It's also thinner. These new iPad Pros are just 5.9 millimeters thin. In case of the 12.9 inch, that's nearly 15% thinner than before. So all together, that means this new 12.9-inch iPad Pro is an incredible 25% less volume than its predecessor.

It fundamentally changes the experience of using it. You really have to hold one to understand it. And we think when people do, many more folks will move up to the larger size. It really is the ultimate iPad. And that's especially true because it now has Face ID.

Now on an iPhone 10, Face ID set the bar for intuitive, seamless and secure authentication. But it's even better on the iPad Pro. On iPad Pro, Face ID delivers facial authentication that is more secure than any tablet or any computer. With a simple glance, you can unlock your iPad. You can log into your favorite apps and, of course, you can even pay for something with Apple Pay. Now Face ID is enabled by the TrueDepth camera, which is tucked away into this thin bezel. It uses depth technology to deliver greater security and accuracy than any 2D face scanner. For bringing it into the iPad Pro, we had to optimize the cameras and even had to retrain the underlying neural networks to work specifically in all the ways that you use your iPad. Portrait, landscape, attach to a keyboard and no matter how you use these new iPad Pros, they are always right-side up.

Now the support for Face ID, you might have noticed there's no longer a home button. Well no home button means that all those familiar gestures from the iPhone 10 now comes to the iPad. So for instance, you can swipe down from the upper right-hand corner to get to control center. You access the dock by swiping up from the bottom. If you continue swiping up and pause, you get to the app switcher. And you can even swipe along the bottom edge to quickly switch between your most recently used apps. You can work with 2 apps at once using split view. You just drag an app up from the dock to the side. And then you can easily drag and drop between them. And slide-over gets you a quick view to another app, like when you need to quickly respond to a message. There's always plenty of room to get what you need done. This new iPad experience is all about making the most of these large displays, with space for creativity and to work with multiple apps at once. And all that is possible

because of what we put under the hood because these new iPad Pros are powered by the all-new A12X Bionic. And this thing is a monster.

Just like the A12 in our latest phones, it's built on our latest 7-nanometer technology. No other tablet, laptop or even desktop has been able to make this leap forward. And it offers a huge jump in both performance and energy efficiency. But since this is an X chip, it means bigger than the A12, much bigger. In fact, this new A12X is more than 10 billion transistors. But what's more incredible is what we've been able to do with all of them. The A12X features an 8-core CPU, a 4 performance cores and 4 high-efficiency cores. And with our latest generation performance controller, multi-threaded workloads can now leverage all 8 of those cores simultaneously. The results of all this are pretty amazing. Single-core performance is up by 35% compared to last year's already really fast iPad Pros. And with the increase in core count and gains in efficiency, multicore workloads are now up to 90% faster. This is a huge step forward. And here's another way to think about it. These iPad Pros are faster than 92% of all the portable PCs sold in the last 12 months, including the most popular core i7 models from the top manufacturers. Now, of course, our X chips have also always been about big graphics. And these new iPad Pros do not disappoint. The A12X Bionic has an all-new Apple design 7-core GPU that delivers 2x the performance of the previous generation. And this is great. Compared to our first-generation iPad, the graphics in these new iPad Pros is now 1000x faster. That is nuts. To put it another way, the iPad Pro delivers Xbox One S class graphics performance in a product that's 94% smaller. And there's no AC cord required. In fact, like all of our iPads, it delivers amazing all-day battery life. But of course, we didn't stop with just incredible CPU and graphics, onboard the A12X and coming for the first time to an iPad, we have our latest generation of the Neural Engine. And just like in the A12, the Neural Engine is capable of delivering an unbelievable 5 trillion operations per second, which is all in service of delivering incredible performance in Core ML tasks. So with that, these new iPad Pros aren't just faster than your last computer, they're also smarter and more capable. Through apps can do some amazing things like photos, which uses machine learning to classify and organize your photos. You can always find what you're looking for. And it also stitches together all those photos and videos to create those amazing memories. But other apps can take advantage of this as well. Like Pixelmator photo which uses the neural network derived from over 20 million image bearers to determine how to intelligently enhance your photos, just like a pro photographer would. And our chip team has done so much more with A12X. Dedicated hardware blocks deliver high performance and high efficiency in everyday tasks like capturing images and shooting video. There is simply nothing like this in other traditional PC chipsets. And this year, we have a new fast storage controller on the A12X, which enables up to 1 terabyte in storage capacity. We think this is really going to help to free up those creative pro workflows. And that new fast storage controller also enables something else it's really big because the high-performance computer deserves a high-performance connector and so in these new iPad Pros, we're moving to USB-C. This brings a -- this brings a whole new set of capabilities to the iPad Pros. By connecting to accessories that change how you use your iPad. Cameras, musical instruments or even docs or connecting to high-resolution external displays up to 5K. And with USB-C, you can connect to these data accessories and displays at the same time. We think our Pro customers are really going to love this. And also, for the first time on these iPad Pros, we now support

