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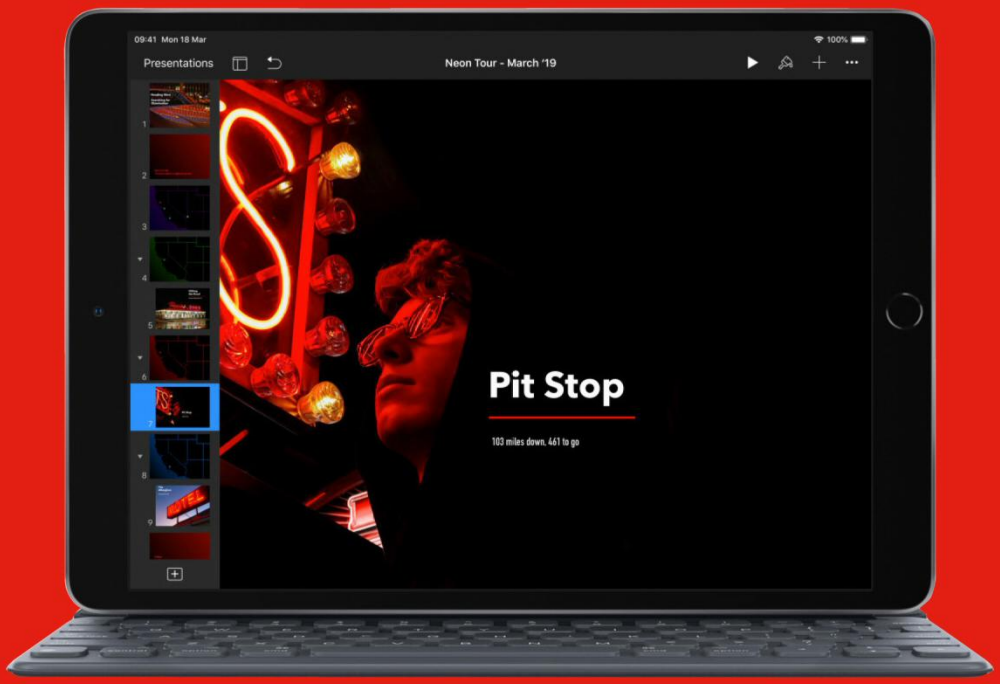
iPad & iPhone user

ISSUE 153

FROM IDG

10.2in iPad VS iPad Air

APPLE'S ENTRY-LEVEL TABLETS GO HEAD TO HEAD



iPad at 10: Why apps made the iPad a success

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MOVE TO THE LEFT!
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Jackson Square,
French Quarter
Locations
iCloud Drive
Select
Search
Rough Poster
Lighting Reference
Color Inspo
Artist Portrait
Creative Brief
Poster Draft
Numbers
Pages
Photo Shoot

84

KITCHEN
Real One
LIVING ROOM + BEDROOM
November
iPhone
Living Room
Bedroom
Living Room Apple TV
OFFICE
On and On
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Apple cracks $90bn in a single quarter for the first time as the iPhone returns

Yeah, the iPhone is back. **Michael Simon** reports

What a difference a year makes. Just 12 months after Apple surprisingly revised down its quarterly earnings and reported lagging iPhone sales, the grass is much greener on this side of the calendar. You might say Midnight Greener.

For Apple's first fiscal quarter of 2020 (which includes the final three months of 2019), it posted record revenue of $91.8 billion, topping its own estimates and besting last year's holiday quarter by nearly 10 percent. iPhone sales alone were up more than 7 percent, as the iPhone 11 and 11 Pro proved to be strong holiday sellers. That's not quite a record – Apple sold $61bn worth of iPhones in the 2018 holiday quarter – but it's the strongest results in two years.

Of course, the iPhone wasn't the only performer. As has been the case for the past few quarters, Services and Wearables were also up in the quarter, bringing in a combined $23bn. Wearables, in particular, showed tremendous growth, with a year-over-year increase of more than 40 percent.

Services were also up an impressive 17 percent, but only marginally ($250 million) over the previous quarter. That suggests that a large portion of Apple TV+ subscribers are enjoying the free year Apple offers with every new device purchase. In the earnings call, CFO Luca Maestri said Apple has 480 million subscribers across its own and third-party paid services through iTunes, with a goal of reaching 600 million by the end of 2020.

CEO Tim Cook touted the strength of the iPhone and also Apple's overall customer growth. "During the holiday quarter our active installed base of devices grew in each of our geographic segments and has now reached over 1.5 billion. We see this as a powerful testament to the satisfaction, engagement and loyalty of our customers – and a great driver of our growth across the board."

It wasn't all good news, though. The iPad was a bit of a disappointment, posting a 12 percent drop over the year-ago quarter as Apple's haphazard upgrade cycle is clearly weighing on sales. Meanwhile, the 16in MacBook Pro and sky-high Mac Pro did little to spur interest in the Mac, as sales were basically flat year-over-year.

Looking ahead to the second quarter, Apple expects revenue between $63bn and $67bn, which would represent a healthy jump over 2019's $58bn.

Apple extends iPhone XS and XR Smart Battery Case warranty to 2 years

Apple will replace buggy Smart Battery Cases through 2022. **Michael Simon** reports

As battery cases go, Apple's Smart Battery Case is one of the best around, with a slim fit, excellent monitoring and, of course, great battery life. But if yours isn't working as it should, Apple might replace it for free, even if it's out of warranty. And if it is working, you just got a free extra year of warranty.

Apple has launched the Smart Battery Case Replacement Programme for iPhone XS, XS Max and XR, which covers all cases made through October of 2019. That's basically every model ever produced, since the case only launched on 13 January 2019.

There are two issues that Apple has identified:

- The battery case will not charge or charges intermittently when plugged into power.
- The battery case does not charge the iPhone or charges it intermittently.

Since the case is only a year old, most of the models in circulation will still be under warranty, but this programme extends the warranty for an extra year. Even if your case is working fine now, if it stops working in a few months, you'll still be covered. Apple says it will evaluate each Smart Battery Case to verify that they are eligible once they are brought in for service. You can get your Smart Battery Case replaced at a local Apple Store, or an authorized service provider. All models and colours of the case are included in the programme.

Apple's record quarter: Don't try to trick Tim Cook

A lot can be gleamed from Apple's financial results, but you won't get much about future products. **Jason Snell** reports

Well, here we are again. Apple once again announced its biggest financial quarter of all-time in January. During the three months that ended calendar 2019, Apple generated a staggering $91.8 billion in revenue, up from the previous record of $88.3 billion generated at the end of calendar-year 2017. The company also generated a record $22.2bn in profit. Sometime this decade, Apple's

going to drop a $100bn holiday quarter on us, and I'm not sure my brain can count that high.

In any event, after dunking on us all via press release, it was time for Apple's executives to do their quarterly ritual of spending an hour on the phone with a handful of questioning financial-industry analysts and a bunch of silent journalists. There's always something interesting to glean from that call, especially when Apple CEO Tim Cook and CFO Luca Maestri show restraint and don't just spend an hour running around the conference room high-fiving.

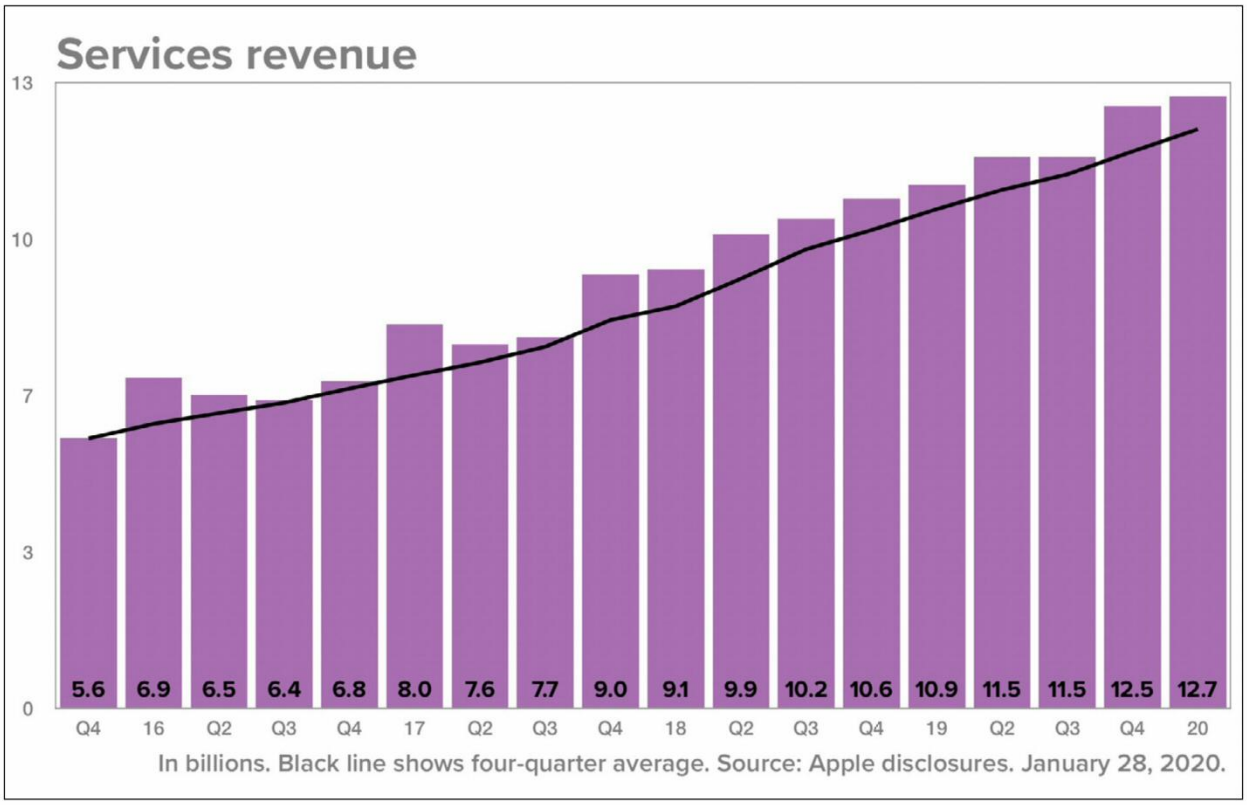
They're very professional and polite, those two.

The Services double-whammy

Four years ago, Apple announced it was going to start replacing the explosive growth once generated by the iPhone with a new source of growth: its Services accounting line. The goal was to double its Services revenue by 2020, and it's basically reached that goal as of this quarter.

This quarter, Services generated $12.7bn in revenue and grew 17 percent from the year-ago quarter. (It's been a staggering run of growth; Services has been growing by double digits every single quarter since 2015.) It now accounts for 14 percent of Apple's business, more than any other product line. It's twice the size of the iPad and almost twice the size of the Mac.

That's a huge change in the composition of Apple's business, purely by revenue. But it misses an important multiplier: profit. As reported by Maestri last month, Apple's gross margin on products was 34.2 percent. Its


Services revenue
13
10
7
3
0
5.6
6.9
6.5
6.4
6.8
8.0
7.6
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9.0
9.1
9.9
10.2
10.6
10.9
11.5
11.5
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12.7
Q4
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Q2
Q3
Q4
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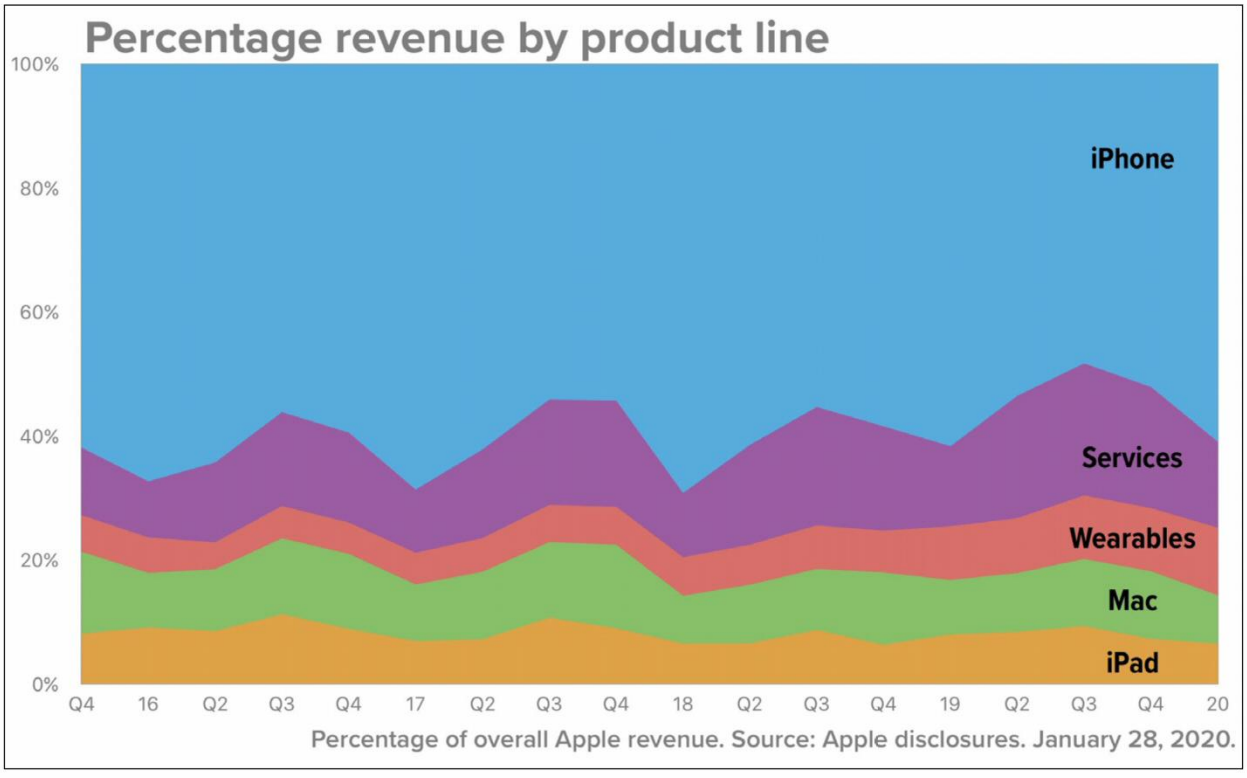
In billions. Black line shows four-quarter average. Source: Apple disclosures. January 28, 2020.


Percentage revenue by product line
100%
80%
60%
40%
20%
0%
iPhone
Services
Wearables
Mac
iPad
Q4
16
Q2
Q3
Q4
17
Q2
Q3
Q4
18
Q2
Q3
Q4
19
Q2
Q3
Q4
20
Percentage of overall Apple revenue. Source: Apple disclosures. January 28, 2020.

gross margin on services was 64.4 percent. That's right, Apple's Services business has nearly twice the gross margin of products.

In other words, every dollar of Services revenue generates nearly twice the profit of product revenue. Apple's product margins are really good, but its Services margins are spectacular. This is more than growing revenue – it's growing revenue in an incredibly profitable segment.

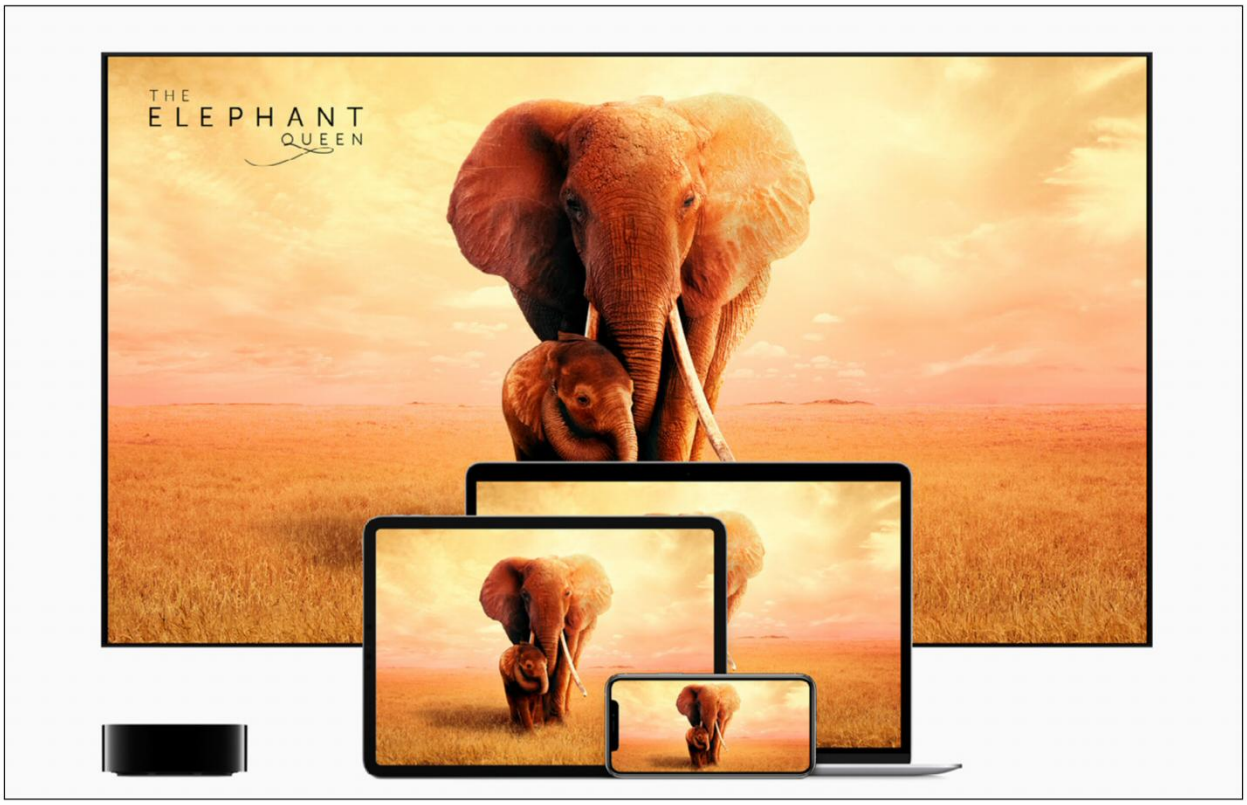
Apple TV+ is 'immaterial'

Apple launched its Apple TV+ service during the quarter, meaning that it's not a major contributor to the results this time out. In fact, Maestri went so far as to refer to it as "immaterial to our results". But he did offer a little bit of clarity about how Apple will be accounting for Apple TV+ revenue in the future.

First, there's the easy part: people who pay for the service. Apple takes that money and accounts for it monthly. Then there's the tricky part: people who got a free year of Apple TV+ because they bought a new Apple device, which Apple calls "Apple TV+ bundle subscribers".

Apple is accounting for the money from those subscribers by taking a certain amount of money out of their hardware purchases, transferring it to the Services revenue line, and spreading it out over the entire free year period. The challenge is that it has to estimate how many people will be taking advantage of the offer, which requires a little math.

"You need to keep in mind that from our total eligible device sales, you need to make a number



of reductions for family sharing, for multiple device purchases and for geographic availability," Marstri said. In other words, if a family bought five new Apple devices, they're still a single Apple TV+ subscription. Some countries don't have Apple TV+ availability, and others may be less inclined to sign up because most of the content was made in English and is dubbed or subtitled for their local language. To top it all off, to sign up for Apple TV+ you have to give Apple a credit card – and agree to be charged in a year unless you cancel. That all factors into Apple's guesses about how many people will take advantage of the offer, something that Apple will review and revise as the offer continues.

We probably won't know how well Apple TV+ is doing for Apple for another year, when the company

will get a better idea about how many of these 'free' subscribers convert to become paying ones.

Also, good news for people who were worried that Apple TV+ might end up with a lower-cost tier that's stuffed with advertising: Cook said that "we feel strongly that what that customer wants is an ad free product". Amen.

Tim Cook can't be tricked

Tim Cook sounded a little under the weather last month. He spoke in a subdued tone, cleared his throat, sniffled, and sounded like he was speaking around some sort of lozenge or cough drop. But even when ill, Tim Cook is a wily fellow who can't be tricked into disclosing future Apple product directions, even by wily financial analysts who have found increasingly clever ways to phrase questions in the hopes that Tim will reveal something about Apple's future product pipeline.

"Tim, at some point in the future, Apple will launch a 5G iPhone," said Katy Huberty of Morgan Stanley. "How big of a demand driver do you view 5G capability in a handset, and what's your view as to what the killer app will be from a consumer perspective?" Yes, Tim, let's talk about your 5G iPhone and what will make it sell.

"You know, we don't comment on future products, and so I try to sidestep a bit," Tim replied. "With respect to 5G, I think we're in the early innings of its deployment on a global basis. We obviously couldn't be prouder of our line-up and are very excited about our pipeline as well and wouldn't trade our position for anybody."

Not to be denied, analyst Krish Shankar of Callan and Company decided to spin Huberty's question in

a slightly different direction. "Tim, I just wanted to pick your brain a little bit on the overall smartphone market," he began, appealing to Cook's professorial nature, perhaps. "There's a general view that when 5G phones come out they are going to be more expensive due to higher component costs. But at the same time, it looks like you guys have proven that there is a market for low-cost geographies, with phones like iPhone SE. So how do you see these two different segments within the smartphone market evolving over the next one to three years?"

"Again, I want to stay away from commenting about the future products," Cook replied. Nice try, Shankar! "In terms of the price, I wouldn't want to comment on the price of handsets that aren't announced," Cook concluded, and a little stifled laugh wafted out across the conference call line.

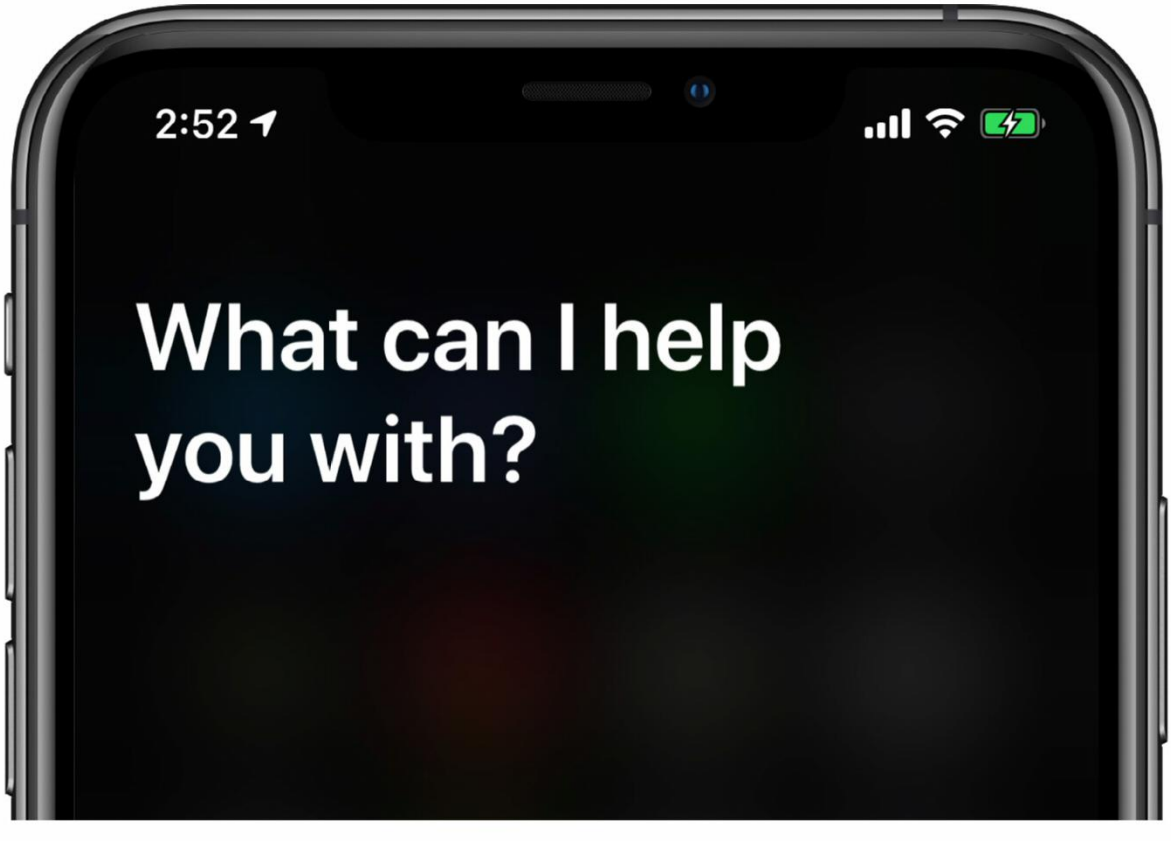
Finally, analyst Sumit Chatterjee of JP Morgan took another run at getting Cook to look deeper into 2020. "Based on the velocity of momentum you're seeing for the products exiting the quarter, how comfortable are you feeling about sustaining growth in iPhone revenues through the year?" he asked.

"You know, we have a practice of forecasting the current quarter, and so we've given you the range that we expect for the current quarter and really don't give a range beyond that," Cook said.

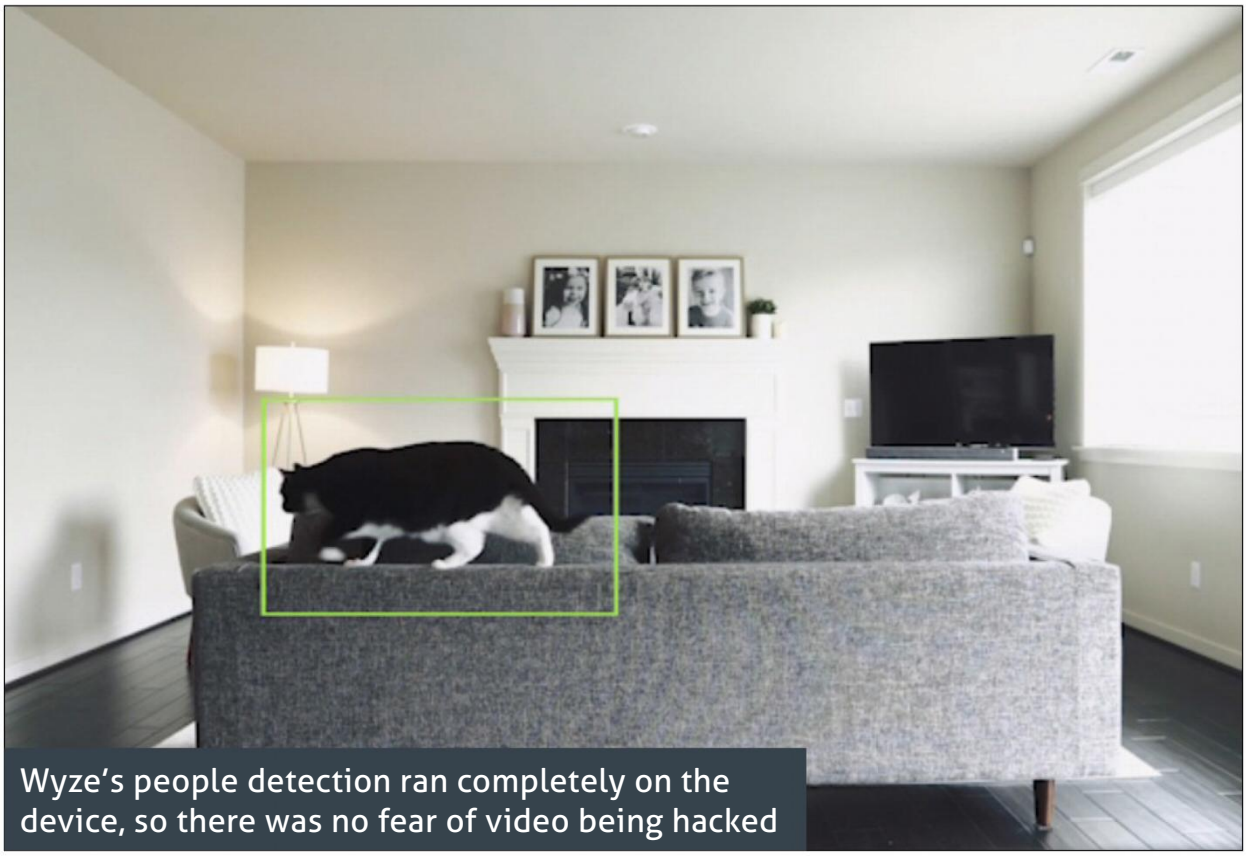
Cook is like a wizard. He arrives precisely when he means to.

Apple's Xnor.ai acquisition could bring the Siri boost we've been waiting for

It's not about cameras, it's about smarts. **Michael Simon** reports



Apple buys a lot of companies throughout the course of a year, with only a couple of them rising to the level of intriguing news. Last year's purchase of Intel's smartphone modem business certainly qualifies, as does the 2018 acquisition of Shazam, but for the most part, Apple scopes out



Wyze's people detection ran completely on the device, so there was no fear of video being hacked

companies that we've never heard of for reasons we'll never know.

Its most recent acquisition might be different. The company, Xnor.ai, might not be one you've ever heard of, but they're hardly unknown. Since last summer, the Seattle-based start-up's tech has been the brains behind the popular Wyze cam's marquee feature: people detection. Simply put, it allows the $20 camera to distinguish between faces, pets and dust, and vastly improved its abilities, putting it a somewhat level playing field with the far-more-expensive Ring and Nest cams of the world.

