

PC MAGAZINE

**BECOME A
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**THE CHANGING
FACE OF THE
DESKTOP**



COVER STORY

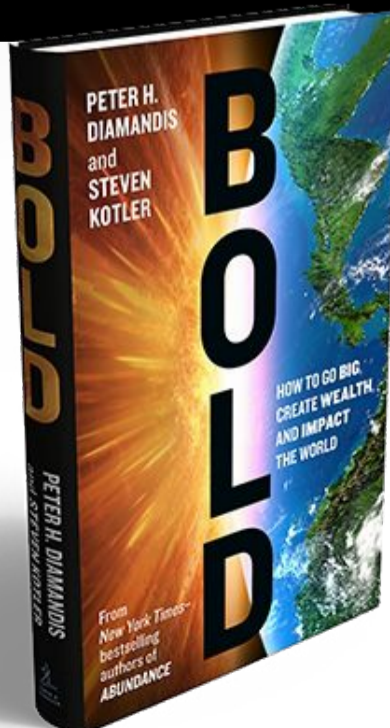
**THE CHANGING
FACE OF THE
DESKTOP**

Bold designs and innovative features are giving the once-moribund desktop PC a new lease on life.

FEATURES

**OUR EXCITING, WEIRD, AND
SCARY FUTURE: AN INTERVIEW
WITH PETER DIAMANDIS**

Entrepreneur and author Peter Diamandis describes how AI, engineering, and robotics enhancements are creating a future that will offer more of everything for everyone.



Peter Diamandis' new book, *Bold*.

