

Good morning, welcome to WWDC and welcome to Apple Park for this very special day of announcements about our latest technologies and platforms. We love to see our amazing developers dream up big ideas and bring those ideas to life in the incredible apps they create. It's remarkable to think that this year marks the 15th anniversary of the App Store, which changed everything. Together with the iPhone, developers' apps have helped create entirely new industries, enrich the lives of our users, and change the world. We are committed to providing developers with resources, tools, and opportunities to help them do their amazing work. One of these important resources is our Worldwide Developers Conference. We are excited to kick things off with this morning's announcements. Our teams are continuing to innovate, creating breakthrough experiences for our customers. Driven by the deep integration of hardware, software, and services, these experiences deliver the magic that comes when using our products. It's something only Apple can do. Today we're going to make some of our biggest announcements ever at WWDC. We'll be talking about the future of our incredible software platforms, as well as introducing some exciting new products. So to get it started, I'd like to hand it over to John to talk about the Mac. The Mac has been completely transformed by the transition to Apple Silicon, with industry-leading performance, new capabilities, and extraordinary battery life. Apple Silicon has also enabled developers to take their apps further than ever, and do things that simply weren't possible before. And its power-efficient performance enables us to create new systems we could only dream of making in the past, like the amazing 13-inch MacBook Air with M2. With its incredible performance, brilliant display, all-day battery life, and striking design, it's our most loved Mac. And it's also the world's best-selling laptop. Well, today we have even bigger news to share on another product made possible by Apple Silicon. Here it is. Dream Big Wow. Dream Big. I didn't know this could be so easy. Dream Big. Big. Big. Introducing the 15-inch MacBook Air. It's the world's best 15-inch laptop. And here's Kate to tell you all about it. The new Air has everything you could want in a 15-inch laptop. It starts with a design that's astonishingly thin and light, yet feels incredibly solid and durable. It's only 11.5 millimeters thin, making it the world's thinnest 15-inch laptop. And it's easy to carry around at just over three pounds. It features MagSafe charging, two Thunderbolt ports, and a headphone jack for versatile connectivity. And it comes in four gorgeous finishes, including midnight and starlight. The Air has a brilliant liquid Retina display with an expansive 15.3-inch screen that's surrounded by thin 5-millimeter borders. So you can see even more of your content. And with up to 500 nits of brightness and support for 1 billion colors, everything looks remarkably rich and vibrant. It has a great 1080p camera for video calls, along with a three-mic array, so you come through loud and clear. And the new Air sounds awesome. With six speakers, including force-canceling woofers, it delivers immersive spatial audio. All of this is enabled by the M.2 chip, which delivers amazing performance and battery life. In fact, the new Air is 12 times faster than the fastest Intel-based MacBook Air, and it gets an astonishing 18 hours of battery life. So what makes the new Air the world's best 15-inch laptop? Well, 15-inch PC laptops are full of trade-offs between performance, display resolution, battery life, and design. When compared to the best-selling 15-inch PC laptop with a Core i7 processor, MacBook Air is up to twice as fast, and its display is twice the resolution and 25% brighter. Even with better performance and a better display, you still get up to 50% more battery life than on the PC. When it comes to design, the Air is nearly 40% thinner and half a pound lighter than the PC, and its fanless design runs completely silent. With all these great features in the new Air, it's the only 15-inch laptop that has it all. If this is your first Mac, you'll enjoy how easy it is to set up and use. And once you start using it, you'll see how seamlessly it works with iPhone. So you can do things like copy something on your phone and paste it with your Mac using Universal Clipboard, or pick up where you left off on a thread in messages with handoff. So that's the new 15-inch MacBook Air. It has an expansive display, the incredible performance of M.2, a six-speaker sound system, and tremendous battery life, all in the world's thinnest 15-inch laptop. Now, back to John. We're super excited about the all-new 15-inch MacBook Air, the world's best 15-inch laptop, and it starts at just \$1299 and \$1199 for education, an incredible value for such an incredible laptop. You can order it today and it'll be available next week. We're also excited that the 13-inch MacBook Air now starts at \$1099, \$100 less than before, and the 13-inch Air with M.1 remains in the lineup at \$999. So customers have more choices than ever to find the perfect Air for them. So that's MacBook Air. Next, let's talk about our pro products. Earlier this year, we announced M.2 Pro and M.2 Macs, along with the new MacBook Pro and Mac Mini, and users have been amazed by their performance. Well, now we have even more exciting news for pros, starting with Mac Studio. Introduced last year, Mac Studio is an entirely new product designed specifically for pros, and it's been a breakthrough. Users have been astonished by what they can do with it, and satisfaction is through the roof. They love that it puts tremendous performance and extensive connectivity in a compact form that lives right on their desk, and you can already find it in the

heart of hundreds of thousands of home and pro studios across the world. Like at NBC, where they use it to deliver Saturday Night Live every week, and at Air Studios, where sound engineers use it to bring blockbuster movies to life, and at Lux, where software developers rely on it to create cutting-edge apps like H alide. Today, we're excited to give Mac Studio its first big update, and here's Jennifer to tell you more. Users love Mac Studio for its incredible performance and connectivity, and today, both get even better. First, Mac Studio is getting the immensely capable M.2 Macs, and it's a performance powerhouse. Developers can build new versions of apps at warp speed, with up to 25% faster performance than M.1 Macs. Motion graphics designers using After Effects can render up to 50% faster than M.1 Macs. Mac Studio with M.2 Macs is also four times faster than the most powerful Intel-based iMac. And that's not all. Today, we're adding one final chip to the M.2 family, taking Mac performance to new heights. Introducing M.2 Ultra. It is a monster of a chip. Connecting two M.2 Macs die together with our groundbreaking Ultra Fusion architecture, it doubles the performance of M.2 Macs. The 24-core CPU in M.2 Ultra delivers 20% faster performance than M.1 Ultra. And its 76-core GPU is 30% faster than M.1 Ultra. Finally, the 32-core neural engine is 40% faster. And M.2 Ultra can support an enormous 192GB of unified memory, which is 50% more than M.1 Ultra. Enabling it to do things other chips just can't do. For example, in a single system, it can train massive ML workloads like large transformer models that the most powerful discrete GPU can't even process because it runs out of memory. So that's M.2 Ultra, our largest and most capable chip ever. With a mighty CPU and GPU combined with massive memory bandwidth in a single SoC, it's the most powerful chip ever created for a personal computer. And today, we're bringing M.2 Ultra to Mac Studio, taking performance even further. Compared to Mac Studio with M.1 Ultra, colorists using DaVinci Resolve will see up to 50% faster video processing than before. 3D artists using Octane can now render up to three times faster. And with M.2 Ultra's media engine, video editors can play back a mind-blowing 22 streams of 8K ProRes video. No other computer in the world comes close. Mac Studio with M.2 Ultra is also a whopping six times faster than the most powerful Intel-based iMac. M.2 Macs and M.2 Ultra take Mac Studio performance to a whole new level. For connectivity, Mac Studio now has higher bandwidth HDMI, enabling up to 8K resolution and 240Hz frame rates. And with M.2 Ultra, it can support an incredible six Pro Display XDRs, driving over 100 million pixels. So that's the new Mac Studio. It's a performance powerhouse, taking demanding workflows to the next level. And we're not done yet. There are some Pro users who want ultimate performance, yet depend on internal PCI expansion as well. Like audio engineers at Skywalker Sound, who work on feature films like Oscar winner Top Gun Maverick. And artists at Color Collective, who grade films like Oscar winner Everything Everywhere All at Once. So today, we're bringing Apple Silicon to one more Pro product. Introducing Mac Pro with Apple Silicon. It combines our most powerful chip with PCI expansion to tackle the most demanding workflows. First, every Mac Pro comes with the outrageous performance of M.2 Ultra. Compared to the fastest Intel-based Mac Pro, many real-world Pro workflows, like video transcoding and 3D simulation, are three times faster. A key reason is the amount of unified memory in M.2 Ultra, which is up to a gigantic 192GB. It enables the new Mac Pro to do things simply not possible before, like render Disney's Moana Island scene with massive geometry and textures. Another reason is M.2 Ultra's media engine, which accelerates video processing. The Intel-based Mac Pro does this using Afterburner, a card that can play three streams of 8K ProRes video. Now, every Mac Pro has Afterburner performance built in. And not just one, but the performance of seven Afterburner cards. It's incredible. In fact, when using six video I.O. cards, Mac Pro can ingest 24 4K camera feeds and encode them to ProRes in real time, all on a single machine. And the wide array of advanced connectivity on Mac Pro gets even better with eight built-in Thunderbolt ports, six on the back and two on the top, which is twice as many as before. Finally, Mac Pro brings PCI expansion to Apple Silicon. It features six open expansion slots that support Gen 4, which is two times faster than before. So users can customize Mac Pro with essential cards, including audio and video I.O., networking and storage. Finally, it's available in both tower and rack mount enclosures. So that's the new Mac Pro, powered by Apple Silicon. With incredible M.2 Ultra performance, tremendous connectivity, and the versatility of PCI expansion, it takes even the most demanding workflows to a whole new level. Now back to John. Today we've announced not just one, but the two most powerful Macs we've ever made. Mac Studio with M.2 Macs still starts at \$19.99, an incredible value for Pro users. And with huge performance increases from M.2 Ultra, Mac Pro starts at \$69.99. You can order both products today, and they'll be available next week. They join our other Pro systems to give our users the most powerful and capable lineup of Pro products that Apple has ever offered. This completes the transition to Apple Silicon, which has completely transformed the desktop and laptop experience. And we're just getting started. For Intel-based Mac users, every Mac is now a gigantic upgrade. And for PC users, there's never been