charging out over USB-C. So you can even charge your iPhone when you're on the go.

Now one of the most important and game-changing accessories for the iPad Pro has been the Apple Pencil, with its lowest-latency subpixel precision, force and tilt sensing, the Apple Pencil is absolutely the tool to reach for whether you're retouching the photo, jotting down notes or sketching. And with these new iPad Pros, the second-generation pencil has been completely redesigned. The new Apple Pencil attaches magnetically to the iPad Pro. It automatically pairs and starts charging wirelessly. And because it's always charging, it's always ready to go the moment you need it. Tapping the screen with the Apple Pencil will wake the iPad Pro and launch instantly into the notes app. And this year, there's a whole new way of interacting with the Apple Pencil, just tap twice on it to switch modes. In notes, you can switch between your current tool and the eraser. And in other apps, this behavior will be customizable, which puts even more control into our user's hands. Also this year, we have a new Smart Keyboard Folio. It continues to deliver great typing experience and a thin and light design with no pairing, charging or batteries required. And it's even simpler to use. It magnetically attaches to the iPad Pro. And it protects both the front and the back. It is the screen angle that is great in your lap and another that's great at your desk. We think this is what makes iPad so unique. No other device can easily adapt to your needs the way that iPad can. On its own, iPad is the most personal and powerful tool for all the things that you do most. But by adding just the right accessory, it totally transforms the experience. Add the Apple Pencil, it becomes your sketchbook. Add the smart keyboard, it becomes your mobile office or add an external monitor. And you have an editing bay. No other device offers this level of flexibility. And not only is iPad amazing for all the things you do today. But also the perfect tool for creating totally new experiences like augmented reality. With its large display and a thin and light design, iPad is the best device ever created for AR. And we've optimized these iPad Pros to make AR even better. We've calibrated the cameras and sensors and all of these components in A12X to deliver realistic graphics, real-time lighting and object tracking and incredible texturing and reflections. And with ARKit 2, we give out enhanced surface detection and persistent experiences. And all of this comes together to completely transform how you can interact with the world around you.

These new iPad Pros are packed with our most advanced technology. There's the new all-screen design with Liquid Retina display, advanced Face ID, the A12X Bionic chip delivering incredible pro-level performance, 4-speaker audio. And this time with woofer and tweeter pairs in each corner. They sound amazing and they offer wide stereo output. Gigabit-class LTE and e-SIM technology in our cellular models for great connectivity wherever you go and so many more features that make this our very best iPad. And we now have brand-new designs for the Apple Pencil and the Smart Keyboard Folio and USB-C, which offers high-performance connectivity to a wide variety of accessories. But that said, the new iPad Pro really comes to life through the incredible apps that have been designed for it. And to tell you more about that, I'd like to invite Shaan Pruden, Senior Director of Worldwide Developer Relations to the stage. Shaan?