REVIEWS

CONSUMER ELECTRONICS

Amazon Echo

Fitbit Surge

Dell Venue 8 7000

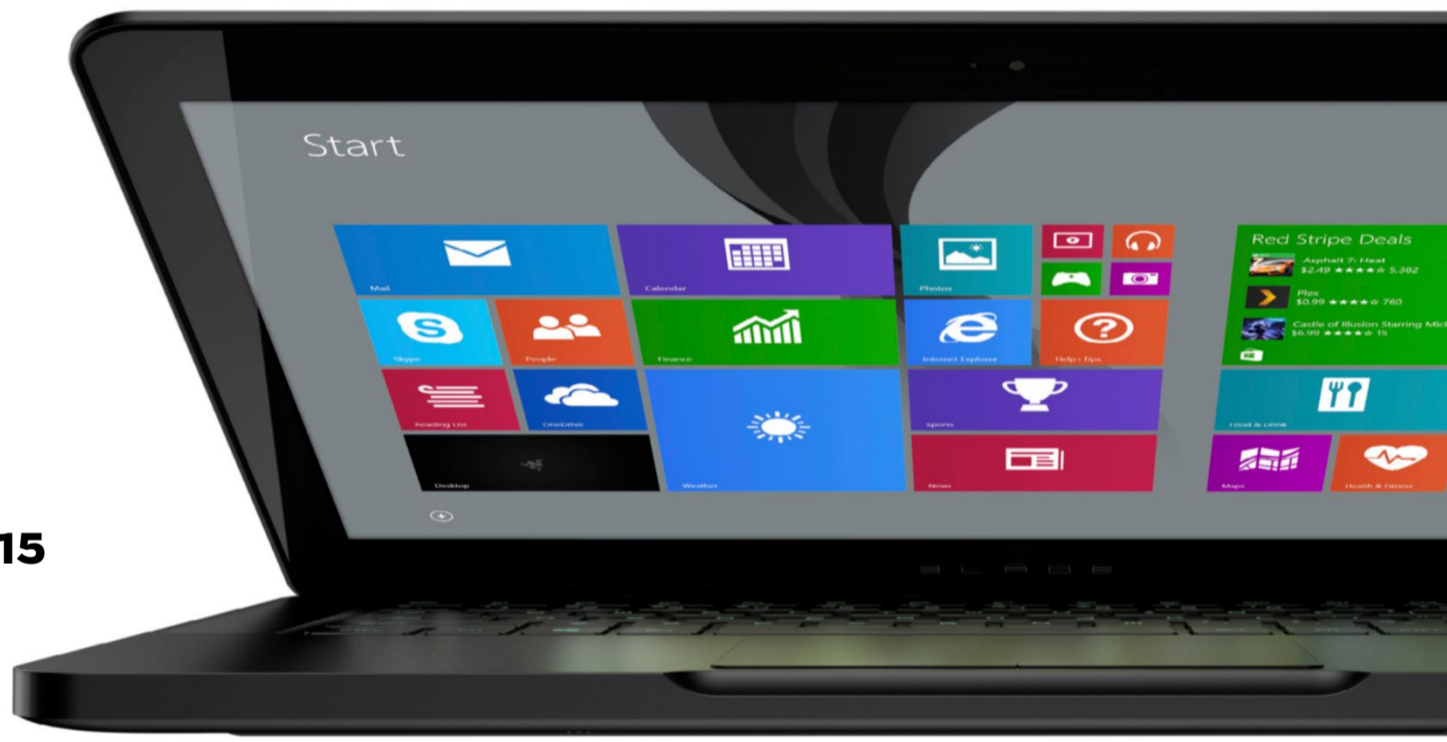


HARDWARE

Razer Blade

Dell XPS 13 Touch

Matter and Form
3D Scanner



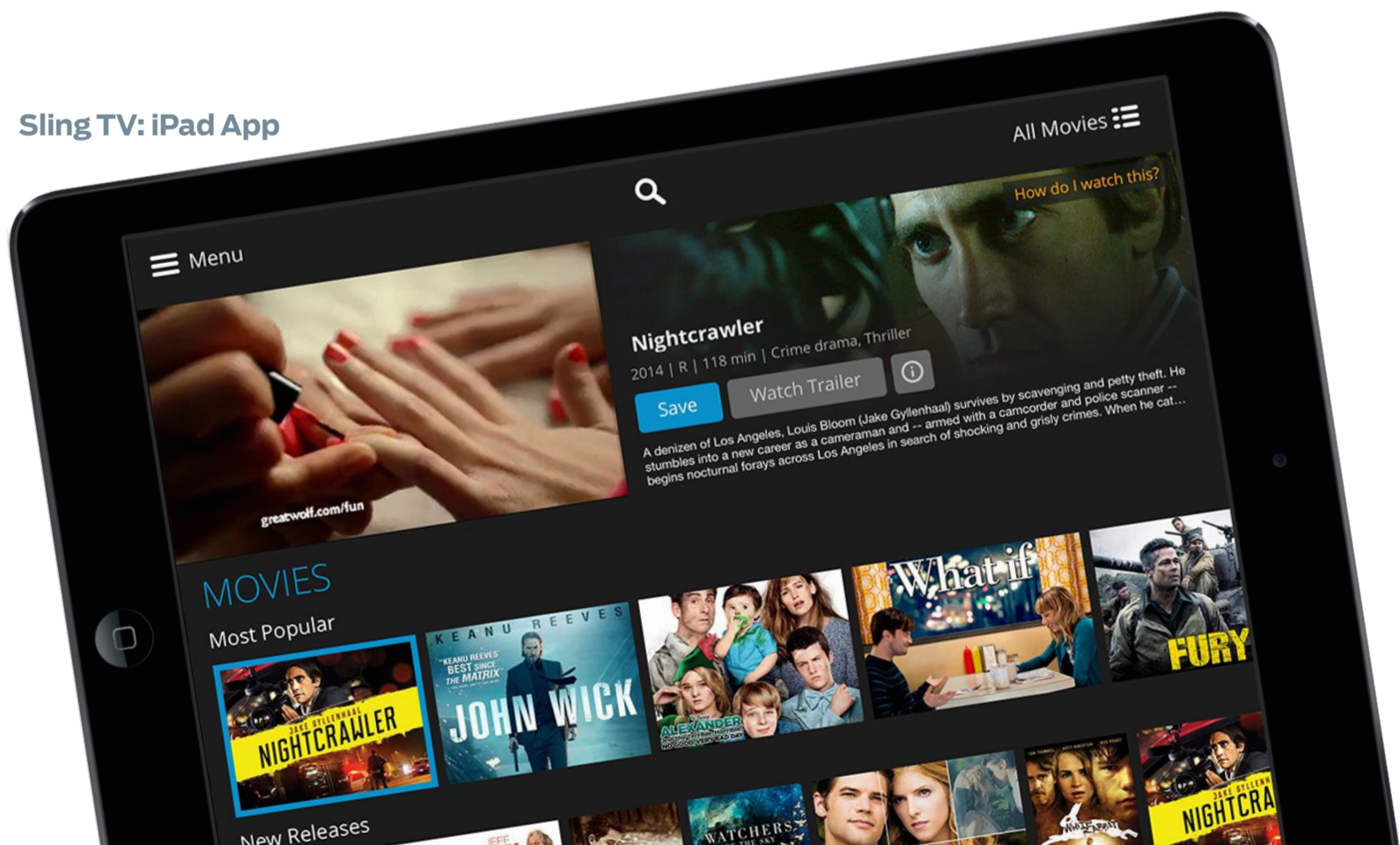
SOFTWARE

TaxACT Deluxe 2015
(Tax Year 2014)

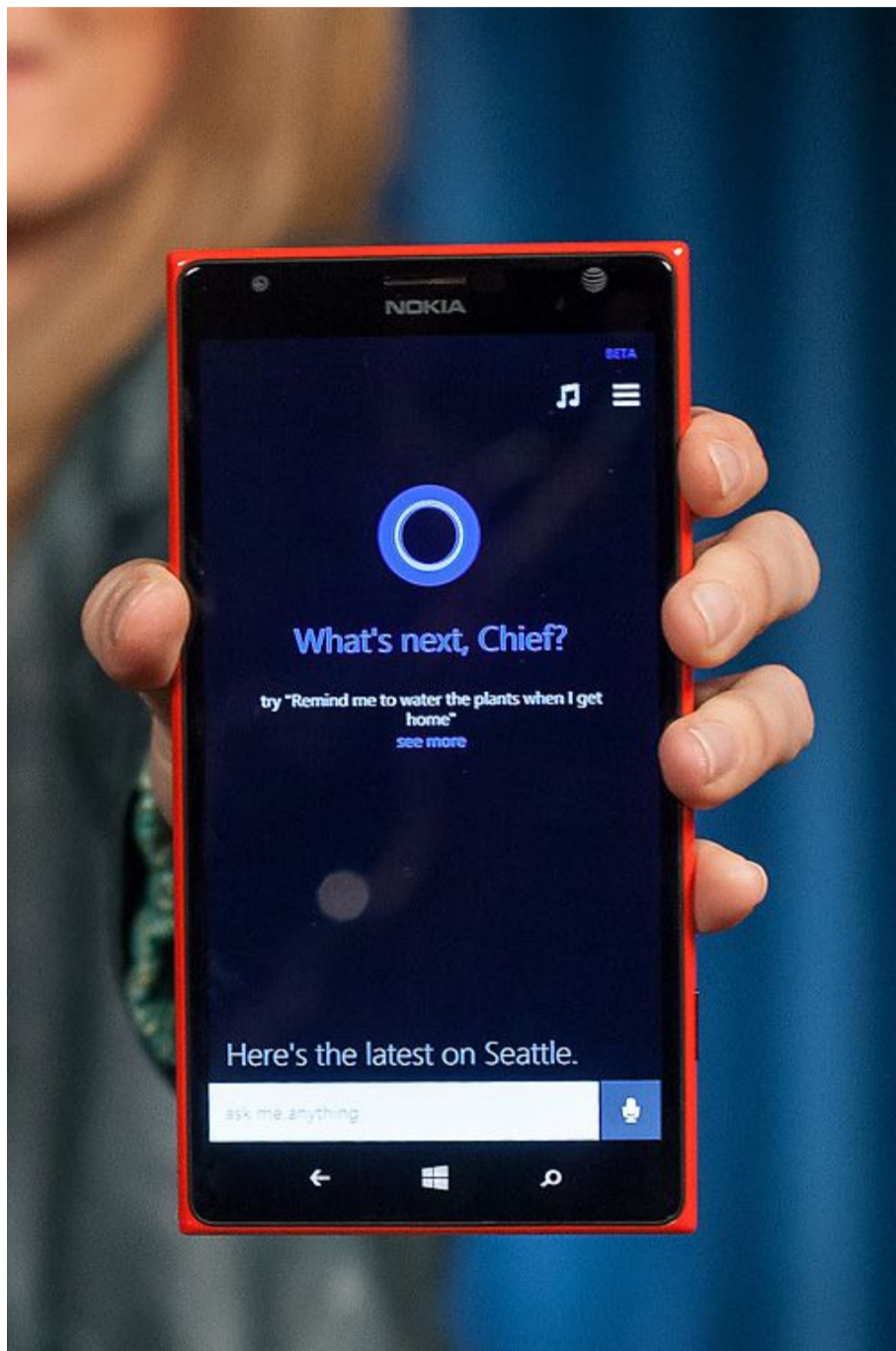
Sling TV

Comodo Firewall 8

Sling TV: iPad App



WHAT'S NEW NOW



HEY, CORTANA: WORKING WITH WINDOWS 10'S DIGITAL ASSISTANT

Look out, Siri: Microsoft's assistant is coming to Windows 10. We take her for a spin.

