affected models—all MacBooks released in 2015 to 2017 and all MacBook Pros in 2016 and 2017. While *Macworld* wrote about this repair program (go.macworld.com/btpr) in June 2018, but we know not everyone got the memo.

If you're suffering from repeating keys, letters you can't type, or "sticky" or inconsistent keyboard performance, get in touch with Apple and arrange the free repair.

HOW TO EXPORT YOUR PHOTO BOOTH PHOTOS AND VIDEOS

The Photo Booth app lets you take selfies and record videos through a Mac's built-in camera or a third-party camera. But the app's simple interface can make it a little tricky to figure out how to extract images.

There are three ways:

> Select an image or video in the row below the main window, and then Control-click (or right click on your mouse) and select Export.

> Select one or more images or videos (hold down Shift to select a range or use Command to add or remove) and drag into the Finder.

> Go to your home directory (in the Finder, choose Go ➔ Home) and open the Pictures folder. Control-click (or right click) the Photo Booth Library and choose Show Package Contents. Open the Pictures folder within. (If you've used effects on an image, the unmodified version is in the Originals folder.)

If you want to delete media stored in Photo Booth, you can select one or more items, Control-click on one of them, and choose Delete. Or you can empty them out of the library in the Finder. ■

Ask Mac 911

We've compiled a list of the most commonly asked questions we get, and the answers to them: go.macworld.com/mac911faq to see if you're covered. If not, we're always looking for new problems to solve! Email us at mac911@macworld.com including screen captures as appropriate.

Mac 911 can't provide direct email responses or answers for every question and we don't provide direct troubleshooting advice. For that, turn to AppleCare, an Apple Store Genius Bar, or the Apple Support Communities.

GALAXY BUDS: CAN THEY OUTPERFORM APPLE'S AIRPODS?

Macworld

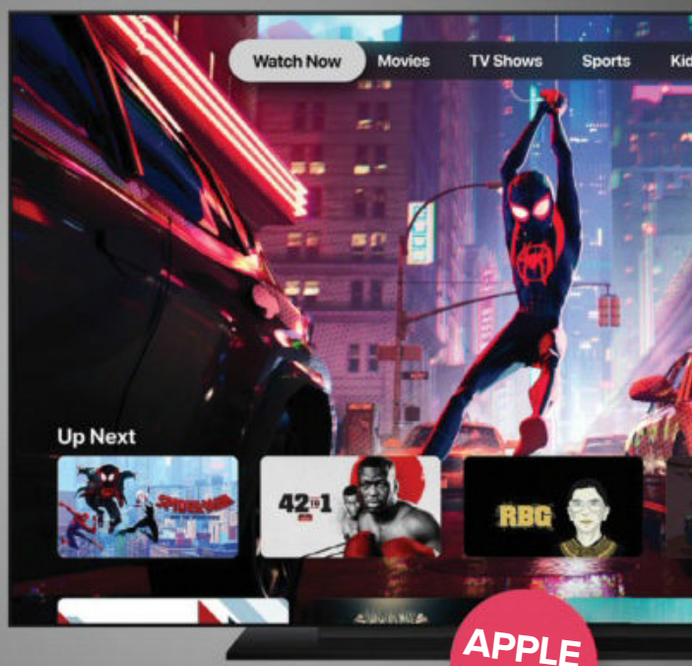
MAY 2019

FROM IDG

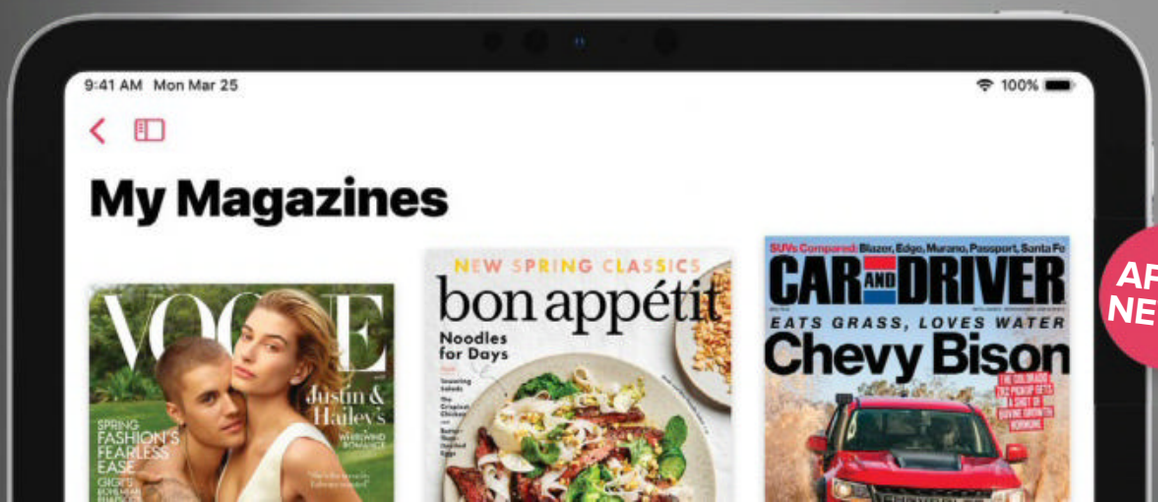
APPLE TV+, APPLE NEWS+, & APPLE ARCADE ARE COMING TO YOU

APPLE: AT YOUR SERVICE

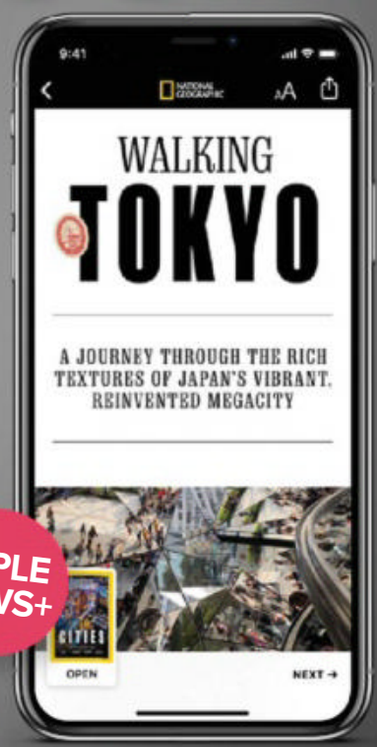
APPLE ARCADE



APPLE TV+



APPLE NEWS+



If you love them enough to sit through their favorite movies,

then surely you'll check to make sure they're in the right car seat.

NHTSA.gov/TheRightSeat

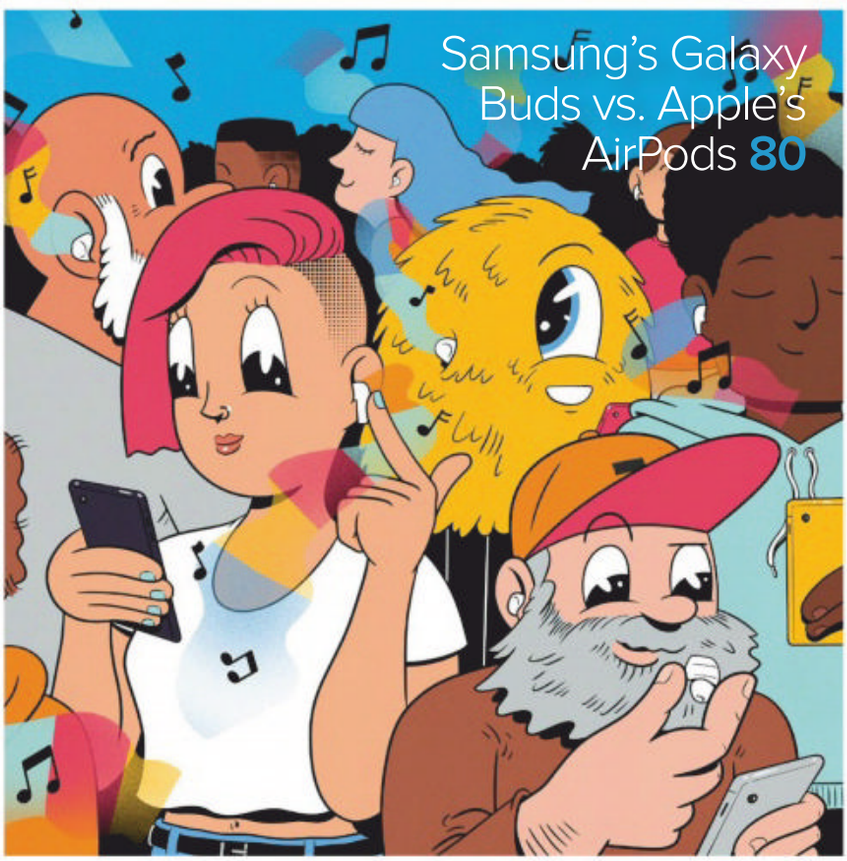
NHTSA

ad COUNCIL

Macworld INCORPORATING MACUSER

May 2019 CONTENTS

Apple, Ready to Serve 69



Samsung's Galaxy Buds vs. Apple's AirPods 80

MACUSER

Apple updates iMac with 8th and 9th generation Intel Core processors 7

It's time for a new iMac, and here are 9 improvements we'd like to see 10

Google's Stadia service 16

What to expect at WWDC 2019 20

5 things Apple should fix immediately 24

MacUser Reviews 29

Hot Stuff 38

iOSCENTRAL

The new iPad Air and iPad mini 43

Apple fans shouldn't worry about Samsung's new phones 47

Apple needs to get into the folding game 51

Apple Pay to the next level 55

How iOS's Wi-Fi Assist works 58

iOS Central Reviews 61

WORKINGMAC

What USB4 could mean for Apple 89

Three improvements Apple should make to its Mail app 92

The most important thing to do if your Mac has a Fusion Drive 95

The web at 30 97

PLAYLIST

Apple dominates the podcast market. But for how long? 103

Aukey EP-B40 Latitude wireless earbuds review 107

TaoTronics TT-BH060 Bluetooth headphones review 111

HELPDESK

Mac 911: Disabling two-factor authentication on your Apple ID, How to export your Photo Booth photos and videos 114

COVER IMAGES COURTESY OF APPLE

Macworld

EDITORIAL DIRECTOR Matt Egan

EDITOR IN CHIEF, CONSUMER BRANDS Jon Phillips

DESIGN DIRECTOR Robert Schultz

SENIOR EDITOR Roman Loyola

Editorial

STAFF WRITERS Jason Cross, Michael Simon

ASSOCIATE EDITOR Leif Johnson

SENIOR CONTRIBUTORS Glenn Fleishman, Rob Griffiths, Joe Kissell, Kirk McElhearn, John Moltz, Dan Moren, Jason Snell

COPY EDITOR Sue Voelkel

Design

DESIGNER Rob Woodcock

Advertising

SALES INQUIRIES www.idg.com/contact-us/

IDG
INTERNATIONAL DATA GROUP

INTERNATIONAL DATA GROUP CHAIRMAN OF THE BOARD
Walter Boyd

IDG COMMUNICATIONS, INC. CEO
Kumaran Ramanathan

HOW TO CONTACT MACWORLD SUBSCRIPTION SERVICES

Access your subscription account online—24 hours a day, 7 days a week—at www.macworld.com/customer_service or service.macworld.com. You can use online subscription services to view your account status, change your address, pay your bill, renew your subscription, report a missing issue, get the answers to frequently asked questions, and much more.

To start subscribing, visit subscribe.macworld.com.

U.S. MAIL	Macworld Subscriptions Department 11 Commerce Boulevard, Palm Coast, FL 32164 (If you are writing about an existing account, please include your name and address at which you subscribe.)
EMAIL	subhelp@macworld.com (Send your full name and the address at which you subscribe; do not send attachments.)
PHONE	800/288-6848 from the U.S. and Canada; 515/243-3273 from all other locations

The one-year (12-issue) subscription rate is $34.97; the two-year rate, $59.97; and the three-year rate, $79.97. Checks must be made payable in U.S. currency to *Macworld.* Please allow 3 to 6 weeks for changes to be made to an existing subscription.

MACWORLD EDITORIAL

The editors of *Macworld* welcome your tips, compliments, and complaints. Some stories and reviews from past issues can be located at www.macworld.com. We are unfortunately unable to look up stories from past issues; recommend products; or diagnose your Mac problems by phone, or email. You can contact Apple toll-free, at 800/538-9696, or visit the company's website, at www.apple.com.

HOW TO CONTACT MACWORLD STAFF

Our offices are located at 501 Second Street, 6th Floor, San Francisco, CA 94107; phone, 415/243-0505; fax, 415/512-7130. *Macworld* staff can be reached by email at *firstinitiallastname*@macworld.com.

BACK ISSUES OF MACWORLD

Starting with the June 2003 *Macworld,* back issues can be downloaded in digital format, from www.zinio.com ($6.99; Mac OS X 10.1 or later required).

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from *Macworld*. Send email to permissions@macworld.com; please include a phone number.

MAILING LISTS

We periodically make lists of our customers available to mailers of goods and services that june interest you. If you do not wish to receive such mailings, write to us at *Macworld,* 11 Commerce Boulevard, Palm Coast, FL 32164, or email us at macworld@emailcustomerservice.com.

PUBLICATION INFORMATION

May 2019, Volume 36, Issue 5
Macworld is a publication of IDG Communications, Inc., and International Data Group, Inc. *Macworld* is an independent journal not affiliated with Apple, Inc. Copyright © 2019, IDG Communications, Inc. All rights reserved. *Create, Playlist, Mac User, Macworld,* and the Macworld logo are registered trademarks of International Data Group, Inc., and used under license by IDG Communications, Inc. *Apple,* the Apple logo, *Mac,* and *Macintosh* are registered trademarks of Apple, Inc.


IN LOOKING FOR THE IDEAL RESUME, YOU'VE IGNORED THE IDEAL CANDIDATE.
GRADS of LIFE .org
LEARN HOW TO FIND, TRAIN AND CULTIVATE A GREAT POOL OF UNTAPPED TALENT.
Ad Council

Apple updates iMac with 8th and 9th gen Intel Core processors

Apple's all-in-one desktop Mac gets a boost in performance.

BY ROMAN LOYOLA

Following news of new iPads (go.macworld.com/nipd), Apple revealed upgrades for its iMac (go.macworld.com/upim) lineup, featuring eighth-generation (go.macworld.com/8gcr) Intel Core processors in the standard configurations, with the option to upgrade to a ninth-generation (go.macworld.com/9gcr) processor.

The price points of the standard configuration models remain unchanged. Apple is currently taking orders from the new iMac, but it won't ship or be available in the Apple Store until next week.

IMAGE: APPLE

21.5-INCH iMAC

Apple has three standard configurations of the 21.5-inch iMac, and Apple is changing two of the three configurations. The $1,099 (go.macworld.com/im19) iMac stays the same, with a seventh-generation 2.3GHz dual-core Intel Core i5 processor, 8GB of memory, a 1TB hard drive, Intel Iris Plus Graphics 640, and a 1920x1080 display.

The new $1,299 (go.macworld.com/im29) iMac features an eighth-generation 3.6GHz quad-core Intel Core i3 processor, 8GB of memory, a 1TB hard drive, 2GB Radeon Pro 555X graphics, and a Retina 4K P3 display.

The new $1,499 (go.macworld.com/im49) iMac also has an eighth-generation 3.0GHz Intel Core i5 processor, but this model supports 6-core processing, a first for the 21.5-inch iMac. This iMac also includes 8GB of memory, a 1TB Fusion Drive (go.macworld.com/fsdr), 4GB Radeon Pro 560X graphics, and a Retina 4K P3 display.

A new option for the 21.5-inch iMac is the ability to upgrade the graphics card in the $1,499 iMac to a 4GB Radeon Pro Vega 20, which the company says is 80 percent faster than the previous graphics card. This upgrade adds $350 to the price.

While the standard memory configuration remains unchanged at 8GB, Apple is now using faster RAM clocked at 2666MHz, up from 2400MHz. Also, the 21.5-inch iMac can now handle 32GB of memory, up from the previous limit of 16GB. The RAM is still not user-accessible, so if you want more than the standard 8GB, you either need to customize the RAM at the time of your order, or bring in the iMac to be serviced for a memory upgrade later.

The 21.5-inch iMac comes with four USB 3 ports,

two Thunderbolt 3/USB-C ports, a gigabit ethernet connector, a SDXC card slot, and a headphone jack.

27-INCH iMAC

Apple offers three standard-configuration models of the 27-inch iMac, all of which feature Retina 5K displays. All of the CPUs in the standard configurations are getting two more processing cores, jumping from four cores to six.

The $1,799 (go.macworld.com/im17) 27-inch iMac features an eighth-generation 3.0GHz 6-core Core i5 CPU, 8GB of memory (32GB max), a 1TB Fusion Drive, and 4GB Radeon Pro 570X graphics.

The $1,999 (go.macworld.com/im91) model has an eighth-generation 3.1GHz 6-core Core i5 processor, 8GB of memory (64GB max), a 1TB Fusion Drive, and 4GB Radeon Pro 575X graphics.

The $2,299 (go.macworld.com/im22) iMac has a ninth-generation 3.7GHz 6-core Core i5 CPU, 8GB of memory (64GB max), a 2TB Fusion Drive, and 8GB Radeon Pro 580X graphics.

For the $1,999 and $2,299 iMacs, Apple has available a CPU upgrade to a ninth-generation 8-core Core i9 processor. The $2,299 iMac has available a graphics upgrade to an 8GB Radeon Pro Vega 48.

The 27-inch Mac's rear panels sports four USB 3 ports, two Thunderbolt 3/USB-C ports, a headphone jack, an SDXC card slot, and a gigabit ethernet connector.

iMAC PRO

Apple didn't announce a major update to the iMac Pro (go.macworld.com/macp) (which was released in December 2017), but it did release a couple of new upgrade options.

Apple now has a 256GB RAM upgrade available for the iMac Pro, which adds $5,200 to the $4,999 base price.

Apple also has a Radeon Pro Vega 64X with 16GB of HBM2 memory graphics upgrade available for an additional $700. ■

It's time for a new iMac, and here are 9 improvements we'd like to see

The current iMac design feels out of date. A new all-in-one Mac is long overdue.

BY JASON CROSS

The current iMac design is positively ancient, by computer design standards. The 27-inch Retina iMac, with its slim design and 5K resolution, was launched in the fall of 2014. It was really only a small tweak on the existing "slim unibody" iMac that dates back to 2012, itself only a thinner version of the unibody iMac design that goes back to 2009.

The basic look and physical features of the iMac have barely changed in a decade.

It's a testament to the elegance of the design that it's still desirable after all that time, but it's well past time for a change. Recently, Apple updated the iMac line (see

IMAGE: APPLE

page 7) with new internal hardware, but the design and features remain fundamentally unchanged.

We can't tell you what a new iMac should look like (we want Apple's design prowess to surprise us!) but we can describe some feature gaps we really want to see addressed.

There's a whole industry of iMac stands, because they're simply not high enough on their own.

HEIGHT ADJUSTMENT

Set an iMac down on almost any desk, and its display will be at least four to six inches lower than it should be. You can tilt it up, but that doesn't really solve the problem. This is why there's an entire cottage industry of risers and stands for the iMac, and why every single iMac I've ever seen outside of an Apple store is resting on top of something. Usually a stack of books.

An iMac's display needs to sit much higher above your desk than it currently does. Maybe a new iMac could have a base with most of the computer parts in it and an adjustable display. Apple hasn't done that since the iMac G4 (go.macworld.com/imc4; aka the "lamp" iMac). Maybe it just needs to come with two or three replacement stands in the box, of various length. Perhaps Apple could do something slick with a telescoping stand that doesn't look like a telescoping stand.

Whatever the solution, the next iMac should be able to move the display up and down enough to sit at the proper height for most desks and work tables.

PROMOTION

Currently, iMac displays are all limited to a maximum refresh rate of 60Hz. That's not necessarily a problem, but it's no longer cutting-edge tech. In the PC space, we regularly see 4K monitors with refresh rates up to 144Hz.

It's tempting to think of that as mostly a gaming thing, and iMacs are not great game machines (and certainly aren't going to run top-tier games at high resolutions in excess of 60 frames per second), but anyone with an iPad Pro can tell you that fast refresh rates are not just for games.

Apple should take its ProMotion branding from the iPad Pro and apply it to the iMac. Give us variable refresh rates

that top out at 120Hz. It would be great for content creators (who can lock the refresh rate at multiples of 24Hz or 25Hz when creating content at those frame rates) and for movie-watching, too. Plus, every desktop movement, every scrolling browser window, every swooshing interface animation, would look so smooth. Once you experience computing at 120Hz, everything else feels sluggish.

HDR

Apple has always taken display quality very seriously, and we've seen that present itself in iMac display upgrades: first to Retina resolution and then to the DCI-P3 color gamut. But it's definitely time for the iMac to take the next big leap and incorporate high dynamic range (HDR) capability. Apple doesn't need to go crazy with Dolby Vision certification and over 1,000 nits of peak brightness: A maximum brightness over 800 nits and HDR10 support would be plenty.

It would be a huge boon to content creators, who want to edit and publish HDR content for YouTube and Vimeo, but it also meshes well with the rest of the Apple ecosystem. The latest iPhones and iPad Pros all have HDR displays. Apple's iTunes video store (and upcoming streaming service, we assume) is full of HDR-enabled videos. It's also great for Netflix and Hulu.

A 27-inch iMac could be a killer way to watch TV shows and movies, especially in dorms and small apartments. The content is there, the display has the resolution and color for great 4K, but it can't really shine until it also supports HDR.

In the PC space, you can get a 4K, HDR, 144Hz monitor (like this Acer Nitro XV273K) for under $1,000.

BETTER AUDIO

Speaking of turning the iMac into a great media consumption device, it really could use a bit more oomph in the audio department.

It's impressive how much sound Apple gets out of the current design, given the relative thinness of the iMac and the fact that the entire computer is

crammed in behind the display. But it could definitely be better, especially in the bass department. A new physical design might take into account how best to deliver a better audio experience, and that includes replacing the single omni-directional microphone with a more robust microphone array. Everyone who makes a FaceTime call (or records a quick bit of voice-over for a podcast or video) would appreciate it.

Just slap the TrueDepth module up in the top bezel of the iMac already, Apple

TRUEDEPTH MODULE AND FACE ID

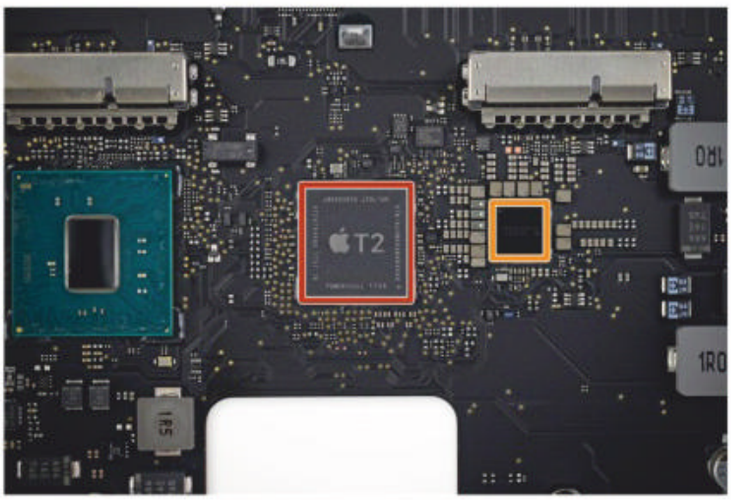
Speaking of FaceTime calls, the webcam on the iMac is an embarrassment. Even the improved 1080p FaceTime camera on the iMac Pro just doesn't deliver a good experience, and pales in comparison to the front-facing cameras on iPhones.

Apple should incorporate the TrueDepth module into the top bezel of the iMac display instead of the current webcam. It could just use the same exact one you find on the iPhones today, or whatever next-generation version Apple's got in its labs.

Think of the benefits! Everyone using an iMac would be instantly recognizable on their company group video call, only now it will be because they have by far the best video quality, not the worst! You could have support for Animoji and Memoji Messages on the Mac! You would get Face ID authentication for logging in, resuming from sleep or lock state, making web purchases, entering passwords, and more! After all, you can't really put Touch ID on an iMac's wireless keyboard—not without blowing up the cost and decimating battery life. You could even do neat Mac-specific stuff with it, like automatically blanking and locking the screen if your face isn't visible for a user-specified amount of time, or automatically logging in different users based on what face is recognized by the system.

T2 (OR T3) CHIP

The T2 chip first appeared in the Mac Pro (go.macworld.com/nwt2), and is now in the MacBook Pro, MacBook Air, and Mac mini.



The iMac Pro has the T2 chip, but the iMac does not. Apple should change that.

It handles security (including the secure enclave used for Touch ID), storage encryption, secure boot, audio input and output, and processes the FaceTime camera data.

It's still not in the latest regular iMac, though. The latest update was just a spec bump, not a new internal design, and so the T2 is still absent.

We'd want a new iMac to have the T2 chip, or perhaps, a future T3 chip that could do even more. For example, a hypothetical T3 chip might have the same Neural Engine as the A12 Bionic (go.macworld.com/ba12) to seriously speed up machine learning and AI functions in all sorts of applications.

FLASH STORAGE ONLY

If you buy the most affordable iMacs—either the old 21.5-inch 1080p model for $1,099 or the just-updated Retina 4K model for $1,299—you are graced with a 1TB 5,400-RPM hard drive. Ew.

More expensive iMacs, including all the 27-inch models, include a Fusion Drive, which combines a big, slow-spinning hard drive with a small chunk of flash memory to create a single virtual disk. It should, in most cases, perform a lot better than a traditional spinning disk hard drive.

But let's face it, it's still too slow. Way too slow for a brand-new computer that costs $1,200 or more. It's easily the slowest part of an iMac.

I mean, we get it. SSDs are more expensive, and Apple doesn't want to ship an iMac with a small amount of storage. These are meant to be computers that get filled up with huge photo libraries, iMovie projects, and GarageBand recordings. Apple should absolutely not drop the minimum configuration to 256GB just to go all-in on fast SSDs.

It shouldn't have to, though. Flash storage prices are plummeting. You can now buy a 512GB SSD for under $80. And that's online retail pricing, not the bulk purchase price a huge company like Apple would pay. The base iMac models could have a 512GB SSD and strike a much better compromise between cost, performance, and capacity, and even a 1TB SSD wouldn't cost Apple a whole lot more

than their 1TB Fusion Drive setup today.

The switch to SSD-only storage might be a necessity in future iMacs, assuming they incorporate the T2 chip (or its future successor). Those chips act as the storage controller, and it would appear they are only capable of doing so with flash storage.

SLIMMER BEZELS

The black bezels around an iMac's display are about an inch wide. That kind of thing might have flown in 2012, but here on the other end of the decade, they look positively primitive. Then there's the huge silver "chin" beneath the display...maybe it's a necessary function of trying to fit the whole computer, with proper ventilation and cooling, behind the screen, but it should be the first thing to go in a newly-designed iMac.

COLOR OPTIONS

Remember the bright fruit colors of the iMac G3? I miss the days when there was a bit of life in Apple's computer line. Today your iMac can be any color you want, as long as it's silver.