But it's not just that Xnor.ai's engine worked on a budget cam, it's how it worked. Not only did it vastly

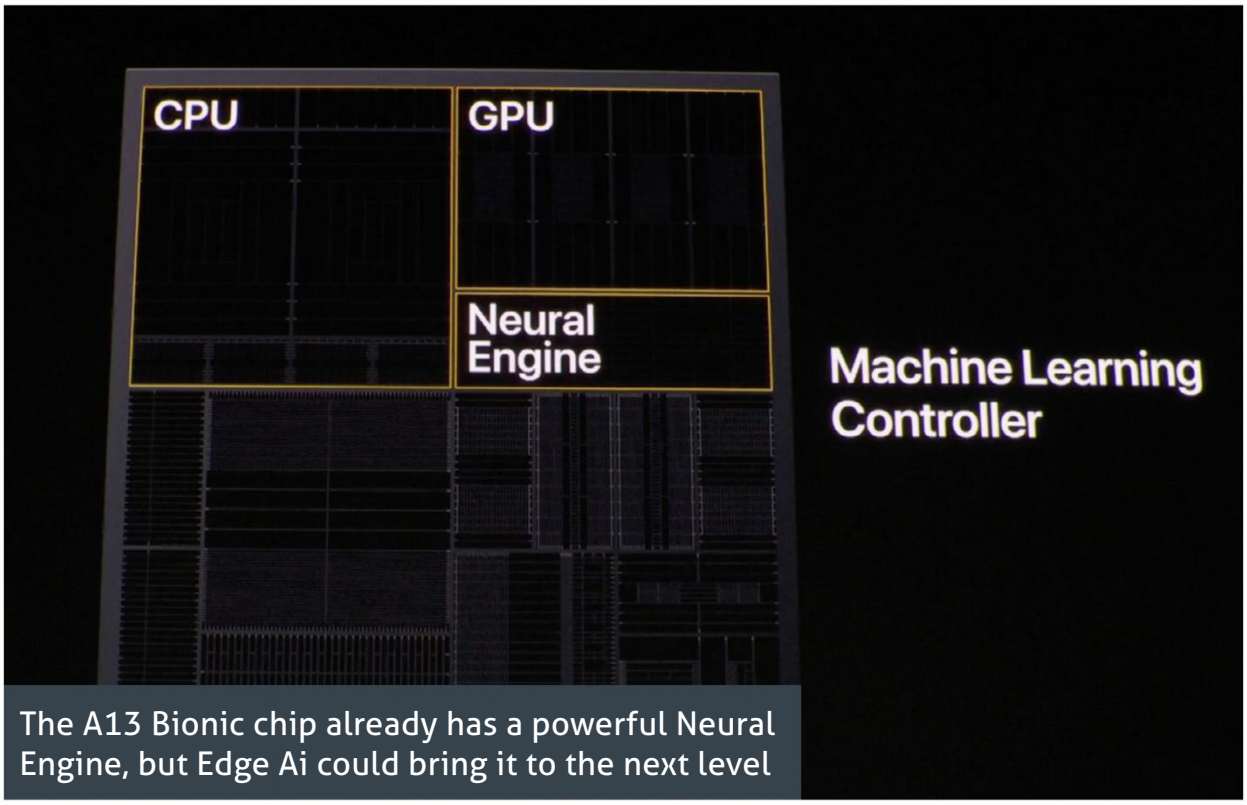
improve the capability of the pint-sized recorder, but it also did it with privacy in mind. Using something called Edge AI, Xnor.ai was able to process its algorithm engine on the camera itself, meaning it didn't need to transmit images to a faraway cloud.

That cuts to Apple's main privacy argument. We've long suspected that the reason why Siri lags behind Google Assistant and Amazon Alexa is that Apple doesn't collect the same kind of information that those companies do and is thus at a disadvantage. Google and Amazon may offer the ability to toggle privacy settings, but the core business model relies on data collection. It's easier to improve AI processing when you have a mountain of data to work with, especially when you're dealing with millions of users. But maybe it doesn't have to be that way.

Siri safe and sound

That's where Xnor.ai comes in, and likely why Apple deemed it worthy of several million dollars. I don't think Siri's development (or lack thereof) is the result of malaise or a lack of focus from Apple, but rather the capabilities of the AI engine. Apple wants to process as much as it can on the device, but the reality is that it's just not possible on Siri's scale, at least not without a little help.

It's not for a lack of processing power. Apple's A-series Bionic chips are certainly capable. The A13 on the iPhone 11 has both a faster-than-ever Neural Engine and a set of machine learning accelerators that handle more tasks than ever, but it's still limited to practical applications specific to the



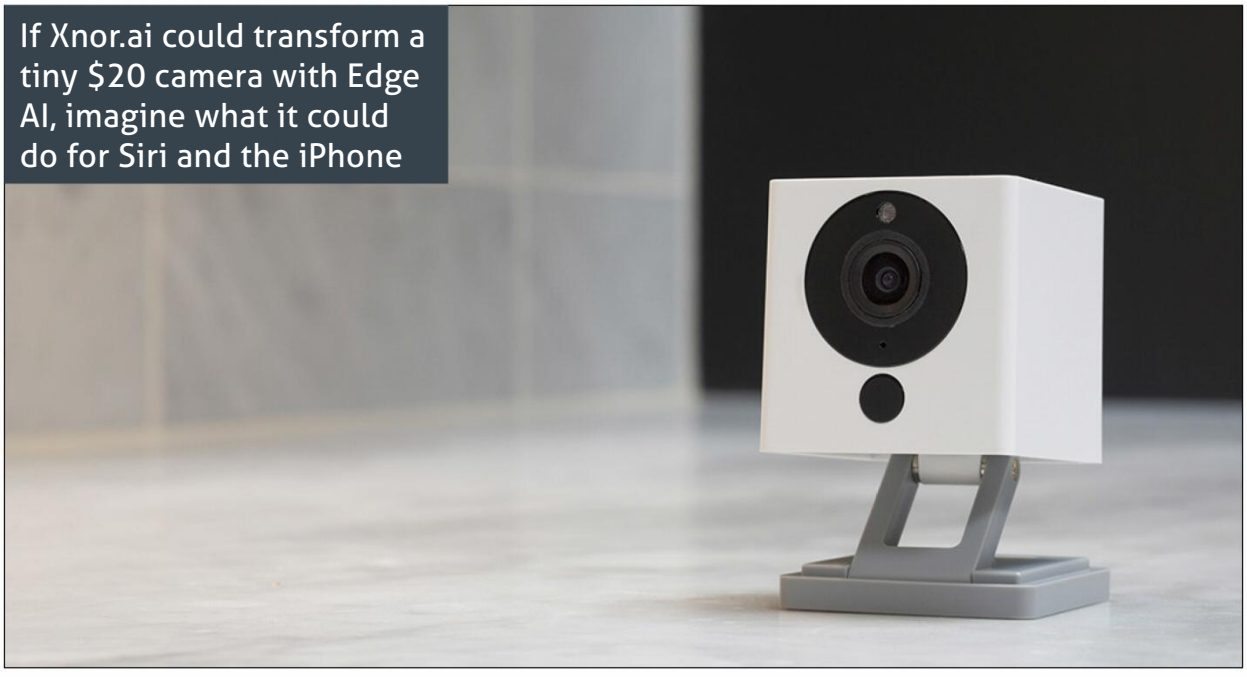
The A13 Bionic chip already has a powerful Neural Engine, but Edge Ai could bring it to the next level

device, like battery efficiency, power consumption, and graphics acceleration.

But Xnor.ai's Edge AI engine could be the thing that brings everything together. It's unlikely that we'll see any fruits from Apple's purchase in the iPhone 12 or even the iPhone 13, but Apple's incredible silicon advancements, coupled with the kind of on-device AI processing that Xnor.ai brings, could boost Siri's capabilities in a big way. By embedding Edge AI into Apple's own chip via the Neural Engine or a new co-processor, Siri could be faster and far more capable, learning from what you do and prioritizing tasks in kind. And it could all work offline, tapping into the tremendous power of Apple's system-on-chip and doing the work of a powerful cloud right on the device.

Xnor.ai estimates that Edge AI runs 10 times as fast with 15x memory than cloud-based systems, and a responsive assistant dedicated to each specific phone could finally let Apple build a voice recognition system with near-perfect accuracy. We've been waiting years for Siri to be able to basic things such as distinguishing between different users' voices, and Edge AI could bring a great understanding of each user's particular cadence. After all, we already know that Xnor.ai's Wyze AI was able to distinguish people from pets, so using to differentiate voices shouldn't be all that difficult. That alone would go along way towards closing the gap between Siri and Google Assistant and Amazon Alexa. By building a powerful AI engine directly on our phones, Apple could do the kinds of things with Siri we want it to do without compromising our privacy.

That same engine could be applied to speech patterns. Siri dictation isn't bad at all, but saying



If Xnor.ai could transform a tiny $20 camera with Edge AI, imagine what it could do for Siri and the iPhone

"full stop" and "comma" gets tedious. Edge AI could recognize our vocal patterns, so when we pause a certain way it adds a period, or if we change out inflection it adds a question mark.

Let's go a step further. Say you're texting with a friend and they ask about seeing a movie. That could trigger Siri to quietly suggest upcoming show times inside your conversation. Or if you copy a link in Safari, a smart suggestion could instantly present a series of apps before you even press the share button. These are the kinds of things Apple would never do in the cloud – that whole what-happens-on-your-iPhone-stays-on-your-iPhone thing – but by using Edge AI, Apple could bring those kinds of interactions to the iPhone itself, which opens up Siri to a new world of capabilities.

And if it's learning on the device, then it could know what app we're in and respond accordingly. So if we're in Photos, we could say, "Share this with my wife" and it wouldn't need any extra clarification. Or if we're reading a news article in Safari, we could say, "Tell me more about this," and it would make the appropriate search. Or maybe an automatic routine could be suggested based on our app habits.

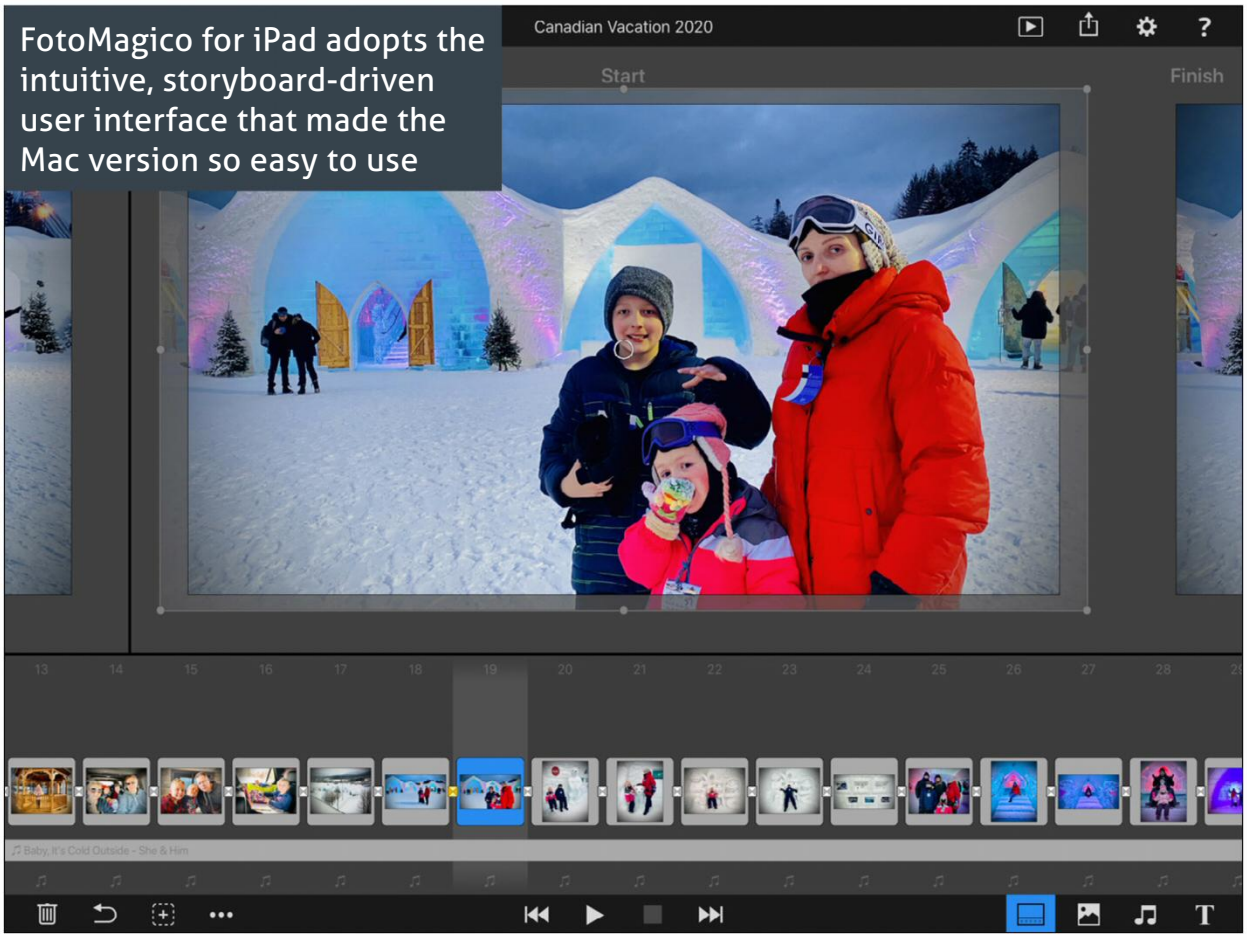
Bottom line: there's a lot the Siri doesn't quite know how to do, and Xnor.ai's Edge AI engine could help teach it. All while keeping Apple's privacy promise intact. Unfortunately for Wyze cam owners, Xnor's Edge Ai system has been yanked, but their loss could be Siri's gain.

FotoMagico for iPad

Price: Free from **fave.co/2RyFFDT** ★★★★☆

If you want to breathe new life into static photos with minimal effort, there's no better method than FotoMagico 5 for macOS, which we hailed as "more impressive than pulling rabbits out of a magic hat" in our May, 2016 review. For nearly 15 years, this slideshow creation software has been the go-to solution for casual shutterbugs and professional photographers alike.

Fortunately, FotoMagico is now available for iPad, providing a way to assemble great slideshows from anywhere. Best of all, Mac project files are



FotoMagico for iPad adopts the intuitive, storyboard-driven user interface that made the Mac version so easy to use

interchangeable with the iPad version, so you can start a project on one device and finish on another.

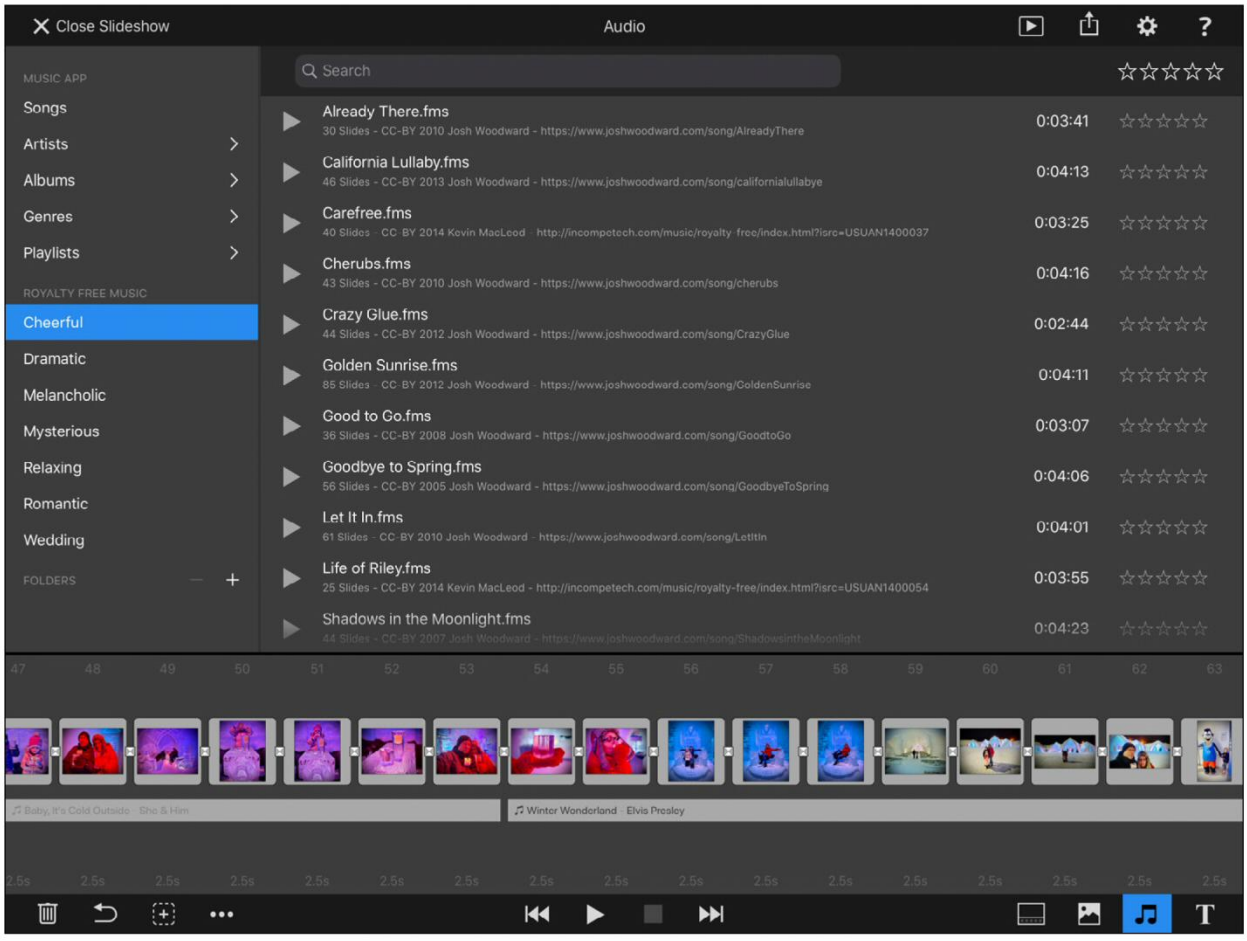
The iPad app is a faithful transition, offering the same intuitive Storyboard layout for building slideshows via drag-and-drop with multiple layers, adjusting start and finish animation, adding titles, music, voice-overs, and more with ease. Text snippets come along for the ride, so you can quickly add frequently-used elements while retaining full control over editing individual components.

Like on macOS, FotoMagico for iPad requires no time-intensive rendering to preview slideshows

The iPad version includes the ability to add effects to photos, a feature currently unavailable on Mac

in full quality, even when starting in the middle. Taking advantage of Apple's Metal graphics API, the app provided fluid, real-time playback even on our venerable first-generation iPad Pro.

The only issues came up when importing images, video, or audio from large libraries. It took upwards of 15 seconds to initially access the media browser, with photos under the Recently Added category appearing out of chronological order and no way to sort them for easier access. The situation improves marginally



Like the Mac version, FotoMagico for iPad includes more than 60 royalty-free music cues across seven different styles

with audio, but the search field is glacially slow to respond, and cloud-based tracks are inaccessible until first downloaded from the Music app. (DRM-protected Apple Music tracks can't be used at all, a limitation also imposed on Mac.)

Pay to play

Although the app lacks a timeline view to shorten or extend slides, as in FotoMagico Pro on macOS, the iPad version does include Audio Marker Assistant, which

automatically syncs the duration of slides to the beat of imported songs or manually added audio markers. This works great with included royalty-free music – more than 60 tracks across seven moods – but you'll need to enter the BPM (beats per minute) for imported tunes that lack the proper metadata.

The iPad version also introduces 15 effects, which can be applied to photos and videos to change their appearance. Ranging from colour correction to comic book and film grain, masks, borders and vignettes, effects are a neat way to spruce up any slideshow, although we'd love to see Instagram-style filters added in a future update.

FotoMagico for iPad is free for 14 days, requiring a subscription to edit slideshows beyond the trial period. That's not as limiting as it sounds, because £4.99 unlocks all features for an entire month, with discounted three-month (£13.99), six-month (£21.99), or 12-month (£38.99) options for those who need them. There's no one-time purchase, nor free/discounted access for Mac users, but you can open and play existing projects without subscription, so the pricing is fair for those with occasional needs.

Verdict

A long-time Mac favourite successfully transitions to iPad, although importing media from large libraries could use more work. **J.R. Bookwalter**

System requirements

- 153.8MB free space
- iOS 11.2 or later

4XCamera Maker

Price: Free from **fave.co/36zRfDc** ★★½☆☆

For video makers, the highlight of last year's September Apple keynote was the slick demo of FiLMiC Pro taking advantage of all four iPhone 11 cameras to record multiple angles at the same time. Multi-cam is a great way to quickly create dynamic videos without the time-consuming task of shooting a performance multiple times from different views.

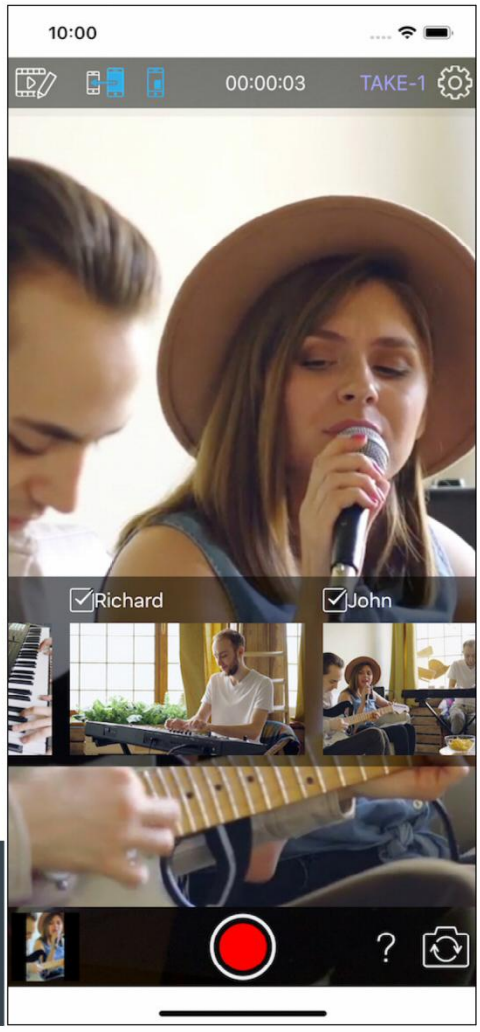
Although FiLMiC Pro's multi-cam update isn't available yet – it's expected soon – there are other

ways to shoot and edit multi-camera video right now, using as many as four iOS devices you already own. Unfortunately, the app in question turns out to be cooler in concept than execution.

Multi-cam shooting

4XCamera Maker is a video app from Roland Corporation, the Japanese company dating back to the early seventies best known for electronic musical instruments such as synthesizers and drum machines. In recent years, the firm has diversified, porting some of its legendary technology to mobile platforms.

One such app is 4XCamera, which allows musicians on a budget to create split-screen music videos from up to four different performances using audio captured from the built-in mic or other connected hardware. 4XCamera Maker goes one step further by enabling users to wirelessly capture video and

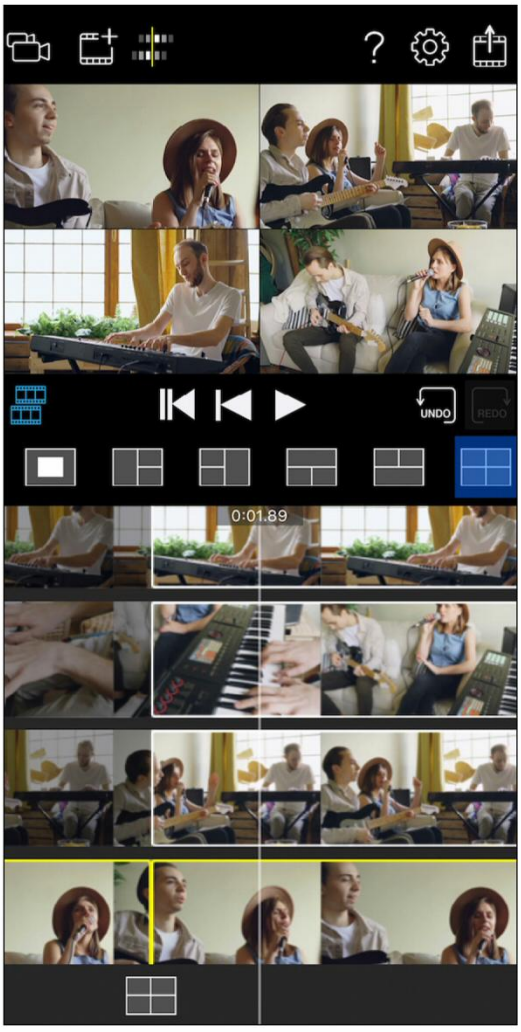


Have access to four iPhones or iPads? With 4XCamera Maker installed, you can turn them into a multi-camera video recording studio

audio from up to four iPhone or iPad devices at once, then assemble them while keeping everything in sync.

Shooting is pretty straightforward thanks to an on-screen launch guide that walks users through the procedure. Place devices at the desired angles, selecting one to act as the master, which is also where you'll later edit the project. (Tripods or mounts are recommended for best results, but you can shoot handheld too, assuming you have enough people to operate those cameras.) Launch the app on each device (it's free to install and shoot without limitations), then tap Link on the master to connect each device. Tap record on the designated master, and all slave devices start recording at the same time.

Prior to shooting, you can take a quick peek at the live image coming into each of your connected devices by tapping Link Preview from the master camera. Sadly, 4XCamera Maker offers no such preview

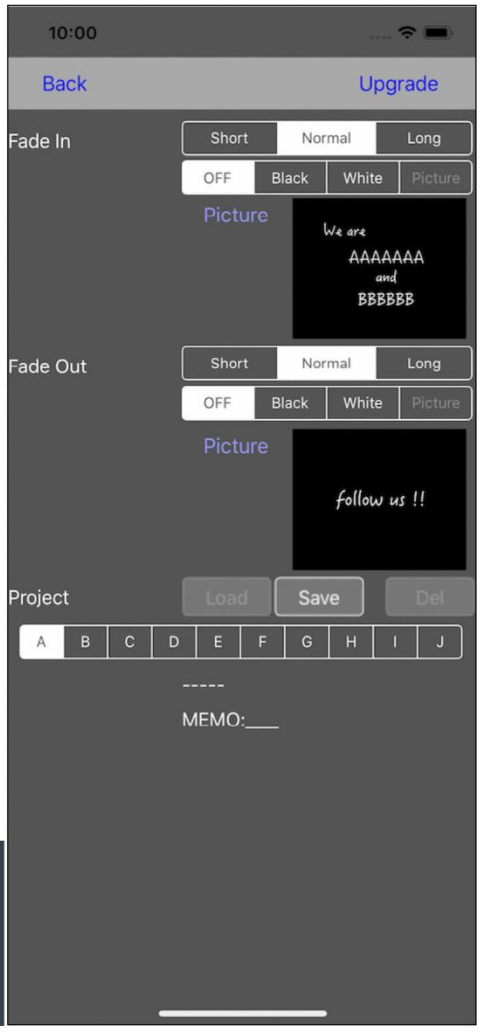


4XCamera Maker offers multi-camera split-screen editing with transitions, but the user interface isn't exactly intuitive

during actual recording, but this is still a convenient way to double-check framing before the cameras roll.

If the first attempt wasn't the award-winning performance you were hoping for, simply tap the TAKE-1 button to shoot up to four more takes; you can also delete the current take by tapping the one already used. Once finished, tap the Editor button, which will wirelessly transfer footage saved on the slave devices back to the master, then create a new project with everything synced and ready to edit.

It's worth noting that you'll need to enable Wi-Fi, Bluetooth and AirDrop on each device prior to launching 4XCamera Maker. I had no problems connecting, shooting, or transferring footage, and acquiring our test footage worked as expected, although the overall user interface isn't particularly intuitive. Thankfully a help option is just a tap away, complete with pop-up tool tips that explain what each button does.



4XCamera Maker doesn't offer much in the way of settings outside of fade in/out control and the ability to save projects

Chop shop

In terms of actual editing, 4XCamera Maker leaves a lot to be desired. Although you can cut between angles, add transitions, create split screens, trim the start/end point of an entire project, and add new media from the Photos library, it's not entirely obvious at first how to do any of these things. Worse still, there's no built-in tutorial that walks you through the editing process, like there was for shooting.

Aside from the aforementioned pop-up tool tips, editors are left to awkwardly tap around the UI before finally stumbling across the Edit Mode button on the left side of the screen, just under the preview window. That's what enables selecting different angles and choosing where to make cuts or add dissolves, wipes, and split-screen compositions. Swiping through the timeline displays a quick preview of edits, but there are also basic transport controls for play/pause, rewind to the previous edit point, or jump to the beginning of a project.

Of course, since recorded footage is saved directly to the camera roll of each device, you could always import it directly into a more robust editing app such as LumaFusion, but that defeats the purpose of using something like 4XCamera Maker in the first place.

There are a few basic settings for fade in/out options and saving projects, otherwise the only other feature is a vague in-app 'upgrade' promising to unlock 'full editing functionality'. There's no indication what that £3.99 purchase actually gets you (presumably unlimited editing), but we couldn't tell the difference either way in our tests. (Pro tip: Roland Go: Mixer Pro owners can

skip the upgrade cost by connecting their existing hardware to the app.)