n a better time to switch to a Mac. Now back to Tim. With Apple Silicon, it's remarkable how far we've taken the Mac in such a short amount of time. It's the best and most capable lineup in the history of the personal computer, and I couldn't be more excited about its future. And it's the integration of our hardware and software that brings our amazing products to life. Our software platforms enable our developers to do their amazing work, as well as provide incredible experiences for our users. So to tell you what's new with our software platforms, here's Craig. Let's start with iOS. This year, we looked across the entire iPhone experience to provide delightful new features that make the things you do on iPhone more personal and intuitive. Our next release, iOS 17, delivers more expressive communication, simplified sharing, more intelligent input, and all new experiences for your iPhone. Let's begin with some major updates to three apps that are central to how you communicate with people every day. Phone, FaceTime, and Messages. The phone app is essential to the iPhone experience. Some of our most special moments start with a phone call, and we're making a big update to the phone app this year. First, we're giving you a brand new way to express yourself with personalized contact posters. You get to customize exactly how you're represented when you give people a call. Contact posters feature beautiful treatments for both photos and emoji, paired with eye-catching typography. And in Chinese and Japanese, the new layout with vertical text looks incredible. This rich new visual identity doesn't just show up in calls. It's also part of your contact card, so you'll have a consistent look across the places where you communicate and share. With posters, you're in control. Customizing your poster works a lot like personalizing your lock screen. Decide on the image, font, and color. The possibilities are endless. And when calls come your way, whether they're from your neighbor, your friend, or your boss, they're going to stand out in a whole new way. And for developers, this all works with CallKit, so posters will appear for calls placed via third-party VoIP apps too. Next, we have a powerful new feature to help you make a more informed decision about when to answer an incoming call. Live voice mail. Sometimes when a call comes in from an unknown number, it's hard to know whether it's one you want to pick up. Now, when someone calls you and leaves a message, you'll see a live transcription in real time as they speak. If it's something you want to address right away, you can pick up the call to talk to them right then and there. This is great for calls from friends and family too. Imagine you get a phone call while in a meeting and want to know whether it's something urgent or if it can wait until the meeting is wrapped. You'll see the voicemail right on your screen so you can decide whether to step out and take the call. Thanks to the power of the neural engine, live voicemail transcriptions are handled on-device, preserving your privacy. And there's another type of call getting a big update, FaceTime, where we've added one of our most requested communication features. Now, when you call someone on FaceTime and they aren't available, you'll be able to leave a message. So whether you're just calling to say hey or want to share a precious moment, you can record a message so that they can enjoy it later. Next, to tell you about some updates to another way we love to share and communicate every day, here's Kim. Kim. Messages is the way we stay connected with the people who matter most. To start, let's quickly cover some key improvements that make using messages even faster and more convenient. First, search is more powerful and precise with the addition of search filters. So now you can start a search and then add additional terms to narrow the results to find exactly what you're looking for. Next, a new catch-up arrow in the top right of your conversation lets you jump to the first message you haven't seen. It's perfect on busy days when the group chat is blowing up. We've also made replying inline faster than ever. Just swipe to reply on any bubble. And for those times when you get an audio message but you aren't able to listen right away, they're now transcribed so you can read them in the moment and listen later. Finally, location sharing now lets you keep track of your friend's location directly in the conversation. Next, I'd like to share an important new feature for those situations where you want to let a loved one know you made it back home safely. Check-in. Whether you're walking home after dark or going for an early morning run, you can start check-in with a family member or friend to let them know when you get home safely. As soon as you arrive, check-in automatically detects that you're home and lets your friend know. But if something unexpected were to happen while you're on your way, it can recognize that you're not making progress towards your destination and check in with you. And if you don't respond, it can automatically share useful information such as your current location and the route you took. And they'll also be able to see your battery level and cell service status so they know if you might be able to take their call. And any information shared with your friend is end-to-end encrypted. So that's check-in, an easy way to feel reassured that your loved ones have your back. We also have an updated design for how you get to all your iMessage apps. They used to live above your keyboard and now they are gracefully tucked away, giving your conversations this sleek new look. With just a tap of this new plus button, you'll see all the things you send the most, like your photos, audio messages, and

location. And when you swipe up, you'll see all your iMessage apps there too. Also inside this menu is something you are going to love, a brand new stickers experience. Let me show it to you. By tapping the plus button and then tapping stickers, you'll see the brand new drawer that brings all my stickers into one place, like my recently used stickers, my emoji, and any sticker packs I've downloaded. And we've made all emoji into stickers. I can peel and stick an emoji sticker and I can rotate and resize it too. Last year we introduced the ability to lift a subject from the background of your photos and now those subjects can be turned into stickers. By tapping the new live stickers tab, I see all the stickers I've made with my own photos. Let me show you how I made these. I'll tap the plus button. I can pick any one of these photos and turn it into a sticker. And check this out. When I tap on the live photos tab, I see all of the live photos that will make great animated stickers. Why don't we make a sticker out of this one? And just like that, it gets added right into my live stickers tab. From there, I can send my sticker inline or peel and stick like this. You can also add effects to live stickers. When you tilt your phone in messages, they really come to life. Best of all, you can now react to messages by adding stickers directly to any bubble from the tapback menu. And the fun doesn't stop in messages. We've added stickers system-wide so you can access your full sticker collection in Markup and anywhere you can access emoji today, including in third-party apps. So that's messages. Now back to Craig. These updates to messages, FaceTime, and phone will enhance the way we communicate every day. iPhone provides many ways to share content with others. And we have some exciting updates to how we share with AirDrop. AirDrop makes it easy to share a file with a colleague or send photos to a friend in seconds. And this year, we're expanding how you can use AirDrop to share in all new ways, starting with how you swap your number with someone new. Today, you either hand your phone to them or one of you dictates your information while the other types it. Now there's a better way, NameDrop. With NameDrop, you can just bring your phones close together. You'll see the same contact poster we talked about for phone calls, and you can easily choose the phone numbers and email addresses you want to share along with it and share them just like that. And to make exchanging contacts even more convenient, you can use NameDrop with an iPhone and an Apple Watch, too. And we're also using this same gesture to make it easier than ever to AirDrop content and even kick off shared experiences. When you want to share the stunning photos you took on your latest adventure, again, just bring your phones close together. It's that simple. And for those times when someone is sending over a ton of photos or a large video file and you need to step away, you can now leave AirDrop range and your content will continue to send securely in full quality over the internet. You can also bring your devices together to instantly kick off a shared activity using SharePlay, like when you're going for a run and want to share some music to stay on the same beat. And for developers, this will work automatically for apps that support SharePlay, so you can bring your phones together to watch the same live stream on Twitch or jump into a coding game together with Imagi. It's never been easier to share. Next, let's talk about some enhancements that will make text input even more intelligent with the keyboard and dictation. iOS 17 brings big updates to the intelligence in the keyboard that improve the experience every time you type. It starts with the feature at the core of typing accurately on iPhone, AutoCorrect. AutoCorrect is powered by on-device machine learning, and over the years, we've continued to advance these models. The keyboard now leverages a transformer language model, which is state-of-the-art for word prediction, making AutoCorrect more accurate than ever. And with the power of Apple Silicon, iPhone can run this model every time you tap a key. AutoCorrect is also getting more capable, with a refreshed design to better support you as you type. Sentence-level AutoCorrections can fix more types of grammatical mistakes. If an AutoCorrection isn't quite what you wanted, tapping the underlined word shows what you originally typed, with the option to quickly revert back to it. And in those moments where you just want to type a ducking word, well, the keyboard will learn it too. When it comes to speeding up your typing, predictive text already helps you quickly finish, add, or change a word. And now you'll get predictions in line as you type, so finishing a word, or even the whole sentence is as easy as tapping the space bar. And predictions improve based on the phrases and words you use, so they're more personalized. Another core part of the keyboard is dictation, which gets a new transformer-based speech recognition model that leverages the neural engine to make dictation even more accurate. These updates make typing on iPhone better than ever. Last, let's talk about some exciting new experiences we're bringing to iOS 17, starting with a new way to reflect on and relive special moments. Here's Adithi to tell you more. Being reminded of life's special moments is a really powerful thing. For instance, we often hear about how much people love watching memory movies created from their photos, so we wanted to create a new way to help people not only remember, but also write about their experiences, inspired by rich details from their day, including people, places, activity, and even music, in addition to photos. Today, we're excit

