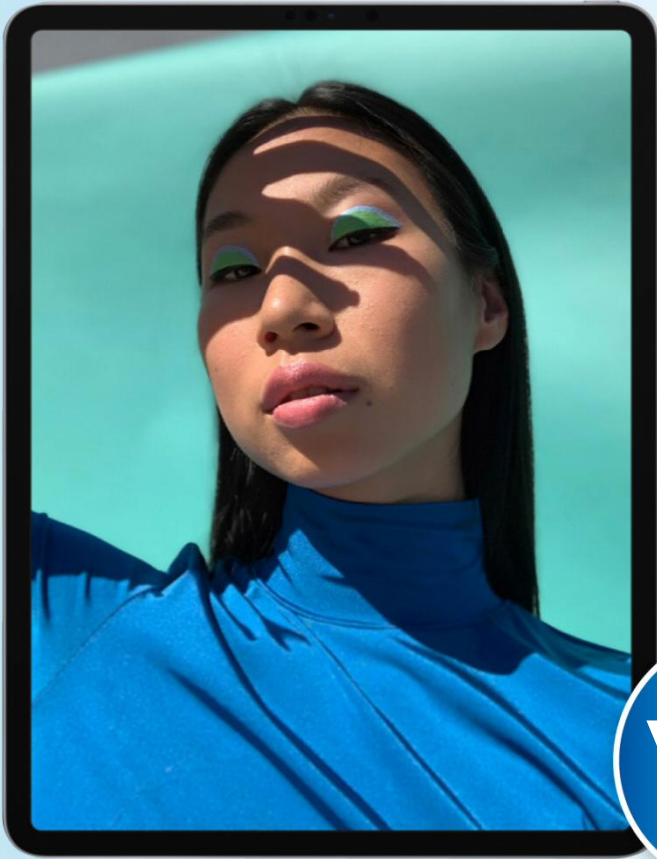


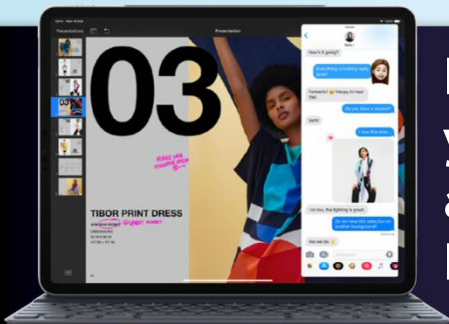
iPad & iPhone **user**



iPad Pro

VS

Samsung Galaxy Tab 6



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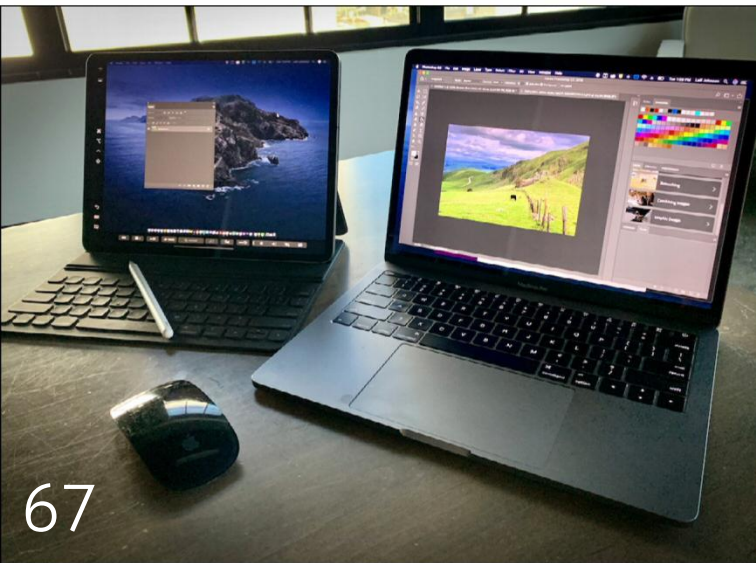
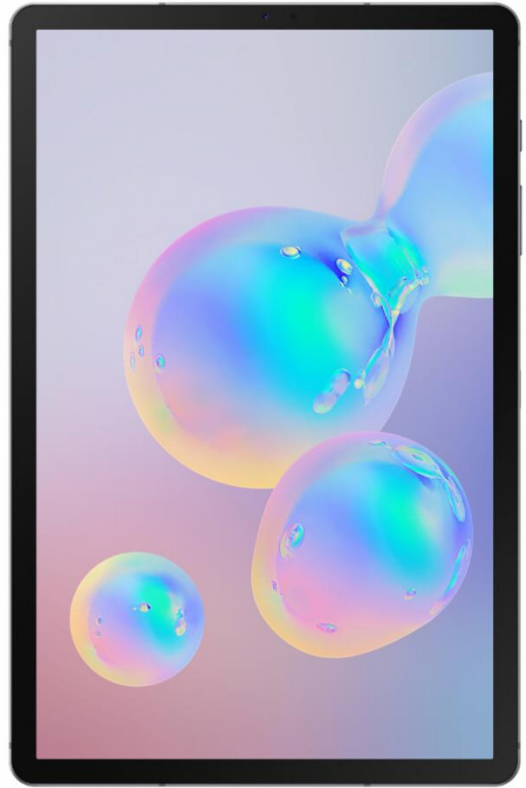
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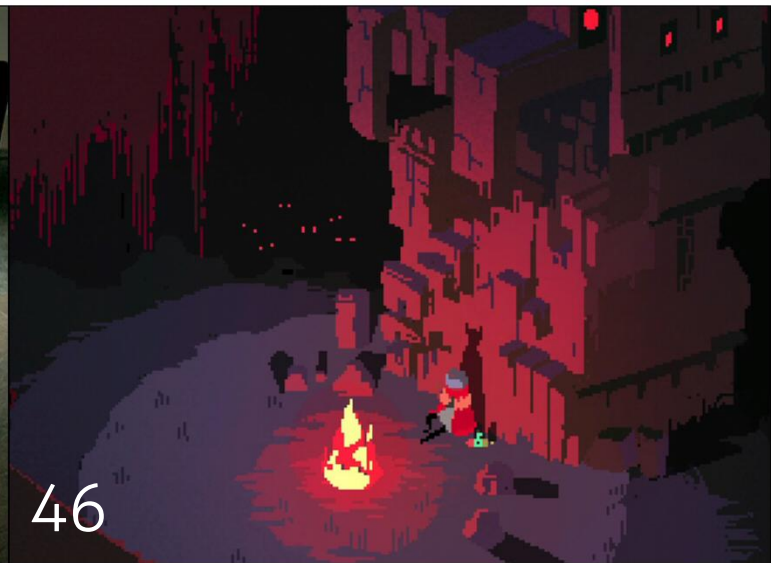
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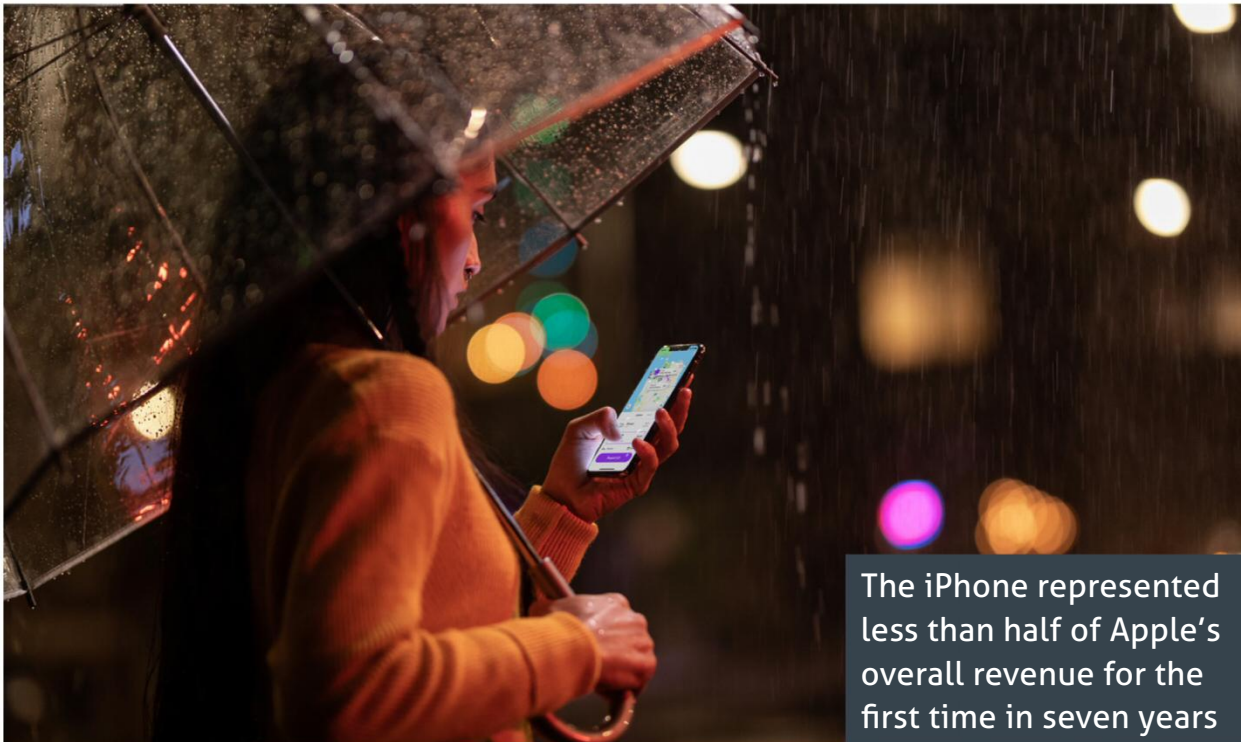
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Apple's Q3 2019 results

During Apple's call, Tim Cook walked a careful line on China, and teased us about future releases. **Jason Snell** reports



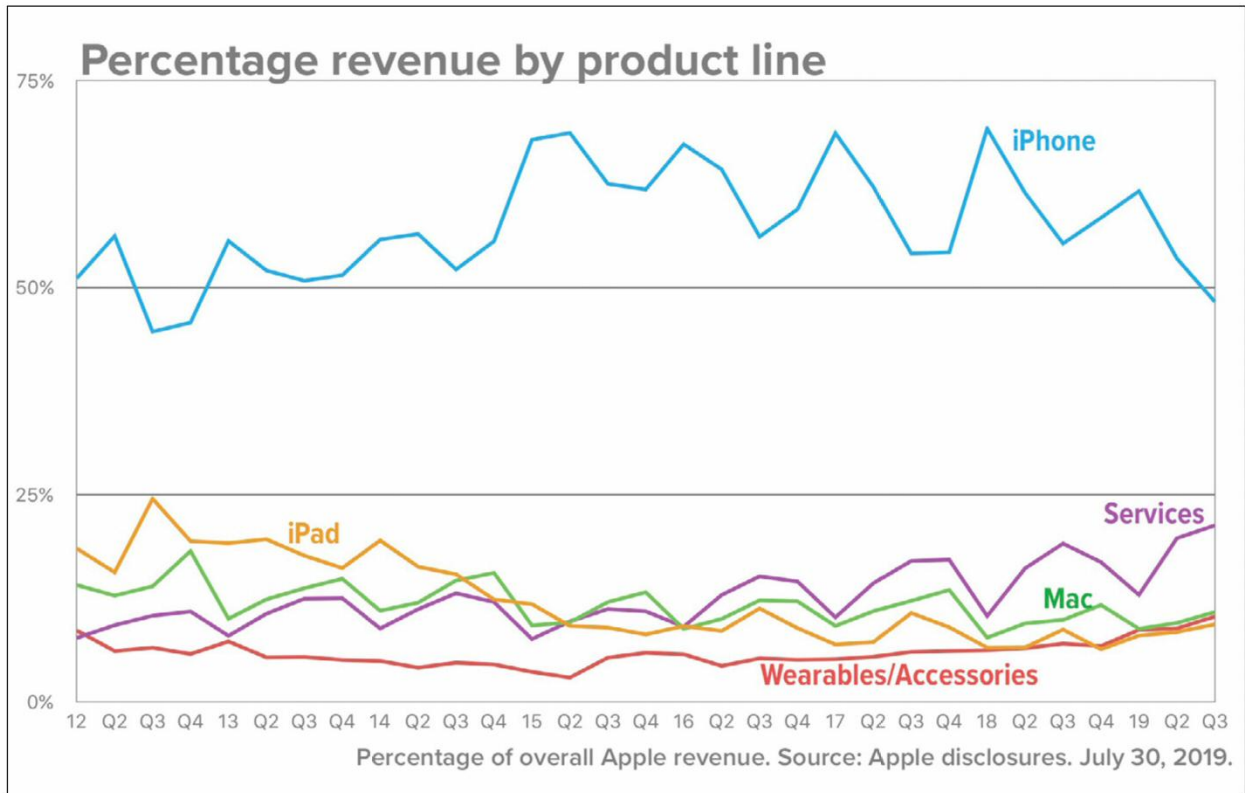
Apple's latest quarterly results are in, and they're just what you'd expect: the portrait of a company that's massively profitable and successful, but whose main product is lagging behind while new product lines are growing just fast enough to make up the difference. I guess we yawn at \$53.8 billion in revenue these days – that's a record for Apple's sleepy third fiscal quarter, but up only 1 percent over 2018's record Q3.



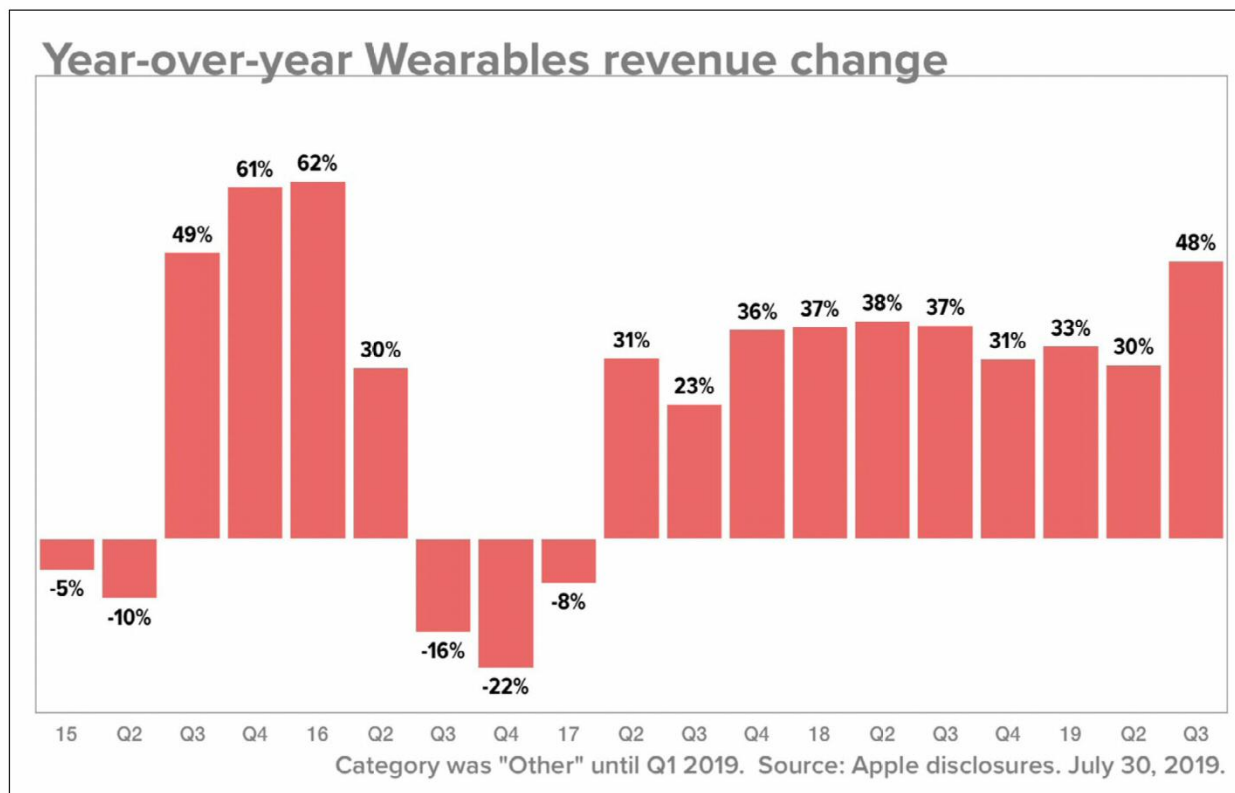
As always, the devil's in the details – and fortunately for us, Apple CEO Tim Cook and CFO Luca Maestri spend an hour on the phone once a quarter to provide a few little details – or as they like to say on these calls, “more colour” – that can help us understand the current state of Apple's business, or at least how Apple executives want to characterize that business.

iPhone dips under 50 percent

If there's a single number to walk away with from this quarter's results, it's that the iPhone represented less than half of Apple's overall revenue for the first time in seven years. The rest of the business is booming – revenue for the quarter was up 17 percent if you don't include the iPhone, which is not something you should really do.



Apple's executives would like you to notice that this quarter iPhone sales were only down 12 percent versus the year-ago quarter, as opposed to last quarter's 17 percent drop. So iPhone sales are down, but less down than they were? It's not the strongest story. The truth is, the iPhone is looking like a cyclical business, where sales shoot through the roof when there's a major change in design, and then sales just glide downward until three years later when there's another major change. Now, keep in mind that Apple still generated \$26bn in iPhone revenue – even with sales sliding, the iPhone is an enormous, profitable business. But it's such a huge part of Apple's business that it dominates how the company is evaluated. And barring a massive change in iPhone design this



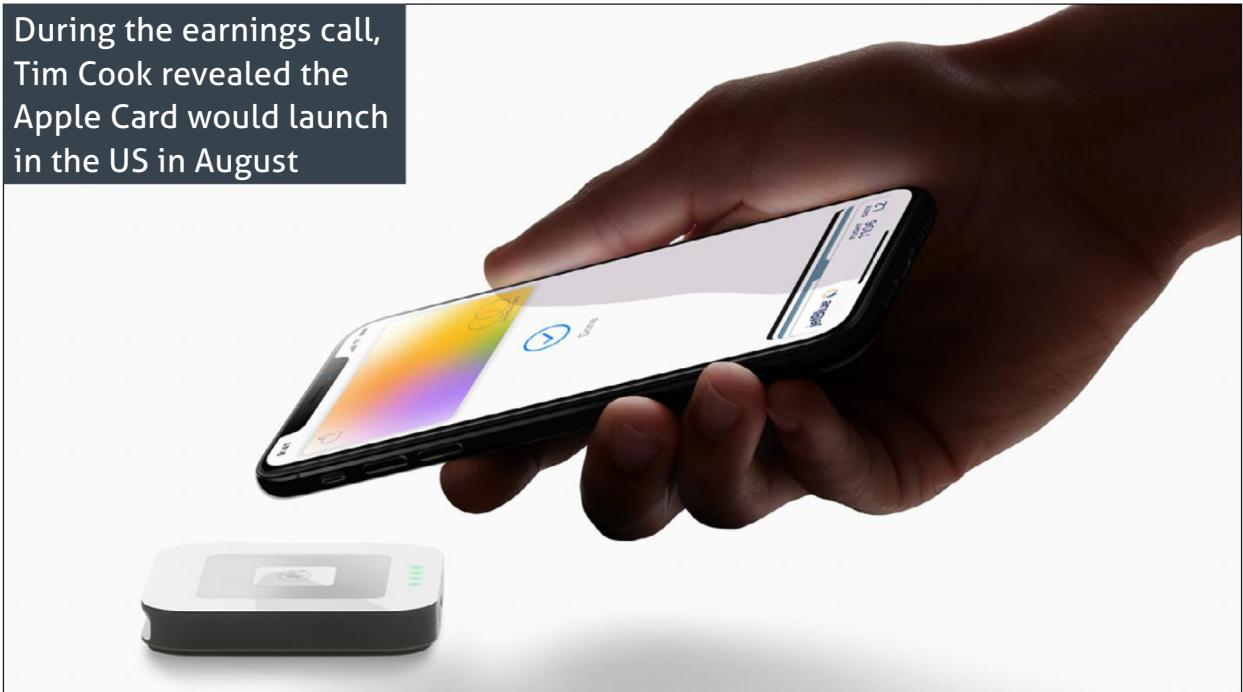
year or next, this is likely to be the way things are for the foreseeable future.

The rise of the rest

For the past few years, Apple has been talking to everyone who would listen about the totally amazing growth rate of its nascent Services category. And so it's worth talking about the fastest growing part of Apple's business... Wearables?

Yes, it's true. While Services is still growing rapidly – it was up 13 percent over last year's quarter – it's not the fastest mover in Apple's portfolio. That's the category formerly known as Other, and recently relabelled as Wearable/Home/Accessories. The home of Apple Watch and AirPods has seen 10 straight

During the earnings call, Tim Cook revealed the Apple Card would launch in the US in August



quarters of double-digit percentage growth. After seven straight quarters with growth percentages in the 30s, the category revenue shot up 48 percent this quarter.

Apple says that the wearables portion of the business was actually up “well over 50 percent”, and that Apple TV (also in the category) also saw double-digit growth. Wearables/Home/Accessories represented 10 percent of Apple’s overall business, making it larger than the iPad and almost as large as the Mac.

Cook couldn’t resist crowing a little bit about how successful wearables has been for Apple, when many companies tried to take on Apple and the Apple Watch in particular. “We stuck with [wearables] when others perhaps didn’t... and are in a very good position today to keep playing out what’s next there,” he said.

Meanwhile, yes, Services has become an enormous business for Apple, counting for 21 percent of total

revenue. Apple didn't produce any data about how its newest service, Apple News+, is faring so far, which isn't surprising, but also suggests they couldn't figure out any number to disclose that would make them look good.

Apple CFO Luca Maestri did warn analysts that it may take some time to grow revenue from its new subscription businesses, which include the forthcoming Apple Card, Apple Arcade, and Apple TV+ services. "Keep in mind for all these services, there's a trial period up front, there's going to be different trial periods, we'll see what they look like. So the road to monetization takes some time," he said.

Apple said its total number of paid subscriptions is now more than 420 million, which includes Apple's services as well as subscriptions fulfilled via the App Store. Third-party app subscription revenue grew 40 percent during the quarter.

What trade war?

As you will have heard, there's currently a lot of friction between the US and China regarding trade. Apple was mentioned specifically by President Trump recently, which suggests he doesn't look too kindly at the firm building so many of its devices in China.

When asked about it during the analyst call, the ever-careful Cook didn't take the bait. "I know there's been a lot of speculation around the topic... I wouldn't put a lot of stock into those, if I were you," he said. Cook made it clear that he is a true believer in the global supply chain. "The vast majority of our products are kind of made everywhere.... Largely, I think that will carry the day in the future as well."

The upcoming Mac Pro: Made in the USA?



However, despite reports that Apple plans on making the new Mac Pro in China, Cook said that Apple “wants to continue” making the Mac Pro in America. “We’re working and investing currently in capacity to do so, because we want to continue to be here,” he said.