Verdict

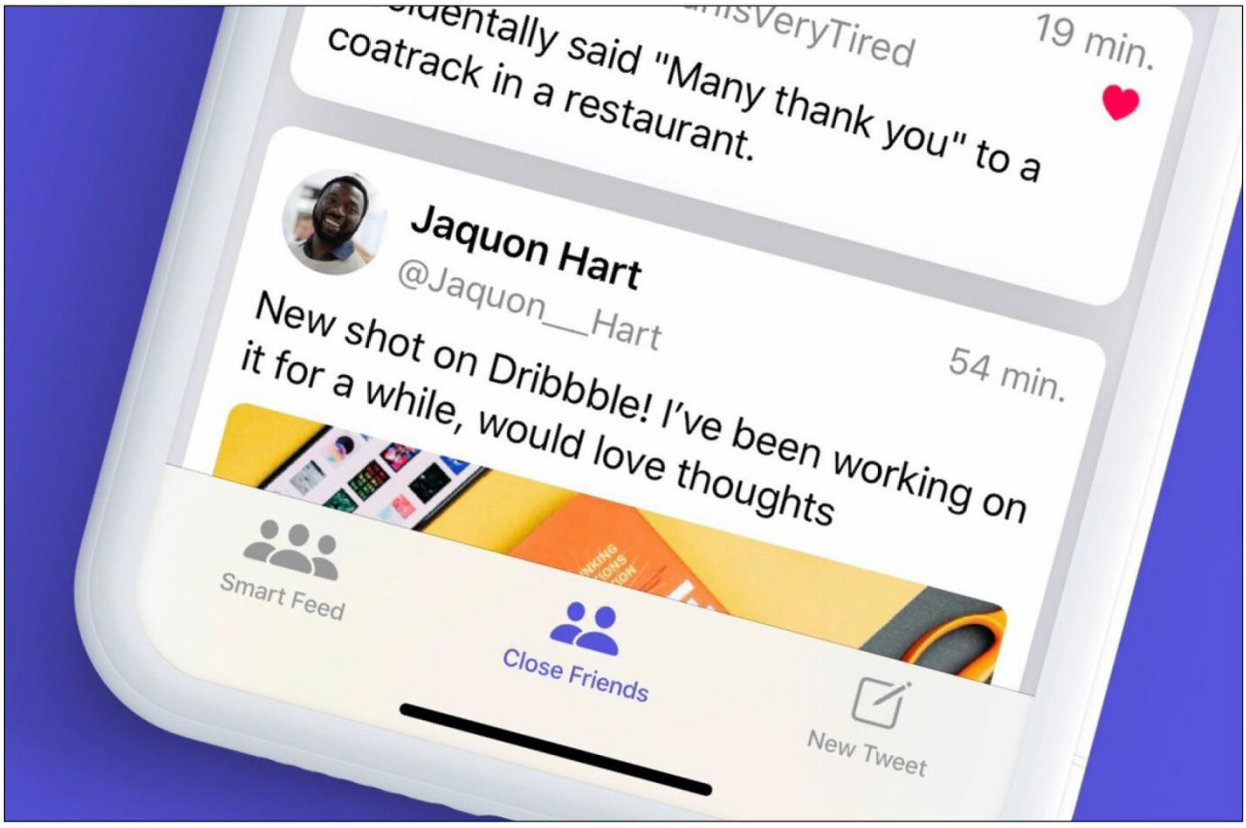
4XCamera Maker eases the task of acquiring multi-camera footage from iOS devices, but clunky editing tools keep this app from reaching its full potential. **J.R. Bookwalter**

System requirements

- 21.1MB free space
- iOS 10.0 or later

Nighthawk for Twitter

Price: £3.99 from **fave.co/2tWz9xU** ★★★½☆



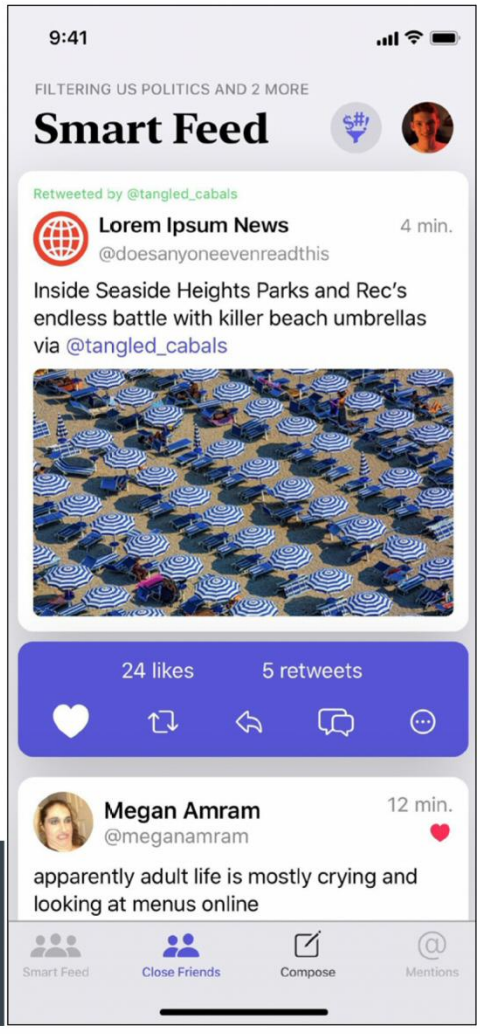
Those who favour Twitter over rival social networks probably already have Tweetbot or Twitterrific installed on their iOS device. Power users prefer such third-party alternatives to the official app, but everyone deserves an environment where branded content isn't given preferential treatment over tweets from people you actually follow.

Billed as a 'personal companion' to the corporate app, Nighthawk offers a stripped-down version of Twitter without the clutter. Sign in and get nothing but

the good stuff: tweets displayed in chronological order, dark mode, rich link previews, and most importantly, no ads or other intrusions.

This experience can be further enhanced with Smart Filters, which allow users to hide selected topics such as US politics, *Star Wars* spoilers, support responses, and retweeted content. It's a novel idea that works surprisingly well, but there are only six filters available, with no option to customize or create others from scratch.

If that isn't calm enough for your liking, Close Friends allows users to view tweets from a curated list of people you follow. This feature is accessed from a dedicated tab at the bottom, but choose wisely. Friends on this list are excluded from Smart Filters too, so you'll want to exclude buddies who pontificate about hot topics. This list syncs to your Twitter account, where it also shows up in other clients, such as our preferred Tweetbot.



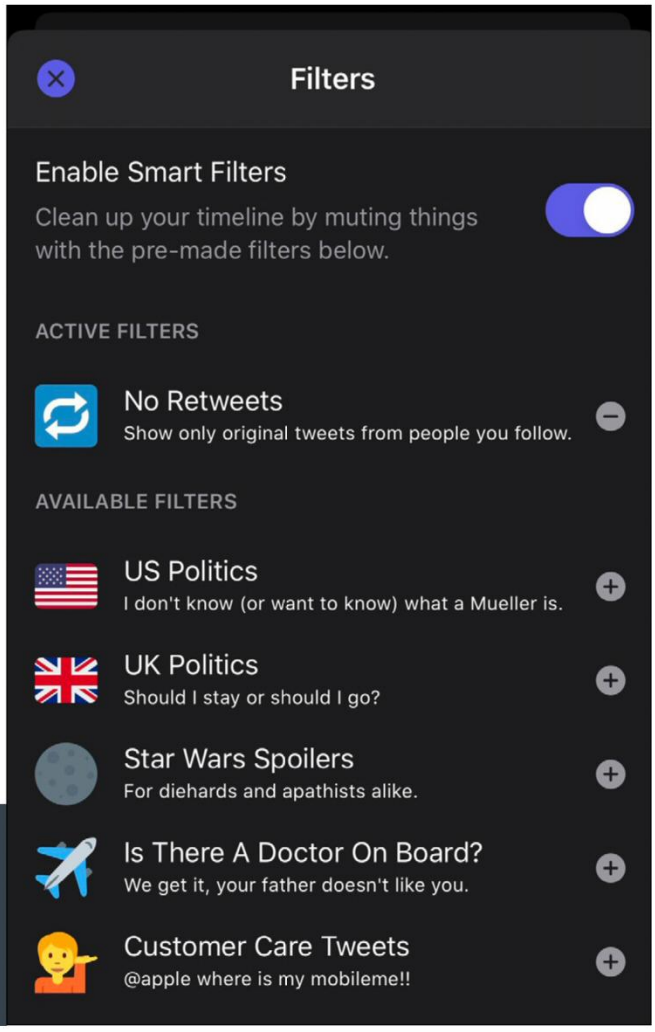
Nighthawk's so-called 'Smart Feed' offers a cleaner view of your Twitter timeline in chronological order without ads or sponsored posts

Just the basics

The developers of Nighthawk are quick to note they are not trying to compete with more robust solutions such as Twitterrific. An admirable position to be sure, but even as a basic Twitter client, the app could benefit from additional spit and polish.

For starters, searching for Close Friends isn't always reliable. Nighthawk would find certain users after entering just a few letters, while others required typing a complete Twitter handle before they would surface. There's no support for multiple accounts or push notifications, and app preferences are confusingly buried on your profile screen. Worse yet, when composing a new tweet you can't attach a photo or location.

On the plus side, you can customize the home screen icon with one of



Smart Filters are a great way to hide certain topics from showing up in your timeline, but there aren't many to choose from

17 different options – including eight Apple-inspired flavours – and the app is a universal build, so it works equally well on iPad and iPhone.

Verdict

Pretty bare-bones as third-party Twitter apps go, but the developers appear committed to continued improvements, so keep this one on your radar.

J.R. Bookwalter

System requirements

- 11MB free space
- iOS 13.0 or later

Add your best friends to the Close Friends list, and with a single tap, you'll be able to see nothing but their tweets

The 10.2in iPad: How does it compare to the iPad Air?

Apple's display-size boost for its entry-level tablet invites comparisons to a similar, better model. **Leif Johnson** reports

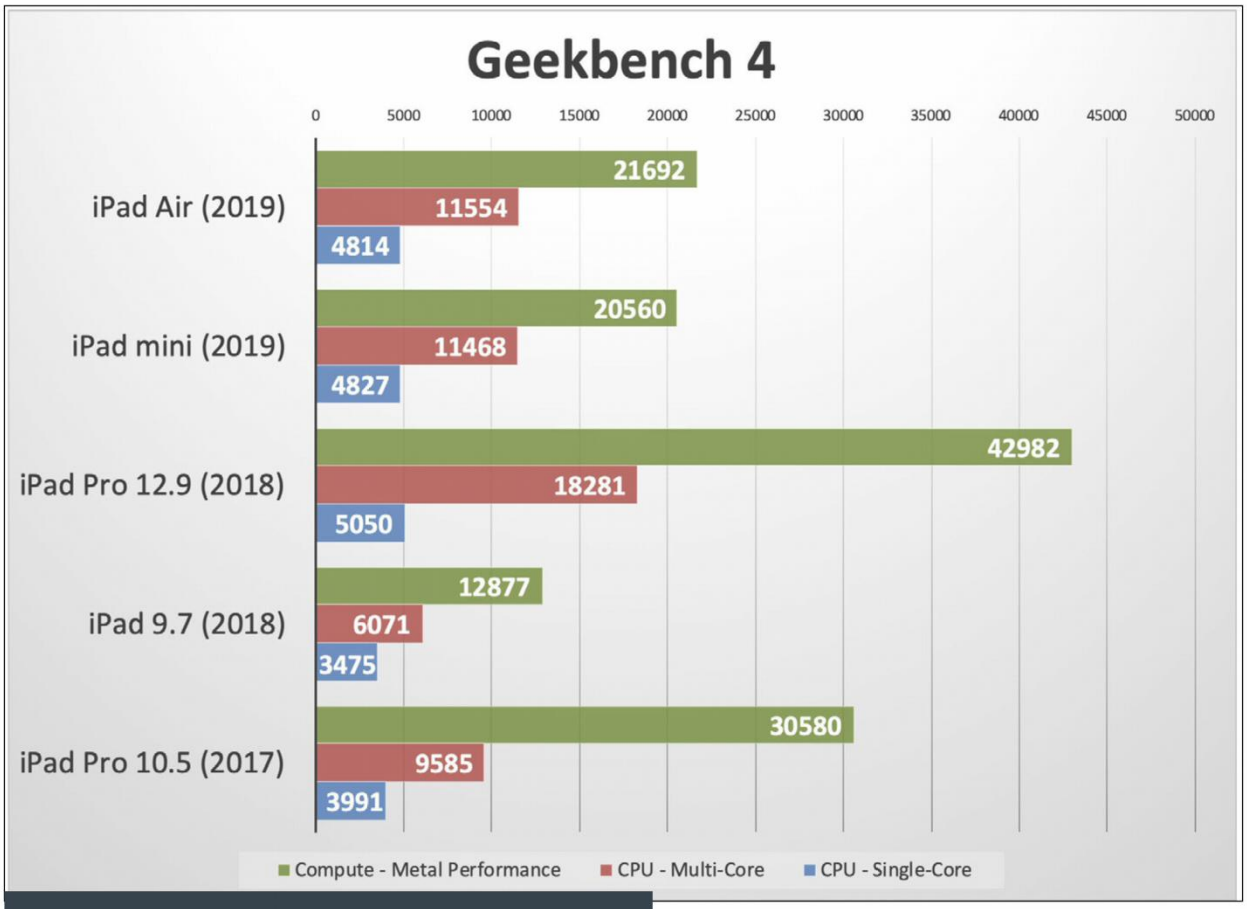
The seventh generation entry-level iPad is a weird little beast. The screen is a little larger than 2018's model and you can now use a full-sized Smart Keyboard, but the processor remains the same and the overall design has only slightly changed. The changes are so few between the previous model and this one, in fact, that we basically covered them all in our announcement post.

Instead, let's compare the new kid on the block to 2019's refreshed iPad Air, which has a 10.5in Retina display that's now very close in size to what you'd get on the 10.2in iPad. The bodies of both models now measure exactly 250.6x174.1mm, although the Air has a tiny advantage in thinness – 6.1mm compared to the 10.2in iPad's 7.5mm. The Air costs more, but unless you're really just out to save money or you don't think you'll need more space, the iPad Air undoubtedly will be the smarter buy at this size. Here's why.

The iPad Air's display gives you a lot more besides extra room

If you're just using your tablet for watching videos or surfing the web, you're probably not going to notice the fraction-of-an-inch difference in the displays for the two models. For that matter, both models have a pixel density of 264 pixels per inch and can reach 500 nits of brightness.

You might notice the difference, though, if you're using your iPad for writing or drawing with the supported first-generation Apple Pencil. And that's also where you might appreciate the Air's many improvements over what the 10.2in iPad offers. For one, it supports Apple's TrueTone tech, which adjusts the colours on the screen to better fit the light around you for more comfortable reading. It's also got a laminated display – which means the glass sits closer to the actual display – as well as a P3 wide-colour display and an anti-reflective coating. The laminated display in particular does a good job of helping the iPad mimic the feel of writing on paper with a pen.



It doesn't come close to the Pros, though

The iPad Air is a lot faster

The 10.2in iPad contains the same A10 Fusion chip we found in 2018's 9.7in model, while the iPad Air has an A12 Bionic chip that includes Apple's second-generation Neural Engine for optimized machine learning. It's quite the jump.

Mind you, the A10 is a fine chip. Until recently, I used the 9.7in iPad every day and I never thought it let me down. But as you can see from our benchmarks above, the A12 in the Air thumped the A10 soundly on iOS 12. If you're looking for a relatively future-proof device that's less likely to slow down with heavier-duty

apps and operating system upgrades in the coming years, go with the iPad Air.

You get a lot more room with the iPad Air

This could be a biggie if you download a lot of movies or games to your iPad. The 10.2in iPad only comes in 32- and 128GB configurations, while the iPad Air starts at 64GB and goes all the way up to 256GB.

Lately I find myself struggling with 64GB on my iPhone, so if you plan on using your iPad like a laptop, with all the neat new features in iPadOS 13, go with the Air. Which reminds me...

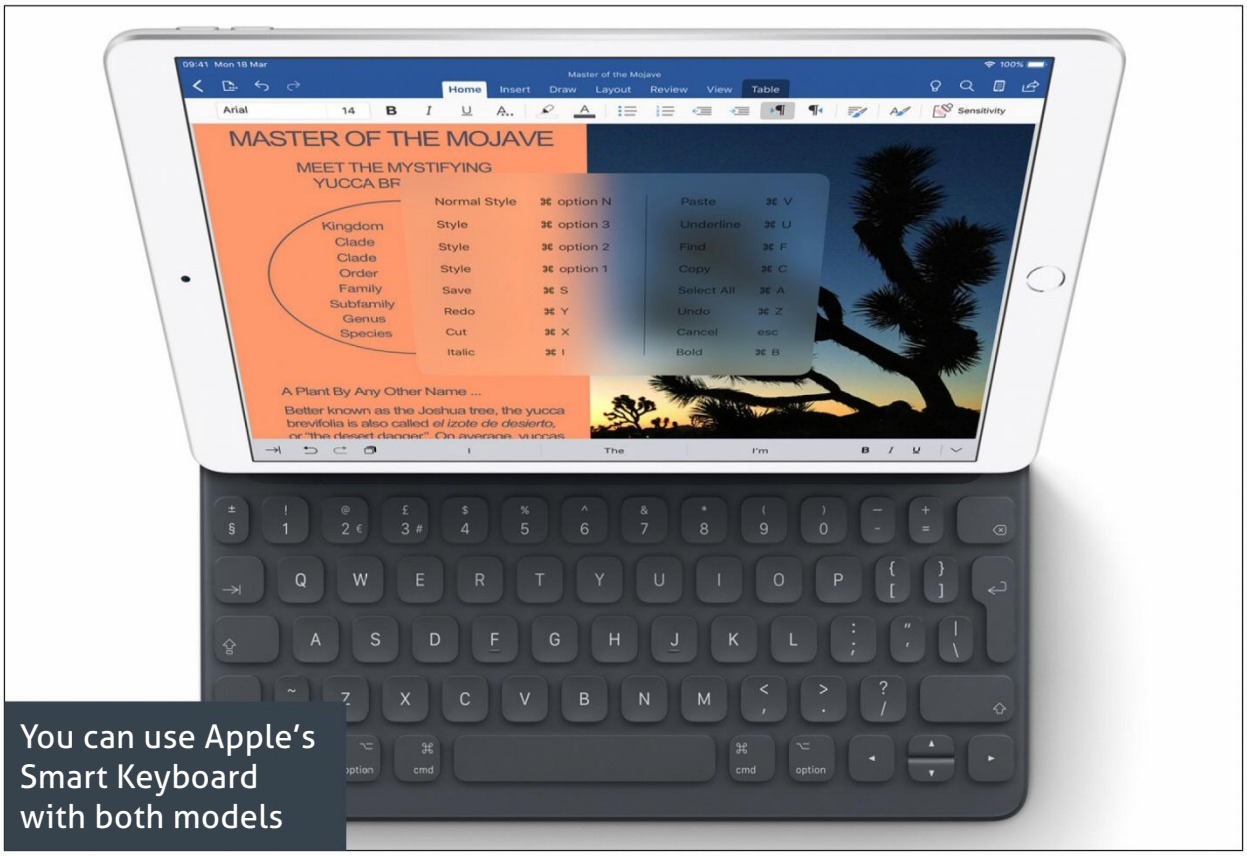
The iPad Air is a better match for the Smart Keyboard

Yes, the new 10.2in iPad has a Smart Connector for use with Apple's full-sized (and expensive) Smart Keyboard, and I'm happy to see it.

But it's the same Smart Keyboard you can use with the iPad Air, and if you're willing to drop down £159 on a keyboard, go ahead and spend the extra £130 to get the iPad Air as well. With its faster chip and more storage space, the Air can perform the 'laptop alternative' role more easily than the seventh-generation iPad.

The iPad Air has a better FaceTime camera

If an iPad's rear camera is somehow a priority, you needn't worry. Both models have the same 8Mp rear snapper that's limited to recording video in 1080p. As is typical for non-Pro iPad cameras, it's just enough to get the job done.

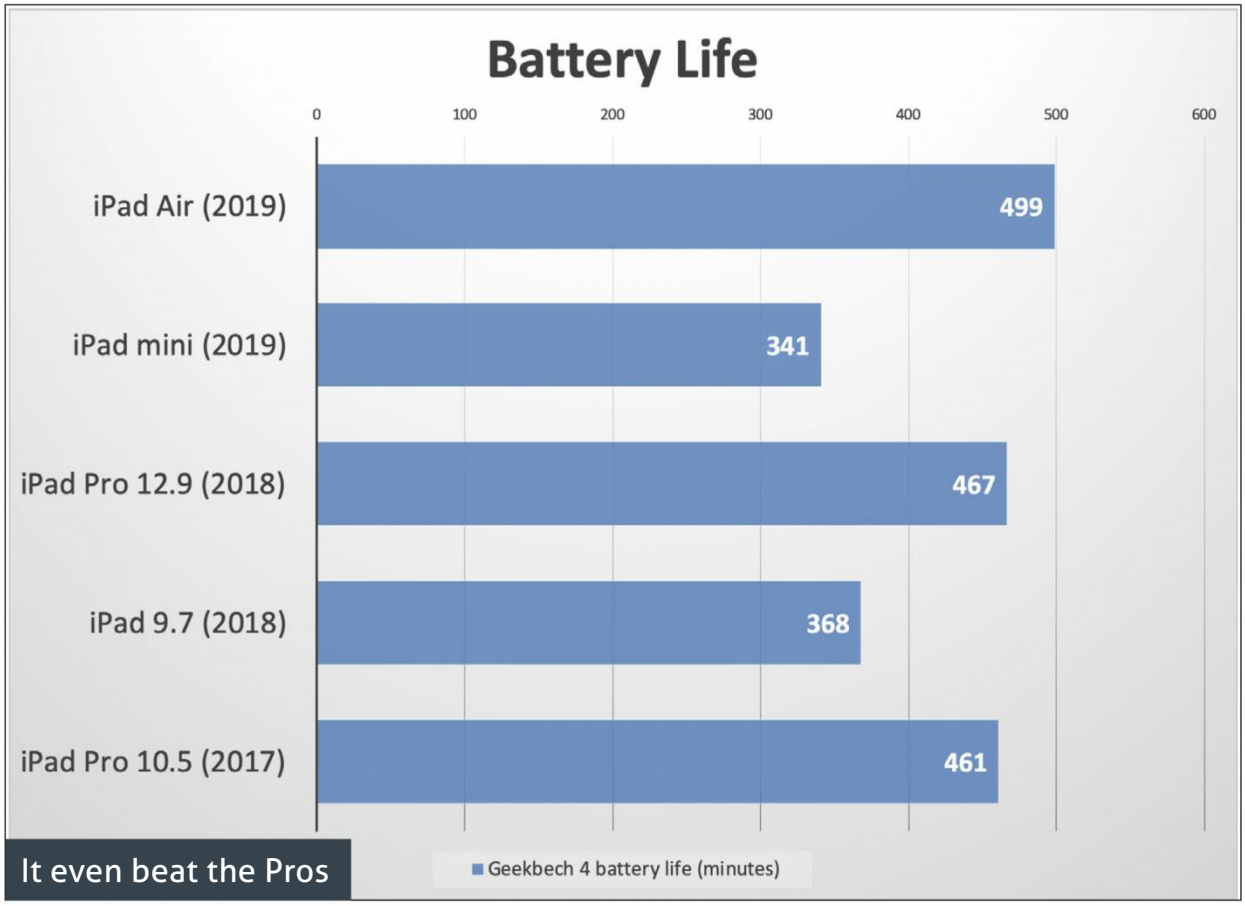


You can use Apple's Smart Keyboard with both models

You're much more likely to use an iPad for FaceTime, though, and unfortunately the differences in this case are stark. The 10.2in iPad only has a puny 1.2Mp camera that records video in 720p, while the iPad Air has a 7Mp camera that can capture at 1080p. If you use FaceTime a lot, go with the Air.

The iPad Air weighs (slightly) less

Even with all the power and storage Apple has packed into it, the Wi-Fi-only iPad Air still weighs just 456g. Meanwhile, the 10.2in iPad weighs 483g. That's not a huge difference, but as a person with a nasty habit of overstuffing his backpack, I can attest that lighter is usually better.



It even beat the Pros

The iPad Air's battery *may* last longer

Here's an iffy one. Like the 9.7in iPad before it, this year's 10.2in model has a 32.4-watt-hour (Wh) battery, while the iPad Air has a 30.2Wh battery. In both cases, Apple says that will get you around 10 hours of browsing or watching videos.

But the Air might do you better, although we won't know for sure until we get our hands on a unit. When we did our benchmarks for the latest Air, though – importantly, while it was running iOS 12 – the iPad Air performed the best out of all iPads, clocking in at eight hours and 19 minutes while the regular iPad ran for six hours and eight minutes.

The iPad Air costs more, but...

You're getting a lot more for a device that's roughly the same physical size.

The seventh-generation iPad starts at £349, while the iPad Air starts at £479. If you just want an inexpensive tablet, the regular iPad will do fine – more than fine, in fact. But if you want a device that comes close to the speeds of some older iPad Pros, has more storage space, comes with a better FaceTime camera, and can tackle more intensive app apps, you'll want to spend that extra cash.

On the bright side, prices have already gone down a bit for the iPad Air now that it's been out for a while – you can typically find it selling for £459 at John Lewis – **fave.co/2RAaIPS**. The regular iPad has also been discounted since launch and at the time of writing is available for £329 at John Lewis – **fave.co/2IyrTMW**.

PHOTOS FOR iPADOS: NEW EDITING TOOLS REVEALED

iPad&iPhone user

ISSUE 152 FROM IDG

WHY 2020 IS SET TO BE AN EXCITING YEAR FOR APPLE

APPLE'S BIGGEST MOVES OF 2019

iPad at 10: Why apps made the iPad a success

The App Store and iWork saved the iPad from being 'just a big iPhone'. **Jason Snell** reports

It's hard to believe that 27 January marked the tenth anniversary of the announcement of the iPad. As impressive as that first iPad was in terms of hardware, a decade later it's clear that the iPad succeeded because of Apple's focus on native iPad apps from the very first day.

Sit down and lean back

If you go back and watch Steve Jobs's keynote introducing the iPad, you'll see the brilliance of Apple's

roll-out strategy (**fave.co/2tbLM7Y**). To start it all off, there's a big comfy chair on stage, something you never see at Apple keynotes. That chair allowed Jobs and other presenters to illustrate that the iPad was a comfortable device meant to be used casually.

After revealing of the iPad itself, Jobs sat down and spent a very long time walking the audience through the various bundled apps on the iPad. He was sending an important message, right from the start: these were apps that we were familiar with from the iPhone, but they're all bigger and better because they've been modified to take advantage of that larger iPad screen. Safari, of course, but also Calendar, iBooks and many others.

In the early days of the iPad, the most cutting criticism of the device was that it was 'just a big iPhone'. Apple's presentation demonstrates that while this is technically true, it misses the point. The iPad was a much larger canvas, and apps that grew to fit the larger canvas were not just bigger, but better.

Prepare for the Gold Rush

In the second part of the presentation, Scott Forstall (then Apple's software chief) invoked the App Store, which had already become wildly successful after less than two years in operation. It was the App Store's Gold Rush era and Forstall's message was clear: there was a new Gold Rush coming and it was in iPad apps. And if developers wanted their apps to be prominently featured on the App Store for iPad, Forstall pointed out, those apps would need to be updated to support it. iPhone-only apps would run, but they'd do so in a

diminished compatibility mode and be relegated to the back pages of the App Store.

The iPad was introduced in January, but it didn't ship until April – and Apple released tools for developers to build iPad apps the very day the product was announced. The message was clear: build iPad apps and a flood of users will come your way. You've got three months.

Forstall was also quick to point out that good iPad apps were more than just blown-up iPhone versions. Several compliant developers were brought out to demo how they'd already begun work on reconceptualizing their iPhone apps for a larger screen, including MLB At Bat and the New York Times.

And to top it all off, iWork

With a bunch of built-in apps as examples and an App Store Gold Rush stoking developers, the iPad was already set up for a solid launch. But Apple had one more revelation to make during the launch of the iPad, and it's one that has had lasting effects on the iPad ever since: The announcement of iWork apps on the iPad.

Apple bringing Keynote, Numbers, and Pages to the iPad on day one sent a powerful message. While it might be difficult to conceive of using an iPhone 3GS to edit a spreadsheet or make a presentation, the larger screen of the iPad made it possible. This was Apple declaring, from day one, that the iPad was going to hone in on areas traditionally served by laptops. How can you dismiss the iPad as a big iPhone if it has a suite of office apps?

Even one of Apple's first wave of iPad accessories reinforced this message. People forget about it now, but Apple made a keyboard dock for the original iPad. It locked the tablet in portrait orientation and was ergonomically questionable, but it sent the message that this was a device you could do work on. (Jobs said, somewhat dismissively, that you could "write '*War and Peace*' on it". I don't think he was excited about the prospect of tying his beautiful iPad down on a desk, attached to a keyboard.)

You can draw a line directly from this moment to the introduction of the iPad Pro in 2015. From the start, Apple said that the iPad should be capable of doing computer stuff, with the implication that third-party developers should follow its lead and dream bigger when it came to iPad software. (Many developers, most notably the Omni Group, embraced this message and set about bringing all their apps to iPad.)

A work in progress

Ten years later, the iPad is still a work in progress. There are still people who view it as a big iPhone, and don't understand why anyone would want to use it to do the

18+

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work that could just as easily be done by a laptop. It's still a device full of contradictions, something you use to lean back and watch a TV show or read a website, but also something you can attach a keyboard (and mouse) to and use as a laptop, or close to it.

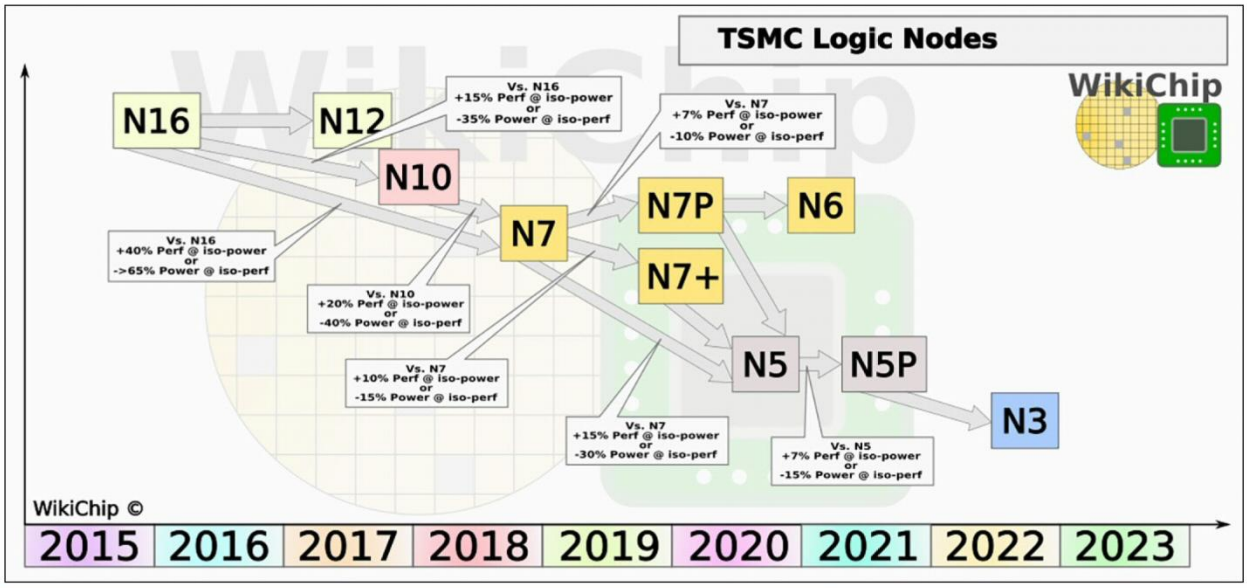
But consider the competition. Microsoft has brought some tablet features to Windows, but PC tablets are really just PCs under it all, with an interface optimized for keyboard and mouse. And although Google tried very hard to promote Android as an operating system for tablets, it has largely failed – mostly because tablet-optimized Android apps just aren't there. There's no clearer evidence of Apple's wisdom in emphasizing the importance of developing apps specifically for the iPad than that.