**Shaan Pruden**

Our developers are amazing. Today, there are over 1 million apps specifically designed to transform your iPad into anything you need with just a tap. And with the new iPad Pro, apps you already know and love are going to look better and perform even faster than before, like Procreate for sketching and illustration, capturing notes with Notability or using Morpholio Trace for architectural drawings. But with the performance and capabilities of the all-new iPad Pros, our developers are going to be able to create experiences that were not possible before. For the first time, Autodesk will be bringing the desktop engine of AutoCAD to the iPad. This will allow customers to view and edit files that contain hundreds of thousands of objects like you see here, with performance as fast as the fastest PCs.

And this is Assassin's Creed Rebellion from Ubisoft, a fan-favorite on-the-console coming to the iPad for the first time. Not only does the new iPad unlock stunning visual effects like ambient fog and sunlight streaming through these windows. But it also delivers on the next level of texture and detail on everything you see. And it's running at an unbelievable 120 frames per second, something no console can deliver.

DJ Pro is used by millions of DJs around the world and algorithms been able to harness the power of the A12X Bionic to deliver up to 5x as many video clips that you can mix simultaneously. And using Core ML, dozens of audio samples can be keyed and deep matched in real time to deliver performances that are perfectly in tune and on rhythm, unprecedented on a mobile device.

As you can see, iPad Pro delivers the power and versatility our customers demand wherever they are. Now I'd like to introduce you to 2 developers to show you what's possible on these new devices.

First, let's talk about gaming. On the large 120-hertz display with pro performance and 4-speaker audio, iPad Pro is the ultimate gaming platform you can take anywhere. And here to show you what they've been able to accomplish is Greg Thomas, Executive Vice President at 2K Games.

**Greg Thomas** {BIO 6912260 <GO>}

Thanks, Shaan.

For more than 20 years, NBA 2K has set the standard for realistic gameplay and attention to detail. Each year, fans have been delighted to be able to experience the NBA on their consoles. And now with this incredible new iPad, 2K and Visual Concepts have brought the same console realism to iOS. Everything we're going to show you today has never been possible on a mobile device before. Choose your favorite team and players. Many of you may recognize Barclays Center. We've recreated exactly so that your Brooklyn Nets feel right at home today. But I see my buddy Mike here has chosen the world champion Golden State Warriors. But if you want to play as Steph Curry, you can play a Steph Curry. Watch the player with the blue circle at his feet as the rest of the team moves across the court. Using seamless motion magic and inverse kinematics, we're able to create an unlimited number of

animations all at 60 frames per second. Okay. Let's take a step back and look at this beautiful arena. Even the sidelines and the thousands of fans are individually rendered in high resolution. This new iPad is simply amazing. And it provides the experience that rivals consoles for the very first time. Okay. Let's take a look at a player. How about Deangelo Russell. We meticulously recreate every single NBA player, using high-end shaders to get all of the details to path. Just look at his hair, the accurate tattoos, the beads of sweat on his skin. We've even rendered his jersey down to the pinholes. Okay. Let's get back to the game and see how the warriors are doing. Nice move. This is stunning and now we're able that visual post effect such as antialiasing, HDR Bloom and depths of field. In fact, we are rendering nearly 6 million pixels at full retina resolution with no upscale. Okay. Now we've got a little bit of time left in this game. Mike, why don't you show us what you've got? Oh, time running out. Steph Curry. Buzz up. Buzzer-beater. Game winner. Nice shot. NBA 2K Mobile. We'll see you on the court.

## **Shaan Pruden**

Thanks, Greg. That's just a glimpse of the amazing performance of the all-new iPad. As you can see, developers who are taking their games to the next level. Now let's turn to creativity. We work closely with our friends at Adobe for over 30 years, creating tools that have sparked entire new industries. And today, we're delighted to have them here to show you the future of creativity. Please welcome Adobe's VP of Design, Jamie Myrold

## **Jamie Myrold**

Thanks, Shaan. I'm so excited to be here today. So at Adobe, the future of creativity extends beyond the desktop. Creative professionals want the ability to create with power and ease whenever and wherever inspiration strikes. A few weeks ago at Adobe Max, we've revealed Photoshop on the iPad. And we also previewed Project Arrow, our new augmented reality design tool. And today, we are super excited to show both of these taking full advantage of the breakthrough performance of the amazing new iPad Pro. To show you, I've asked Chantel to join me. Chantel?