It’s a fascinating line that Cook has to walk, because Apple is both an American company with lots of operations and an international company with a global supply chain. How to thread the needle so that he gets

the President trumpeting all of Apple's American jobs and investments in new campuses in the US, while also getting the concessions he needs to continue assembling products in other parts of the world?

It's a tricky situation, as Cook's careful language shows. He is showing confidence in the global supply chain while also dangling the possibility of assembling Mac Pros in the US is quite a move. We'll see what happens next.

Tim Cook likes to tease us

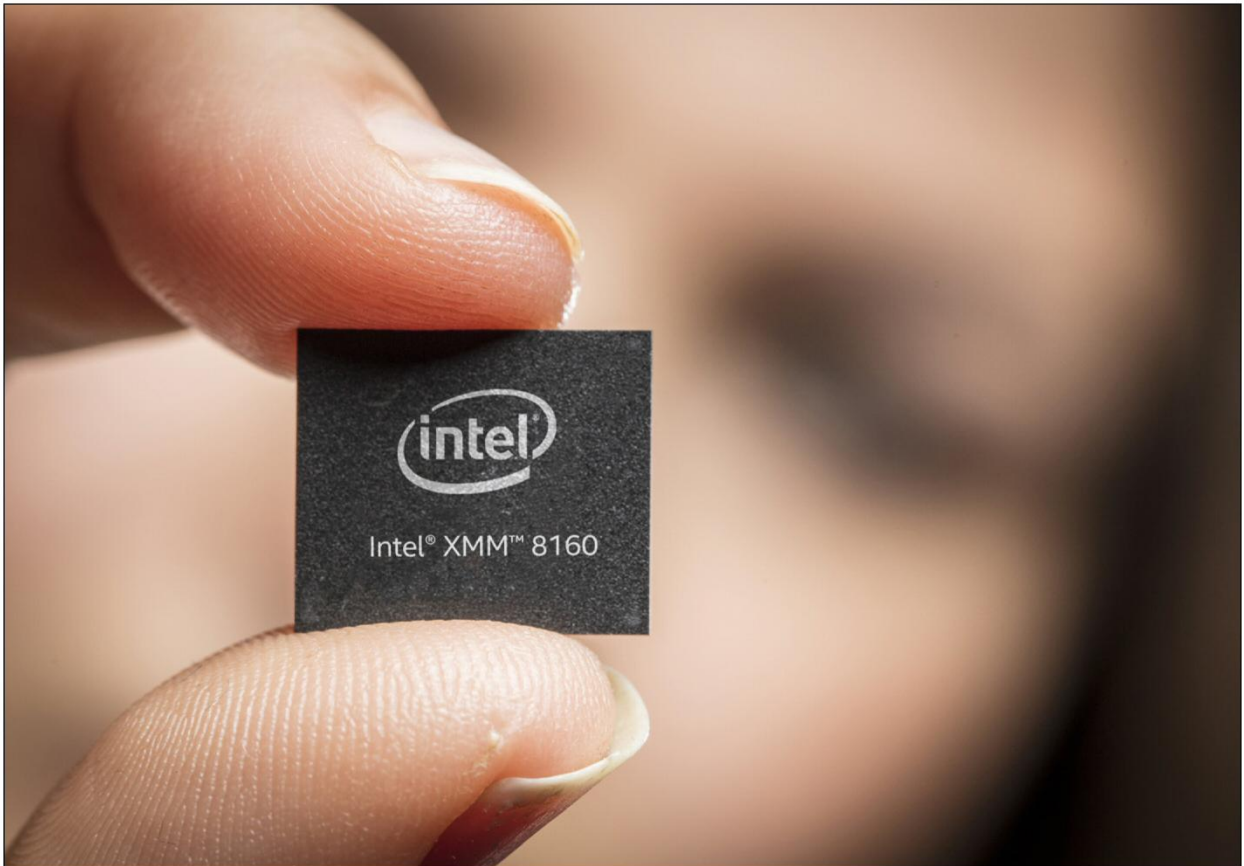
One final thought about Cook: he knows very well that everyone, from the most high-flying Wall Street analyst to your everyday person in the street, wants to know what Apple is doing next. Try to ask him a question about a future product and he'll bat you down. An analyst wanted to ask about the future of the iPhone in a 5G world and Cook immediately broke out a "we don't comment on future products" before saying that we're currently in "the extremely early innings" of the 5G transition.

Sometimes he can have fun with it, though. At the very end of the prepared statement that started the call, Cook – who said he was suffering from an allergy and was coughing and clearing his throat throughout the call – all of a sudden spoke with a rush of friendly energy. "And without giving too much away, we have several new products that we can't wait to share with you. Until then, thanks for joining us today," he said.

New products, eh? I guess we'll see you in September, Tim.

Apple's \$1bn Intel purchase

The deal provides a huge boost to Apple's wireless patent portfolio. **Jason Cross** reports



Apple has announced that it plans to buy the “majority of Intel’s smartphone modem business”, following recent rumours to that effect. The deal will cost Apple about one billion dollars, and should close in the fourth quarter of this year, subject to regulatory approval. For the price, Apple will acquire approximately 2,200 Intel employees along with intellectual property, equipment, and leases. The

deal will greatly boost Apple's patent portfolio, taking the company to over 17,000 patents related to current and future wireless technology.

Apple is only acquiring Intel's smartphone modem business, however. Intel will still be able to develop modems for non-smartphone applications such as PCs, smart cars, or IoT applications.

Intel CEO Bob Swan painted this as a win for its company. "This agreement enables us to focus on developing technology for the 5G network while retaining critical intellectual property and modem technology that our team has created. We have long respected Apple, and we're confident they provide the right environment for this talented team and these important assets moving forward. We're looking forward to putting our full effort into 5G where it most closely aligns with the needs of our global customer base, including network operators, telecommunications equipment manufacturers and cloud service providers."

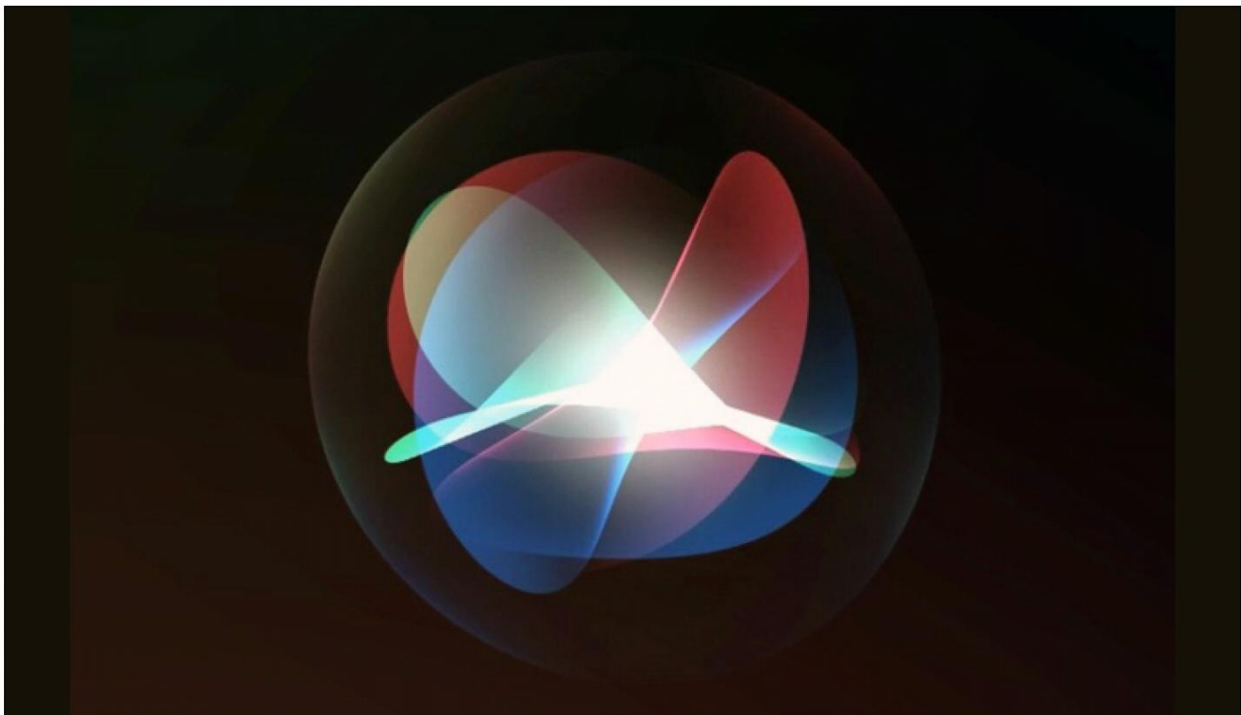
Apple's senior VP of Hardware Technologies, Johny Srouji, is quoted as saying, "Apple is excited to have so many excellent engineers join our growing cellular technologies group, and know they'll thrive in Apple's creative and dynamic environment. They, together with our significant acquisition of innovative IP, will help expedite our development on future products and allow Apple to further differentiate moving forward."

While this is good news for Apple's plans to build its own cellular modems for iPhones and iPads, it doesn't mean we should expect Apple-designed modems in them soon. The firm recently settled its long-standing feud with Qualcomm and, as part of the settlement,

agreed to a six-year chip licensing deal, including a 'multi-year chipset licensing agreement'. It's possible that Apple may start to provide some modems for some of its products, but the company is locked into buying Qualcomm modems for multiple years.

Apple announces halt to Siri ‘grading’ programme

The right response. **Michael Simon** reports



In the wake of backlash over a *Guardian* report that exposed employees who were tasked with analysing Siri recordings for accuracy and quality, Apple has announced it is temporarily suspending the programme as it decides how to proceed.

In a statement to TechCrunch, an Apple spokesperson said the company is “committed to delivering a great Siri experience while protecting user privacy. While we conduct a thorough review, we are suspending Siri grading globally.”

Apple added that users will have the ability to choose whether they want to participate in the programme as part of an upcoming software update.

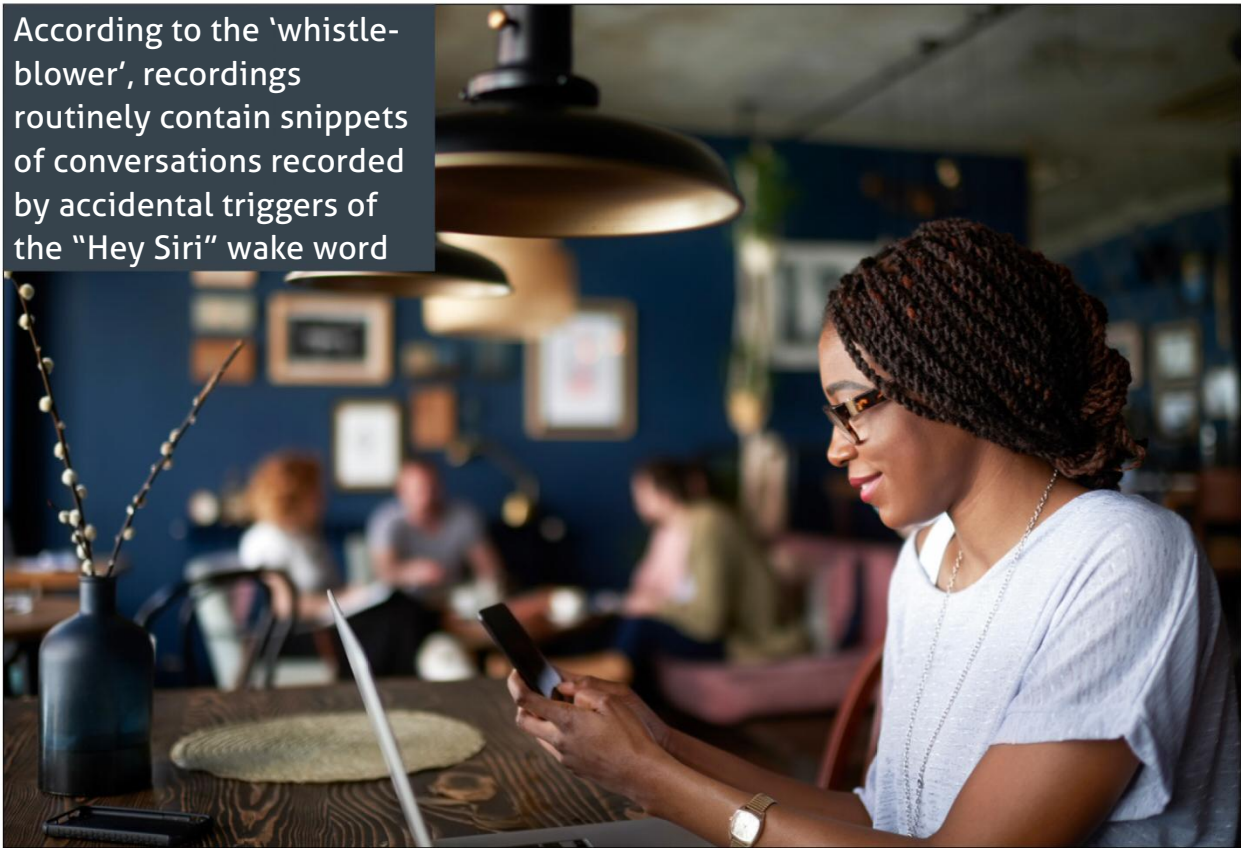
The Siri grading process was exposed in July when one of the contractors contacted *The Guardian* claiming that they “regularly hear confidential medical information, drug deals, and recordings of couples having sex” as part of their job. Apple explained to *The Guardian* that the data collected “is used to help Siri and dictation... understand you better and recognize what you say”.

Apple also said the recordings are anonymized and represent less than 1 percent of daily Siri activations. It added that recordings were “not associated with the user’s Apple ID”, though the employee said they “are accompanied by user data showing location, contact details, and app data”.

According to the ‘whistle-blower’, recordings routinely contain snippets of conversations recorded by accidental triggers of the “Hey Siri” wake word. It’s unclear whether these recordings are supposed to be deleted before they reached the employee’s ears. It’s also unknown how long Apple has been running the grading programme.

But while the practice might be necessary, the seeming secrecy of it is alarming. Nowhere in Apple’s privacy policy or Siri setup is it mentioned that recordings may be used for quality control, nor is there a toggle that lets you opt out of data collection. According to the statement, Apple will presumably be rectifying both of these issues once it reinstates the programme.

According to the 'whistle-blower', recordings routinely contain snippets of conversations recorded by accidental triggers of the "Hey Siri" wake word



That's the right response. Customers should be aware that their Siri recordings may be listened to, and part of Apple's privacy push should be the ability to keep your data to yourself. We'd also like to see an easier way to see and delete your Siri history, as well as a better way to filter out accidental recordings, but for now, a toggle is a good start.

Why Apple acquired Intel's mobile modem business

Other than the iPhone, that is. **Michael Simon** reports



The race to 5G just added a new lane. Following a report in the *Wall Street Journal*, Apple confirmed that it will be acquiring the majority of Intel's smartphone modem chip business, which went belly-up earlier this year. The transaction is valued at \$1 billion and is expected to close in the fourth quarter of this year, Apple said in a press release.

Intellectual property exchanging hands between industry giants isn't exactly earth-shattering news, but

this deal has significant ramifications. Just four months ago, Apple and Intel were partners on the development of the iPhone's 5G modem, but that abruptly ended in one fell swoop when Apple and Qualcomm settled their long-time court case and Intel "announced its intention to exit the 5G smartphone modem business and complete an assessment of the opportunities for 4G and 5G modems in PCs, Internet of Things devices and other data-centric devices".

That assessment apparently led to a sale, which in turn led to Apple's purchase. While it's not entirely clear why Intel decided to exit the mobile modem business, conventional wisdom suggests that its chip development hadn't advanced far or fast enough.

So on the surface, it would seem like there's nothing to buy, especially for the presumed price of a billion-plus. But Apple wouldn't be buying Intel's modem scraps. Rather, it would be investing in years of work (and patents) by one of the largest semiconductor manufacturers as it looks to develop an in-house 5G chip for future iPhones that can rival Qualcomm's. It's not going to happen anytime soon, since Apple and Qualcomm inked a six-year licensing agreement with a multi-year chipset deal in April, but Apple's playing a long game here.

But while the iPhone is clearly the main impetus behind this deal, I don't think Apple's motivations are limited to the handset. 5G looks to impact every sector of Apple's product lines, and acquiring Intel's smartphone modem chip business – even unfinished – could have far-reaching implications within both Apple and the industry. Here are three



ways the Intel purchase could seriously impact Apple and the industry at large.

1. Apple Watch

Perhaps even more important than the engineering work would be the people behind the work. The *Journal's* report specifies that in addition to Intel's portfolio of patents, Apple would also be acquiring an infusion of talent from the team responsible for the development of the chip. That alone could be worth billions. It's no secret that tech companies' most prized assets are the engineers who work for them, and bringing a ready-made team of chip designers into

Apple Park for work on the A14 processor and beyond would save Apple years of hires and reorganization.

But it's not the iPhone that could stand to benefit the most from an integrated 5G modem. A more efficient S chip, which powers the Apple Watch, is key to the future generations of Apple's wearable, especially as power-hungry 5G arrives. With an integrated 5G modem, chips will be smaller and more power efficient, two areas of intense focus for Apple. As it stands, the modem and main processor are separate entities and will continue in the vein as long as it continues to buy its modems from Qualcomm. Integration is one of Intel's strongest suits, and it will be even more important when 5G starts taking off.

2. Patent trolls

As 5G phones and devices proliferate over the next few years, there is also sure to be an uptick in lawsuits. Apple, Samsung, Intel, and any other tech giant are all susceptible to so-called patent trolls, companies that scoop up patents with the sole intention of using them to sue other companies that may infringe on them. It's impossible to say what patents are included in this deal, but you can bet that they would be used for frivolous lawsuits in the wrong hands. It's probably not the primary motivation for Apple's purchase, but it wouldn't be the first time someone snatched up a bunch of patents to keep them out of the wrong hands.

3. The next MacBook

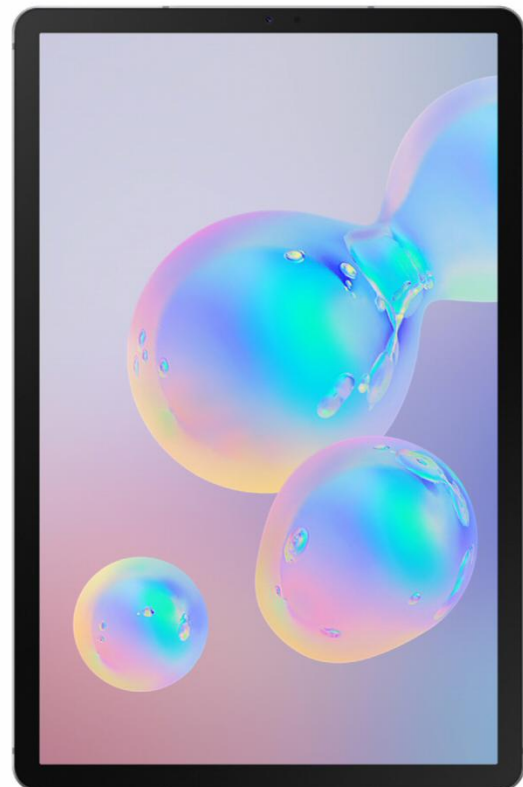
While Apple has yet to release a notebook with LTE connectivity, that's probably going to change with the

advent of 5G. It's not just the speed – as iPadOS gains more Mac features, a new device is likely on the horizon that sits between the iPad Pro and MacBook Air. We don't know what this device would look like, but I'm willing to bet on two things: it will be powered by an Apple chip and feature 5G connectivity.

We're likely years away from such a device, and I don't think it's a coincidence that the reported Intel deal and the retirement of the MacBook are coinciding. Sometime within the next three to five years, I think we're going to see a brand-new device from Apple that solves two long-standing problems: the iPad's inability to replace the Mac, and the Mac's lack of a touch screen. With a 5G modem, the next MacBook will be the ultimate road machine, combining the power of a Mac with the portability of the Mac in a thin and light package, and Intel's modem business could be the thing to get the ball rolling.

Apple iPad Pro vs Samsung Galaxy Tab S6

Samsung takes on the iPad Pro with its new Galaxy Tab S6. We see how the two premium tablets compare. **Martyn Casserly** reports



When it comes to tablets, Apple pretty much has the market sewn up with its all-conquering iPad range. Aside from the cheap models or Microsoft's Windows 10-powered Surface Pro 6, there's little to threaten the iPad's dominance.

One company that does have the clout and expertise to make a grab for the crown, however, is Samsung,

and with its new Tab S6 device there's plenty to tempt consumers away from the safe harbour of iOS. Over the following pages we compare the iPad Pro and Samsung Tab S6 to see how the best of Android compares to Apple's premium offering.

Price

Apple updated its iPad Pro line-up in October 2018, introducing two new models: 11- and 12.9in in size, both with Wi-Fi or Wi-Fi + Cellular options. They are available in the following range of configurations:

11in iPad Pro

64GB: £769 (Wi-Fi); £919 (Wi-Fi + Cellular)

256GB: £919 (Wi-Fi); £1,069 (Wi-Fi + Cellular)

512GB: £1,119 (Wi-Fi); £1,269 (Wi-Fi + Cellular)

1TB: £1,519 (Wi-Fi); £1,669 (Wi-Fi + Cellular)

12.9in iPad Pro

64GB: £969 (Wi-Fi); £1,119 (Wi-Fi + Cellular)

256GB: £1,119 (Wi-Fi); £1,269 (Wi-Fi + Cellular)

512GB: £1,319 (Wi-Fi); £1,469/ (Wi-Fi + Cellular)

1TB: £1,719 (Wi-Fi); £1,869 (Wi-Fi + Cellular)

Samsung unveiled the Galaxy Tab S6 in July. The Wi-Fi model is available to pre-order now at fave.co/2MKZndE, with a release date of 6 September. An LTE version will be available later in the year. There are two variants of the Wi-Fi edition, priced as follows:

128GB: £530

256GB: £599

Samsung has refined the design of the Galaxy Tab S6



There will also be LTE models with the same capacities but, as with the release dates, prices are currently unknown.

Design

Samsung has refined the design of the Tab S6. The angular construction is similar to that of the iPad Pro, but its dimensions make it slimmer and lighter than its predecessor as well as Apple's tablets.

Dimensions

Samsung Tab S6: 244.5x159.5x5.7mm; 420g

11in iPad Pro: 247.6x178.5x5.9mm; 468g

12.9in iPad Pro: 280.6x14.9x5.9mm; 631g

The iPad Pro is available in two screen sizes



The iPad Pro offers two different screen sizes (11- and 12.9in) using the standard 4:3 aspect ratio that we've grown so accustomed to over the years, while the Samsung Tab S6 comes in a solitary 10.5in model with a 16:10 ratio.

Both manufacturers fit four speakers in each device, a USB-C port, and no 3.5mm headphone jacks (when will this madness ever end?). Smart connectors or variants thereof are standard, allowing the available keyboard covers to attach without issue.