What we might expect from Apple's A14 chip

Apple makes the fastest mobile chips in the business, and we expect nothing less from the A14 this autumn. **Jason Cross** reports

We aren't likely to hear anything about Apple's new phone processor until September when the company unveils the iPhone 12. But it takes years to design these chips and months to get production ramped up, so the A14 is likely already set in stone and has probably begun test production.

Year after year, Apple's phone chips have held the crown for overall performance, and despite some big promises from the likes of the Qualcomm Snapdragon



WikiChip has an excellent summary of the various process technologies from TSMC at **fave.co/2RTgB9P**

865, we expect Apple to hold the crown when the new iPhones are released this year.

One can never tell exactly what features or performance an unannounced A-series processor will deliver, but we can make some informed guesses. Here's what we think we might see from Apple's A14 SoC later this year.

A jump to 5nm manufacturing

For the third year in a row, Apple will benefit from manufacturing process improvements at its manufacturing partner TSMC. The A12 was built on a 7nm process, the A13 was made on an enhanced 7nm process that primarily allowed for faster clock speeds and lower power consumption (when running at the same speeds as chips made with the prior 7nm process).

This year, Apple could make the jump to TSMC's brand-new 5nm process. In fact, it's likely to be the first large-scale consumer chip to ship using it.

This is a big upgrade. The 5nm mode is not a half-step by any stretch, but it is the next 'full node' after 7nm. It uses extreme ultraviolet (EUV) lithography extensively throughout the process, and TSMC says it delivers 80 percent more logic density and can run either 15 percent faster at the same power as its 7nm chips, or 30 percent lower power at the same performance level.

Of course, design matters, too. Apple won't necessarily meet these exact figures. But on manufacturing process alone, the A14 would be a significantly faster and more power-efficient chip.

A big transistor budget

The A13 measures around 98.5mm^2, which is roughly 20 percent larger than the 83.2mm^2 A12. That's only slightly smaller than my original prediction last year, but my assumption about transistor budget was way off.

I assumed Apple would use TSMC's N7+ node, which affords increased transistor density. Instead, Apple opted for the N7P mode, which does not. As a result, the A13 has about 8.5 billion transistors, rather than then 10 billion I predicted.

For this year, I think Apple is likely to keep the processor around the same overall size. About 100mm^2 is a good size for a high-performance premium mobile processor with a lot of stacked components.

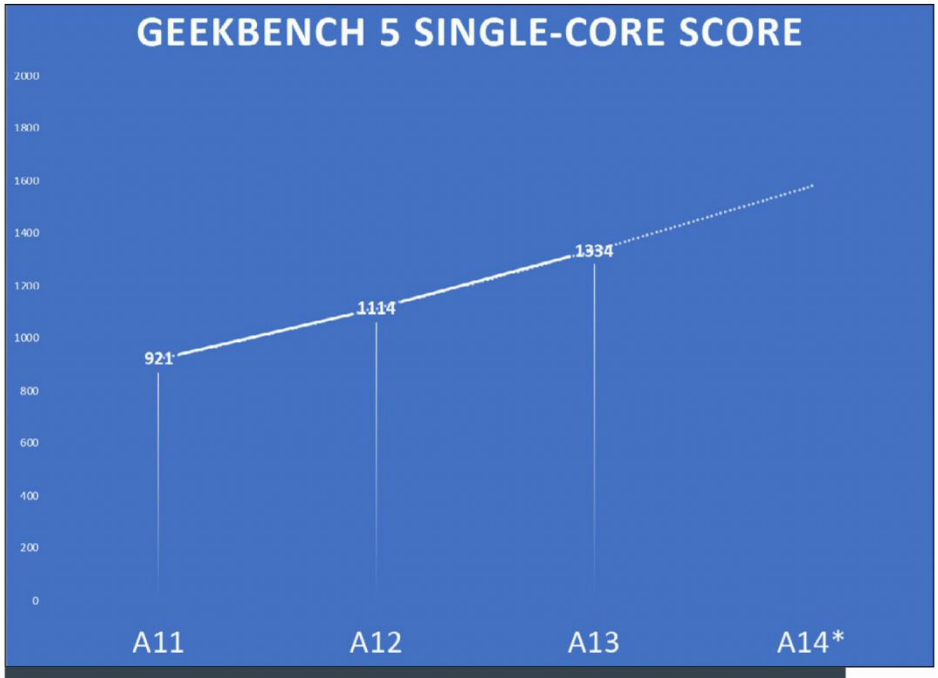
If we take TSMC at its word about the improved transistor density of the 5nm process, we're looking at

an incredible 15 billion transistors. That's more than all but the largest high-end desktop and server CPUs and GPUs. It's huge. It's so big that I wouldn't be entirely surprised if Apple shrunk the total chip area a bit to around 85mm^2 and around 12.5 billion transistors.

Transistor count by itself is a poor means of estimating processor performance, but it does tell us how much 'room' Apple has to work with. It means more cores, or bigger cores, or more cache, or any combination of these improvements.

CPU performance

For the A13, Apple didn't do a lot to change its fundamental CPU architecture. It's still the same number of cores, and the cores aren't dramatically different. Instead, the company relied on the faster

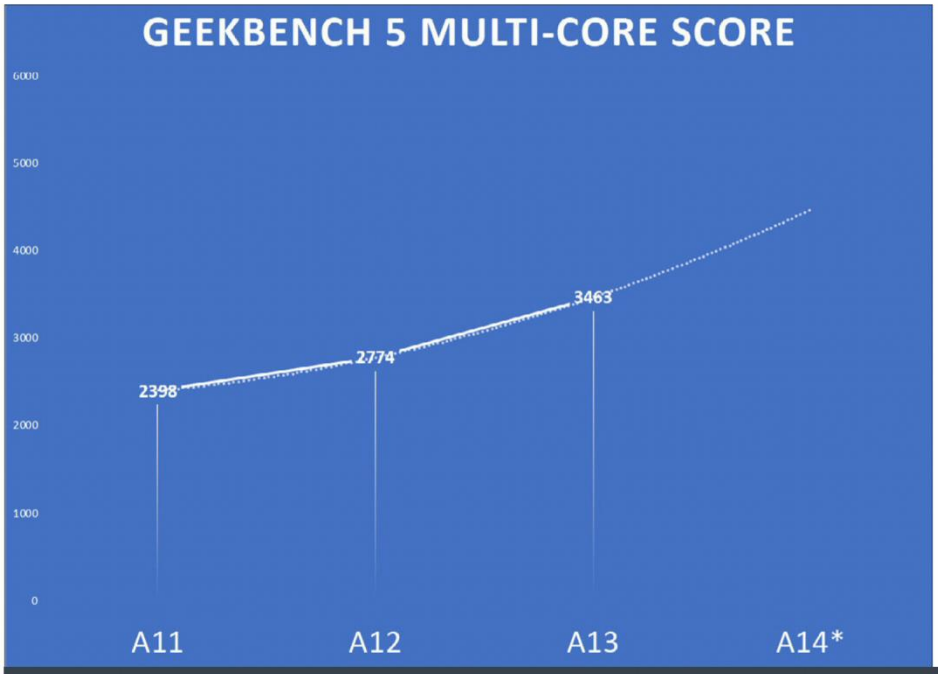


Single-threaded performance is expected to improve, but not as much as multi-threaded performance

clock speeds afforded by the enhanced 7nm process to improve performance.

In single-threaded performance, the A13 delivers a 20 percent improvement over the A12 (in Geekbench 5). It's a bit more than I predicted it would last year, and the fastest mobile CPU around.

Simply following the trend line (which is quite consistent for recent A-series processors) we could expect the A14 to score close to 1,600. The 5nm process alone should be about 8 percent faster than the enhanced 7nm process Apple uses in the A13, which would give us a score in the mid 1,400s. My guess is that Apple will likely wind up in the 1,500 to 1,600 range, due to both higher peak clock speeds and some architectural improvements made possible by the much higher transistor budget.



Multi-threaded performance would go up if Apple didn't add more cores, but that's a conservative prediction. I expect more

Multi-core performance is harder to predict. The A12 and A13 had four small high-efficiency cores and two big high-performance cores. Apple already had very efficiently schedules workloads to take advantage of all cores as much as possible, so it's unlikely that we'll see a big improvement from better scheduling. But with the big jump in transistor density from 5nm, Apple might add a third big core, or significantly boost performance of the high-efficiency cores, which would really boost multithreaded performance.

The trend line gives us a score around 4,500, but I think a combination of architectural changes and clock speed will give us a lot more. I wouldn't be surprised if the Geekbench 5 multi-core score creeps up to 5,000 or so.

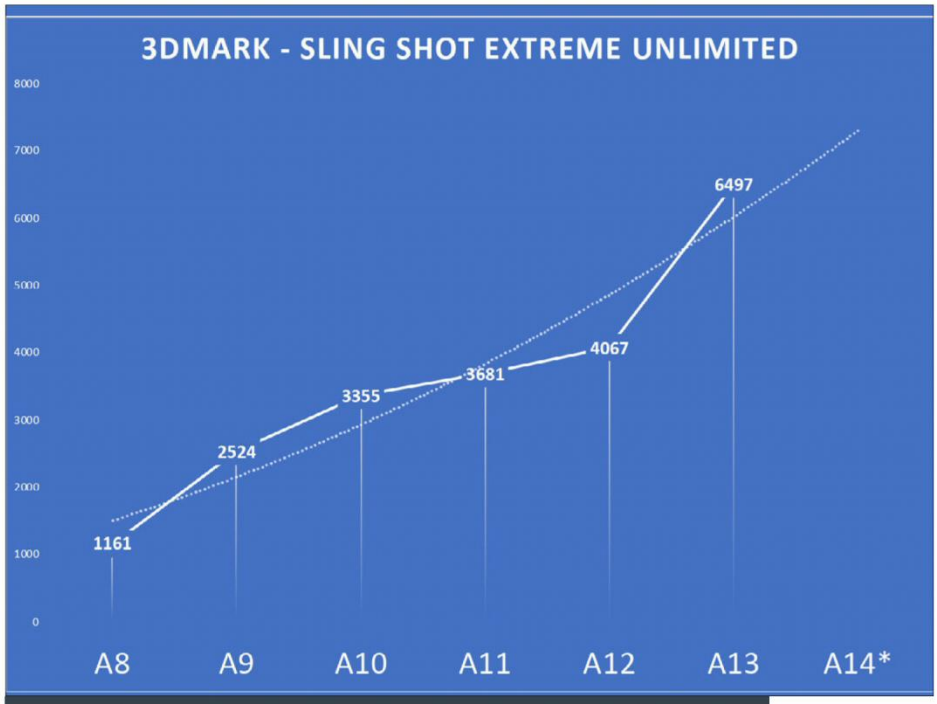
For what it's worth, the fastest Android phones score around 3,000 on this test, and a score of 5,000 would be similar to 6-core mainstream desktop CPUs or high-end laptop CPUs. It's 15in MacBook Pro territory.

Graphics performance

The iPhone has been, from the very debut of the App Store, a gaming device. But gaming has never been more important to Apple than it is now with its Apple Arcade service. Graphics performance makes games shine, true, but the GPU is also used for computational functions in image processing, machine learning and plenty of other tasks.

In other words, GPU performance is critical and Apple is not going to tread water with the A14.

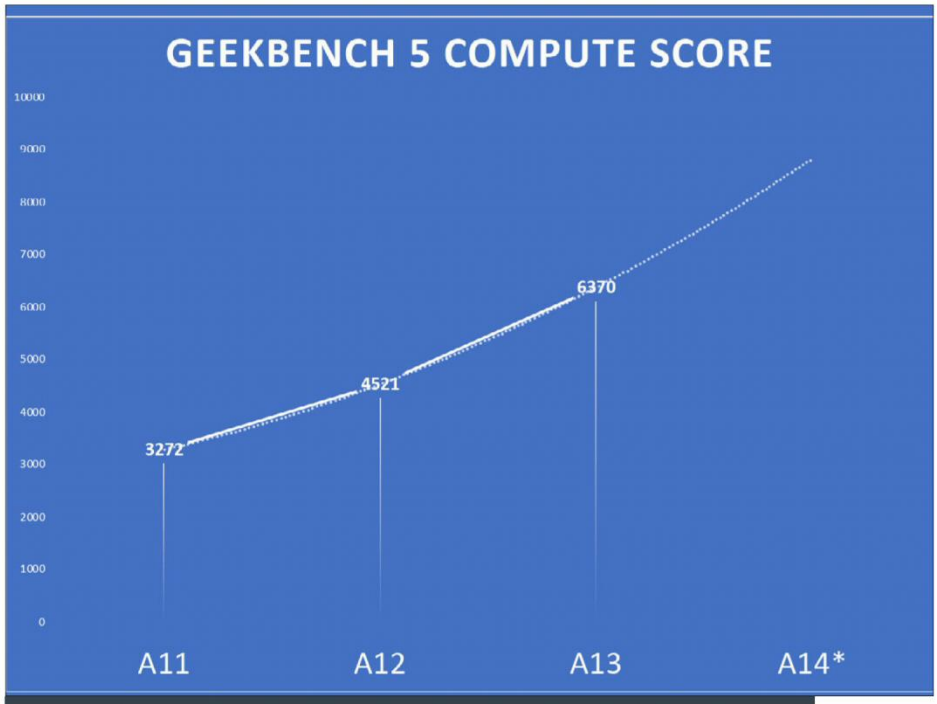
If we take a look at the 3DMark Sling Shot Extreme Unlimited test, performance took a dramatic leap in



Graphics performance took a big leap with the A13. I think the A14 will deliver a similar leap

the A13 – far beyond what recent trends would have predicted. I expected a score around 4,800, and Apple delivered well over 6,000. It was enough to beat the latest Android phones, but newer models have since pushed a little higher, and top-tier Android phones released this year will go much further.

I expect Apple to expend significant transistor budget making the GPU more powerful. Along with more memory bandwidth, we can probably expect GPU performance well beyond the trend line's prediction of the low 7,000 range in this test. Barring some new performance bottleneck, I think a score over 9,500 is certainly possible. In other words, I think we can expect a 50 percent improvement in graphics performance for the kind of high-end graphics used in games.

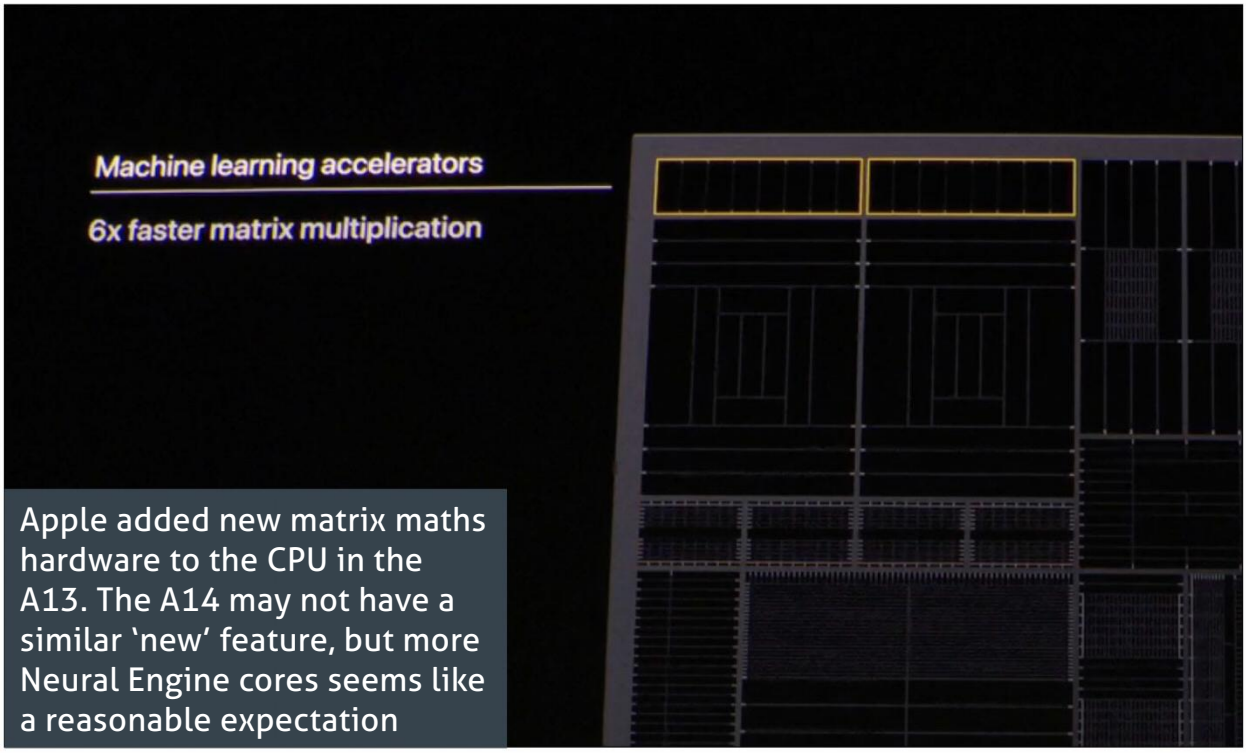


GPU Compute is increasingly important. I wouldn't be surprised if it's 50 percent faster in the A14

When it comes to using the GPU for computation, I think we can expect a similar speed bump. A bigger GPU plus faster clock speeds and more memory bandwidth could give us 50 percent or more – making the Geekbench 5 compute score jump to the 9,500 to 10,000 range.

Image processing and Neural Engine

The A-series processors do a lot more than just house CPU and GPU cores. They contain specialized hardware for specific tasks such as image processing (to turn data from the cameras into stellar photos and video), video encoding and decoding, and a Neural Engine that powers machine learning tasks that are used throughout iOS.



Apple added new matrix maths hardware to the CPU in the A13. The A14 may not have a similar 'new' feature, but more Neural Engine cores seems like a reasonable expectation

In the A13, Apple added specialized hardware to handle matrix multiplications and an updated 'machine learning controller' to balance those compute tasks among the various parts of the processor – CPU, GPU and Neural Engine. It did not, as I predicted, add cores to the Neural Engine, but since all parts of the CPU, GPU, and NE run at higher clock speeds, performance improved.

This is an area Apple cares deeply about, and is a necessary part of improving photo and video quality, augmented reality, and many of Siri's functions throughout the operating system. With the higher transistor budget afforded by the 5nm manufacturing process, I think Apple will add Neural Engine cores this time, and may make other architectural improvements as well.

It wouldn't surprise me to see Apple claim that machine learning tasks are at least twice as fast as on the A13. Apple doesn't really provide performance details for its imagine processing engine, but the push for better camera quality is never-ending, so it'll probably be better, too.

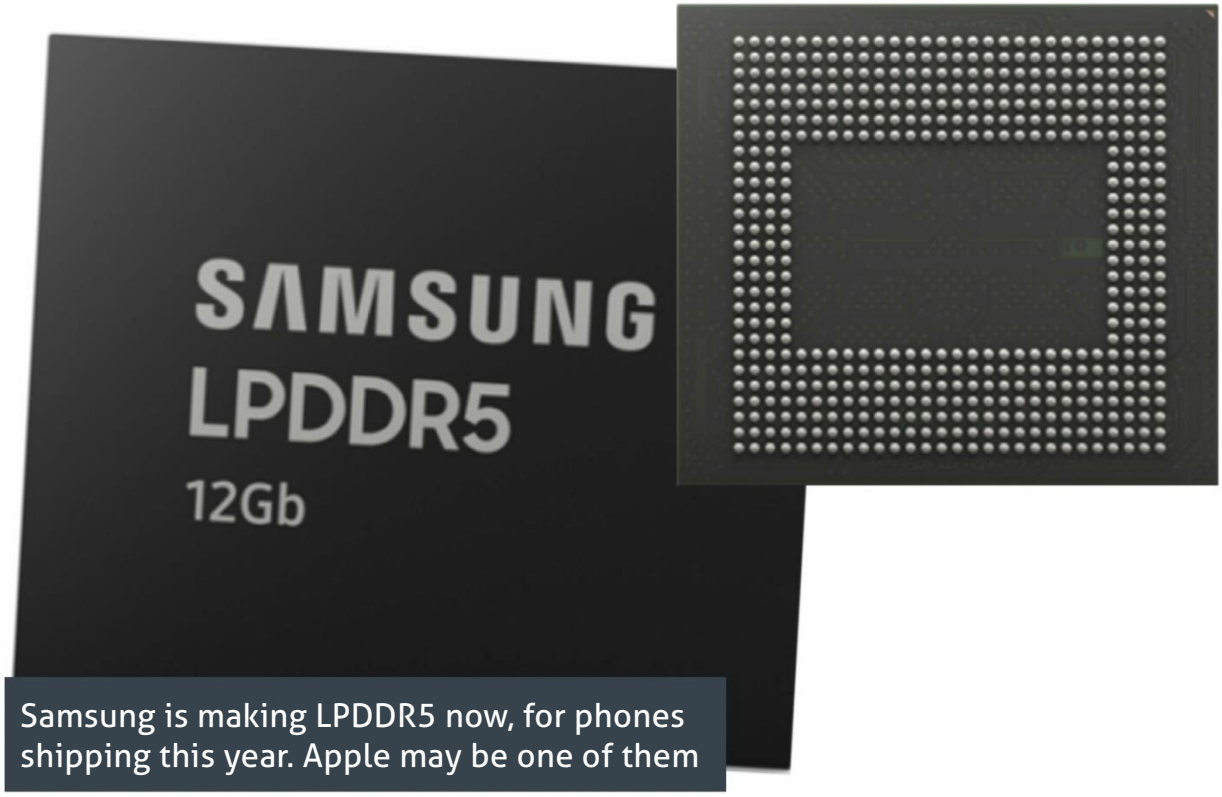
I'll go out on a limb and say that I think the A14 will be Apple's first chip with hardware decoding of the AV1 video codec, and might even have hardware encoding support. If so, expect Apple to spend some time on stage talking about how videos shot with the iPhone 12 are smaller and higher quality than ever before.

Faster LPDDR5 RAM

Apple has been using LPDDR4 memory in its iPhone SoCs for years. It first made the jump from LPDDR3 to LPDDR4 in the A9 in 2015, and then to LPDDR4x (a faster and slightly more power-efficient version) in the A11 in 2017. The A12 and A13 used the same RAM, as far as the teardowns can determine.

But we're on the cusp of the next generation of low-power mobile memory. The spec for LPDDR5 was finalized last year, and already Samsung has begun production, with SK-Hynix (another popular RAM supplier for Apple) to begin soon. High-end Android phones will first ship with the RAM in the first half of this year, making it likely that the iPhone (at least the high-end models) will follow suit at the end of the year.

What's the benefit? Well, the current LPDDR5 being produced by Samsung is about 30 percent faster than the LPDDR4x used in the iPhone 11, and at least 30 percent more power efficient. Memory bandwidth is



Samsung is making LPDDR5 now, for phones shipping this year. Apple may be one of them

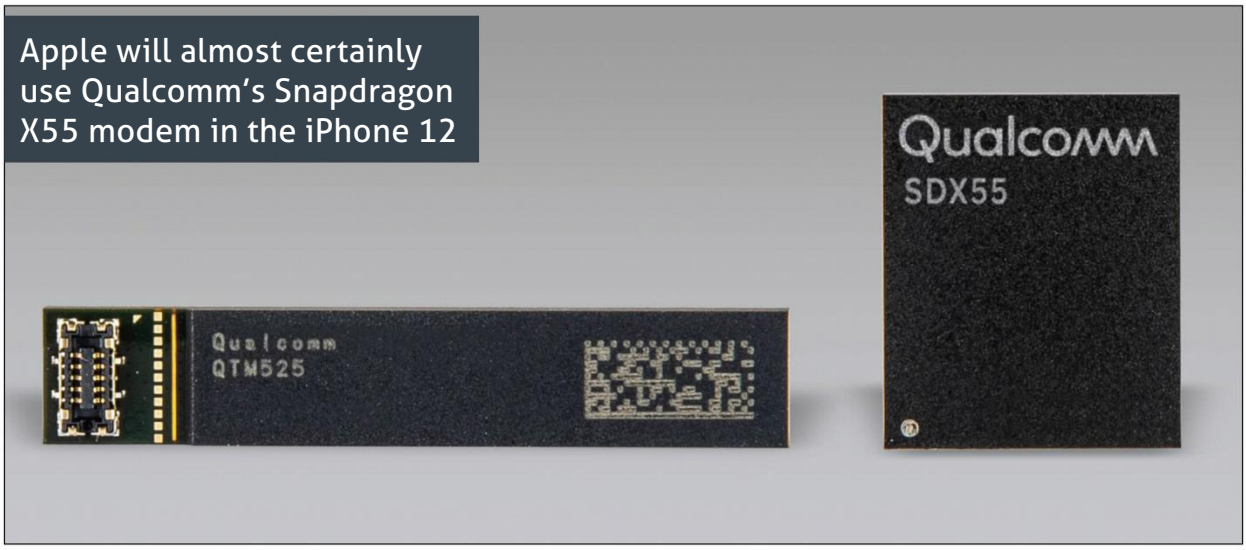
a critical bottleneck for lots of tasks, but especially mobile graphics performance and image processing.

Of note: Samsung is currently only mass-producing 12-gigabit LPDDR5 chips. If Apple uses it as a supplier, it would likely mean an upgrade to 6GB of RAM in the iPhone 12. You can't neatly produce 4GB of RAM using 12-gigabit chips, but you can easily use four chips to produce a 6GB (48-gigabit) package.

5G support via Snapdragon X55 modem

While wireless modems and radios are part of the A14 chip itself, it's such a critical part of the iPhone that it's worth dissecting what we might expect.

This year, Apple is widely expected to include 5G support in the new iPhones. It seems likely that, in part



Apple will almost certainly use Qualcomm's Snapdragon X55 modem in the iPhone 12

thanks to the settled lawsuits and licensing agreements between Apple and Qualcomm, that all premium iPhones will have the X55 modem. Lower-end models might even have that modem, but with the 5G radio disabled via software.

This would give iPhones one of the very best cellular modems around, with support for lots of LTE features and global networks, as well as the most advanced 5G available at the time. It doesn't necessarily put it ahead of anything on the Android front, though: Android phones with the X55 modem will ship throughout 2020.

As far as other wireless features go, we can expect continued support for Wi-Fi 6, Bluetooth 5, NFC and ultra-wideband (UWB). The latter was a surprise addition for the iPhone 11, but I don't expect another wireless surprise is in the works for the iPhone 12.

iOS 14 wish list: 10 ways Apple can take the iPhone to the next level

iOS 13 delivered on several of our top requests, but there's still plenty of room for improvement. **Jason Cross** reports

Last year, al put together a list of features I hoped to see in iOS 13. And Apple listened. Okay, it's not likely that anybody at Apple read my article and altered a single plan based on it, but the company did give several of the things I've been asking for.

There's still a lot left on the table, though. So many more features and significant changes that seem easy

to identify (if not easy to develop) that would make iPhones more useful.

I want about a million things for iOS 14 (multiple timers, for example), but many are small tweaks not worth getting worked up about. Here's a list of the ten biggest and most far-reaching features I hope to see in iOS 14.

Note: now that iOS and iPadOS have technically split, this list doesn't include iPad-specific features – that's another list. Also, there are features I'd love to see that require new iPhone hardware, which aren't included here. These are features I'd like to see for all iPhone models that could run iOS 14.

1. Prioritize reliability

After a surprisingly trouble-free iOS 12 release, iOS 13 has been full of problems. The release schedule was staggered and disjointed, and Apple is still squashing significant bugs.

There are reports that Apple has once again altered its development process to improve reliability, and it can't come soon enough. The buzzwords for iOS 14 should be 'stability' and 'performance'.

More than any new feature, making sure that the first release of iOS 14 is fast, fluid, and trouble-free for the hundreds of millions of devices upon which it will run should be priority number one.

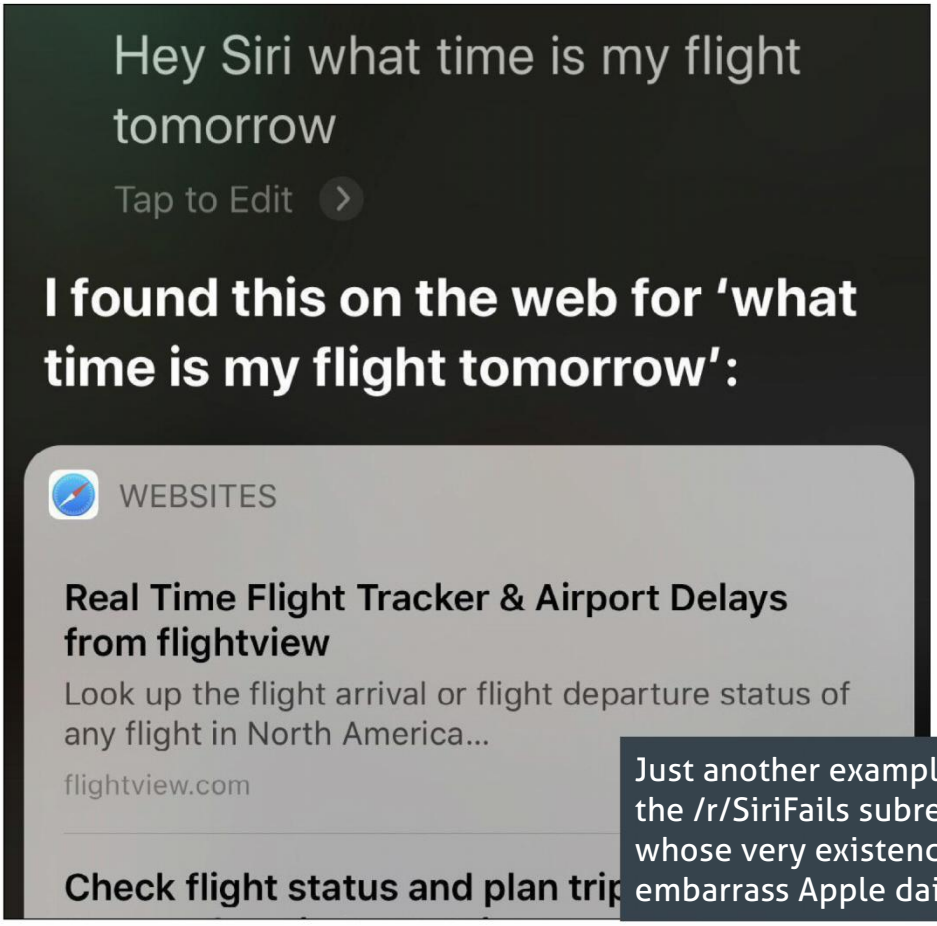
And don't promise features at WWDC only to have them come weeks or months after release (and in a shoddy state, at that). It's probably too much to expect all the major iOS features to release at once, but be honest about the staggered release. Let

us know which features are coming in a future iOS point-release update so we can manage expectations.