ed to introduce Journal, a brand new app coming to iPhone later this year. Journaling is a great way to practice gratitude and has been shown to improve your well-being. Journal makes it easy to get started and enjoy these benefits. Using on-device machine learning, your iPhone can create personalized suggestions of moments to inspire your writing. Suggestions will be intelligently curated from information on your iPhone, like your photos, location, music, workouts, and more. And you control what to include when you enable suggestions and which ones to save to your Journal. And for developers, suggestions will be available as an API so they can be used in their apps too. Some suggestions are personalized and some are reflection prompts to inspire writing across a range of themes. You can pick any of them to start a new Journal entry. Let's look at this one of a trip. It includes where you went, the music you listened to, and photos you took there. You can add these to your Journal in one tap. And when you do, there's even a writing prompt like, what was the highlight of your visit? So it's easy to get started. As you capture life's precious moments, you can mark important ones and revisit them later to help you find new insights or set new goals. And to stay consistent, you can schedule notifications for the start or end of your day to remind you to write and to tell you when new suggestions are available. Of course, your suggestions and entries are incredibly personal, and Journal is designed to keep them private. With on-device processing, end-to-end encryption, and the ability to lock your Journal, no one but you can access it, not even Apple. So that's Journal. And now, back to Craig. Journal will be a great way to preserve rich and powerful memories and practice gratitude. Now, I'm really excited to tell you about another new experience coming to iOS 17. With iPhone in your hand, you have all the information you need right when you need it. We saw an opportunity to create something new and different for those moments when you set iPhone down. We call it Standby. Just by turning iPhone on its side while charging, you get a new full-screen experience with glanceable information designed to be viewed at a distance. Standby is perfect for your nightstand, kitchen counter, or desk. And with the always-on display on iPhone 14 Pro, it's always available. When you wake up, it's easy to see the time with a clock, and it's easy to personalize. Swipe up to choose from a range of beautiful clock styles. Swipe to the side, and you can look back on your favorite moments in photos. Standby automatically shuffles through your best shots, taking full advantage of the screen. It also embraces the power of widgets, which are more glanceable than ever. With a quick swipe on each widget stack, you can see the current weather, home controls, or your favorite third-party widgets. And since these are smart stacks, just like on the home screen, they automatically surface the right information at the right time, like your schedule before a meeting starts. With support for live activities, you can also see the score of the game or when your food delivery is arriving. Siri in Standby works great, with rich visual results that are easy to view, and it's just as easy to ask to play music or set a timer hands-free. At night when you're charging iPhone, Standby adapts to low light, taking on a beautiful red tone to help you sleep. And for each place you charge with MagSafe, Standby will remember your preferred view. So that's Standby. We think it's going to make iPhone even more useful in those moments when you set it down. iOS 17 has many more features, including the ability to simply say, Siri, to activate Siri. And now you can issue back-to-back commands without needing to say Siri again. In Maps, you can select an area and download a map to your device to use when you're offline. And in Photos, the People album is better than ever at spotting your favorite people, and now can even recognize the cats and dogs that are part of your family too. And that's iOS 17, with big updates to the phone app, with new contact posters and live voicemail, messages improvements with a new stickers experience, more ways to share with AirDrop, and improved typing and dictation, along with all new experiences like Journal and Standby. Now let's head downstairs to talk about iPadOS. iPadOS powers iPad, our most versatile device, and it enables our users to do so many things. Over the years, we've added features that make it even more capable, from jotting down your latest ideas and notes, to working with multiple apps, to spreading out your projects across displays. And just last month, we further stretched the bounds of what's possible in iPad by bringing Final Cut Pro and Logic Pro, our industry-leading professional video and music creation apps, to iPad, redesigned from the ground up to be a touch-first, all-Pro experience for the next generation of creators. Our next release, iPadOS 17, takes iPad even further, bringing new levels of personalization and making iPad even more capable, starting with widgets and the lock screen. Let me show you. Widgets were designed to quickly convey information at a glance. Now we've made widgets interactive, and I can take action directly in the widget without even opening an app. So I can not only see my reminders, I can also tap one to mark it as complete, right here. And as I do, the widget gracefully animates it away. These types of quick interactions are useful in many scenarios. At home, I can control my lights right from the home widget, and start playing an album with the music widget. And developers can add interactivity to their widgets too. I can learn something new with flashcards from Quizle

t, and track it with streaks right away. We think these interactions with widgets are going to make the home screen so much more powerful. Next, we want to bring a greater level of customization and personalization to another space, the lock screen. Our users love personalizing the iPhone lock screen, so we're bringing that experience to iPad. Just tap and hold to get started. There are so many wonderful wallpaper options, like Photoshop, weather, and emoji, and new ones like Kaleidoscope, with those vibrant jewels and flowers. Now I've already got a few wallpapers set up that I'm excited to show you. Enjoying my photos on the iPad lock screen is just delightful. And when you select a live photo, we use an advanced machine learning model to synthesize additional frames to create a gorgeous, smooth, slow-motion effect whenever you wake iPad. Also, we've optimized wallpapers like Astronomy for the large display on iPad. Of course, I can personalize it and now choose from any of the planets in the solar system, each with incredible detail. And Earth just looks stunning at this scale. I can tap the time to adjust the font and the color, and even change the font weight to get it just right. Here on the left, there's also a space to add widgets. The lock screen is a great place to see information at a glance and even perform quick actions. All right, this looks perfect. And that's how you can customize your lock screen with iPadOS 17. It's really cool. The lock screen gets one other feature that makes it even more useful, live activities. So now, right from the lock screen, you can keep track of a food order with Uber Eats, travel plans with Flighty, the score with Major League Soccer, or a timer. And we're happy to report that now you can even keep track of multiple timers. We truly live in an age of wonders. The new lock screen experience on iPad, combined with interactive widgets on the home screen, is a big step forward for how you can personalize and use iPad. Next, let's talk about an app that we're excited to bring to iPadOS for the first time, Health. The Health app has been designed to take advantage of the larger screen on iPad, so you can see rich details at a glance. And because your health data is securely synced, you can see your health information from your iPad, iPhone, Apple Watch, as well as compatible third-party apps and devices, all in one place. It's easy to see your activity, keep track of your medications, and view your trends and highlights. Interactive charts make your health data come to life, letting you dive deeply into the details. And for developers, HealthKit comes to iPad, opening up new ways to build innovative health and fitness experiences, like Rise, who's built these compelling visualizations as part of their new iPad app. Next, let's take a look at improvements we're making to the way you work with an important type of document, PDFs. To tell you all about it, here's Jenny. iPad is the best device for PDFs. They are built right into iPadOS, so you can open them anywhere, and they render beautifully. We use PDFs for so many things that we wanted to make them even easier to work with. Thanks to new machine learning models, iPadOS can identify the fields in a PDF, so you can use autofill to quickly fill them out with information like names, addresses, and emails from your contacts. This even works on documents you scan with a camera. And if you need to sign it, you can add a saved signature or make a new one with Apple Pencil. When you're ready, you can easily reply back with your completed form in mail. Now, another place where we keep PDFs is in the Notes app. It's great for capturing almost any information, and it's getting a big upgrade that gives you brand new ways to organize, read, annotate, and collaborate on PDFs. PDFs sit right inside your Notes. You have all the note-taking capabilities of the app, and the PDF is expanded to a full-width view. You can quickly review the document, flip through pages, and annotate using Apple Pencil. You can keep multiple PDFs in the same note, which is great for keeping related files together as you work. PDFs in Notes are also fantastic for collaboration. When you're working together, you see each other's updates in real time, so as you scribble something down, the changes you make appear right away on your collaborator's iPad. Live collaboration even works with stickers and images, and when you drop an image into a PDF, you can still annotate right on top of it. If you need to finish later, you can use live collaboration from anywhere. It's even great combined with a FaceTime call. With PDFs in Notes, note-taking and markup are going to be a breeze. And now, back to Craig. And now, back to Craig. So that's a look at iPadOS 17. But of course, there's even more, like improvements to Stage Manager, where we're adding even more flexibility to the position and size of your windows, giving you more control over your workspace. And you can now take advantage of the built-in camera on your external display for FaceTime and conference calls. And Freeform, which gets new drawing tools like watercolor, fountain pen, and shape recognition, along with a new feature called Follow Along that lets you follow a collaborator and track as they move around the canvas. These join other great features like the redesigned lock screen and interactive widgets, along with the health app and great new ways to work with PDFs, as well as other features you heard about in iOS, like leaving a video message in FaceTime, inline typing predictions, and updates to messages. Now, let's turn our attention to macOS. macOS is the heart of the Mac, and with Apple Silicon, the Mac lineup has never been stronger. Combined with macOS, it enables you to be more pr