WHERE YOUR DRONES CAN AND CAN'T GO

FAA rules and a no-fly-zone website are putting new limits on what drones and their operators are allowed to do.

THIS HIGH-TECH HOTEL LETS YOU SNOOZE AND SCHMOOZE

The Lloyd Hotel in Amsterdam blends technology and old-fashioned hospitality to create a new lodging experience.

TOP GEAR

LAUNCH WINDOW





Redefining the Desktop

It's been a while since we put a desktop on the cover of *PC Magazine*. Our mission to chronicle the ever-shifting shape of personal computing has driven us to cover smartphones, wearables, thermostats, trackers, watches, and all manner of connected devices. Indeed, there's never been more diversity in the range of digital devices available to the consumer. But a funny thing happened on the road to the Internet of Everything: The desktop didn't go anywhere.

The meteoric rise of tablets is well known. Tablets are a big part of the reason why PC sales have been falling for the last three years, but this trend is slowing. Traditional PC sales are coming back. According to Gartner Worldwide, PC sales grew 1 percent in the fourth quarter of 2014. In the U.S., PC sales are even stronger, growing some 13 percent over the same period in 2013. Altogether, more than 315 million PCs were sold in 2014. In 2015, that number will be even higher. (As long as Microsoft doesn't screw up Windows 10, anyway, but that's a story for another issue.)

Granted, a lot of those PCs will be laptops or hybrids like the Microsoft Surface. Most consumers want the flexibility of a mobile platform. The majority of desktops these days are sold to enterprises that want stable, upgradable systems that don't leave the office. Conventional desktops are an ever-shrinking portion of the PC market. In response, vendors are building ever-more-unconventional PCs.

In this month's cover story, Matthew Murray examines some of the most interesting desktops to



**Xuditium quix-
aut Xuam Rend
Wsectiovx. Ag-
nit Quat Xuam
Xcsilaut Rend
Qmnienda,
Utquu Xuam
ntur Wtiovx!**



hit our Labs recently. It turns out that being stationary comes with some real benefits. First of all, desktop components still have a significant cost and power advantage over those used in mobile systems. That's why desktops will always dominate the gaming and workstation markets. But there are other, more creative desktops coming out as well.

The HP Sprout, for example, incorporates a 3D scanner, touch-sensitive mat, and projected virtual work area. This showpiece for designers is intended as the ideal 3D printer companion, letting you capture, edit, and then output in 3D. It isn't designed for your current desktop—it's designed for your future desktop.

My favorite desktop in this story is the Raspberry Pi 2, the natural result of Moore's Law, miniaturization, and massive economies of scale. This credit-card-size computer requires a little more setup than your average Windows system (get comfortable with Linux!), but you can't argue with the price: \$35. To put that in perspective, I'll point to a comparison tech pundit Om Malik recently made in *Fast Company*: "You can buy a [first-generation] Raspberry Pi with a 700MHz processor and 256MB of memory for about \$25. In 2001, a Mac with 450MHz and 64MB of RAM cost \$1,800." At this rate, what exactly will the "desktop" look like in another ten years?

Read Matt's piece to find out. Whatever it is, I can't wait to get it into the Labs.

dan_costa@pcmag.com



Any Port in a Storm

In his February 2015 column “The Real Dark Web,” *PC Magazine* editor-in-chief Dan Costa railed for a few hundred words about the new film *Blackhat* and then asked you if you’d ever seen a good hacker movie. Here are some responses we received.

Hackers was a good movie. I know it’s all fiction and BS, but we don’t want people really going out there and trying this stuff. Plus, to keep people’s attention they can’t just show some nerdz in front of their monitors typing commands. It’s gotta be suspenseful and sexy. This is a Hollywood movie, remember, not a documentary.

—*Erik Carrasco*

OUR ANSWER:

Erik, many of us here at *PC Magazine* agree about *Hackers*—it was one of the very few movies we could reach any consensus about. And for what it’s worth, I agree with you that filmmakers have different aims and responsibilities when they’re making an entertainment film instead of a documentary. Most of us who saw it, though, didn’t think *Blackhat* worked as either tech or entertainment. It had a lot of potential, but didn’t offer much more than bland globe-hopping chase scenes that could have been in any movie. Given how ubiquitous the Internet and its security concerns now are, there’s plenty of room for exciting stories, and we can’t wait to see them.

—*Matthew Murray, Managing Editor of Digital Editions*

How about 1992's *Sneakers* with Robert Redford?

—*Thomas Harmon*

OUR ANSWER:

I loved *Sneakers*, Thomas, as did most of the crew who went to see *Blackhat*. When we discussed it, though, we weren't sure it exactly qualified as a "hacker" movie; some of the characters were hackers, but the "black box," capable of breaking any encryption, was really more a MacGuffin than anything you were supposed to care about. But Redford was terrific in the movie, as were Dan Aykroyd, Sidney Poitier, David Strathairn, and the late River Phoenix, all of whom gave superb comedic performances that beautifully balanced out the story's suspense.

—*MM*

GOODBYE, MR. CHIPS

I know that processors are not sexy like the latest Android, IOS, and Windows OS. But I miss the days of Intel-versus-Athlon articles, comparing the different offerings. I still build my own systems and always wonder what is new and how it stacks up against other chips.

— *Damion Knight*

OUR ANSWER:

Thanks for writing, Damion. I still build my own computers, too. There are two factors at play here. First is the nature of the industry, which is more diverse today than it's ever been; not that long ago, PCs were the extent of personal computing technology, but that's not true anymore. We try to cover a wide range of products, because people have room to care about so many different things, and we include relevant hardware comparisons in every review we can. But we're always working on finding the proper balance, and we have some deeper-diving stories planned for future issues, so we hope you'll stay tuned.

The other problem is largely out of our hands. Up until even a few years ago, robust competition between Intel and AMD kept the chip scene fast moving and vibrant. But AMD's schedule of releases has slowed recently, and many of its chips trend lower in terms of price and performance than will generally affect (or attract) most system builders. Though this is giving people with older systems more upgrade options (and backward-compatibility has long been one of AMD's strengths), fewer major innovations from the company have meant that Intel has pretty much

cornered the consumer PC sector. It's rare for us to even get in systems for testing that have AMD processors these days. We should point out that, given its presence in the gaming console and embedded markets, AMD is not hurting. But for builders, it's not the powerhouse it once was.