I don't necessarily think we need to see a return of lime, strawberry, blueberry, grape, and tangerine, but it would be nice

Maybe we don't need a return of the fruit flavors, but a little color would bring the iMac line to life.

to have a few color options. In the iOS line, Apple often makes its top-end hardware available in only silver, space grey, or black, and maybe rose gold. But it's more affordable phones, from the iPhone 5c (go.macworld.com/ip5c) to the iPhone XR (go.macworld.com/iphr), pop in a rainbow of colors. Why not do the same with the computer line? Let the iMac Pro fade into the background in boring space grey, while the iMacs for everyone make a statement with a splash of color. ■

Google's Stadia service could shatter the barriers of Mac gaming

Concerned about GPUs, RAM, and optimization with Mac ports? Stadia could end that.

BY LEIF JOHNSON

Did Google just save Mac gaming? The Mountain View company never mentioned Apple during the reveal of its Stadia (go.macworld.com/stdi) game streaming service at the Game Developers Conference, but Stadia sounds all but tailor-made for Mac users. A service that lets you stream games from a remote server straight to your browser! The ability to play the latest games without needing to invest in fancy eGPUs, graphics cards, and yes—even PCs! Even in 2019, so much of this still sounds like science fiction.

I love my Mac, but necessity compels me to keep a massive PC running at home so I can play graphically intensive games like The Division 2 or Devil May Cry 5 when they release. As we all know, many of these games never come to the

IMAGE: GOOGLE

Mac at all. If Stadia works as well as Google implies it will, I'll never have to feel too guilty about using a Mac for gaming ever again. Google itself would handle all the heavy lifting; all I would need is a browser.

GENTLY DOWN THE STREAM

Google's presentation yesterday left plenty of questions unanswered, but here's what we know. Stadia is a platform that will let you stream games from Google's servers to any device that runs the Chrome browser (although it may limit the devices at first). Google itself will house all the hardware, and it claims that hardware is better than what we find on both the PlayStation 4 and Xbox One. When the specs were flashed on screen during the reveal, they resembled those of the Radeon RX Vega 56. Supposedly Stadia works so well, in fact, that you'll be able to stream a game as graphically intensive as Doom Eternal in 4K resolution at 60fps. Again, in a flippin' browser. Ultimately, the only thing you'll need to pay is your presumed Stadia fee (which is unknown at the moment) as well as your internet fee, although Google will sell its own controller.

In other words, not bad. In still other words, this could change everything for Mac and iOS gamers who feel constrained not only by the limitations of the operating systems but also by the Mac's incompatibility with Nvidia cards and other PC gaming staples. If it works as well as described, it effectively tears down all the walls to Mac gaming we've dealt with for years. With a service like this, we wouldn't even have to worry much if Apple started making its own processors for the Macs.

And yes, it sounds a little too good to be true. That's not so much Google's fault as it is the fault of widespread U.S. infrastructure and data caps that aren't designed for running games at 4K at 60fps. Even if you're lucky enough to have an internet provider who doesn't have data caps, you may be one of the many rural internet users who deals with download speeds that are barely faster than the cattle grazing outside.

And that doesn't even begin to touch on the questions of how well Stadia will work with Apple devices in particular. Yesterday I bombarded a Google representative with questions: Will we be able to use Stadia on both macOS and iOS? Will it work on Safari as well as Chrome? Will you be able to use Stadia with an MFi controller?

The responses were evasive but not dismissive.

"We aren't disclosing specifics beyond what was shared in the keynote," the representative said. He repeated that Stadia will be coming to Chrome browsers, which are available on "many screens" ranging from TV and laptops to mobile

If all goes well, in other words, you won't need a setup like this to play a new big-budget game on a MacBook.

devices and tablets.

"What may be helpful is that we are launching on Pixel first, but that doesn't preclude us from adding more phones down the line," he said.

OF COURSE THEY'LL MAKE US WAIT

So the answer to all those questions looks like yes. Eventually. And I personally know we have good reason to be excited. Last year, I was one of the lucky folks who got to try out Google's Project Stream—essentially the test run for Stadia—and so I played Assassin's Creed Odyssey in my Chrome browser for free. I remember not being excited; after all, I'd used Nvidia's similar GeForce Now service (which hosts the games on Steam's servers) and I knew how much my home internet connection struggled with it. I fully expected the data stream in Project Stream to slow to a trickle before I even reached the loading screen.

But that didn't happen. In fact, right there in my Chrome browser—right there on my Mac—I saw Ubisoft's vision of ancient Greece unfold on my screen in a way I hadn't expected. I even hooked up a controller: It worked fine. For the first time in a long time, a new approach to technology was giving me the impression that I truly was looking at the future.

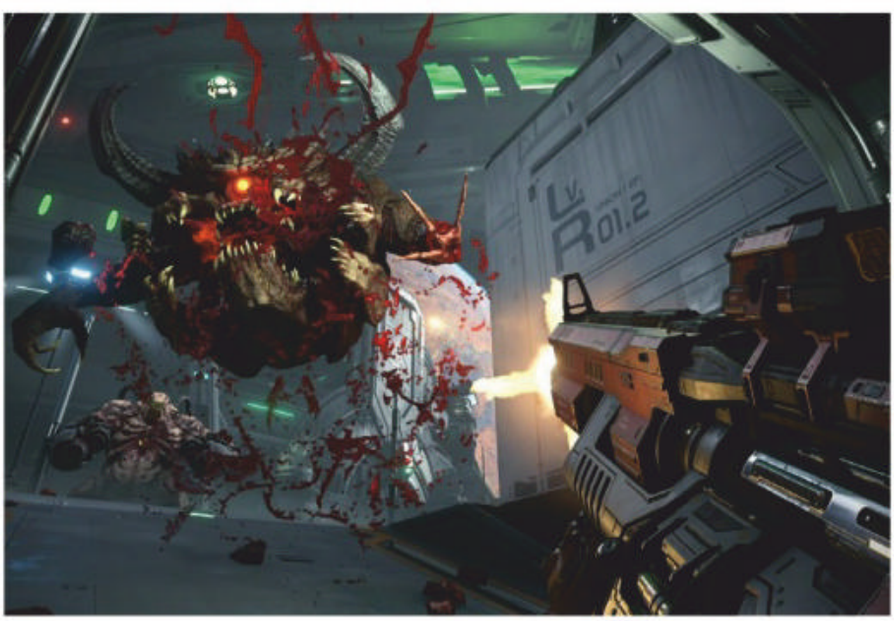
And I'm ready for it. I've long hated having to have both a PC and Mac in my apartment as I prefer the Mac for everything but gaming. I'd miss out on the excitement of building a PC—and it's likely I'll miss out on modding as well, as Stadia doesn't look as though it can support it—but I'd almost certainly save a ton of cash and space. I'm really only concerned that Stadia is its own platform, which means you can't just stream PC games to it as you can with GeForce Now. (And to be fair, that's probably why Stadia works so well.) Developers, in other words, will need to design their games for it. At least at first, that's liable to greatly limit the number of supported games. I mean, c'mon: Just look at the waits we have to endure before a game gets ported to the Mac.

Frankly, I don't know why it wouldn't come to iOS and macOS. I confess I've always admired Google as a services company, especially for its old '90s attitude that everything we need can be done through our browsers. It wanted to make us all a part of the party, and that inclusiveness is recalled in its multicolored logo (which in part evokes Apple's own rainbow logo from the '80s). A service like Stadia shows the power of the internet to bring us all together, and I often wish Google had stuck with that idea rather than trying to steer people toward its experiments with hardware as well.

My 21st-century self knows, of course, that I should temper my optimism with the knowledge that Google will probably gleefully sell my data to the nearest advertisers. For right now, though, I'm happy to dream.

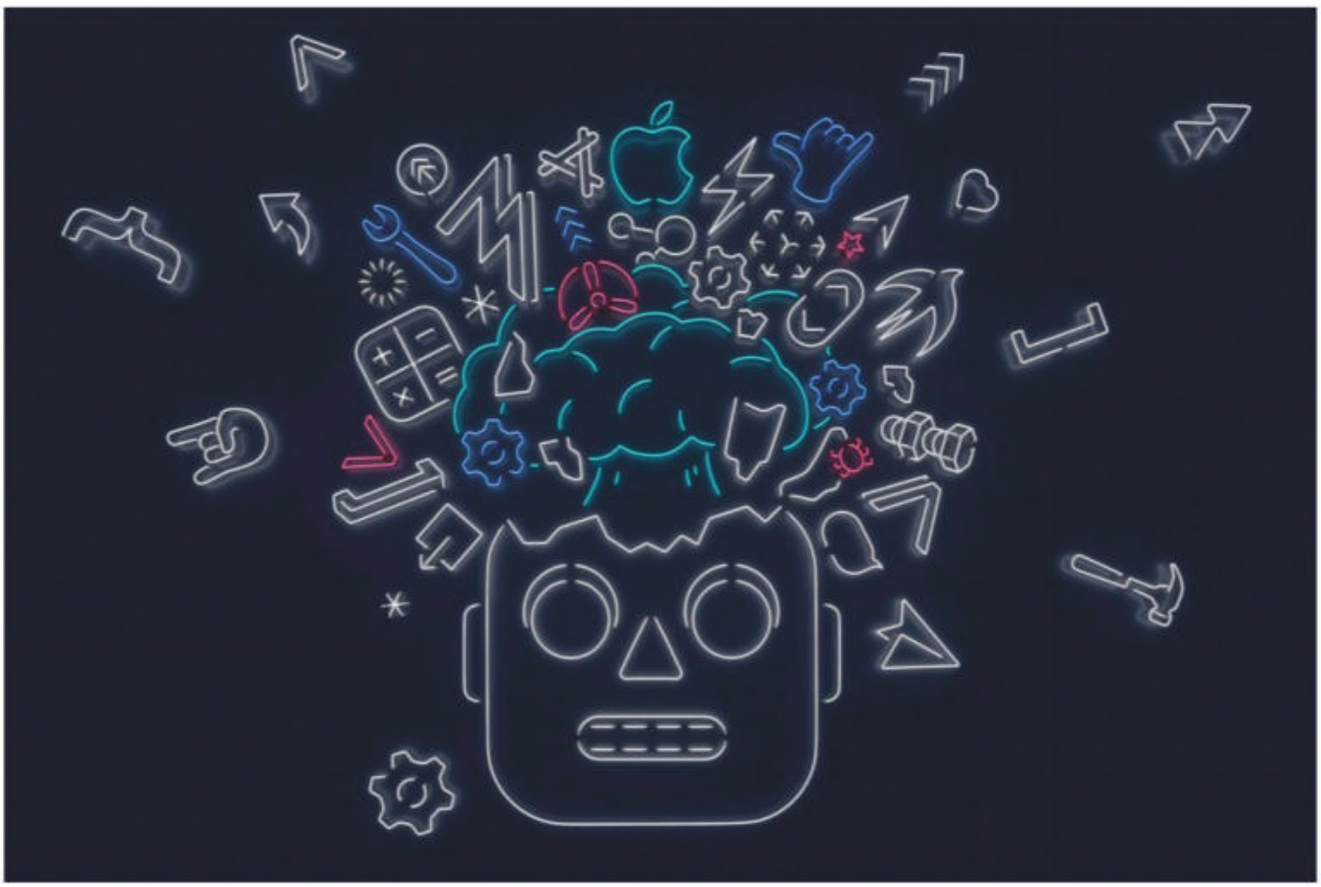
YOUR MOVE, APPLE?

Could we expect something from Apple? There's a vague rumor of an Apple gaming subscription service on the wind, but as I've said elsewhere (go.macworld.com/psrp), Apple barely knows what to do with the streaming services you can already find on iOS. For that matter, Apple really shoots itself in the foot with games. The Mac is practically hostile to games, for one. As for MFi controllers, Apple bizarrely wouldn't certify controllers that let you press on the thumbstick buttons for years, which effectively rendered some console ports unplayable. Happily, Apple loosened some of its guidelines with iOS 12, but it may be too late to catch up.



So far, Doom Eternal is the only game that's been announced for Stadia.

So no, I doubt it. But I don't really care. If Google manages to make Stadia work as well as it sounds, then Mac gamers will be able to have our cakes and eat them, too. As a bonus, if Stadia and similar services prove popular enough, maybe they'll trigger reform with the arbitrary and often outdated data caps we deal with every day. ■



Apple WWDC19: What's in store for iOS, macOS, watchOS, and tvOS

Apple's 2019 Worldwide Developers Conference will showcase platform priorities.

BY DAN MOREN

We're teetering on the edge of an embarrassment of Apple riches. The company recently officially announced the dates of the 2019 Worldwide Developers Conference (go.macworld.com/dc19), and many eyes are already fixed on that point, which will be here in early June.

Apple's March event, which saw announcements about multiple Apple services like Apple News+, enhancements to Apple Pay, Apple Arcade, and Apple TV+, will almost certainly pale in comparison to WWDC, which is probably the most significant event in Apple's calendar. Yes, the September launch of

IMAGE: APPLE

new iPhones and attendant devices may get more attention, but WWDC is where the company sets its agenda for the year—or years—to come.

Though WWDC is still a month away, it's never too early to start thinking about where Apple may be looking to focus the priorities of its many and varied platforms.

iOS 13

The crown jewel of Apple's platforms is, of course, iOS 13. But as per usual, rumors have been sparse. Unlike in hardware, where the company has had an ongoing challenge forestalling leaks from its increasingly voluminous supply chain, software has tended to be a much better kept secret.

That said, leaks and whispers do find their way into the wild. Reports have, for example, suggested that a systemwide dark mode is in the works, echoing a change added in macOS Mojave last year, and some reading the tea leaves of Apple's WWDC 2019 announcement image have proclaimed it further proof that such a change is coming.

When trying to determine what Apple might do this year, you can do worse than look at some of the things that seemed to fall by the wayside in the previous year. iOS 12, for example, was woefully short on iPad-specific changes, and there has been plenty of talk that iOS 13 might thus see a more substantive series of updates to the tablet's OS, possibly including improved multitasking features. That remains one place the Mac maintains a not insignificant advantage over the iPad, and a rethinking of how the system works could help broaden the iPad's appeal among power users even further. (Similarly, improvements to the Files app, which have also been bandied about as a potential update.)

Could iOS 13 introduce a bevy of new iPad-specific features?

In perhaps the most tantalizing rumor, there have been suggestions that Apple might finally revamp the iOS home screen, which could mark one of the biggest changes to ever hit the platform, and set the look for the company's mobile devices for years to come.

MACOS 10.15

If iOS rumors are sparse, macOS rumors are in even shorter supply. Nearly all of them seem to focus on something we

already know is coming: the ability to run iOS apps on the Mac platform. In Mojave, Apple brought several iOS apps—News, Home, Voice Memos, and Stocks (yay)—to the Mac platform, albeit as fairly rudimentary proofs-of-concept.

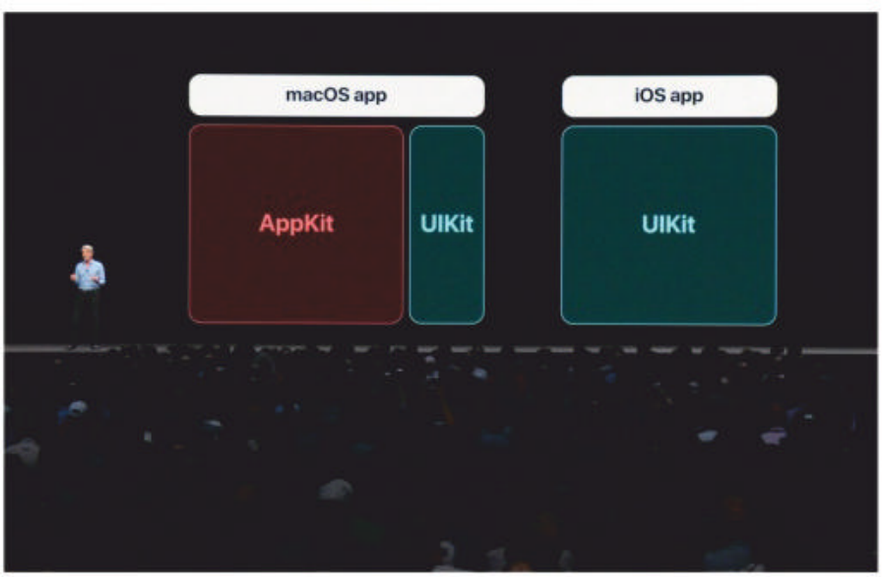
Whatever macOS 10.15 is dubbed, it's sure to drop the other shoe. Word has it that this year will bring ways for developers to port their own iPad apps to the Mac, with iPhone apps and universal binaries following in subsequent years. Developer Steve Troughton-Smith has already demonstrated that a lot is possible with the tools that Apple itself used in Mojave, but there were also plenty of shortcomings and un-Mac-like behavior that seem like they will need to be dealt with before this is ready for primetime. How Apple decides to approach this—and the story it will spin—will say a lot about the company's vision for its two biggest platforms (go.macworld.com/dply).

Beyond that, there's little to no info about what else might arrive in a new macOS update. Apple has in the last couple of years operated on a tick-tock cycle of major release followed by a more under-the hood-focused update, as exemplified by its naming scheme: Yosemite to El Capitan and Sierra to High Sierra. This year we might jump from Mojave to a specific location within the desert, and boy do I have my fingers crossed for Devil's Playground.

WATCHOS 6

The Series 4 Apple Watch is ticking along nicely—if you'll pardon the expression—proving to be a substantial update over previous Apple Watch models, but the watchOS software has started to feel like it's lagging behind. Version 6 would benefit from working on the software's underpinnings, including standardizing older watchfaces with the new Series 4 options and preferably opening up the ability for third-party developers to create watchfaces of their own.

Personally, I'd like to see a focus on performance as well. While the combination



Expect the macOS section of WWDC19 to showcase ways developers can port iPad apps to the Mac.

18+

WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal, providing you various content: brand new books, trending movies, fresh magazines, hot games, recent software, latest music releases.

Unlimited satisfaction one low price
Cheap constant access to piping hot media
Protect your downloadings from Big brother
Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages
Brand new content
One site

AVXLIVE.ICU

AvaxHome - Your End Place

We have everything for all of your needs. Just open https://avxlive.icu

The next version of watchOS could be a maintenance release that helps streamline performance.

of the Series 4 watch and watchOS 5 has generally been pretty good, there are still things that don't work as well as they should: complications that don't get updated, apps that take a long time to load. Apple's had success with slimming down the things that the Apple Watch does and making it do those specific things better, and here's hoping that trend continues.

TVOS 13

Apple's set-top box got little love in 2018, but with the company's streaming service set to launch this year, it seems likely it will get a little more attention this time around. Closer integration with the company's streaming video service—and perhaps its music and news services?—seems likely, and I have little doubt that Apple will be pushing its TV app much harder. It would be nice to see a revamp of the home screen and some improvements to Siri, especially when it comes to controlling your Apple TV via other devices like the HomePod or iPhone. ■

With the possibility of a new video streaming service being unveiled soon, maybe tvOS will get some attentions at WWDC19.

Low-hanging fruit: 5 things Apple could (and should) fix immediately

We expect plenty of big things from Apple, but sometimes little things matter just as much.

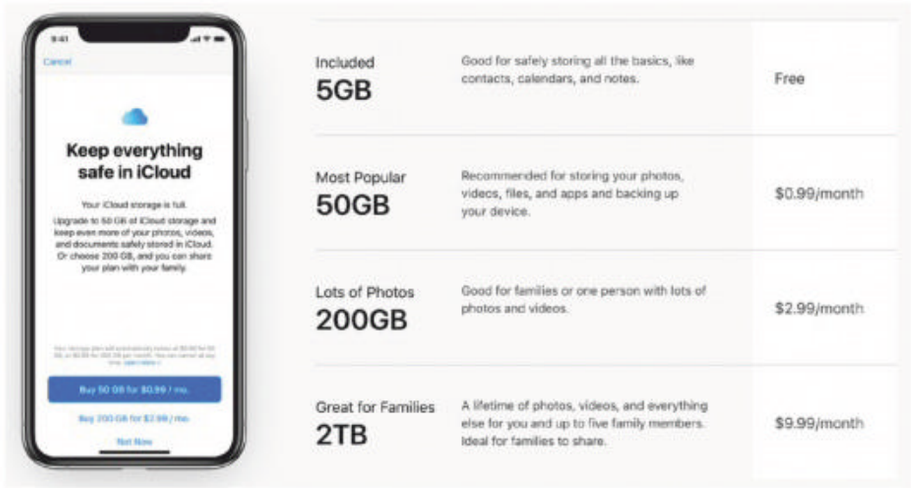
BY JASON CROSS

As one of the world's richest and most admired companies, we expect a lot from Apple. We expect big-thinking innovation and cutting-edge design. Perhaps it is because the company does so many things very well that it stings even more when it drops the ball on something simple.

Everyone seems to agree that Siri needs to improve, or that MacBooks should have a totally new and better keyboard. But those are big design and engineering efforts that are not going to

IMAGE: MATCUZ (CC0)

happen overnight. Here are a few things Apple could do with minimal effort. Some could happen immediately, others might start with the introduction of the next product in its line, but none would require serious engineering efforts or investment.



Apple's iCloud pricing is reasonable, but the free tier is a joke. Especially considering that to really use iCloud, you have to spend hundreds on an Apple product.

While some of these ideas may cost Apple a few bucks here or there (and Apple wants to make money), it's more important for people to feel good about using Apple products so that the company grows its user base for its expanding services business. Not to mention that the animosity against rich and powerful companies doing things that feel "cheap" grows larger every day. The money Apple may lose by pursuing these improvements would pay dividends where it matters most: customer loyalty and satisfaction.

PROVIDE MORE THAN 5GB OF FREE iCLOUD STORAGE

Google gives everyone with a Google account 15GB of free storage, and they're not even really selling hardware to most of those users. For those that buy Pixel phones, cloud storage of all photos and videos taken with it is free. Most iCloud users have at least bought a significant Apple product, and yet Apple gives us so little iCloud storage that you probably can't even do an iCloud backup.

Apple would do well to raise the free limit to at least 10GB or 15GB, but there are other good options, too. Maybe you could get 5GB free for each Apple device you register (other than accessories). Maybe you only get 5GB free, but iCloud backups of your iPhone or iPad don't count against the limit, so you're only using it to store photos, videos, documents, saved games, and the like.

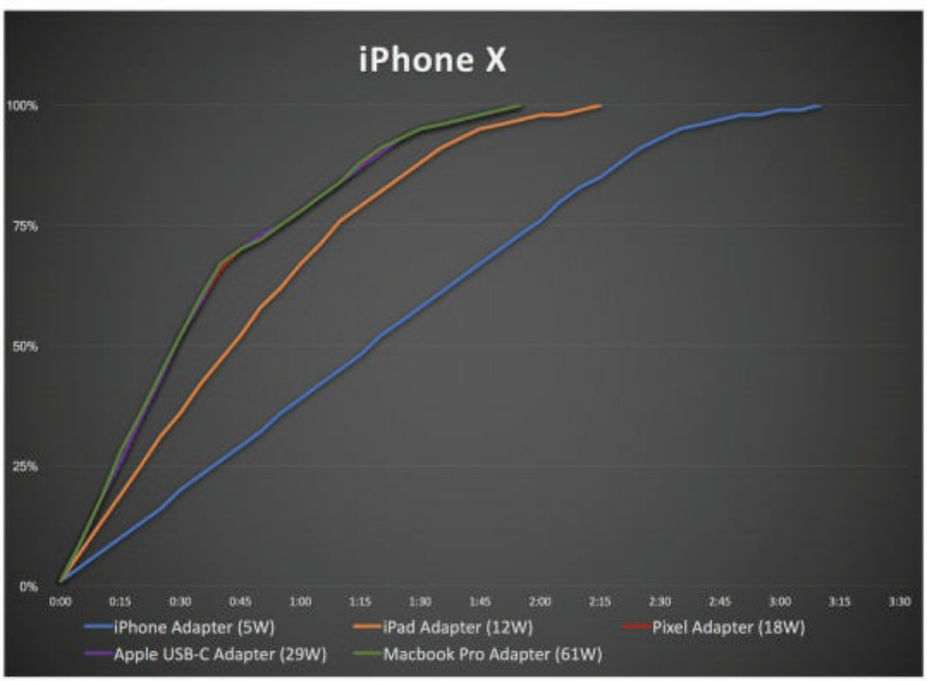
Sure, it's only a dollar a month for 50GB (go.macworld.com/50gb), but that's all the more reason for Apple not to be so stingy with free storage—some people will still upgrade, and the company isn't losing

out on a lot of money from those who no longer need to just to back up their iPhone.

STOP SHIPPING iPHONES AND iPAD WITH CHEAP 5-WATT POWER ADAPTERS

iPhones are unabashedly premium phones. Even the cheapest new model costs $750. And while iPhones are capable of fast-charging and wireless charging, Apple still includes a puny little 5-watt power adapter in the box, with a USB-A lightning cable. Meanwhile, other much cheaper Android phones include 15-watt or better USB-C chargers in the box.

There's no other way to put it: this is just Apple being cheap. What's worse, it compromises the premium experience Apple wants every iPhone and iPad owner to have. People who use the power adapter that comes in the box are charging their iPhone twice as slowly as they should be (go.macworld.com/twce)! Every iPhone and iPad should come with a roughly 15-watt power adapter with a USB-C lightning cable. Why is Apple still shipping devices with USB-A ports when none of the laptops the company makes has one? If you're all-in on USB-C, be all-in.



Modern iPhones are capable of charging much faster than they do with the included 5W power adapter. Apple encourages a poor experience by including slow adapters in the box!

GET RID OF THE TOUCH BAR ON THE MACBOOK PRO

I can see what Apple was going for with the Touch Bar: a set of software-programmable, context-sensitive controls that grow and change with your software. But it's a failed experiment that was flawed from the start. We're talking about touchscreen controls that exist down on the keyboard deck, and constantly change (that's the whole point, after all). So you have to keep shifting your gaze down from the display to use a set of controls with no tactile input.

You know where else developers can put context-sensitive, programmable controls? On the display.

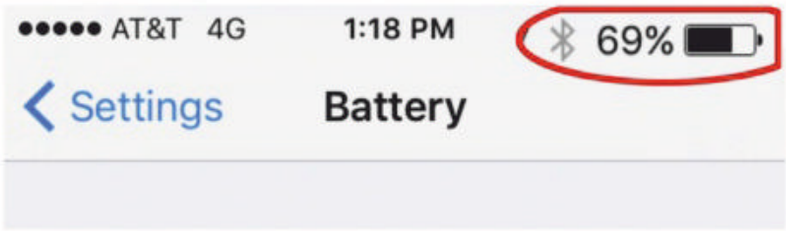
Getting rid of the Touch Bar would allow Apple to price the MacBook Pro more competitively (it's an expensive addition) without losing any of its margin. But more importantly, it would give us a more usable laptop, one that doesn't have "taking your eyes off the screen" as a core principle of its design.

It wouldn't even take any real engineering effort: the new MacBook Air (go.macworld.com/nwai) has Touch ID with no Touch Bar, which is exactly what we want. Okay, what we want is Face ID on MacBooks, and a whole new-and-improved keyboard, but those are big-ticket items. Simply producing the MacBook Pro without the Touch Bar is a gimmie.

RETURN BATTERY PERCENTAGE TO THE STATUS BAR

Until the introduction of the iPhone X, you used to be able to go into the Settings ➔ Battery and turn on Battery Percentage to show it in the status bar. With the iPhone X, XR, and XS, the "notch" for the TrueDepth splits the status bar, and I guess there's

The Macbook Pro's Touch Bar is an expensive solution in search of a problem.