One area where the Tab S6 gets ahead of the iPad Pros is with its S-Pen. Samsung has crafted a groove on the back of the tablet that not only allows

the stylus to attach magnetically, but also charges the accessory when stored there. The S-Pen is also included in the box, unlike Apple's Pencil, which costs an additional £119.

The Tab S6 is available in Rose Blush, Mountain Grey, and Blue (not in the UK), while Apple's liveries are silver and Space Grey.

Hardware

The Tab S6's 10.5in (2,560x1,600 resolution) Super AMOLED panel is almost the same one as on the Tab S4, albeit with slimmer bezels and an optical fingerprint scanner embedded in the display.

Apple opts for a 2,388x1,688 resolution panel in the 11in model and 2,732x2,048 on its 12.9in sibling. These both come with ProMotion technology for ultra-smooth scrolling, Wide colour display (P3) technology, and True Tone displays that monitor the colour temperature in a room and match accordingly. There's no Home button or embedded fingerprint sensor, as Apple prefers Face ID to unlock the Pros.

Processors in all the devices are high-end, with Samsung including the latest Qualcomm Snapdragon 855 chip, while the iPad Pros share Apple's own A12X Bionic chip. We expect top performance from all of the contenders, with the A12X already acquitting itself admirably in our tests.

Aside from the displays, both iPad Pros share identical hardware, including a single 12Mp f/1.8 aperture camera on the rear that offers Smart HDR, auto image stabilization, and video that tops out at 4K at 60fps.

Samsung goes one better with dual optics comprised of a 13Mp main lens and a 5Mp ultra-wide camera. The front shooter is also a step up with its 8Mp sensor as opposed to the 7Mp True Depth camera on the Pros.

Opposite is a breakdown of the technical specifications for all the devices.

Software

iOS 12 is the order of the day on the Pros, bringing with it several iPad specific updates that move the devices closer to the laptop replacement that Apple seems to be heading towards. The firm announced at this year's WWDC that iPadOS will replace iOS from September, making the operating system even more focused on getting the most from the impressive hardware.

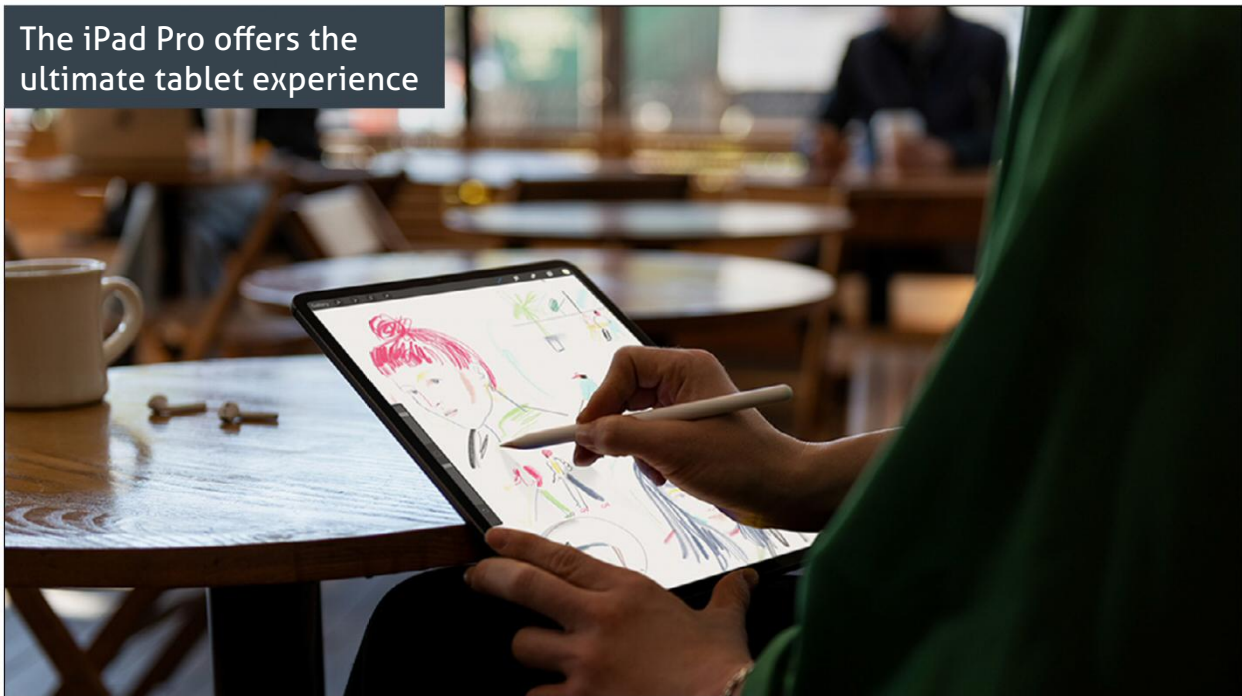
Android 9.0 with Samsung's One UI overlay is the OS of choice for the Tab S6. This is enhanced by the DeX technology that allows a desktop-style experience, replete with mouse controls and external monitors.

While both are mature and powerful systems, the app catalogue for the iPad Pros gives them a huge advantage over Samsung's offering. Android may have a huge amount of games, utilities, and other useful apps, but most are still not optimized for the larger tablet devices, unlike on iOS.

Verdict

Samsung has made solid advances with its tablets in recent years. The Galaxy Tab S6 does nothing to impede this progress, with a smart design, powerful hardware and the welcomed inclusion of the S-Pen in the box. Its DeX interface brings a desktop-style experience when

| | Apple 11in iPad Pro | Apple 12.9in iPad Pro | Samsung Galaxy Tab S6 |
|---------------------|--|--|-----------------------------------|
| Display | 11in (2,388x1,688) True Tone, Wide colour display (P3), ProMotion | 12.9in (2,732x2,048) True Tone, Wide colour display (P3), ProMotion | 10.5in (2,560x1,600) Super AMOLED |
| Processor | A12X Bionic | A12X Bionic | Qualcomm Snapdragon 855 |
| RAM | 4GB/6GB (1TB models) | 4GB/6GB (1TB models) | 6GB/8GB |
| Storage | 64GB/128GB/512GB/1TB | 64GB/128GB/512GB/1TB | 128GB/256GB |
| Expandable Storage | N/A | N/A | 512GB via microSD |
| Main camera | 12Mp rear-facing camera, f/1.8, flash, 4K video, slow-mo at 240fps | 12Mp rear-facing camera, f/1.8, flash, 4K video, slow-mo at 240fps | 13Mp (Wide) + 5Mp (Ultra Wide) |
| Front-facing camera | 7Mp front-facing camera, 1080p video, 'Retina Flash' feature, Portrait Mode, Animoji | 7Mp front-facing camera, 1080p video, 'Retina Flash' feature, Portrait Mode, Animoji | 8Mp |
| Speaker | 4 | 4 | 4 |
| Biometrics | Face ID | Face ID | Embedded Fingerprint sensor |
| Connectivity | 802.11ac Wi-Fi, Bluetooth 5.0 | 802.11ac Wi-Fi, Bluetooth 5.0 | TBC |
| OS | iOS 12 | iOS 12 | Android 9 |
| Dimensions | 247.6x178.5x5.9mm | 280.6x214.9x5.9mm | 244.5x159.5x5.7mm |
| Weight | 468g | 631g | 420g |



paired with an external monitor, keyboard and mouse, so if you want a 2-in-1 it's worth a look.

Those who prefer the ultimate tablet experience will enjoy what the iPad Pro has to offer. They are hugely powerful devices, backed by the best software you'll find on this format. The Samsung is very good, but the iPad Pros remain the ones to buy

Powerbeats Pro

Price: £219 from fave.co/2xDA2tv ★★★★★☆



When AirPods launched in 2016 they were the earphones that launched a thousand think pieces. They were mocked for looking like toothbrush heads, alien ears and criticized for their high price. Fast forward to 2019 and cities are rife with AirPods. They are as common to see on your daily commute as the classic white iPod headphones were back in the mid-2000s.

The Apple-owned Beats is still making headphones as a separately to their parent company. The Powerbeats Pro are the first true wireless Beats and

they are excellent because they take all the best things about AirPods and substantially improve the fit and audio performance.

In fact, aside from the enormous charging case, there isn't much to complain about for most people, so long as you have an iPhone.

Design

From first wear they justify that premium, though. I have always had issues with in-ear headphone fit and comfort, but the Powerbeats Pro immediately felt great. Only once on a run did the right bud fall out, scratching it slightly but no other damage done.

They come with four tip sizes, and when paired with the adjustable ear hooks they are more flexible (literally and metaphorically) than many other wireless earbud and earphone designs.

The design is much improved from older Powerbeats like the recent wireless Powerbeats 3. Powerbeats Pro come in black, green, blue or white, and are a much more refined and sleeker, modern design compared to the garish green older models. Even though you're paying a premium at least you're getting a premium-looking product.

A downside to this excellent design is the case it comes in. It's an absolute monster – though the ear hook design means it was never going to be as small as the AirPods dental floss sized enclosure.

But it meant that I realistically never went out without a bag when I took the Powerbeats Pro with me because they are too large and bulky to fit in a jeans pocket, and it doesn't have wireless charging built

The Powerbeats Pro are very comfy in the ear



in like the £199 AirPods do, so you'll need to lug the included Lightning cable, too.

Powerbeats Pro are geared towards "motivated athletes", according to Beats and the ad for them features sporting royalty really going for it to some tunes. Beats is expecting you to throw the large case in your gym bag and hit the treadmill. Its size does mean that when fully charged via the Lightning port it'll provide the buds with 24 hours of battery overall, and they go for a full nine before needing to be charged, which is excellent.

For this reason, the earphones are water and sweat resistant, and I found that I could wear them for several hours on end before taking them out due to discomfort – much longer than other designs I've tested.

Each earphone has the same controls for play, pause and volume on them, a relatively rare find in wireless

earphones of all shapes and sizes. The physical buttons don't take too much pressure to tap, which means you can wear one rather than two for phone calls and still have all the controls.

It's always a risk buying in-ear headphones in case the fit doesn't work for you, but I'm confident that the versatile design of the Powerbeats Pro will work for most people given I usually struggle, yet they have been very comfortable for me.

The only slight issue will be if you wear glasses, as I do. Sometimes for a snug fit the ear hooks need to sit where glasses arms rest, resulting in the hook and arm tapping audibly against one another.

Audio quality and features

Down to business, then. And forgive me as I one more time compare the Powerbeats Pro to AirPods. I'm allowed, because they have the same H1 wireless chip to allow incredibly quick and reliable pairing with iCloud devices – iPhone, iPad, Mac (and iPod touch).

You need to have the Powerbeats in the case in order to pair them, but all this requires on iPhone and iPad is to open them near your unlocked phone, et voilà. It's great and yes, it just works.

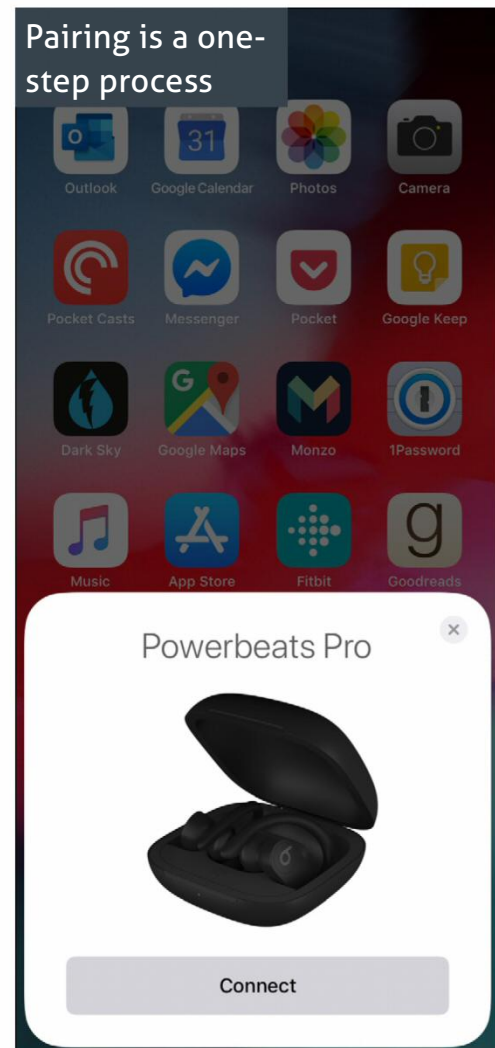
Much like other Beats headphones, the Powerbeats Pro are set up for the low end, though are not quite as bassy as the over-ear Studio 3 Wireless. Hip-hop, rap, dance, EDM and pop sound great. 'Ooh Wee' by Mark Ronson, 'We Don't Care' by Kanye West and 'The Space Program' by A Tribe Called Quest sound brilliant, with booming but not too loud bass, snappy high end and a good shine to the tone.

It's not to say that other genres sound bad, but as ever the Powerbeats are not the best earphones if you are all about guitar music. They struggle a tad to separate the mix, leaving 'Sweet Leaf' by Black Sabbath feeling a little muddy. That said 'You Ain't Worth A Dollar' by Queens of the Stone Age is thumping in all the right places with good tone and levels.

I'm being a bit picky, too. Powerbeats Pro are headphones for everyone, and the fact you can't meddle with the tuning yourself (some rivals allow this via companion apps) shows that these are designed to be easily paired grab and go everyday headphones. And in that they succeed.

That clever H1 chips also allows for hands-free Siri. Just say "Hey Siri" with the Powerbeats on and it'll start listening. I personally still feel a bit of a wally doing this, particularly when I find Siri rarely gets my query right, but you might want the feature, and the trigger phrase does work every time. It means you can reply to messages at the gym without touching the earphones or picking up your phone, for example.

While the in-ear design means the Powerbeats have natural noise isolation to keep outside sound



down by sealing the ear canal, there is no active noise cancellation tech here, but this is rare on earbuds. Just be aware that on planes and loud trains you have to crank the volume to hear clearly. If you want full noise cancellation you should plump for over ears with ANC.

Verdict

The Powerbeats Pro are the best in-ear Beats yet, and a fine choice if you have an iPhone and want excellent all-round wireless earphones. They are more expensive than AirPods, but have better battery life, better fit and better audio. Plus, not everyone will like the design, especially the charging case. **Henry Burrell**

Specifications

- Bluetooth enabled
- Microphone remote
- NFC
- Rechargeable lithium-ion battery
- 110x80x80mm
- 260g

Bose Frames

Price: £199 from fave.co/2S2VXUd ★★★★★☆



We've got Beats and AirPods, but here's something a little different from Bose – sunglasses which double up as an in-ear headphones but without, well, any headphones.

The audio giant's move into wearables shouldn't be a surprise when you consider headphones have always been something you wear, but you might be surprised we're talking shades here. What does a part of your wardrobe have to do with enjoying your Spotify favourites, you might ask?

First up, put away any thoughts of Snapchat Spectacles and Google Glass as while Bose Frames have an augmented element, it's AR audio we're dealing with here. Anything visual is relegated to the design of the specs themselves (which we rather like the look of).

The 'wow' factor comes in how you can listen to music through these shades without having anything plugged into your ear – and nobody around you will notice a thing. Yep, you read correctly.

Going beyond first impressions, just how useful are these wearables for enjoying your audio on the go – and is there anything else you can do with them besides streaming the latest Tame Impala track?

The answer might surprise you.

Design

We had a chance to wear the frames for a fortnight and we can first tell you that yes, nobody on the tube will hear you listening to your music on the morning commute. Not unless you've really jacked up the volume as that's when leakage is noticeable.

Pumping up the volume brings us to our main niggle, in that playing with volume levels on your Bose Frames can only be done through your phone. While there is a discrete button on the right arm of the glasses with which you can pause, skip and stop, ideally with an augmented product like this you'd expect to only touch one device at a time.

Even better would be the ability to control music using head movements, but that's perhaps something to be rolled out in future models or even software updates. Bose told us at product launch that to enjoy



There is a discrete button on the right arm of the glasses with which you can pause, skip and stop tracks

upcoming advancements you can keep the same frames, so buy these in the knowledge that you won't need to shell out for a 2nd-generation anytime soon.

Bluetooth connectivity

Pairing up Bose Frames with our old-ish iPhone was easy; just switch on Bluetooth and go from there like you would with any wireless headphones. There is a Bose Connect app out there, which suggests AR apps to enjoy with the glasses, but it's not essential.

Perhaps the app could be tailored at one point, so as to 'lock' your Bose Frames with just your phone. We say this as we had an odd incident where the frames somehow stayed tethered to the phone of the last person to use them – even though they were nowhere

near. Trying to connect them again to my own phone proved fruitless until the other party returned and made their own device 'forget' the frames.

It would also be great if with the app you can change the generic American voice of the interface; I think I'd rather hear a gentle purr in my head instead of your standard robotic sprite, thank you.

App connectivity

On the subject of apps, you can enjoy YouTube, Apple Music, Spotify, and so on, through the frames, while Instagramming or browsing online; buffering won't be an issue.

Google Maps is also fun to try with these, a helpful voice giving you the right directions you need when exploring the big city.

You can also get Siri to listen to your commands, and Google Assistant capability will be coming at some point. That's because Bose Frames have a built-in microphone like many pairs of headphones.

To test this out I made a call in the busy streets of London and was delighted to have an easy two-way conversation where the sounds of the city didn't drown out one word I was saying (and vice versa). I may have looked insane doing it, but the thrill was definitely worth it.

It's also easy to switch between calls using the same button on the frames, plus you can also answer WhatsApp calls. I was even able to tap for dictation in the popular chat app and spell out a message or two through the wearables. Bose may call these 'smart sunglasses', but I call them a Smart Assistant on the go.

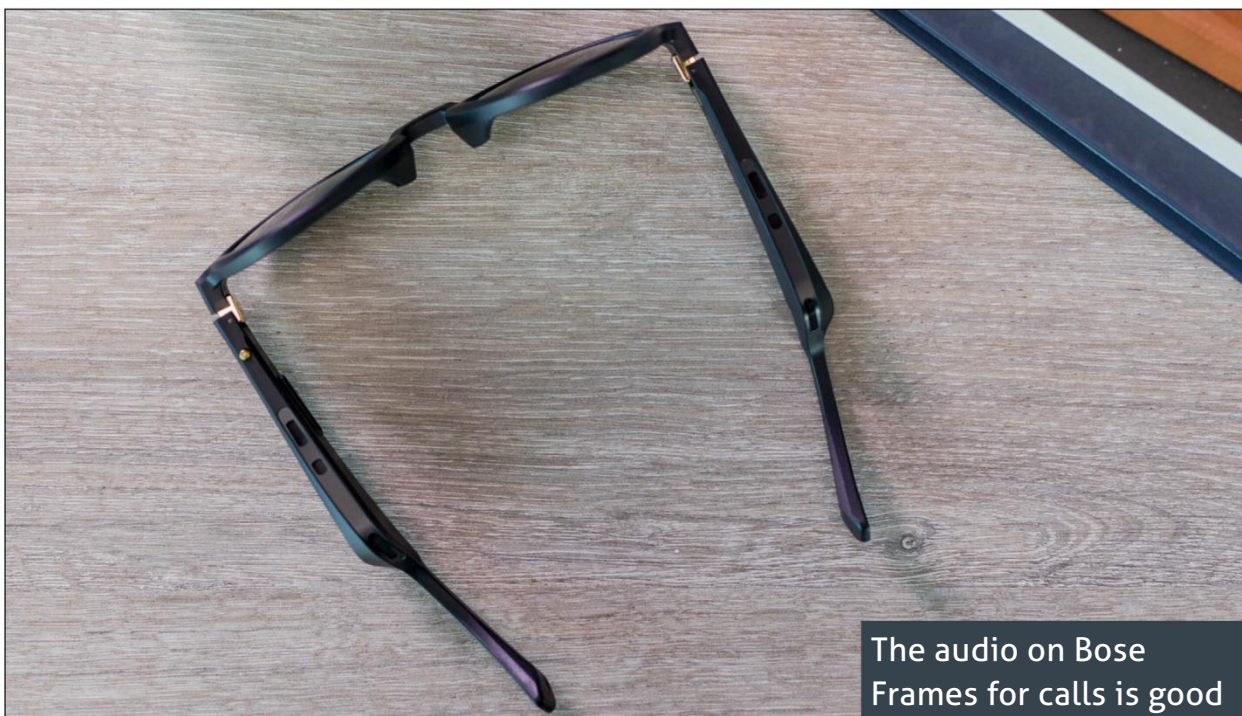
Audio quality

The audio on Bose Frames for calls is good, and it's the same story for your music. I could happily appreciate the beats of Flying Lotus while strutting through Piccadilly Circus on a busy afternoon.

Bass-heads will be disappointed, but otherwise expect a crisp level of sound for your tracks.

If you're wondering how this all works, first know that this thankfully isn't the often disappointing bone conduction that we're talking about. Instead, the shades make use of custom stereo transducers built into multi-ported acoustic chambers in the arms. Music is delivered to the ears through ultra-precise geometry, at the same time being sampled and 'silenced' by ports on the arms so no sounds are delivered to anyone else.

What this means is the wearer gets an 'open ear experience'. With Bose Frames you can have a



The audio on Bose Frames for calls is good

conversation with a friend while nodding along to Grimes, or just enjoy music without having that pressure of a bud in your ear. Ambient sound won't get in the way of your ambient vaporwave mix, in other words. With this tech, you're living in the 'smart zone', a place where reality blends with augmentation – and it's a nice place to be in.

Product build

Bose is primarily marketing these for people looking to replace their Ray-Bans. Two big problems, though: the frames won't suit all face sizes, and short-sighted wearers who decide to replace the lenses with prescription ones will be instantly voiding their warranty. No alterations allowed, alas.

The Alto design meanwhile doesn't look too hot, and with each style there is a certain bulk to the arms which can't be missed. The front of the Rondo (pictured opposite) almost makes up for it, though, being the most stylish of the set if you ask us. We do wonder if a partnership with Ray-Ban would have added to the aesthetic, as a collaboration would probably have been the best way to create a meaningful alternative to traditional sunglasses. Note that Bose has built these frames in the sturdy and reliable Grilamid TR90 plastic, and lenses will block 99 percent of all UV rays. Smart or not, these shades do what they're supposed to do. The case seen in the photos comes supplied.

Battery life

Battery health is good and the Bose Frames can be easily charged with the provided USB cable. To turn



The Bose Frames come supplied with this case

off the shades, simply flip them over as below and press the button to wake up. Simple, really, although shutting them off by folding the arms together would have made just as much sense.