As a rule, Intel's processors get more powerful (and expensive) as the numbers in their names increase; the Core i7 family offers better speed, multithreading, and features than Core i5, which is itself superior to Core i3. This is also true within families. The Core i7-4820K will be stronger than the Core i7-4770, and also cost a bit more (\$325 versus \$310), for example. Once you've determined your usage model (gaming, say, or video editing), just find the best chip to match your budget and you're set.

The one exception: Intel's highest-end CPU is usually the "bleeding-edge" option, which offers all the performance and features possible but is not typically a great value over the next chip down. So you can pay \$1,050 for Intel's screaming eight-core Core i7-5960X if you want to, but unless you live on intensely multithreaded workloads, the \$580 Core i7-5930K, which backs off so little on capabilities that most people won't even notice the differences, is a much better deal.

—MM

Ask us a question!

Have a question about a story in *PC Magazine*, one of the products we cover, or how to better use a tech product you own? Email us at letters@pcmag.com and we'll respond to your question here. Questions may be edited slightly for content and clarity.



What's New Now

**HEY, CORTANA: WORKING WITH
MICROSOFT'S DIGITAL ASSISTANT**

**WHERE YOUR DRONES
CAN AND CAN'T GO**

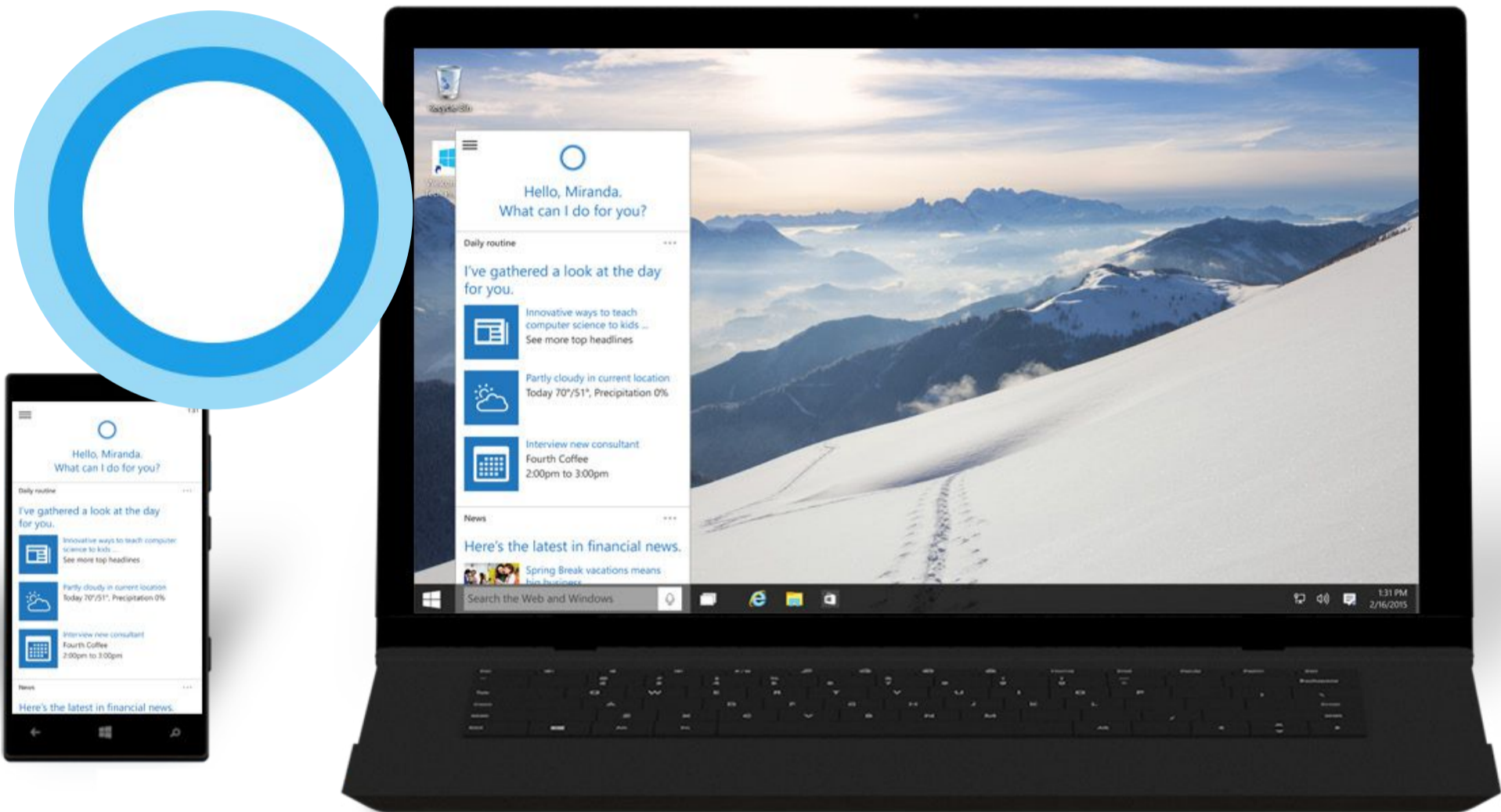
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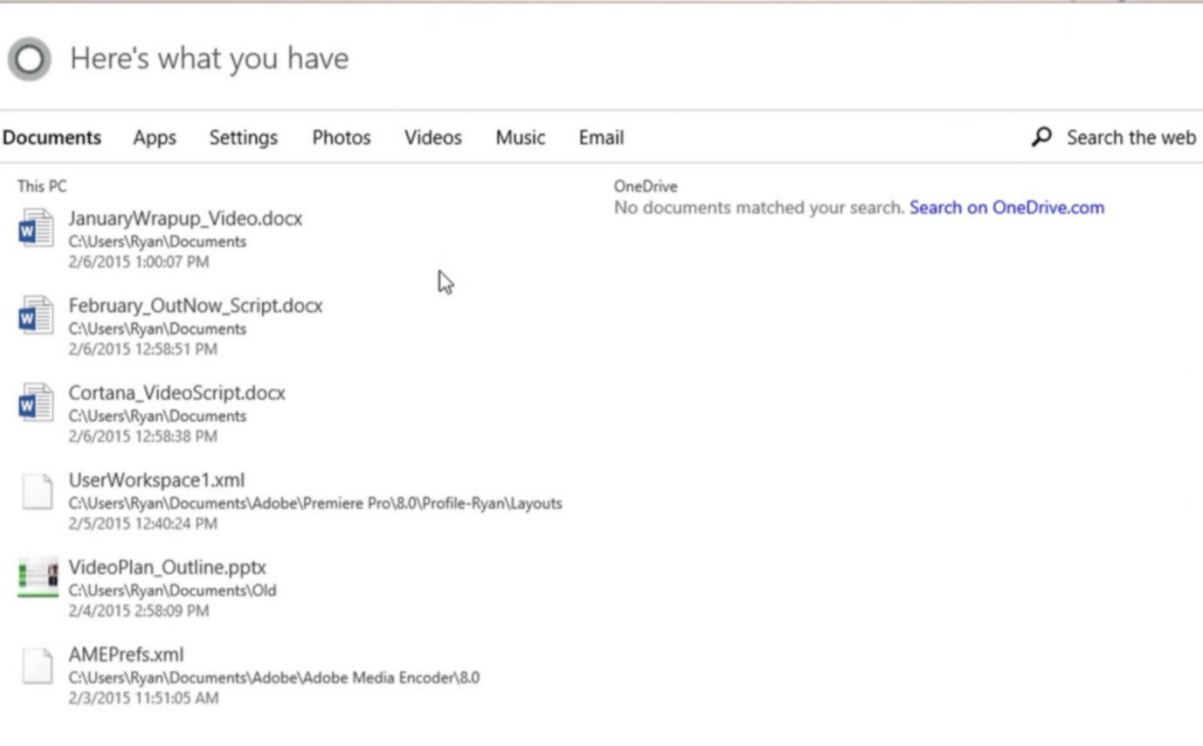
LAUNCH WINDOW