Oh, battery percentage in the status bar, how I miss you!

just not enough room anymore. You have to pull down the Control Center to see the percentage remaining on your battery charge.

It doesn't have to be that way. A new icon with the battery percentage inside the battery graphic wouldn't take up any more space. Or, Apple could let us simply tap the battery icon to make it switch to the percentage for a few seconds. I'm sure a company with the lauded design chops of Apple could easily find an elegant solution and push it out in the next minor iOS software update if it wanted to.

CHANGE THE SCREENSHOT COMMAND ON NEWER iPHONES

On iPhones with no Home button (which is now every new model), you take a screenshot by pressing both the power button—Apple calls it the Side button—and the Volume Up button. Because the Volume Up button is directly opposite the Side button, we all end up taking tons of accidental screenshots when we're just squeezing the phone to activate the Side button. I end up taking at least two or three accidental screenshots a week this way.

Simply changing the screenshot function to Side and Volume Down would make accidental screenshots far less common. Alternately, the screenshot command could be pressing both volume buttons at once (they're not on a rocker and thus independently press-able).

Those are two easy solutions to the accidental screenshot problem, and I'm sure Apple could come up with others. ■

The current screenshot command for iPhones with no Home button produces a lot of unintended screenshots.

PHOTO-EDITING SOFTWARE

AURORA HDR 2019: A VAST ARRAY OF HDR EFFECTS FROM PHOTOREALISTIC TO FANCIFUL

BY JACKIE DOVE

Macworld EDITORS' CHOICE

HDR is a specialized form of photography designed to expose details in both the highlights and shadows of a scene by merging multiple versions of the same image shot at different exposures. It's hard to do HDR right without overdoing it, especially if your aim is a photorealistic image. The brain sees what the camera sensor cannot capture, and HDR techniques compensate by creating the image you saw in your mind's eye.

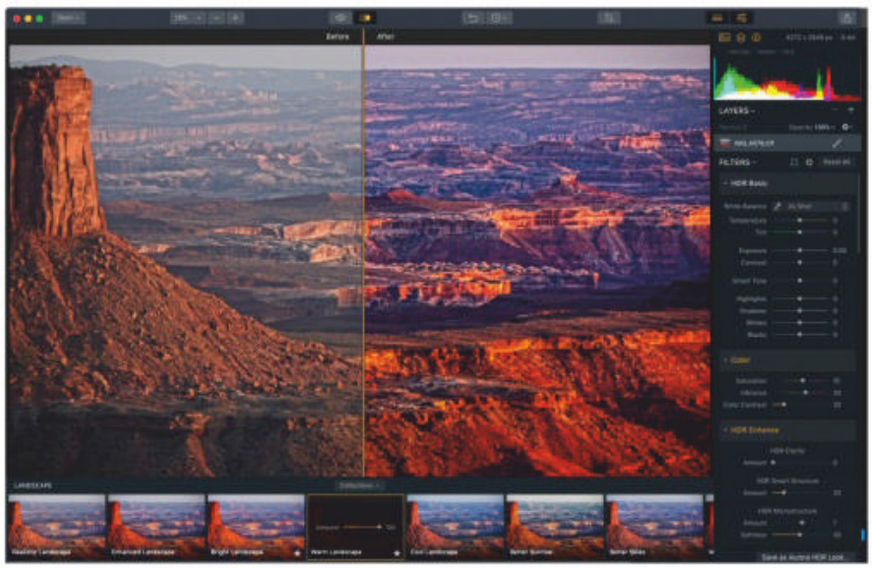
The 2019 version of Aurora HDR (go.macworld.com/au19) features a new Quantum HDR engine with artificial

IMAGE: SKYLUM SOFTWARE

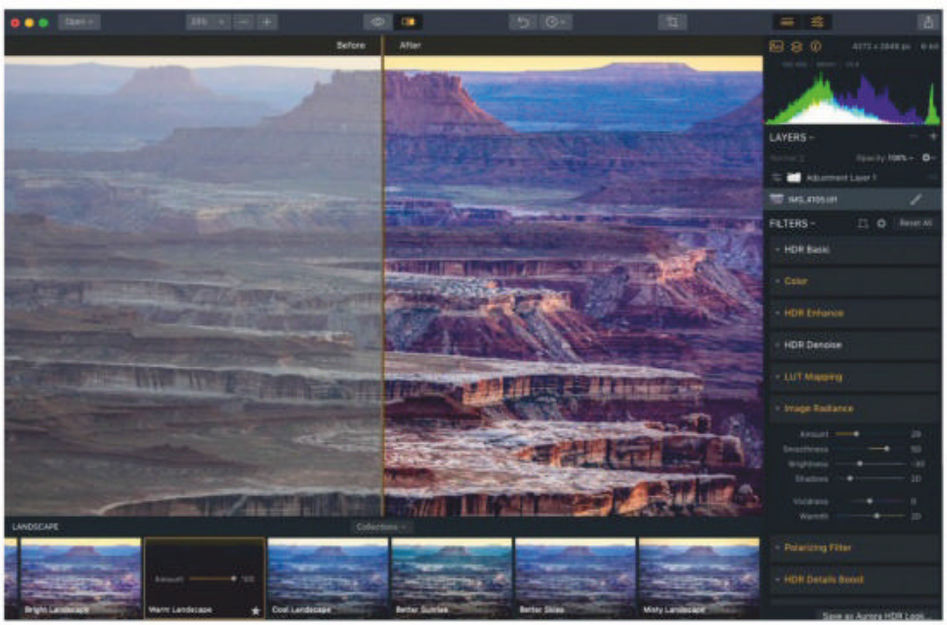
intelligence–based tone mapping technology. This facilitates more efficient photo merging to produce natural results that don't look contrived—unless you want them to. A New Smart HDR Structure feature delivers more precise details and realistic sharpness without artifacts, noise, or halos.

The software runs as a standalone app, as a plug-in to Adobe Photoshop and Lightroom, or as an Apple Photos extension. It also supports Photoshop plug-ins like Imagenomic and the Nik Collection.

Traditional HDR photography merges multiple images, but Aurora also lets you transform a single raw image to HDR via its AI-based neural network. It corrects colors, boosts contrast, reduces noise, and prevents unnatural lighting and ghosting. A batch processing feature lets you import multiple folders of images for export as bracketed or single images—accurately identifying which images are bracketed and which stand alone. It works with various photo formats, including raw.



Each Aurora 2019 Look is defined by specific individual settings that you can tweak at will.



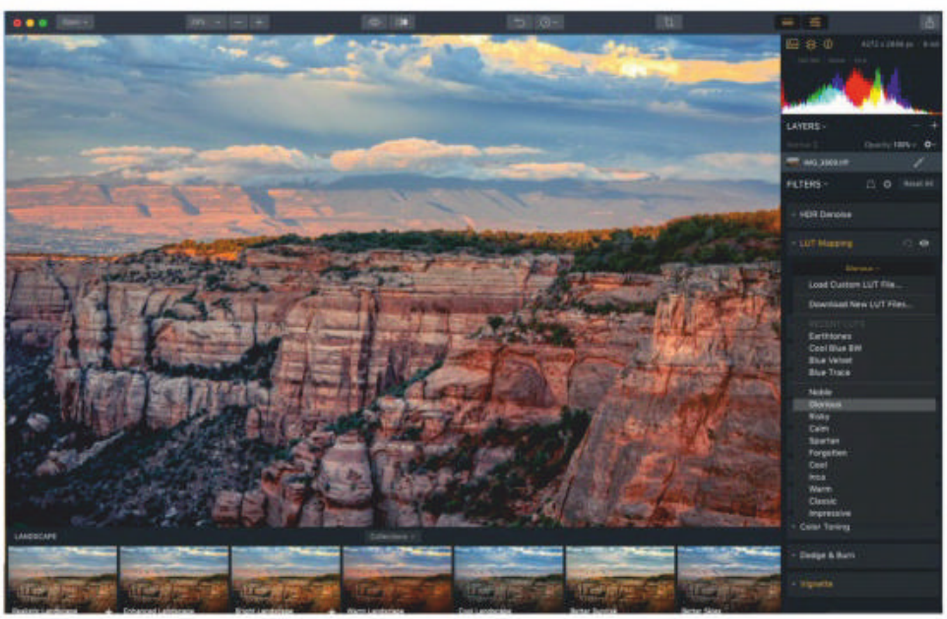
Aurora HDR reconciles the difference between what the eye sees and what the camera captures, thus rescuing many poorly shot or exposed photos.

NEW FEATURES

Aurora HDR, like other Skylum apps such as Luminar (go.macworld.com/lmr3), is extremely easy to use with a friendly interface that masks nearly all of its technical complexity.

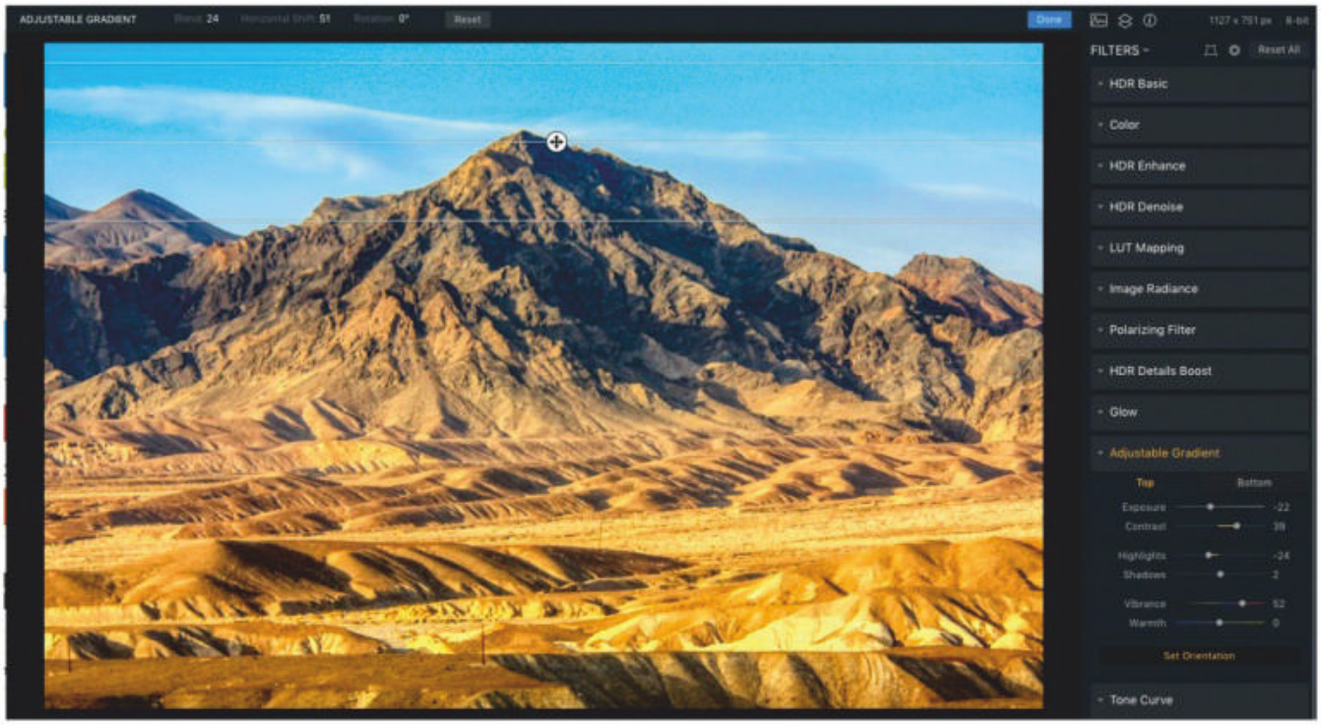
Version 2019 introduces a new Looks feature, previously called Presets, with additional aesthetic choices and refined toning. The app's controls and sliders give you complete visual power over your picture. Aurora comes with eight Looks collections: Essential, Landscape, Architecture, Dramatic, and Artistic, as well as signature Looks packs reflecting the individual styles of HDR photographers Trey Ratcliff (an Aurora co-creator), Serge Ramelli, and Randy Van Duinen.

Choose from eight built-in Looks collections.



You can preview cinematic LUTs and download additional ones from the Skylum site.

Applying one-click Looks is just a starting point, as you can build in additional edits with the layer and masking features. Aurora is non-destructive, so you can easily undo any adjustment and even revert to the original image and start over again. A new LUT (Lookup



An adjustable gradient lets you easily enhance the top or bottom of the image.

Table) mapping feature lets you simply mouse over the 11 built-in LUTs to view dynamic previews of the various color grading styles you can apply to your photos. Additional Looks, LUTs, and Textures are available either for free or for reasonable prices from the Aurora HDR Marketplace.

With the new Adjustable Gradient filter, which sports additional highlight and shadow sliders, you can apply distinct adjustments to the top and bottom of an image or anywhere you apply the gradient.

BOTTOM LINE

Aurora HDR 2019 is a specialty app designed for people who seek a way to produce powerful HDR images. It does not disappoint. While Aurora is not designed to be a full featured image editor, it still offers a vast variety of critical photo controls. I found many hard-to-edit images—often landscapes shot in poor lighting conditions—much improved by Aurora's one-click Looks, without a lot of time-consuming fiddling. The app's upgraded engine and AI-based tools worked well and swiftly without stability issues, even on an older MacBook Air. ■

Aurora HDR 2019

PROS

- Fixes badly shot single images.
- Easy to learn and use.
- Fast performance.
- Flexible operations let you customize all features.

CONS

- None significant.

PRICE

$99

COMPANY

Skylum Software

BACKPACK

WATERFIELD DESIGNS SUTTER SLIM BACKPACK: A COMPACT BUT CAPABLE MACBOOK BAG

BY LEIF JOHNSON

Macworld EDITORS' CHOICE

WaterField Designs makes a big deal out of the fact that it crafts its bags here in San Francisco; in fact, you'll find our fair city's name subtly stamped on the leather of its new $229 Sutter Slim Backpack.

That's par for the course with WaterField, but I find it's particularly apt in this case. I like to think that the Sutter's canvas and leather exterior evokes the foggy city's rough-and-tumble origins, while its embrace of smart design and utilitarian minimalism characterizes its present. It's even named for one of the key figures of the Gold Rush. Tech, naturally, lies at the heart, and so WaterField's latest

IMAGE: LEIF JOHNSON

release has slots for any portable Apple device or accessory you might toss inside.

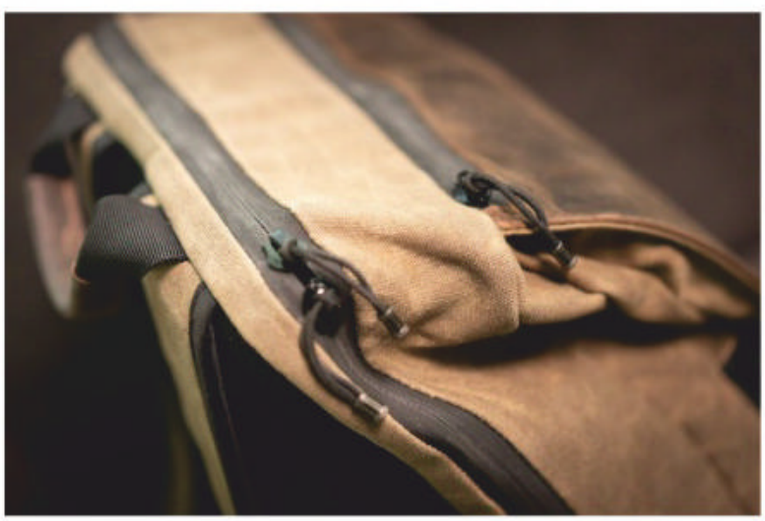
And much like San Francisco, it's kind of small. You wouldn't want to drag this 15-inch-tall bag along for a jaunt to the grocery store, but it's the perfect size for a city day pack. It's only 6.5 inches wide when it's so stuffed that the zippers strain, thanks in part to a long full-grain leather panel, so it keeps a low profile even on crowded subway cars. With four outside pockets and two sleeves and pockets on the inside, there's more than enough room to hold your stuff. If you need a place to store your keys, you'll find a handy key fob dangling in the hidden lower pocket along the bottom front.

BIG IDEAS, SMALL PACKAGE

WaterField cleverly concealed both the bottom and top front pockets, in fact, allowing them to stay handy without detracting from the minimalist design. The top pocket has an 8-inch zippered opening—exactly the same width as the leather panel—and it's five inches deep, which is more than enough room for frequently used items like my AirPods, gym lock, hairbrush, and Magic Mouse.

The bottom pouch also hides behind the leather panel, but you access it from either side with your choice of two zippers. I found it useful for stashing small items I rarely use but nevertheless demand quick access to, such as eye drops, lip balm, and gloves. I once even managed to stash a compact umbrella in there. If you don't feel like digging blindly in there, WaterField

The Tech Pocket isn't necessary, but it is convenient.



Honestly, I got more compliments on the zippers than anything else.

also makes a cool $49 pack called the “Tech Pocket” that fits perfectly.

You’ll also see a sleeve along the lower back that lets you slip the Sutter Slim over the handles of a suitcase, and it doubles as the mesh that airs out your back and protects the backpack from sweat. The bag itself comes in a waxed canvas with brown leather or a black nylon “ballistic” fabric with black leather. The former works well if you’re seeking a casual or rugged look, while the latter pairs well with boardrooms and expensive suits. Functionally, though, they’re the same bag, and both are tough enough to take beatings from the elements despite not being exactly waterproof. Why “not exactly”? There’s a rubbery coating lining the YKK zippers that grants the illusion of a seamless bag when the zippers are closed, and I can say from experience that they do a decent job of keeping out the rain.

There’s also a handy Velcro strap that keeps both your iPad and MacBook secure.

A FEW TRICKS UP ITS SLEEVES

But it’s the inside that’s most likely to turn any Apple lover’s head, as it houses not one but two device sleeves along the back. The back one is large enough to embrace a 15-inch MacBook Pro—and such sleeves are increasingly hard to find these days—while the first one can house other flat gadgets like a 12.9-inch iPad Pro. Most of the time, though, I personally use this second sleeve for storing both my legal pad and a paperback novel.

On the opposite side of the main compartment you’ll find two 6-inch-deep pockets, both of which I find useful for storing larger frequently used items such as charging cables or sunglasses. The left pocket also has four pen slots clinging to its exterior, which is perfect for the Apple Pencil and the Palomino Blackwing pencils I use on a daily basis.

And then there’s the 11-liter main compartment itself. It’s not huge, but there’s enough room that I can stash my gym clothes in there along with an umbrella and a metal Manna water bottle. There’s even a bit of room left over if I find

I seriously miss that honeycomb fabric when I'm using other bags.

myself wanting to stash something in there on the way home. As with most of WaterField's bags, it's lined with a luxurious gold honeycomb fabric that makes it easier to find items.

The Sutter Slim backpack doesn't just look great; it also sits comfortably on my back even when stuffed to capacity and weighing 15 pounds (up from the empty weight of 2.2 pounds). The straps are padded on the inside, while the outside sports the same canvas or nylon used for the rest of the body. The only thing that took a bit of getting used to is the canvas wings used to attach the lower bag to the front straps, as they dug into my love handles early on. Simply allowing a little slack fixed the issue. As final conveniences, the Sutter Slim backpack comes with a leather-covered handle that makes it easy to carry like a briefcase, and its stiff underside helps keep the bag upright when you set it down.

THE BOTTOM LINE

My, this is a lovely backpack. In design, it's a first cousin of the Sutter Tech Sling (go.macworld.com/sutr) I reviewed and loved back in November, but this is a better option if you need to lug around a device as hefty as the 15-inch MacBook Pro. It's got more room in general, for that matter, and I admire the convenience of its deep top pocket. At $229, it's well-priced for the quality you're getting. As I've said about other WaterField products, it's as smartly designed as anything that comes out of Cupertino, and that makes it a perfect companion for any collection of portable Apple gear. ■

Sutter Slim Backpack

PROS

- Deep but stylishly concealed outside pockets.
- Two sleeves for MacBooks, iPads, or similar devices.
- Stays compact even when stuffed.

CONS

- None.

PRICE

$229

COMPANY

WaterField Designs


Ad Council
#WeAreAmerica
love has no labels

Hot Stuff

What We're Raving About This Month

PURO SOUND LABS PUROQUIET

purosound.com

Puro Sound Labs develops high-quality headphones for kids that help protect their hearing. Puro Sound claims that the PuroQuiet limits the output level to no more than 85dB Sound Pressure Level (SPL), and our test results found that these headphones performed well below 85dB SPL much of the time. The active noise cancellation works very well at reducing the level of low-frequency ambient noise, and it also significantly improves the sound quality.—**SCOTT WILKINSON**

AMAREY A800

iamarey.com

The A800 is a bare-bones budget robot vacuum that delivers a cleaning performance on a par with some of its more expensive competitors. The A800 uses a single roller brush and two spin brushes for cleaning. It has powerful 1400Pa suction power, which pairs with a triple-filter system for ensuring everything—including notoriously stubborn pet hair—makes it into its 0.5-liter dustbin. The A800's powerful cleaning means you'll need to haul your stick vacuum out of the closet less frequently, and that alone makes it a worthwhile investment.—**MICHAEL ANSALDO**

Hot Stuff

PANASONIC DP-UB9000 ULTRA HD BLU-RAY PLAYER

shop.panasonic.com

If you really want to see what your 4K TV can deliver, there's nothing like playing discs on a Blu-ray player such as the DP-UB9000. Panasonic pulled out all the stops to deliver the best audio and video performance: a vibration-dampened disc transport, multiple power supplies, meticulous RF shielding, and audio circuitry that's discrete from the player's video circuitry. The DP-UP9000 exposes a vast number of display controls for your tweaking pleasure, but Panasonic also indulges more casual users with an HDR Settings button on the player's remote.–**MICHAEL ANSALDO**


Ad Council
#WeAreAmerica
love has no labels

TEXT AND WHATEVER

JUST DON'T TEXT AND

STOPTEXTSSTOPWRECKS.ORG

ad COUNCIL

NHTSA

The new iPad Air and iPad mini: What's new and what isn't

We now effectively have the iPad Air 3 and the iPad mini 5. How do they compare to their predecessors?

BY LEIF JOHNSON

Surprise! Apple has announced updated models of the iPad Air and the iPad mini (go.macworld.com/nipd). Some of us gave up on seeing new versions of these models, but suddenly they're available for purchase. We should have our hands on the new tablets soon, but we wanted to give you a quick rundown on what's new and what remains the same for both iPads.

IMAGE: LEIF JOHNSON

iPAD AIR: WHAT'S NEW

Let's kick off with what's new with the iPad Air, which we thought was effectively replaced with the 10.5-inch iPad Pro in 2017. In essence, this is the iPad Air 3, but much as with the iPad mini, Apple's dropping the numerals. It's now just the iPad Air.

The price sees a welcome change, as Apple now sells it for a starting price of $499 instead of the $649 we saw with the iPad Air 2. There's also a change in storage options, as Apple only sells the new iPad Air in 64GB and 256GB configurations. Before, you could buy the iPad Air 2 with 16, 32, 64, and 128GB options. It's a smart move for a more data-hungry age.

The tablet is also bigger—insomuch it has the same 9.8 by 6.8-inch frame as the 2017 10.5-inch iPad Pro. For comparison, the iPad Air 2 measured 9.4 by 6.67 inches. And much like the old iPad Pro, the new iPad Air supports the first-generation Apple Pencil. That could be a big deal if you don't want to pay iPad Pro prices but don't like the smaller screen of the 9.7-inch iPad—or the new 7.9-inch iPad mini.

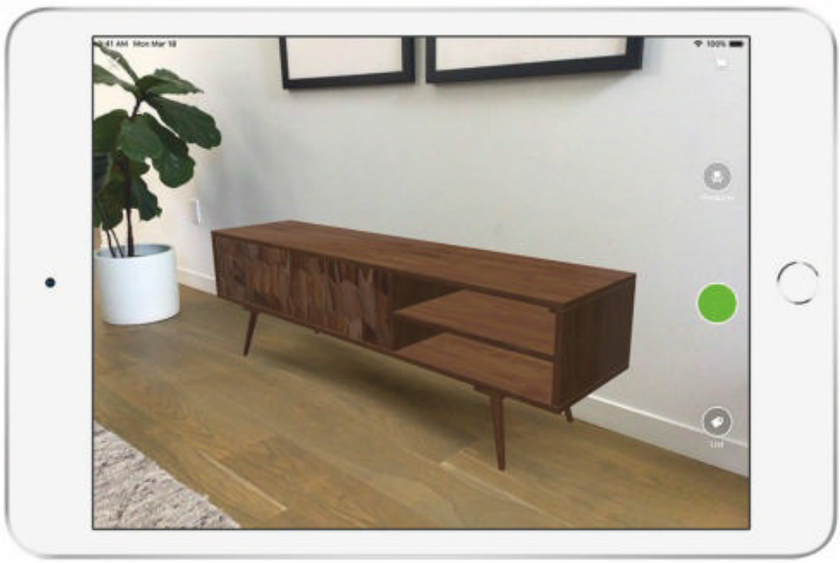
I especially like that the new iPad Air sports the A12 Bionic processor found in the iPhone XS and XR, which marks a massive jump from the A8X chip in the iPad Air 2. Keep in mind, though, that it's not quite as fast as the A12X chips that we find in the 2018 iPad Pros.

The display has changed, too, as the resolution is now 2224 by 1668, up from 2048 by 1536. It's also packed with Apple's TrueTone technology that adapts to ambient light in order to deliver a more natural viewing experience. That display is also laminated, which effectively means the glass sits on top of the display. When you use an Apple Pencil, it makes for an experience that feels slightly more like writing on paper than what you'll get with an unlaminated display. Unfortunately, the iPad Air didn't inherit the iPad Pro's ProMotion 120Hz refresh rate, which makes everything from Apple Pencil strokes to scrolling through webpages a bit smoother.

The iPad Air essentially looks like an older iPad Pro now.

The iPad Air is also brighter, as it delivers 500 nits of brightness

versus the 415 in the older model. That's great if you often have to use your iPad in the sunlight. And last but certainly not least, the front-facing FaceTime camera got a big boost from 1MP to 7MP.



The A12 Bionic chips allow the new iPads to take better advantage of augmented reality apps.

iPAD AIR: WHAT ISN'T NEW

That's a lot of good stuff, especially when you compare it to the iPad Air 2. When you compare it to the 10.5-inch iPad Pro, though, the truth is that we're basically looking at an iPad Pro from 2017 with a better chip. In other words, if you got a 10.5-inch iPad Pro two years ago, you may not need to upgrade.

The new model still has a home button with Touch ID, and I think that's a bit of a bummer as the latest iPad Pros have taught me that Face ID is even better suited for iPads than iPhones. It's still LED backlit, so don't expect the super cool OLED displays you find in the new iPhones. Even the new iPad Pro doesn't have that. While the FaceTime camera got a boost, the rear camera hasn't changed much, as it still has an 8MP rear camera like the iPad Air 2. It's still got a 3.5mm headphone jack, it's still available in space gray, silver, and gold, and it still gives you a battery life of around 10 hours. And it still supports Lightning cables instead of USB-C.

iPAD MINI: WHAT'S NEW

Let's move on to the new iPad mini. A lot of you have been waiting for this one for a long time, and as you might expect after a four-year wait, it's a massive improvement on the iPad mini 4. What's new?