2. A smarter Siri (again)

Apple improves Siri every year. In iOS 13, it gave Siri a smoother and more natural-sounding voice. It also added support for music, podcast, and other audio apps to the SiriKit framework. Both are nice (especially that second one), but not nearly what we have in mind when we wish every year, fingers-crossed, for a dramatically upgraded Siri.

Last year, I wrote this about Siri in describing my hopes for iOS 13: "Siri still lags way behind Google



Just another example from the /r/SiriFails subreddit, whose very existence should embarrass Apple daily

Assistant and Alexa in its ability to answer general questions and gracefully perform actions with third-party hardware and services. There are so many obvious shortfalls; you can do a Spotlight search for a flight number and get detailed flight info, but ask Siri and you just get a web search.

"Siri needs better voice recognition, faster response times, and more 'fun' activities like trivia and games. It needs to give more accurate answers to a much broader set of questions."

All of that is still true. Siri still needs more domains for things like Shopping, and both Siri and HomeKit need better support for more smart home gadgets and types – why can't I arm my alarm with Siri?

More than anything else, I want Apple executives to get on stage at WWDC with a giant Siri 2.0 logo behind them and talk about the 'all-new Siri' that takes everything the company has learned over the past nine years and built a whole new digital assistant for the next decade. One that is smarter, faster, works offline (it's shocking how often Siri does not), better understands both your words and your intent, and is more proactive about doing things on your behalf if you want it to.

I would also like Apple to make users choose a Male or Female Siri voice during phone setup (or when they first upgrade to iOS 14), without defaulting to the female voice.

3. Improved dictation

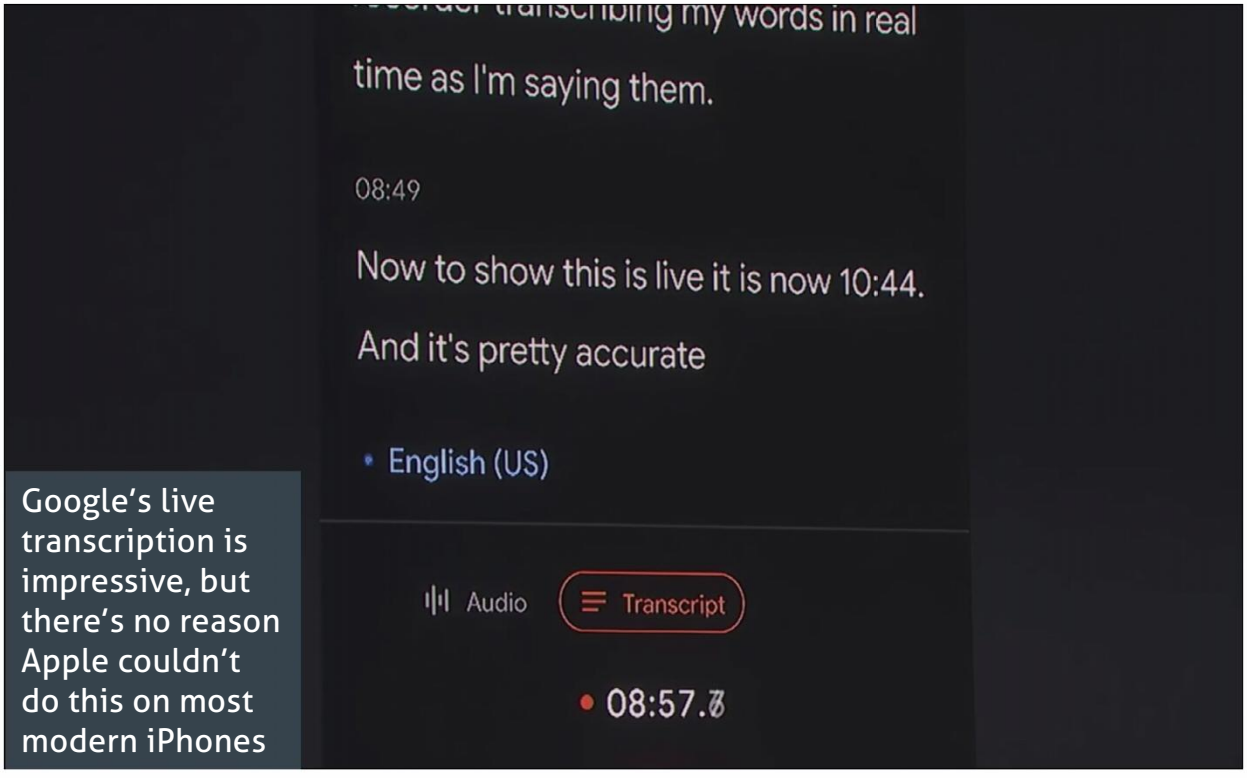
When Google demonstrated its new Recorder app on the Pixel 4, we couldn't help but feel jealous. The

phone was doing exceptionally accurate text-to-speech transcription, live, and entirely on-device. It was even smart enough to put in full stops between sentences.

Of course, there's no magic hardware in the Pixel 4 to enable this feat. It's just software, and it's even coming to older Pixel phones.

Apple's dictation feature (tap the microphone on the keyboard) is a handy way to input text almost anywhere, but it's slow and inaccurate enough that most people don't bother. To Apple's credit, it does work without a network connection. But it can't keep up with a normal talking pace, and it doesn't do a very good job of making a sentence (with proper punctuation) out of your string of words.

Apple should step up its game here. Make the dictation dramatically faster and more accurate



Google's live transcription is impressive, but there's no reason Apple couldn't do this on most modern iPhones

(especially with accents), and use some intelligence to improve word choices. If I say, "you have a funny accent" and the dictation thinks I said, "you have a runny axe meant," it should recognize that its interpretation produces a nonsense phrase and that other similar-sounding words produce a reasonable sentence.

The beefed-up speech-to-text engine should be used all over iOS, from Siri to voice mail transcriptions (which are awful) to the Voice Memos app.

4. A better Camera for all iPhones

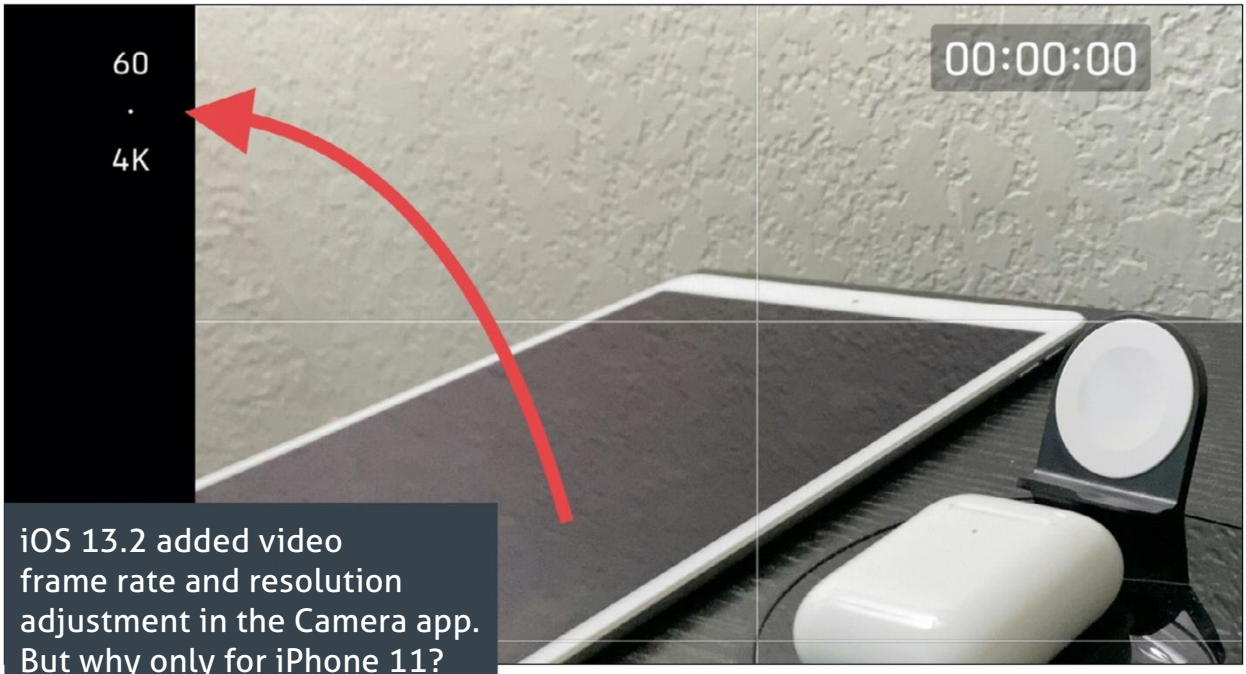
With the iPhone 11, Apple made a few sensible improvements to the Camera app interface. The smooth-scrolling zoom wheel, for example, is a delightful experience that makes controlling zoom level easier than pinch-to-zoom.

Then, of course, there's Night Mode, where several seconds of exposure are combined to produce stunning shots in dark environments.

And in iOS 13.2, Apple added the ability to change video resolution and frame rate right in the Camera app instead of jumping into Settings – but only on the iPhone 11.

There's really no need for any of these improvements to be restricted to Apple's latest phone. Night Mode may not be possible on the oldest iPhone hardware, but it's certainly something an iPhone XS and XR can pull off. And the interface changes have no business being restricted to just the new phones.

I'd love to see iOS 14 brings these and other camera improvements to older phones. Unify the interface



iOS 13.2 added video frame rate and resolution adjustment in the Camera app. But why only for iPhone 11?

and restrict features only to what is technically impossible on older hardware. And while I wouldn't want Apple to make the Camera app interface too busy, I think a 'Pro' mode that lets users adjust colour temperature, shutter speed and ISO, would be welcome. Put it right in line with the Pano, Time-lapse, Portrait, and other modes, and give photography nerds as much manual control as possible.

5. A new home screen

The iPhone's home screen got a bit of an overhaul back in iOS 7, but hasn't really changed a lot since then. We can now long-press on app icons to get context menus, but the home screen is still a big grid of icons that you can't even freely move around, only reorder.

The grid of icons probably won't go away, and that's not necessarily a bad thing. But there are

plenty of ways to change things without completely upending the paradigm.

I'd love Apple to introduce a dynamic icon API so that, for example, a weather app could change its icon to match the forecast, or an email icon could show how many unread messages you have. At the very least, Apple should let developers define separate app icons for Light and Dark mode.

If you drag down on the home screen, you enter Spotlight search. Before you begin searching, Siri suggests a row of app icons based on your common use at the current time of day and location. Maybe this should (optionally) reside on our home screens, now that iPhones are so much taller?

And even if Apple is not going to let us hide apps in an app drawer à la Android, it can at least let us position app icons and folders wherever we want. Currently, you can reorder them, but they always fill the screen from the upper left – there's no way to leave a blank space.

6. Notifications need an overhaul

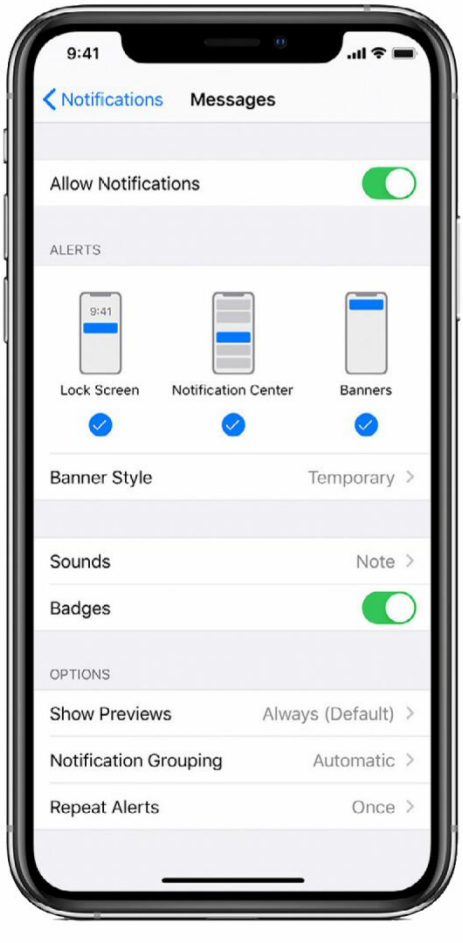
Notifications have improved in iOS, but they're still a bit of a mess. When you dig into the Settings app to change how apps notify you, you're bombarded with options. Where do you get alerts? What kind of banner style? Do you want sounds? Previews? How about the little red dot on app icons?

The average user doesn't ever go here, and suffers default settings for all their apps. Those who do change things have too many options to choose from, and they're the wrong kind of options. I'd like to see Apple reduce the choices for the many ways in which

notifications are displayed, and instead work on a systemic means of separating notifications into two groups: critical alerts that require immediate action and casual stuff that can wait.

What the notification system on the iPhone really needs is to recognize that notifications are regularly abused by developers and are a major reason why we all use our phones too much. Apple should take the same systemic approach to reducing notification impact in iOS 14 as it did with location tracking in iOS 13. Make notifications silent and non-interrupting by default (no banners, they just appear in the notification shade). Let apps define specific 'high priority' notifications, and have to request that users enable them, while telling users exactly what will produce them.

For example, Twitter's notifications for likes, retweets and follows would silently deliver to Notification Centre, but the app would prompt you to allow direct messages to be 'high priority' where they would produce alerts and sounds. The Ring app would have silent notifications for detected motion, but could



All these options, which most users never touch, and still no way to differentiate critical notifications from all the rest

request allowing high priority notifications for when your doorbell is rung or your alarm triggered.

And let's get rid of notification badges. The little red dot on app icons is useless vestige of an old mobile world. It is high visual impact but low information density – all it can do is provide a number, which could mean anything depending on the app. Worse, it doesn't tell you if any actions are needed or what they should be. Their existence owes more to inertia than to actually improving our phone experience.

7. Always-on display with complications

The Apple Watch has an always-on display. OLED Android phones have had always-on displays for years. There's no reason why the OLED iPhone models can't have them as well.

The always-on 'sleep' screen for the iPhone should be similar to the lock screen, with a few adjustments. It should display time, date, and battery life on a black background (to save battery life), but no notifications. Perhaps new notifications could briefly appear and go away, but we need fewer reasons to pick up our phone, not more.

To that end, I'd love to see Apple take the idea of complications from the Apple Watch and add them to the lock screen and always-on sleep screen. Perhaps four of them, flanking the clock, with standardized formats. Developers could produce complications for their apps and what they would display, and users could choose which four they want to see.

This would be a great way to get simple information without picking up our phones and diving into apps.

And always-on display and complications. If they're good enough Android, and good enough for Apple Watch, they're good enough for iPhone

Some of what we need we could get without even unlocking our phones. It would make the iPhone even more useful, while providing an important feature to promote digital health and well-being.

8. Call recording

I know recording phone calls is a bit of a tricky legal issue, but it's just so useful that I want Apple to at least attempt to tackle it. The disclosure that one needs to make to legally record a phone call varies from country to country, but it seems that the most stringent requirement is for both parties to be informed that a recording is happening, and that requirement can usually be met by playing a regular audible tone (like a 'beep' every 15 seconds).

Ideally, when one enables call recording we would simply hear 'call recording enabled' followed by regular unobtrusive beeps, neither of which would actually be captured as part of the recording. Recordings can go into Voice Memos where they would be designated with a phone icon, and could be auto-transcribed (see improved dictation, above).

9. Thoroughly integrate Shazam

Apple bought Shazam in 2018 but hasn't done a whole lot with it besides remove ads. Technically, you're using Shazam technology when you ask Siri to identify a song, but Apple could go a lot further.

First, build Shazam right into Apple Music. Make an easy-to-hit 'identify this song' button both in the iPhone/iPad and Apple Watch interface. Keep a custom default playlist for identified songs that makes a note of the date, time, and location.

And steal a page from Google's Pixel phones and enable on-device, constant song identification. It would be an opt-in option, of course, but when enabled would show a small bar with the currently playing song on the lock screen and notification shade. Tap it to hop directly to that song in Apple Music.

10. Let users change app defaults

It's beyond time to allow users to choose their default apps for certain actions. When I tap on an address, I should be able to hop right into Google Maps or Waze if I want to, rather than Apple Maps. Links should be able to open in the browser of my choice, not just Safari (they all have to use Safari's page rendering, anyway).

You can do this on a Mac... what is Apple afraid of? Apple already has the advantage of its apps being pre-installed and the default choice, but allowing users to go into settings and change the defaults apps for certain types of actions would go a long way to satisfying power users (and stemming cries that Apple is an abusive monopoly).

In iOS 14, Apple could start small, with music, podcasts and maps, and grow support for default apps from there. And, of course, these defaults would extend to Siri, so if I change my default music app to Spotify, asking Siri to simply play a given song would open it in Spotify, without having to designate that particular service.

Where Apple can improve its integration of hardware, software and services

Apple prides itself on its integration between hardware, software, and services. But even it misses sometimes. **Dan Moren** reports

Apple spends a lot of time talking up its secret sauce: that combination of hardware, software and services that allow it to make what it believes are the best technology products on the planet. And, as users of Apple products, most of us probably agree that this is generally the case. But even as good as the integration between these three legs of the company's stool is, there are still some places

that it falls weirdly short. Hardware and software that don't work together, services that don't provide the necessary glue.

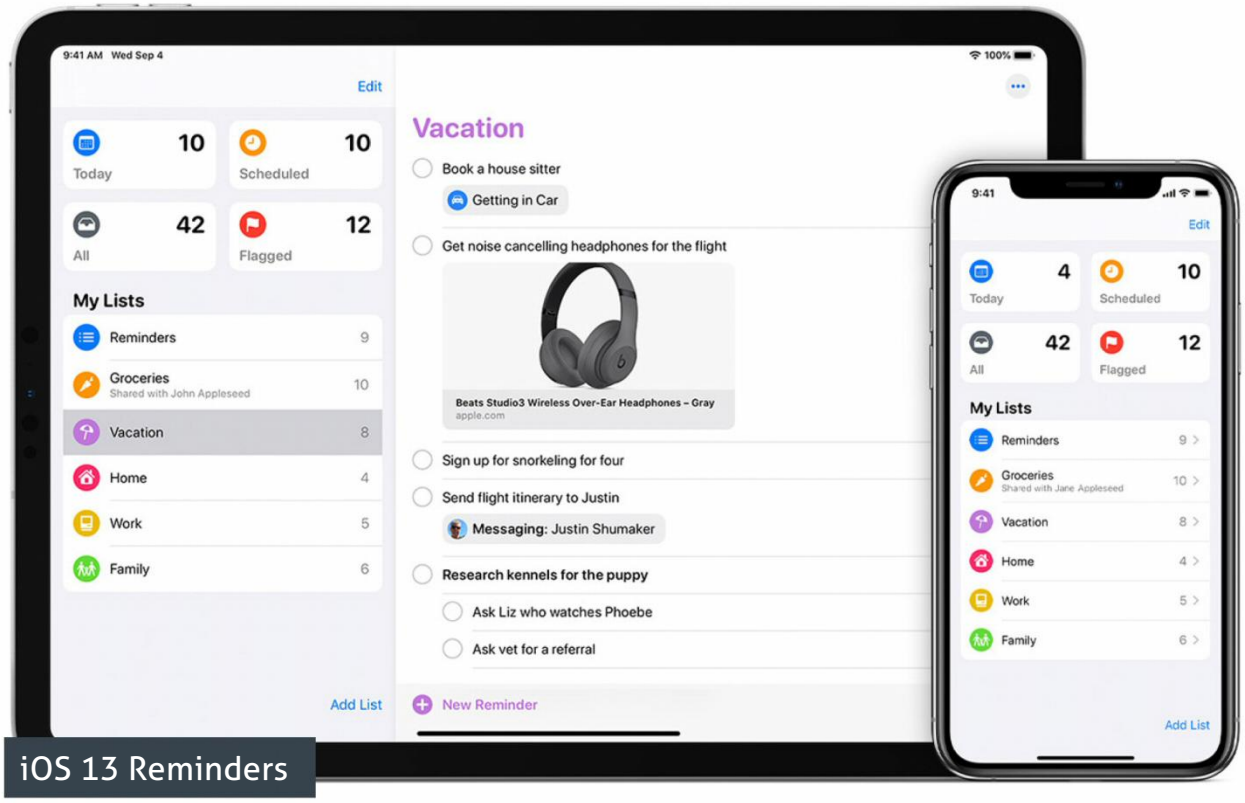
Maybe they're use cases that Apple doesn't consider particularly necessary, or maybe the company just hasn't gotten around to them yet. Whatever the case, they stick out like a sore thumb. Here are just a few examples of integration that's, well, less than integrated.

Oughta correct

Ever found yourself adding a word to your Mac's dictionary and then see it still underlined on your iPad? What's up with that? It seems like you shouldn't have to teach each and every device you own that a particular word or phrase is something that you frequently type. Given that iOS and iPadOS don't even offer a real way to add a word to your personal dictionary, the least Apple could do is have them respect the changes you've made to your Mac's dictionary.

Yes, there are workarounds, like adding a word to a contact card or a text shortcut, but these aren't the kind of things you want to have to do every time you come across a new problem word. Instead, Apple should add iCloud syncing of custom dictionaries between all your Macs and iOS devices to make sure that the words you're typing are always the ones you want them to be – not what Apple thinks they should be.

In iOS 13, the Reminders app got a substantial makeover, not only gaining a new interface, but also new features to help you actually remember all those things you enter into it. Among them is the ability to



iOS 13 Reminders

remind you of a task when you're talking to a specified person via Messages.

While that's all well and good, Messages is – I hate to break it to you, Apple – not the only app I use for communicating with people. Though I get why the company is perhaps not ready to open that feature up to third parties like Slack or Skype, it's missing a common first-party one right on the device itself: email. More to the point, once you pick a person to link with a task, it should remind you no matter which app you use to talk to them. After all, if it can recognize someone I'm chatting with over Messages, it can probably make a similar assumption when I'm using Mail.

Alas, Apple often seems to have forgotten that email is a thing. (In this, as in other places.) For better or

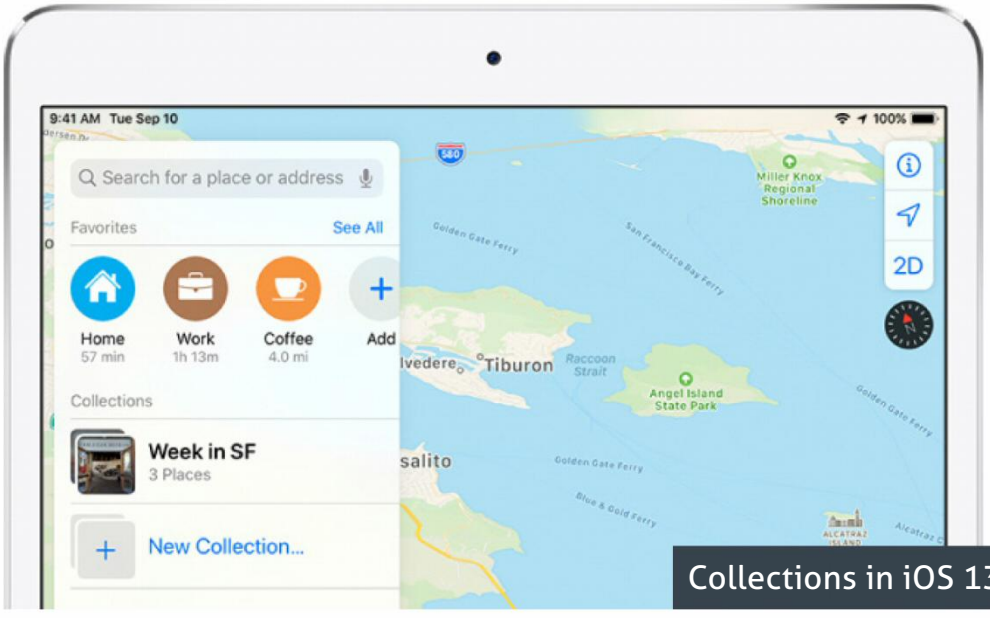
worse, though, we're all still using it, so let's not pretend it doesn't exist, much as we might wish otherwise.

Oh the places we'll go

You might be excused for not remembering that in iOS 13, Apple added the ability to create collections in Maps. Sure, it's handy to be able to make a list of places that you want to go – say, restaurants in town that you've been meaning to visit – but the feature is definitely lacking.

For one thing, though Maps collections can be shared with someone else, all that does is make that person their own copy of the collection. What's needed there is something closer to a shared Reminders list or a collaborative Note. If my wife and I want to keep track of restaurants we'd like to go to, it would be great if we could each add to this list and have it update for both of us.

Moreover, this is a feature of Maps, and yet it takes very little advantage of Apple's mapping service. For



Collections in iOS 13 Maps

example, it would be great if there were an option to add a geofence, to notify me when I'm near some place that I want to remember to go.

More like stere-no

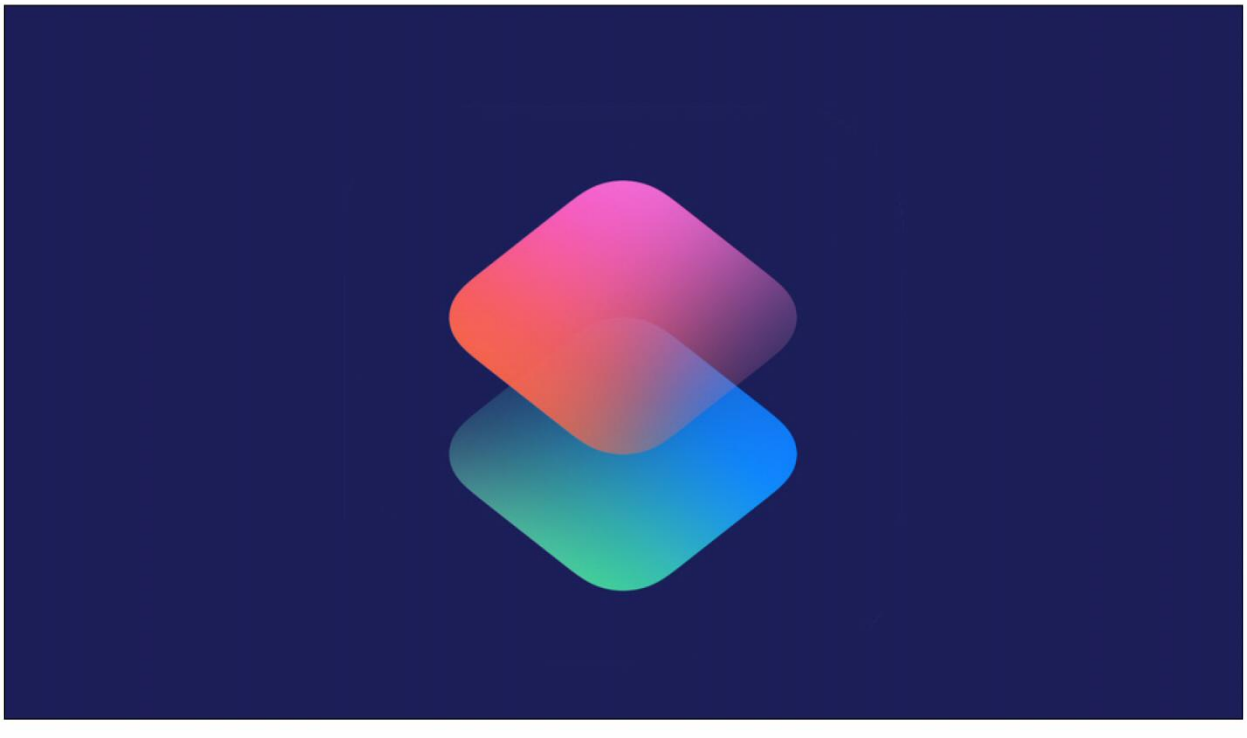
Let's throw this last one in the 'totally no-brainer' column. Apple sells the HomePod, a smart speaker that produces very nice sound and can be paired with a second HomePod (should anybody be brave enough to buy two) to create a stereo pair. You can use that to AirPlay music from your iOS device or your Apple TV or even iTunes on your Mac.

But that last one's the real trick, because it's only from iTunes. Want to use that stereo pair of HomePods as your Mac's system output? You're out of luck. It just isn't possible. Instead, you'll see two HomePods in the system audio output menu, representing each of the two speakers. You can use either of those individually as a system output, but not both together. It's downright perplexing.

Perhaps the company simply hasn't gotten around to it. It certainly has plenty of big projects on its plate. But the more complex the company's offerings get, the more of these rough edges seem to be popping up – and this are only scratching the surface. As much as Apple prides itself on the strength of its product integration, it's starting to feel like as though this plan isn't quite coming together.