Hey, Cortana: Working With Windows 10's Digital Assistant

BY MATTHEW MURRAY AND DAVID CARDINAL



Windows 10 will mean some major changes for PC users, with everything from updated interface elements to the new Project Spartan Web browser expected to play a big role in the next-generation operating system. But the most exciting of everything that's in the works might just be Cortana. Though popularly assumed to be merely the company's answer to Apple's Siri when she was introduced at the 2014 BUILD Developer Conference, the Cortana personal assistant as she now stands shows that Microsoft has quite a bit more on its mind. Specifically, Cortana is the most personal bridge yet between the same collection of disparate devices (PCs, tablets, Windows Phones, Xbox consoles) and services (such as OneDrive) that Windows 10 is already poised to unite.



WHAT YOU NEED

By connecting easily with all elements of the Microsoft ecosystem, from your file system to your Xbox to the Web, Cortana gets to know you as well as anything digital can.

Cortana still runs searches for you, bringing up the data you're looking for mainly in the form of Bing queries, when you speak or type your request. But she's also being designed to tailor your usage to your precise situation. For example, Cortana interacts with you differently on your phone than she does on your desktop: You're more likely to engage in many short exchanges on the former, whereas on the latter you might want to use a single program for long periods of time and not be disturbed merely so you can perform some otherwise unrelated action for a few seconds. As an additional convenience, Cortana even remembers what you're doing on all your devices, automatically moves information between the various platforms, and delivers only the notifications and reminders you need, when you need them.

Plus, Cortana is also being built smart, so she can learn your habits and preferences to better provide the kind of help you need in the moment, whether that means playing music or guiding you past frustrating rush-hour traffic on the route you usually follow when driving to or from work. In a recent blog post about Cortana, Marcus Ash, group program manager for the Cortana and Search on the Windows PC, Phone, and Tablet Group, was careful to stress that you're always able to view the information contained in Cortana's "Notebook" and discover exactly what she knows about you.

Ash also touted Microsoft's advances in making Cortana more like a human being. "Our approach on personality includes defining a voice with an actual personality," he wrote. "This included writing a detailed personality, and laying out how we wanted Cortana to be perceived. We used words like witty, confident, and loyal to describe how Cortana responds through voice, text, and animated character. We wrote an actual script based on this definition that is

spoken by a trained voice actress with thousands of responses to questions that will have variability to make Cortana feel like it has an actual personality and isn't just programmed with robotic responses." Even the Cortana circle logo, which appears whenever the assistant is being used, changes based on her "mood."

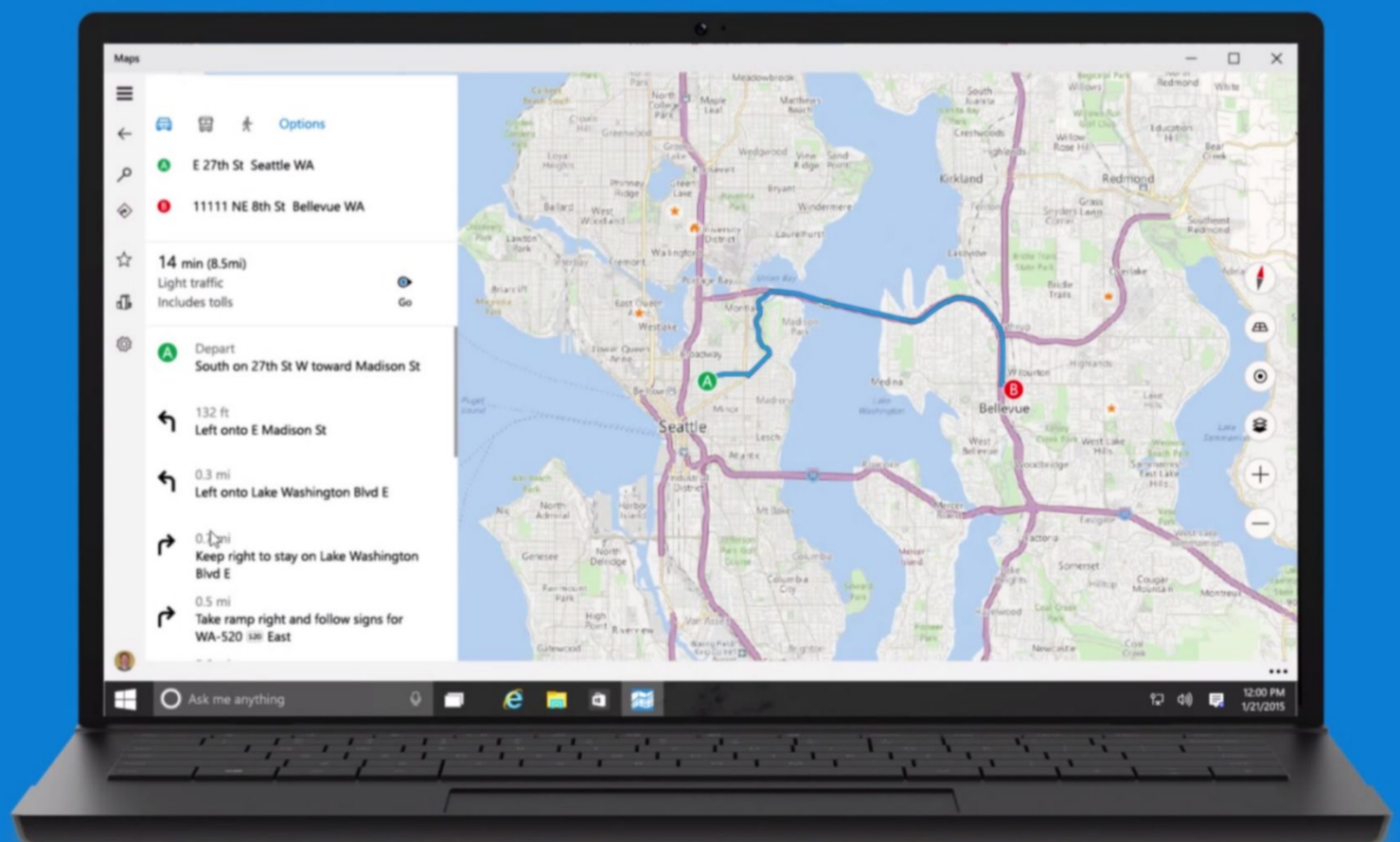
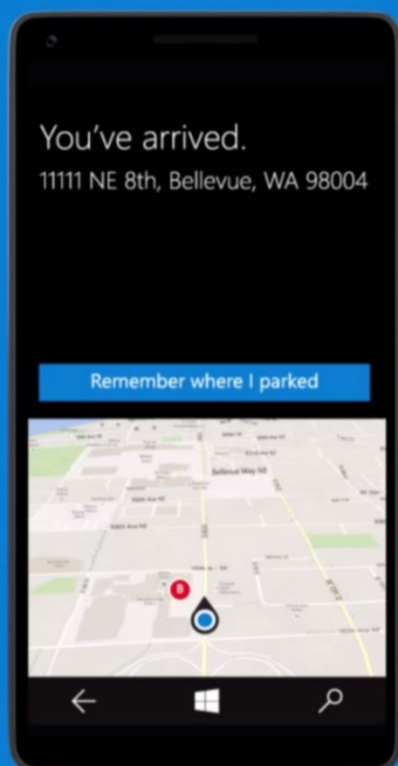
STILL A WAY TO GO