First off, much as with the iPad Air, this is now simply called iPad mini—even though it's essentially the iPad mini 5. It also sports the A12 Bionic processor, and that's enough of an upgrade from the A8 chip to give you around three times the graphics processing power of the iPad mini 4.

It's also got a laminated display and first-generation Apple Pencil support like the iPad Air, along with support for Apple's

TrueTone technology. It even has a wider P3 color gamut, and Apple says its pixel density of 3 million is the highest of any iPad. The display itself is 25 percent brighter at 500 nits, up from the 450 in the iPad mini 4.

The camera remains at 8MP, but the newer model reportedly offers better low-light performance and HD video recording. And here again we see the boost to 7MP from 1MP in the front-facing camera.

At this point, you're almost using a digital Moleskine notebook.

The iPad mini 4 only sold in a 128GB configuration, but the new iPad mini comes with both 64GB and 256GB storage options. For that matter, it now supports the same Wi-Fi and gigabit-class LTE speeds you'll find in new iPads.

iPAD MINI: WHAT ISN'T NEW

What hasn't changed? For one, there's the starting price, which remains the same as the iPad mini 4 at $399. I'd be annoyed with that considering that the 9.7-inch iPad supports the Apple Pencil and gives you more screen space for $329. Nonetheless, this delivers a lot of upgrades for people who want a smaller iPad.

As for the display, it may have that TrueTone tech and the wider P3 color gamut, but the 7.9-inch display itself still has a resolution of 2046 by 1536. Like the iPad Air, it also doesn't support ProMotion.

In fact, I'll probably have a hard time telling the iPad mini 4 apart from the new iPad mini when we get ours. It still has the same 8 by 5.3-inch frame, a home button that supports Touch ID, and support for Lightning cables instead of USB-C. And yes, it still comes in space gray, silver, and gold, and it still delivers around 10 hours of battery life.

A lot of you have been looking forward to getting your hands on a new iPad mini in particular, so I look forward to seeing if both of these devices live up to expectations. ■

VIDEO: **NEW iPAD AIR AND iPAD MINI**
Watch now at go.macworld.com/ipd

Apple fans shouldn't worry about Samsung's new phones

Samsung's latest gear has some neat features, but it doesn't present real danger to Apple.

BY JASON CROSS

Samsung just took the wraps off its latest Galaxy S10 phones (go.macworld.com/ss10), along with an intriguing new folding phone/tablet called the Galaxy Fold (go.macworld.com/smfl). They were all the internet could talk about recently, and with good reason: there's some legitimately cool stuff there. But none of them present the existential threat to Apple. In fact, they probably won't have a measurable impact on iPhone or iPad sales at all.

The greatest threat to continued sales of Apple products is Apple, not the threat of a superior product from Samsung.

IMAGE: MICHAEL SIMON

'MUST-HAVE' FEATURES ARE OFTEN OVERESTIMATED

The general thrust of the annual "Apple needs to worry about these new Samsung phones" punditry goes something like this: These Samsung phones have more features for the same money!

That's not wrong. The $750 Galaxy S10e (go.macworld.com/s10e) is priced like the iPhone XR, but has more storage, an OLED display, and dual rear cameras. The S10 and S10+ have more and possibly "better" cameras in front and back, more storage, and start at prices $100 less than the iPhone XS and XS Max.

When else have Samsung flagship phones have had more features or better-sounding specs than the comparably-priced iPhones? Pretty much every year since the Galaxy S4. Whether it's wireless charging, waterproofing, OLED displays, stylus support, or NFC, Samsung's top phones have often had a laundry list of features months or years before they show up in an iPhone. Samsung often hammers home that fact in its commercials, and yet iPhone sales haven't suffered.

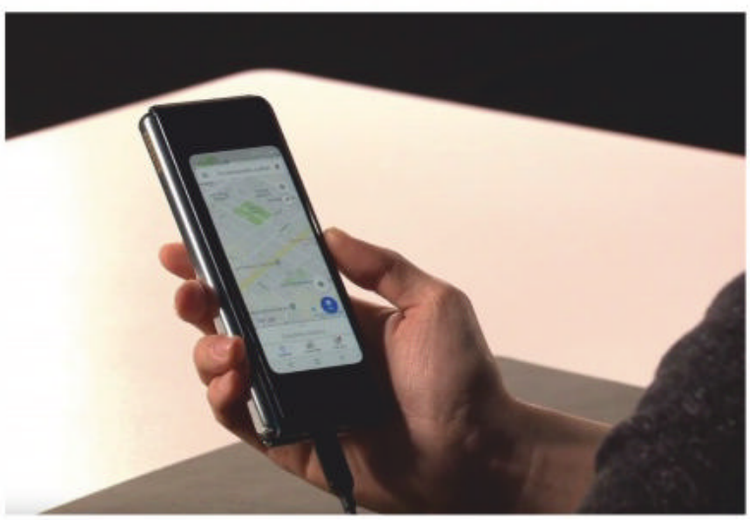
Of course there are some people who are willing to jump out of the iPhone ecosystem and they land in Samsung's domain. That's not new. But in the grand scheme of things, most iPhone users seem to want to replace their old iPhones with new iPhones, and if beating Apple to the punch on a handful of cool-looking features hasn't tipped the scales over the last five years, it's not going to start now.

Until there's a true competitor to the ubiquitousness of iMessage and FaceTime, Apple doesn't have to worry about the fact that some Android phone shipped with a feature before the iPhone.

IT'S TOO EARLY FOR A FOLDING PHONE

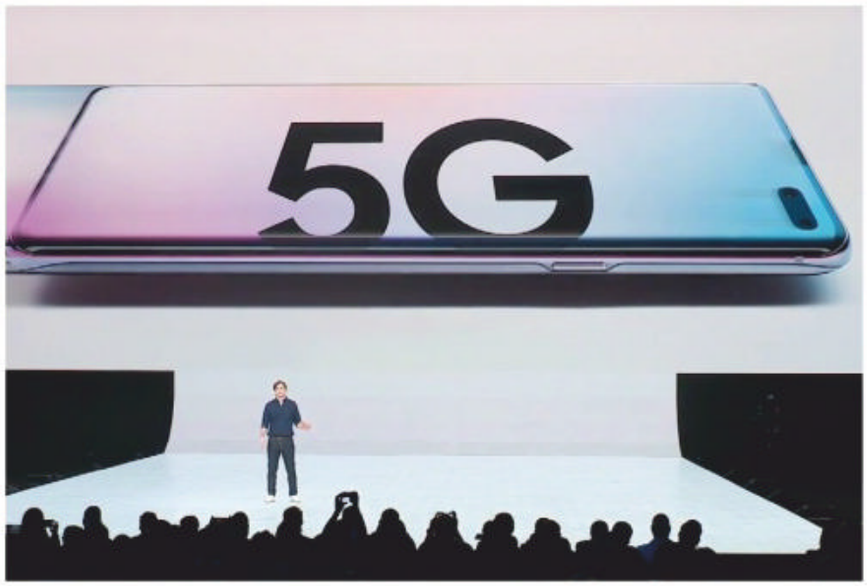
What about that Galaxy Fold, though? The first real big-name folding phone/tablet! Sure, it's undoubtedly slick, it doesn't seem ready for the mass market just yet.

The price tag alone—starting at $1,980—puts it out of reach for almost everyone. It doesn't appear to solve many of the predicted problems with folding phones,



The Galaxy Fold phone experience may not be what people want out of a nearly $2,000 device.

either. In its folded state it's too thick and tall to fit well into any but the largest pants pockets (and if you're a back-pocket person, forget it). The display aspect ratios are weird both folded and unfolded, and it's not clear how well the broad array of popular apps will work with that. Samsung keeps showing off the same few apps that scale gracefully, but how well will that work with all the apps people use?



5G is going to be a big deal one day, but that day is not today.

It's got weird design quirks like a strange corner-notch in tablet mode, and durability remains a huge question mark. (How would a case for that thing even work? Or screen protectors?)

The Galaxy Fold is another cool piece of tech that lets Samsung proudly proclaim it was first. But Apple's innovation has very rarely been about being first to market. It's about being the first to make a technology reliable, usable, and mass-producible enough to ship on over 100 million phones in a year. That's the kind of thing that moves markets.

AND IT'S TOO EARLY FOR 5G

Samsung also announced a version of its Galaxy S10 phone for 5G networks (go.macworld.com/gl5g). It's huge (6.7 inches!), expensive (no price given, but more expensive than the $1,000 Galaxy S10+), and will ship sometime in the second quarter exclusively on Verizon.

That alone puts it out of reach for anyone on the nation's other three big carriers. But even for Verizon customers, it's going to be some time before 5G is a thing. Verizon has promised to deploy 5G in 30 cities (go.macworld.com/5g30) by the end of the year. But it hasn't yet said what those cities are and hasn't given any details about pricing or how broad the coverage will be. The really fast 5G stuff will require lots of small towers spaced closely together, which means that launching 5G in a city is very likely to mean, "you get 5G coverage over about ten blocks downtown, and it's still 4G LTE everywhere else."

All the major carriers want to crow about their 5G deployments, but the fact is, only a tiny percentage of the country's population is going to live or work in an area where 5G coverage is reliable until well into 2020. You're far more likely to be connected to a solid Wi-Fi connection—mitigating the benefits of 5G—than you are to really see those multi-gigabit speeds on your mobile network. It's good to have a phone that is future-proof, but do you really want to pay big bucks today for a first-generation 5G modem that you won't get to use for another year or two?

APPLE'S PROBLEM IS PRICING, NOT SAMSUNG

Apple needs to keep improving the iPhone, of course. From multi-camera setups and time-of-flight 3D sensors to bi-directional wireless charging and fancy software tricks like Google's Night Sight, Apple must absolutely push ever-forward. (Don't get me started about Siri.)

But a features arms race with Samsung has never been Apple's problem, and it's not the reason iPhone sales are plateauing (or even declining).

If Apple has a current problem with selling iPhones, it's that the prices are too high, no matter what features they have (especially in some overseas countries). And with subsidized pricing going by the wayside, the barrier to entry is just too great. In that regard, a "good enough" $400 phone poses far more of a threat to Apple than Samsung's similarly-priced flagship phones.

The company is transitioning to a model where iPhone upgrades are not terribly important as long as customers keep using their old iPhones. It wants people to be in Apple's ecosystem so it can consume a growing array of services, and growing that base is more important than iPhone or iPad or Mac turnover rate.

Still, most companies that make their money on consumer services will practically give away hardware, selling it at cost or even a loss. Lose money on the razor, make money on the blades. Apple is light-years away from that sort of pricing scheme, but it's worth considering that, over time, the company may want to lower margins on hardware in order to build a bigger base for its services business.

Samsung hasn't been able to build a successful ecosystem of its own, no matter how hard it has tried. It pushes its own apps, store, interface, and features like Bixby, but consumers don't want them. They want Google's services—Maps, Gmail, Chrome, Google Photos, and the Google Play store. Apple's consumer services ambitions can only truly be threatened by another manufacturer with a big hardware/software/services ecosystem of its own, and that's not Samsung. ■

Apple needs to get into the folding game and save us from years of bad phones

The Galaxy Fold and Huawei Mate X need to be shown the way.

BY MICHAEL SIMON

Samsung just took the wraps off its latest Galaxy S10 phones (go.macworld.com/ss10).

When I first heard that Samsung was making a folding phone, I was excited. The idea that a phone could turn into a tablet intrigued me, and I closely followed the development of Samsung's display technology leading up to the launch of the Galaxy Fold.

Then I saw the Fold, and, well, my excitement waned. After dreams of giant screens opening to gianter screens, the Galaxy Fold (go.macworld.com/sf1g) has some clear first-gen compromises. The outside display is only 4.6-inches, which is

IMAGE: ADAM PATRICK MURRAY

laughably small for a 2019 smartphone (sorry iPhone SE lovers). It opens to a 7.6-inch screen that has a giant notch on the right side for the cameras. And it looks like it's thicker than two iPhones stacked on top of each other.

A few days after the Galaxy Fold's introduction, Huawei took the wraps off its own folding phone concept (go.macworld.com/hwmx) and it's quite different. It's only 11mm thick, has a 6-inch outside screen, and opens to a full 8-inch tablet with no notch. The controls, buttons, and USB-C port are on a stationary bar that doubles as a sort of handle and acts as a locking mechanism for the screen when folded.

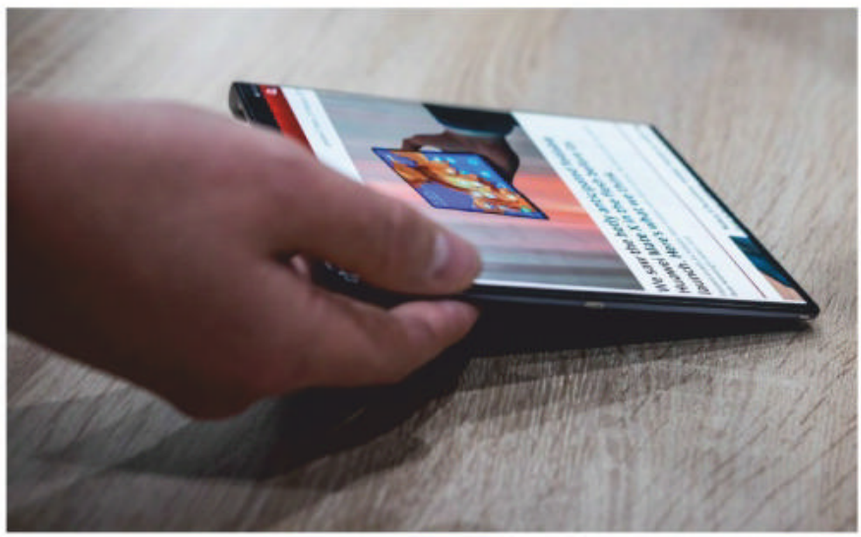
I eventually got to handle a Mate X for a few minutes and I walked away impressed. While I would never consider spending upwards of $2,500 on a phone—even a cool new futuristic concept like this—I can see what Huawei was trying to do with the Mate X.

Rather than assemble a prototype that doesn't consider usability or design like Royole with the FlexPai (go.macworld.com/rflc), it's easy to see that Huawei has put serious effort into designing a folding phone that's both unique and familiar. The outside screen is as big as a normal smartphone, all three displays have clear purposes, and pocketability and holdability have carefully been considered. I even like the outside fold better than I thought I would. There are issues—such as the low-tech push button that ejects the case when folded—but for the most part, the Mate X is a really good first-gen device.

But all the while I thought, "What would Apple do?" While Huawei's and Samsung's

The Mate X measures 11mm thick when closed, plenty thin enough to fit in your pocket.

first efforts are definitely better than, say, the crop of smartphones that were available when Apple launched the original iPhone, the Mate X and Galaxy Fold are definitely starting from a better place. But like the iPhone, Apple Watch, AirPods, and just about everything else coming out of Cupertino, we're not going to know how great a folding phone can be until Apple makes one.



The Mate X's screen isn't like any smartphone I've ever used.

THE SCREEN IS NOT WHAT IT SEAMS

The weirdest thing about folding screens is their texture. Since they're not glass, they feel a little plasticky and cheap compared to the premium Gorilla Glass-encased phones. While I was touching the screens, I was afraid that if I pushed too hard I'd dent it, and there was definite rippling at the hinge and a visible seam down the middle.

Quality isn't an issue that only plagues the Mate X. During the demo, a clear seam could be seen down the center of the Samsung Galaxy Fold, and the Mate X also had a line that you could see at certain angles. It's a visual flaw that will be tough to unsee, and I have to assume it will only get worse over time.

If there's one thing I know for sure: Apple would never allow such a flaw in its folding phone. But more importantly, Apple would design a new display type that feels like glass without actually being glass. Since we're going to be touching these displays a million times a day, the feel of it is important. I already want to hear what adjectives Jony Ive uses to describe it.

BIG TO SMALL, NOT SMALL TO BIG

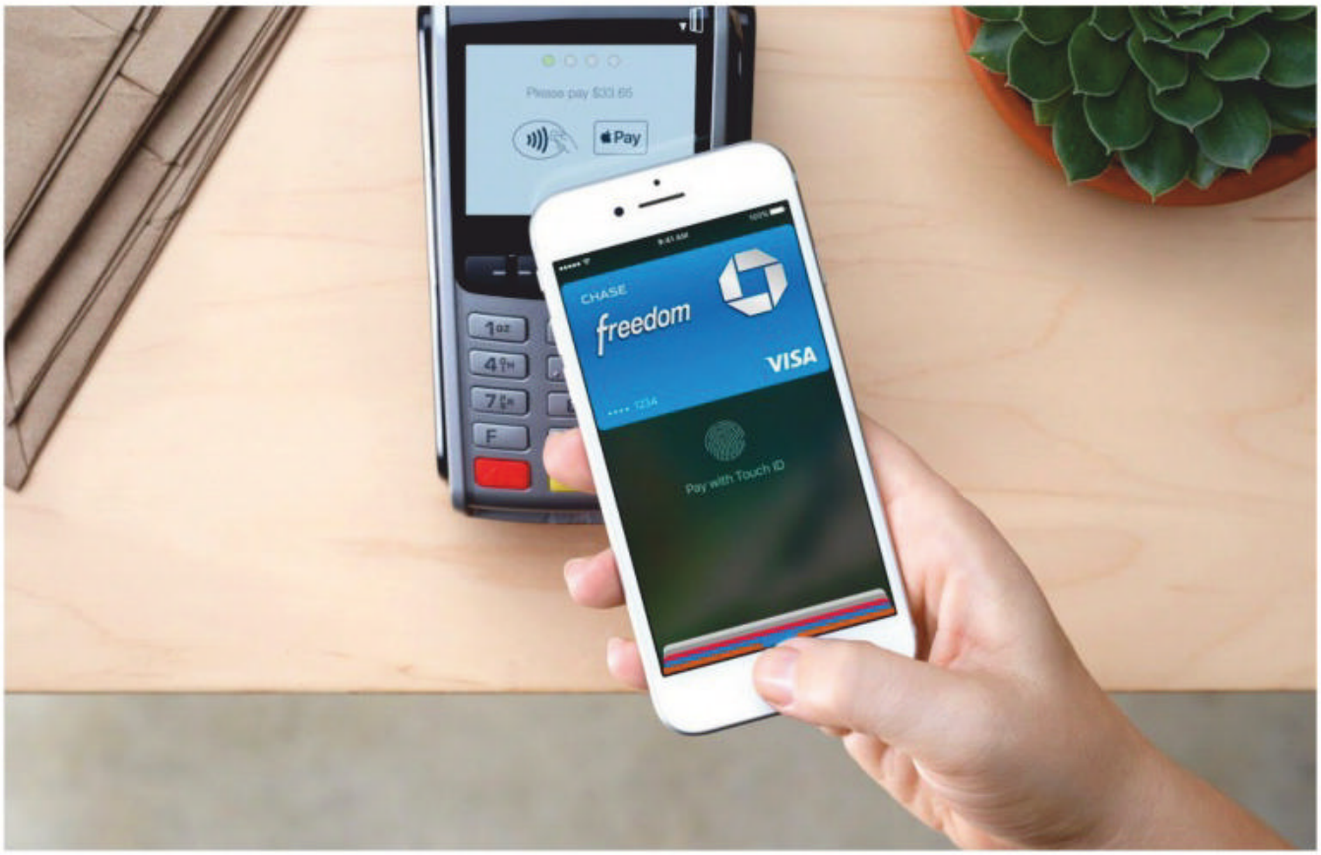
Before I saw the Mate X, I would've rolled my eyes at the idea of a folding phone. But Huawei's solution is so intriguing, it made me think that there may actually be a future folding iPhone that gives me something I've always wanted: An iPad that fits in my pocket.

I think Samsung and Huawei are going about it the wrong way. A foldable screen shouldn't be a phone that can become a tablet; it should be a tablet that can become a phone. There's a distinct difference in that thinking. Since we're never going to have a folding phone that's as thin as an iPhone XS and the smartphone form factor needs to change anyway, I'd like Apple to take the 9.7-inch iPad and work backward.

Neither the Galaxy Fold nor the Mate X are very big tablets. The 8-inch Mate is about the size of the iPad mini, which isn't exactly a productivity tablet. So you're basically getting a slightly bigger screen for movies and split-screen apps, but something far from a big-screen tablet for work. The Mate X is an admirable first attempt and the Galaxy Fold looks good too, but only Apple will be able to make a folding phone with a form factor no one has thought of and everybody wants.

Simply put, Apple would never stand for the compromises and flaws that these first folding phones have. If an Apple-branded folding phone ever arrives, it will surely bring a design that no one's ever though of and an utterly simple interface that shows us exactly what's wrong with these early models. Two or three years from now, the second generation of the Galaxy Fold and Huawei Mate will arrive, with new displays, new designs, and new interfaces. I just hope that there's an iPhone version to lead the way. ■

This is what I want a folding iPhone to open up to.



What Apple can do to take Apple Pay to the next level

Apple Pay's already changed the way people pay for things, but it's time Apple take it even further.

BY DAN MOREN

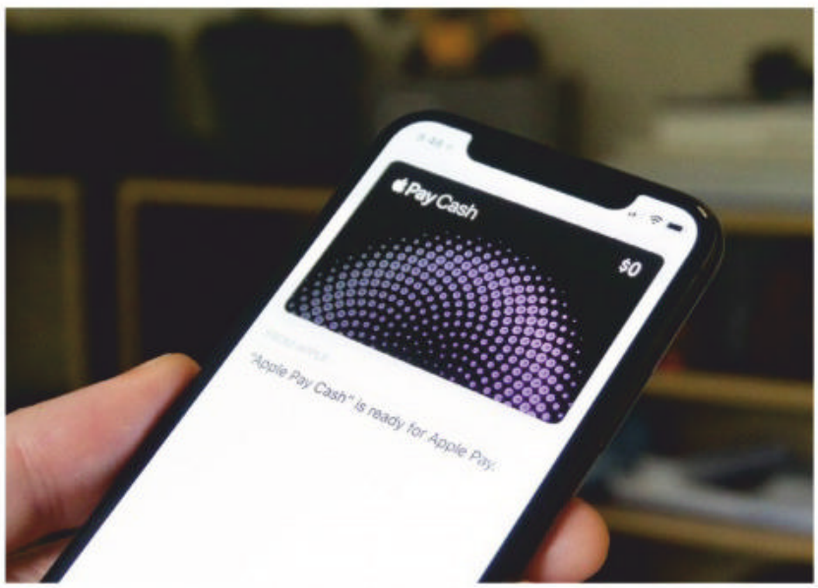
Oftentimes, new technologies can seem like solutions in search of problems. And while Apple isn't above those kinds of moves, it also often finds itself ahead of the curve, pushing technologies with a lot of potential before the world at large is ready for them.

Apple Pay has, since its introduction, tended toward the latter. It's a system that offers real tangible advantages over the status quo; the ability to pay with your iPhone or your Apple Watch offers not only more convenience than paying with a physical card but also bestows much needed security on every

IMAGE: APPLE

transaction. It's become more and more popular, but there are still lots of places where you can't yet use it.

Of course, much of Apple Pay's adoption isn't entirely under Apple's control. Some retailers still need to update the hardware or software on their point-of-sale terminals, and the makers of some of those payment systems may have to add Apple Pay compatibility as well. While the recent addition of major chains such as Target and 7-11 help, Apple Pay still hasn't trickled down to every local shop in my neck of the woods.



Adoption's just one part of the equation. Even without Apple Pay being ubiquitous, there's still room for Apple to improve what its contactless payment system offers.

APPLE PAY FOR STRANGERS

The rollout of Apple Pay Cash (go.macworld.com/pycs) in December 2017 was a major milestone for the payment system. For the first time, it allowed consumers to exchange money with one another via Apple Pay, rather than only at a point of sale. Around my friend group, it's often proved to be a quick and easy way to pay somebody back for a meal or movie tickets.

But, for all of that, it still has limitations. For one thing, it's built into iMessage, and though that's fine for friends and family, there are occasions where one might want to send some money to someone who's not in your contacts, such as at a party, a conference, or even just a big group dinner where you don't know everyone.

In those cases, I'd love to see a way to send money via direct device-to-device transfers using NFC, perhaps using a similar system as AirDrop. After all, if you can drop a picture to someone you don't know, why not a payment as well? You'd still need to authorize with your passcode, Face ID, or Touch ID before the payment, and, as with an iMessage account, a device is associated with a specific Apple ID.

Allowing these transfers would also have the benefit of turning iOS devices into rudimentary point of sales terminals, which

could be attractive to small businesses or individuals selling products at places like farmers' markets or craft fairs. If you could just tap your phone to a vendor's iPhone (or iPad—more on which in a moment), that would go a long way towards broadening the applicability of Apple Pay.

APPLE PAY FOR iPAD

Yes, the iPad does support Apple Pay...sort of. While the tablet lets you use Apple Pay in apps on the web, as well as exchanging money via Apple Pay Cash, Apple's never added NFC chips to any of its iPad line.

I get it: most people aren't going to pull out their 12.9-inch iPad Pro at the supermarket checkout. Then again, many people didn't think anybody would ever use a 9.7-inch tablet as a camera, and we've certainly all seen that. Moreover, if the company is indeed considering reviving the iPad mini, then there are almost certainly people who would be happy to use that as their payment device of choice. (Hey, not everybody who owns an iPad owns an iPhone—why should they be left out in the cold?)

Finally, as mentioned above, having an iPad with an NFC chip in it would make it even easier to use that device as a point-of-sale terminal, which would open up a lot of possibilities for small businesses who don't want to invest in expensive, application-specific hardware.

APPLE PAY FOR EVERYONE ELSE

As long as I'm pipe-dreaming, let's throw it out there: cross-platform Apple Pay. Look, I get that Apple sees its payment system as a competitive advantage and that rivals like Google and Samsung have their own systems. But given that most of those systems work with the same hardware on the payment side, wouldn't it be nice if they could interoperate more directly? Won't someone think of those poor green-bubble people?

Personally, I hate that I have to go to a third-party payment system on those occasions where I need to reimburse a friend that doesn't use an iOS device. And though Apple sells millions of smartphones and tablets, there are millions more out there that don't work with Apple Pay. Plus, given that Apple has set a goal of increasing its Services revenue, bringing Apple Pay to a lot of new devices could potentially help that bottom line.

Granted, I don't particularly expect it to happen. While the company has seemingly been more open about working with third parties (go.macworld.com/apyf), Apple Pay Cash's current reliance on iMessage makes it a non-starter for the moment.

Well, until Apple decides to take that cross-platform, anyway. ■

How iOS's Wi-Fi Assist works and how it can affect your cellular bill

A bad Wi-Fi connection can still cause your iPhone (or iPad) to use cellular data.

BY GLENN FLEISHMAN

Added in iOS 9, Wi-Fi Assist recognizes when you're connected to a Wi-Fi network, but have a poor or erratic signal. When this happens, Wi-Fi Assist kicks over automatically to cellular for foreground apps to keep data flowing. This feature is enabled by default.