oductive and creative. For our next release, we focused on helping you get even more done. Now, when it came to naming this release, we turned once again to Apple's legendary crack product marketing team. The instructions were simple and explicit. Travel far and wide, leave no stone unturned. Well, as far as we can reconstruct, that search consisted of piling in their microbus, punching in the words awesome vineyard into maps, and beelining straight to one of the most famous wine regions in the world. A place celebrated by the team, perhaps a bit too much, and beloved by millions. Introducing macOS Sonoma, a big new release that will make your Mac more delightful and even more productive. First, many of the features we talked about earlier on iOS and iPadOS are going to be great on the Mac. And macOS Sonoma brings a rich set of features that elevate the experience of macOS, starting with stunning new screensavers that show beautiful slow motion videos of places around the world, like the sweeping skyline of Hong Kong, the sandstone buttes of Monument Valley, and the rolling hills of Sonoma. And when you log in, this imagery settles beautifully into your desktop. Next, let's talk about making your Mac more personal through widgets. Not only are they becoming more powerful, they're also now available somewhere new. Let's take a look. Before, widgets on Mac were available here in Notification Center, but sometimes you want to see information at a glance while you're using your Mac. Now you can, by simply bringing your widgets right into view here on the desktop. I love to catch a glimpse of my favorite photos throughout the day, and weather too, and I can put these anywhere. So let's add shortcuts here to the bottom left. To make sure widgets aren't distracting while you're working with apps, we also came up with a way to make them glanceable without feeling intrusive. If I open up mail, my widgets instantly fade into the background so I can focus on the task at hand. If I switch my wallpaper, you'll see the widgets are intelligently tinted based on the color behind them. So they maintain legibility and the look of my desktop. Even the photos widget adapts. It's really gorgeous. To add more widgets, I can bring up the widget gallery, where I have all the widgets I know and love on my Mac. But I also have some amazing widgets on my iPhone, and through the magic of continuity, I can now access them all right here on my Mac. So I can see my Apollo for Reddit, Hi Coffee, and even my car widget. I don't need to install these apps on my Mac to use the widgets. My iPhone just needs to be nearby or on the same Wi-Fi network. And just like on iPad and iPhone, widgets on the Mac are now interactive. So you can use your car widget from your iPhone to start cooling off your car. And interactivity can unlock new workflows too. For example, photographers can select photos on their desktop, and with the shortcuts widget, they can tap into Pixelmator Pro to apply a signature look and get them ready to submit for a campaign, all with a single click. And that's widgets on Mac, an entirely new way to personalize your desktop and get things done throughout your day. Next, let's talk about gaming, a space where so much action is happening. To tell you more, here's Jeremy. Apple Silicon fundamentally changed the game, delivering incredible graphics performance to every Mac. And now tens of millions of Macs can run demanding games with great performance, long battery life, and breathtaking visuals, presenting an unprecedented opportunity for developers to bring their games to more players than ever before. And since introducing Metal 3 with powerful new features like metal effects upscaling, demanding games like Resident Evil Village have seen huge performance gains. This year, Mac OS takes the gaming experience even further with game mode, giving players an edge when performance is measured in precious milliseconds, ensuring the game gets the highest priority on the CPU and GPU, keeping your background tasks to a lower usage, and delivering an optimized gaming experience with even smoother and more consistent frame rates. And game mode makes gaming on Mac even more immersive, dramatically lowering audio latency with AirPods and significantly reducing input latency with Xbox and PlayStation controllers by doubling the Bluetooth sampling rate, providing in-game responsiveness you can really feel. Game mode works with any game, including all of these recent and upcoming Mac games. We are so excited to see developers bringing more games to the Mac. And to help with that, Metal provides a new game porting toolkit to make it even easier for developers to port their games from other platforms. These new tools enable developers to quickly evaluate just how well their game could run on Mac. A process that used to take months can now be done in days. And they dramatically simplify the process of converting the game's shaders and graphics code to take full advantage of the powerful features and performance of Apple Silicon, significantly reducing the total development time. And there's another big game coming to Mac this year. To tell you all about it, here's legendary game creator Kojima-san from Kojima Productions. I've always dreamed of delivering games to the Mac. The Mac experience has finally entered a new era. To match that era, the release of the Death Stranding Director's Cut Mac version was decided at the end of 2023. In the Death Stranding Director's Cut, we would like to share with you the most advanced technology of Apple in the world. Starting with the high-quality graphics from the Metal FX upscaling, Metal 3 has brought us amazing performance and

d modern rendering pipeline from Apple Silicon. I hope that many of you will be able to experience the exciting and innovative environment of the new Mac. We plan to actively develop the Death Stranding Director's Cut to make it possible for the future of Kojima Productions to be released on the Apple platform. The Death Stranding Director's Cut's pre-order will start on the day of release. Please look forward to it. Thank you. Thanks Kojima-san. Now let's shift to the ways macOS will help you be more productive, starting with video conferencing. We spend a lot of time on video calls, but when you share your screen, your face and presence can get lost. This year, we have great new ways to help you present remotely. A new video effect called Presenter Overlay elevates your presence by including you on top of the content you're sharing. With Small Overlay, your face appears in a movable bubble, so it's easy to be seen while showcasing your work. With Large Overlay, you remain prominent while your shared screen is framed beautifully next to you. We separate you from the background and layer your screen in between, so you can walk, talk, and move in front of your content. Thanks to the Neural Engine and Apple Silicon, you get amazing quality. We also have a new Reactions video effect. When you want to let others know how you feel, you can add a reaction that seamlessly blends your video with balloons, confetti, hearts, and more. They're fun and have a cinematic quality with depth and focus, and you can trigger these effects with a gesture. When you're really impressed, two thumbs up brings on a celebratory display of fireworks. You can use these new video effects with any app like FaceTime, Zoom, Teams, WebEx, and more. Next, let's talk about Safari and how we're taking it to the next level. To tell you more, here's Beth. Safari is the best way to browse the web. With macOS Sonoma, Safari is the world's fastest browser. It renders cutting-edge websites with amazing speed. Safari is powered by WebKit, which provides incredible technology that is used by over a million apps. We're constantly updating WebKit. In just the past few months, we've added even more features for developers, and we're adding even more, including beautiful advancements to typography. Another cornerstone of the Safari experience is privacy. Safari was built from the ground up to protect your privacy and was the first browser to introduce private browsing. This year, we're taking it a step further. Private browsing now locks your private browsing windows when you're not using them, completely blocks known trackers from loading on pages, and removes tracking from URLs as you browse in private browsing. Of course, one of the best ways to protect yourself on the web is with a strong password, or even better, a passkey. We're now adding the ability to securely share passwords and passkeys with the people you're closest to. Everyone in a group can add and edit passwords to keep them up to date. And since sharing is through iCloud Keychain, it's end-to-end encrypted. We have another exciting update to help you stay organized with profiles. Many of us use Safari for a mix of work and personal browsing and would love a way to separate browsing between topics. Profiles help you separate your cookies, history, extensions, tab groups, and favorites, so you can sign into the same site with your work account and personal account and quickly switch between them. And if you're a student, set up a unique collection of extensions and favorites just for school. Last, we're giving you a faster way to access your favorite sites with web apps on Mac. Let's check them out. With web apps, we're elevating the websites you use most often with some of the same great features as apps. I use Confluence all the time. I'll make it a web app so it doesn't get lost in my other browsing. From the file menu, I can click add to doc and the title and icon load automatically. When I click add, the icon instantly appears in the doc. Now I can close this window in Safari. When I launch my web app, I get an app-like experience with a simplified toolbar. On Mac, you can create a web app for any website and developers don't have to do any extra work for their web app to look great. Web apps are integrated right into my experience on Mac, so I can command tab to access my Pinterest web app. It also works great with Stage Manager, Mission Control, Spotlight, and other ways you access apps. You can get notifications too, so Instacart can let me know my order's been delivered. And with a click, I'm into my Instacart web app. Web apps make it even easier to get to your favorite websites on Mac. Back to you, Craig. With profiles, web apps, and a huge update to private browsing, Safari is simply the best way to browse the web. And that's macOS Sonoma, featuring more ways to personalize with widgets and stunning new screensavers, new levels of gaming performance, and powerful productivity for video conferencing and Safari. Now let's take a look at audio and home experiences. Whether you're rocking out to your favorite 80s metal band, or watching the latest show to relax after work, we continue to focus on features that entertain, inspire, and bring us closer together. So let's start off with what's new for AirPods. Here's Ron to tell you more. AirPods are the most popular headphones in the world, providing the best personal audio experience throughout your day. From active noise cancellation, which removes unwanted background noise so it's easier to focus, to transparency mode, which keeps you connected to the world around you while reducing loud environmental noise in real time. Our users love these features today, and there's even more we

can do. That's why we are excited to announce Adaptive Audio. It combines the best of both listening modes into one, making it even easier to move through environments and interactions that are constantly changing. Adaptive Audio dynamically blends transparency and active noise cancellation to match the conditions of your surroundings. So you can stay present within your environment while distracting noises are automatically reduced. Adaptive Audio also helps you focus on your favorite music or podcast. And now with personalized volume, we use machine learning to understand your listening preferences over time, together with the outside conditions to deliver the best media experience for you in the moment. We are also adding an incredible new way to engage with others around you while wearing AirPods Pro. Just start speaking, and conversation awareness will automatically lower your music, focus on the voices in front of you, and reduce background noise. Hey Cory. Hey, how you doing? Good. Are you going to be at the C141278 meeting later? Definitely, I'll be there. Awesome. I've got something I'd love to run by you. Look forward to it. See you there. See you. Another AirPods benefit is being able to take calls on the go. Hey there. Adaptive Audio helps when you're on a call in loud environments as well, by proactively reducing the noise around you. And for added convenience, you can press to quickly mute or unmute yourself as needed. We're also improving the AirPods automatic switching experience across the ecosystem. Now it is significantly faster to transition from a conference call on Mac to your favorite playlist on iPhone, all without missing a beat. And for the moment we want to share your content with those around you, there's AirPlay. I'll hand it over to Ann to tell you about what's coming. AirPlay is the easiest way to share your audio, videos, and photos to nearby speakers and screens. And we're making AirPlay more seamless than ever. Your iPhone and iPad now use on-device intelligence to learn your AirPlay preferences. So if you usually listen to music while you cook dinner, the nearby HomePod in the kitchen will automatically show up. And not only can you start to play music using AirPlay from your iPhone, you can now also ask Siri on your HomePod to start an AirPlay session, letting you play even more of your favorite content using just your voice. Just say, Siri, play Arlo Parks on SoundCloud. With so much media at your fingertips on your iPhone and iPad, you can enjoy your content from anywhere, even when traveling. That's why we're excited about launching AirPlay in hotels. With AirPlay support in hotels, it's easy to take advantage of the big screen in your room to watch an episode of your favorite show or practice tomorrow's presentation. Peering is simple. Just scan the QR code and tap the confirmation. That's it. You're automatically connected to Wi-Fi and ready to resume watching from right where you left off. AirPlay will be available in select hotels before the end of the year, with more to follow. And to make your next trip even more enjoyable, we have some exciting updates coming to Apple Music and CarPlay. Today, adding a song to a road trip might mean sharing a phone, passing a cable, or sending a link. We want to make it easier for others in the car to control the music and add to what's playing, even passengers in the backseat. That's why we're thrilled to bring SharePlay to the car. Now, when the driver's iPhone is connected to CarPlay, any passenger's iPhone will automatically suggest joining their session. Just tap to connect. From there, it's easy to play your favorite music, control playback, and enjoy the ride together. Next, let's turn to tvOS and Apple TV, which work incredibly well with all your Apple devices to deliver the best of television along with all of your entertainment. In tvOS 17, we've completely redesigned Control Center, making it more intuitive to do things like access, AirPods settings, home cameras, system controls, and user profiles, all with the touch of the Siri remote. And for the times when you can't find your Siri remote, you can now use your iPhone to locate it and get back to watching TV. Sometimes, what you really want to watch isn't a show at all. It could be your favorite family photos that fill the room with joy. Now, to enjoy these special moments even more, you can select Memories as your screensaver and see your photos perfectly framed with fluid animations and transitions. Our home is also where we connect with loved ones, and for times when we're not in the same place, we're excited to introduce a new feature that will transform your living room. FaceTime is coming to Apple TV. Now, everyone can gather on the couch and catch up with friends and family on the big screen. The new FaceTime app on Apple TV takes advantage of continuity camera to unlock incredible shared experiences at home. So when you launch FaceTime on Apple TV, it wirelessly connects to your iPhone or iPad and lets you use their camera and microphone to join a call. Let's check it out. You can place a call on your iPhone or from Apple TV, or you can pick up a call from a friend on your iPhone and easily move it to Apple TV. Apple TV takes full advantage of the cameras on your iPhone and iPad for effects like center stage. As you move around or when someone enters the room, you'll always stay perfectly framed. At any time, you can interact using gestures that'll show up on everyone's screen. And because it's Apple TV, you have access to all of your favorite shows and movies. With SharePlay, you can easily watch together and everyone stays in sync. So that's FaceTime on Apple TV. And for developers, we're adding continuity camera APIs to make