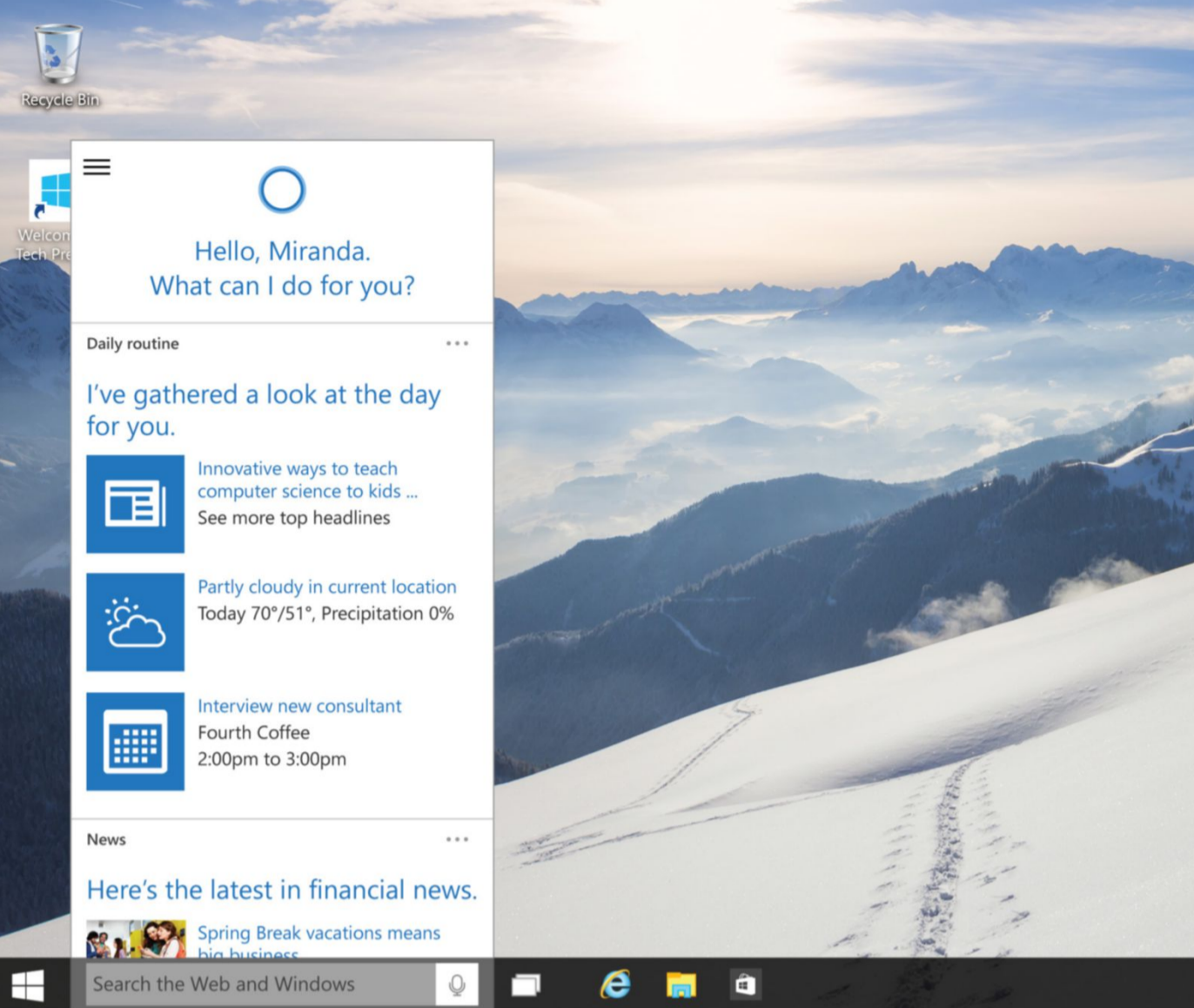
In our tests with Cortana in her earliest Windows 10 builds, we found that she doesn't yet quite match her Windows Phone counterpart in terms of overall sophistication. Sometimes typing did nothing, other times Cortana misunderstood what we were asking, or answered something else altogether; her ability to answer questions tends to vary from hour to hour.