Wi-Fi Assist automatically excludes third-party audio and video streaming, and doesn't relay data from apps working in the background. Nonetheless, some users wound up with surprising cellular bills (go.macworld.com/b1ll) when they thought

IMAGE: APPLE

they were on Wi-Fi networks—it turned out Wi-Fi Assist used cellular data because the Wi-Fi connections were marginal. (U.S. carriers have largely switched to a fixed or flexible monthly maximum after which your cellular data rate is throttled to a very slow speed, so surprise bills are less likely.)

iOS can tell if there's no active internet connection via Wi-Fi, which is distinctly different than an active connection but poor Wi-Fi reception.

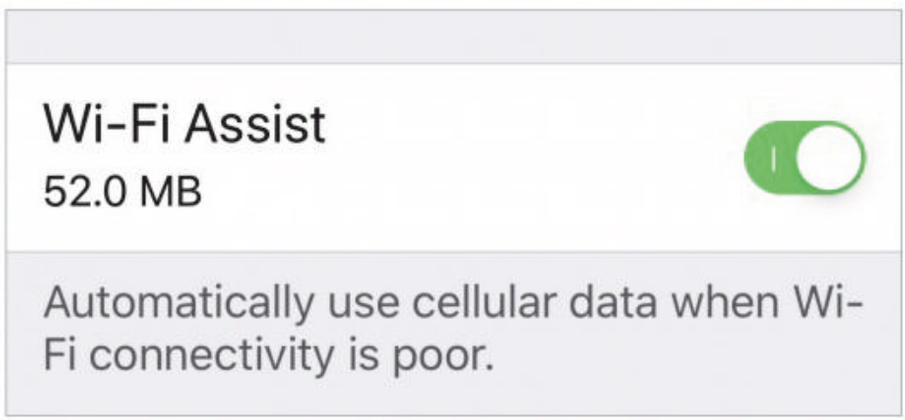
WHEN A WI-FI NETWORK FAILS

But Apple also may quietly switch your iOS device to cellular data in another circumstance when you think you're connected to Wi-Fi: when the Wi-Fi network's broadband connection fails, and there's no internet link.

iOS can tell if there's no active internet connection via Wi-Fi, which is distinctly different than an active connection but poor Wi-Fi reception. At least one reader has encountered this problem with a problematic ISP, which regularly drops their broadband connection, and their family's iPhones switch to cellular data, even though they all have Wi-Fi Assist. Unlike with Wi-Fi Assist, which limits data usage, this "no internet over Wi-Fi" scenario appears to use all your cellular settings for system activities and apps. (You can modify how apps and iOS use cellular data in Settings ➜ Cellular, then swipe down for apps and System Services.)

If you're not sure whether you're consuming data in this way, you can use Settings ➜ Cellular to view current usage.

The only way to avoid using cellular data in this circumstance is to open Settings ➜ Cellular and disable the Cellular Data switch whenever you're on such a network. This means you won't have internet access when the broadband connection isn't working, but it also means you won't consume cellular data unexpectedly. ■



The Wi-Fi Assist setting in iOS 12 is located in Settings > Cellular. Scroll down past the list of apps to see the setting.


HE HAS TWO JOBS
BUT ONLY GETS PAID
FOR ONE.
Caregiving is tougher than tough.
Find the care guides you need at AARP.org/caregiving
Ad Council
AARP
Real Possibilities

IPHONE GAME CONTROLLER

GAMEVICE REVIEW: A GOOD iPHONE GAME CONTROLLER, BUT NOT FOR FORTNITE

BY LEIF JOHNSON

Hook up any latter-day iPhone to the Gamevice (go.macworld.com/gvce) and you'll wind up with a device that looks a lot like a Nintendo Switch. An iPhone XS Max in particular does a good job of masquerading as the Switch's expansive central touchscreen. The Gamevice controllers themselves hug the phone's edges like Joy-Cons (go.macworld.com/jycn). So fully does the Gamevice pull off the illusion that I spent the week before its arrival envisioning a future where we wouldn't even need devices like the Switch. With the help of peripherals like these, I was ready to proclaim, the iPhone alone would suffice.

Naturally, the truth is a bit more complicated, which is probably why we

IMAGE: LEIF JOHNSON

haven't heard about a Gamevice revolution in the six years since it launched. But let's start out with the good things.

So close, and yet so far.

PORTABLE POWER

Gamevice is pleasantly portable. It even has a leg up on the Switch because its use of a phone for the display means there's one less gadget hogging space in your bag. It takes up less room than traditional gamepads like the SteelSeries Nimbus. The two halves on the Gamevice (largely thanks to two weak magnets) neatly collapse into a boxy shape that's more compact than a standard Rubik's cube when not in use. I don't carry a particularly large bag, but I barely notice the Gamevice when I bring it along.

You can find this kind of good design all over the Gamevice. Setting it up requires nothing more than slipping the phone onto the male Lightning port protruding from the right-side pad, which in turns delivers a more stable connection than you'll get from Bluetooth-powered controllers. It fits most iPhones (so long as you don't expect to keep them in their cases), thanks to an adjustable two-inch wide rubber strap along the back that expands or contracts to fit phones of different widths.

My particular box claims the Gamevice worked with the iPhone 6 through the iPhone 7 Plus, but it embraces my iPhone XS Max with ease (although I can tell a screen protector would probably be enough to ruin it). Other smart touches include an unobtrusive Lightning charging

It's approximately 2.5 inches tall when folded like this.

port along the bottom and a headphone jack. The Gamevice doesn't even prevent me from using Face ID, so long as I remember to put it in portrait mode before it works its magic. Should you need to take it off mid-game for some reason to use a non-gaming app, it easily re-pairs when you slip it back on.

You can tighten or loosen this back strap as needed.

So far the $80 Gamevice looks like everything I could want from a game controller. Much like the Switch, the controls stay close enough to the screen to keep me from feeling like I'm holding an accordion. The Xbox-like controls all sit in smart places, whether we're talking about the D-pad, the four analog buttons, or the shoulder and trigger buttons (although I'd prefer that the right-side thumbtack was lower). In handling, weight, and intuitiveness, it's almost perfect.

SLOW ON THE DRAW

But alas, it isn't—certainly not if you plan on using it for the fast-paced gameplay demanded from a game like *Fortnite* (which, let's be honest, is probably why you're considering buying the Gamevice in the first place). And gameplay is where you least want to encounter a device's vices. Weirdly enough, the two thumbsticks and four analog buttons respond with wonderful speed regardless of what game I'm playing, but the shoulder and trigger buttons suffer from sluggish delays when attempting to fire a weapon or chop down a tree.

There's little rhyme or reason to these delays. Most of the time they work if you apply a lot of pressure, but that's not always the case. Sometimes the triggers and bumpers respond as readily as the analog buttons. At other times, you'll face down an enemy and gasp in horror when your rifle fails to fire. In a game like Fortnite, delays like these are matters of digital life or death. Some viewers of my video on how to use a controller with *Fortnite* (go.macworld.com/ftvd) poked fun at me for the slow speed compared to the touch controls, but the Stratus XL I was using sometimes feels as though it plays at warp speed compared to the Gamevice.

This isn't just a problem with Fortnite. The delays sometimes get me killed in shooters like Shadowgun Legends. Less annoyingly, they slow me down when switching menus in Stardew Valley. The catch is that few games actually offer support for the trigger and bumper buttons, so the Gamevice is fantastic when I use it for games like *Alto's Odyssey* (go.macworld.com/aody) and *Grimvalor*, (go.macworld.com/grmv) which don't use those buttons at all. Considering that the Gamevice costs more than some replacement controllers for the Xbox One or the PS4, though, I can't say it's always worth the risk. I want to argue that these problems could be fixed with a software update, but the truth is that it's possible to find similar complaints about the Gamevice going back many years.

There's also no guarantee that the Gamevice will work with your favorite iPhone game, but that seems more the fault (or intention) of game developers than the Gamevice itself. When Epic Games announced that MFi controllers now worked with Fortnite, Gamevice announced support within a day.

There's also a handy app called Gamevice Live that lets you see every iOS game that's compatible with the controller, along with a default keybind map for each game. Plenty of favorites ranging from *Minecraft* (go.macworld.com/mine) and *The Witness* (go.macworld.com/witn) to *Grand Theft Audio: Liberty City Stories* (go.macworld.com/lbct) makes appearances here, and the vast majority of them don't assign major actions to the shoulder buttons or triggers. You can even use the OneCast service for Xbox streaming with the Gamevice, although, again, you'll want to watch out for those triggers.

BOTTOM LINE

The Gamevice looks like everything I'd expect from a perfect iPhone game controller. It pairs easily, it takes up little room in my bag, requires no separate charging cables aside from what I use with my iPhone, and it even complements the shape of the iPhone itself. When it works the way it's meant to—and that's a good amount of the time—it's awesome.

But those sticky triggers leave me not wanting to stick with the Gamevice when playing Fortnite. Again, that's the hottest reason to get the Gamevice right now, and as it is, this controller too often robs you of a Victory Royale and leaves you with a royal pain. ■

Gamevice Controller for iOS

PROS

- Super compact design.
- Fits most iPhones since the iPhone 6.
- Lightning connection delivers better latency than Bluetooth.

CONS

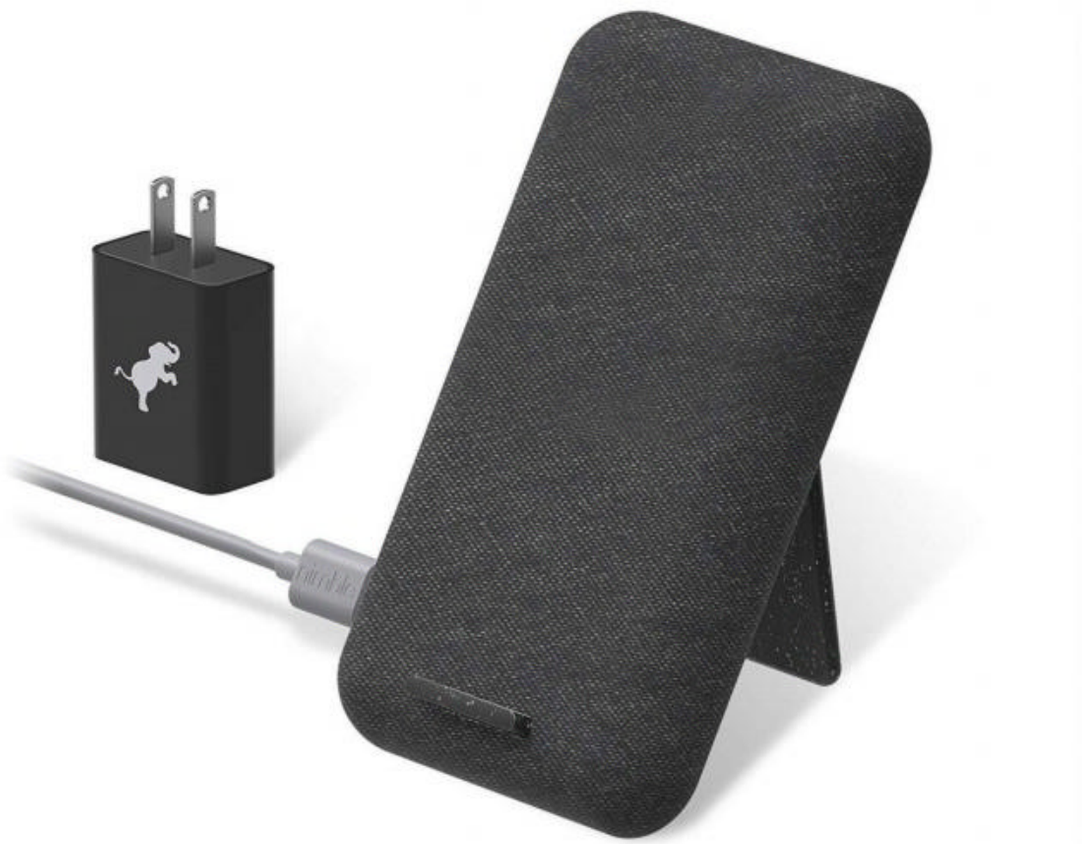
- Shoulder and trigger buttons don't always respond.

PRICE

$75

COMPANY

Gamevice



WIRELESS CHARGING PAD

NIMBLE STAND REVIEW: A THOUGHTFUL, WELL-DESIGNED WIRELESS CHARGING PAD

BY JASON CIPRIANI

Macworld EDITORS' CHOICE

So you want to do your part to help improve the environment without giving up the luxuries technology affords you? So does Nimble.

Nimble is a relatively new company whose approach is to design high-quality, well-designed, eco-friendly battery packs and wireless chargers.

Each product comes in eco-friendly packaging and includes a bag to recycle old electronics through Nimble for free.

The Nimble Stand is covered in fabric made from recycled water bottles & hemp. The fabric face is interrupted by only a small plastic strip toward the bottom, that

IMAGE: NIMBLE

when pressed from the back pops out to serve as a ledge for your phone. A kickstand folds out from the back, holding your phone at a fairly steep angle.

Alternatively, you can lay the stand flat on a surface—a rubber grip on the bottom will hold it in place, freeing you from worry that it might move across a table or desk and potentially send your phone toppling.

Power is provided to the wireless charger via the included QC3.0 wall USB-C adapter and the USB-C input on the left side of the stand. Just above the input port, there's an indicator light and a standard USB port so you can charge a smartwatch or another device without using two outlets.

Performance-wise, the Nimble Stand is Qi compatible and provides 10W output for Android devices, and 7.5W for the iPhone.

When charging an iPhone XR over the course of an hour, the Nimble Stand averaged 45 percent of an overall charge—mind you, on a larger-capacity battery than in the iPhone X and XS we've used to test in the past. This average bests the iON Wireless Stand (go.macworld.com/ionw) and is currently the fastest wireless charging pad we've tested for any iOS device.

Charging performance on a Samsung Galaxy S9 showed impressive results as well. On average, the Nimble Stand took 162 minutes to fully charge an S9. That's good enough for second-best out of the pads we've tested thus far. (The best being our top pick for Android, the Anker PowerWave 7.5 Stand [go.macworld.com/pw75], which charged the S9 from empty to full in 146 minutes.)

Overall, I have just one minor gripe about the Nimble Stand: On one occasion the ledge that pops out of the stand slid back into the housing of the pad without any interaction on my part, letting the phone fall to the table. But overall that incident is outweighed by the stand's impressive performance, attractive design, and reasonable price.

Indeed, this $50 wireless charging pad does it all. ■

Nimble Stand

PROS

- Super-fast charging.
- QC 3.0 wall adapter included.
- Made from recycled materials.

CONS

- The ledge that a phone sits on can be finicky.

PRICE

$49

COMPANY

Nimble

ad COUNCIL

BECAUSE YOU WERE THERE FOR ME WHEN I HAD NO ONE, I STARTED LOVING MYSELF AGAIN.

Kailee M.

Everything you say and do creates an impact.
becauseofyou.org

because of you

Take time to
be a dad today.

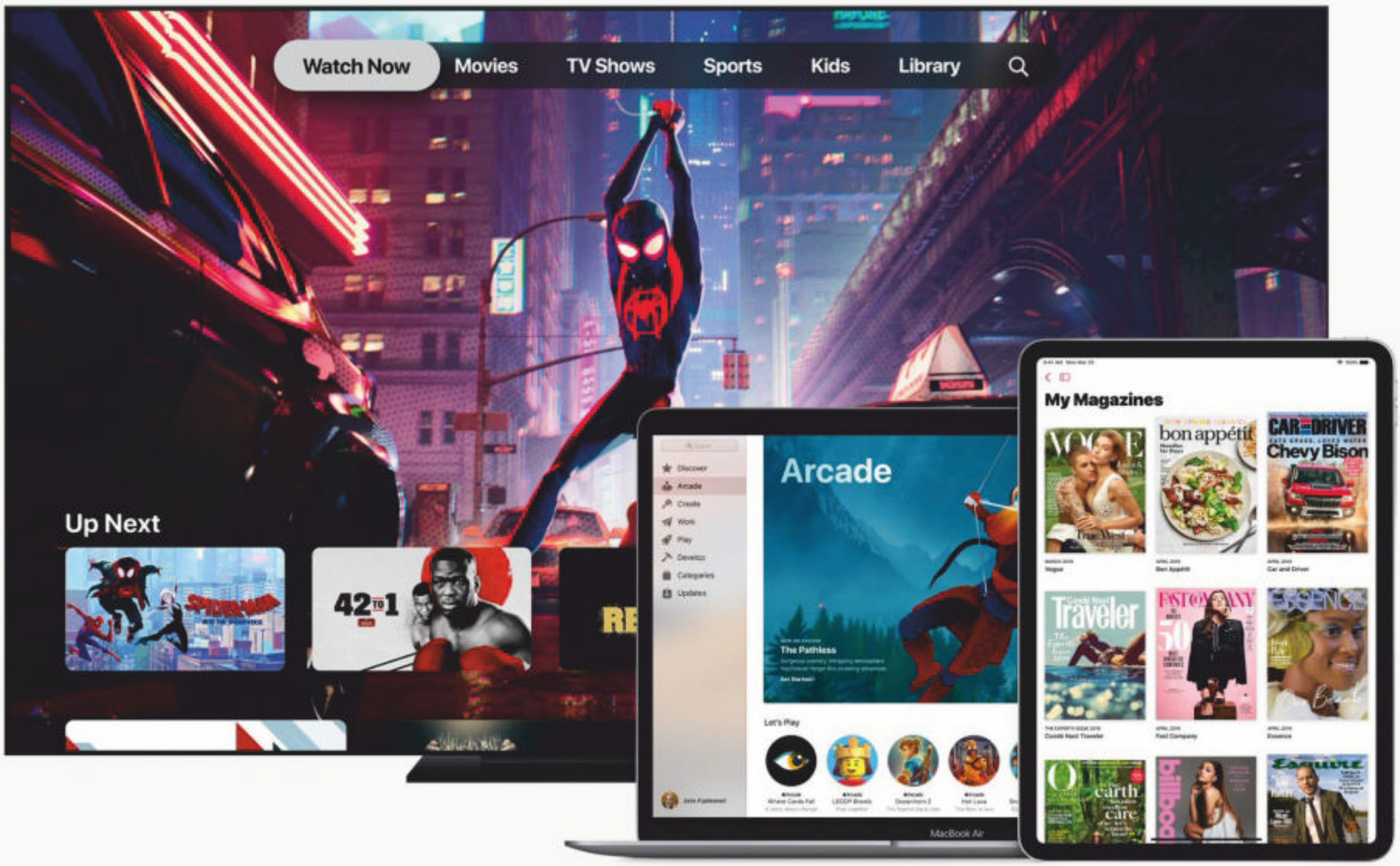
fatherhood.gov
#DadJokesRule

ACF

National Responsible Fatherhood Clearinghouse

Ad Council

APPLE, READY TO SERVE



Apple hopes to enhance the user experience with services that cater to news and entertainment **BY MACWORLD STAFF**

THE APPLE TV+ VIDEO STREAMING SERVICE: 8 BURNING QUESTIONS

At long last, Apple has taken the wraps off of its new TV service. It'll be called Apple TV+ and will include a variety of shows from the likes of Jennifer Aniston, Reese Witherspoon, Steven Spielberg, J.J. Abrams, Kevin Durant, and Rupert Grint. Several of the major players were on hand at the event to outline their vision, and Apple basically billed the service as the greatest collection of talent ever assembled on television.

But after the songs, standing ovations, and flowery rhetoric was complete, we didn't learn much about Apple's new service that we didn't already know. It may be the first time Apple has confirmed that it is indeed working on its own original content, but that was hardly a secret. Apple didn't actually answer any of the questions we have about Apple TV+, which are many. For example...

1. How much will Apple TV+ cost?

The most surprising thing about Apple TV+ is that Apple didn't tell us how much it will cost. There were rumors before the event that it could be free, but that doesn't seem to be the case, as Apple called it an "ad-free subscription service" and said it would be available in the new TV app (go.macworld.com/nwtv) on

smart televisions (as well as, of course, Apple devices), implying that we'll need to pay something for it. What that price will be is still a mystery.

Jennifer Aniston and Reese Witherspoon will star in a new show on Apple TV+. It appears to be about TV morning news shows (the description was actually quite mysterious).

2. How many shows will be available at launch?

Apple showed off a small handful of specific shows on stage, but the company gave no indication as to whether they would all be launching when the new service goes live in the fall. Apple also showed off a lengthy list of talent that has signed on to work with Apple TV+, but didn't mention how many shows are actually in production. So we don't really know how full the Apple TV+ catalog will be when the service launches.

3. How will episodes arrive?

Netflix has turned binge-watching into a weekly ritual by dumping entire seasons of new shows all at once, but we don't know if Apple plans on doing that with its new shows. With *Carpool Karaoke*, Apple opted for the traditional weekly release of episodes, and Hulu does the same with *A Handmaid's Tale*. So will we be binging or waiting?

4. Will all shows be in 4K?

We assume that everything on Apple TV+ will be presented in 4K, but Apple didn't actually tell us that either.

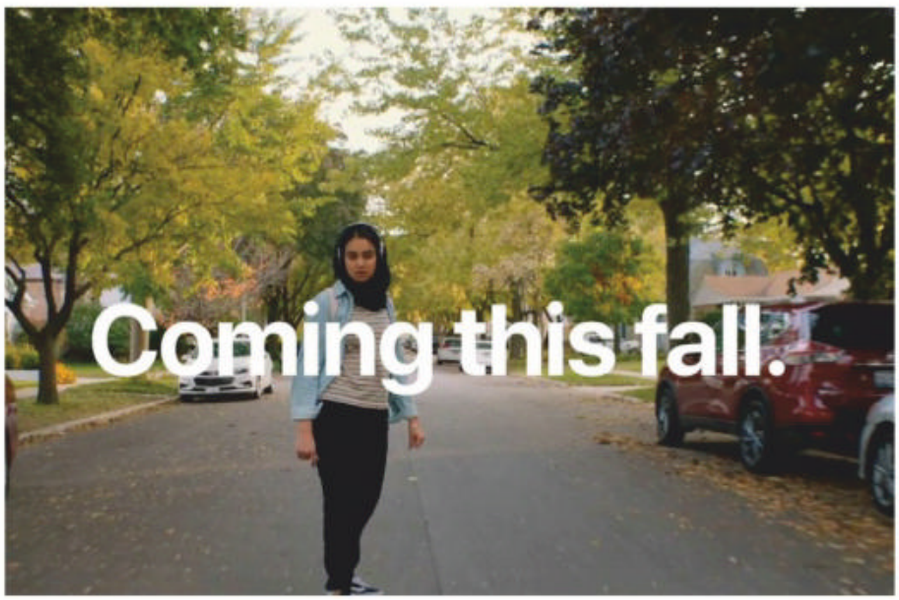
5. Will non-Apple programs be available?

Apple focused on original content at the unveiling of Apple TV+, but we don't know if the service goes beyond that. Hulu, Netflix, and Amazon all offer a smattering of shows and movies on their services, but Apple gave no indication that it would be doing the same on Apple TV+.

6. Will there be bundle pricing?

Along with the monthly price of the service (or lack thereof), we also didn't get any

indication that Apple would be offering bundles with Music and News. Leading up to the event, rumors were swirling that Apple would be offering various tiers for its new TV service, but we didn't get any peek at what they might look like. If not, Apple's services could get expensive real quick.



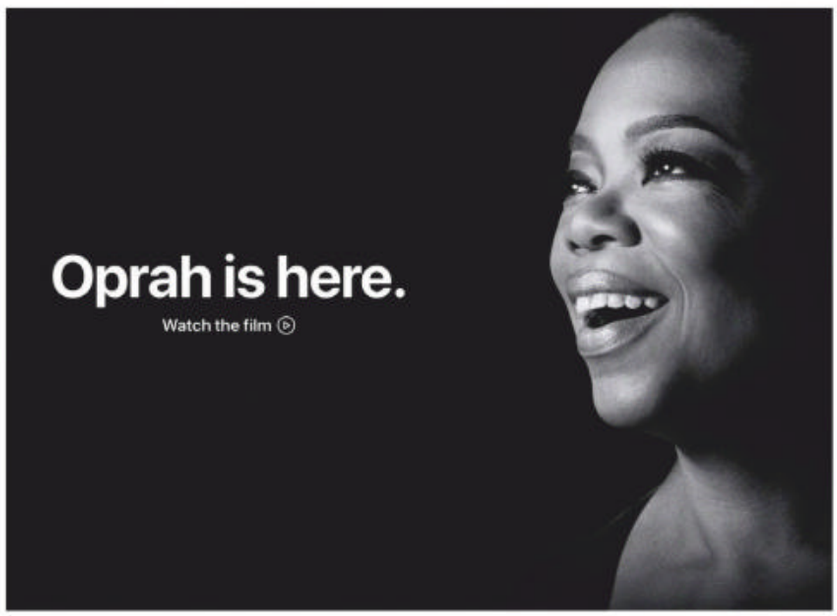
We don't know how many TV shows will launch when Apple's service lands this fall.

7. How many shows will Oprah make?

Apple made a big deal out of its partnership with Oprah Winfrey—which was previously announced (go.macworld.com/oprh)—but we don't know what it means for Apple TV+. Oprah was quite vague in her speech and only said she was working on a pair of documentaries. Will there be a talk show component? Is there a commitment to develop a specific number of shows beyond the ones that are in development?

8. Why do we have to wait until the fall?

In case you don't have a calendar handy, it's spring. But the Apple TV+ service won't be available for at least another six months, likely around the same time the next iPhone launches. So why announce it now?



Apple is especially proud that Oprah Winfrey will be part of its new video service.

9. Where are the trailers?

If there was one thing we hoped to see at the "It's show time" event, it was trailers. But we didn't get a single one. All Apple gave us were lengthy (and oftentimes cloying) descriptions of shows, a sleepy Sara Bareilles ballad, and an overall teaser that barely showed any footage from any of the upcoming shows. We know Apple is new to TV and all, but someone must have forgotten to tell them that trailers are the way to get people excited for a new show.

7 REASONS WHY WE CAN'T WAIT TO TRY APPLE NEWS+

The focus of Apple's "It's show time" event may have been TV entertainment services, but the company made a big splash right out of the gate with the announcement of Apple News+. As the name implies, it's a premium version of Apple News that offers more content than you'll get with the free app—all with a focus on magazines.

Specifically, for $9.99 a month, you and your family get access to more than 300 magazines and other publications ranging from National Geographic to Wired to The Wall Street Journal. We'll dig deeper once we've spent time with Apple News+, but for now, here's what intrigues us the most.