Verdict

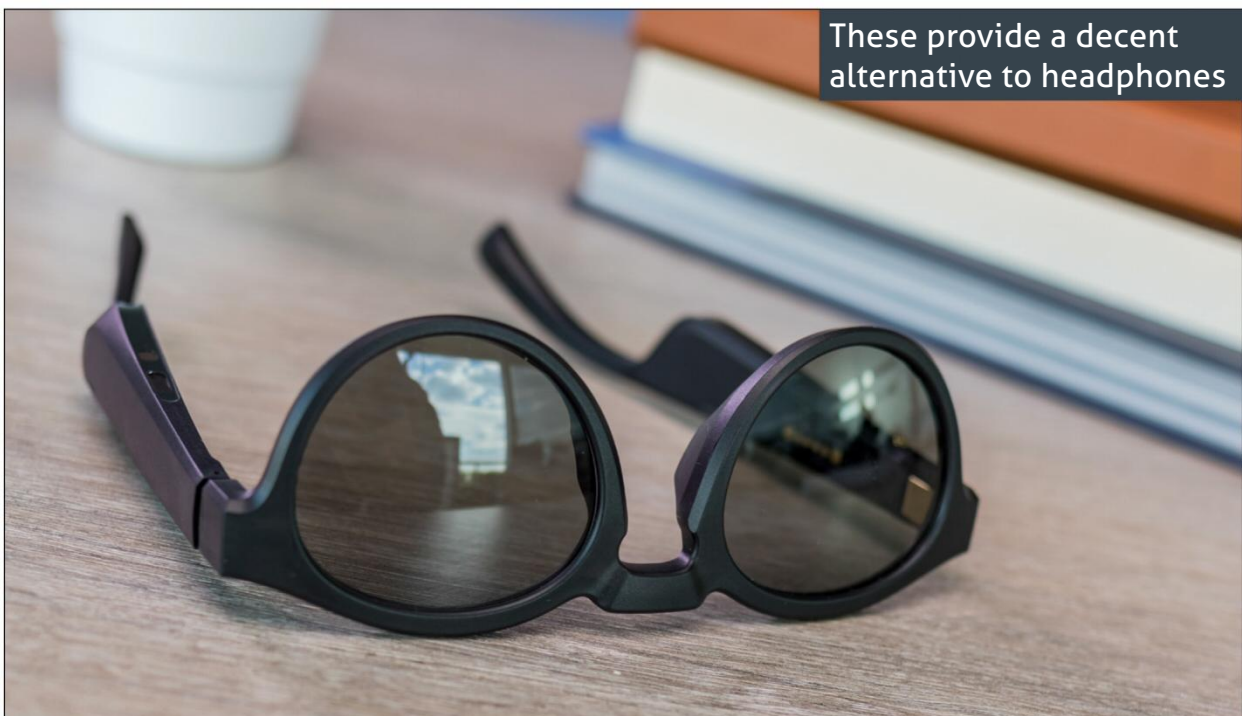
It's been a long time since a new bit of tech wowed us at *iPad & iPhone User* towers, but the Bose Frames certainly caught our attention in a way not felt since the launch of the even the iPad.

Looking beyond initial first impressions, Bose Frames provide a decent and innovative alternative to headphones for anyone looking to enjoy the upcoming summer with their favourite tunes and friends by their side. The feeling of having a clear ear is hard to beat,

especially during the heat of the summertime, and the audio is surprisingly decent.

The downsides come in Bose's decision to ignore millions of short-sighted consumers and hitting stores before fully utilizing the glasses' AR capabilities. At the launch event Bose informed us of AR apps that can detect your movement when using the frames – one example being a golfing app – and yet the one thing wearers would probably make good use of isn't available. We're talking movement of the head to control your playback and volume, of course, and we will be keeping an eye on future software updates to see if Bose Frames realises this potential to the full.

There is a whole universe of possibility with wearable tech like this, and Bose Frames is a great start on that front. Whether you're looking for sunglasses different to the norm, a Smart Assistant on the go



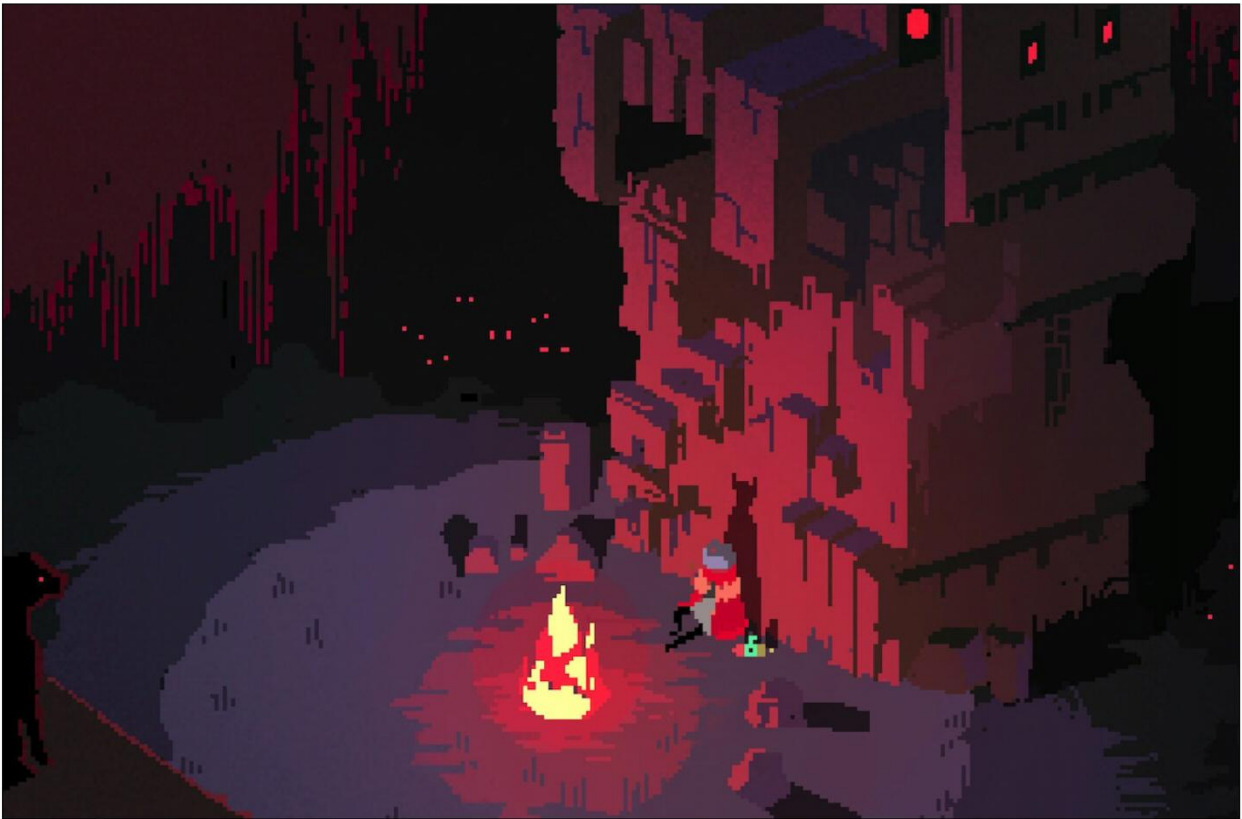
or simply a way to keep your ears fresh in the heat, then Bose's entry into the wearables market is an impressive effort indeed. Just make sure you get the right style at checkout. **Giacomo Lee**

Specifications

- Bluetooth enabled
- iOS and Android compatibility
- NFC
- Rechargeable battery
- 144.5x50.8x44.5mm
- 50g

Hottest new iOS games

Apple's Texas Hold'em came back, and Nintendo revived Dr. Mario. **Leif Johnson** reports



August has been one of the most interesting months for iOS games in 2019 so far. Thatgamecompany released its first game in ages – and on iOS first, no less – and Nintendo revived Dr. Mario and packaged it for the tastes of players accustomed to Candy Crush Saga. The App Store also gave us a port of one of the best recent action RPGs from consoles, a relaxing indie game, and the surprise return of Apple's own Texas Hold'em.



Hyper Light Drifter

Price: £4.99 from fave.co/2YG3tKD

Hyper Light Drifter is an action RPG that's only three years old, although its pixel art style makes it look like a relic from my childhood. It combines artful minimalist storytelling about a 'drifter' suffering from a mysterious illness with gameplay that was pulled straight from *The Legend of Zelda: A Link to the Past*.

It's also famously intense, though the touch controls translate well. Hyper Light Drifter also supports MFi controllers, which also means you'll be able to play it with both your Xbox One and DualShock 4 controller once iOS 13 releases in a couple of months.



Sky: Children of the Light

Price: Free from fave.co/2YvijUQ

Sky: Children of the Light is a visually striking game about empathy, cooperation with other players, and lightweight puzzle solving that's framed as a tale about restoring spirits to their rightful place among the constellations. Its appeal springs from the intensity of emotions you feel while playing rather than competition or combat prowess. I initially worried the in-app purchases would smother the intensity of that experience, but happily they're benign.

It's short and simple, and you can even set up the controls to play with one finger if preferred.



Dr. Mario World

Price: Free from fave.co/2YoOJQW

If you've played other Dr. Mario games, you probably think you know what to expect. As in 1990, you can see the world's most recognizable plumber is still cosplaying in a doctor's coat and that he's still solving puzzles by matching pills with viruses, but once it's in motion, it's clearly a different game. It's slower and more thoughtful, as you can stop the pills and toss out multiple pills at once. The pills themselves float upwards instead of downwards. And since it's a free-to-play game, you'll find variations on the familiar in-app purchases from puzzle games like Candy Crush Saga.



The Kreator

Price: Free from fave.co/2MIs4In

The Kreator is at once relaxing and a nail-biter: you're a ball of light that bounces and floats over the curved surface of a sidescrolling planet while collecting globules of light. Those neglected blobs morph into spiteful dark creatures that chase you until they eat you or you find a light cluster that dispels them into oblivion. This gets increasingly intense as the planet changes. It's also free, though if you do want to express your appreciation, you only need to pay 99p to unlock a new world and an utterly minimalist Zen mode. I'd say such a benevolent Kreator is well worth it.



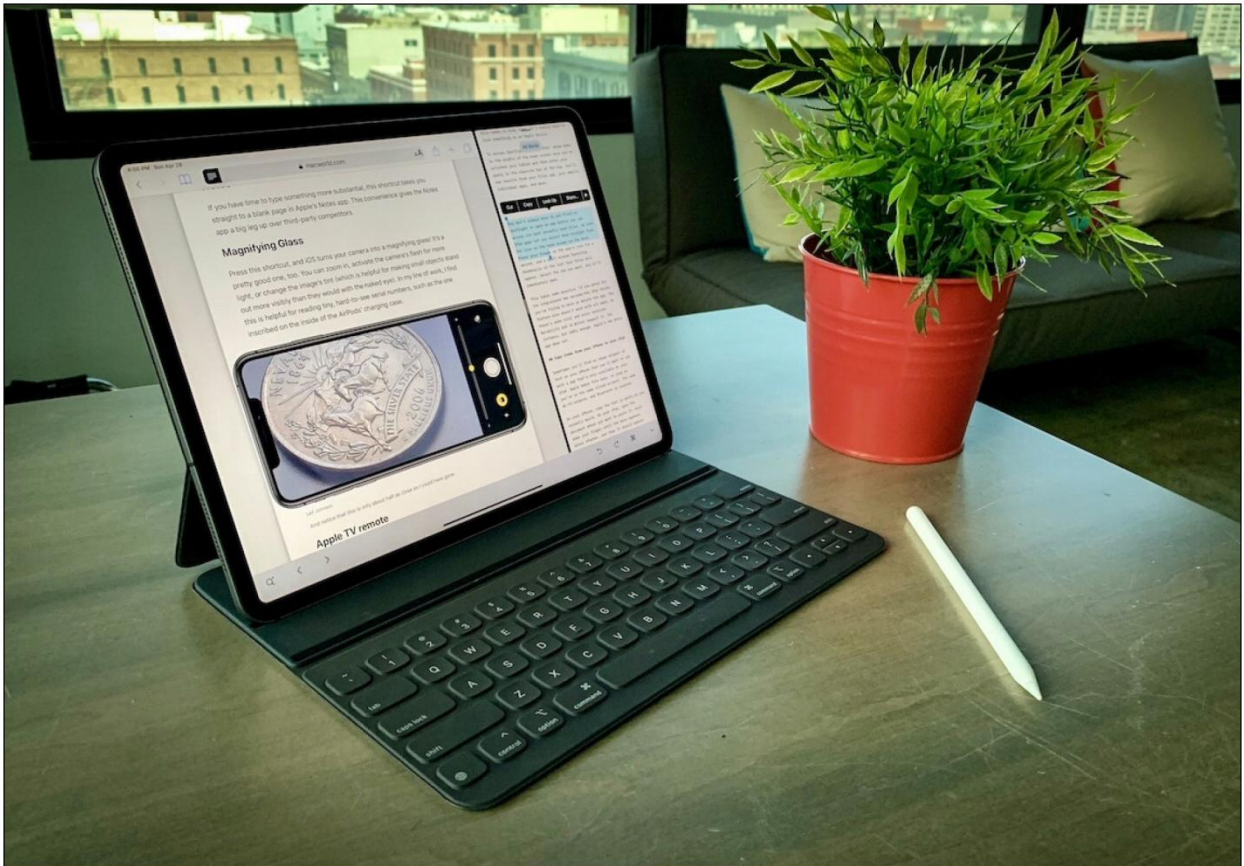
Texas Hold'em

Price: Free from fave.co/2Ynzmbk

I readily admit that Texas Hold'em may not be too deserving of a place on this list as there were more good new games this month. If you're an Apple fan, though, the firm's only 'real' game on iOS certainly counts as something 'you must play'. It's back on the App Store for the first time since 2012, and not much has changed aside from updated graphics, new locations, and some improvements to the AI. It's Texas Hold'em. Like so much of Apple's software, it is free. It's a blast from the past, and in this case, at least, that's a good thing.

10 essential iPad tips

The iPad is a lot more than a big iPhone. Features like Split View transform it into a productivity workhorse. **Leif Johnson** reports



The iPad isn't really the laptop replacement Apple wants us to think it is, but anyone who outright dismisses it as a productivity device shouldn't be taken too seriously, either. The iPad can feel magical when you have the knowledge of the right tricks at hand. Once you've mastered them, work sometimes feels fun. It may not be a MacBook, but you'd be wrong to dismiss it as giant iPhone.

Press this shortcut, and iOS turns your camera into a magnifying glass! It's a pretty good one, too. You can zoom in, activate the camera's flash for more light, or change the image's tint (which is helpful for making small objects stand out more visibly than they would with the naked eye). In my line of work, I find this is helpful for reading tiny, hard-to-see serial numbers, such as the one inscribed on the inside of the AirPods' charging case.



Leif Johnson

And notice that this is only about half as close as I could have gone.

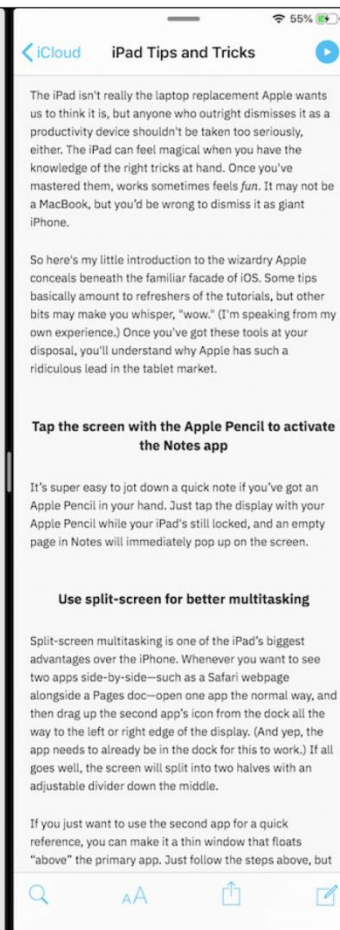
Apple TV remote

This shortcut lets you jump to the Apple TV's remote control app. Considering how long many of us spend looking for a normal remote, this is a good way to make sure you've always got one on you—and only a swipe away, at that.

Alarm

you'll find this especially
arms, deactivate others, or
er? Honestly, I usually set
a.m." beats even this for

I sometimes wish Apple could figure out a way to make Split View work on the larger iPhones



Here's a little introduction to the wizardry Apple conceals beneath the familiar facade of iOS. Some tips basically amount to refreshers, but other bits may make you whisper, "Wow". (I'm speaking from my own experience.) Once you've got these tools at your disposal, you'll understand why Apple has such a ridiculous lead in the tablet market.

1. Use Split View for better multitasking

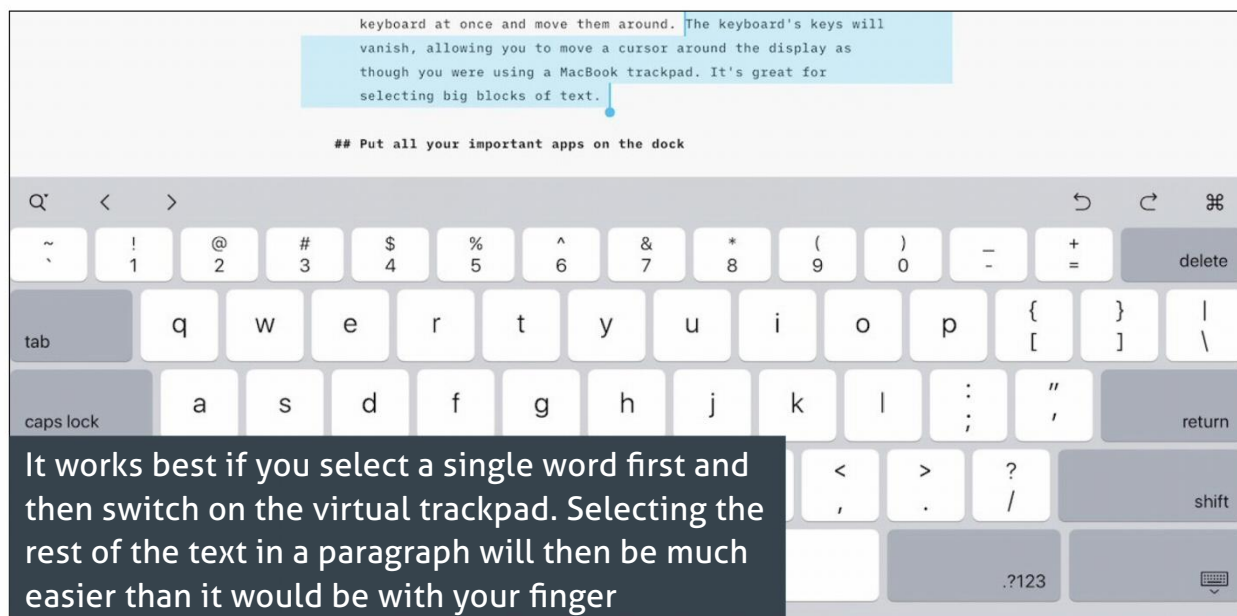
Split View multitasking is one of the iPad's biggest advantages over the iPhone. Whenever you want to see two apps side-by-side – such as a Safari web page

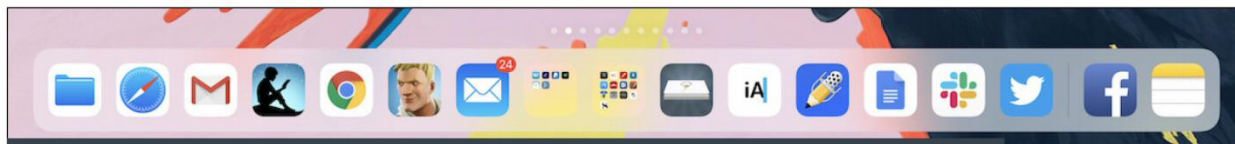
alongside a Pages doc – open one app the normal way, and then drag up the second app’s icon from the dock all the way to the left or right edge of the display. (And yep, the app needs to already be in the dock for this to work.) If all goes well, the screen will split into two halves with an adjustable divider down the middle.

If you just want to use the second app for a quick reference, you can make it a thin window that floats ‘above’ the primary app. Just follow the steps above, but don’t drag the second app all the way to the edge. Instead, drop it somewhere around the middle. When you want to get rid of it, swipe the thin white bar at the top of the app to the left or right to make it disappear.

2. Turn the iPad keyboard into a trackpad

The iPad currently doesn’t support wired or Bluetooth mice, but to Apple’s credit, it has a cool (if limited) substitute. Whenever the digital keyboard is visible, put two fingers on the keyboard at once and move them





On the 12.9in iPad Pro, you can fit 15 permanent apps or folders on the dock. The remain three spaces are for recently used apps

around. The keyboard's keys will vanish, allowing you to move a cursor around the display as though you were using a MacBook trackpad. It's great for selecting big blocks of text.

3. Put all your important apps on the dock

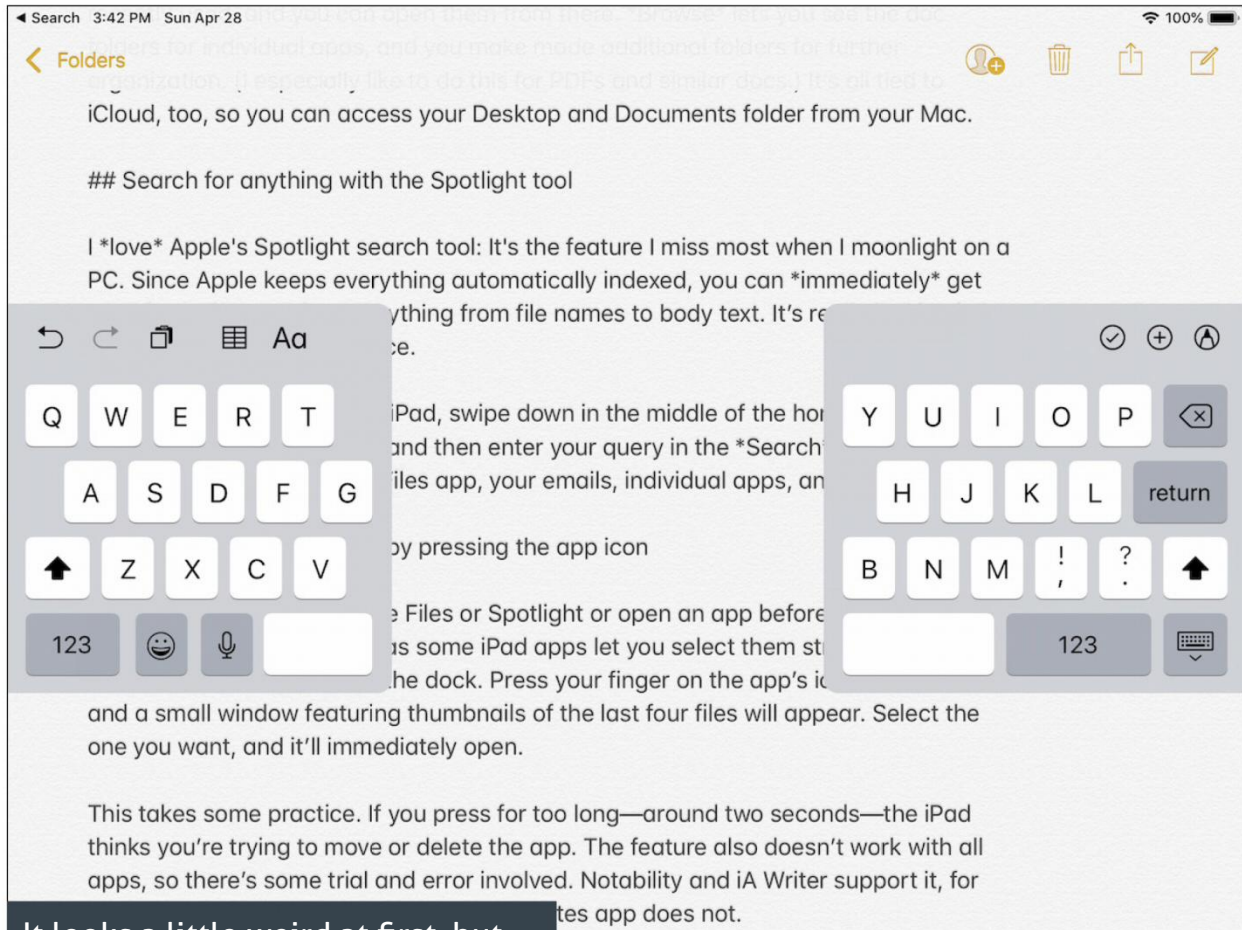
The iPad makes it very easy to open commonly used apps by letting you put a ton of them on the dock. The iPhone, by contrast, only lets you put four apps or folders down there.