the biggest screen in your home more connected and entertaining. So apps like Zoom and WebEx will be coming to tvOS for the very first time by the end of this year. These are some of the features coming to audio in home. AirPods take personal audio to the next level with adaptive audio. AirPlay is coming to hotels so you can enjoy your content on the big screen when traveling. Apple Music lets everyone control music in the car with SharePlay. And FaceTime comes to Apple TV, bringing everyone closer together through incredible new experiences. Next, here's Kevin to tell you about the updates coming to WatchOS. WatchOS is the world's most advanced wearable operating system. And it's redefined how people all over the world think of what a watch can do. We've continued this transformation through new features designed to help keep you connected, active, healthy, and safe. As Apple Watch has evolved over the years, it's become even more intuitive and more powerful, providing easier access to vital information. And today, we're excited to take this further with WatchOS 10. We're celebrating this huge milestone with a new way to view information quickly from any watch face and comprehensive app designs across WatchOS. To get down to business Rhythm is our business Rippin' up the business Rhythm is our business Rhythm is our business This is such an energizing new approach for Apple Watch. Let's take a closer look. We're introducing a way for you to enjoy a beautiful watch face like portraits, while still giving you quick access to information you care about. Now from any watch face, you can simply turn the digital crown to reveal widgets in a smart stack. I can start off my day with a glance at the forecasts and headlines, and the smart stack uses machine learning to show you relevant information right when you need it. So later in the day, you'll see some upcoming meetings, tasks you need to complete, or medications to log. It's so convenient to check what you have to take care of next. And you can long press to add a widget to the smart stack, like sleep data. And there's even a widget that can hold your favorite complications like timers. Let's start a timer. Now when I'm back at my watch face, I can simply scroll up and the timer shows up right here, so you can easily see how much time is left or pause it with a tap. This also works great for other active sessions like stopwatch, workouts, or listening to podcasts. This is a fast new way to view information from any watch face. We've also redesigned apps across watchOS 10. Let's take a look at a couple of examples, starting with World Clock, which now features dynamic background colors that reflect the time of day. And I can easily see when it might be a good time to call a friend in a different time zone. Let's also check out the Activity app. The app redesign includes corner icons that I can tap to get to my weekly summary, sharing, or awards. And we've even redesigned the trophy case so you can see awards in progress and challenges you've completed. And when you rotate the digital crown, it shows new full screen views for move, exercise, and stand. Developers can also use this new design language to update apps. Streaks now utilizes the entire display so you can easily see your progress and access your tasks. NBA makes keeping up with your favorite team even more compelling with team colors and new game details. And with Water Llama's redesign, you can see your hydration details from the last seven days with just a turn of the digital crown. We're also introducing two new watch faces. Palette is a beautiful new face where time is depicted in a wide variety of gorgeous colors using three distinct overlapping layers. As the time changes, the colors on the display shift as well. And to celebrate Watch OS X, we're bringing Snoopy and Woodstock to Apple Watch. These beloved comic strip characters come to life in many different animations. They can be playful with the watch hands, react to the weather conditions in your area, or even get active with you. It's terrific to have Snoopy on Apple Watch. We're so excited for you to experience your Apple Watch in a whole new way with redesigned apps that provide more information at a glance and new ways to navigate and quickly access your content, all powered by the intelligence of Watch OS X. And if that wasn't enough, we have more features to keep you active, starting with cycling. It's a competitive sport for some and a great way to exercise for others. Here's Eric to tell you about some new features that will make Apple Watch an even more essential companion for cyclists. Apple Watch has a lot of great cycling features already, like notifying you to start a workout if you forgot and the safety potential of fall detection. For many riders, accessories like speed and cadence sensors as well as power meters provide important training data. In Watch OS X, Apple Watch can now connect to Bluetooth enabled bike sensors so you can add cadence and power to your standard metrics and even try out a new cycling power workout view. Using power, heart rate, and motion data, Apple Watch will estimate your functional threshold power known as FTP, which is the highest level of cycling intensity that you could theoretically maintain for an hour. And by taking a percentage of your FTP, we can provide power zones where you can easily see which zone you're in and track how long you spend in each. It's an effective and reliable way of improving your performance on a bike. We knew that we could do even more for our entire cycling community, so we built a new feature that requires no additional equipment except your paired iPhone. In Watch OS X, cycling workouts from your Apple Watch

now automatically show up as a live activity on your iPhone. Tapping the live activity will take over the entire display. This is perfect for views like heart rate zones, elevation, power zones, as well as a new view for current and max speed, distance, and more. You're going to love these new workout metrics, views, and experiences on your next ride. Next, let's talk about hiking and how we're updating Compass and Maps for your outdoor adventures. In Watch OS X, Compass will automatically generate two new waypoints for you. A new cellular connection waypoint will indicate the last place you had reception with your carrier if you ever need to check your messages or make a call to your family. And in the case of an emergency, another new waypoint will indicate where on your route you can make an emergency call using any available carrier's network. We're also introducing a new elevation view. Using altimeter data, you can see a three-dimensional view of your saved waypoints. In addition to these new Compass features, we're also updating maps. Starting in the US, we're introducing a new topographic map with contour lines, hill shading, and elevation details, along with points of interest and trailheads. You can use Search to discover nearby trails and trailhead categories. And before you head out, you can review additional information such as trail name, difficulty level, length, elevation gain, and more. Watch OS X also introduces new APIs for developers to create compelling workout experiences. The powerful motion sensors on Apple Watch Series 8 and Ultra can detect rapid changes in direction and acceleration, like when swinging a golf club or a tennis racket. Developers will have access to this high-frequency motion data. For example, GolfShot can detect small wrist movements to refine your golf swing. Or to help your tennis serve, SwingVision can analyze your pronation, which is the twisting motion of your forearm, wrist, and hand. And apps like TrainingPeaks will be able to use a new API to create a workout program that you can access directly from the workout app on Apple Watch. These new developer features join the other great experiences in Watch OS X to keep you active. Our users also love using Apple Watch to help them stay healthy. To tell you about what's coming for your health, here's some more. Apple Watch and iPhone offer many important health features like medications, sleep, and mobility. With Watch OS X and iOS 17, we're moving into two new areas that, as always, are grounded in science with privacy at the core. First, let's talk about mental health. We believe mental health is as important as your physical health and even contributes to it. This is something that impacts each and every one of us. So this year, we want to shine a light on mental health and empower you to care for your mind just as you do for your body. Reflecting on your state of mind can help you build emotional awareness and resilience. Experts say identifying our feelings has been shown to help us manage difficult emotions, appreciate positive moments, and improve well-being. So you'll now be able to log your momentary emotion and your daily mood in a discreet and convenient way from the mindfulness app in Watch OS X. You can use the digital crown to scroll through the engaging multi-dimensional shapes and choose how you're feeling. For added benefit to your well-being, you can also identify what's making you feel that way. Maybe it's your family or travel. And you can describe your feelings further, like grateful or excited. Even if you don't have an Apple Watch, you can use the health app on iPhone and iPad to log your state of mind. You can see insights like what's been contributing most to your state of mind and how your lifestyle might be playing a role, such as exercise, mindful minutes, and sleep. There may be times when it would be helpful to more deeply understand your state of mind and if you'd benefit from some additional support. So you'll now be able to take standardized assessments often used in clinics to answer questions about how you're feeling right in the health app. And then see your current risk for depression or anxiety to very common and treatable conditions. This will help you understand if you should talk to someone. You'll have a report of your results to share with the care provider and you can access helpful articles and resources. We know it's important to prioritize mental health to build emotional awareness and resilience by reflecting on your state of mind and have screening tools and resources to support you on your overall health journey. The other important area of focus for us this year is vision health and specifically the reduction of myopia, which is nearsightedness that's caused by physical changes in the eye. It's the leading cause of vision impairment globally. It's currently estimated to affect over 30% of the population and that's expected to grow to 50% by 2050, impacting 5 billion people. Myopia typically starts in childhood and there are a few behaviors that can lower a child's risk of developing it. One is to spend more time outdoors in daylight. Experts recommend at least 80 to 120 minutes a day, but it's hard to know if your child has done that. Now Apple Watch can measure the amount of time spent in daylight using the ambient light sensor and it can be viewed in the health app. With family setup, time in daylight can be measured from a child's Apple Watch even if they don't have their own iPhone and with health sharing, parents will be able to keep track of it. Another behavior that can lower myopia risk in kids is to increase the distance at which they view something like a device or a book. To help with this, we're introducing a new feature called screen dista

