

The Second Coming Of iPad

With new hardware and a next-generation operating system heavy on tablet-specific improvements, Apple is on a campaign to make the iPad your primary computing device.

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Apple CEO Steve Jobs had a favorite analogy for the post-PC era: Computers were trucks, and tablets were cars. He liked to compare the segue from PCs to tablets with the segue from trucks to cars that accompanied the urbanization of America.

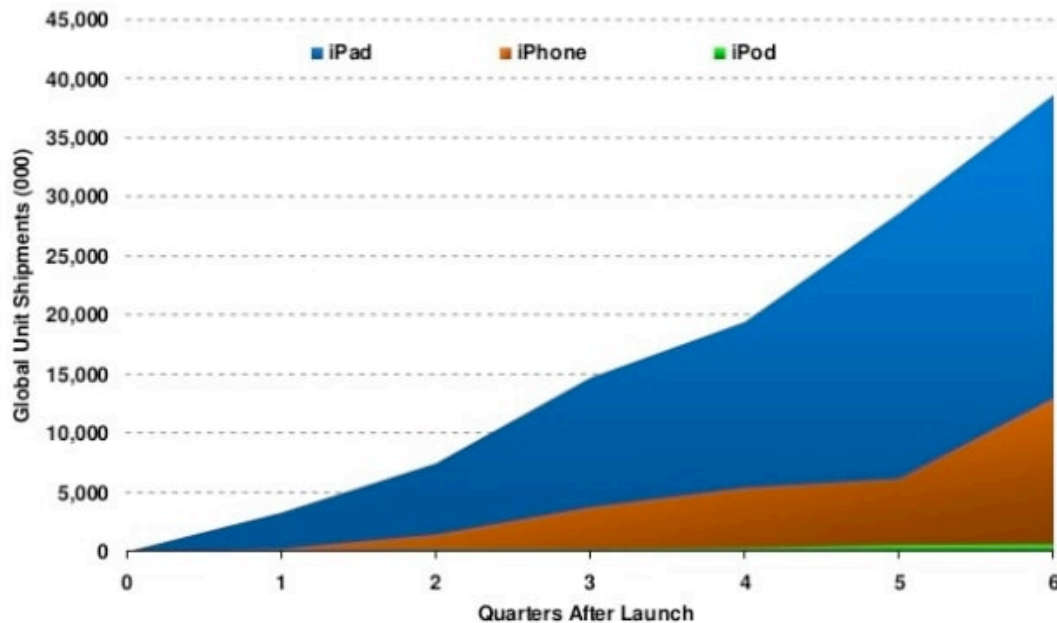
“When we were an agrarian nation, all cars were trucks, because that’s what you needed on the farm,” [Jobs said at the D: All Things Digital conference in 2010](#). “But as vehicles started to be used in the urban centers, cars got more popular. Innovations like automatic transmission and power steering and things that you didn’t care about in a truck as much started to become paramount in cars. ... PCs are going to be like trucks. They’re still going to be around, they’re still going to have a lot of value, but they’re going to be used by one out of X people.”

Jobs’ remark, made just six months after the debut of the first iPad, proved remarkably prescient. In a slide from venture capitalist Mary Meeker's annual "Internet Trends" report just

a year later, the iPad is a rocket ship growing almost three times as fast as the iPhone did after its debut.

KP CB iPods Changed Media Industry...iPhones Ramped Even Faster...iPad Growth Leaves "Siblings" in Dust

First 6 Quarters Cumulative Unit Shipments, iPod vs. iPhone vs. iPad



Source: Apple, as of Q2:11 (6 quarters post iPad launch).

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But in the years that followed, that changed. By mid-2013, Apple's iPad business had begun to shrink. And it was no temporary sales lull. Unit sales of the iPad, while still pretty huge, have dropped for 13 consecutive quarters now. Turns out, people tend to hold on to their tablets for quite a while.

This year Apple is hell-bent on convincing them to buy new ones. In March, it uncrated a more affordable 9.7-inch iPad targeted at casual users. And today, the company debuted two iPad Pros targeted at hardcore users — a next-generation version of its 12.9-inch-display model and an entirely new

10.5-inch-display model. Both boast dramatically improved displays, more powerful innards, and more storage (a 512GB option!). Alongside them, Apple unveiled iOS 11, a new version of its mobile operating system that's heavy on iPad-specific enhancements.



Courtesy of Apple

Craig Federighi, Apple's SVP of software engineering, says iOS 11 is “easily the biggest iPad release ever.” Marketing chief Phil Schiller one-ups that. “What we’ve done for iPad in iOS 11 is in and of itself enough for a major software release,” he

explains. “You could say, ‘Here's the iPad version of iOS 11’ — if there was such a thing.”