1. Apple News+ can potentially save you money

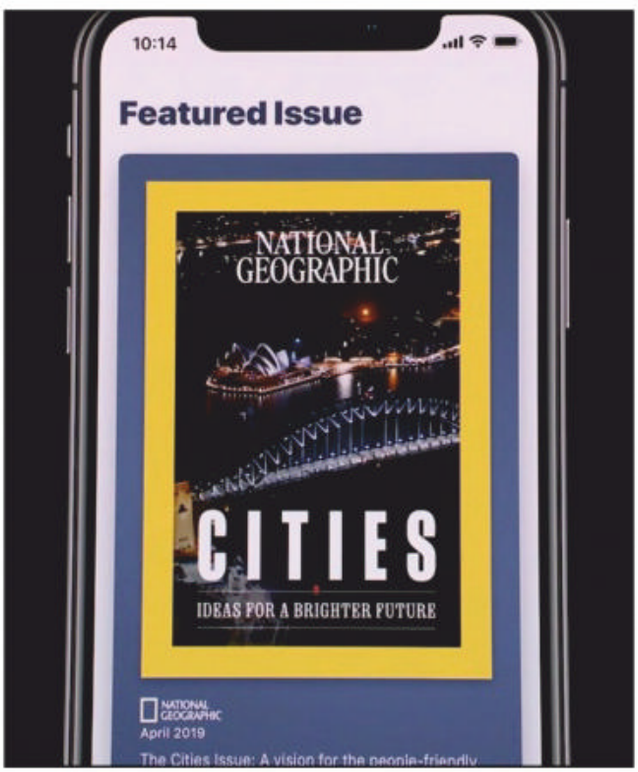
I'm one of the folks who will likely see a real benefit from using Apple News+ as I pay for subscriptions to *The New Yorker*, *Wired*, and *National Geographic*—all of which are included with the new service. If the app works the way I think it will, that means I'll be able to dump my subscriptions in favor of Apple's far more palatable all-you-can-eat $10 fee. Indeed, Apple says that if you bought subscriptions to all of the magazines included in Apple News+, you'll be saving around $8,000 a year.

At the moment, however, it's not clear if an Apple News+ subscription will allow me to access paywalled content to, say, *The*

New Yorker when I access the site through a link on Twitter. That's mostly how I read articles, and I'm not convinced Apple News+ would be a good deal if I always have to access paywalled content through the app.

2. It captures the magazine experience in digital form

One of the best reasons to buy a physical magazine is that print usually offers a richer visual experience than what you'll get online. Fascinating layouts, great photography, unforgettable graphic design—it's all there. And with Apple News+ you'll get something like that experience in the app. And at times it might be even better.



Imagine this, but moving.

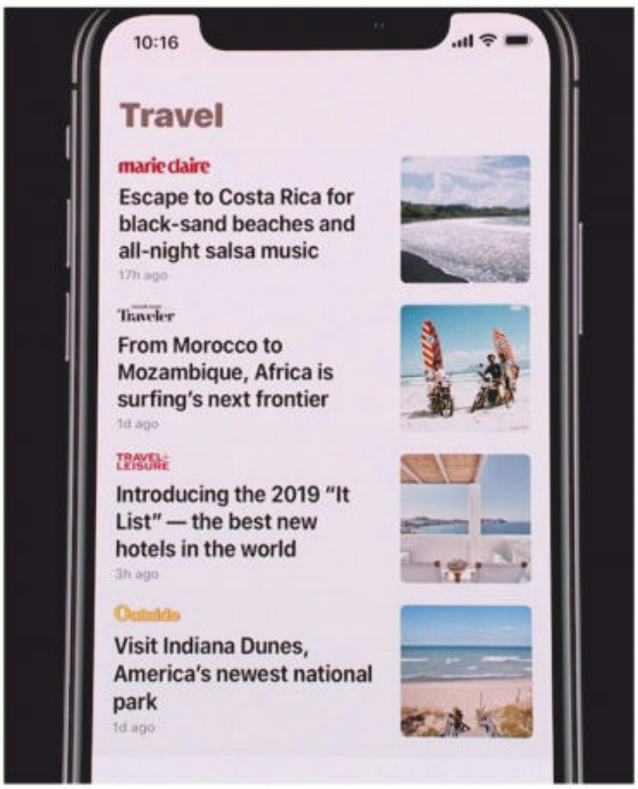
In the case of *National Geographic*, Apple showed off a "live cover" of a recent issue featuring Sydney, Australia. Instead of the static photo of the skyline that you'd get with the physical edition, Apple News+ treats you to a video image of the city as it rolls underneath you—as though you're in a helicopter. Elsewhere, Apple showed off wonderful article layouts, many of which looked especially good on the iPad Pro.

But just how common will these eye-popping visuals be? They look stunning, but they also look like a lot of work on the design end. And during a time when publications are cutting staff, it's difficult to imagine live covers will become the News+ standard.

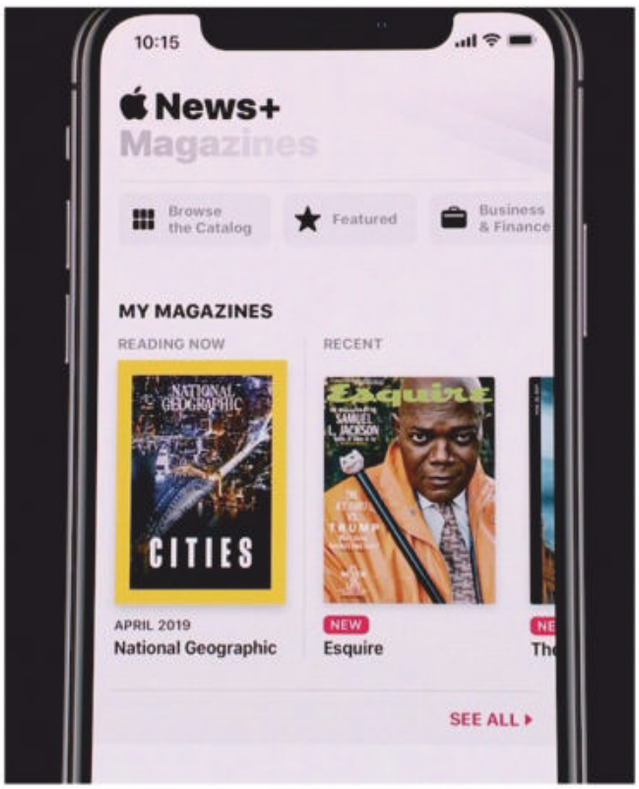
3. Apple News+ encourages content exploration

It looks as though you'll be able to access a single magazine's content all at once, much as you would if you had a physical copy. But much like we already see with the existing Apple News app, the main interface of Apple News+ pulls from multiple publications so it can offer recommendations based on your interests and trending stories. It's basically a pretty RSS feed.

So even though I normally wouldn't look at *The Wall Street Journal* on a



If you're wanting info on travel, you can pull from multiple sources.



It's a pretty big leap from National Geographic to Esquire.

regular basis, Apple News+ would recommend articles to me if their coverage on, say, Apple TV was of interest to me.

4. Magazines can be downloaded for offline reading

Another great benefit of traditional magazines is that you can curl up with them away from the internet and get lost in their stories. Apple captures a little of that experience by allowing you to download entire magazines for offline reading with an AppleNews+ experience. This will be especially great if you need some reading material on a long flight.

5. It supports family sharing

If you want everyone in your family to be able to use Apple News+, you'll only need to pay for one subscription and then everyone else can access it through Family Sharing. It's a simple feature, but a welcome one. It's a little like passing around the latest issue of a magazine once you're done reading it.

6. The first month is free

Much as with Apple Music, you can try out Apple News+ for one month for free. I'd certainly be taking advantage of this offer, as I subscribe to a lot of the magazines

that Apple includes in the package.

Just be sure to unsubscribe once the first month is up so Apple doesn't keep charging you. This used to be a minor hassle, but fortunately Apple simplified the process (go.macworld.com/cncl) in recent months.

7. It's available today

Many of the other services Apple announced won't even be available until fall. But Apple News+ is going live today, and you'll be able to use it on your iPhone after updating to iOS 12.2. Go check it out!

HOW APPLE ARCADE COULD MAKE APPLE A MAJOR PLAYER IN GAMING

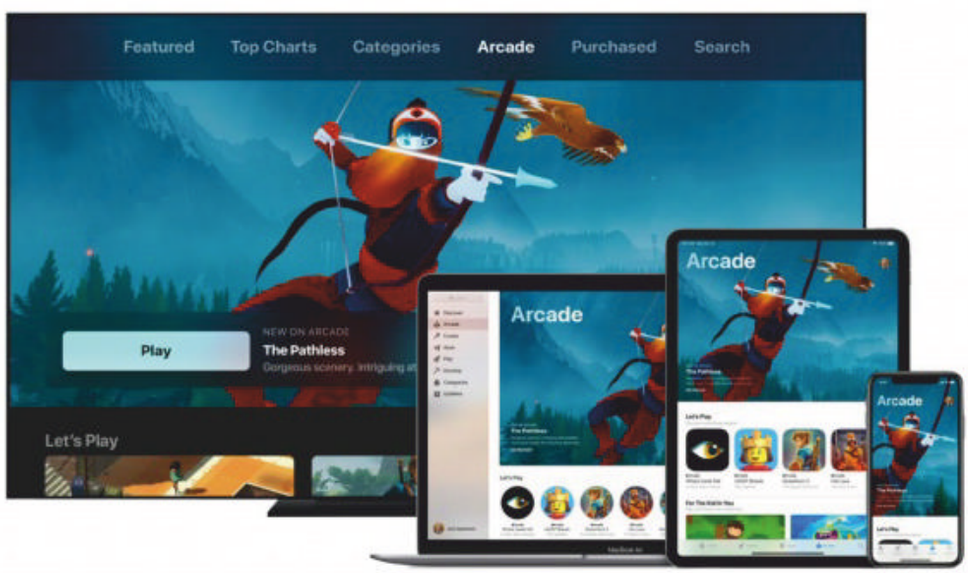
Apple's new gaming service is called Apple Arcade (go.macworld.com/acde), which you, O loyal *Macworld* reader, may recognize as the name I use for my column on Mac and iOS gaming. I suppose we can effectively declare the column dead.

It's a cool name, though, and what Apple showed us on stage at its "Show time" event looks like a cool service. Beginning sometime in the fall, you'll be able to pay Apple an unspecified subscription fee that grants access to around 100 "new and exclusive" games. None of the games will have in-app purchases, and they will only be playable on iOS devices and Macs. All of the games will be accessible offline.

This is all smart stuff as games have been among the primary drivers of revenue for the App Store for years now. Apple Arcade could be a sign that Apple is finally taking games seriously, and here's why I'm looking forward to that.

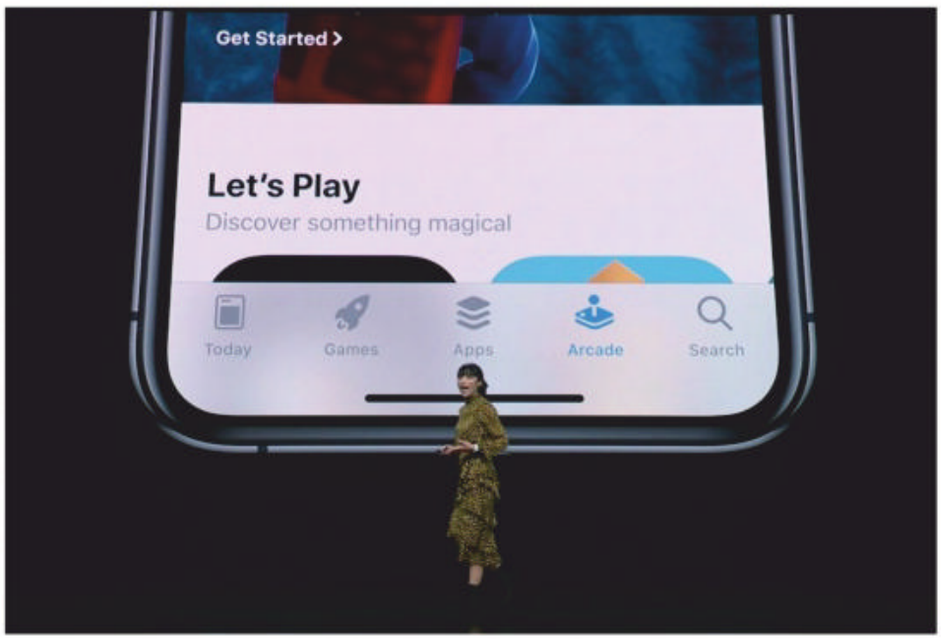
You'll be able to play the same games on iOS and macOS

According to Apple, you'll be able to stop playing a game on an iPhone and then pick up where you left off on an iPad. You can already do this with iOS games, but Apple casually dropped that we'd be able to do this with Macs as well. That's right, you can



stop playing a game on a Mac and then pick up where you left off on your iPhone.

Some games that require an internet connection already allow this—such as *Hearthstone*—but Apple is underplaying what a massive shift this is. Indeed, it may be a subtle hint that iOS 13 will introduce Apple's "Marzipan" service (go.macworld.com/marz), which aims to make it easier for developers to code for both iOS and macOS. As some games will always be easier to play on a traditional computer rather than a smartphone or tablet, it'll be great to have the option.



Apple Arcade will have its own tab in the iOS App Store. It's probably safe to assume the Mac App Store will have one, too.

Apple is focusing on 'artistic' games, which is a valuable niche

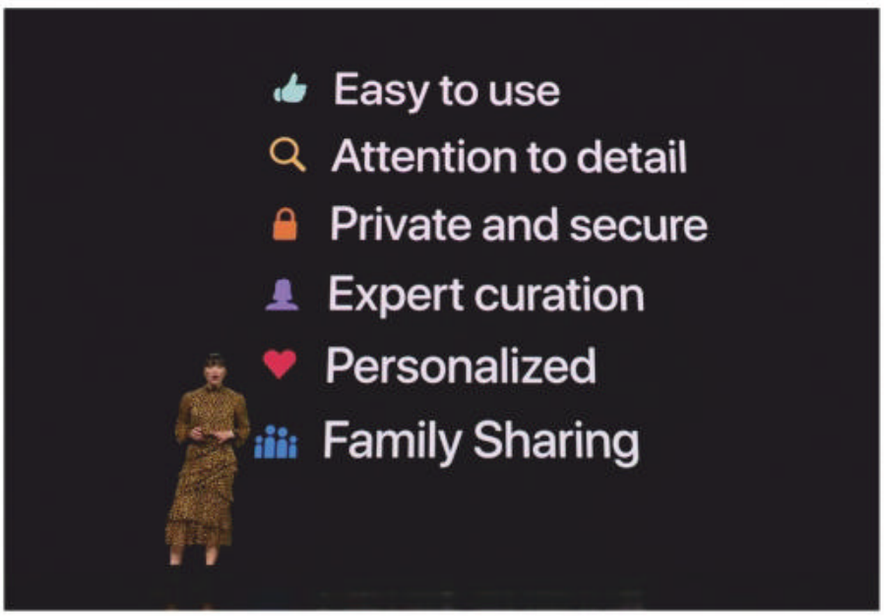
Notably, none of the games Apple showed off were of the brutal, bloody, adventure variety that so often characterize "AAA" games. Instead, many were more "artistic" creations, such as *Monument Valley*, that emphasize artistic style over graphical complexity. In one case, we saw *Where Cards Fall*—an isometric coming-of-age story. In another, we saw Lifelike, which involves manipulating swarm behavior, like the type found in a school of fish or a murmuration of birds. As Apple itself said, these are the kinds of games that usually win awards.

Not all of the games Apple showed off are from relatively obscure indie developers, as Apple is also funding storied talent such as Hironobu Sakaguchi, creator of the *Final Fantasy* series. Other recognizable names involved with Apple Arcade include Disney, Konami, Annapurna Interactive, and Devolver Digital. It's an appropriate direction for Apple, too. People still associate Apple products with art and design, and every game we saw on the stage pairs well with that reputation.

Apple Arcade will make iOS gaming less obnoxious

Look, yes, mobile games bring in a ton of cash. That's partly why Apple was able to call iOS the "largest gaming platform" today. The fact remains, though, that many people associate mobile gaming with "free to play" games, which nickel-and-dime players to the point where they could easily end up paying far, far more than they might have if they paid $10 for the game from the start. As Apple pointed out, paid games usually don't require people to make in-app purchases, but the fixed price can scare off users who want to be absolutely sure a game is awesome before they plunk down $5 or more.

None of the games included in Apple Arcade will feature in-app purchases. The flat subscription fee is all you'll pay—you won't even have to deal with in-game ads. While we still don't know what Apple will be charging, the value proposition is that you can pick and choose from all the available titles for that fixed rate. Of course, this isn't going to stop you from dropping $30 on an addicting freemium puzzler like *Toon Blast* or other games outside the Apple Arcade offerings—those will still be available via a separate tab in the App Store—but it's a step in the right direction.



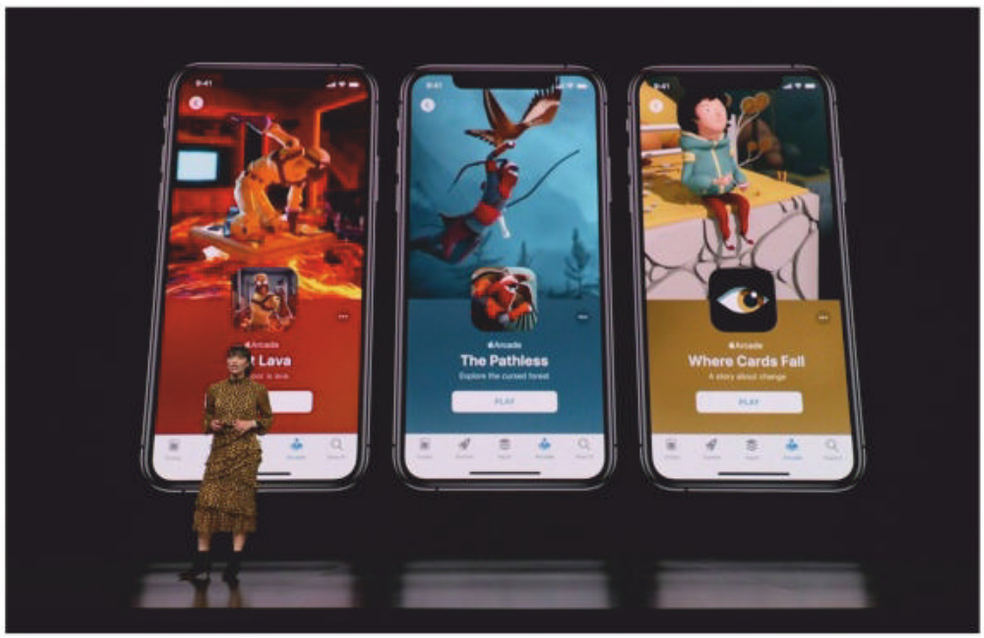
Family sharing will be a major plus as well.

Apple Arcade may finally legitimize mobile gaming

Partly because of issues like in-app purchases and ads, mobile gaming has a bad rap in the wider gaming community. Even when mobile games are good, they're often ports of games that were originally found on other systems like the Xbox One or the PlayStation 4. As a result, mobile ports often feel like an afterthought. Put another way, the iPhone is where good mainstream games go to retire.

A curated, funded service from Apple that consistently delivers high-quality games could change all that. By

prohibiting in-app purchases, Apple would keep its service free from the worst negative associations of mobile games. By curating the games it hosts, Apple could maintain the high standards its known for. And by keeping the games it hosts as exclusive to iOS and macOS as possible, players will begin to associate Apple Arcade with quality—which may eventually lead to a better respect for mobile games in general.

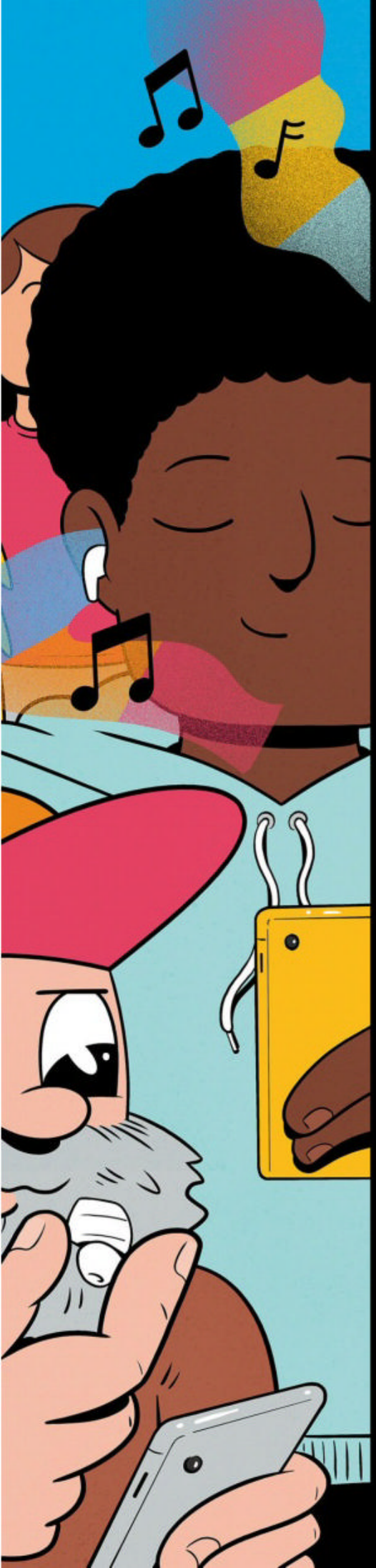


Even the interface looks nice.

It's further proof that Apple finally 'gets' games

Subtle clues that Apple wants to get serious about gaming have been dropping for months. With iOS 12, for instance, Apple finally allowed MFi (Made for iPhone) controllers to use the "L3" and "R3" buttons, which you normally activate by pressing down on a gamepad's thumbsticks. For whatever reason, Apple previously wouldn't certify controllers that allowed you to do this, which effectively made some iOS ports unplayable. I don't think it's an exaggeration to say that this kept iOS gaming from being bigger than it could have been. The new Rotor Riot controller (go.macworld.com/riot) is the first one to take advantage of that, and I have little doubt that others will follow suit in the near future.

For that matter, Apple has also relaxed its stance on remotely streamed games. Last year Apple pulled Valve's Steam Link app (go.macworld.com/stlk) right before its launch last year, supposedly because the app allowed you to buy games from Steam without giving Apple its 30 percent cut. Apple recently greenlit the PS4 Remote Play app (go.macworld.com/rmpl), though, which essentially does the same thing but with a PlayStation 4. It's a sign that Apple is more wary of chasing off gamers than in the past. ■



SAMSUNG NOW HAS AIRPOD-LIKE BUDS THAT FIT BETTER AND HAVE A CASE THAT CHARGES WIRELESSLY.

SAMSUNG'S GALAXY BUDS VS APPLE'S AIRPODS (HOW DO THEY COMPARE ON AN iPHONE?)

BY LEIF JOHNSON

ILLUSTRATION BY RYAN SNOOK

Samsung announced its new Galaxy Buds true wireless earphones recently, and they're obviously designed for Samsung's own Galaxy phones. (As a neat trick, you can even use the upcoming Galaxy S10 to charge the Galaxy Buds.) In design and price, though, Samsung is clearly attempting to make these little guys an attractive alternative to Apple's AirPods—perhaps even for iPhone users.

So are they? We managed to get our hands on a pair of Galaxy Buds ahead of the March 7 release date, and I formed a few impressions of how well they work with an iPhone XS Max. In some cases, yes, they actually come out ahead. In others, they're a reminder that the AirPods are a far greater value than we often give them credit for.

PRICE

The Galaxy Buds cost $130 while Apple's AirPods cost $160. There's no contest here. If you merely want to save money, the Galaxy Buds are the clear winners. But that doesn't mean they're the best value.

THE CASE

The Galaxy Buds case is both thicker and longer than the AirPods case. It's not a huge difference when you see them side

These buds are for you. Well, maybe.

by side on a table, but I definitely notice when I put the bigger Buds case in my pocket. The AirPods case has a definite advantage here.

The Galaxy Buds case has a few advantages of its own. The biggest is that you can charge it wirelessly with any Qi-certified charger, and a small outside light informs you that the case is charging. You have to look at your iPhone's widgets to see the battery level of the AirPods case, although both have a light inside the case that reports whether the earpieces themselves are charged.

You can charge the Galaxy Buds with any wireless charger.

We'll supposedly see a new AirPods case that supports wireless charging later this year, but for now it remains in the realm of rumor. A wirelessly charging case is a definite plus for the Galaxy Buds, and I like that you can charge them with a USB-C cable if you wish. The AirPods still require Lightning cables.

I admire the presentation of the Galaxy Buds in its case, but I find it's a lot easier to get to the AirPods when I need them. Forgive the analogy, but removing an AirPod is as easy as pulling a cigarette from its box. I'm still struggling to get a good grip on the Galaxy Buds when I remove them from the case, which makes me worry that I'll drop them if I'm trying to use them on a bumpy bus ride.

Overall, the Galaxy Buds case probably comes out on top here because of the wireless charging, but it's a very close call.

INSTALLATION AND PAIRING

There's no contest here, at least if you plan on using the Galaxy Buds with an iPhone. Apple's W1 chip makes it insanely easy to pair AirPods with your iPhone, and then it also pairs them with every other device tied to your Apple ID. You can go into your iPhone's Bluetooth menu and customize them further.

The Galaxy Buds case closes with a snap, too--but it's not as satisfying as the one on the AirPods.

With an iPhone, at least, Samsung's Galaxy Buds pair like any other device. You'll get easier pairing and more customization on Samsung phones with special apps, but with an iPhone you're basically stuck using them as they come out of the box.

INTERACTION

The Galaxy Buds feature a cool tap system that lets you play or pause music after tapping a bud once. You can also tap twice to skip to the next song or tap thrice to go back to the previous one. And yes, you can even hold down a Galaxy bud to talk to Siri (which I mainly use for making calls).

The problem is that, on an iPhone at least, you can't customize these taps. You can at least customize the "hold down" action on a Samsung phone with a special app, but on an iPhone you're largely stuck with what comes out of the box.

With AirPods, you can customize the double-tap actions through the iPhone's Bluetooth menu, and I personally keep mine set to Siri on the left and playing/pausing on the right. Unlike the AirPods, unfortunately, the Galaxy Buds don't briefly stop playing music if you take them out of your ears.

Those last two features make the AirPods the clear winners when using an iPhone, but this is one case in which the advantage largely comes from using the proper operating system. Just as AirPods don't have all their nifty features on Android phones, we shouldn't expect that the Galaxy Buds would shine to their full potential on an iPhone.

BATTERY LIFE

Samsung says the Galaxy Buds deliver around six hours of music streaming on a single charge, which initially looks like a big improvement on the five hours offered by the AirPods.

This isn't as big of a deal as it sounds. One of the AirPods' biggest advantages is that the case can deliver around 19 extra hours of power while the Galaxy Buds case only gives you seven. You can get three hours of use out of AirPods if you charge them in the case for a mere 15 minutes. To my knowledge, we haven't heard a similar statement from Samsung.

For my purposes, the AirPods are the clear winners here. I wear my AirPods every day, but I mainly wear them on my bus and sidewalk commute and while walking through the city. I almost never have them on for six hours straight. And, of course, once I put them away, they immediately start charging again. I can usually go a couple of days without having to worry about charging the case.

SPEAKER QUALITY

The Galaxy Buds don't sound awful, but the AirPods offer a substantially better auditory experience while listening to music. Regardless of whether I was listening to Metallica, Eminem, Bach, or the *Lord of the Rings* soundtrack, the music coming from the Galaxy Buds lacked bass and even sounded tinny on some tracks. Favorite details in specific tracks disappeared into the noise.

This remained true even when I choose different equalizer presets through Apple

I never really noticed until now that Apple didn't put its logo on the AirPods. Samsung's logo is understated, but it does take away from the elegance of the design.

Music. So surprised was I by the quality, in fact, that I tried using the Galaxy Buds on a Samsung Galaxy S7 Edge and found the experience was much the same. You'll have a much better experience with music that doesn't have a lot of bass, but even so, it's worth paying the extra $30 to get some AirPods if you care about good sound.