nce. It uses the same true depth camera that powers face ID on iPad and iPhone to measure if a child is holding their device too close for an extended period of time and then encourages them to move their device farther away. Screen distance can also help adults reduce digital eye strain. We are thrilled to provide new ways to track and manage vision health. Back to you, Kevin. Adding support for these two areas can give you even more insight into your health and as always, privacy is core to our work. Your information in the health app, including mental health and vision health data, is encrypted on device and only accessible with your passcode, touch ID, or face ID and it's never shared without your explicit permission. WatchOS 10 is a major milestone, giving Apple Watch an enormous update with a fresh new design to quickly view information, delightful new watch faces, new features for cyclists and hikers, and important tools for health. Back to you, Craig. So those are our updates to iOS, iPadOS, MacOS, WatchOS, and the software that powers audio and home. With each, we continue our commitment to delivering unique capabilities tailor-made for each device while simultaneously designing for a consistent experience with features and capabilities that work across them. This is a big year for developers with new APIs across all platforms that will enable you to build even more innovations into your apps. And we have an exciting week ahead, starting with the platform State of the Union, along with 175 sessions, opportunities to engage with Apple engineers through one-on-one labs, as well as other activities to interact with our global developer community. Our OS releases will be available as developer betas today and each of them will have a public beta next month. All of these OS releases will be available to our users this fall. Now, back to Tim. Thanks, Craig. Today we introduced some amazing new Macs and showed you where we're taking the incredible software platforms that drive our products. It's already been a big day. But we do have one more thing. This is a day that's been years in the making, one that I've really been looking forward to. I believe that augmented reality is a profound technology. Blending digital content with the real world can unlock experiences like nothing we've ever seen. So today, I'm excited to announce an entirely new AR platform with a revolutionary new product. And here it is. Introducing Apple Vision Pro. Vision Pro is a new kind of computer that augments reality by seamlessly blending the real world with the digital world. It's the first Apple product you look through and not at. Vision Pro feels familiar, yet it's entirely new. You can see, hear, and interact with digital content just like it's in your physical space. And you control Vision Pro using the most natural and intuitive tools, your eyes, hands, and voice. With Vision Pro, you're no longer limited by a display. Your surroundings become an infinite canvas. Use your apps anywhere and make them any size you want. Capture photos and videos and relive your most important memories in an entirely new way. Watch your movies, shows, and sports and immerse yourself in games on a giant screen surrounded by spatial audio. And connect with people as if you're sharing the same space. These are just some of the ways that Vision Pro blends digital content into the space around us. And you can use it to bring digital content into the space around us. So in the same way that Mac introduced us to personal computing and iPhone introduced us to mobile computing, Apple Vision Pro will introduce us to spatial computing. This marks the beginning of a journey that will bring a new dimension to powerful personal technology. To tell you about the experience of using Vision Pro, here's Alan. Let's go! Apple Vision Pro allows us the freedom to imagine an experience unlike anything we've created before. For the first time, we've designed a fully three-dimensional interface, one magically controlled with just your eyes, hands, and voice. When you first put on Vision Pro, you see your space and everything in it. The home view lives right in front of you. It's where you find all of your apps. It's familiar yet revolutionary. The entire interface looks and feels truly present in your room. Every element has been crafted to have a sense of physicality. They have dimension, respond dynamically to light, and even cast shadows to help you understand scale and distance. Experiences in Vision Pro aren't constrained to the boundaries of a display. They can freely fill the space around you. It's easy to make apps any scale, even larger than life, and you can place apps exactly where you want them, anywhere in your space. It feels natural, like moving real objects. And launching new apps doesn't take space from existing ones. They simply occupy a new space centered around you. There's something truly extraordinary about seeing your favorite apps and experiences right there in the room with you. And apps can expand fully into your space, like during a mindfulness session, where you can create a private moment of calm. And with Vision Pro, apps and experiences can do something else remarkable. They can grow beyond the dimensions of your physical room with environments. Environments extend and transform your space, enabling other wise impossible experiences. And they've been captured fully volumetrically, so you can control how immersed you are by simply turning the digital crown. Whether extending a small portion of your room, or being fully immersed within an environment, you can use these beautiful landscapes to focus, reduce clutter in busy spaces, or as an inspiring new view. Every major Apple platform was driven by an innovative new in

put model. Mac with a mouse, iPod with a click wheel, and iPhone with multi-touch. With Vision Pro, we set the ambitious goal to design an incredibly intuitive input model for spatial computing, one that could be used without controllers or additional hardware. Apple Vision Pro relies solely on your eyes, hands, and voice. It's just you and your content. It's remarkable and it feels like magic. You browse the system simply by looking. It's effortless. App icons suddenly come to life when you look at them. In fact, every graphical element has a sense of vitality and responds to your eyes. Simply tap your fingers together to select and gently flick to scroll. The combination of hands and eyes together truly feels like magic, as if your mind is guiding the experience. And we designed every gesture to be as subtle and natural as possible, so you can keep your hands where they're most comfortable, like resting in your lap or on the sofa. And the entire experience is made better with voice. With Vision Pro, you can look at a search field and just start dictating. Voice input has never been this seamless. And with Siri, you can quickly open or close apps, play media, and more. Another foundational design goal for Vision Pro was that you're never isolated from the people around you. You can see them and they can see you. Your eyes are a critical indicator of connection and emotion. So Vision Pro displays your eyes when someone is nearby. It's incredible. This breakthrough in innovation is called EyeSight. Not only does EyeSight reveal your eyes, it provides important cues to others about what you're focused on. This is how it looks when using apps. And this changes when you're fully immersed in an experience, sending a clear signal to those around you that you can't see them at the moment. But even if you are fully immersed, Apple Vision Pro helps you stay connected to those around you. When someone is nearby, they will appear in your view. And Vision Pro will simultaneously reveal your eyes to them. The spatial experiences of Vision Pro seamlessly blend the digital and physical worlds, transforming what's possible. Whether at home or at work, it unlocks magical new experiences. To show you what it's like to use Apple Vision Pro, here's Alessandra. Let's see Apple Vision Pro in action for work. Vision Pro has the apps you love and count on every day. But now these apps are freed from the confines of a display and live in your space, transforming how you use notes, messages, keynote, Safari, FaceTime, and more. And of course, Vision Pro is always in sync with your iPhone, iPad, and Mac. All your notes, messages, photos, and documents stay up to date automatically with iCloud. This is what you see with Vision Pro. Your entire world is a canvas for apps, so you can arrange them anywhere at the perfect size for whatever you're doing. Let's look first at Safari. Browsing the web is fantastic. Web pages are large, making it amazing to watch videos or read articles. As you scroll down the page, small text is crisp and easy to read at any angle. And Safari expands so you can see all your open tabs. You can arrange multiple apps around you in space however you want, layer them on top of each other, or place them above, below, or to the sides of other apps. Like here, where you simply turn your head to change focus from Safari to work on your Freeform board. And the content within your apps isn't limited to two dimensions. You can receive a 3D object in Messages, pull it out, and look at it from every angle, just as if it was there in front of you. It's magical. Because you can see the world clearly while wearing Vision Pro, you remain present in your space and connected to others. And it's easy to interact with the world around you. So with Apple Vision Pro, you can create your perfect setup for whatever you're doing and multitask with ease. You can review your to-do list in Notes, research your next trip in Safari, and discuss plans with friends in Messages, all while listening to your favorite playlist in Apple Music. Use the virtual keyboard or dictation to type. With Vision Pro, you have the room to do it all. Vision Pro also works seamlessly with familiar Bluetooth accessories like Magic Trackpad and Magic Keyboard, which are great when you're writing along email or working on a spreadsheet in Numbers. And you can even bring your Mac wirelessly into Apple Vision Pro just by looking at it. Place your Mac screen wherever you want and expand it, giving you an enormous private and portable 4K display. Vision Pro is engineered to let you use your Mac seamlessly within your ideal workspace. So you can dial in the white sands environment and use other apps in Vision Pro side by side with your Mac. This powerful combination of capabilities makes Apple Vision Pro perfect for the office or for when you're working remote. Because Vision Pro is great when you're traveling, it makes it easy to stay connected and collaborate with colleagues. For example, you can collaborate remotely with your team on the same document. And of course, Apple Vision Pro has an amazing FaceTime experience. FaceTime now becomes spatial, taking advantage of the room around you. You can join a group call and see everyone life size. As new people join, FaceTime simply expands. With spatial audio built right into Vision Pro, you hear each person's voice coming from the location of their tile, making group conversations easier and more natural. And within FaceTime, you can share apps with others and use them together with SharePlay. And you continue to see everyone in large video tiles while sharing an app. This is powerful for so many activities, like reviewing a presentation, sharing photos and videos, or watching a movie together. FaceTime on