Devotees of the iPad have pined for productivity enhancements for years — and this version has them, like the ability to drag and drop images or links from one app to another, and a smart way to manage files beyond looking for them in their associated app. There is a new, more affordable model for consumers, and two tricked-out models for pros that have a long-awaited iOS update tailored to iPads.



Gabrielle Lurie / AFP / Getty Images

Craig Federighi, Apple's senior vice president of software engineering.

For a while — since its inception — iOS has been iPhone-first, with nods to the iPad as well.

This is the first time that iOS has (seemingly) been designed from the get-go with the iPad at top of mind. While last year's iPad Pro may have delivered on hardware, without a strong OS update to match, it felt incomplete as a “primary” computer. Yet given this new operating system — especially when taken together with this year's hardware — it feels like the iPad may be at another inflection point.

Certainly, that seems to be Apple's hope: “We want iPad to be an even better primary computing device for the people who want it to be that,” says Schiller.

For creatives and professionals who embraced the original 9.7-inch iPad Pro only to find themselves [hamstrung](#) by cramped keyboards and multitasking that just wasn't quite there, the new 10.5-inch iPad Pro and the larger Smart Keyboard intended to accompany it will likely hit a sweet spot.

“The 10.5 crosses this really interesting threshold,” Federighi says. “By trimming down the bezels, we were able to maintain a size that's great to hold in bed while reading, but it's also got a full-sized keyboard. It's deceiving to the eye, but when you put your hands down and start typing you immediately feel ‘oh yeah, now I can type just like on my Mac.’”

“You could say, ‘Here's the iPad version of iOS 11’ — if there was such a thing.”

It's a seemingly elementary improvement, but it feels like a crucial evolution. If the iPad Pro is indeed “the clearest expression of Apple’s vision of the future of personal computing,” as CEO Tim Cook has said, you should be able to comfortably type with it, no? At least until [telepathic typing becomes an actual thing](#).

Similarly, since the iPad is a touch device first, touch interactions — be they via finger or Apple’s Pencil stylus — should be instantaneous, alive. And on the new iPad Pros they get pretty damn close, thanks to one of those world-of-pure-imagination innovations Apple is willing to spend years concocting. This one’s called ProMotion, and it doubles the number of times per second an image can be refreshed on the the iPad Pro’s display. Like most all mobile devices, the first-generation iPad Pro had a refresh rate of 60Hz. The new iPad Pro can ramp up to a refresh rate of 120Hz that’s more typical of 4K TVs.



What that means in practice is that anything that moves on the device's screen — whether it be video or a line drawing or a photo zoom — appears smoother and more detailed. Some touch interactions are dramatically more responsive; you get the sense that Apple is speeding iPad toward finger-into-puddle-of-water levels of responsiveness.

Meanwhile, the Apple Pencil's latency — that slight lag you get when drawing — has been reduced to the point where it's virtually imperceptible; Apple says it's just 20 milliseconds. And since Apple is so intensely focused on capturing the experience of putting pen to paper, it's doing additional work in the background to remove the lag entirely with machine learning-based algorithms designed to predict where a Pencil is headed next.

“We actually schedule the next frame for where we think the Pencil's going to be, so it draws it right when you get there, instead of right after you have been there,” Schiller says.



Justin Sullivan / Getty Images

Phil Schiller, Apple senior vice president of worldwide marketing.

For Federighi, who's had a hand in a broad array of Apple innovations since his return to the company in 2009, ProMotion is a dramatic upgrade to the iPad Pro. Asked about its origins, he leans forward in his chair and describes the holy-shit moment of discovery with the excitement of a kid who's just learned you can make a

volcano out of baking soda and vinegar.

“We built some early prototypes to experiment with super-low-latency touch on a 120Hz display, and we hooked them up to these big engineering rigs driven by Mac Pros,” Federighi says. “The touchscreen experience was incredible. It was like the display was directly attached to your finger.”

It's worth noting that this was four years ago, and Apple almost immediately started working on the chip to support it. Only now are we seeing it commercially deployed, which gives you a sense of the massive amount of research and development involved in developing a chip powerful and power-efficient enough to drive a 120Hz iPad display. That's

important, because it shows how much Apple has committed to the iPad line; it's worth that kind of multiyear investment.

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“It was a massive, cross-functional effort,” says Federighi. “There’s hardly a team in engineering that didn't contribute to this effort, and I think we got it right. ... I know we use the word 'magical' a lot, but that's how I feel about this one.”