I suggest putting as many commonly used apps on the dock as you can. Not only will this speed up your productivity since you can always see the dock when you swipe up from the bottom of the display, but it's also essential when you need to access an app through split-screen multitasking.

To add an app or folder to the dock, press down on its icon on the home screen until it starts to wobble. Then drag it down to the dock and plop it into place. That's all there is to it.

4. Split the keyboard in half for easier typing

Tired of hunting and pecking with one finger when you're holding the iPad like a clipboard? Apple lets you split the keyboard in two so that its two halves go to either side of the display. If you're a decent typist,



It looks a little weird at first, but the middle of the screen frankly seems like the best place to use it

it makes typing a heck of a lot faster. Bizarrely, this doesn't work on the 11- or 12in iPad Pro, perhaps because Apple figures the digital keyboard on those models is wide enough to feel more or less like a real keyboard. That's true, but it doesn't solve the 'clipboard' issue.

When the digital keyboard is visible, press down on the keyboard button in the lower right. Press Split in the menu that pops up, and the keyboard will split. If the keyboard is in the way, quickly press the keyboard

button and then slide the keyboard up or down. Don't press down for too long, though, or the Split menu will pop up again.

To return the keyboard to normal, press down on the keyboard icon again and tap Dock and Merge.

5. Tap the screen with the Apple Pencil to activate the Notes app

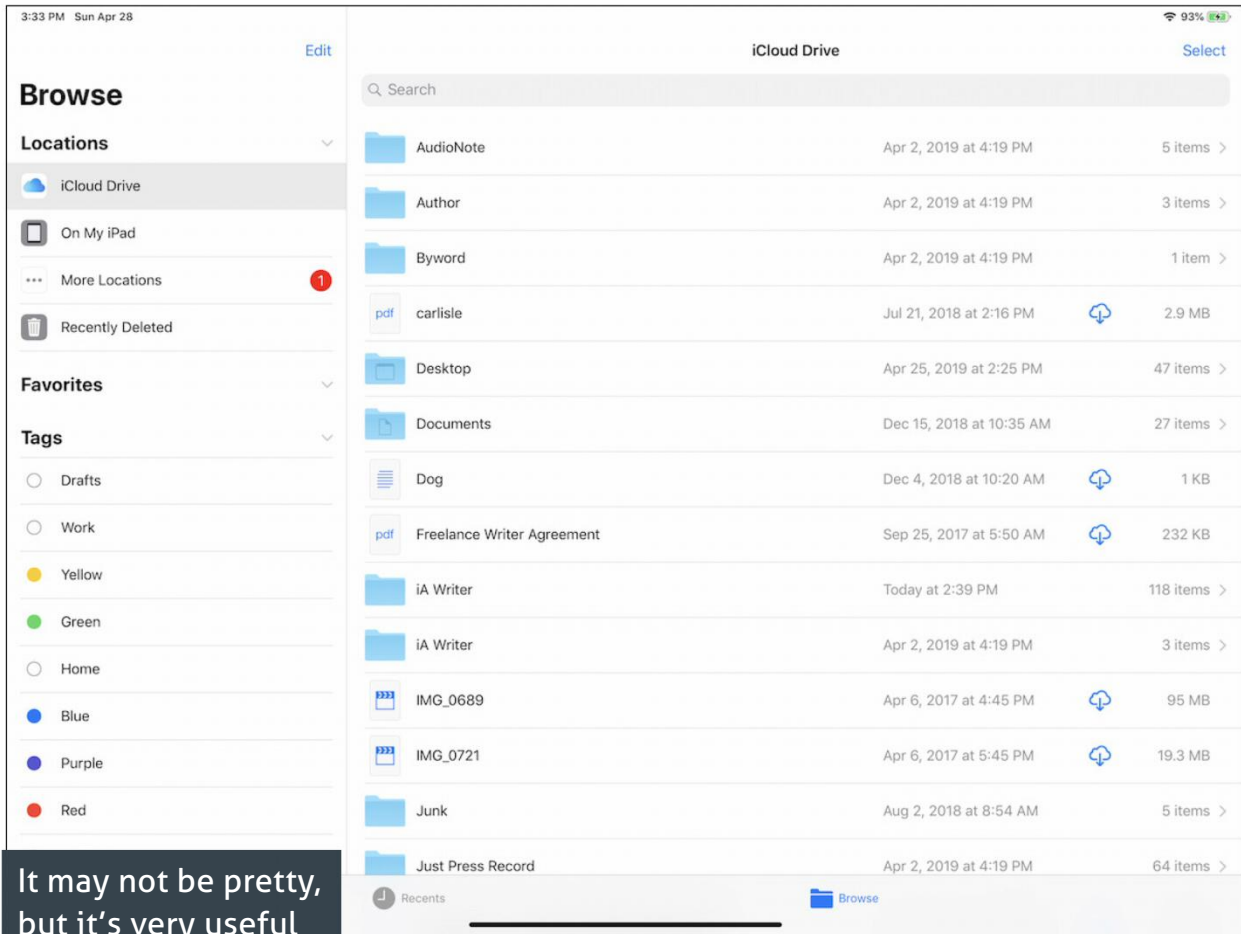
It's easy to jot down a quick note if you've got an Apple Pencil in your hand. Just tap the display with your Apple Pencil while your iPad's still locked, and an empty page in Notes will immediately pop up on the screen.

6. Use the Notes app as a built-in scanner

I admire third-party scanner apps like Scannerly, but they're not really necessary. After all, Apple lets you scan documents and makes PDFs from those scans straight from the Notes app. Once you've got the document you want to scan in front of you, open a new document in the Notes app and press the plus sign at the bottom. Then press Scan Documents. After that, you'll have a chance to sign the document using the Markup tool (with either your finger or the Apple Pencil), and from there you can save it as a PDF.

7. Use the Files app for better organization

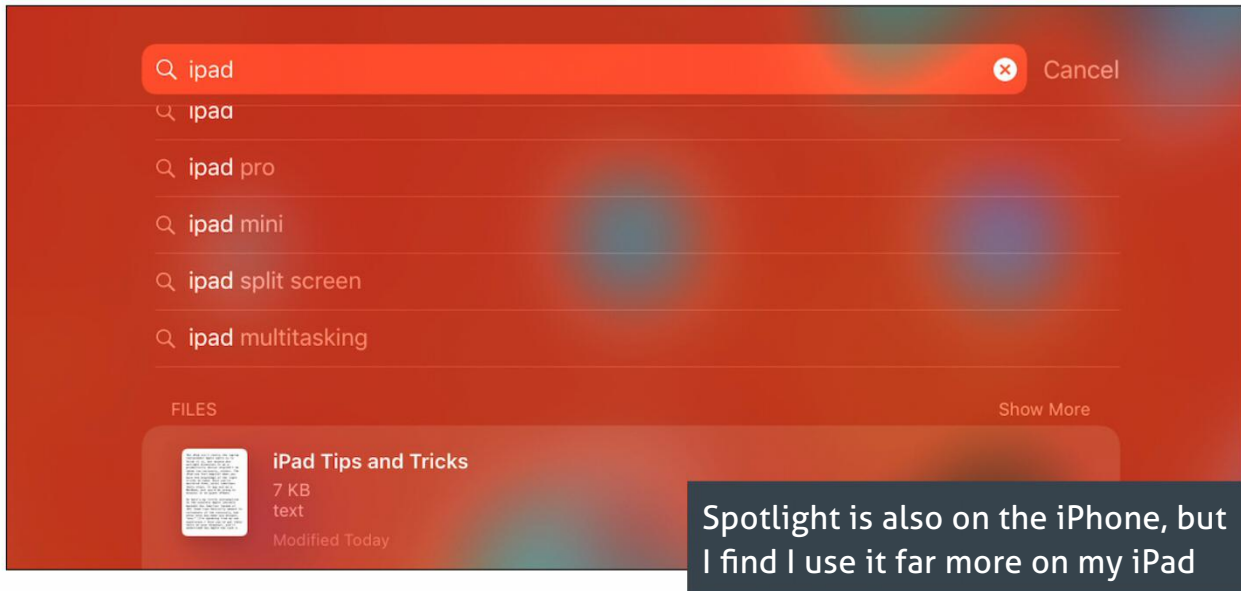
Back in the dark ages of, oh, 2017, the only convenient way of finding files you made on your iPad was to open them from the app you made them in. And that's why we should all praise the arrival of the new Files app. It's not exactly like sifting through doc folders on a Mac or PC, but it comes reasonably close.



At the most basic, you'll use two tabs. Recent lets you see all the documents you've recently used, and you can open them from there. Browse lets you see the doc folders for individual apps, and you make made additional folders for further organization. (I especially like to do this for PDFs and similar docs.) It's all tied to iCloud, too, so you can access your Desktop and Documents folder from your Mac.

8. Search for anything with the Spotlight tool

I love Apple's Spotlight search tool: it's the feature I miss most when I moonlight on a PC. Since Apple keeps

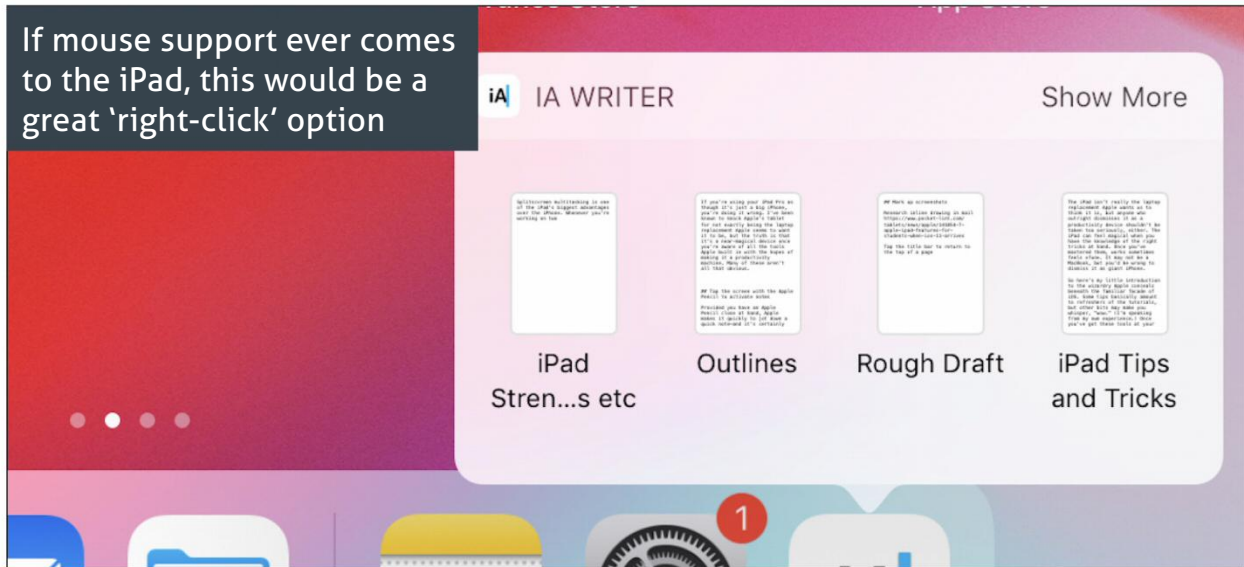


everything automatically indexed, you can immediately get search results covering everything from file names to body text. It's really hard to lose something on an Apple device.

To access Spotlight on your iPad, swipe down in the middle of the home screen once you've unlocked your tablet and then enter your query in the Search bar at the top. You'll see results from your Files app, your emails, individual apps, and more.

9. Open recent documents by pressing the app icon

You don't always have to use Files or Spotlight or open an app before you can access its most recently used files, as some iPad apps let you select them straight from the icon on the home screen or the dock. Press your finger on the app's icon for a second, and a small window featuring thumbnails of the last four files will appear. Select the one you want, and it'll immediately



open. This takes some practice. If you press for too long – around two seconds – the iPad thinks you’re trying to move or delete the app. The feature also doesn’t work with all apps, so there’s some trial and error involved. Notability and iA Writer support it, for example, but oddly enough, Apple’s own Notes app does not.

10. Copy items from your iPhone to your iPad

Sometimes you’ll find an image snippet of text on your iPhone that you’ll want to use with an app that’s only available on your iPad. Apple makes this easy, so long as you’re on the same iCloud account, the same Wi-Fi network, and Bluetooth is enabled. On your iPhone, copy the text or photo as you normally would. On your iPad, open the document where you want to paste it, hold down your finger until the menu appears, press Paste, and then it should appear.

And yes, you can send text and images to the iPhone from the iPad as well.

Why the Apple Pencil is a good fit for the iPhone

Choice is always good. **Leif Johnson** reports



At first sight, it looks weird to use an Apple Pencil on an iPhone, but if we're looking at comparable dimensions, it's not all that different from writing in a Moleskine pocket notebook with a regular pen or pencil. Apple may have had a similar realization lately, as new rumours from Citi Research (via Business Insider) claim that the iPhone will finally get "support for [an] iPhone pencil/stylus" later this year. Not only have we been hearing variations on this rumour for months now, but it even makes some sense now that Apple has

finally relented and rolled out Apple Pencil support to all current models of the iPad. At this point, what's another device?

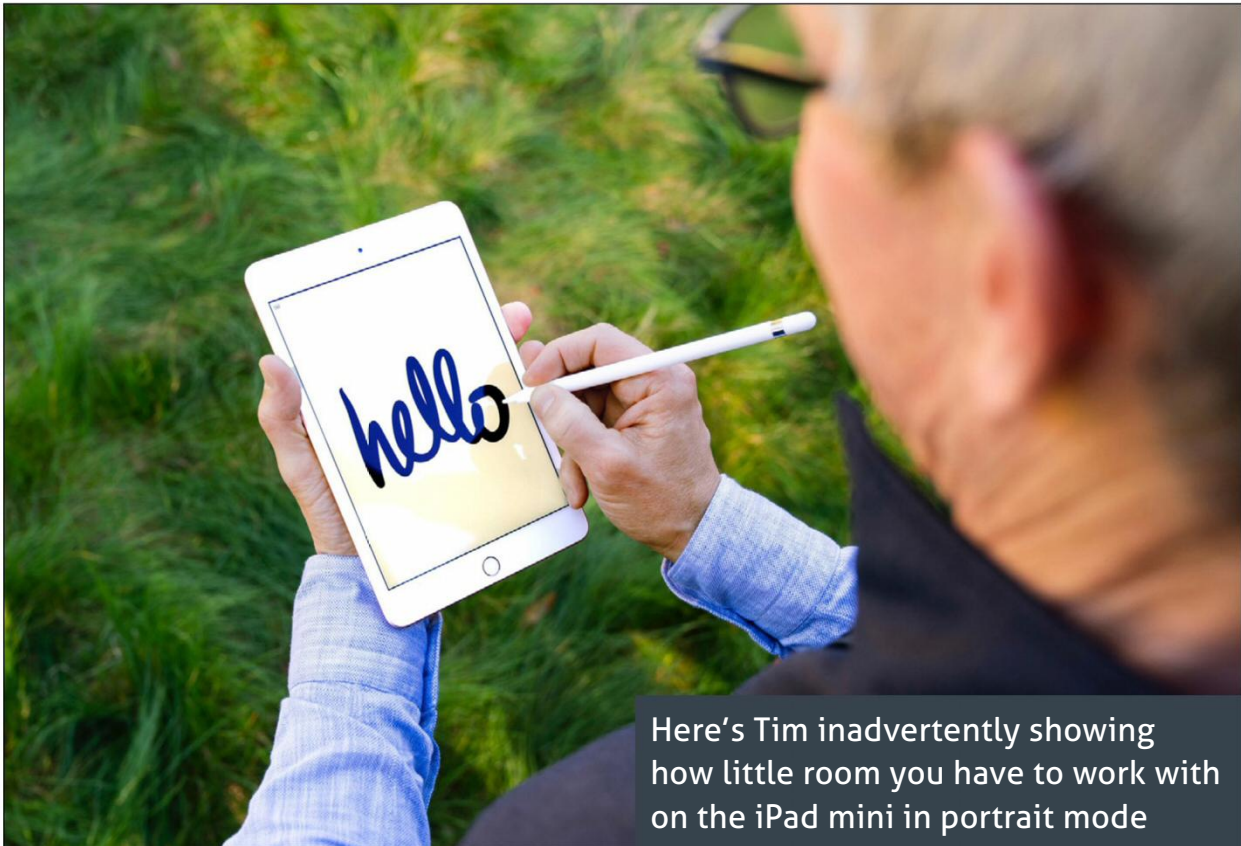
But rather than focusing on if we'll be able to use the Apple Pencil with the iPad, I'd like to focus on why. Yes, yes, let's go ahead and get it out of the way: Steve Jobs famously said "yuck" when discussing styluses in the context of iPhones, but at the time he mainly meant using them as primary input devices.

The Apple Pencil has never been one of those. It's always been second fiddle to the touch controls in iOS, and its interface conveniences mainly exist to spare us the awkwardness of setting down the Pencil after we've been using it for writing, drawing, or highlighting. It's never been considered a must-have accessory, which is probably one reason why Apple has never bothered to put one in the box.

Calling the Apple Pencil a 'stylus' feels like an insult. It's an elegantly balanced tool with stroke weight sensitivity that appeals to both calligraphers and artists. And while it may only be used on the iPhone by a small percentage of people who use the Apple Pencil on their iPads, that's no reason to exclude it from Apple's most iconic contemporary device.

The right time

There are also good practical reasons why it's a good time to introduce the Apple Pencil to the iPhone. iOS 13 will ditch 3D Touch, which was long considered a technology that would conflict with the Apple Pencil. Phones are also larger now, making them much better suited to a device like the Apple Pencil than the tiny



Here's Tim inadvertently showing how little room you have to work with on the iPad mini in portrait mode

device Apple showed off on stage at a Macworld event 12 years ago. It'll be awkward, but you'll probably be able to change the first-generation Pencil through the iPhone's Lightning port, and you might be able to use the iPhone XI to charge the second-generation if it supports reverse charging as rumoured. The technology behind styluses have improved, the display refresh rates for iPhones have improved so much that Apple is rumoured to be bringing its Apple Pencil-friendly ProMotion technology to the iPhone – it's a different world.

Not all screens are created equal, though, which is why the Apple Pencil will always be better suited to larger handsets like the iPhone XS Max. I've previously

said that this handset is so big that it effectively doubles as an iPad mini, although you'd have to use the Pencil lengthways in order to get the best use out of it. Apple may even keep the feature limited to the larger devices, as dropping from a device like the iPhone XS Max to the iPhone 8 would feel a bit like dropping from a Moleskine notebook to a Post-It Note.

But why would you use an Apple Pencil on the iPhone? At the simplest and most obvious, we'd use it to sign documents, and we could use it to touch up photos with more precision in apps such as Adobe Lightroom. We may even be able to use it with some games.

Let's get speculative, though. I see it as a useful note-taking tool, particularly if an app had a window that zoomed to a space with enough room for a couple of words so you could write continuously in landscape mode. When done, you could exit out and see the draft as one continuous block of copy. As an occasional longhand writer, I'd pay a lot for an app like that.

Apple could also introduce a feature like Sidecar but for the iPhone and iPad, and so allow the iPhone interface to act as a palette of sorts in an app such as Procreate and thus grant as much screen space as possible to an artist working on the iPad.

Necessary changes

Of course, all of this would require some changes to how Apple Pencil works. At the moment the Apple Pencil stays tied to one device, so Apple would have to make with Pencil work with every device tied to an Apple ID at once – or, a tad more likely, make

it so that a tap suffices to make move the Pencil between paired devices.

Alternatively, Apple could go the route of the Samsung Galaxy Note and simply make an Apple Pencil-like stylus for the Apple Pencil, which I'd be willing to be would be called the Apple Pencil mini. The vague wording of Citi Research's report suggests this might be the case, but I highly doubt that would happen. Apple has tried so hard to remove any holes, weak points, and breakable features from the iPhone, so I can't see them drilling in a slot to their oh-so-thin handset for a losable stylus. As Steve Jobs said in the full version of the quote, "You lose 'em, yuck." Indeed, I think Apple still has enough respect for Apple's complaints about styluses to keep it from ever selling an iPhone with one built in.