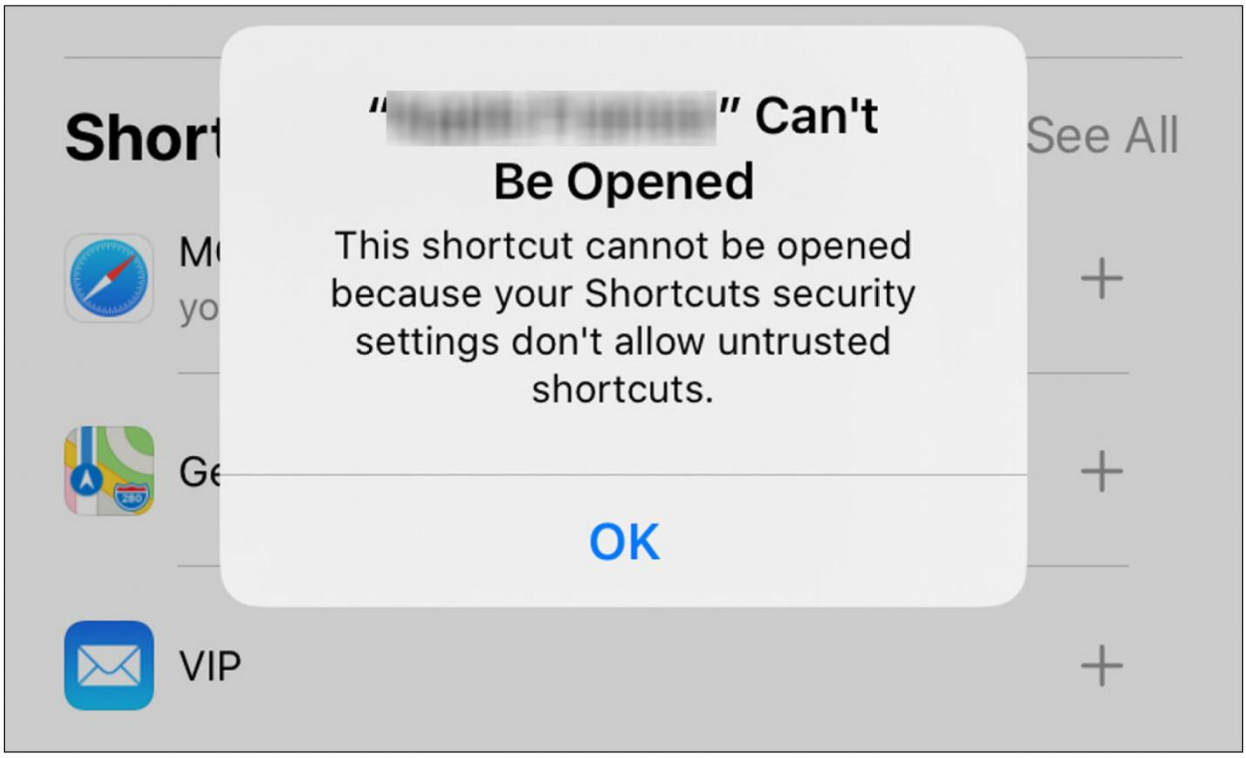
iOS 13: How to allow untrusted Shortcuts

You might run into a problem that prevents a Shortcut from installing. Here's the fix. **Roman Loyola** reports



The Shortcuts app is a great way to automate tasks that requires several steps on iOS. You can create your own shortcuts, or you can sift through the Shortcuts Gallery to find and install shortcuts that others have created.

You can also find Shortcuts on the Internet, but if you try to install them, you might run into a problem that prevents the Shortcut from installing. You could see the message displayed opposite.



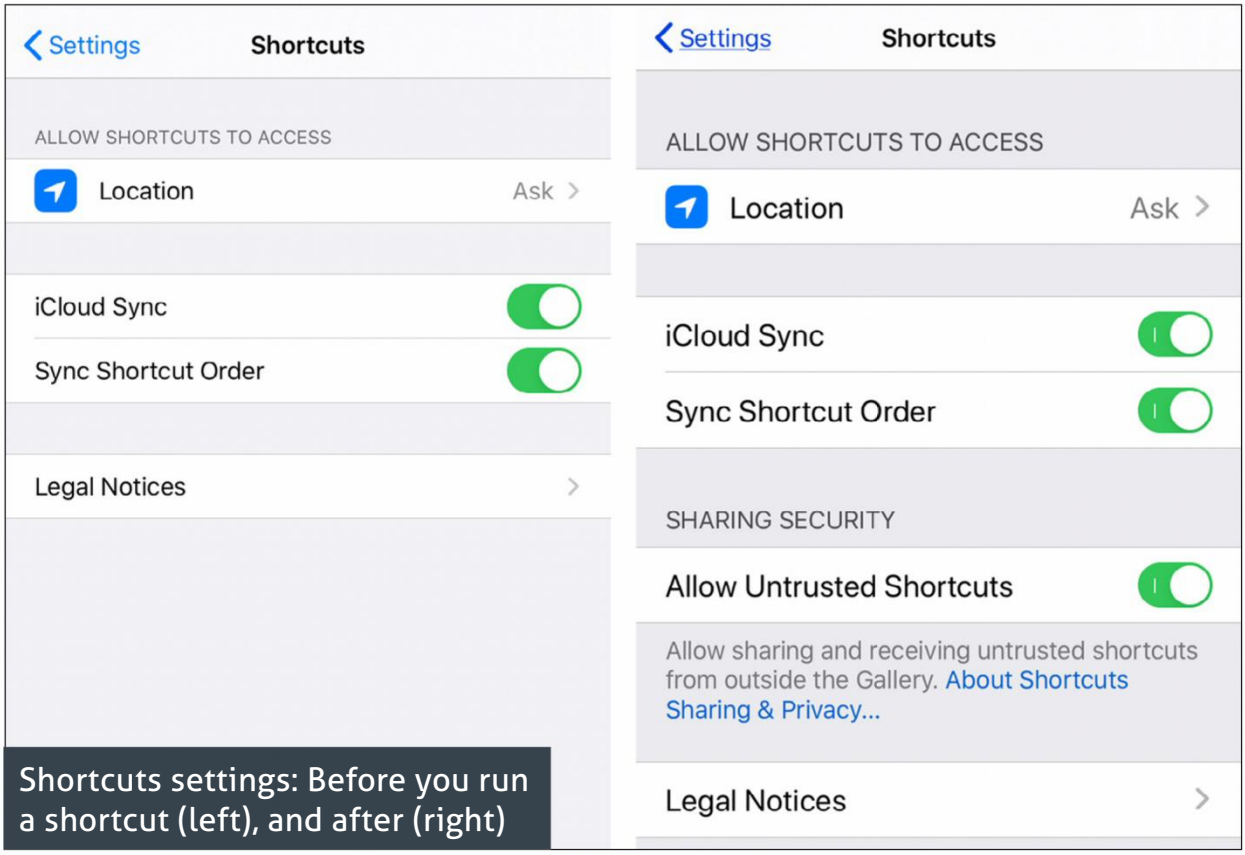
When you see this, you might think, "Okay, I'll just go in the Shortcuts settings and allow untrusted shortcuts." But if you've never run a shortcut before and you go into Settings > Shortcuts in iOS, you won't find any security settings to adjust.

Despite the missing setting, you can change it. You have to and can make that setting appear. Here's how.

How to make the Sharing Security setting appear in the Shortcuts settings

If you've never run a shortcut before, the Sharing Security setting doesn't appear. To make it appear, you have to run a shortcut.

Fortunately, that's easy enough to do. iOS 13 includes a shortcut in the Shortcuts app. Launch the Shortcuts app, and you'll find the 'Check order status'

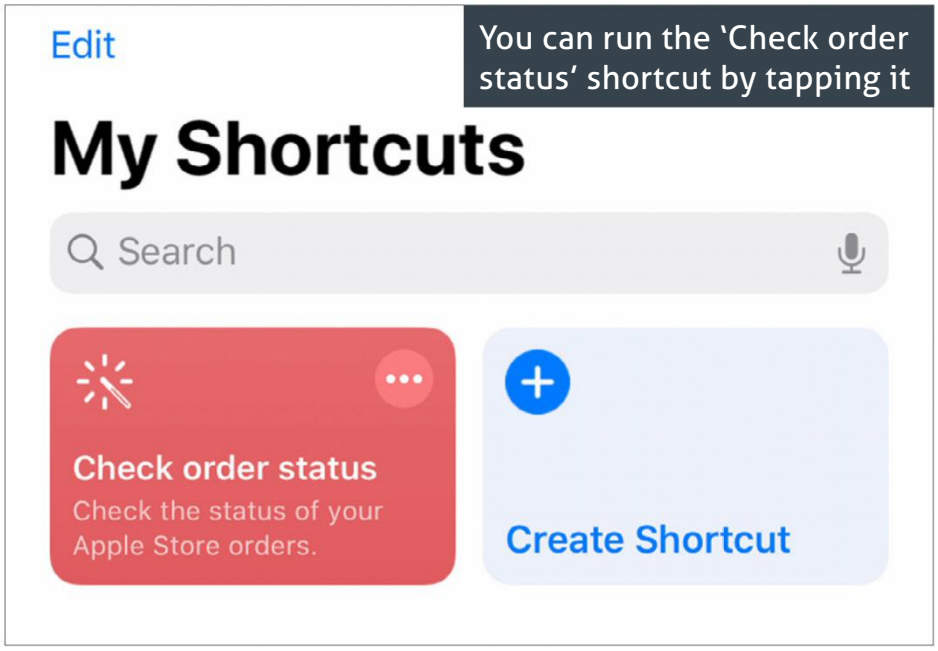


Shortcuts settings: Before you run a shortcut (left), and after (right)

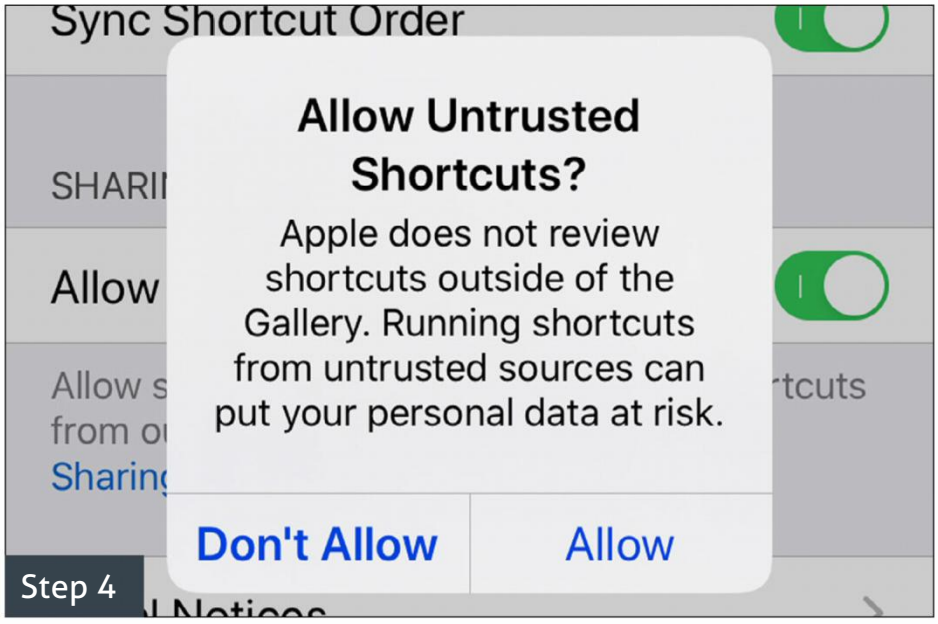
shortcut, which, as the name says, checks your orders at the Apple store. You can run the 'Check order status' shortcut by tapping it. It may check your order status if you have an actual order in process, or you'll see an error alert. Most importantly (for the purposes of this how-to), you've run a shortcut, and now you can set the Sharing Security settings.

Here's how to adjust the Sharing Security setting to allow untrusted shortcuts to run on your iOS device.

1. Launch the Settings app.
2. Scroll down until you get to Shortcuts and tap it. You'll find Shortcuts at the end of the section that starts with Password & Accounts.



You can run the 'Check order status' shortcut by tapping it

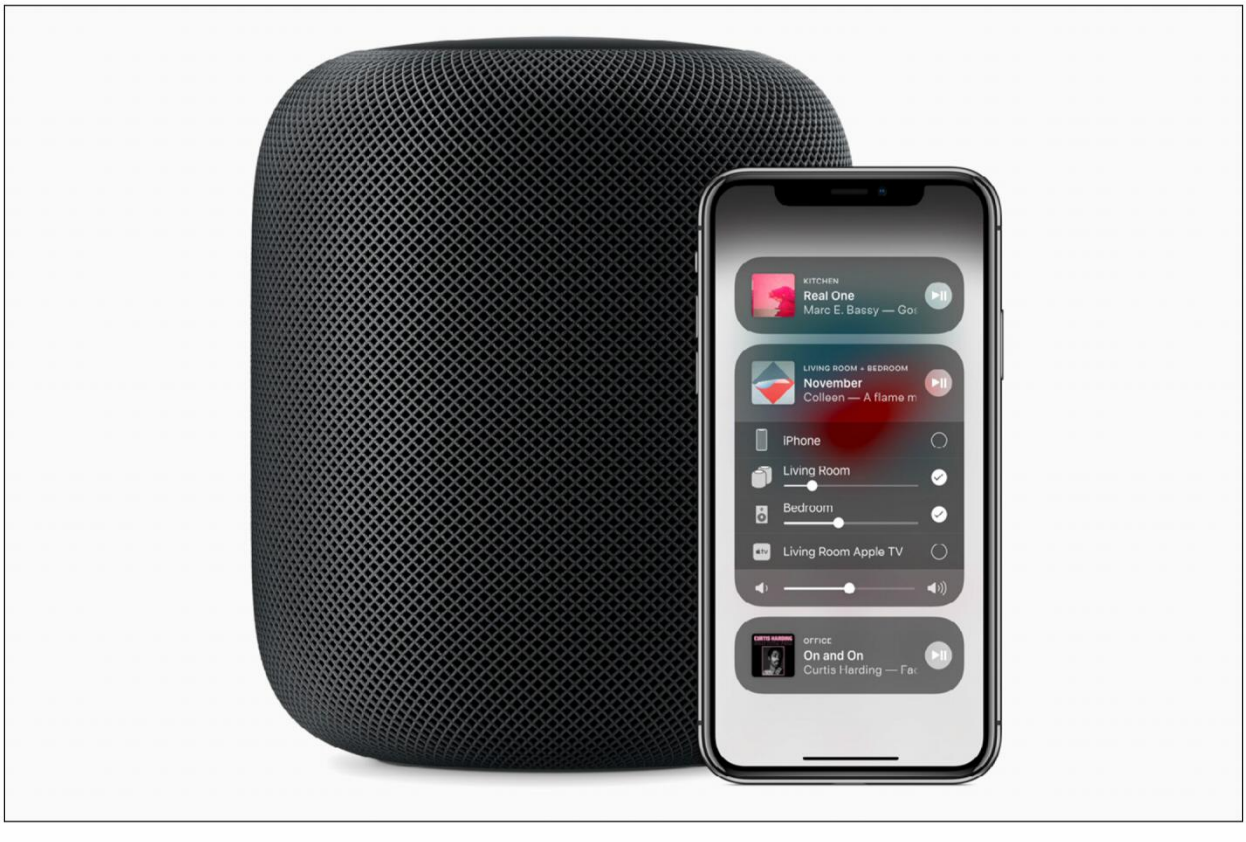


Step 4

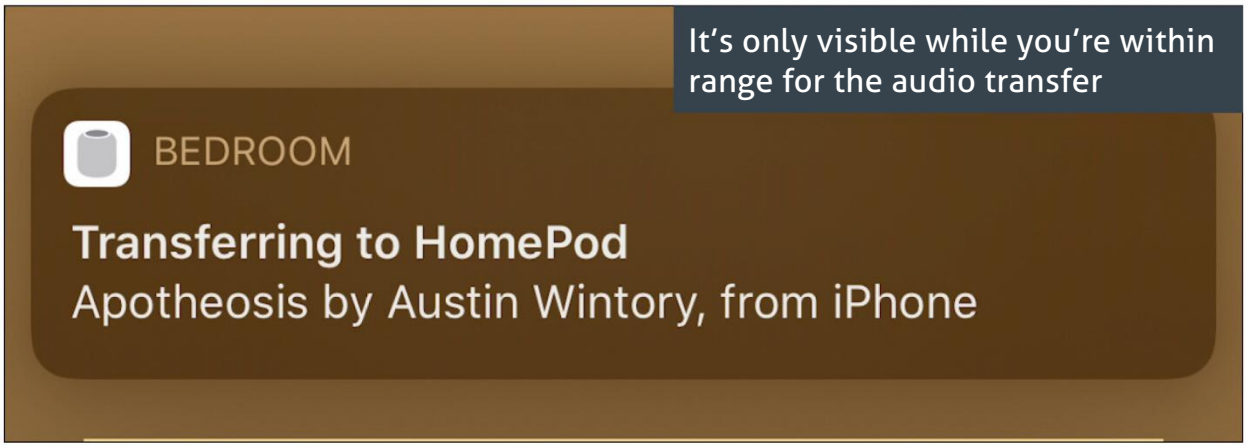
3. The Sharing Security section should now appear in the Shortcuts setting. Toggle the switch on for the Allow Untrusted Shortcuts setting.
4. A confirmation window will appear. Tap Allow.
5. Exit Settings and you're done.

iOS 13: How to hand off music or phone calls from your iPhone to a HomePod

Want your iPhone to play what your HomePod is playing? Just bring the two devices close together. **Leif Johnson** reports



With iOS 13.2 (13.2.1 for HomePod), it's easier than ever to hand off music or a phone call from your iPhone to your HomePod. Such handoffs were possible before iOS 13.2.1, but they were a bit of a hassle (as we'll see below). Now, though, Apple



It's only visible while you're within range for the audio transfer

provides a 'quick way' and a 'long way' of making these handoffs. Here's how to do both.

The quick way

If your phone is playing any kind of AirPlay-compatible media – such as a song on Apple Music or Spotify, a podcast, a YouTube video, a Netflix show or even a phone call – you simply need to hold your iPhone around an inch away from your HomePod. After a one-second delay, the audio track will jump from your phone and start playing on the HomePod. That's all there is to it.

And this works both ways, too. If you'd like to hand over your music or phone call from the HomePod to your iPhone, simply bring your iPhone to within an inch of your HomePod and the audio will switch back over. In both cases, you'll see a notification like the one above pop up on your iPhone if the transfer was successful.

The long way

Here's how you had to do these handoffs before iOS 13.2, and this method is still handy if you're, oh,

listening to music on your iPhone from the couch and don't want to make the hike over to the HomePod.

1. First, make sure you have AirPlay 2-compatible audio playing – again, be it an Apple Music or Spotify song, a movie from the TV app. (The steps are slightly different for a phone call, so we've put the direction for that below.)
2. You could go a number of ways from here. For simplicity's sake, though, open your iPhone's Control Centre and then look at the audio playing in the box in the upper right-hand corner. If your audio is playing in that box, you can transfer it with AirPlay.
3. Press the AirPlay button in the upper right-hand corner of this box. It looks like a triangle intersecting three rings of concentric circles.
4. Another menu will pop up showing the various AirPlay device you can beam your audio to. Toggle the circle next to your HomePod's name.
5. The audio will immediately start playing on your HomePod. You can also pause your audio or adjust the volume from this menu.

To switch your audio back over to the iPhone, simply toggle off the checkbox next to your HomePod's name. The audio should switch back over to your iPhone (and, depending on what you're listening to, it may even pause). To manually hand off a phone call, press the Audio button that appears in the Phone app's interface once you've started making your call. You'll then see a list of the audio devices you can beam the call to. Select your HomePod, and you'll be good to go.

Spelling it out, as here, makes the process seem more complicated than it is. This is really all there is to it

To send it back to your phone, just repeat the process and select your iPhone.

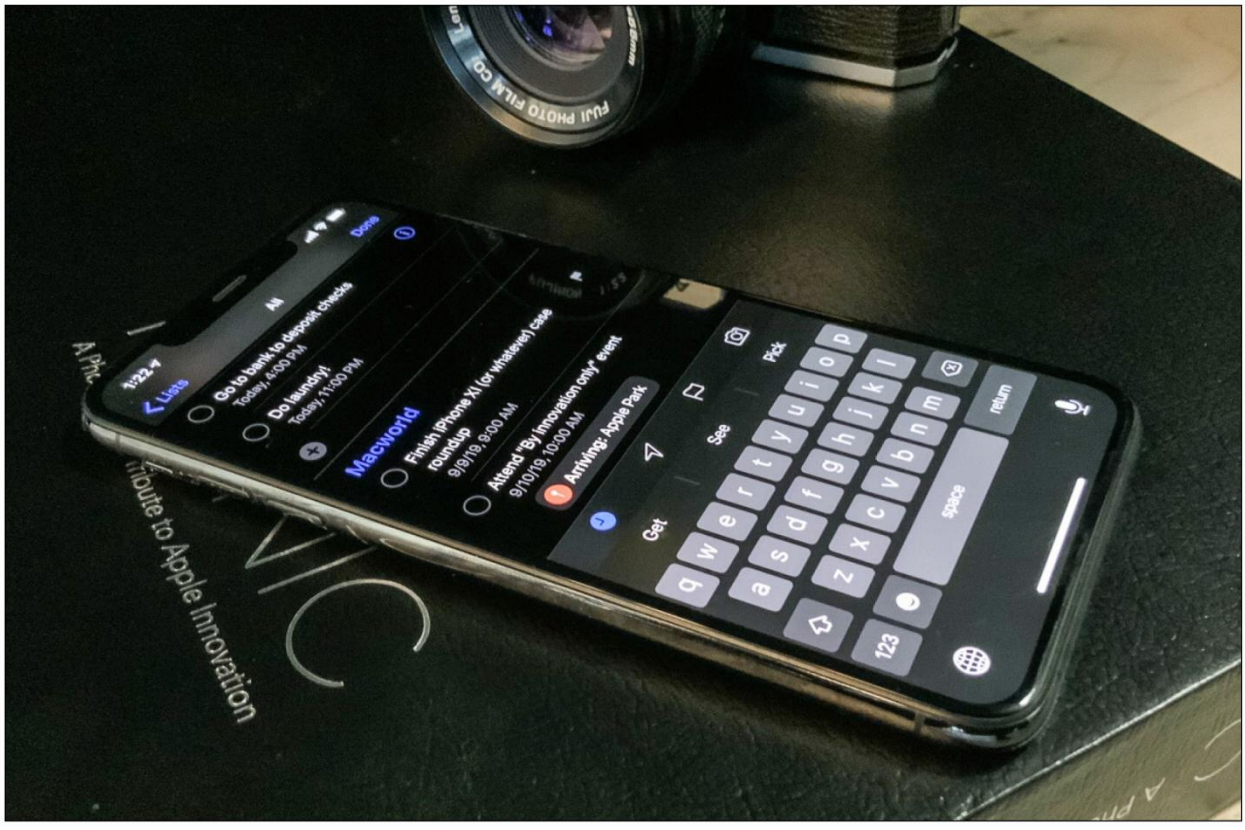
Troubleshooting

These steps should work by default, but if they don't, make sure both your iPhone and HomePod are running at least iOS 13.2.

If they are (and you're still having trouble), make sure Handoff is turned on by going to Settings > General > AirPlay & Handoff on your iPhone and checking to see if Handoff and Transfer to HomePod are toggled on.

iOS 13: How Reminders app can turn you into a productivity beast

Remember Apple's dinky little Reminders app? It's one of the company's best native apps. **Leif Johnson** reports

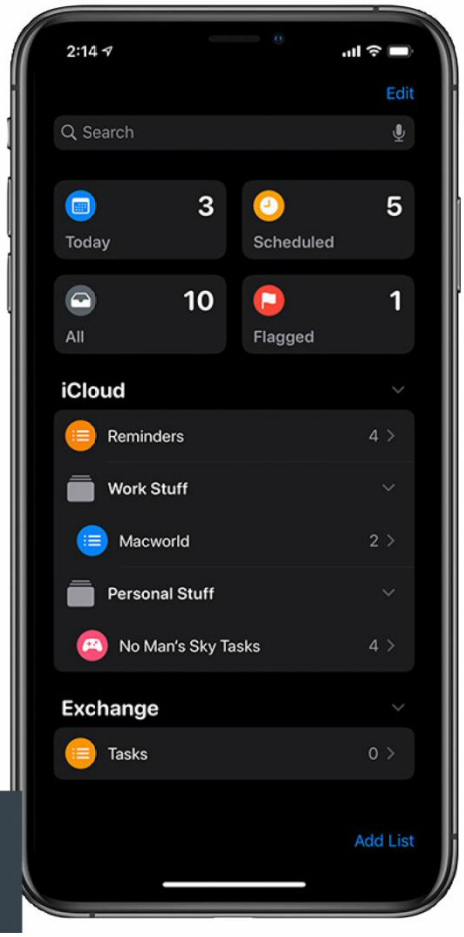


Apple's Reminders app used to be a joke, and if you found yourself using it, it was probably because you'd asked Siri to remind you about something or, well, you didn't know any better. It was good for casual use, but in a professional setting you'd

have been better off sticking with a third-party app such as Things 3.

With iOS 13, though, Reminders should rank among the operating system's standout features. The changes are breathtaking. You can make groups with multiple lists, you can set morning notifications that give you a rundown of what you have to do for the day, and you can add checklists to reminders. It doesn't even take that long to make a reminder anymore because Apple lets you enter them with natural language commands instead of fiddling with multiple fields.

Better yet, since you can use the same data between the iPhone, iPad, Mac, and Apple Watch, there's no need to buy separate versions for each app as you might with a third-party alternative. It won't take long to master all the features below, and once you do, you may find the once-neglected app is suddenly one of the most-used apps on your phone.



I actually had to delete a lot of my reminders for this story: There was simply too much private information

At-a-glance tracking of all your reminders

When you first open the Reminders app, you'll see a grid at the top for Today, Scheduled, All and Flagged. It's a handy way of seeing what's on

your plate for today versus what you'll have to tackle tomorrow, and it sure beats having to look carefully at the dates in a pile of reminders.

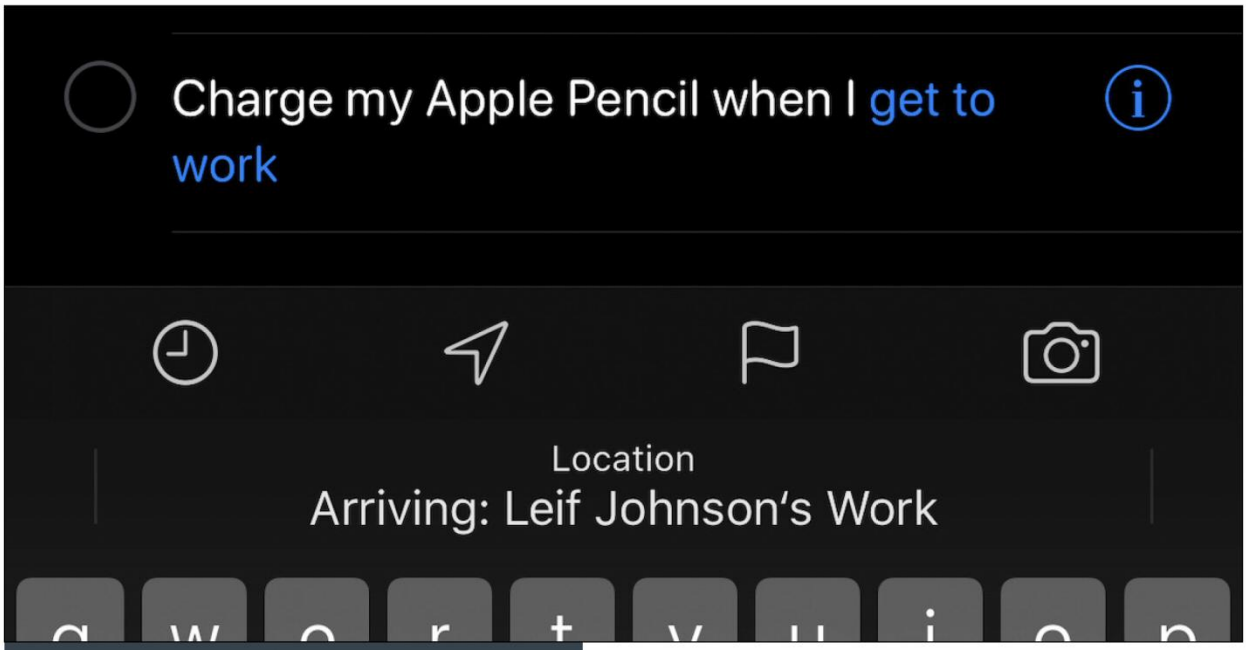
The Reminders app sorts these by itself, so long as you marked a specific reminder while setting it up (or added a flag for priority). This home screen is also just a good springboard for making new reminders. To add a new one, press the Today tab, the Flagged tab, or the Reminders tab, and you'll see the prompt for New Reminder in the lower left-hand corner.

Natural language input makes adding reminders easier

Adding reminders used to be a major hassle with Apple's native app because you had to waste time entering the time and date individually. A task that should have taken 10 seconds would sometimes end up taking what feels like ages.

Now, though, Reminders takes cues from popular third-party apps like Fantastical and lets you use natural language commands for adding entries. Let's say I want to remind myself to: "Watch the Super Bowl on 2 February at 23.30." I could tap out that very phrase when making a new reminder, and the date and time would light up in blue. If I tap those blue phrases, Reminders automatically adds the time and date to the entry. That kind of thing can save hours. If you have your home or work set, you can type something like, "Remind me to charge my Apple Pencil when I get to work."

You can also use your voice to add these entries with Siri, and you won't even have to type anything so



'Get to' works here, but I've noticed that 'arrive at' works more often

long as you use the 'remind me' command. I can say, "Hey, Siri, remind me to watch the Apple keynote on September 10 at 10 o'clock" and it would add the entry to my Reminders. You can correct information or add new details with the handy Change icon that pops up at the bottom of the screen.