## **Chantel Benson**

Thank you, Jamie. Let me show you the real Photoshop on iPad. Photoshop means having the familiar tools you need right where you expect them here in the toolbar. Photoshop means having the full power of your layer stack and your adjustments. Now I want to make this flower in the middle really stand out so let's add an adjustment layer. And we can find a hue that really looks nice. Okay. Right about there. And now let's use the brush tool. And I can come in here and color back on that mask and just reveal the white petals below. And I'm doing this with the Apple Pencil. It feels so smooth and intuitive. It's great to be right here with the canvas. Okay. Let's drop a blend mode on there and there we go. Now, this is Photoshop reimaged for touch. So we have instituted many ways to have contextual UI. So I can use this touch modifier under my thumb to switch between doing things I do all the time. So duplicate and move. Now that flower looks nicely framed by those pops of yellow. And we're ready to go. Okay.

So let's zoom out and you can see this full bouquet. It's made up of 135 individual flower images. And you'll see that there's this really intricate mask applied to the whole layer stack. So that means that when I want to make adjustments, I can just dial it up, dial it down and dial right into the saturation level that I want to see. Great. Okay. Let's zoom all the way out. And you can see the sheer scale of this piece. It is a real PSD, the same I would work with on the desktop. It's over 3 gigs. It's 157 layers, 12,000 by 12,000 pixels. And I'm zooming through it at lightning speed, no lag. And that is thanks to working on this new iPad Pro with 8 cores of pure power.

So at Adobe, we know that you creative pros need to dive down deep into the pixel level of precision. But then just as easily get right back out and see the full picture. So we've instituted a shortcut on the Apple Pencil, just double tap, get right back out. Double tap, get right back in. Ladies and gentlemen, this is Photoshop on iPad, just like you've always wanted.

Now let's talk about how you can experience your Photoshop files in an whole new way. This piece is 9 feet by 9 feet when printed at scale. And here on the screen, it already has the power to awe and inspire. But what if you wanted to step into that redwood forest? Well with Project Arrow, now you can. So let's take a look at that same PSD here in Arrow. And it now has space between those layers. And because this is augmented reality, I can do things like bring in some interactive elements like these butterflies. And I can set them to animate when I start the experience. And now I can use my iPad to become the cinematographer of this moment. So now with Photoshop, Project Arrow and iPad, creatives can express themselves in a whole new medium, with the tools they already know and love. Back to you, Jamie.

## **Jamie Myrold**

Thanks, Chantel. So that was truly amazing. And that file created by Isabel Ge Mahe was just gorgeous. So to recap what you just saw, this was the real Photoshop. By this, I mean, the actual Photoshop engine running on iPad Pro fully reimaged for the simplicity of touch and the precision of Apple Pencil. Soon, creative professionals are going to have the ability to create and edit high-fidelity Photoshop files on the iPad Pro.

We also showed you Project Arrow, which is our new augmented reality design tool. And this tool will give designers the ability to use their skills in Photoshop to create next-generation immersive content. Look for both of these in the App Store in 2019. Thank you. So much. Back to you, Shaan.

## **Shaan Pruden**

Wow. That was incredible. Thank you, Jamie and Chantel. On iPad Pro, these tools are powerful enough for professionals but easy enough for anyone to use. And that's why we're so excited to be partnering with Adobe on these and other next-generation apps for creative pros. This is what we mean when we talk about the iPad being a magical piece of glass that can be anything you need it to be. And with the next generation of apps from our developers, it's going to completely change how you get things done in ways you never imagined. Back to you, John.

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## **John Ternus** {BIO 22135753 <GO>}

Thanks, Shaan. Those are some incredible apps. It's amazing how much performance we packed into these iPads. We were so excited about the all-new iPad Pro that we made a video. And I'd love to run it for you now.