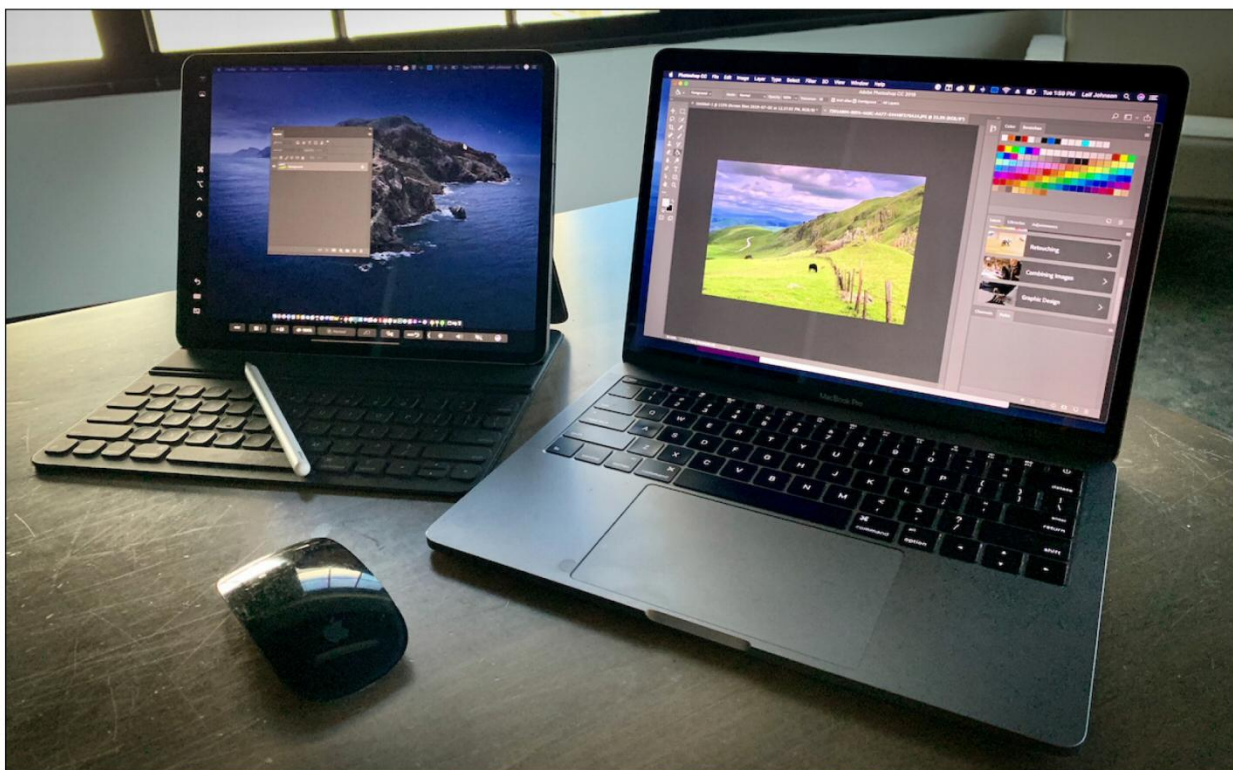
And while we're on the topic...

And none of the use-cases for the Apple Pencil above are exactly game-changers. No one's going to rush to buy an iPhone just because they can use a £99 to £129 stylus with it. But it would be a welcome feature for those of us who already use Apple Pencils with our iPads (which is why I hope Apple will let us use both the first- and second-generation Apple Pencils with it). I already find myself trying to tap my iPhone with my Apple Pencil after I've been using it for a while. Apple would simply be granting reality to actions that have felt natural for a while now.

It won't be a major selling point, but it'll be a welcome option for people who want it. Ideally, we wouldn't even have to buy a separate device. That approach is well in line with Apple's policy as of late, as it's less insistent on forcing us to use devices a certain way and more willing to, say, let us use mice on the iPad or play with Xbox One and PlayStation 4 controllers on our Apple TVs. They're useful features that not everyone will need, but which plenty of people would be grateful to have. And I like that about this new Apple.

Make your iPad a secondary Mac display

Been wanting a secondary monitor for a Mac? It's possible you already have one. **Leif Johnson** reports



If your Mac is running macOS Catalina, you can now use your iPad as a secondary monitor with the new 'Sidecar' feature. It's ridiculously easy to set up wirelessly through AirPlay.

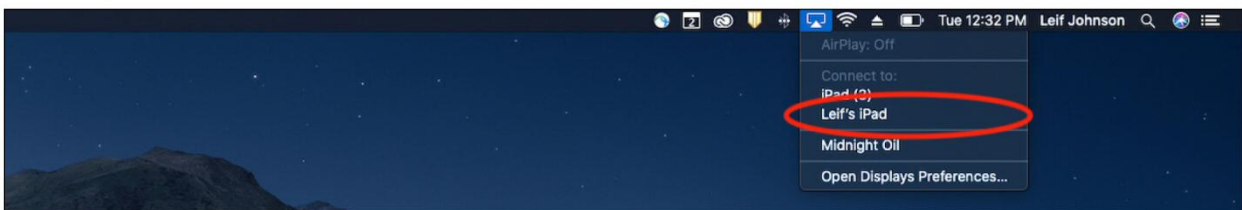
First, a few notes. Unlike with some existing third-party screen-sharing apps such as Air Display 3, you can really only use your fingers on the display for simple actions such as scrolling through text.

The Apple Pencil works as a 'mouse', though, and that includes using it to alter and create images through the full version of Adobe Photoshop while we're waiting on the proper iPad version to appear. Apart from the Apple Pencil, interaction involves a number of shortcuts on the borders of the interface, and you can press these with your fingers. Notably, Apple also includes relevant Touch Bar actions when someone is using an app on the iPad through Sidecar, so in Safari, for instance, you'll see the visual toggle for the different tabs.

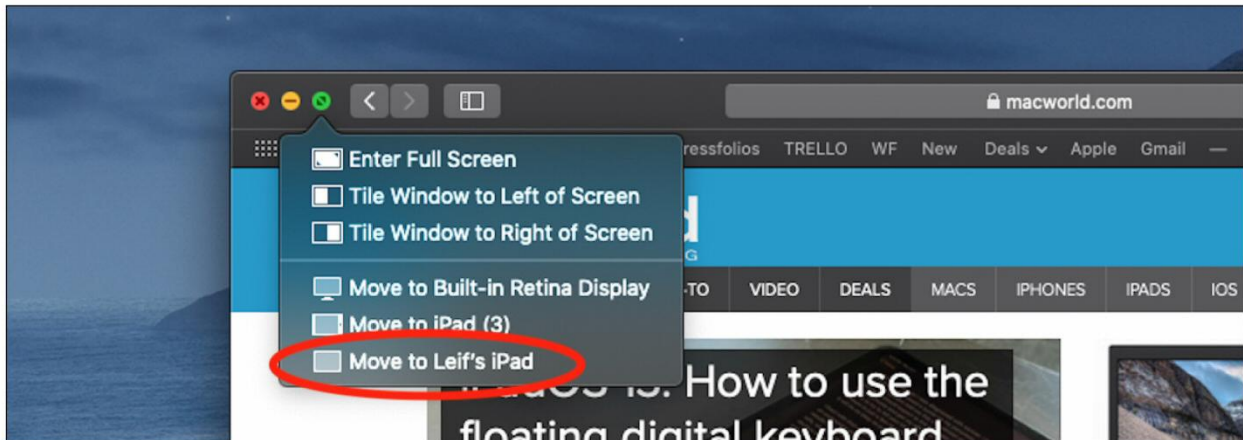
Set up Sidecar through AirPlay

Make sure your Mac is running macOS Catalina and that your iPad is running iPadOS. You do not need to unlock the iPad for Sidecar to work.

1. Select the AirPlay icon on your Mac's Menu Bar. It looks like a rectangle with a solid triangle pointing upward at the bottom.
2. Find the iPad you want to use as a secondary monitor and select it. In the example here, it's 'Leif's iPad'.



Your iPad should immediately start working as a secondary display. You'll see an empty desktop pop up on your iPad, and the AirPlay icon on your Mac's main menu bar will turn into a light blue rectangle.



You can also send an app to Sidecar at any time (even if it's not turned on yet) by holding your mouse over the green expansion button that you find on the top bar of a Mac app. A menu will pop up, and pressing Move to [iPad] will immediately send it over to the iPad and activate Sidecar.

To stop using your iPad as a secondary display, press the blue rectangle again. You'll see a menu pop up. Press Disconnect and the iPad will go back to being a normal iPad.

You can also mirror your Mac's display instead of using the iPad as a secondary monitor by pressing AirPlay icon – the blue rectangle – and selecting 'Mirror Display'.

Customize your iPad's Sidecar interface

By default, your iPad running Sidecar has a two-bar interface border around the display area that you can interact with using your fingers. If you find these bars distracting, you can turn off both of them by clicking AirPlay's blue rectangle in the Mac's menu bar and clicking Open Sidecar Preferences at the bottom. (You

can also access this by going to your Mac's System Preferences and selecting Sidecar.) In the menu that pops up, you can disable the left sidebar and the Touch Bar interface (or change their positions). You'll also see options to enable double-taps when using your Apple Pencil or whether you see a pointer when using the Pencil.

But you also might find these shortcuts useful. Here's a description of everything you'll find:

1. Dock alignment. Press one of these to easily bring your macOS dock over from the Mac itself (and tap it again to send it back).
2. Command (Hold down to set the modifier key, such as Command-K to open a new window. You can also double-tap it to lock it in place.)
3. Alt.
4. Control.
5. Shift.
6. Undo.
7. Show keyboard.
8. Disconnect Sidecar.
9. Touch Bar. Much like the Touch Bar on your MacBook, this interface changes depending on which app you have open.

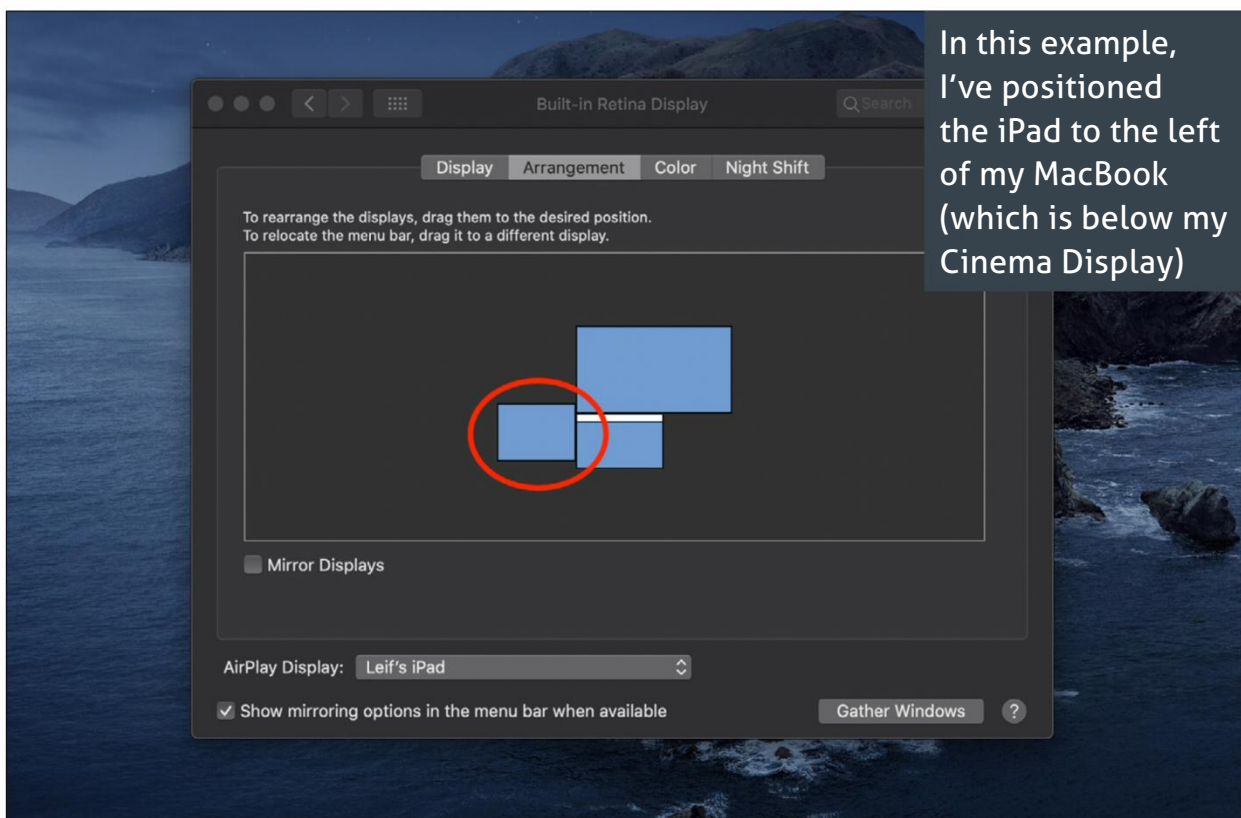
Arrange your iPad's display in relation to your Mac's display

The easiest way to arrange your displays is to click on the blue rectangle in your Mac's menu bar once your iPad is connected and then clicking Open Display Preferences in the menu that pops up. You'll then want

to go to Arrangement in the menu that appears. You can also do this the long way:

1. Open your Mac's System Preferences.
2. Press Displays.
3. In the menu that pops up, select the heading that says Arrangement.

From here you can arrange your displays as needed. If you want to be able to access your iPad's display by moving your cursor off the left of the Mac's screen, for instance, arrange the blue screen representing your iPad so it's to the left of the Mac's icon in the interface. (By default, the Mac's interface should have a white bar across the top.) When you move the icon representing



the display, the actual display should light up with a red outline that lets you know you've selected the right one. Once you're done, simply close System Preferences and get to work.

Note: Apple will even let you use your iPad as a tertiary display if you've already got a second monitor hooked up. You can also keep it connected to your Mac with a cable for charging, although you'll need the proper cable. In the case of the 2018 iPad Pro and a MacBook, for instance, this requires a USB-C to USB-C cable.

Which Apple devices can use Sidecar?

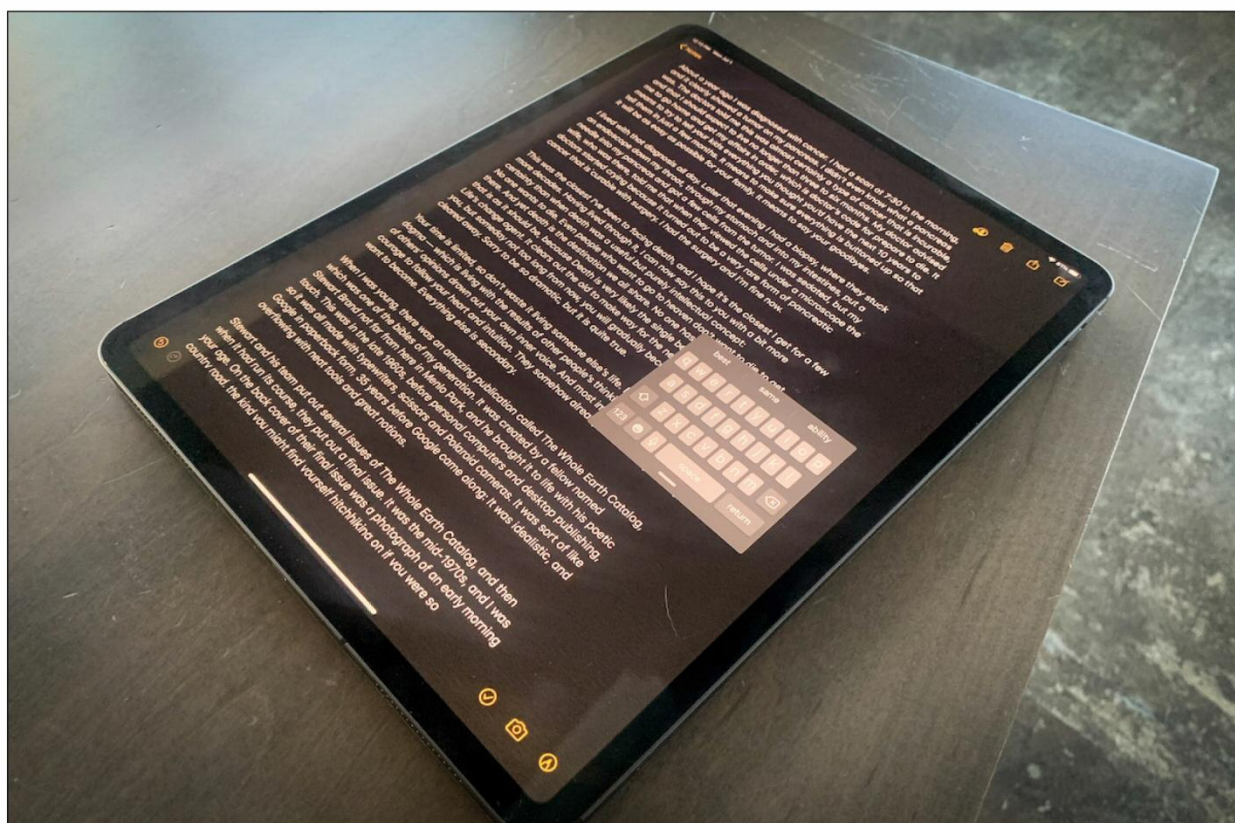
We currently have no concrete information regarding which Macs can support Sidecar, but developer Steve Troughton-Smith found code suggesting that the feature is roughly limited to Macs made since 2016. (One exception is the 2015 27in iMac.)

As for the iPad, you can safely assume that Sidecar will work on any iPad that can run iPadOS. We tested it with three different models, and they all worked fine. The following devices are capable of running iPadOS:

- iPad Pro (all generations)
- iPad (5th and 6th generation)
- iPad mini (4th and 5th generation)
- iPad Air (3rd generation)
- iPad Air 2

How to use the floating digital keyboard in iPadOS

The iPhone typing experience comes to Apple's tablet, and the iPad is the better for it. **Leif Johnson** reports



Here's a truth we've had to endure for the iPad's entire lifespan until now: The bigger the iPad, the bigger the frustration of typing on the screen when you're holding the tablet like a clipboard. One hand had to hold up the iPad, leaving the index finger of your other hand to hunt and peck its way across the QuickType keyboard on the expansive screen.

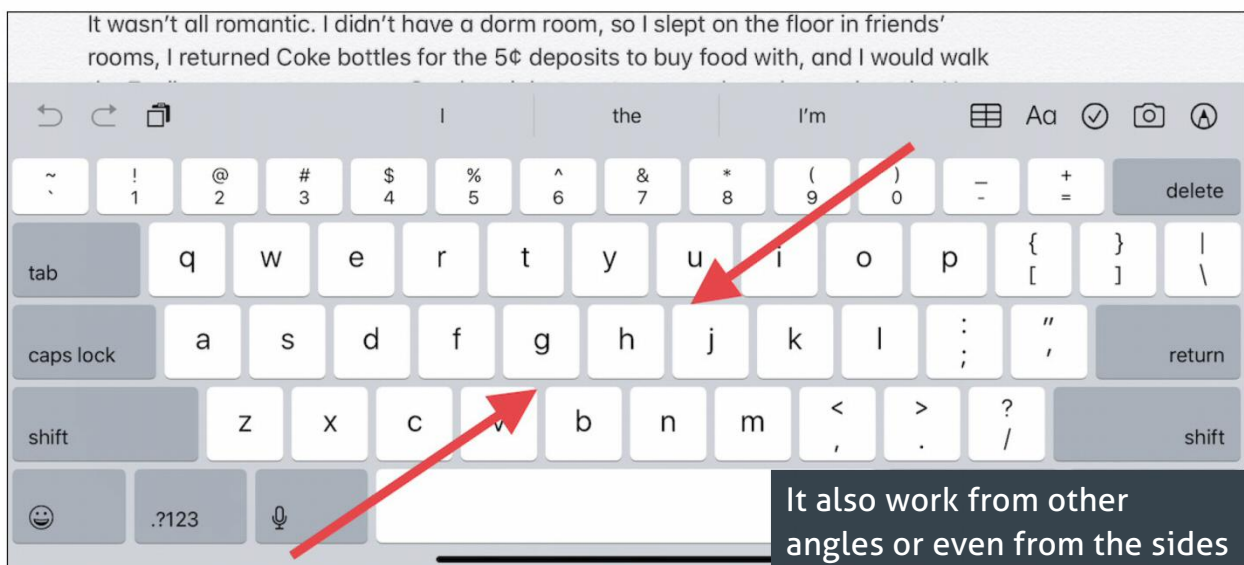
It certainly didn't help that the normal keyboard is simply bad for presentation because it obscures around a fourth of the screen.

Apple originally attempted to solve this problem by letting you split the keyboard in two halves, but it is removing that feature with iPadOS. That's because it introduces a better option: now there's a floating iPhone-sized keyboard that can freely move to any spot of the display. Unlike the iPad's digital keyboard in its default configuration, this smaller floating keyboard even supports the swipe-typing feature Apple is bringing to the iPhone with iOS 13.

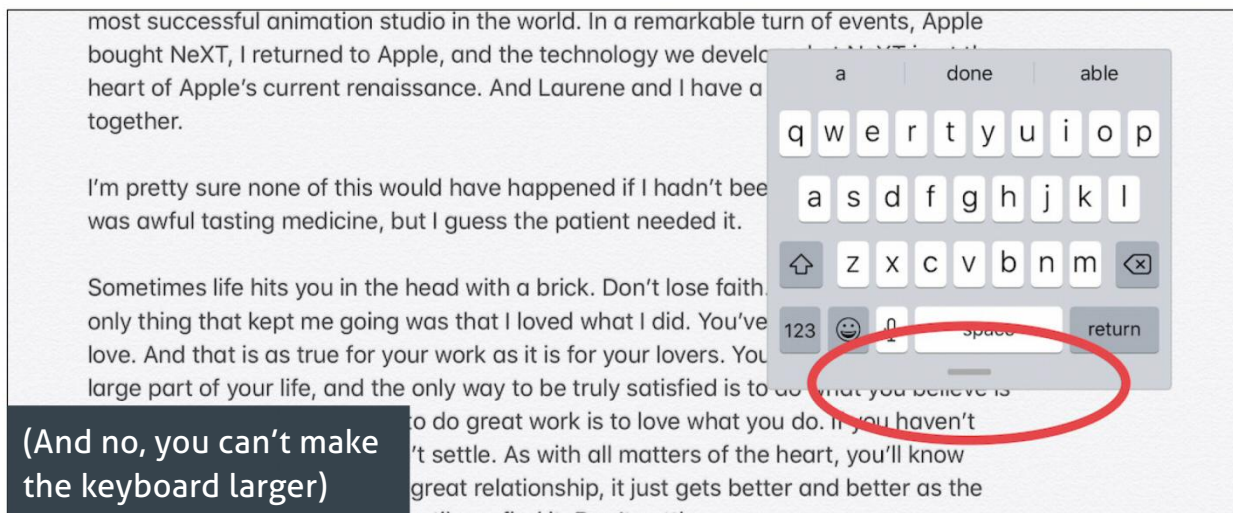
The new floating keyboard allows for much faster typing while you're holding the tablet, and the freeform placement allows for convenient typing while still letting you see the 'big picture' of your project.

Turn on iPadOS's floating keyboard

1. Open any app where the standard iOS on-screen keyboard appears. For convenience, we'll use Notes.



2. Once the keyboard appears, use your thumb and index finger to pinch the keyboard. This works in any orientation and in any spot, so long as both fingers are on the keyboard interface.
3. The keyboard immediately shrinks down a shape and size that resembles an iPhone keyboard.
4. To move the keyboard, press down on the bar at the bottom of the keyboard interface and move it as needed.



(And no, you can't make the keyboard larger)

5. To return the keyboard to its default orientation, pinch outward on the keyboard interface.

Alternatively, while the iPad is in its default screen-wide configuration, you can hold your finger down on the key with the keyboard icon in the lower-right and pressing the Floating prompt that pops up. You'll have to pinch outward to close the keyboard, though. Note, the keyboard will stay in the last mode and orientation you left it in regardless of which app you're using.

Authentication should be Apple's next killer app

Some additions in iOS 13 could point towards bigger implications for Apple and authentication in the long-term. **Dan Moren** reports



When it comes to security, we often think primarily of protecting our data: encrypting it to make sure that nobody else can access it. But just as important as that is the concept of authentication: proving that we are who we say we are.