There's also the matter of the inherent ambiguity of replacing a quick system lookup function with a complex AI-powered search tool. There are lots of possibilities for confusion. Typing "Time" for example, brought up the *New York Times* crossword puzzle at one point; at another, "What is the time?" opened the Windows Clock application. Cortana's "personality" can also register as the sort of attitude

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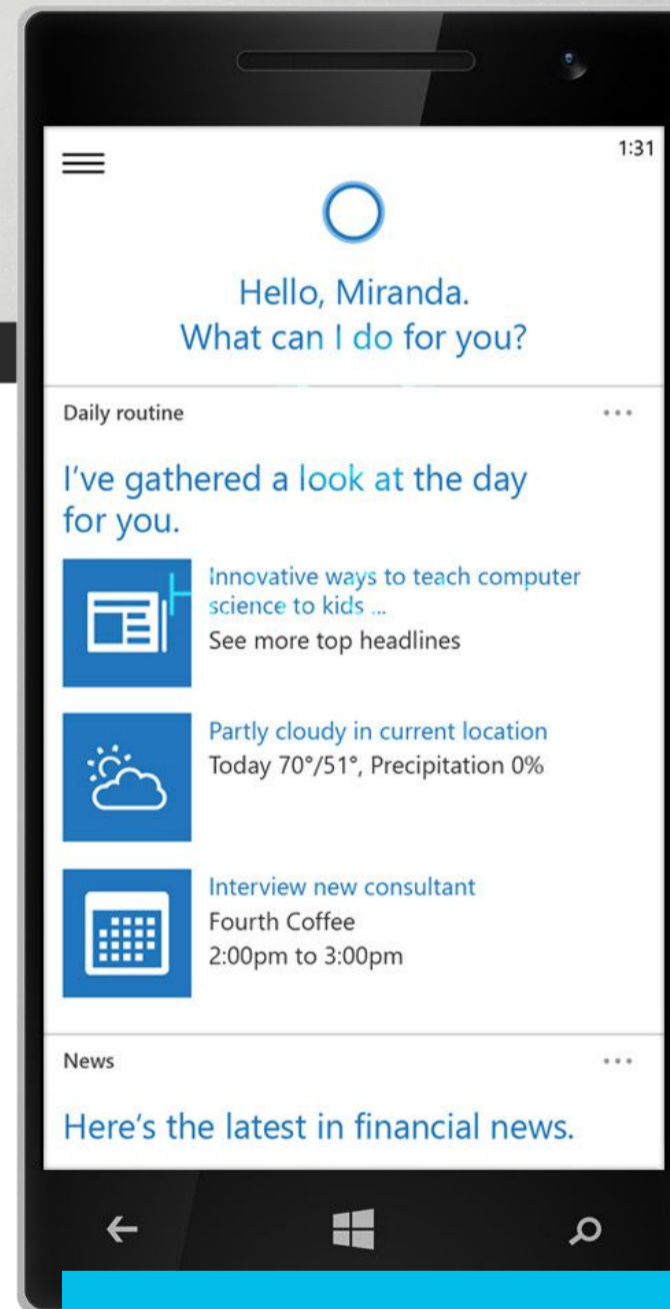
HOME SWEET HOME
Teach Cortana where your home is and she'll give you the directions you need to get there quickly and safely—and even avoid heavy traffic along the way.





some people might not want from a computer that doesn't understand what they just said. For example, one of the canned answers when Cortana doesn't understand how to deal with your question is, "A circle is infinite, but my answers are not."

Presumably, many of these issues will be ironed out before Cortana ships with Windows 10 later this year. But if Microsoft can combine the convenience of a voice-activated interface with the simple power of context-sensitive desktop search, then users will definitely benefit. Think how nice it would be to be able to simply ask your PC to play a different song or add a reminder to your calendar while you're in the middle of typing a Word document or playing a game. It will help you make the most of all your devices, anywhere you are, whenever you need it—in a way that even the most efficient human assistant could never manage.



SHE'LL GO WITH YOU ANYWHERE
Cortana "follows" you, which lets you easily access the data and queries you want from any device, anywhere, and then pick them up again once you're somewhere else.

Where Your Drones Can and Can't Go

BY CHLOE ALBANESIUS AND STEPHANIE MLOT



The increasing popularity of drones has made it more important to have rules governing their use—and to give people a way to avoid them if they so choose. Two recent developments have taken major strides toward spelling out exactly where drones are—and are not—allowed to fly.

In February, the Federal Aviation Administration (FAA) released a list of proposed drone rules that will be open for public comment before taking effect. These rules would require operators to keep their drones in sight at all times, and mandate that these unmanned aircraft stay below 500 feet, travel no faster than 100mph, and fly over no people except those involved in the flight. In addition, a drone operator must be at least 17 years old and pass an aeronautical knowledge test to obtain an operator certificate that would have to be renewed



every two years. The rules would also ban operators from dropping objects from drones, which—for the time being—would prohibit Amazon PrimeAir from dropping off your Amazon packages, for example.

The rules apply to drones that weigh 55 pounds or less, though the FAA is also asking for comment on a class of “micro” drones weighing less than 4.4 pounds. The rules will not apply to model or government aircraft operations. Comments on the rules may be submitted to regulations.gov.

Even if you’re not a drone operator, there is now a way you can make your dwelling drone-free. NoFlyZone.org is a new website that uses your address and GPS coordinates to remove you from the paths of drones made by major manufacturers currently including EHANG, DroneDeploy, YUNEEC, HEXO+, PixiePath, and RCFlyMaps. The site warns, however, that registering a property online “does not guarantee that no drones or other aircraft will fly over.”

Users of the service will also soon earn the ability to set customized airspace access preferences. So even if you ban camera-equipped robots from circling your home, you can still participate in PrimeAir—provided the FAA doesn’t block it, that is.



FLYING ONLY THE FRIENDLY SKIES

With NoFlyZone.org, you can choose to be “invisible” to drones flying nearby—unless you’ve authorized them to access your airspace.

This High-Tech Hotel Lets You Snooze and Schmooze

BY SOPHIA STUART



For most business travelers, a hotel is a place to get some sleep, nurse a nightcap, or polish a presentation. But what if the hotel was the work space, and put entrepreneurs from all walks of life under one roof?

That's the idea at The Lloyd Hotel and Cultural Embassy in Amsterdam. It's a unique place for many reasons, including its digital publishing program, art galleries, library of monographs, meeting areas, and a salon for cultural events.

GRAND HOTEL

The Lloyd Hotel and Cultural Embassy in Amsterdam is finding exciting new ways to fuse technology and hospitality.

It also has a variety of room options: from one to five stars. Backpackers and students on a budget can reserve a one-star room with shared bathrooms, while those with deeper pockets can opt for high-end suites in the eaves with deep baths, pianos, and hammocks.

The Lloyd, situated in the once-run-down Docklands area, was built in 1920 as a hotel for emigrants heading to Dutch colonies to build new lives. But it was also a prison during World War II, a reform school for wayward teenage boys, and artists' squats during the 1980s. Finally, after an investment from the city, it was transformed into The Lloyd.