Vision Pro works seamlessly with other Apple devices, like iPhone, iPad, and Mac, so everyone can join in. For work, Apple Vision Pro gives you powerful ways to connect with others and the freedom to create the ultimate workspace for whatever you want to do, wherever you are. To tell you about how Vision Pro transforms experiences at home, here's N. Apple Vision Pro brings the power of spatial computing to so many of the things you do at home. It redefines how you can relive precious moments in time, because you can capture and experience photos and videos in magical new ways. Select a photo and watch as the room dims around you. Your library of photos and videos looks incredible on Vision Pro, with brilliant color and spectacular detail. Make it as big as your room or zoom in, letting you feel even closer to that moment. And panoramas are stunning. In Vision Pro, every panorama you've ever taken on your iPhone now expands and wraps around you life-size. You feel like you're standing right where you took them. Because of the powerful capabilities of Vision Pro, we were able to go even further, adding a new dimension to photos and videos. Vision Pro is Apple's first 3D camera. It lets you capture and relive your memories in 3D with spatial audio. It's magical and impossible to fully appreciate on a two-dimensional screen. It lets you feel like you're right back in a moment in time. Imagine being able to relive a special moment from your daughter's birthday. The incredible depth of this spatial video makes it feel like you can peer into that memory. It's easy to capture a spatial photo or video with just the press of a button. And eyesight makes it clear to those around you when you are capturing one. You can capture a spatial video of a fun moment with your kids, to share it with your family, or to experience all over again for years to come. Spatial photos and videos bring you closer than ever to the moments and people you care about. Apple Vision Pro also delivers an extraordinary entertainment experience. We love watching a great movie in a dark theater with incredible sound. Vision Pro lets you have this and so much more with a spatial cinema that transforms any space like this apartment. You have a gorgeous screen you can adjust to the perfect size. Vision Pro automatically dims the surrounding light, casts a beautiful glow into your space, and surrounds you with spatial audio. And for a super cinematic experience, open an environment like Mount Hood to scale your screen beyond the dimensions of your room so it feels 100 feet wide. Giving you the most majestic viewing experience ever. And with the cinema environment, turn any room into your own personal movie theater. This environment lets you focus fully on the movie and is built to give you a fantastic viewing experience that you can take anywhere, like on an airplane. Use your AirPods, sit back, and dial in an environment and you can enjoy a movie while the seats and sounds around you disappear. It's amazing. And of course, your favorite movies and TV shows from Apple TV Plus and other content services will be available on Vision Pro. This amazing cinematic experience goes beyond two dimensions. You can watch 3D movies as well. In Vision Pro, 3D movies have incredible depth and crisp motion. Although impossible to see on a 2D screen, it feels as if you are looking right into the movie itself. There is no other device in the world that can deliver this quality of 3D movie experience. And beyond video, you can experience interactive storytelling in amazing new ways. Like with Encounter Dinosaurs, where you can look back into a prehistoric time, seeing dinosaurs interact right in front of you in 3D with spatial audio. In addition to watching movies, you can play your favorite Apple arcade games, like NBA 2K23 on a screen as large as you want with incredible audio and game controller support. There will be over 100 arcade titles available for you to play on day one. This is just the start of how gaming will evolve on Vision Pro. Whether watching a season finale, 3D movie, or immersive video, Vision Pro is the best way to enjoy your favorite entertainment. And with spatial photos and videos, you can capture and relive cherished moments in magical new ways. Now back to Tim. Apple Vision Pro will change the way we communicate, collaborate, work, and enjoy entertainment. And the Walt Disney Company is the world's leader in entertainment. So I'm thrilled to introduce Bob Iger, CEO of Disney. Thanks, Tim. It's a privilege to be here with you for this momentous event. As the Walt Disney Company celebrates our 100th anniversary, we're proudly reflecting on our rich legacy of innovation and storytelling while also looking to our future with enthusiasm and optimism. We're constantly in search of new ways to entertain, inform, and inspire our fans by combining extraordinary creativity with groundbreaking technology to create truly remarkable experiences. And we believe Apple Vision Pro is a revolutionary platform that can make our vision a reality. The first time I tried Apple Vision Pro, the thing that struck me the most was how it will allow us to create deeply personal experiences that bring our fans closer to the characters they love and more deeply immersed in our stories. This platform will allow us to bring Disney to our fans in ways that were previously impossible. We're tremendously excited to give you a sneak peek of just some of the things that we've been dreaming up. So take a look. What if all the things that we thought were impossible were suddenly possible? You could experience your favorite stories in unexpected ways or in unbelievable places. You could do more than just watch sports. You could be at the game without leaving you

r home or be part of the action like never before. What if you could travel on a National Geographic adventure from your couch or if your imaginary friends weren't quite so imaginary? What if you could bring Disney World into your world? And what if you could become a superhero and seek the answer to the ultimate question? What if space, time, reality, it's more than a limiter pad. It's a prism of endless possibilities imperceptible to most but not to you. We're so proud to yet again be partnering the greatest storytelling company in the world with the most innovative technology company in the world to bring you real life magic. And I'm excited to announce that Disney Plus will be available on day one. These are just a few of the ways we can bring Disney into your world with Apple Vision Pro. And we're looking forward to sharing more in the coming months. Thanks, Tim. Thank you, Bob. We're excited to work together to see all of the amazing things Disney will do with the capabilities of Apple Vision Pro. These groundbreaking innovations require remarkable breakthroughs in design and technology. To tell you about the incredible new design of Vision Pro, here's Richard. It's not often we get the chance to define an entirely new category, to establish the principles that will influence the design for years to come. Apple Vision Pro is the result of decades of our collective experience designing high performance products like Mac, mobile products like iPhone, and wearable products like Apple Watch. All that learning has culminated in the most ambitious product we've ever created. To achieve our goals of performance, mobility, and wearability, we utilize the most advanced, lightest weight materials possible. The entire front of the product is a singular piece of three-dimensionally formed and laminated glass. It's polished to an optical surface, allowing it to act as a lens for eyesight and a wide array of cameras and sensors that need to have a view of the world. The glass flows seamlessly into a lightweight frame. The glass is made of a lightweight frame that houses a button to capture spatial photos and video, and a digital crown that summons the home view and rotates to control immersion levels of environments. It's machined from a custom aluminum alloy that gently curves to wrap around your face. This frame completes the form and is the primary structural element of Vision Pro, holding and protecting the components inside. This surprisingly compact form encapsulates an extraordinary amount of technology. Displays, cameras, sensors, and even a high-performance computer all kept cool by an efficient thermal design that quietly draws air through the system. In contrast to the high precision front of the product, we created a rich combination of soft textile parts that provide comfort and wearability. We studied thousands of heads to get a detailed understanding of the huge variation in cheek width, face angle, and head shape. This led us to design a modular system that allows us to tailor the product to fit you perfectly. The light seal comes in a range of different shapes and sizes and flexes to conform to your face, delivering a really precise fit. Extending from the frame are flexible straps that conform to the head, ensuring the audio pods remain close to your ears. They deliver rich spatial audio while keeping you aware of your surroundings. The headband is 3D knitted as a single piece to create a unique rib structure that provides cushioning, breathability, and stretch. The band attaches with a simple and secure mechanism, allowing you to change it for a different size or even a different kind of band. An easy to reach adjustment dial helps you secure the device comfortably and enables micro adjustments during use. For those who wear glasses, we teamed up with Zeiss to create custom optical inserts that magnetically attach to the lenses. They accommodate a huge range of vision correction without compromising display performance or eye tracking accuracy. Vision Pro supports all-day use when plugged in and up to two hours of use with the external high performance battery. A separate battery means that you don't wear that weight on your head. The soft aluminum form slips easily into your pocket and connects via a supple woven cable. So that's the design of Vision Pro, our first ever wearable spatial computer. An incredibly capable and powerful tool that blends digital content with your world. To tell you about the technology we developed to enable these extraordinary experiences, here's Mike. Creating our first spatial computer required invention across nearly every facet of the system. Apple Vision Pro needed to deliver huge amounts of compute performance in a compact wearable form factor. It needed an advanced real-time sensor system as well as incredibly convincing spatial audio. And of course, technological breakthroughs in displays. Your eyes see the world with incredible resolution and color fidelity. To give your eyes what they need, we had to invent a display system with a huge number of pixels but in a small form factor. A display where the pixels would disappear creating a smooth continuous image. It starts with a micro OLED Apple Silicon backplane that fits 64 pixels in the space of a single iPhone pixel. They're just seven and a half microns wide. Combined, Vision Pro has 23 million pixels across two panels that are each just the size of a postage stamp. That's more pixels than a 4k TV for each eye. To magnify these panels and wrap them around you, a sophisticated lens solution was needed. We designed a custom three element lens with incredible sharpness and clarity. The result is a display that's everywhere you look, delivering jaw-dropping experiences that are simply not possible with any other de