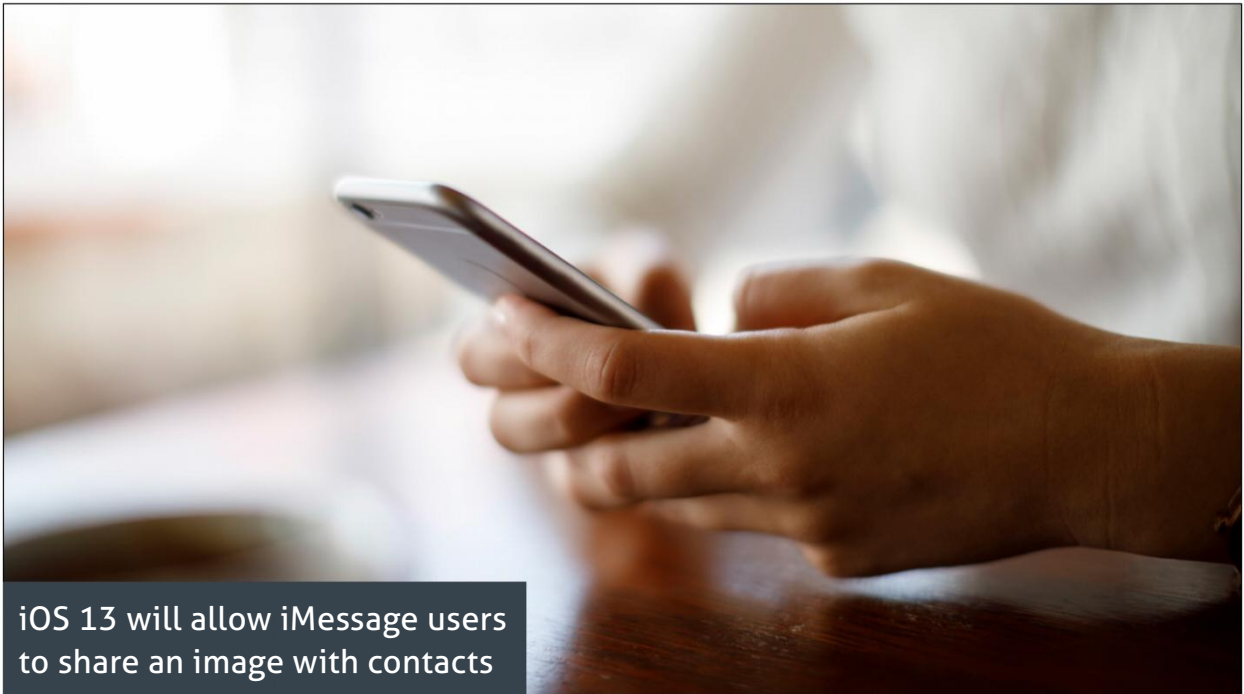
Apple has made great strides with authentication in the past few years. Biometric measures such as Touch ID and Face ID help make it easier for users to identify themselves and ensure that only they can access their private data.

In Apple's usage, that authentication has generally been inward-facing: users control access to their own files and data, and the system checks to see whether or not we are the person who should be allowed in. But beginning in iOS 13, a few minor updates will start moving that authentication into the public realm, opening up the ability for us to prove our identity to others. And there's a lot more room for Apple to expand there.

Hello, my name is

We've all had the experience of using iMessage or SMS and not knowing who's on the other end (or, as the children say, "new phone, who dis?"). Whether it's because it's a wrong number or someone that we've met but haven't yet put into our contacts, it can be frustrating to just have a string of numbers as identification. Apple has tried to mitigate this in recent years by using information from your email or other apps to try and guess who's calling or texting you. For example, if you've been emailing someone and their number is in their signature, iOS can cross reference that information and let you know what it finds.

iOS 13 will take this further by allowing iMessage users the ability to voluntarily share their names and an image of their choosing with contacts, even if they've never been in touch before. (Users get to control whether everybody can automatically see this, only one's existing contacts, or whether they'll be prompted each time.) This turns iMessage into something a little closer to a social network, but – more to the point – it



also potentially provides a degree of identification by linking a name with an iMessage account.

From what we can see of this system so far, it doesn't go quite far enough to be considered authentication, as users can set their own name and image. It's unclear at present how or if this feature will prevent someone from impersonating another person. But it's a step closer to providing a framework where users don't have to guess who's contacting them.

You sign in, Apple signs off

Likewise, Apple's new Sign In with Apple system launching this autumn also endeavours to provide a degree of authentication and identification with external services. Since it's keyed into Face ID and Touch ID, the sign in can authenticate you, and then pass along that authentication information to the

website or app in question. While that may not seem much different from our current situation, the significant change here is that Apple can do all of this without sharing that information with the service in question.

Part of Sign In with Apple is the ability of Apple to safeguard your personal information, such as your email address; as previously discussed, the system will even generate a random email address that points back to your own account. Apple, essentially, intermediates the authentication process, which puts the company in the interesting position of being the arbiter of who claims to be who.

This isn't precisely a new role for Apple, either: Apple Pay is built on a similar idea, with Apple obfuscating your real credit card number in order to prevent fraud. Payment vendors and banks alike have agreed to trust Apple's judgement as a middleman.

Nice to meet you

Apple is in the rare circumstance to be able to take this even further. The company has already implemented a web of authentication, with systems in place to help individuals prove that they are who they claim to be, including knowledge factors (passwords and PINs), ownership factors (devices like an iPhone or Apple Watch), and inherence factors (biometric data), that taken together can provide a pretty conclusive call on the identity of a user.

But if Apple pointed these systems outwards, it could help to provide more assurance that the people users deal with are who they say they are as well. Imagine if such a system could be used to verify that you're

exchanging emails with the correct person (and even seamlessly encrypt those messages in the bargain). Or if you could easily exchange, say, a password-protected note or file that could only be opened by the intended participant, without users having to handle the cumbersome process of exchanging a password.

Certainly, authentication systems already exist, but they're mostly technical and unfriendly, which means they're not the kind of thing that gets used by the people who need them the most. Apple's already taken steps in the right direction with things like end-to-end encryption in iMessage, but authentication is something that often gets overlooked. The firm's combination of hardware, software, and services adroitly positions the company to help provide easy and seamless authentication to its customers. And, in the long term, making authentication available to anybody on a platform benefits everybody on that platform.

Everything that's new with augmented reality

Apple may or may not be developing an AR headset, but the latest features in ARKit 3 show it's committed to AR. **Leif Johnson** reports



The end goal of Apple's augmented reality programme is currently a mystery, particularly in light of a recent DigiTimes rumour claiming that Apple disbanded the team responsible for its AR head-mounted display. This report flies in the face of a slightly earlier report from analyst Ming-Chi Kuo claiming we'd see some kind of Apple AR headset as early as next year.

There's little doubt, though, that Apple is still championing augmented reality with a zeal we find in few other competitors, and the progress in the new ARKit 3 (and so in iOS 13 and iPadOS) feels like a great leap forward. That leap is so great, in fact, that the many of the features only work with iPhones or iPads running A12 chips or better. (And for that matter, that progress strongly suggests that Apple is designing a headset or glasses that will allow these features to shine, but anyway.)

The slight downside is that current phones can only use this technology with machine learning technology tied to the iPhone's rear camera, so you won't always get the fluid captures you'd expect from the front-facing camera's TrueDepth sensor. As we'd hoped, though, Apple is rumoured to be including VCSEL time-of-flight sensors in an upcoming iPhone's rear camera, but we likely won't see them until 2020. So maybe we won't have glasses anytime soon, but at least the iPhones and iPads may be better.

On the more immediate horizon, here's what you can expect in Apple's latest devices once iOS 13 and iPadOS drop later this autumn.

People occlusion

An easy way to understand how occlusion works is to think of an eclipse. When the moon passes in front of the sun, it's occluding it. In AR terms, that means a Pokémon you find in Pokémon Go's AR view might appear to stand behind chairs and other furniture. As iOS currently works with ARKit 2, the illusion of 'reality' only works if the Pokémon is 'sitting' on a flat space.



ARKit 3, though, can 'read' the floor and figure out where the digital objects should stand in relation to any real-world people. Apple showed how this could work (with much applause) with footage of a woman walking through a living room littered with large digital chess pieces and a toy soldier. After the keynote, Apple let visitors see it in action with a game featuring two iPad-wielding players who tried to paddle a giant digital ball toward huge bowling pins at the end of the 'court'.

Occlusion also allows for 'green-screen' effects much like those used for special effects in modern motion pictures.

Motion capture

ARKit 3 supports real-time body tracking, which means it's able to study the movements of a person's joints and mimic them with an animated avatar. It's a fun-

looking feature, and I like to think that refined future versions could allow for something like full-body Memoji. Apple only gave this feature a few seconds, but it could end up being the most influential.

But it needs some refinement. Even Apple's presentation at WWDC showed an avatar with slightly choppy animations. I've little doubt that iOS motion tracking will improve once the iPhone's rear camera gets proper time-of-flight sensors.

Collaborative sessions

Augmented reality as we know it is largely a solitary experience (at least on iPhones), but ARKit 3 changes that by introducing collaborative sessions that let people play (or work) within the same AR spaces.

At WWDC, two representatives from Mojang showed how this would work in the upcoming Minecraft Earth by building a castle together. The demo was also a great way to show how ARKit 3's other features work in practice, as when the developers illustrated occlusion by walking behind digital flowers.

Simultaneous use of front and rear cameras

ARKit 3 now lets developers track your environs with both the front and rear cameras at once. I haven't had a chance to see this feature in action yet, but it sounds as though it'll be absolutely devastating for your iPhone's battery.

In practical terms, this feature would allow iOS users to use their faces to interact with digital objects that have been mapped out with the rear camera, which could lead to games involving other characters reaction

to your facial expressions. (It also sounds like it'll make a great Accessibility feature.)

Tracking for multiple faces

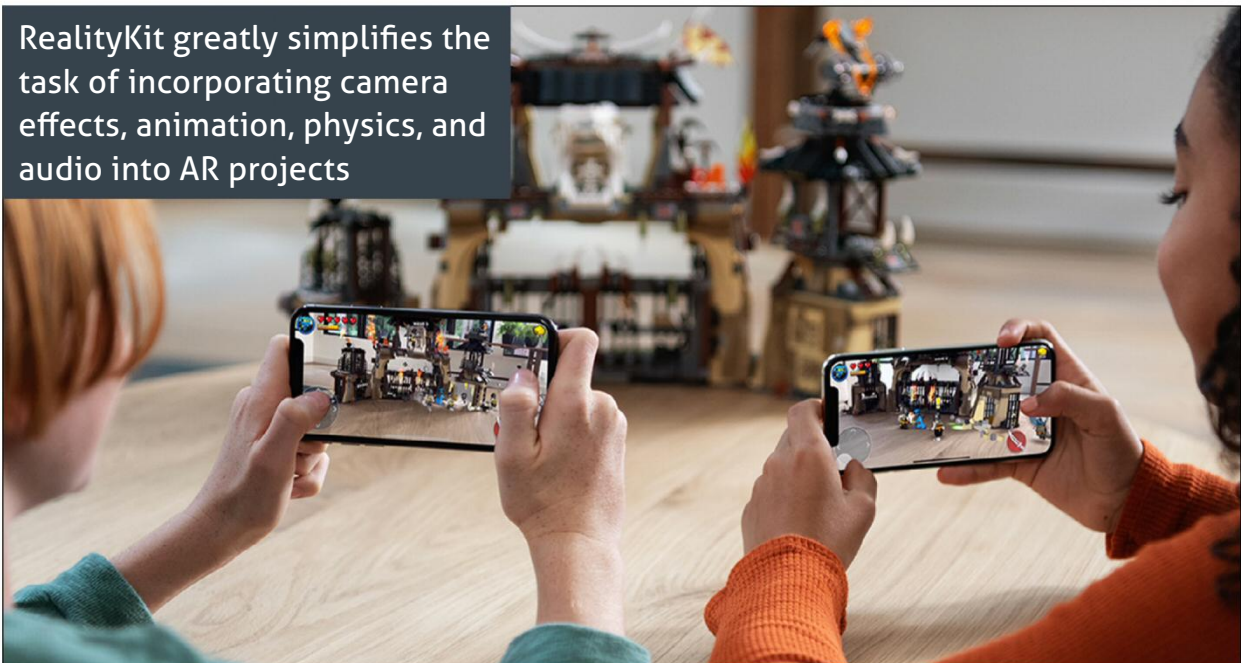
Apple's TrueDepth sensors are already impressive when they're used with one face, but ARKit 3 allows your iPhone or iPad to track up to three faces at once. It's a cool feature to have, even if it sounds as though using it will require all three people to scrunch in close. Maybe it will be good for some Memoji-based singing sessions?

This feature will only work with devices with at least an A12 chip and a TrueDepth sensor, and right now that means the iPhone X, XS, XS Max, XR, and iPad Pro.

Smaller technical improvements

ARKit 3 also benefits from several less headline-grabby features that nevertheless enhance the AR experience

RealityKit greatly simplifies the task of incorporating camera effects, animation, physics, and audio into AR projects



on iOS. It now lets your device detect up to 100 images at a time, and in line with the introduction of occlusion, it's also better at recognizing and guessing the sizes of physical objects. AR experiences should be faster in general, and iPhones and iPads can now detect planes in the environment more swiftly.

RealityKit and Reality Composer

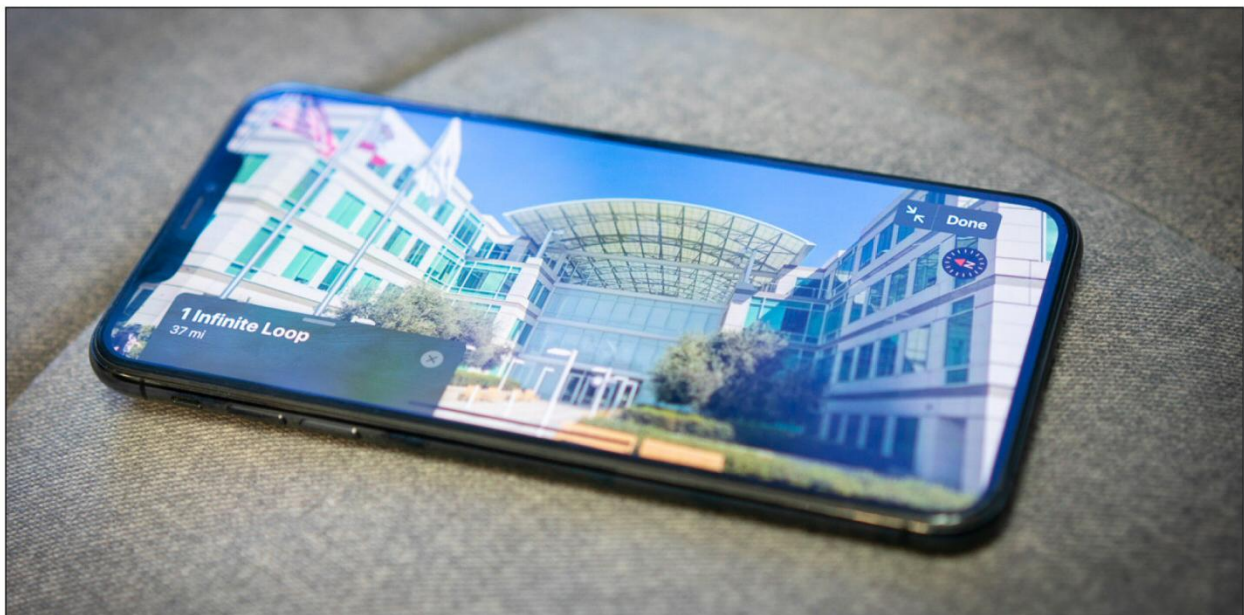
Apple wants developers to use cool the new features in ARKit 3, and so it's made the process easier with AR tools that work with Xcode on Mac and a custom iOS app. RealityKit greatly simplifies the task of incorporating camera effects, animation, physics, and audio into AR projects. Reality Composer aims to help developers who have little experience with 3D modelling by giving them access to a library of AR-optimized 3D assets.

Eye contact correction in FaceTime

Apple didn't mention its Attention Correct feature on stage, but it was discovered in the iOS 13 developer beta by developer Mike Rundle (who apparently predicted it in 2017). With it on during a FaceTime call – you can toggle it off through Settings if you wish – your eyes always appear to be looking directly at the other person. Normally, you won't be making direct eye contact since you're looking at the display, not the camera. As Observant AI CEO Dan Shukin pointed out on Twitter, iOS uses ARKit to achieve this magic. Unfortunately, as of the time of writing, it only appears to work for the iPhone XS and XS Max.

How to use Look Around in Apple Maps

Apple Maps finally has a feature that resembles Google Maps' Street View, and it's just as easy to use. **Leif Johnson** reports



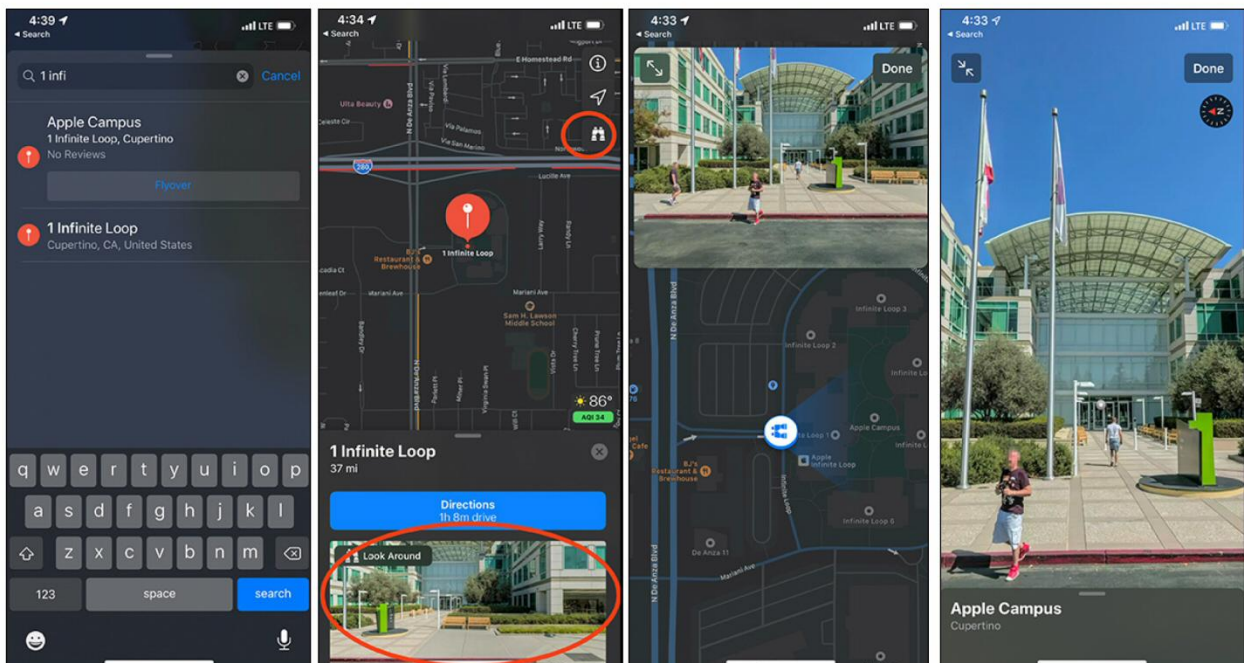
It only took 12 years, but Apple Maps will finally get a feature that resembles Google's Street View when iOS 13 and iPadOS drop sometime later this year. (Unfortunately, it doesn't work with macOS.) Look Around works a lot like Street View, but it comes with some attractions of its own, including smoother transition animations and photos that use parallax in order to deliver a 3D-like depth you don't find in Google Maps. It's also easy to use, as you can see below.

One catch: Look Around is currently a very limited feature, as you'll only be able to use it in the United

States, and even then you can only use it in places like the Hawaiian island of Oahu and California's San Francisco Bay Area. Apple is steadily collecting imagery for other locations, though, and you can get an idea of its progress through this page.

Use Look Around with a specific address

1. Open the Maps app.
2. Enter the location or address you'd like to see Look Around for in the search bar that says, 'Search for a place or address' toward the bottom.
3. Press the proper address from the available selections.
4. Once the map for the location opens, you have two options:
 - For a minimized Look Around view, press the icon with binoculars in the upper right-hand corner, which



should be under the icons for Settings and pinpointing your location. If Look Around data is available, you'll see a Look Around image pop up. You can either press Done to exit or the expand icon with two arrows in the upper-left of the preview if you want to see the imagery in full-screen mode.

- For a more immediate full-screen view, should also see a preview of the Look Around view under the address once Apple Maps pulls it up. Press the preview image, and it should expand to full-screen mode. Once you're done, you can either use the minimize button in the upper left-hand corner or press Done.

Use Look Around without entering an address

I often like to use Google's Street View as a 'virtual tourist' by dropping Google's little orange man in a spot that looks interesting. This sort of thing is possible with Look Around – so long as Look Around is supported in the area, that is – but it's comparatively awkward.

For one thing, the binoculars icon that announces if Look Around is supported only shows up if you've zoomed in close to the desired location. Sometimes you'll even have to zoom in if you used the search tool: if you look up the Golden Gate Bridge, for instance, you'll find that the span is so long that the Look Around icon won't show up in the upper right unless you zoom in further manually.

1. Open Maps.
2. Use your fingers to navigate to a general location.
3. Zoom in close until the binoculars icon appears in the upper right. Press it.