The Quick Toolbar lets you easily add attachments, locations, and more

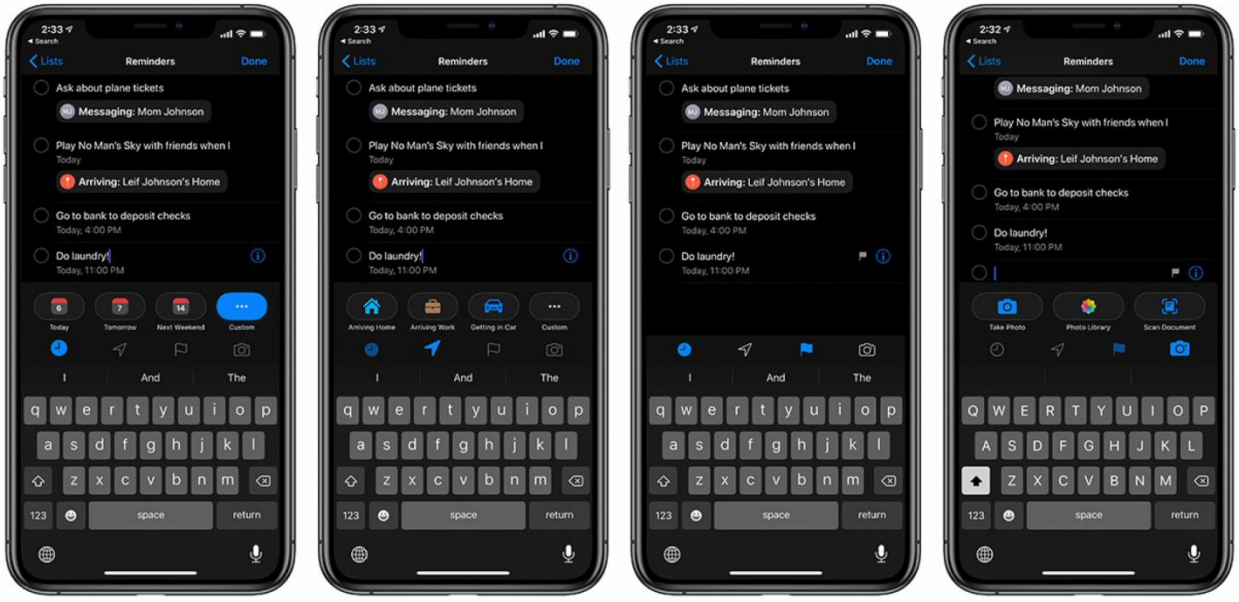
When you start typing out a new reminder, you'll see a new Quick Toolbar floating above the keyboard that offers a number of handy abilities. Get the hang of these tools, and you could easily (and quickly) have access to all the information you need for a reminder when it pops up. From the left to the right, here's what you have to work with.

Set Time: Press this button (which looks like a clock), and you'll be able to set a reminder to trigger for Today, Tomorrow, or This Weekend. Over on the right, you can also press Custom for the full range of specifics the Reminders app offers.

Set Location: This icon allows you to set a trigger to remind you when you're Arriving Home, Arriving [at] Work, or Getting in Car. Press Custom on the far right to enter a custom address.

Set Flag: If you want to flag a reminder to emphasize its importance, press this icon. Easy-peasy.

Add Attachment: This icon shows a camera, but pressing it shows it's a little more complicated than that. Press Take Photo to attach a photo of something you want to



Here's what you'll see when you press each of the buttons on the toolbar

take right now. Press Photo Library to choose a photo you've already taken. Finally, press Scan Document to use iOS's built-in scanner so you can add documents.

Subtasks lets you turn reminders into 'to-do' lists

If you make a reminder to go to the supermarket and then you'd like to have a checklist of reminders for everything you need to buy there, the new Reminders app lets you do that with Subtasks.

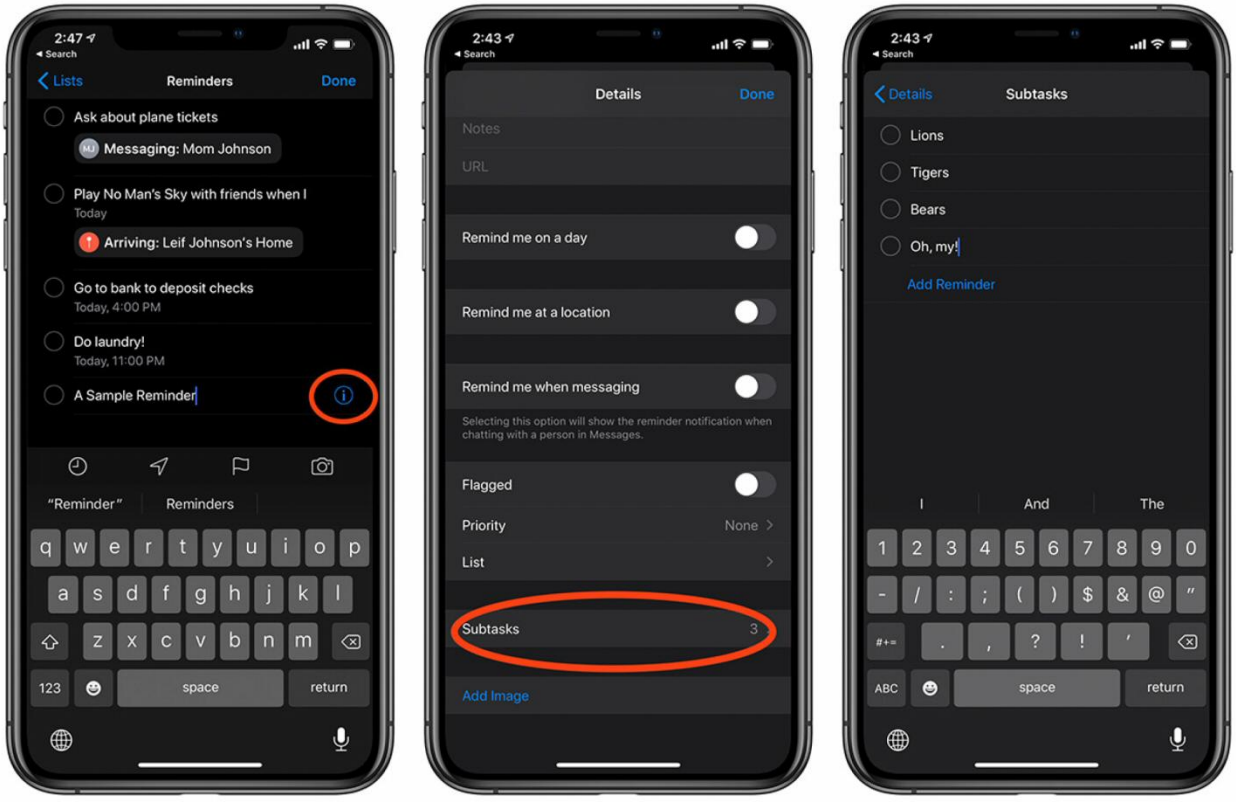
You can check off subtasks as you finish them, which allows individual reminders to function as to-do lists. Unfortunately, you'll have to do a little digging in order to add Subtasks. First, make a new reminder. When you're done, press the blue 'i' in the blue circle that appears to the right of the reminder for more options.

From there, scroll down Subtasks and press it. In the menu that pops up, press Add Reminder and add as many subtasks as you want. (Be sure to press Add Reminder again so it actually shows up – it's a little counter-intuitive.) When you're done, press Details in the upper left, and then press Done in the upper right of the new menu.

To see your subtasks, just tap the title for the reminder you want to expand in the main interface. All of the associated subtasks should then appear, and you can mark them as completed from there.

Nested Reminders

You can do something similar with existing reminders by making a nested reminder, and the process is a lot simpler. You simply drag one reminder to the reminder



Subtasks are super simple, so don't expect to add all the information you can get with a proper reminder

that you want to be the 'parent', and it will appear in the drop-down menu like the subtasks when you press on the parent reminder later. Unlike a subtask, a nested reminder will have times, URLs, locations, and more – in short, anything you can add to a regular reminder.

Keep reminders organized in lists...

If you have multiple reminders related to a particular project, you can group them into a single list. Lists existed in previous versions of Reminders, but now they're easier to use and offer more customization options. To make a new list, press Add List in the

bottom right of the main Reminders interface. A menu will pop up that will let you set a name for the list and set a specific icon. You can choose from 60 different icons (including everything from umbrellas to game controllers), and you can choose one of 12 hues for an icon background colour.

You can assign individual reminders to the list by creating them directly from the list interface or by pressing the blue 'i' with a circle that appears beside a regular reminder. Press List in the menu that pops up, and you'll be able to choose the list from there.

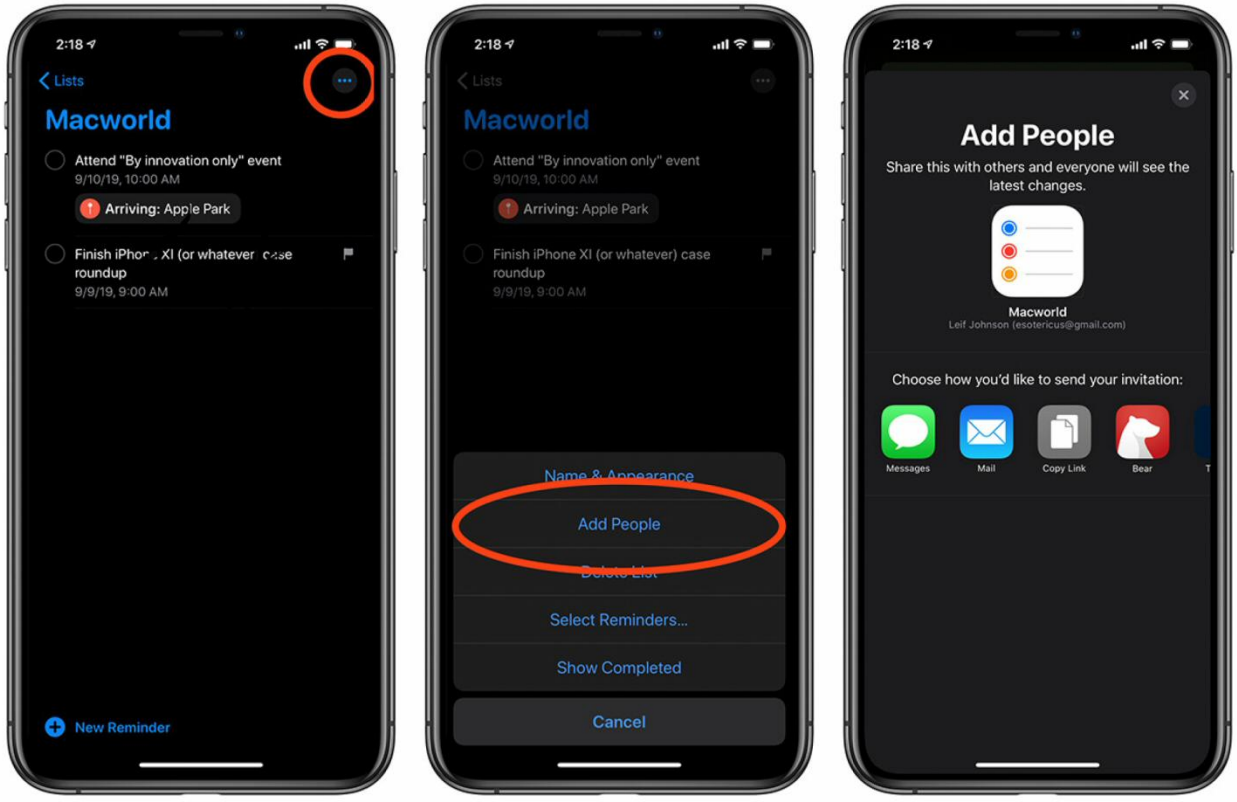
...then add those lists to groups

If that's not enough customization, you can also now make groups for these lists. To make a group, press the Edit button in the upper right when you're on the Reminders home screen and then press the Add Group prompt that pops up in the lower left. You can then select a name and press the Include button to select which lists you want.

Alternatively, when you're looking at a list of lists, you can hold down your finger on the name of a list and then drag the list's icon on top of the icon for another list that you'd like to pair it with. A New Group menu will pop up, and you can name the group from there. You can also add other lists by pressing Include beneath the prompt for the title.

And you can share those lists with colleagues, friends, or family

Lists may have been in Reminders for a while, but here's a cool new feature: you can now share lists with other



Obviously, you'll want to be careful about what you include on shared lists

iOS 13 users, and they'll see every change you make to it in real time. I like to think of this as the iOS version of scribbling out a shopping list and then giving it to the person who'll actually be going to the store, although with modern technology, you can add things to that list that didn't occur to you until later.

To share, press the three dots in the upper right whenever you're looking at one of your lists. After that, press Add People. You'll then be able send an invitation through Messages, Mail, or apps such as Facebook Messenger. It'll also give you an option to copy the link for the invitation.

Start your day with a customized 'Today' notification

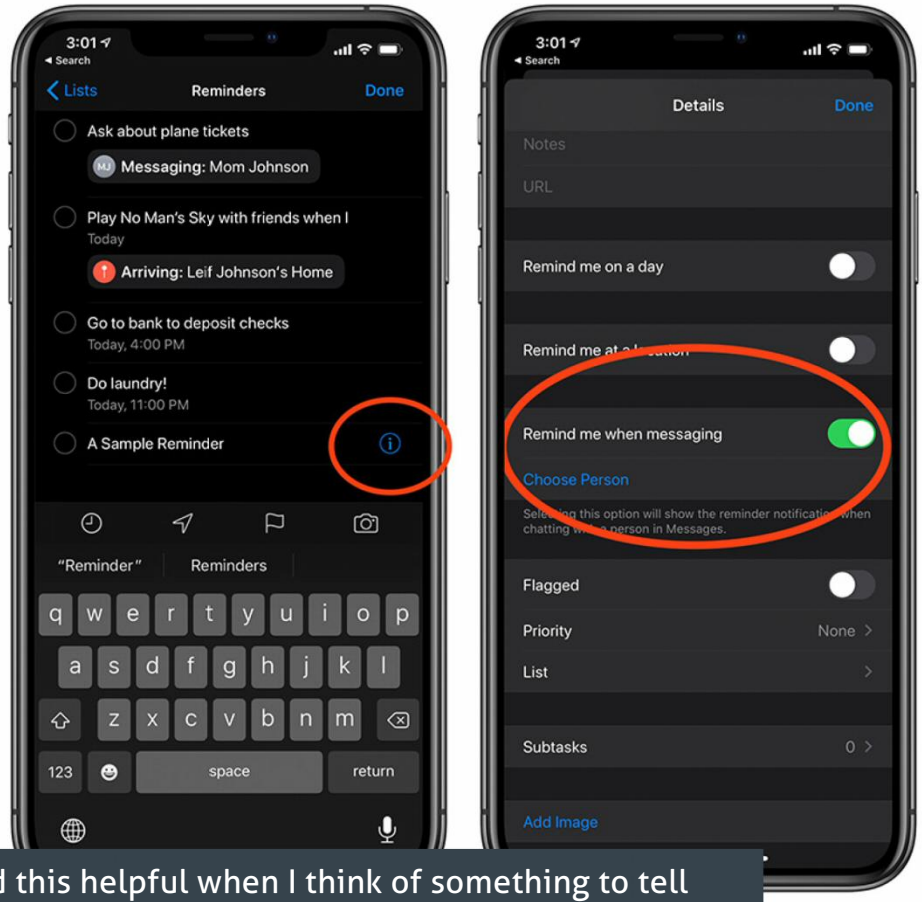
Here's one you have to turn on. If you'd like to start your day with a rundown of all your all-day reminders (in other words, those that aren't set to a specific time), Reminders will send you a handy notification in the morning. By default, it's set to push at 9am. To turn it on (and set a specific time), go to the Settings app, press Reminders, and toggle the Today Notification to green. To schedule this reminder for another time besides 9am, press the blue time stamp under the toggle and configure the scroll wheel that pops up.

It reminds you about topics when you text someone in Messages

Ever wanted to tell someone something, but wanted to wait until they text you in order to deliver the news? You can now set Reminders to trigger a notification that appears at the top of the screen when you chat with that person in the Messages app.

To set it up, start typing a reminder like you normally would. Once you're done, press the little 'i' in the circle to the right of the reminder. A menu entitled Details will pop up. Around the middle of the Details page, flip the toggle beside Remind me when messaging to green. Underneath that prompt, you'll see a prompt for Choose Person. Press it.

Your contacts list will pop up, and you can choose a specific person to associate with the reminder. (If you've made any groups, you can also select them by pressing Groups in the upper left.) Once you've made your selection, press Done.



I also find this helpful when I think of something to tell someone at 2am, but I don't want to bug them at that hour

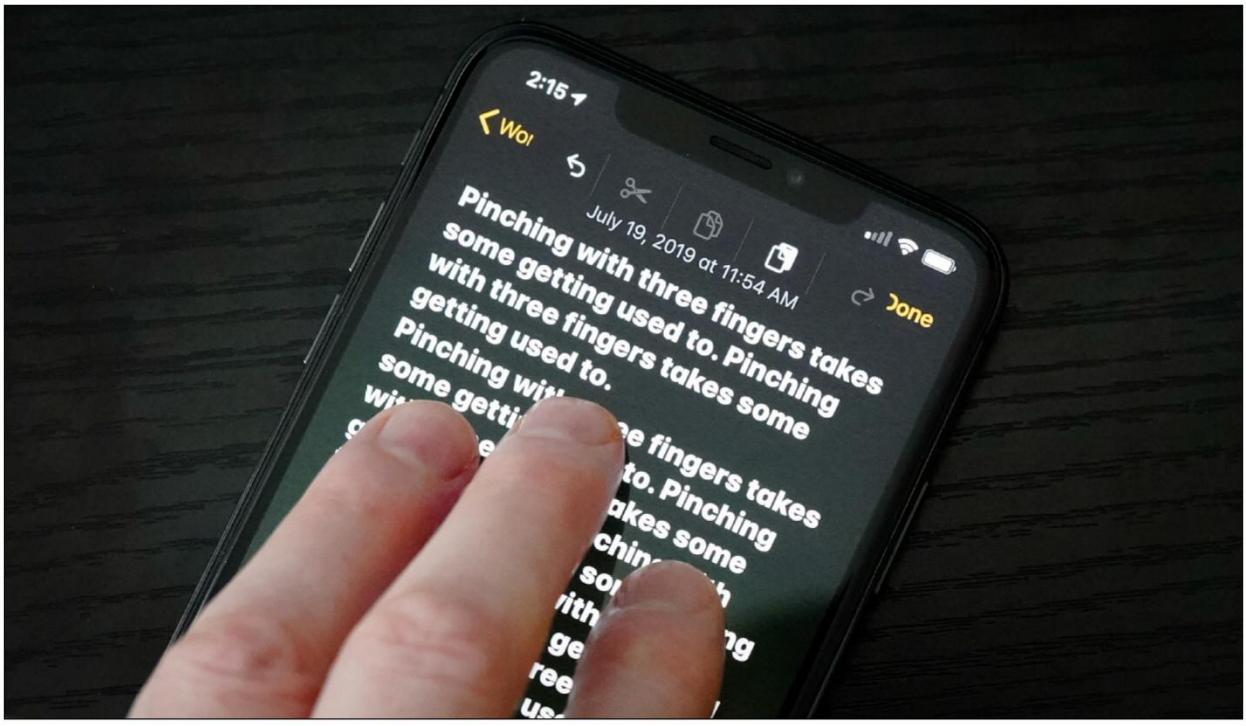
You can also do this with Siri. Just say, "Remind me to ask about the agenda for December's event the next time I message John Doe." The next time you message John, the notification will pop up.

It works great with a Mac, too

I've focused on the iOS version here, but you can find most of the same feature over on macOS Catalina. For more complex reminders that require notes, URLs, and other information, I prefer entering the information on my Mac so it's ready to go at my fingertips when I only have my phone.

iOS 13: How to use the gestures for cut, copy, paste, undo and redo

Apple has made it easier to work with text in iOS 13 with a series of gestures. **Jason Cross** reports



As our iPhones and iPads increasingly become the primary way we interact with others online, really good text management features have become more important. The old 'shake to undo' gesture just isn't going to cut it anymore.

With iOS 13 (and iPadOS 13), Apple's addressing text input in a big way with the new QuickPath swiping

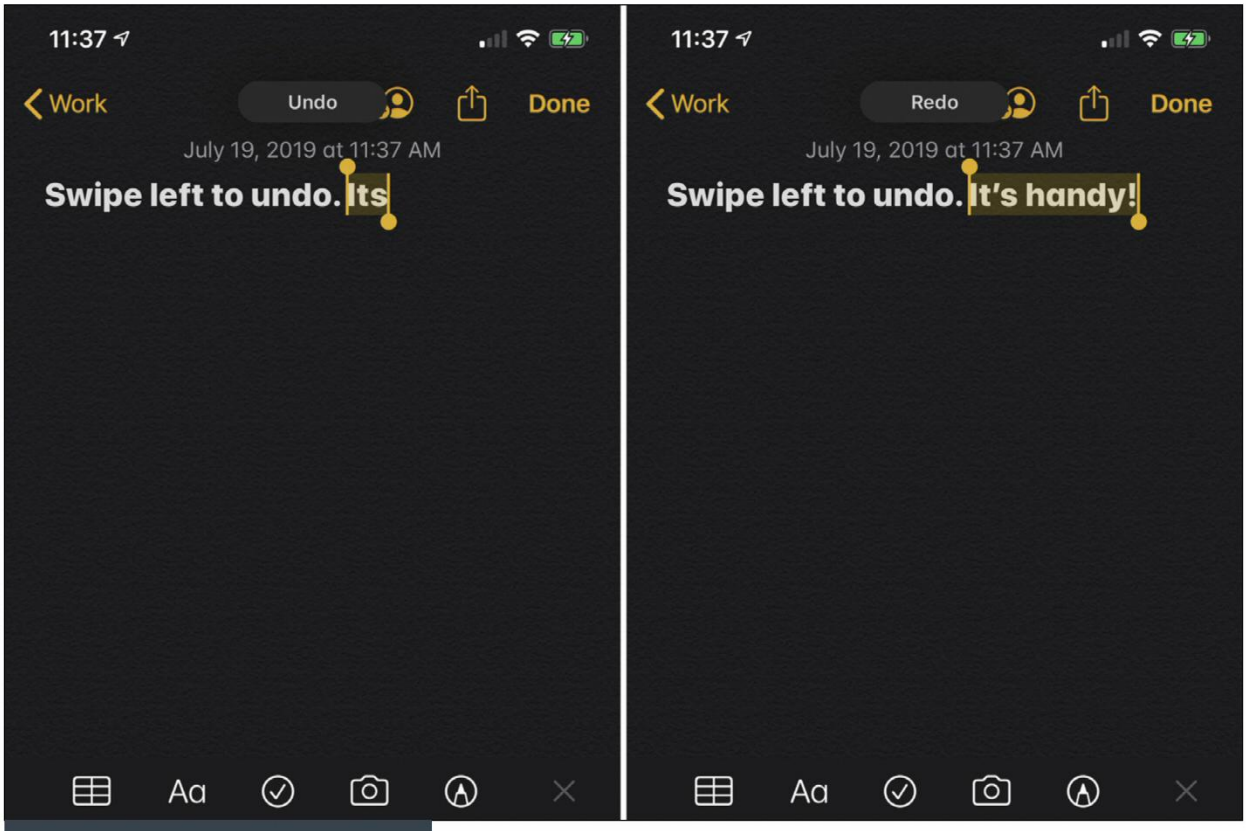
keyboard and several new three-finger gestures. Once you get used to them, you'll find it easier to work with text on your iOS device than ever before.

Undo and Redo

The old 'shake to undo' gesture remains in iOS, but you're not going to want to use it once you get used to these three-finger swipes.

Swipe left with three fingers to Undo, and swipe right with three fingers to Redo. You can also Undo by double-tapping with three fingers.

You'll see 'Undo' or 'Redo' badges at the top of the screen to verify your action.



Undo and Redo gestures get easier in iOS 13

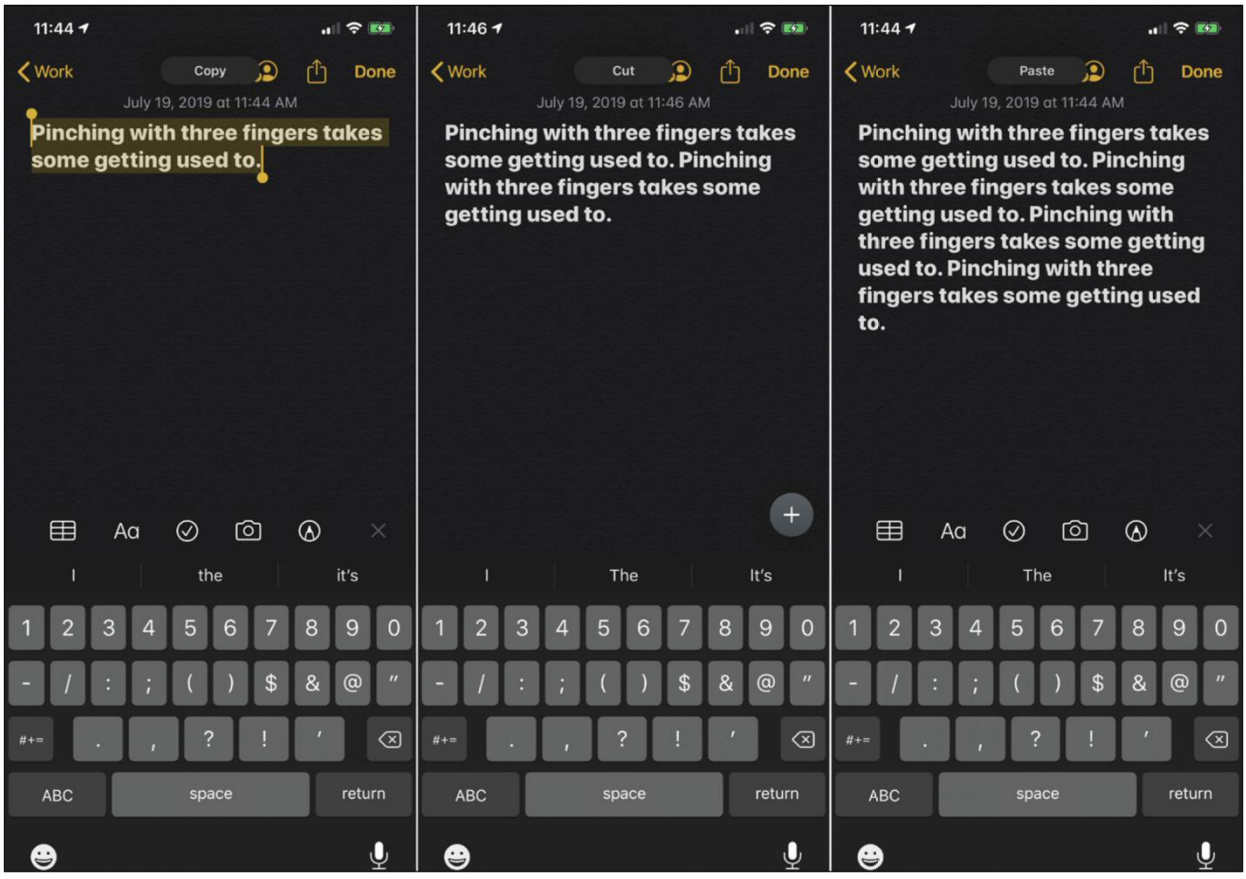
Cut, Copy, and Paste

The new copy and paste gestures are best performed with your thumb and two fingers, and can be a little tricky on a small screen.

Pinch with three fingers to Copy, and then expand ('unpinch') with three fingers to Paste.

To Cut text, simply perform the Copy gesture twice. The first one will do a Copy, the second one will Cut the text out.

You'll see 'Cut', 'Copy' or 'Paste' badges at the top of the screen to verify your action.



A three-finger pinch can be a little tricky on a small screen, but is very useful on an iPad

Cursor movement

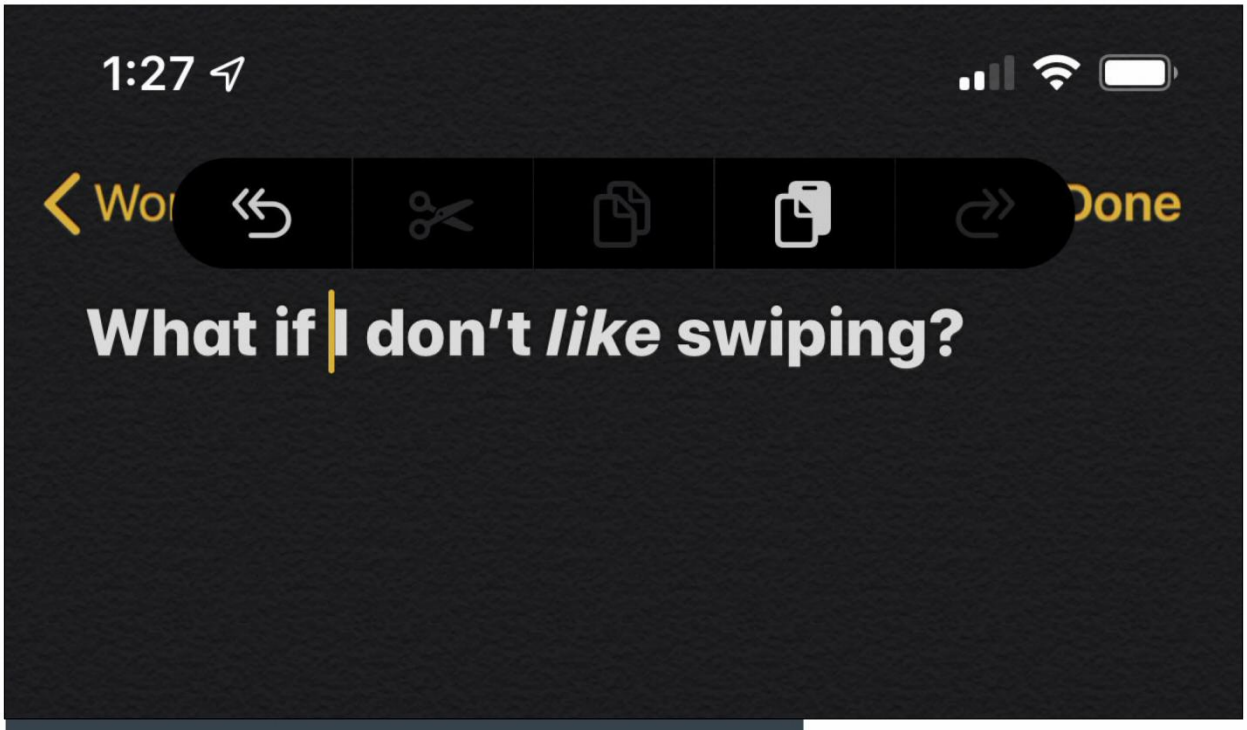
Moving the cursor around in iOS 13 has changed, too. It's a little more intuitive – simply tap the blinking text entry cursor and then drag it around.