vice. It enables video to be rendered at true 4k resolution with wide color and high dynamic range, all at massive scale. And fine text looks super sharp from any angle. This is critical for browsing the web, reading messages, and writing emails. Now let's talk about audio. What you hear is critical to how you perceive the world. We wanted sound to feel like it was coming from the space around you, blending with the real world. So Vision Pro features an entirely new spatial audio system. Personalized sound is delivered through the integrated dual driver audio pods, allowing us to create ambient spatial audio where your brain is totally convinced that sounds are coming from the environment around you. Beyond personalizing sound to you, Vision Pro matches the sound to your room by analyzing the features and materials of your space using a technique called audio ray tracing. Precisely matching sound to your room is just one example of how Vision Pro makes use of its advanced sensor array. The system also provides high resolution video to the displays, enables precise head and hand tracking, performs real-time 3D mapping, and more. A high performance eye tracking system uses high-speed cameras and a ring of LEDs that project invisible light patterns onto the eyes for responsive intuitive input. It's so precise it completely frees up your hands from needing clumsy hardware controllers. Processing all the information from these sensors while simultaneously delivering an ultra-high resolution experience requires a system with massive sustained computational power. It also has to remain cool and quiet. At the foundation of this system is Apple Silicon in a unique dual chip design. It starts with the Apple M2 chip. It delivers phenomenal compute performance while allowing Vision Pro to maintain a comfortable temperature and run virtually silent. Running in parallel is a brand new chip called R1. This specialized chip was designed specifically for the challenging task of real-time sensor processing. It processes input from 12 cameras, five sensors, and six microphones. In other head-worn systems, latency between sensors and displays can contribute to motion discomfort. R1 virtually eliminates lag, streaming new images to the displays within 12 milliseconds. That's eight times faster than the blink of an eye. So while M2 ensures that Apple Vision Pro delivers incredible standalone performance, R1 ensures that experiences feel like they're taking place right in front of your eyes. We also thought hard about how others can interact with you while wearing Vision Pro. iSight utilizes a unique curved OLED panel with a lenticular lens to project the correct perspective of your eyes to each person looking at you. The result is a 3D display that makes the device look transparent. For digital communication like FaceTime, Vision Pro goes beyond conveying just your eyes and creates an authentic representation of you. This is one of the most difficult challenges we faced in building Apple Vision Pro. There's no video conferencing camera looking at you, and even if there were, you're wearing something over your eyes. Using our most advanced machine learning techniques, we created a novel solution. After a quick enrollment process using the front sensors on Vision Pro, the system uses an advanced encoder decoder neural network to create your digital persona. This network was trained on a diverse group of thousands of individuals. It delivers a natural representation which dynamically matches your facial and hand movement. With your persona, you can communicate with over a billion FaceTime capable devices. When viewed by someone in another Vision Pro, your persona has volume and depth not possible in traditional video. None of this advanced technology could come to life without a powerful operating system called Vision OS. It's built on the foundation of the decades of engineering innovation in Mac OS, iOS, and iPad OS. To that foundation, we added a host of new capabilities to support the low latency requirements of spatial computing, such as a new real-time execution engine that guarantees performance critical workloads, a dynamically foveated rendering pipeline that delivers maximum image quality to exactly where your eyes are looking for every single frame, a first of its kind multi-app 3D engine that allows different apps to run simultaneously in the same simulation, and importantly, the existing application frameworks were extended to natively support spatial experiences. Vision OS is the first operating system designed from the ground up for spatial computing. All of the incredible innovations in Vision Pro make it truly a one-of-a-kind device. There's simply nothing else like it. Apple Vision Pro is more than just a new product. It's the start of an entirely new platform. To tell you more about what this means for developers, here's Susan. We've been preparing for this day for years, and we're really excited about the possibilities Vision Pro opens up for developers. Vision Pro lets developers reimagine existing apps and create brand new ones. Spatial experiences can take many forms and can include 3D objects that look and feel real. We've given a few developers an early look at Vision Pro to see what they could do, and they created some apps that are truly incredible. Complete HeartX creates an interactive 3D beating heart, giving students a whole new perspective on the body's most important function. Jigspace lets designers collaborate to review a concept like the design of the Alpha Romeo F1 car. And businesses can use stages from PTC to review and improve a new production line before manufacturing begins. Mix your favorite tracks with DJ with a reimagined spatial interface. And with Sky Guide, you are tra

nsported into your own personal planetarium with views you can't see with the naked eye. And Vision Pro is amazing for everyday productivity too. Microsoft apps like Excel, Word, and Teams make full use of the expansive canvas and sharp text rendering of Vision Pro. And popular video conferencing apps can leverage your digital persona to make collaborating easy on this device. And of course, our developer tools have been built with Vision Pro in mind. Developers can use familiar tools and frameworks like Xcode, SwiftUI, RealityKit, and ARKit to make new apps for Vision Pro. And to streamline the preparation of 3D content for spatial apps, we built Reality Composer Pro, which makes it easy to assemble complex scenes with realistic objects. The same frameworks available in iPad OS and iOS are also included in Vision OS. This means hundreds of thousands of iPad and iPhone apps will be available on Vision Pro at launch. So you can use apps like Adobe Lightroom on a massive screen and easily control these apps with just your eyes and hands. We know there is a community of developers who have been building incredible 3D apps for years. And today, we are excited to share that we've been working with Unity to bring those apps to Vision Pro. So popular Unity-based games and apps can gain full access to Vision OS features, such as pass-through, high-resolution rendering, and native gestures. And because these Unity apps are running natively on Apple Vision Pro, they can sit side by side, rendered simultaneously with other Vision OS apps. And Apple Vision Pro will have a brand new app store where users can discover and download all the apps built for Vision OS, as well as compatible iPad and iPhone apps. We'll share more about our tools for developers and everything they need to kickstart development this afternoon in the platform state of the union. We can't wait to see what developers will do with this groundbreaking platform. Now, back to Mike. We've been building towards this moment for years. Our work together with Unity to deeply support their tools, combined with the world-class rendering of Vision OS and powerful displays, makes Apple Vision Pro an incredible platform for game developers. Our amazing developer and app ecosystem is one of the reasons people love their Apple products. Another is the relentless focus we place on privacy and security. And that starts the moment you put on Apple Vision Pro, where it authenticates you with a secure yet effortless system called Optic ID. This new system uses the uniqueness of your iris, which is distinct even with identical twins, to instantly unlock Vision Pro. Optic ID data is encrypted, never leaves your device, and like Face ID, is only accessible to the secure Enclave processor. Optic ID works seamlessly with features like Apple Pay, App Store Purchase, and Password Autofill. We also engineered privacy into Vision Pro in some important ways. For example, where you look is very personal. It can give away something about what you're thinking. In Apple Vision Pro, where you look stays private. Eye input is isolated to a separate background process, so apps and websites can't see where you are looking. Only when you tap your fingers do results get communicated, just like a mouse click or tap on other Apple devices. And camera data is processed at the system level, so individual apps don't need to see your surroundings. You can enjoy the experiences in Vision Pro knowing our world-class security and privacy features are right there with you. So that's Apple Vision Pro. With the most advanced displays we've ever made, a revolutionary spatial audio system, two powerful Apple silicon chips, a groundbreaking spatial operating system, and a gorgeous design made from aerospace-grade alloys, Apple Vision Pro is the most advanced personal electronics device ever. In fact, there is so much invention in Vision Pro that we filed over 5,000 patents during its development. It's hard to believe all the capabilities Vision Pro delivers are possible in a standalone spatial computer portable enough to use anywhere. It lets you replace a desk full of monitors with infinite screen real estate, so you can be more productive than ever. It delivers stunning entertainment and personalized spatial audio. It provides powerful new ways to collaborate and stay connected. And for capturing and reliving memories, Vision Pro is simply in a class of its own. If you purchased a new state-of-the-art TV, surround sound system, powerful computer with multiple high-definition displays, high-end camera, and more, you still would not have come close to what Vision Pro delivers. Apple Vision Pro starts at \$34.99. It will be available early next year on apple.com and at Apple retail stores in the U.S., with more countries coming later next year. WWDC provides the ideal time to share in-depth information about this incredible new platform with developers, and we will work with them over the coming months to create new and innovative apps for the launch of Vision Pro and beyond. And the Apple Store was built for moments like this. You will be able to engage with our team to learn more about this new platform, get a demo, and personalize your fit for Vision Pro. We can't wait for you to experience Apple Vision Pro. Now back to Tim. Thank you, Mike, and thanks to all of our presenters. And a big thanks to everyone at Apple who made today possible. This has been a huge day. We introduced the all-new 15-inch MacBook Air, the world's best 15-inch notebook, as well as the two most powerful Macs we've ever made, Mac Studio and Mac Pro, all of them powered by Apple Silicon. And we showed you where we're taking our amazing software platforms, iOS, iPad OS, M

ac OS, Watch OS, and the software that powers home and audio. And of course, we announced Apple Vision Pro. There are certain products that shift the way we look at technology and the role it plays in our lives. We believe Apple Vision Pro is a revolutionary product with the performance, immersion, and capability that only Apple can deliver. Apple Vision Pro, together with Vision OS, introduces an entirely new spatial computing platform, a platform that presents incredible possibilities for our users and exciting new opportunities for our developers. And this is just the beginning. We've made an ad for Apple Vision Pro, and I'd like to share it with you now. I said I miss you so much. Dream, dream, dream, dream, dream. Hey! Toast! Mm! Whoa! Hey! Let's get this party started! Hey! Hey! Hey! What's going on? What's going on? I'm not a dreamer. I'm a dreamer. Hey! Hey! Hey! Hey! Let's go! Hey! Hey! Let's go! Hey! Hey! Hey! Hey! Hey! Hey! Hey! Hey! I hope you're as excited about Apple Vision Pro as we are. You'll be hearing much more about it, as well as Vision OS and our other platforms throughout the conference. Thank you so much for joining us. Have a great week and a great WWDC. you"