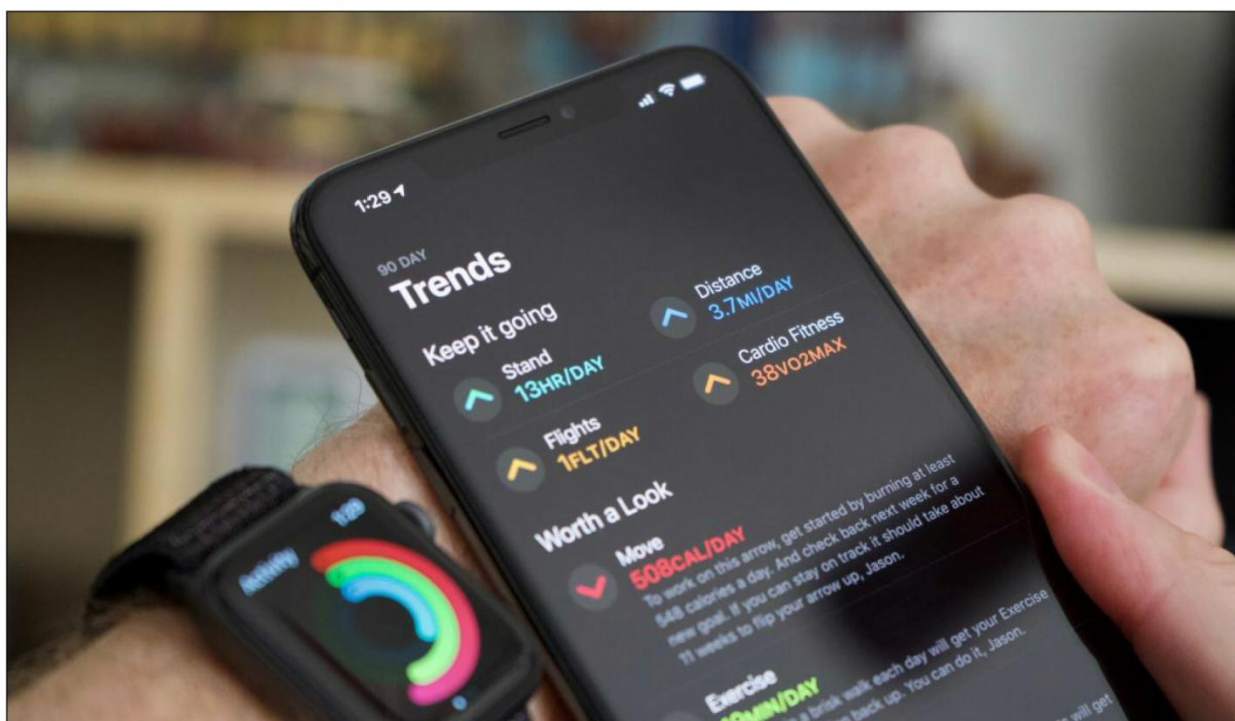
- The Look Around feature will choose a spot around the middle of the map, and the Look Around preview for that spot will show up at the top. To look at other spots, simply pinch or swipe your fingers around to centre the circular binocular icon on the map in a desired location. You can even zoom out during this process for a wider view, but if you go too far, you'll see warnings saying either, 'Zoom in to see street imagery' or 'Imagery is not available for this area'. To get it to work, you'll have to zoom in again.

Considering how limited the rollout of Look Around currently is, you'll probably be seeing this error a lot. Hopefully many more locations will be available when iOS 13 drops in the autumn.



Activity Trends give you the big picture

A new iOS 13 feature will help you make sense of all that activity data coming from your Apple Watch. **Jason Cross** reports



The Apple Watch is a fantastic fitness tracker. Maybe too good, in fact. Between heart rate and variability, movement tracking, exercise tracking, walking, standing, calories, flights, steps... there's just so much to take in. The Health app on your iPhone is a treasure trove of fitness data, but it can be hard to get the big picture.

Apple's redesigned Summary page and Highlights in the Health app go a long way to addressing that, but the

best way to get a clear, simple picture of whether or not you're making any progress in your fitness goals is to use the new Trends feature in the Activity app in iOS 13.

The Trends tab

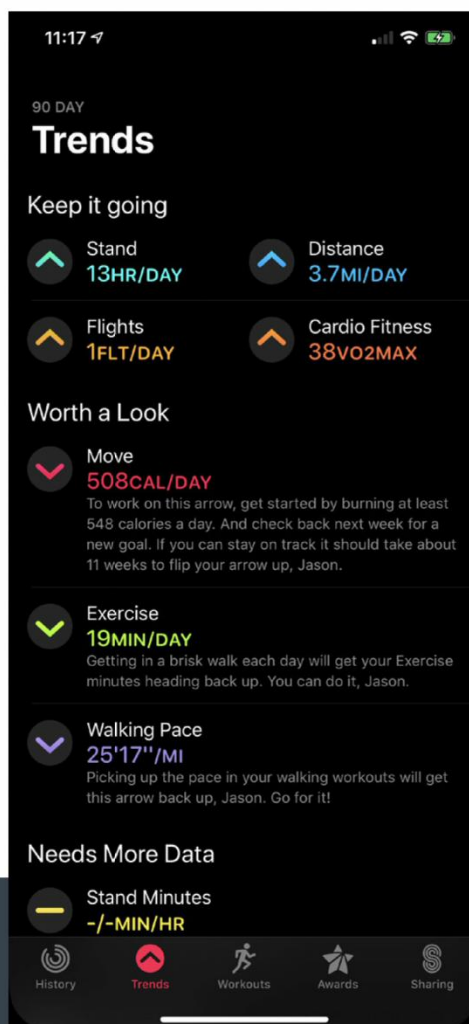
Open the Activity app on your iPhone and you'll get a window into all the fitness tracking data gathered from your Apple Watch. You can see the history of which days you've closed your rings, details of past workouts, and look at all the badges you've earned.

A new Trends tab in iOS 13 offers a particularly useful way to understand, at a glance, if you're making progress in your fitness goals or not.

This tab shows a handful of the most common activity measurements, each in its own colour, along with an arrow pointing up or down.

That's it. Distance, up or down. Exercise minutes, up or down. Walking pace, up or down. It's incredibly simple, and that's the whole point.

The new Trends tab provides a quick and easy way to see if you're improving or not



What the trends mean

What do those up or down arrows mean, exactly? Your iPhone analyses the past 90 days of a given activity and compares it to the entire past year. If the most recent 90 days averages more than the average of the past year, the arrow points up. If it's less, the arrow points down. In other words, if you walked an average of 2.6 miles per day over the past year, but you walked an average of 2.8 miles per day in the past three months, the arrow points up.

This is important. It means that a single day spent cooped up on an airplane won't ruin your trends, and the one run you went on last week isn't going to turn them around. Improving your health is all about making consistent, long-term, sustainable progress, and Trends' 90-day versus 365-day comparison is a good way to measure that.

Apple divides the Trends tab into three sections. Keep it Going shows the activities in which you're improving. Worth a Look shows activities that have trended downward with brief tips to help turn them around. The Needs More Data category shows activities for which your Apple Watch has not collected enough information yet.

Tap on any one activity to see a detailed chart of the past year, with the past 90 days highlighted. You'll also see a comparison between your 90-day average and your yearly average for each day of the week. Maybe you're just slacking off on Mondays, right?

How the App Store is changing in iOS 13

Perhaps the most widely-used app on our iPhones is being reorganized in iOS 13. **Jason Cross** reports



The most oft-used app on our iPhones is probably Safari. It is the default web browser, after all. But just behind that, and arguably more important, is the app we use to find, download, and update most of our other apps: the App Store. Back in iOS 11, Apple gave the App Store its first big facelift in a years when it added its own editorial content in a new Today

tab, split Games and Apps into their own tabs, and redesigned app pages. In iOS 13, the App Store is going through another significant revision. It's not quite as big a reorganization as in iOS 11, but it's a significant change to how you update and manage your apps.

Here's what's new in the iOS 13 App Store.

Dark Mode (naturally)

Of course, the App Store in iOS 13 supports Dark Mode, just as all of Apple's built-in apps do. You'll see white text on a black background throughout, with the light grey backgrounds of highlight boxes and cards replaced by dark grey.

Welcome, Apple Arcade

The biggest change to the App Store in iOS 13 is the replacement of the Updates tab at the bottom with Apple Arcade. (The Today, Games, Apps, and Search tabs remain unchanged.)

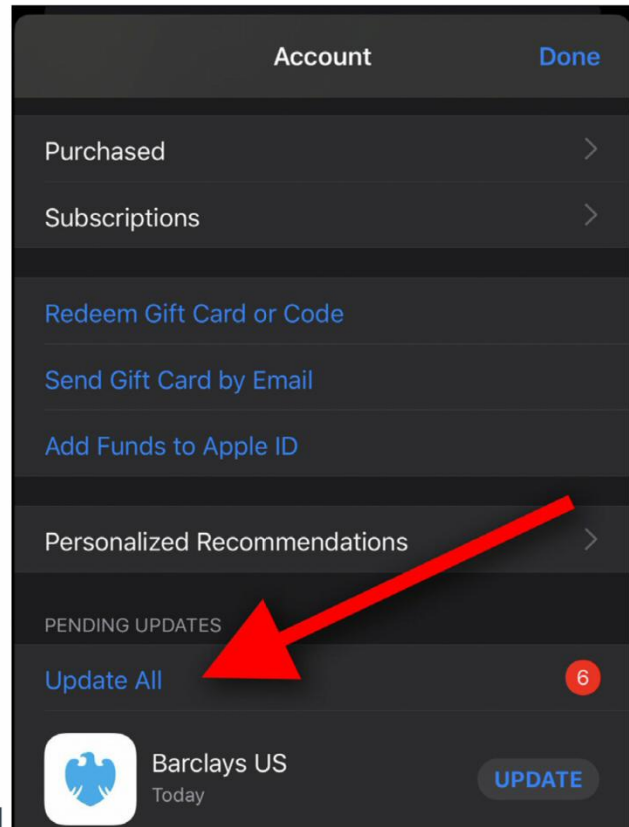
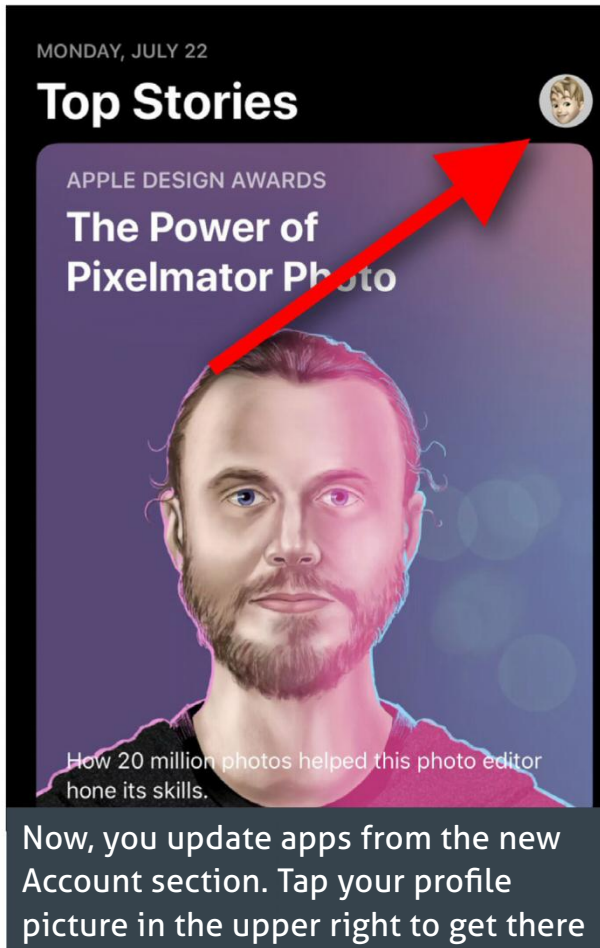
This subscription service will offer over 100 games with no in-app purchases, compatibility with iPhone, iPad, Mac, and Apple TV, and Family Sharing included.

We don't yet know what it will cost, but giving Apple Arcade its own tab in the App Store is a pretty big push.

App Updates have moved

If Arcade replaces the Updates tab, where do you go to update apps? You'll now see your Apple ID profile picture in the upper right of every App Store tab. Tap on that to be taken to your Account page.

This is your one-stop shop for managing all your App Store stuff. There's a banner at the top to manage Apple

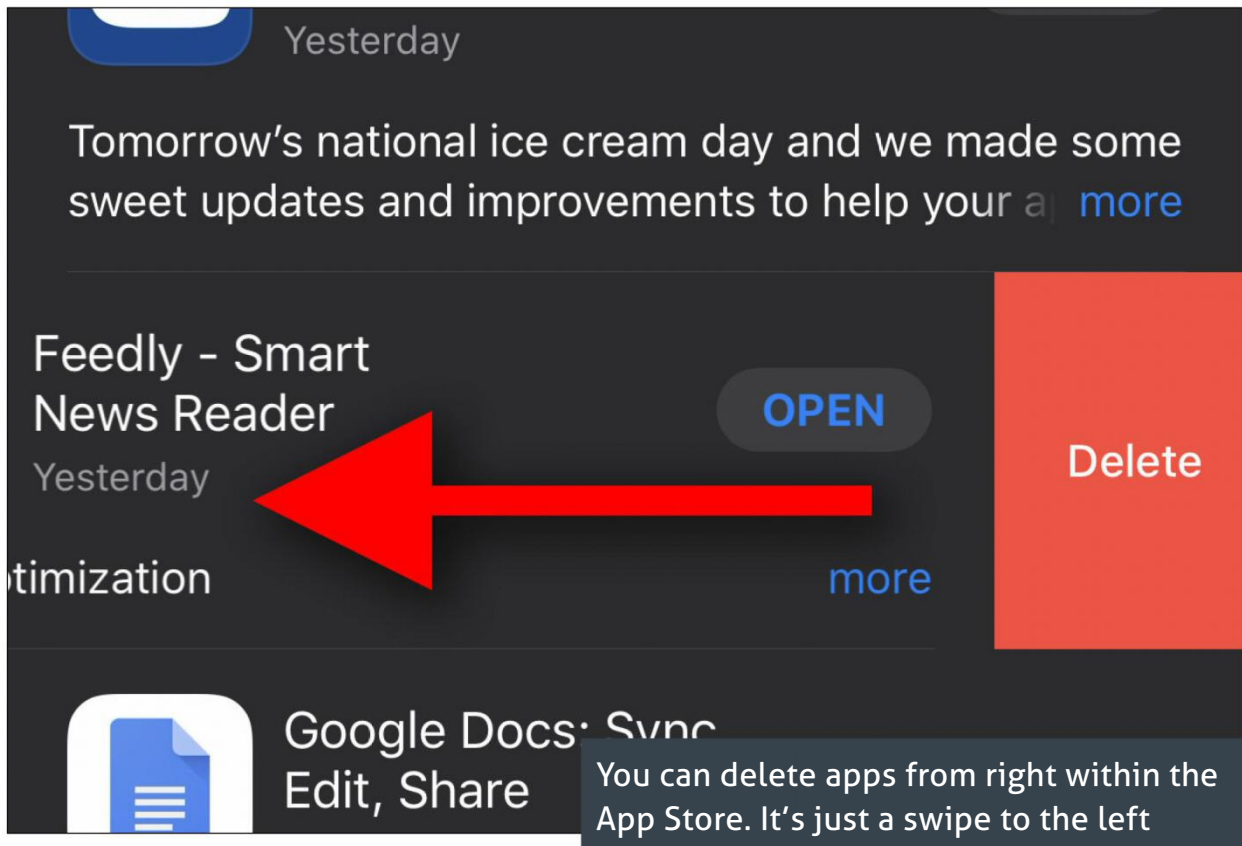


ID settings, followed by links to all your Purchased content and Subscriptions. You can redeem or send gift cards or add funds to your Apple ID, and manage the settings for your personalized recommendations.

Following that, you'll see a list of all your installed apps. It starts with the apps that have an update available, followed by recently updated apps. You can update apps individually, or tap Update All.

Simply drag this screen downward to refresh the list, forcing the App Store to check for new updates.

Of course, you can still enable automatic downloads of app updates in Settings > iTunes and App Store.



Deleting apps

Until now, you had to delete apps with a tap-and-hold on the home screen or in Settings > General > iPhone Storage. In iOS 13, you can also do it from the App Store. When looking at your list of installed apps on your Account page, whether they have an update available or not, drag the App's card to the left to show a Delete button.

This is a useful place to put app management. It's often when we see a list of apps for update that we ask ourselves why we're still downloading updates for an app we haven't used in months. Now, you can take action right away to remove an app you no longer want taking up precious iPhone storage space.

It's time for the iPad to support multiple accounts

A complaint nine years in the making. **Leif Johnson** reports



It's 2019 and yet iPads remain married to the person who set them up. Apple may chatter a lot about privacy, but the fact that the firm insists on keeping its tablets tied to a single Apple ID means there's little that's private about sharing an iPad.

This arrangement has never made much sense, but it's especially bizarre in light of the avalanche of

quality-of-life changes the tech giant unleashed at this year's WWDC. Almost every long-standing grievance got attention. With iPadOS, we can finally take Apple's tablet somewhat seriously as a laptop alternative. We can use mice on iPads now. Safari finally looks much like it does on a Mac.

The firm was so keen to improve its software that it even introduced support for multiple users on the Apple TV of all things, and I'm not even sure how many people were asking for that.

But I know plenty of people – mainly parents – have wanted iPads to support multiple accounts for ages. This very editorial is part of a long *iPad & iPhone User* tradition that stretches back at least to 2013, and as recently as last November, columnist Dan Moren was telling everyone that Apple needed to roll out multi-user support for the Apple TV, HomePod, and iPad. Apple granted the first two wishes, but not the latter. It's an especially oddball policy when you consider that so much about Apple's marketing suggests the company wants its tablet to be embraced by families, workplaces, and schools.

Schools, in fact, may point the way forward. Apple already lets school districts set up multiple accounts for students on its tablets with a service called Shared iPad, and so far it hasn't caused some privacy crisis or burdened the tablets with lackluster performance. Since Apple syncs students' information through iCloud, students can work off of any iPad from the pile. Teachers act as administrators for the iPads, so they can see their students' performance and even see how they're using their iPads. It's basically what we want.



This, but for everyone

Parents in families with shared iPads would love a feature so aptly named as Shared iPad, but instead, they find themselves struggling to keep their private apps, messages, and emails away from the children. As former colleague Susie Ochs pointed out last year, Screen Time isn't an ideal solution as it forces parents to live under the same limitations as their children (or at least forces them to deal with frequent annoyances while disabling them). None of this would be a problem with multiple accounts on the same device, and with multiple

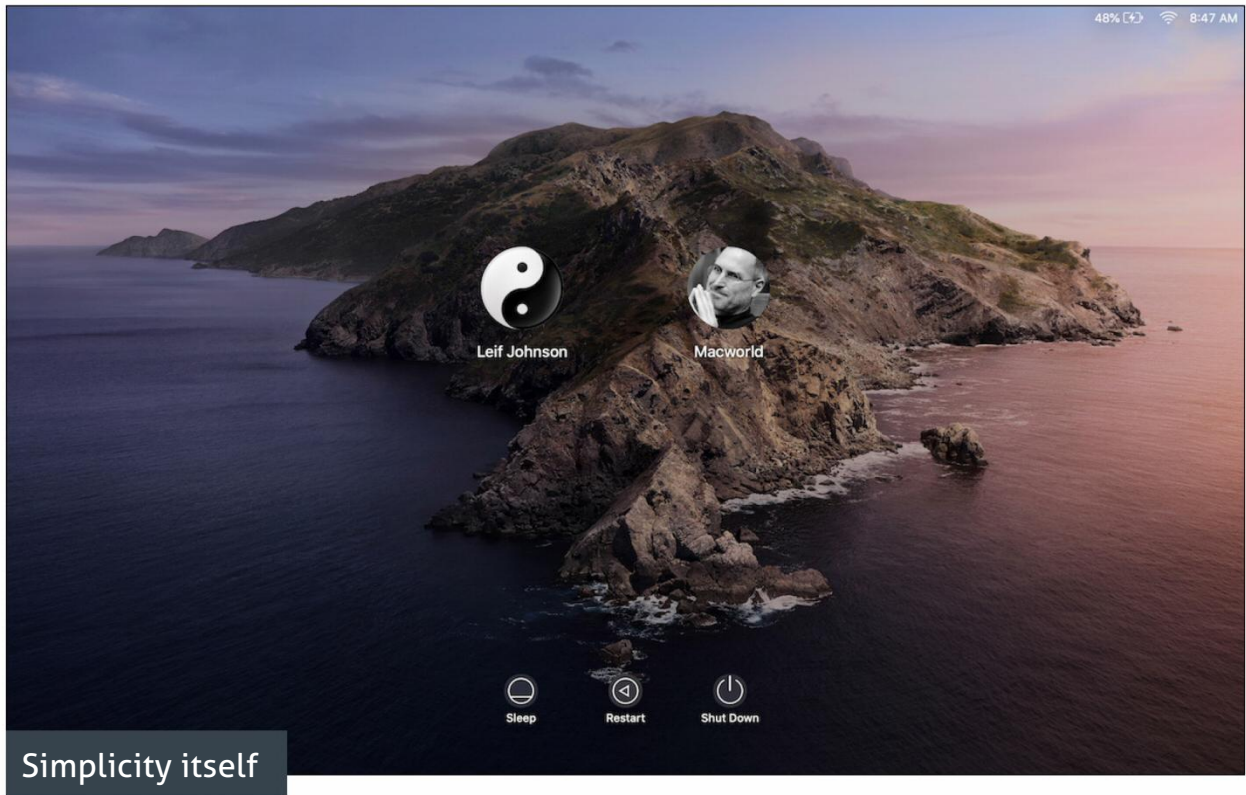
accounts on Screen Time, parents could get a more accurate picture of how children are using their iPads.

I'd love to see multi-user support on the iPad even in an office context. When a colleague wants to run benchmarks or handle an iPad I've been using for specific apps, I have to wipe the entire device clean so they don't have to deal with seeing my stuff. I shouldn't have to act like such a big machine is just as private as my phone. The only real option Apple allows for privacy while sharing iPads is a little-known Accessibility feature called Guided Access, but it simply keeps the person you hand the iPhone or iPad to from looking at anything besides that specific app.

We're not asking for some sci-fi feature. Macs have worked this way for years, so I can pass a MacBook to a colleague because I know they'll be fine using the guest account. Windows PCs work this way. Other tablets and even some Android phones work this way.

Administrative leave

Much as it did with so much else about iPadOS, Apple should take a cue from the Mac and allow one account to serve as an administrator. That would allow the person to access all the privileges and settings, and so use the iPad as they would now. That person could control which other accounts have access to the data plans in cellular models, and they could better control which apps their children have access to through Screen Time. That person could decide which accounts can buy or download apps from the App Store (which will help with concerns about running out of storage space), and choose which apps to share with Family Sharing.



As with the Apple TV, such a setup would allow family members to watch shows and listen to music without worrying that their recommendations will get muddled with someone else's preferences. All of their separate accounts could open and be protected with Face ID or Touch ID. The only stumbling block I see is that each person would probably have to enter their Apple ID password each time they take it over from another user, but after that, the iPad should work as we normally use it.

I see two practical reasons why Apple might not want to extend multiple-user support to ordinary iPads: file management and storage limits. Both could cause complications once multiple users start downloading multiple apps on the same device, especially on

smaller iPads – some of which have only 32GB of room. I struggle with storage limits that small with a single account. Apple's experiment with schools shows that file management needn't be as complicated as it seems, though, particularly if Apple allowed an administrator's account to place limits on downloaded files. And if it is really worried about space, then it could limit multi-user support to the iPad Pro. It even makes sense – with iPadOS, the Pro no longer has many big software differences to distinguish it from its more affordable cousins. After that, we're left with a suspicion that Apple only hasn't introduced multi-user support for the iPad is that it wants multiple users of the same household or office to buy their own iPads.

I hope this will be the last editorial like this in our pages. I hate the idea of waiting, but I'm also hoping Apple is saving the feature in order to snazz up the reveal for the next iPadOS, which almost certainly won't be as flashy as what we saw in June. Right now, Apple's prohibition of multi-user support keeps the iPad from being quite the kind of household staple Apple wants it to be. It clashes with Apple's commitment to privacy. And it's time for it to go away.