MICROPHONE QUALITY

The AirPods also score an easy win with their microphones when making calls.

VIDEO: **SAMSUNG'S GALAXY BUDS VS. APPLE'S AIRPODS**
Watch now at go.macworld.com/avs

They're simply better. You don't have to take my word for it in this case; you can hear the difference in our video (see Video box). The difference wasn't as extreme when I used the Galaxy Buds and AirPods indoors, but it was massive outside.

FIT AND COMFORT

I'm one of those people with ears that seem perfectly made for the AirPods. They won't fall out even when I shake my head, and they hang so perfectly that I'll often forget I'm wearing them if the music is off.

The Galaxy Buds, though, come with interchangeable rubber attachments for both the ear tips and the wingtips. You'll almost certainly find an attachment that's perfect for

your ears, and that alone marks an improvement on the AirPods.

As a side benefit, the ear tips in particular allow for a good degree of passive noise cancelling because they essentially seal off your ears. The AirPods famously have nothing like that, although I personally prefer them that way, as I like being aware of cars and other hazards as I'm walking the sidewalks of San Francisco. If you typically wear your earbuds at home or at the gym, this isn't as much of an issue.

As a side benefit, the ear tips in particular allow for a good degree of passive noise cancelling because they essentially seal off your ears.

Still, in terms of customizing a good fit and passive noise cancelling, the Galaxy Buds have a clear advantage.

COLORS

At the moment, at least, the Galaxy Buds have the edge. You can get them in an Apple-friendly white, but you can also get them in black. There's also a yellow option for some countries. On the bright (or dark?) side, we're supposedly getting a black case with the updated AirPods later this year.

BOTTOM LINE

Samsung's Galaxy Buds are a reminder of what a great job Apple did with the AirPods. These buds cost "only" $30 less than the AirPods, but Apple's true wireless earbuds deliver much better speaker and audio quality on the iPhone, along with customizable taps, easy pairing, and a case that offers many hours of charging.

The Galaxy Buds have clear advantages in fit, passive noise cancellation, a wirelessly charging case, and price, but the limitations are such that I still feel safe in recommending that you skip these and pick up the AirPods with an iPhone instead. ■


WHY DOES IT TAKE A DISASTER TO BRING US TOGETHER?
AN ORIGINAL SHORT FILM
FROM EMMY® WINNERS DAVID NUTTER & LENA WAITHE
RISING
love has no labels
WATCH NOW AT LOVEHASNOLABELS.COM
ad COUNCIL

What USB4 could mean for future Apple products

USB4 is coming, and it looks a lot like Thunderbolt 3 without the licensing hassles.

BY JASON CROSS

USB4 is coming soon, and while it probably won't mean a whole lot to Mac users, it could have a big impact on the iOS ecosystem. Here's what we know about the forthcoming spec and what it could mean for Apple's devices.

WHAT IS USB4?

Currently, USB4 is just an agreed-upon idea. The USB Promoter Group recently announced the specification, which hasn't been finalized or published yet. That spec should get published around the middle of this year, and then USB4 devices can start being built, tested, and brought to market.

From the announcement, we can get a good sense of what USB4 will be, and it sounds like it's just USB 3.2 with Thunderbolt 3 and the USB-C connector (go.macworld.com/t3sp). The announcement claims: "The USB4 architecture is based on the

IMAGE: INTEL

Thunderbolt protocol specification recently contributed by Intel Corporation. It doubles the bandwidth of USB and enables multiple simultaneous data and display protocols."

Perhaps the most important line in the announcement is this one: "Even as the USB4 specification introduces a new underlying protocol, compatibility with existing USB 3.2, USB 2.0, and Thunderbolt 3 hosts and devices is supported; the resulting connection scales to the best mutual capability of the devices being connected."

If USB4 is compatible with USB 3.2 and Thunderbolt 3, both hosts and devices, then it's going to be a match for, or superset of, the Thunderbolt 3 spec.

The document further outlines three key characteristics of USB4:

> Two-lane operation using existing USB Type-C cables and up to 40 Gbps operation over 40 Gbps-certified cables

> Multiple data and display protocols to efficiently share the total available bandwidth over the bus

> Backward compatibility with USB 3.2, USB 2.0, and Thunderbolt 3

IT MIGHT NOT BE CALLED USB4

The USB Promoter Group is in charge of building USB specifications, and is made of members from several companies: Apple, Hewlett-Packard, Intel, Microsoft, Renesas Electronics Corporation, ST Microelectronics, and Texas Instruments.

But the USB Implementer's Forum (USB-IF), a separate nonprofit group, is the one responsible for the marketing and branding of USB. That's the group responsible for frequently and confusingly naming and re-naming the various USB protocols and logos used on devices. So while the protocol itself is a nice tidy "USB4," we might end up with "USB 4.0 40x2" or "USB 3.2 2x2 Plus Display" or some other confounding nonsense. We can only hope the USB-IF opts for optimum simplicity and clarity and simply sticks with the USB4 name.

THUNDERBOLT 3 ALL THE THINGS!

Apple already supports Thunderbolt 3 on nearly every Mac it makes. Only the 12-inch MacBook and Mac Pro do not. The MacBook has USB 3.1 and DisplayPort but not Thunderbolt 3, and the aging Mac Pro predates Thunderbolt 3 (it supports up to six Thunderbolt 2 displays, however).

So what can this do for Apple? Simply put, it makes it easier for its iOS devices, Apple TV, and every other product without an Intel chip inside to support all the features of Thunderbolt 3.

Recall that the new iPad Pro, though it has a USB-C port, does not support Thunderbolt 3 displays. Rather, it only supports displays

Sure, it's USB-C, but it's not compatible with all those Thunderbolt 3 things you bought for your Mac...yet.

that accept the USB-C display output protocol. So, while its connector looks just like the one all those Macs use to connect to Thunderbolt 3, it doesn't support that protocol. Confusing, right?

Thunderbolt is a brand owned and maintained by Intel. Though the company made the protocol license-free last year, implementing it still requires working with Intel to use or license the Thunderbolt trademark and to pass compatibility testing. If USB4 is as advertised, it will allow basically anyone who makes USB controllers to produce products that can hook up to USB4 gear, without Intel getting in the way.

That means a future iPad Pro's USB-C port could be USB4-compatible and hook up to all sorts of monitors, including the Thunderbolt 3 monitor you may have. Also: Thunderbolt 3 hard drives, docks, audio interfaces, and so on. USB4 enables Apple to, in effect (if not in name), bring USB 3.2 plus Thunderbolt 3 to future A-series chips and thus future iOS devices, Apple TVs, and so on.

But it could be even more important. Apple has long been rumored to be hard at work transitioning its Mac line (go.macworld.com/a13m) from Intel chips to its own. That may not happen this year, but if and when it does happen, the USB4 spec enables these new Macs to be compatible with all the Thunderbolt 3 gear Mac fans have accumulated. It's just one more annoying technical barrier to the Intel/Apple Mac transition that Apple won't have to worry about.

It also makes it a bit easier for AMD chipsets to support Thunderbolt 3 products, making it easier for Mac desktops to dump Intel in favor of AMD (go.macworld.com/dump), should the company find that to be a good strategy. ■

Improvements Apple should make to its Mail app on iOS and macOS

Much as we might try, we can't escape email.

BY DAN MOREN

When people roll out wish lists of things they want Apple to do to its products, they're often focused on brand-new features. We all like new features, sure, but part of me worries that while the focus is on the shiny, the basics—the software that we're all using every day—gets ignored. In particular, I'm really ready for Apple to tackle that old standby: Mail.

I know: email's dead, supplanted by a myriad of other means of digital communication. Except, for many of us,

IMAGE: APPLE

email is still something that we're attached to when it comes to corresponding with people, signing up for accounts, and archiving or doing a to-do list.

Apple expended a lot of effort developing tools in iOS 12 that let us spend less time on our devices by preventing us from using them at certain times. But what about all that time where we are using our smartphones, tablets, and computers? Maybe there are features that can help us be more efficient, and treat our time with the respect it deserves.

A SMARTER INBOX

I'd love to see the Mail app help us triage our emails better, by way of that much vaunted machine learning. Put it to work on my inbox, surfacing the messages I actually want or need to see, and sorting them from those messages that are less important. I check my email first thing when I wake up each morning, and there are invariably a dozen messages from services I use, stores that have gotten my email on their list, and strangers who want my time or attention.

Google's Gmail can already sort these types of messages into separate inboxes. I'd like to see something similar in the Mail app. Less pertinent messages could be collated and collapsed so that I can quickly glance through and, more often than not, delete them all at a go. At the same time, Mail could notice that there are, say, people I generally always reply to, and make sure that those messages are prioritized. There's no reason that the 25-percent-off coupons Williams & Sonoma seems to send me every day should be treated the same as, say, an email from my mom.

The VIP system that Mail currently offers is a reasonably good start, but it could be much smarter, allowing not only the ability to add and remove people manually, but making suggestions about contacts that should be in the list, and then making sure their messages are moved to the top of the pile.

YOU GET AN EMAIL, AND YOU GET AN EMAIL, AND YOU GET AN EMAIL

Gmail has also long had the ability to create filters, letting you create sub-addresses like "dan+amazon@example.com" for your Amazon account. Which is great when you discover that said service has shared your email addresses with a bunch of other sites. Instead of having to change your email address or resign yourself to endless unfiltered spam, you can just delete that particular filter and be troubled no more.

So I'd love to see a system for generating service-specific email addresses, in the same way that Apple's

operating systems can now generate a random password. For example, it would be great if, when signing up for my umpteen millionth web service, my device would simply autofill a "strong email" like "dan+xy23@example.com". That could be stored in the keychain along with my autofilled password; that way, I'd always be able to know who sold my email to another service, and revoke it if necessary.

As with passwords, this could also be a huge help on the security front. Emails, after all are just pieces of private data that we give out to myriad sites and services and which always end up getting leaked when security is breached. In that case, though, you'd want a truly random throwaway email—essentially a long list of random characters—in the same way that Apple Pay obfuscates your real credit card number when you make a transaction.

BETTER MESSAGE MANAGEMENT

Look, I know I'm not the only person who uses their email inbox as a to-do list. To that end, let's just embrace it. Mail could add a ton of features that would make my life easier in that regard: respect for multiple flag colors on iOS, the ability to snooze emails, and automatic archiving, just to name a few.

All of that adds complexity, I realize, and though I like the configurable swiping left and right on iOS, the options there are already overloaded. But this could be a great place to harness the power of 3D Touch.

Currently, Mail uses 3D Touch for peeking-and-popping which I've always found more confusing than useful. Instead, it should pop up a contextual menu. That's used to great effect in the Music app, and I think it would be far more useful to have in my inbox as well. Selecting a message could let you more easily file it, tag it, or reply or forward, all without taking your fingers off the screen. Plus, if it catches on there, it might finally catch on elsewhere in Apple's apps. ■

The most important thing to do if your Mac has a Fusion Drive: Back up your data!

The Fusion Drive combines data on a solid-state drive and a hard drive, so the loss of either is a huge problem.

BY GLENN FLEISHMAN

SSDs (solid-state drives) offer extremely reliable, fast, and consistent performance over many, many years. They aren't subject to problems that can harm even the best-designed modern hard-disk drives (HDDs): exposure to magnetic fields or the failure of moving parts inside the drives.

But SSDs remain expensive many years after they first appeared. Nearly all other aspects of computation—from processors to RAM to LCDs—have dropped dramatically in price while improving in quality and performance year after year. SSDs initially followed that curve, especially for lower-capacity drives,

IMAGE: IDG

but tapered way off. The cost of manufacturing higher-capacity memory chips used in SSDs hasn't dropped much in recent years.

That means a 1TB SSD for a laptop can still cost $300 to $400, while a similar HDD can be bought for under $100. In the case of Apple, with its high markups on memory and drives, it's an extra $700 to the cost of a current iMac (go.macworld.com/x700) if you want to equip it with 1TB SSD.

FUSION DRIVE

One way Apple tried to offer more competitive pricing was to have as an option its own kind of hybrid drive, which melds a little SSD storage with a lot of HDD. The Fusion Drive, introduced about six years ago, relies on a fast SSD and a slow (5,400 rpm) HDD, and optimizes the SSD storage to hold the most frequently used data. This can allow fast boots and keep apps running quickly.

However, the Fusion Drive has always been a fussy thing. Drive manufacturers that offer hybrid drives embed the SSD storage into the same package as the HDD. Apple, in contrast, puts an SSD on the computer motherboard separately from the HDD, and relies on macOS to integrate the two. Files aren't stored separately on the two drives, but rather macOS interleaves data so that it's effectively like one big drive.

Stellar Data Recovery is a Mac utility that can help with getting data off problematic Fusion Drives.

That's great for performance and cost, but it's highly problematic if your HDD fails or if your Mac bites the dust. You have to be able to recover data from both the HDD and SSD, including removing both of them physically from a Mac in the case of device failure, to recover the data as a whole. Otherwise, it's like trying to put together a 1,000-piece puzzle in which it's not like 32 pieces are missing, but like small parts of hundreds of pieces can't be found.

Some help exists to recover data. Third-party data-recovery software makers, like Stellar (go.macworld.com/stlr), offer tools to re-integrate and recover data from Fusion Drives.

But Fusion Drives, more than any other kind of storage device, demand continuous and rigorous backups, whether local (via Time Machine or the like) or cloud based. ■

Web at 30: Apple's place in history

The World Wide Web is 30 years old. Here's a look at Apple's role in its development.

BY JASON SNELL

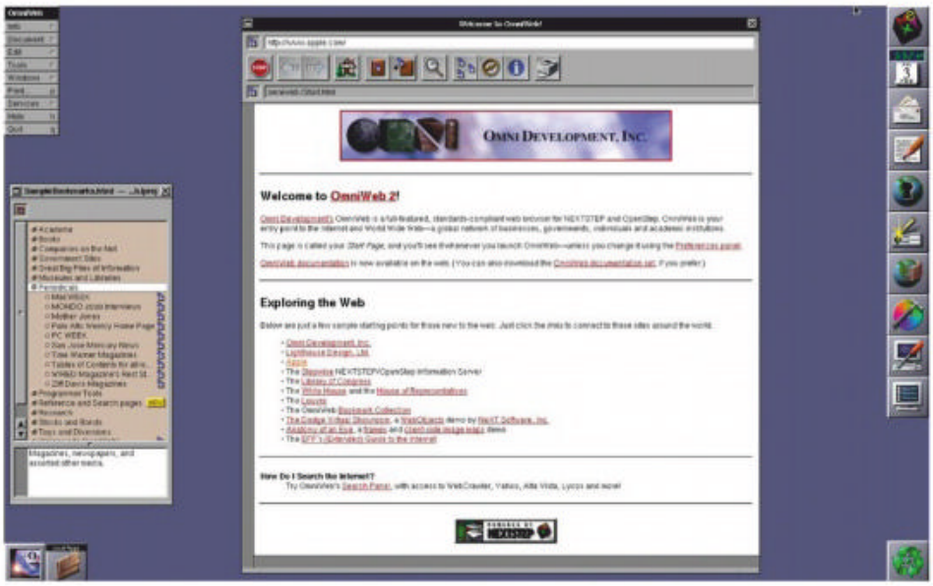
Mid-March this year marked the 30th anniversary of the web, or at least the date that Tim Berners-Lee made a proposal at the Swiss particle physics lab CERN involving the creation of a hypertextual system that would end up becoming the web as we know it today. The history of web browsers on Apple devices takes a lot of twists and turns. Fortunately, I've been around for most of them. In fact, my first magazine cover story ever was in July 1996 about the first big browser war (go.macworld.com/brwr). You might be surprised just how much impact Apple has had on the development of the web itself.

PREHISTORY: THE FIRST ERA

Perhaps most importantly, the first web browser was created on a product that,

IMAGE: THINKSTOCK

while not labeled with an Apple logo, is now the intellectual property of Apple. Tim Berners-Lee wrote the first browser, itself called WorldWideWeb (go.macworld.com/wdwb), on a NeXT computer in 1990. NeXT, a company founded by Steve Jobs, was purchased by Apple in 1997, and its NextStep operating system became the foundation of Mac OS X, which itself became the foundation for iOS. Thousands of iOS developers work with foundational frameworks with names that start with NS, like NSText (go.macworld.com/nstx), without ever realizing that the NS stands for NextStep.



NextStep running the OmniWeb browser, which arrived on the scene much later.

Berners-Lee ended up rewriting his browser engine in a cross-platform language, which was useful since almost nobody in the world had a NeXT computer. The next big step was the appearance on the scene of NCSA Mosaic (go.macworld.com/msac), which was the first web browser I ever saw.

It seems so pedestrian today, but in 1993 the web browser was a revelation. The internet back then, for the few of us who were on it, was basically a wash of text. Services like Gopher (go.macworld.com/gphr) let you move around the internet with hyperlinks, but it was basically plain text and arrow keys and long menus of options.

Then all of a sudden, I'm sitting on my couch in an apartment at UC Berkeley and there are pictures coming up on the screen of my PowerBook 160 (go.macworld.com/p160). (They were in grayscale because the PowerBook's screen didn't support color, but still—they were pictures.) There were underlined hyperlinks you could click on to go to other pages. It was, even by the standards of a couple years later, unbelievably primitive—but also fundamentally recognizable as the web. The internet was never, ever the same.

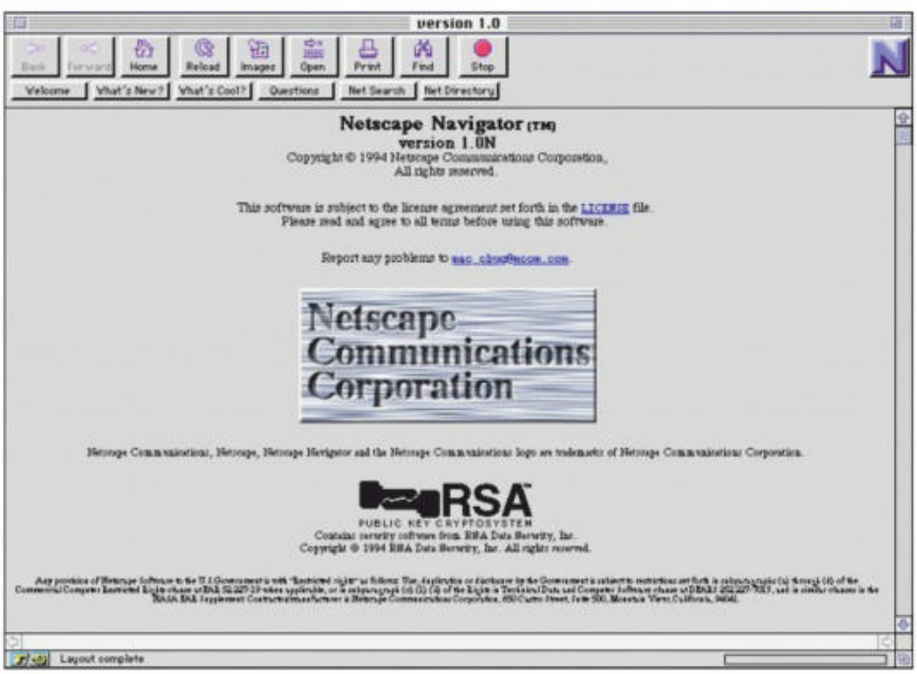
THE FIRST BROWSER WAR

Mark Andreessen, who helped create NCSA Mosaic, famously decamped to the Bay Area and co-founded Netscape Communications in an attempt to commercialize the web browser. In short order, Netscape Navigator (go.macworld.com/ntnv) was created as a follow-on project—the first widely popular web browser. Netscape was a revelation, in that it was developed by a team of paid professionals rather than a much smaller team at the University of Illinois. It was big and ambitious and set the standard for what a "real" browser should be.

Netscape came to the Mac and eventually became the default browser, bundled with the classic Mac OS. But then came the earth-shaking day in 1995 (go.macworld.com/ms95) when Microsoft, which dominated the entire computer industry with its Windows operating system, decided that it was going to embrace (read: take over) the web. In 1996, Internet Explorer came to the Mac (go.macworld.com/ie96)—and something weird happened.

Microsoft, the archenemy of Apple (at a time when Apple was struggling to survive), had made a better browser than Netscape. It was faster, supported all the same browser plug-ins as Netscape (this was an era where browser plug-ins were considered an asset, not a liability), and even supported fancy formatting features such as custom fonts.

I wrote my "Web War" cover story for MacUser endorsing it over Netscape, and boy did I hear from a lot of Apple fans who were apoplectic that I could promote anything created by our common enemy, Microsoft. But the thing was, IE for Mac was better—and when Steve Jobs cut his famous deal with Bill Gates in the summer of 1997 to help keep Apple alive, IE became the default browser on the Mac.



Nescape Navigator 1.0N for Mac.

RISE OF SAFARI AND WEBKIT

Let's skip forward to the early 2000s. Apple's doing a lot better than it was in 1997, but one of the Mac's greatest liabilities is its perceived speed compared to Windows PCs. The numbers didn't lie—Internet Explorer on Windows was dramatically faster than IE on the Mac. It's not hard to imagine how that played in Steve Jobs's mind: the Mac's biggest liability against Microsoft was a browser made by Microsoft. So what motivation did Microsoft have to make IE for Mac better?

The result (as described in some detail in Ken Kocienda's book "Creative Selection") [go.macworld.com/crsl]) was a project to build a new browser for the Mac, designed to be as fast as possible. Out of that project came the WebKit open-source project and the Safari web browser, which debuted in 2003 and kicked IE out of its place as the default browser on the Mac. Safari was a breath of fresh air—and it allowed Apple to control its own destiny when it came to being judged versus Microsoft.

Safari is at the core of the browsing experience on the Mac and iOS, and that's important. But the WebKit rendering engine was also taken by Google and used to create Chrome (go.macworld.com/glch), now the top browser in the world. Google later went its own way with WebKit, forking it into a different project called Chromium. And in a shocking turn of events for those of us watching the web for ages, Microsoft announced that its browser—Edge, the replacement for Internet Explorer—was going to adopt Chromium (go.macworld.com/chro). This all means that Apple's early-2000s need to improve Mac performance in comparison tests with Windows PCs led to the technology that is now used in the majority of web browsers.

Still, there is danger in allowing a web monoculture to develop, because as any Mac user of the 1990s will tell you, there's nothing worse than being told that a website you want to visit is only compatible with Internet Explorer. "Works only with Chrome" is that same song with slightly different lyrics. I hope the web hasn't reached the endpoint of its evolution; if the last three decades have taught me anything, it's that there's another surprising twist waiting just around the corner. ■

WHY DOES IT TAKE A DISASTER
TO BRING US TOGETHER?

RISING

AN ORIGINAL SHORT FILM FROM EMMY® WINNERS
DAVID NUTTER & **LENA WAITHE**

love
has
no
labels

WATCH NOW AT LOVEHASNOLABELS.COM

ad COUNCIL

ad COUNCIL

~~In a disaster,~~ we come together.

love has no labels

Come together at lovehasnolabels.com

Apple dominates the podcast market. But for how long?

Competitors such as Spotify are making investments to creep closer to Apple.

BY JASON SNELL

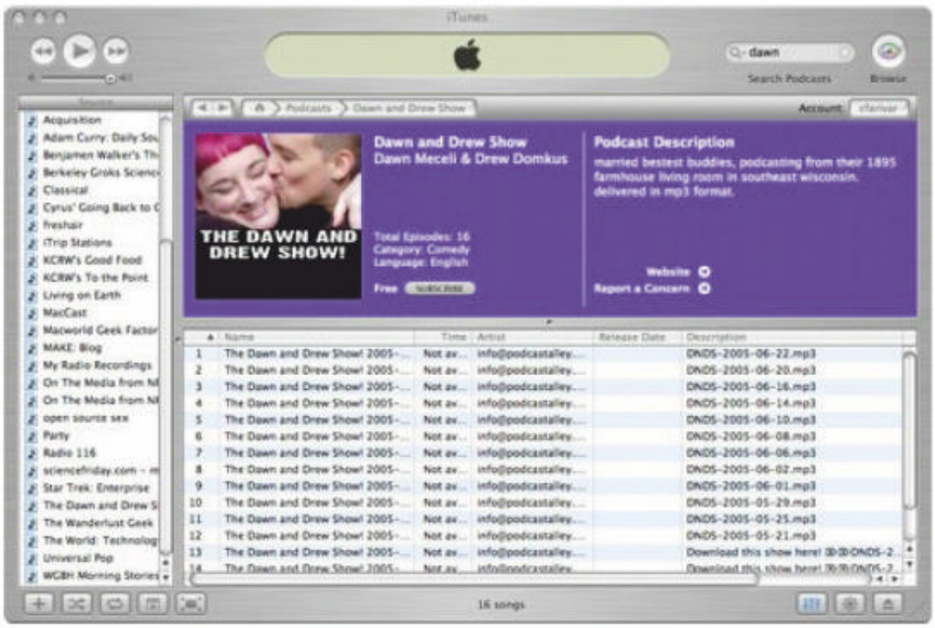
If you aren't someone who is part of the podcast business (disclosure: I make the majority of my income from podcasting), you might not realize that Apple is the dominant player in the field. That dominance is driven by two factors: its definitive directory of podcasts, and the built-in iOS Podcasts app, which drives the majority of podcast listening on the planet.

The slow shift from radio to on-demand audio continues, and companies are noticing. Investment in podcast companies is up, listening is growing, and the podcast advertising market continues to expand. Yet despite its dominance, Apple seems strangely uninterested in podcasting.

IMAGE: APPLE

IT STARTED WITH THE IPOD

Apple reached this point because in 2005 it noticed that people were going to great lengths to load the first podcasts onto its iPod music player, and decided to make some effort to make the process easier. Apple released a new version of GarageBand with additional podcast-focused features, created a directory of podcasts using the iTunes Store framework, and updated iTunes to support podcast subscriptions directly. You still had to attach your iPod directly in order to download new episodes, which was not the best, but it beat the old method of loading podcast audio files into iTunes, marking them as songs or audiobooks, and syncing them manually.



In 2005, iTunes 4.9 allowed for podcast subscriptions. Then you could load the content to an iPod.

The brief podcast boom of 2005 didn't really go anywhere, but it put Apple in the perfect position in the early days of the iPhone. Here was a device that could update podcasts on the fly, and Apple eventually got the message and built its own podcast app. Nobody else had succeeded in replicating the iTunes podcast directory, and all of a sudden Apple was the biggest player in a growing media industry.

In the intervening time, Apple has not done a lot with podcasts. GarageBand's long since been stripped of all its podcast-focused features. The Podcasts app on iOS keeps getting better, and Apple recently added some anonymized statistics so that podcast publishers can now get rare access to information about how many people are listening to their podcasts, and what parts of the episodes they listen to. (The data is limited by the fact that it is only for Apple's own app, but it's still a treasure trove of data that has told us...exactly what we all expected, which is that most people listen to most episodes of a podcast, and only a small percentage skip the ads.)

THE RISE OF THE REST

Meanwhile, the world is full of companies that are far more focused on podcasts than Apple is. Companies affiliated with public radio stations in the U.S. have pounced on the medium, which has given them access to new and large audiences for their work. Many startups have been launched to produce, distribute, and sell ads on podcasts.