You don't have to hold for any length of time to 'pick it up', just touch and immediately drag where you want it to go.

Unfortunately, the little magnifying glass pop-up is gone, which can make precise cursor placement difficult as you can't see the characters right underneath your fingertip.

Open the shortcut bar

If you find these gestures difficult, you might want to avail yourself of the new shortcut bar instead. Just tap

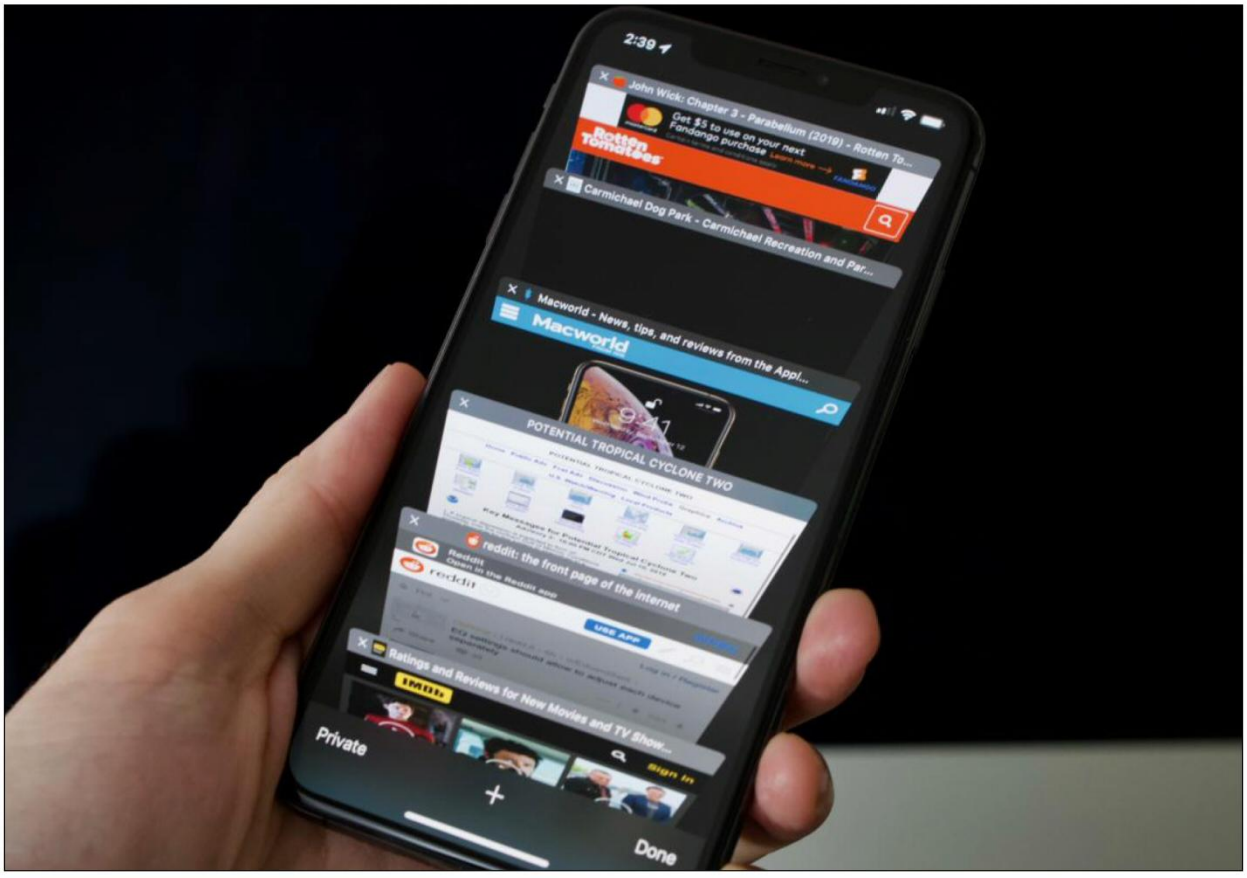


If you find gestures difficult, a three-finger tap and hold brings up a shortcut bar. It's easier to manage

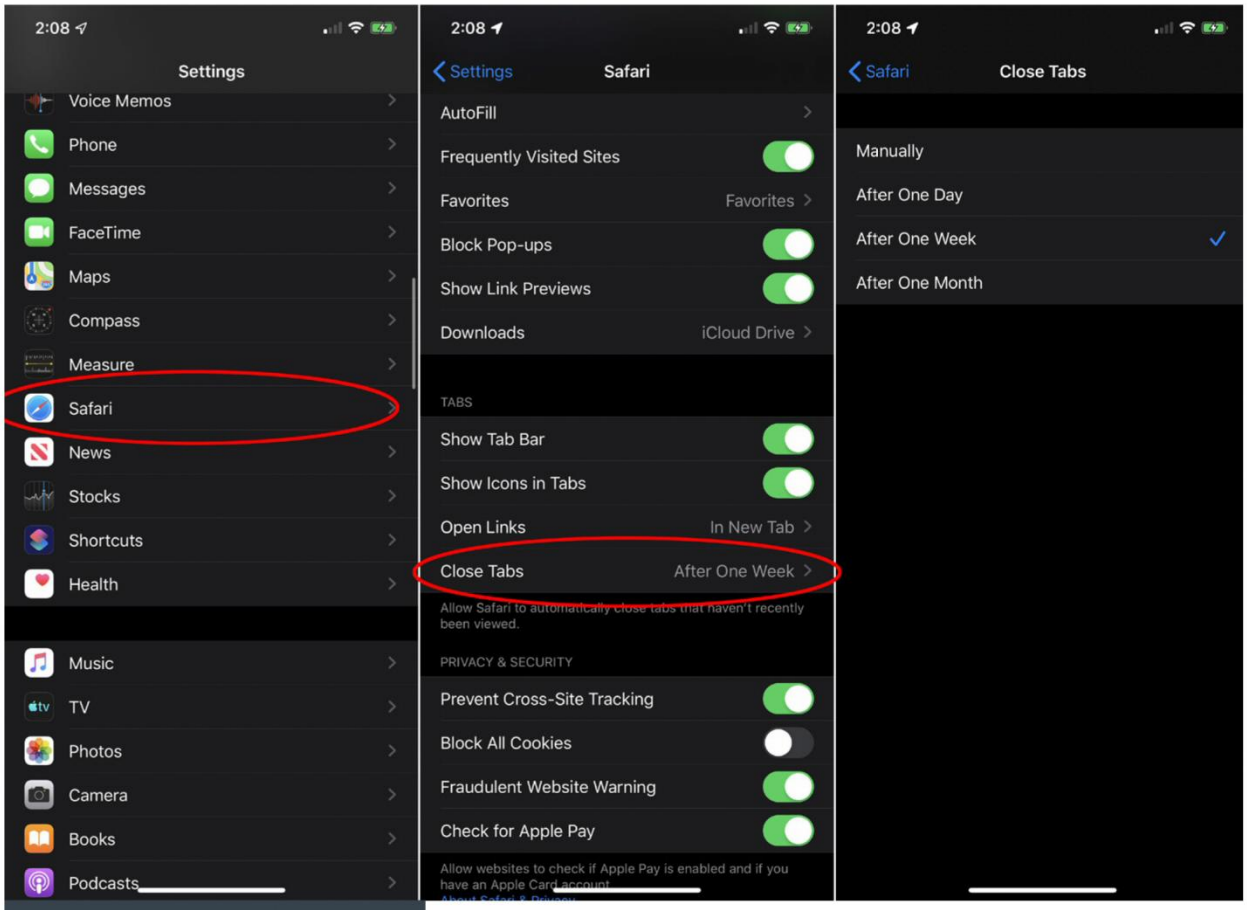
and hold with three fingers for about a second. You can do this anywhere on the screen, even in the keyboard area. You'll see a bar at the top of the screen with buttons for Undo, Cut, Copy, Pate and Redo. It will stay there through repeated commands, and only disappear when you move the cursor or enter text.

iOS 13: Automatically close tabs in Safari

Get that huge list of open tabs under control with iOS 13's helpful feature. **Jason Cross** reports



Quick – open up Safari on your iPhone and hit the View Tabs button in the bottom right. If your phone is like mine, you've got a stack with dozens of tabs... leftover pages opened from social media posts, movie times from the film I saw weeks ago, search results, you name it. I don't need any of that stuff



It's worth a quick trip into Safari's settings to keep those tabs under control

anymore, but it's kind of a pain to go swiping through all my open tabs every few weeks to clean out the cruft.

Fortunately, iOS 13 adds a new feature to Safari that can automatically close tabs after a period of time. It's easy to set, if you know where to look.

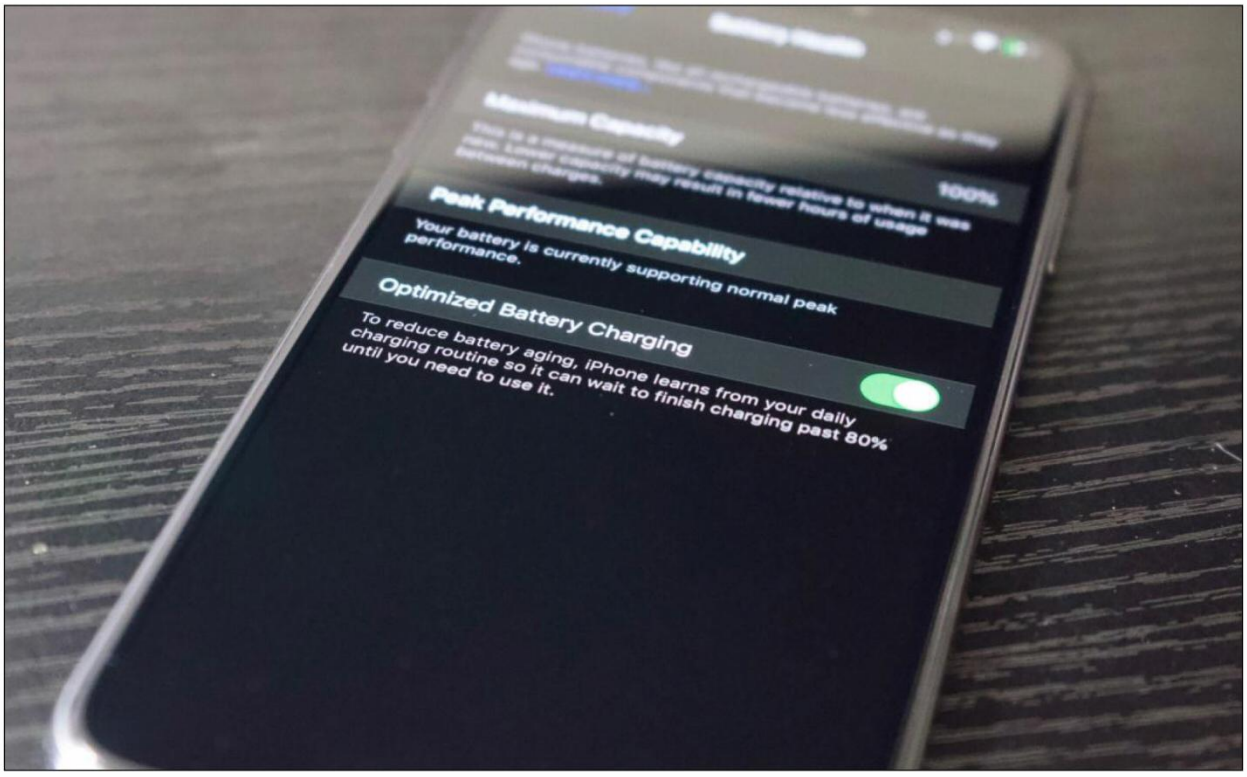
1. First, open the Settings app.
2. Then scroll down to Safari settings and tap on that.
3. There's a lot in there, you want to scroll down to the Tabs section and tap on the Close Tabs selection.

4. By default it is set to Manually, but you can change it to After One Day, After One Week, or After One Month.

There's no correct setting, just choose whatever makes sense for the way you use your iPhone. I find I almost never need to reference something more than a week old, so the After One Week setting keeps my open tabs to a reasonable number without impacting my daily use.

iOS 13: Optimized Battery Charging feature explained

If you want your iPhone's battery to hold its charge over time, you'll enable this feature. **Jason Cross** reports



If you have several-years-old iPhone, or know someone who does, you're probably aware of the fact that the battery life is a lot shorter than when it was new.

The rechargeable batteries in today's electronics degrade over time and become less capable of holding a charge or delivering the same peak power.

This caused Apple to limit the performance of older phones in order to prevent unexpected shutdowns,

which led to class-action lawsuits, and ultimately a rather good battery replacement program.

In iOS 13, Apple's introducing a new feature called Optimized Battery Charging that should help slow the rate at which the battery in your phone wears out. It's not going to help your battery last longer on a single charge, but it's going to help your battery hold the same amount of charge over the years you own it.

Batteries age over time

In the Tesla electric car, its default is set to stop charging when the battery is 90 percent full. You can use the app to change this (up or down), but the default is there for a good reason.

As lithium-ion batteries are charged and discharged, the chemical structure in them breaks down. Over lots of charge-and-discharge cycles, they become unable to hold as much charge or deliver as much power all at once.

This phenomenon is accelerated when your battery is charged to its maximum capacity. Tesla sets a default charge limit in order to preserve the health of the battery over time. If you think it's annoying for your iPhone to die after eight hours instead of 12, and expensive to replace its battery, think about losing 80 miles of driving range or replacing your car's battery.

Slowing aging by limiting charging

The Optimized Battery Charging option in iOS 13 is meant to do the same thing as Tesla's default 90 percent limit – reduce battery degradation over time by not fully charging when you don't have to.

It works a little differently, though. Instead of a fixed cap, Apple is using intelligence to figure out when you need a full charge and when you don't. Apple describes it like this: "A new option helps slow the rate of battery aging by reducing the time your iPhone spends fully charged. iPhone uses on-device machine learning to understand your daily charging routine so it can wait to finish charging past 80 percent until you need to use it."

Let's say that, by analysing your usage habits, your iPhone has determined that you always plug in your phone around 10pm and leave it plugged in until 7am the next morning. One day, you plug in at 4pm It's likely that your iPhone will only charge to 80 percent, because (based on your past usage) it knows that much charge will easily take you to your usual 10pm charge time. That's probably an oversimplification. Apple's algorithm is probably quite conservative, because nothing would be worse than running out of charge because your iPhone decided you would only need 80 percent, and was wrong.

The hope is that, with this feature enabled, you don't actually experience any real practical difference in how often you need to charge. But, after owning your phone for three or four years, the battery might hold 80- to 90 percent of the charge it did when it was new, instead of 50- to 60 percent, so you don't need to replace it.

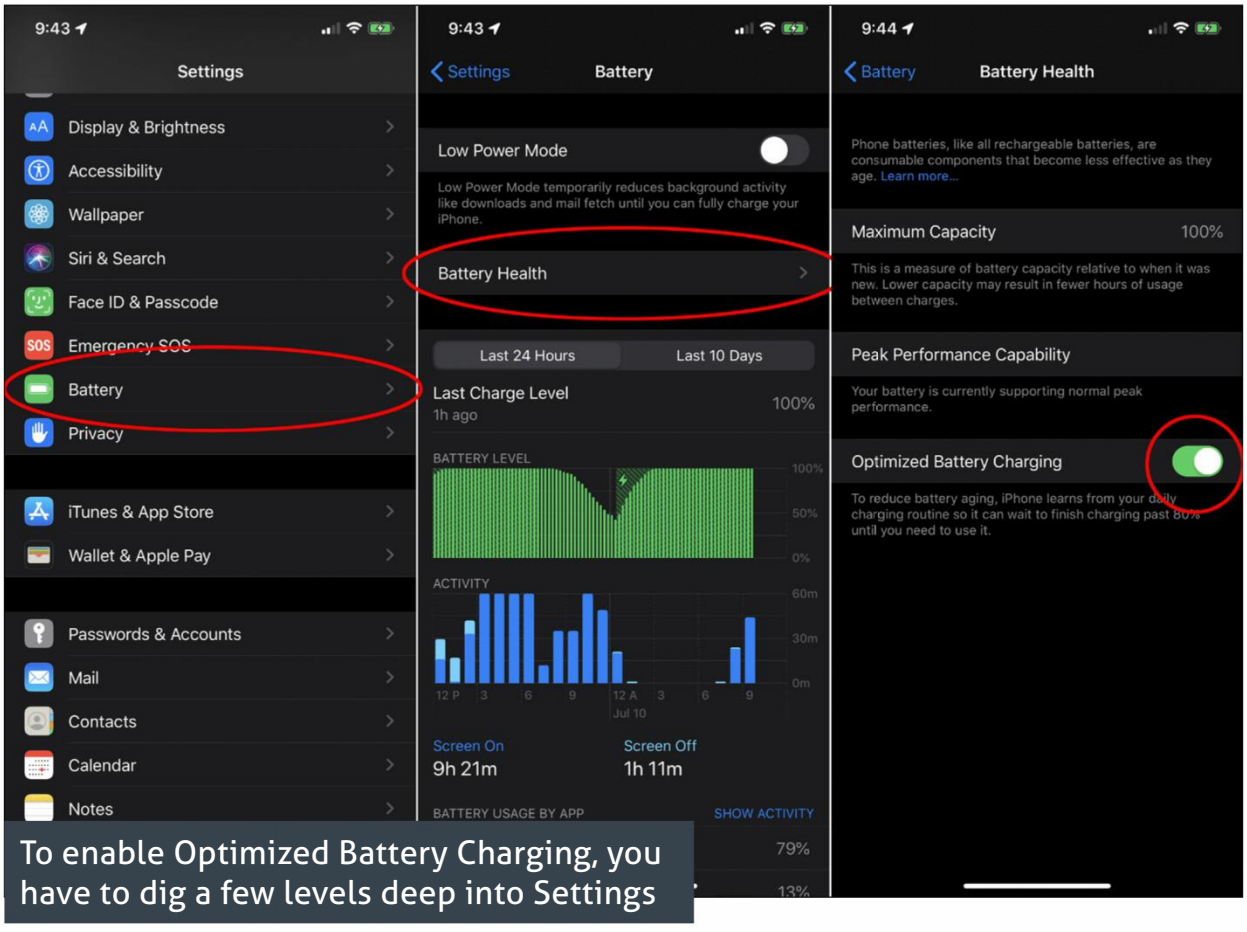
How to set Optimized Battery Charging

In the current iOS 13 beta build, the Optimized Battery Charging feature is disabled by default. If testing goes well, it wouldn't be surprising to see Apple make enabled the default setting, provided it gives a clear

and obvious explanation of why your battery might stop charging at 80 percent.

If you want to enable it, this is what you do:

1. Open the Settings app.
2. Tap on the Battery category. You'll see a bunch of battery stats and a 'Low Power Mode' toggle up top.
3. Tap on Battery Health.
4. In the Battery Health section you'll see a representation of how much maximum capacity your battery has left – a good indication of how far it has degraded – along with the toggle for Optimized Battery Charging.



To enable Optimized Battery Charging, you have to dig a few levels deep into Settings

With Optimized Battery Charging enabled, you might sometimes see your battery stop charging at 80 percent, but don't panic. Don't wait too long trying to make it charge higher, just use your phone as normal. If Apple's intelligence about your battery use habits is correct, you shouldn't run out of charge. If you do, be sure to use the Feedback app to let Apple know that its beta software isn't behaving as you expect.

Other tips for improving battery longevity

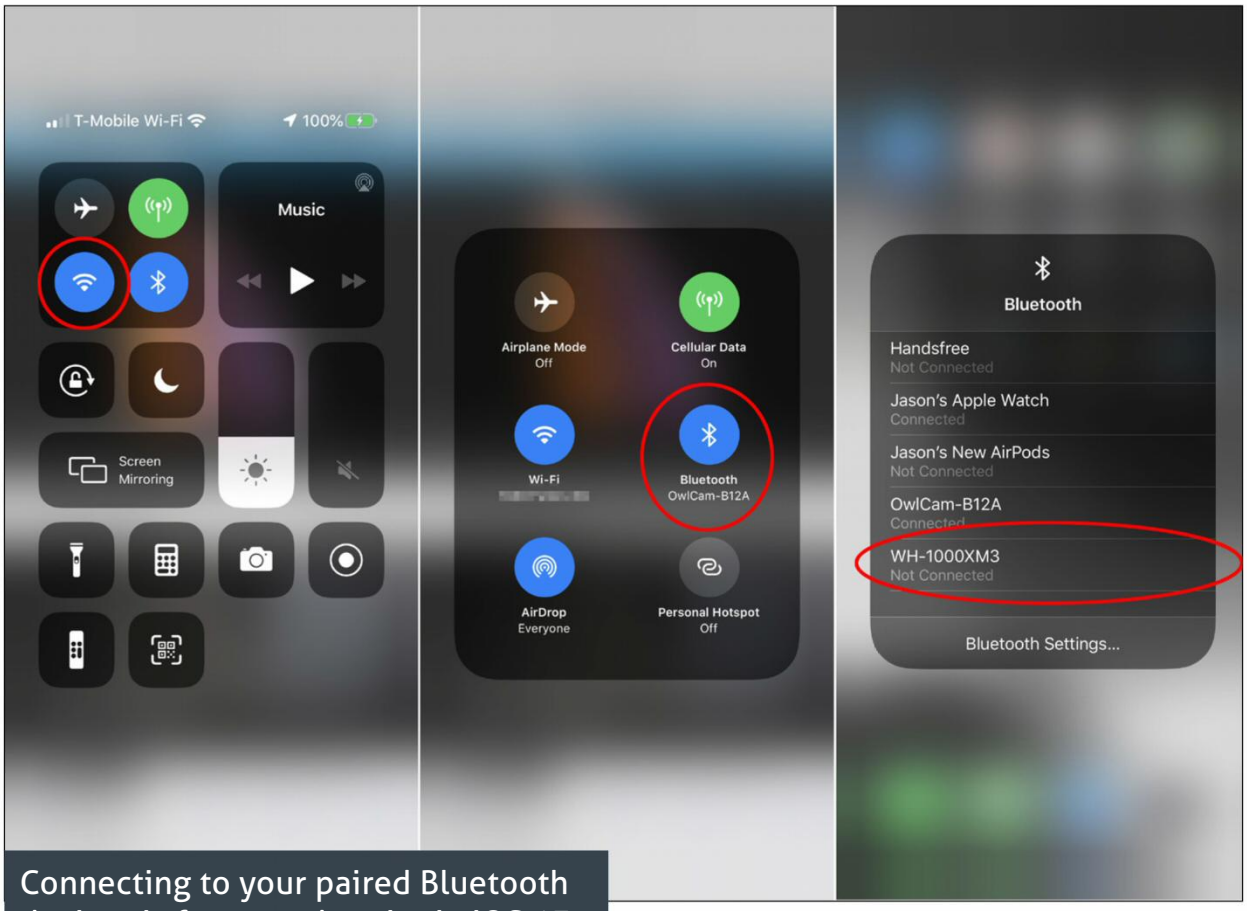
Your battery wears out from more than just charging and discharging or holding on to maximum charge. Your iPhone has sophisticated charging circuitry to help keep the battery in good health, so you shouldn't be expected to do much to keep that battery working well. Still, here are some other tips that may help keep your iPhone's battery working its best for as long as possible.

- Avoid excessive heat. Charging up your phone in very hot car is a bad idea, for example.
- Rapid changes from very cold to very hot are bad for your battery, too.
- Try not to let your battery completely discharge. Keeping it above 20 percent or so, if possible, may help it last longer.
- If you're going to leave your phone unused for a week or more, run down the battery until it's below 80 percent and above 30 percent, then power it down completely.
- Know your usage habits, and don't fully charge your iPhone when you don't need to, even if the Optimized Battery Charging feature might charge it further.

iOS 13: How to quickly an iPhone connect to Bluetooth devices

No more jumping between your app and Settings just to connect to your favourite Bluetooth headphones. **Jason Cross** reports

You've got YouTube or your favourite music app open and are ready to kick back, when you realize your favourite Bluetooth headphones aren't connected to your iPhone anymore. So you have to leave your app, find and open the Settings app, go



Connecting to your paired Bluetooth devices is faster and easier in iOS 13

into the Bluetooth menu, connect to your headphones, then close it all and go back into your app. What a pain.

In iOS 13, you can connect to paired Bluetooth devices right from Control Centre, so you don't have to leave your app! Here's how:

1. Open Control Centre (Swipe down from the upper-right corner on an iPhone with no Home button. Swipe up from the bottom on an iPhone with a Home button.)
2. Tap and hold, or 3D touch, on the wireless connections block in the upper right to expand it.

3. Tap and hold (or 3D touch) on the Bluetooth button on the right. A list of paired Bluetooth devices (connected and not connected) will pop up. Simply choose the one you want to connect to, and you're good to go.

If you just tap on the Bluetooth button, you'll toggle it off and on, just as you've always been able to do. iOS 13 adds the new 3D Touch (or long-press) function to show devices and connect.

This new method isn't necessarily fewer taps than going into Settings, but it could be a lot faster – you don't have to close your current app, find the settings app (which may be on another home screen or in a folder), open it, open the Bluetooth menu, connect, then close Settings and go back to your app.

iOS 13: How to quickly join Wi-Fi networks

No more digging into the Settings menu – you can join Wi-Fi networks right from the Control Centre. **Jason Cross** reports

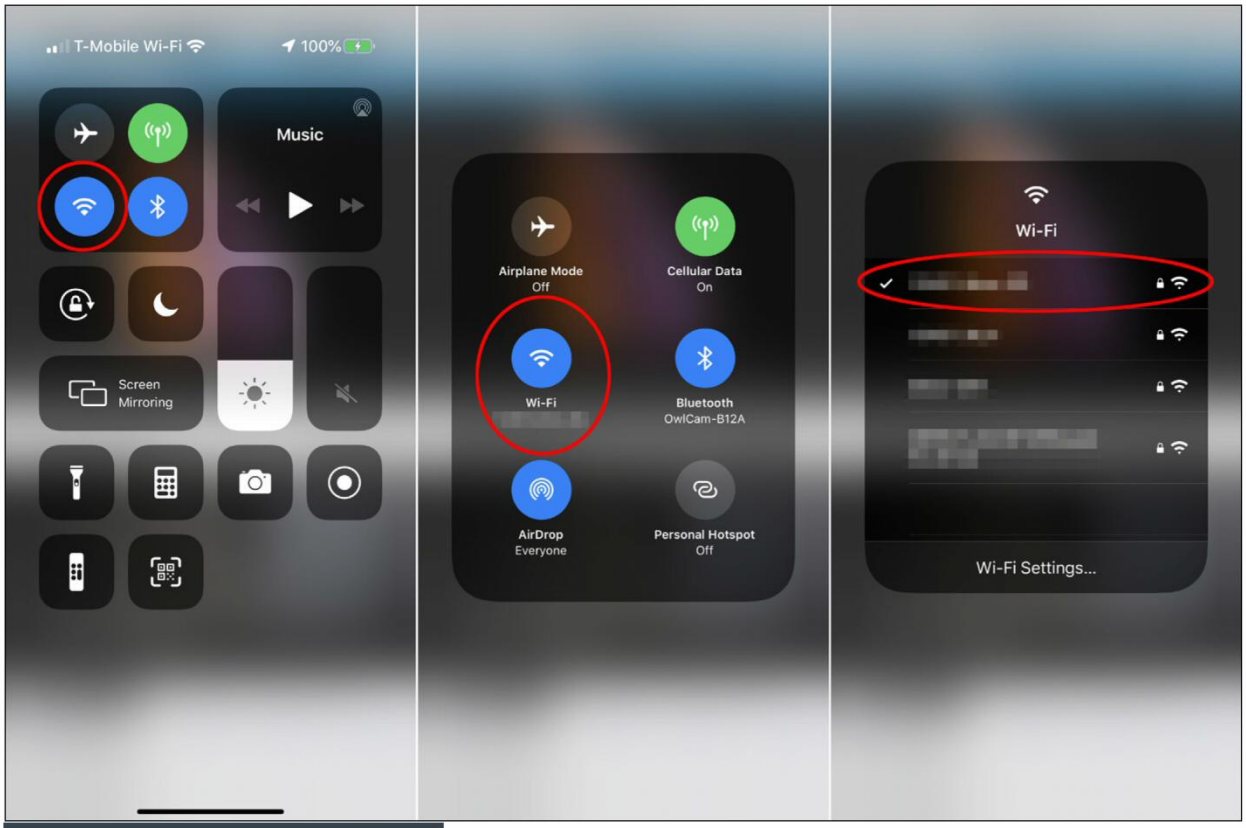
Credit: Getty Images/MStudioImages

Joining a new Wi-Fi network is a task we do surprisingly often. At coffee shops or restaurants, at friends or neighbour's houses, on flights... given how common it is, it's sort of surprising that Apple waited until iOS 13 to make the task easier.

Instead of opening the Settings app and Wi-Fi menu, you can now join Wi-Fi networks right from the control

panel, which means you don't even have to leave the app you're in. It's really simple, here's how it works.

1. Open Control Centre (Swipe down from the upper-right corner on an iPhone with no Home button. Swipe up from the bottom on an iPhone with a Home button.)
2. Tap and hold, or 3D touch, on the wireless connections block in the upper right.
3. When it expands, tap and hold (or 3D touch) on the Wi-Fi button on the left. A list of nearby Wi-Fi networks will be displayed. Simply choose the one you want.



Joining Wi-Fi networks is faster and easier in iOS 13

If you just tap on the Wi-Fi button, you'll toggle it off and on, just as you've always been able to do. iOS 13 adds the new 3D Touch (or long-press) function to show networks and connect.

This new method isn't necessarily fewer taps than jumping in Settings, but it could be a lot faster – you don't have to close your current app, find the settings app (which may be on other home screens or in a folder), open it, open the Wi-Fi menu, join the network, then close Settings and go back to your app