(presentation)

The new iPad Pro is such a huge leap forward for iPad and for computers. Now, of course, like all of our products, every iPad Pro is made in ways that are good for both our customers and for the environment. And in fact, the excess aluminum that was created in the process of making these iPad Pro enclosures is recycled back into the material that's used in the MacBook Air and the Mac mini. The 11-inch iPad Pro is offered in these 4 storage options. And it starts at \$799. And there is nothing else out there that comes close to this combination of performance and portability. The 12.9-inch iPad Pro is offered in these same storage options. And it starts at \$999. And of course, both models are available in LTE configurations as well. Customers can start placing orders today. And they're going to be showing up next week on the 7th.

Now in addition to the new Pro, the current 10.5-inch Pro will continue to be available alongside the sixth-gen iPad and iPad Mini 4. This is the new iPad Pro. And we could not be more excited about it.

Now back to Tim.

## **Timothy D. Cook** {BIO 14014370 <GO>}

These are the most exciting iPads we have ever created. This doesn't just change the way we think about iPad, it changes the way we think about computers.

Now before we close out, I have one quick update. iOS 12 is off to an unbelievable start. It's been installed on more systems in the first month than any version in history. This is incredible. And it's remaining on a tear. In fact, an amazing 60% of all iOS devices out there are already running iOS 12. This is just unheard of. And today, we're shipping 12.1. This update includes group FaceTime with up to 32 of your friends simultaneously as well as some other great new features, including dual SIM support for iPhone 10S and iPhone 10R with eSIM. There's also over 70 great new emoji's to -- where you can express yourself any way you would like. This is the best iOS version ever. Check it out.

Now what a huge morning. The all-new MacBook Air thinner and lighter now with Touch ID and this beautiful Retina display. And our most loved Mac is now our greenest Mac. And the new Mac mini, it's the mightiest and most versatile Mac mini ever. And our to-date Apple sessions in our retail stores designed to help our customers take their creativity even further. And the incredible new iPad Pro with its beautiful all-screen design, chockful of advanced features and the A12X Bionic, the



most powerful chip we have ever created. You're going to be amazed by what you can do with this product.

At Apple, we love how people use our products to create truly wonderful things and put them out into the world. This has been our mission from the very beginning. We've always believed deeply in the power of creativity to change things, to push the human race forward. And it's such a great honor for us to be a part of what people create every day all around the world.

Now, what better way to celebrate that creativity then with an amazing musical performance? I'd like to introduce an artist that used her unique talents to make brilliant and evocative music that defies genre. The Apple Music team is proud to have worked with her from the earliest days of her career. And she's gone on to sell over 15 million albums around the world. But most importantly, the creativity and emotional honesty of her work is undeniable. She is one of our favorites. So please join me in welcoming this New York native, the wonderfully talented Lana Del Ray.

Thank you. Thank you.

### **Lana Del Rey** {BIO 18041988 <GO>}

Well thank you so much. Thanks to Tim for asking us to come down and sing a couple of songs for you. I'm lucky enough to have Jack Antonoff with me playing on the piano. And I just wanted to say we're really honored to be playing for Apple. And it's a company that's done so much to change the way that we consume music but also for people like me and Jack, the way that we make music and record, whether it's at home and in the studio. So with that, they told us not to swear. So for that reason, I can't tell you the name of the upcoming record that me and Jack made. But the first song that we're going to do from it is the last song we recorded for it. And it's called How to Disappear.

(presentation)

Thank you. So much. Again, in the name of swearing, I won't say the title of the second track. I'll call it Venice for now. And it's -- yes, it's a song we released a couple of weeks ago so...

(presentation)

Thank you very much.

### **Timothy D. Cook** {BIO 14014370 <GO>}

Thank you. Lana Del Ray.

I'd like to thank everyone for joining us today in New York and everyone that's been watching online. And I'd like to thank everyone at Apple who made today possible

and makes every day possible. It couldn't be done without you. We've got a hands-on area with these amazing products just down the road at 1 Hanson Place. We'll have people escort you over there. I encourage you to go try them out for yourselves. They are amazing.

Thanks, again. I may see you in your neighborhood. See you.

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