One of the more recent trends is a desire for even more statistics about how people listen to podcasts. Sales executives spoiled by the nitty-gritty details of web advertising are frustrated by the fact that, with the exception of statistics from apps such as Apple's Podcasts, there's no good way to tell anything beyond when someone downloads an episode. They want more. Recently, National Public Radio promoted something called RAD, a specification that would relay information about how you use your podcast app (go.macworld.com/rlay) back to the publisher for data-collection purposes.

It seems like a tough sell to the makers of podcast apps—they'd have to do a lot of engineering work in order to support something that would not really benefit their users while diminishing their privacy. Apple's insistence on anonymizing user statistics would suggest that it wouldn't embrace a system as broad as RAD. But the push on behalf of more invasive advertising metrics is on, regardless.

On another front, Spotify is buying up companies such as the Gimlet Media podcast studio, and Anchor, a maker of tools to make and distribute podcasts more easily. Spotify uses its own directory, not Apple's, and apparently is planning on spending half a billion dollars on podcast-related companies (including Anchor and Gimlet).

Spotify, Apple's archrival in music streaming, has decided that podcast listening is a logical extension of what they

Spotify has made a large investment into its podcast presence.

do—and has realized that the more minutes someone spends listening to podcasts, the less money Spotify needs to pay in music royalties. Presumably it will introduce some Spotify-exclusive podcasts, too, which will give it leverage to induce people to use Spotify, something it can't really do with the music catalogs that are largely the same across services.

SO WHERE'S APPLE?

With all of this going on, Apple is quiet—and there aren't even rumblings about Apple's plans in this area. Apple's competitors are on the march, the industry is heating up, and Apple seems to continue to treat podcasts with the hands-off approach it's had since the very beginning.

On one level, it's admirable that Apple has not exploited its huge influence in and leverage over the podcast market. It's allowed the podcast world to thrive in a largely open environment without rent-seeking from major players that would crush innovation. Apple has been an advocate for podcasts without trying to control them.

And yet, with Spotify on the move, I have to wonder if Apple is going to need to take a more active approach in this area. The economics driving Apple Music and Spotify are quite similar; I'm a bit surprised Apple hasn't invested in premium, subscriber-only audio content (because if it's subscriber-only it's not really a podcast) for subscribers of Apple Music. We hear about Apple spending billions on video content for its new streaming service, but not a peep about Apple using its power in podcasting to boost Apple Music or at least keep Spotify's expansion at bay.

The truth is, podcasting just may be too small a market to get Apple's interest right now. When you're spending more than a billion dollars on TV shows, the idea of spending a few hundred million to buy a studio like Gimlet seems like chump change.

Viewed more broadly, Apple's ambitions are in markets that are enormous, far larger than the entirety of the podcasting world. Apple is a dominant player in podcasting, but within Apple podcasting is the focus of a very small team in a far-off corner of Apple. That team really cares about podcasting and does some very good work, but they are little fish in the enormous ocean of today's Apple.

Maybe it's all for the best. There aren't too many examples of enormous tech companies opting not to take advantage of their dominance in a market. Perhaps Apple's light touch on the world of podcasting will continue, at least until a competitor does something to get its attention. ■

Aukey EP-B40 Latitude Wireless Earbuds: ‘Inexpensive’ doesn’t have to mean ‘cheap’

BY SÉAMUS BELLAMY

Not everyone wants to spend $100 or more on a pair of Bluetooth earphones. Perhaps you’d rather save that cash for dinner with your partner, or maybe you’re hard on your belongings and lose track of them. For that matter, you may not see the point in spending so much coin for an accessory that you’ll maybe use, at best, for a few hours a week at the gym. For you, “good enough” may be good enough.

If any of this sounds familiar, Aukey’s EP-B40 Latitude Wireless Earbuds (go.macworld.com/ep40) might be a good fit. While they suffer from a number of irritating shortcomings, they sound far better than a pair of $28 earphones have any right to.

IMAGE: AUKEY

DESIGN

Bluetooth earphones sold for under $60 often look cheap because, well, they are cheap. This isn't the case with the Aukey EP-B40s. Almost entirely matte black in color besides Aukey's subtle white branding on each earbud's shell, the EP-B40s look impressive. A closer examination, though, reveals that Aukey made the earphone caps, stems, and inline controls with lower quality plastics than you'll find in a unit from Bose or Jaybird.

The EP-B40s come with a number of silicone fins and ear tips that ensure a secure, comfortable fit.

But the construction is good: I was unable to detect any noticeable seams or irregularities. Should your experience differ, Aukey covers the earphones with a two-year warranty. What's more, the lightweight plastic used in the construction of the EP-B40s makes them more comfortable than many other earphones I've tested in the past. That said, as no two pairs of ears are alike, your mileage may vary.

Out of the box, the EP-B40s come equipped with a pair of silicone fins and a medium set of silicone ear caps. If you need a different fit, they also come with a pair of small and large silicone ear tips and two additional sets of silicone fins. I found that the default size of tips and fins kept the earbuds snugly in my head while I walked, jogged, or nodded along to The Clash.

Unfortunately, the silicone tips' passive noise cancellation leaves much to be desired, as none of the three included tips could completely block external sounds while listening to music unless I cranked up the volume to maximum. While this might be good for situational awareness in the gym or for street jogging, you'll be disappointed if you want to block out the din of a subway car on your morning commute.

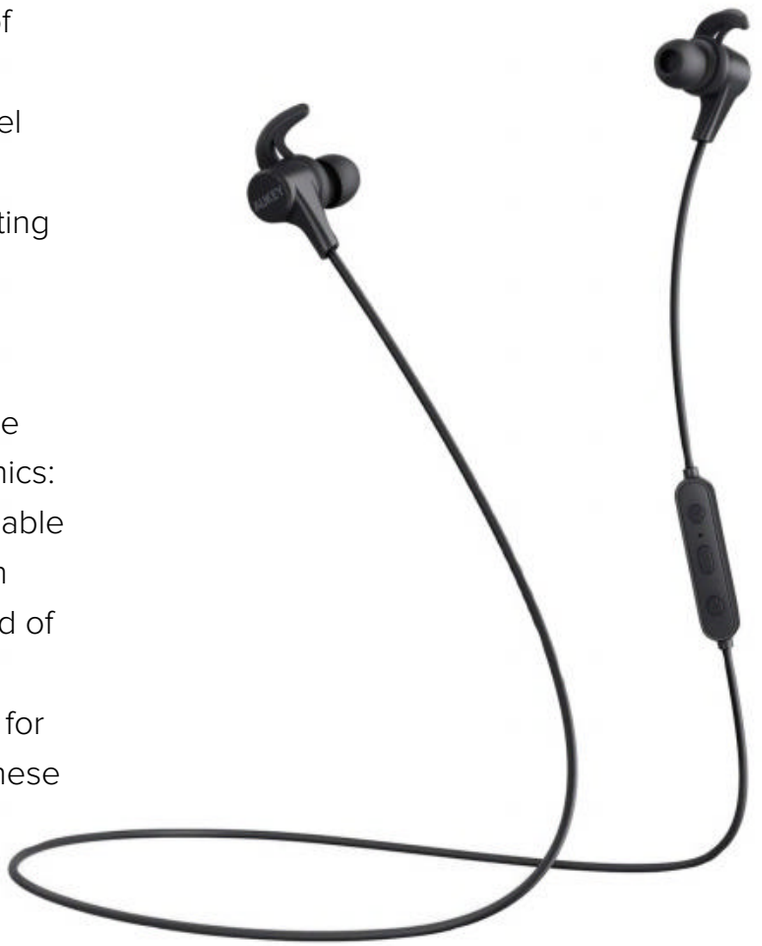
The cable running between the EP-B40s' earbuds is short enough that I never managed to snag them on anything during testing. I wish more earphone manufacturers would keep this design consideration in mind.

That said, the soft rubber exterior of the cables often caught on my skin: Whenever I turned my head, I could feel the cables moving with me across the back of my neck. I had a hard time getting used to this sensation and I haven't frequently encountered it while testing other Bluetooth earphones.

I also found that the thin cable made the earbuds highly prone to microphonics: As I turned my head, I could hear the cable hiss across the surface of my skin. With each step I took, I could hear the sound of the cable bouncing along with me. Normally I would scold a manufacturer for this level of aural irritation, but again, these earphones only cost $28. With a price so low, it's easy to forgive them.

When not in use, these earbuds could easily get tangled in a pocket or in the cloth carrying case that comes with them. However, Aukey did what it could to minimize this issue by baking a magnet into the EP-B40s' earphone caps. Touch the caps together and the magnet will keep them connected until you're ready to use them. The magnet also allowed me to go through my day with them riding securely around my neck. It's a nice feature for anyone who's prone to losing their earphones.

So too, is the fact that the EP-B40s come with a waterproofing rating of IPX4: They'll stand up to sweat at the gym, but you probably don't want to be caught wearing them in the rain.



The Aukey EP-B40s are water resistant and look like they should cost quite a bit more.

So far as connectivity goes, the EP-B40s preform pretty well. They feature Bluetooth 4.0 and, if you're using an audio source that allows it, they can use aptX technology. I experienced a few minor connectivity stutters while using them on a busy city street, but they proved stable while listening to music at home. It's possible to connect to two audio sources

at once with these earphones, but I don't recommend it. I found that the number of connectivity issues I experienced increased while connected to my iPhone 7 Plus and MacBook Pro at the same time.

Aukey says the EP-B40s will run for eight hours off a single charge, but I found their runtime averaged around six hours after using them for a week. After just 1.5 hours of charging via microUSB, though, these earphones are ready to go.

SOUND

Aukey's EP-B40s sound far better than other earphones in the same price range that I've tested. Where most of the earphones I've tested in the EP-B40s' price range either offered mushy sounding bass or squeaking high-frequency sounds so shrill that I wanted to yank them out of my ears, the EP-B40s sounded fine (but not great).

The amount of separation—the degree to which each component of audio can be heard and understood as a separate entity—is middling. When I listened to Kila, a seven-piece band I've followed for close to 20 years, many of the nuances of their music that I could pick out while using other earphones simply were not there.

Yet I never thought the listening experience was unpleasant. These earbuds offer decent bass and acceptable mid-frequency sound, although I did notice that high-frequency audio sometimes sounded a bit shrill. But again, they only cost $28. It's worth mentioning that by quickly pushing the multi-purpose button built into the EP-B40s' inline controls twice, it's possible to activate equalizer settings for treble or bass boost. I don't think either improved the sound of the EP-B40s, but it's there, so you may as well give it a spin.

When using the EP-B40s to make audio calls, I found their subpar noise cancellation sometimes made it difficult to understand the person on the other end. Additionally, I was told that the same microphonics that were irritating me made it hard for the other part to hear what I was saying to them while I talked and walked.

Aukey EP-B40 Latitude Wireless Headphones

PROS

- Dirt cheap.
- Surprisingly good sound for the price.
- Sweat and splash resistant.

CONS

- Poor passive noise cancellation.
- Extra EQ settings don't do much for their sound.
- Short, tacky cable tugs as you turn your head.

PRICE

$28

COMPANY

Aukey

THE BOTTOM LINE

Aukey's EP-B40 Latitude Wireless Earbuds aren't the best Bluetooth earphones out there, but for $28, they're exceptional. Given their low price and decent sound, it's easy to see past their flaws. If you're on a tight budget, they're absolutely worth your consideration. ■

TaoTronics TT-BH060 Bluetooth headphones: Affordable noise cancellation, but sound lacks sparkle

BY JON L. JACOBI

If you're looking to block unwanted noise on the plane or in other loud environments so you can concentrate on the tunes, normal headphones won't cut it—you often have to crank the volume up so loud it becomes unpleasant (and could damage your hearing).

What you want are active noise-canceling (ANC) headphones, such as the TaoTronics TT-BH060 ($70 at Amazon [go.macworld.com/taot]). They're super comfortable, affordable, and, while they don't eliminate noise entirely, they do reduce the most tiring portions of the spectrum. But these aren't the best choice for great sound in addition to active noise cancellation.

HOW ACTIVE NOISE CANCELING WORKS

If you're not familiar with noise cancellation, here's how it works. The headphones record ambient noise, reverse its phase, and then play that sound back along with the original noise. Waves being pulses of sound, they take each other out of the equation when similar frequencies collide going the opposite direction (the phase) given the same amplitude (volume). Indeed, pro sound consoles have phase-flip and mono-summing switches that let audio engineers check for this very phenomenon.

In active noise-canceling headphones, microphones record the ambient noise, and then the phase is inverted and added to the mix of what you're hearing. How well it works depends on the speed and accuracy of the hardware. Nearly all noise-cancelling headphones are also of a closed-back design, so they also passively reduce the amount of ambient sound that reaches your ear drums.

DESIGN AND SPECS

The TT-BH060 boast an impressive physical design. They're a closed-back model, of course, and they have very comfortably padded on both the ear cups and the headband. In that aspect, they're better than the $100 Sony MDR-7506 (non-noise-cancelling) that I normally use. They're also light in weight at 7.7 ounces.

The TT-BH060's come nicely packaged with a carrying case and the required cables for charging and hardwired use.

The TT-BH060 happened to fit my head and ears perfectly right out of their carrying case. This obviously won't happen with everyone, but they are easily adjustable via the usual sliding mechanisms for each side. The cups fold up so they fit in the provided case.

The volume up/down rocker is on the bottom of the right cup, along with the Bluetooth pair/power button, ANC on/off switch, 3.5mm jack for hardwired use, and dual microphones for the noise-cancellation work. The left cup is home to another mic and the Micro-USB port for charging the battery.

TaoTronics includes both a non-data Micro-USB charging cable and a three-foot 3.5mm male-to-male analog stereo audio

cable with a straight-line plug on one end and a right-angle on the other. The TT-BH060's also support Bluetooth 5.0 with it's advanced power savings and more reliable streaming. This of course requires a Bluetooth 5.0 transmitter at the source, although they are backward compatible with earlier versions.

NOISE CANCELLING AND FIDELITY

The TT-BH060 did an OK job of reducing ambient sound, but just OK. Nearly all the bass and low mids disappeared, leaving just some tinny remnants of the music playing in the background. Low-end drone is by far the most physiologically fatiguing to listen to, while mid-range is the most tiring to your ears, so that's good stuff. The slight ambient leakage also lets you remain aware of your surroundings. But if you're looking for near total cancellation, these aren't the headphones you want.

As to the overall sound, I got perhaps half of TaoTronics "Captivating Bass & HD Sound" claim. There was indeed captivating bass, which I found pleasant with some material, but distracting in most. It might also be called captive bass since there's no way for it to escape, and a little less of it might allow the rest of the frequencies some breathing space in the mix.

The mids skew a bit to the lower half of the mid-spectrum and they weren't especially punchy. Part of this, as I said, might be due to interference from the accentuated lower frequencies and part may be due to the single pair of rather large 40mm drivers. As to HD sound, that to me means brilliant high end, which was largely missing in action. There was enough treble to pass muster, but just barely in my book. Tastes vary, though, and younger ears might find these perfect.

The TT-BH060's charge quickly and run for a long time. TaoTronics says a five-minute charge will yield two hours of run time, and that's about what I experienced. Charge them to capacity and the company says you'll get 24 hours. I was at 12 hours and they were still playing as I wrote this.

TaoTronics TT-BH060 Bluetooth headphones

PROS

- Very comfortable to wear.
- Relatively effective active noise cancellation.

CONS

- Mid-range frequency reproduction lacks punch.
- Lacking in high-frequency clarity.

PRICE

$69

COMPANY

TaoTronics

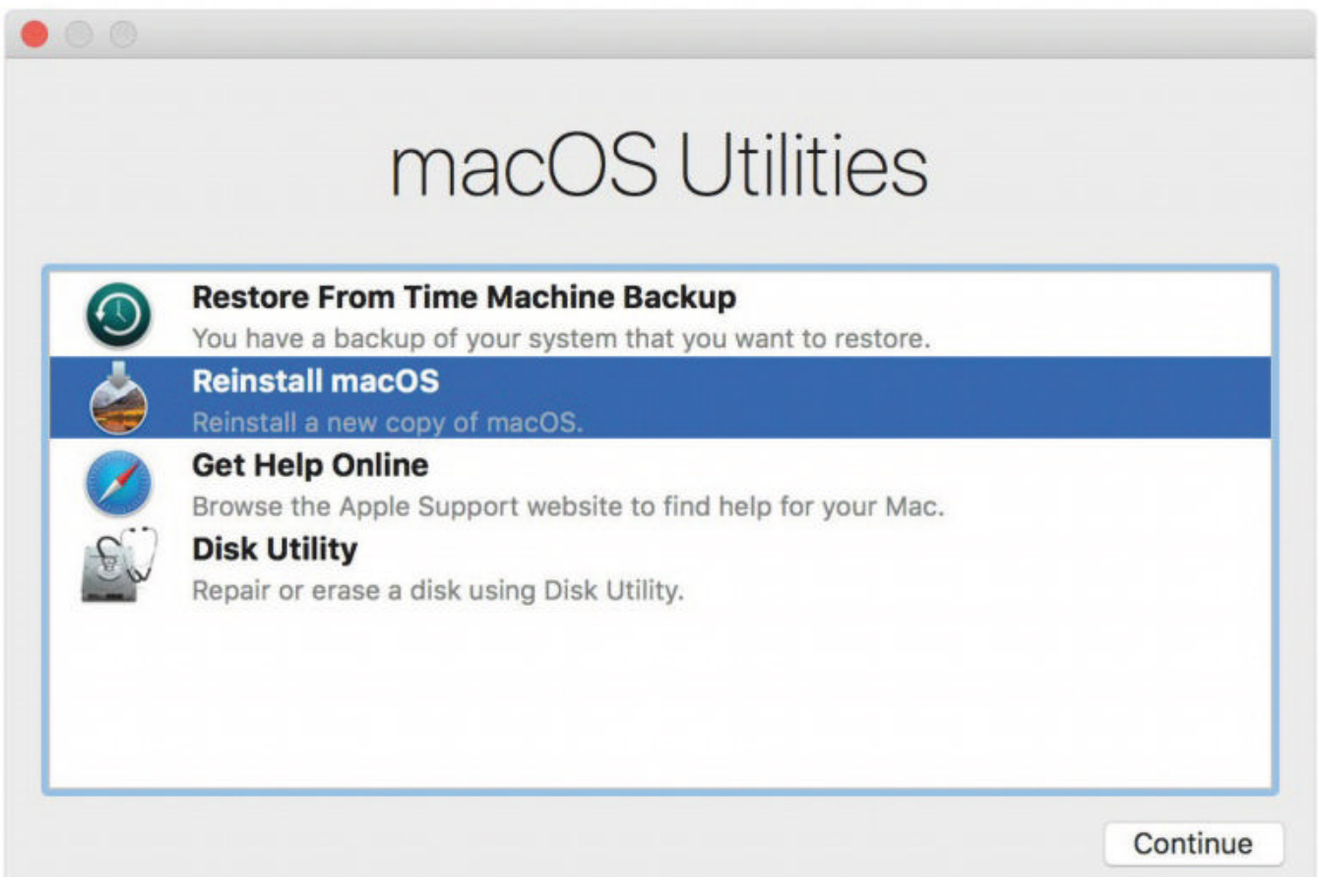
BOTTOM LINE

With an MSRP of $80, I'm not going to complain a whole lot. The TT-BH060 are very comfortable, reduce (not eliminate) noise in a pleasant manner, and the overall sonority will be workable for many. But a touchless bass and a bit more high-end would've garnered them at least another half mouse in the rating. After all, sound quality trumps everything else. ■

Mac 911

Solutions to your most vexing Mac problems.

BY GLENN FLEISHMAN



STUCK IN MACOS RECOVERY WITH A LANGUAGE YOU DON'T SPEAK? HERE'S WHAT YOU CAN DO TO FIX THIS

When you start up a Mac while holding down Command-R on the keyboard, the Mac boots into macOS Recovery. In this mode, you can run Disk Utility, access the command-line Terminal app, and reinstall the operating system. But what do you do if you restart your Mac into Recovery mode and a language appears other than one you know?

This doesn't seem to happen at random, but it can occur when you've purchased a computer from someone who installed the system using another language, which can remain in place in the Recovery partition, a separately organized part of your startup drive.

IMAGE: APPLE

Fortunately, there are a few ways to resolve this.

> Choose the third menu from the left, which is labeled File when in English, and pick the first option, which is labeled Change Language in English. You should be able to select the language you want.

> Launch Terminal, which is in the fifth menu from the left, labeled Utilities in English. The apps have icons next to them, and Terminal is a little rectangle with a prompt in it. After Terminal launches, type **`sudo languagesetup`** and press Return. You can then select the language to use.

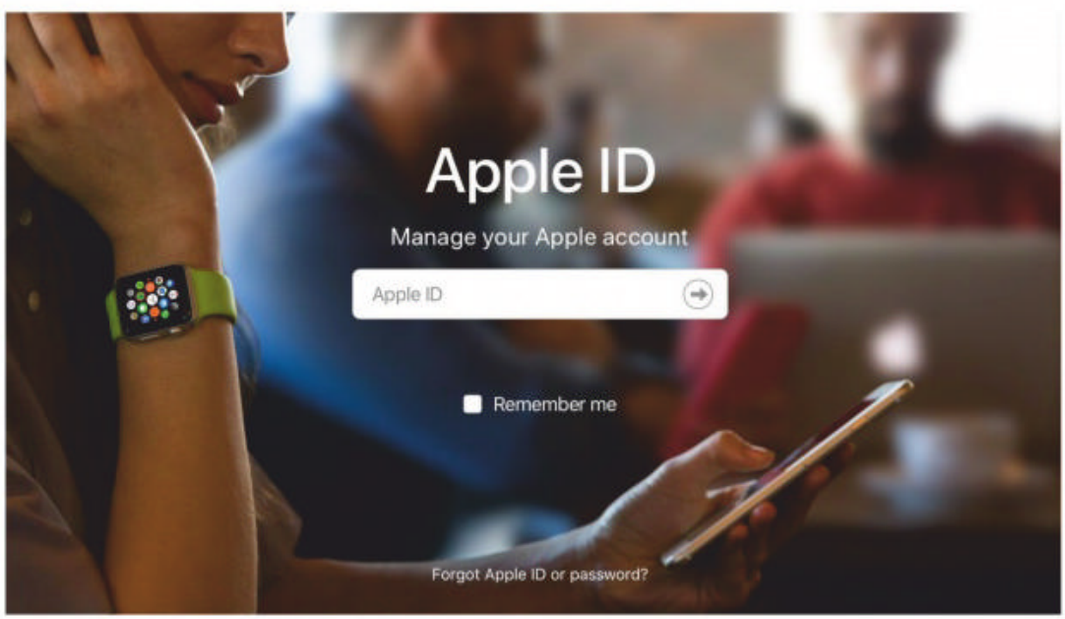
> If you have a Keyboard menu at the far right of the screen, you can select the one with a tiny U.S. flag to switch to English.

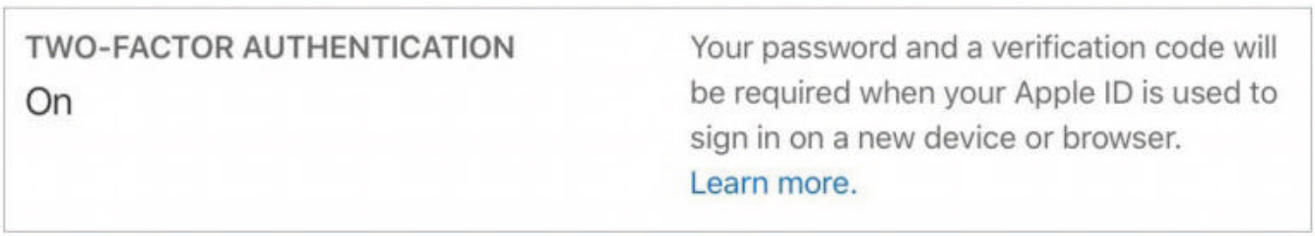
> If all else fails, you can reinstall macOS by restarting your Mac and then holding down Command-Option-R. This will re-download installation files and prompt you for a language choice, while also upgrading the Recovery partition. It won't overwrite your hard drive, but installs in place the latest version of macOS that works on your computer.

CAN YOU DISABLE TWO-FACTOR AUTHENTICATION ON YOUR APPLE ID?

Two-factor authentication (2FA) provides an effective way to deter people from hijacking an online account. With 2FA, you supplement a password with something else—typically you enter a code that's sent via a text message. The second factor means someone has to know both your password and have access to something you own—a phone number, a phone, or a computer—and dramatically reduces your exposure when password breaches inevitably happen.

Apple added 2FA for Apple IDs a few releases ago (go.macworld.com/2fac), an upgrade from its hastily constructed





The Apple ID site no longer lets you disable 2FA.

two-step verification, which it created after high-publicity cracks using social engineering (i.e., guessing and phishing) of its iCloud service.

Apple's implementation of 2FA is integrated into iOS and macOS, and I recommend that everyone enable it. However, some people may find it's too much fuss or they have other difficulties making it work. (For Apple IDs that you don't use with a physical device, but only for purchases, 2FA can be an honest pain, but it's manageable.)

Until recently, you could opt to disable 2FA, although you had to go to the Apple ID website to turn it off. Apple quietly removed disabling 2FA as an option, and I've started to hear from people about this recently when they went to turn it off and found they could not.

It looks like Apple quietly removed that option in a later release of iOS 10 and macOS 10.12 Sierra, according to reports online. Apple's support page for 2FA (go.macworld.com/2049) notes that within the first two weeks of enabling 2FA, you can still revert. But after that, no can do:

> *Certain features in the latest versions of iOS and macOS require this extra level of security, which is designed to protect your information.*

I respect this move forward for security's sake, but I also think Apple shouldn't have taken it without a lot of disclosure, explanation, and potential grandfathering of those who had opted in. It doesn't enumerate what features require this.

And Apple only provides the second factor via its iOS and macOS, and as a fallback via text message and automated voice message. It isn't integrated with standard code-based second factors (called a time-based one-time password or TOTP) or any third-party system.

It seems like Apple should have made sure its second-factor system is as easy to use and widely accessible as possible before it made it irreversible. But the new limitation is in place, and if you haven't enabled 2FA yet, you should make sure double sure it meets your needs before moving forward.

WHAT TO DO WHE YOU CAOT TYPE CERTAI LETTERS O YOUR MACBOOK

The Mac 911 mailbag has recently included a number of letters about missing letters—people either can't type or encounter strange keyboard problems (go.macworld.com/kbpr) or other oddities.

One email began, "I am cotactig you because my Mac Book Pro keyboard has decided it does ot like to type the letter that appears betwee L ad M o the keyboard." (Sadly, the writer even had an "n" in her name.)

These kind of keyboard problems are easy to diagnose, because Apple's had a spate of problems with its MacBook and MacBook Pro models. It chose a new keyboard design starting with the 2015 12-inch MacBook, and then brought to the 2016 overhaul to the MacBook Pro line. Its revised its design once, but not with much improvement.

The issue is that the "butterfly" switch design offers a short travel distance—the space covered from a key at rest to one fully depressed—which allows an ultra-shallow keyboard. But it also suffers mightily from the slightest speck of dust. Casey Johnston reported this story closely for The Outline (go.macworld.com/otln), and had to have the keyboard on her MacBook Pro replaced several times.

Apple ultimately recognized the problem by offering an extended repair program (go.macworld.com/kbrp) for