So that's the hardware. But Apple prides itself on delivering "the whole widget," as Steve Jobs used to say — a seamless integration of hardware, software, and services.

iOS 11 promises to do a good job of that for iPad. It may not be the "padOS" — an iPad-specific operating system — for which some folks have argued, but it's got a groaning board of thoughtful iPad features. There’s an ever-present (and very Mac-like) dock for favorite apps; There’s an intuitive and system-wide drag-and -drop for most anything you'd want to move from one app to another; Also newly added is the ability to annotate — or deface — documents, photos and screenshots in pretty much any app that supports printing simply by touching Apple Pencil to the iPad's screen

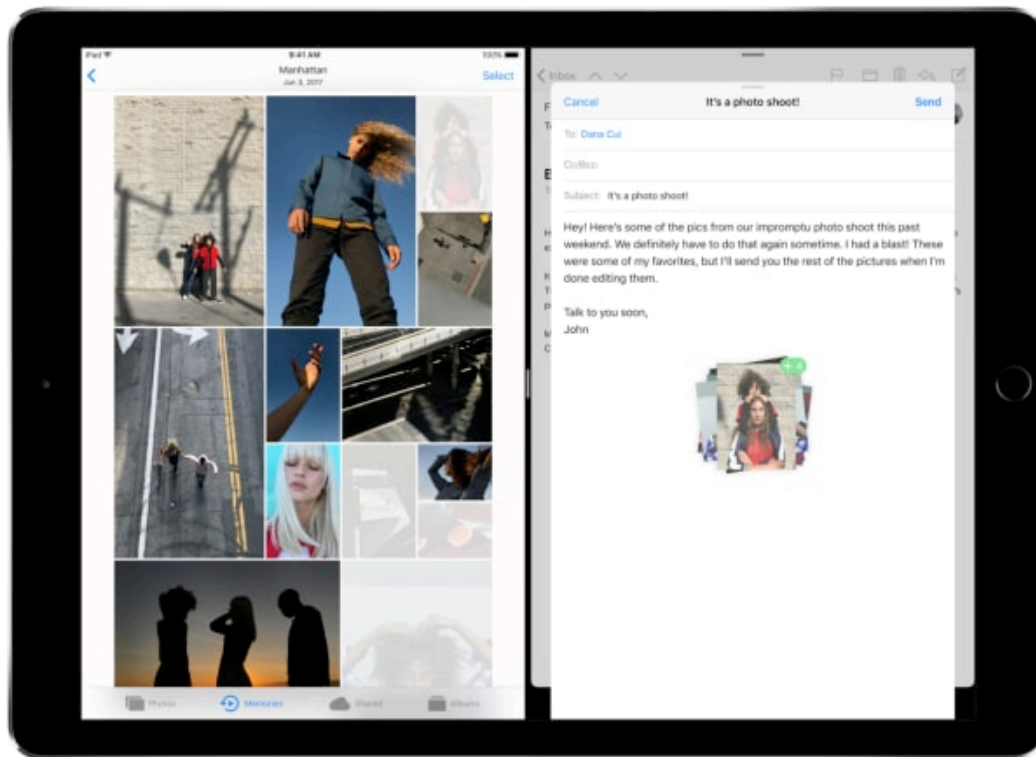


Courtesy of Apple

Best of all, and at long last, there's a Files app that offers quick and easy access to all your documents and media, whether they're on your iPad, your Mac, or a third-party cloud storage service, like Dropbox or Box. It's simple enough for casual iPad users who just want things to be where they expect them to be and in the applications they use them. But it's also robust enough for workflow, uh, badasses who want to design their own file hierarchies.

There are other features as well, but for anyone who has tried and failed to use the iPad as a primary work machine, these four present a compelling case for going all in on the device again. It's hard not to look at the new 10.5-inch iPad Pro

running iOS 11 and recall that ["The computer for the rest of us"](#) slogan Apple used in 1984 to launch the Mac. Today, might the same be said of the iPad?



Courtesy of Apple

Perhaps. That said, Apple says it sees a long future for both Mac and iPad. “It’s simple, really,” says Federighi. “There’s a product you hold in your hand that’s designed for direct manipulation. And there’s product you use at your desk that’s designed for indirect manipulation. When you take those ideas to their fullest expression, when you extend their reach, there will inevitably be some overlap. But ultimately, people are going to choose the one that’s the most compelling for what they want to do.”

Which brings us back to Steve Jobs' cars and trucks analogy. Does it still hold up seven years later when smartphones are for many people their primary computing device? What if it turns out that phones, not tablets, are the cars?

Federighi and Schiller both think the comparison still holds. "Not to overstretch the analogy, but I think there's room for a car, a truck, and something that overlaps both," says Schiller. "The smartphone is our key mode of digital transportation. It's with us all the time — it's our browser, it's our communication device, it's our camera. But can it do the heavy lifting of making a movie or writing an app? Of course not. For higher-end tasks like those, you need a truck; you need a Mac."

"iPad provides something unique between the two," Schiller concludes. "It's like the crossover vehicle. And in the vehicle world, crossovers are growing dramatically." ●

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