As a result, it has a very diverse guestbook. "We believe in sharing cultural luggage," the hotel's website (lloydhotel.com) reads, which is why more than 50 designers and artists help keep the place running.

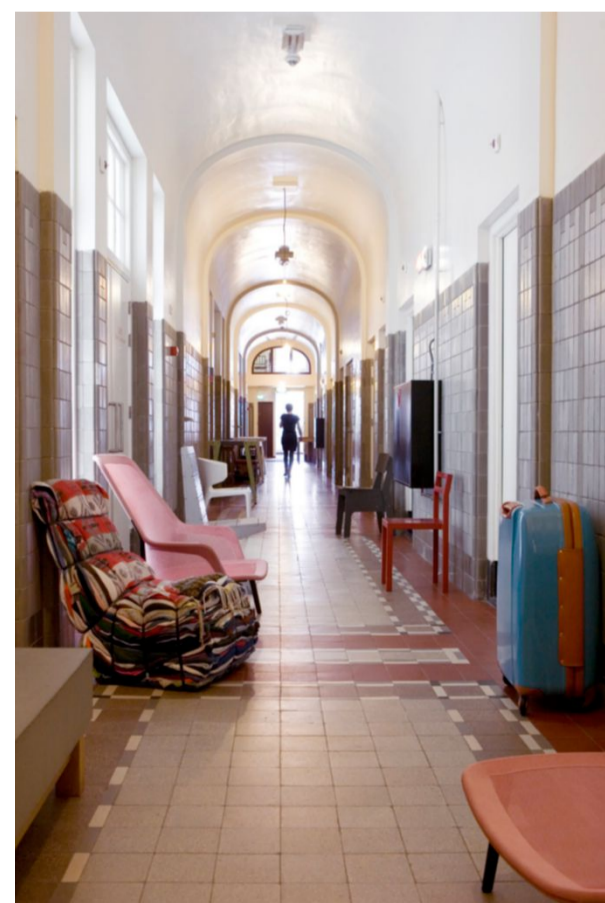
Natalie Dixon, who heads up the hotel's digital efforts, is one such person.

"We got the practicalities out of the way first," she said of her first steps as digital publisher in a recent interview with *PC Magazine*, "building a template-driven but good-looking website that's easy to manage, creating a social strategy, sorting out the online booking system, making a mobile-friendly version, commissioning a full content offering, [and] taking online payments."

Dixon also worked on a guestbook that used data visualization to show the owners of The Lloyd the types of responses guests were having to the space and its events. Now, she is creating an audio tour.

"We want people to walk around the hotel like a museum and have a sensory experience along the way," Dixon said. "We took trips around the Netherlands and interviewed all the designers who worked on the hotel. This place is full of design icons. In my view, we're now past the idea of mobile phones as perfunctory tools. They're becoming artistic, creative devices and that's what we want to acknowledge as we build [the tour]."

THERE'S A SMALL HOTEL
Amenities at The Lloyd are tailored to your budget and the digital lifestyle by taking full advantage of the capability of today's mobile devices.



Dixon has been in Amsterdam since 2009. She decided to relocate from her native South Africa following a particularly inspiring visit to a conference hosted by Picnic, an Amsterdam tech incubator. She fully intended to return to South Africa, but it's 2015, and there's no departure date in sight. Prior to moving to Europe, Dixon was an executive in South Africa at publishing conglomerate Media 24, overseeing brands such as Seventeen, Real Simple, and National Geographic across multiple technology platforms. But the Picnic conference, she said, opened her mind to a very different way of looking at digital and, in particular, mobile.

“South Africa at that time was a very interesting place for mobile,” Dixon told me. “Unlike the rest of the world, a lot of people had their first experience of the Internet there on a mobile phone. Usage really leaped over the desktop.

“But as a digital executive, I rarely got the chance to pause and think about the effect of technology,” she continued. “I was very focused on ‘doing’ and results, measuring everything, quantifying it all. Then, suddenly, I found myself in Amsterdam. At Picnic I

ROOMS WITH A VIEW

A few more looks at the fashionable Lloyd.



ROOM RATING



learned about a ‘meta’ view of technology, viewing digital in human terms, and suddenly saw where it all might be going, in a really interesting way.”

Dixon also pursued a master’s degree in New Media and Culture at the University of Amsterdam, where her thesis supervisor was Dutch cyberactivist Geert Lovink.

“Lovink introduced me to the concept of ‘affect,’ which is best described as a non-conscious visceral knowing,” Dixon said. “Like when you walk into a room and you can cut the tension with a knife. I started to work on tech projects that captured and measured ‘affect’ for the first time.”

One project was Foodmood, where Dixon joined a team of artificial intelligence engineers, Dutch coders, and South African designers. Foodmood turned into a huge data visualization schema for presenting people’s emotions about foods and was widely quoted at academic conferences.

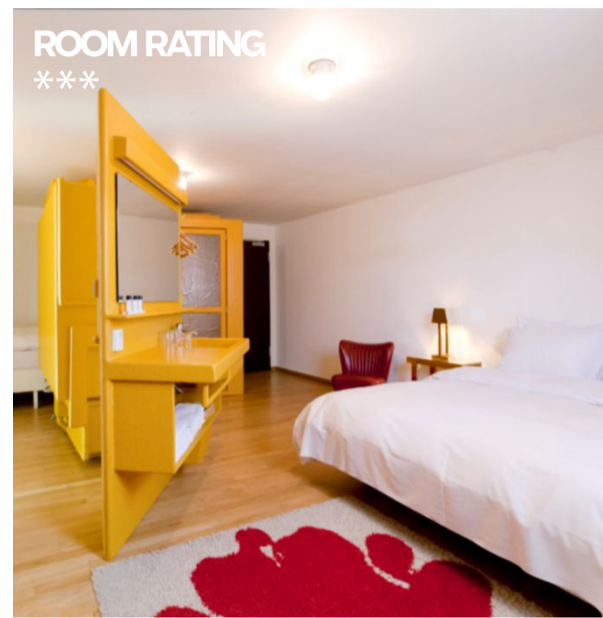
After her master’s, Dixon decided to continue exploring “affect” via practical and academic means. She set up Affect Lab as a Netherlands-based nonprofit for long-range research, and is now doing her PhD in Communications and Media Studies part-time, flying back and forth between Goldsmiths College at the University of London and Amsterdam.

If you want to check out Dixon’s work at The Lloyd, rates range from €45 (about \$51) for one-star rooms to €185 (\$211) and up for five-star accommodations.

ROOM RATING



ROOM RATING



ROOM RATING
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ROOM RATING
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What We Love Most This Month

BY STEPHANIE MLOT



BOOSTED DUAL ELECTRIC SKATEBOARD

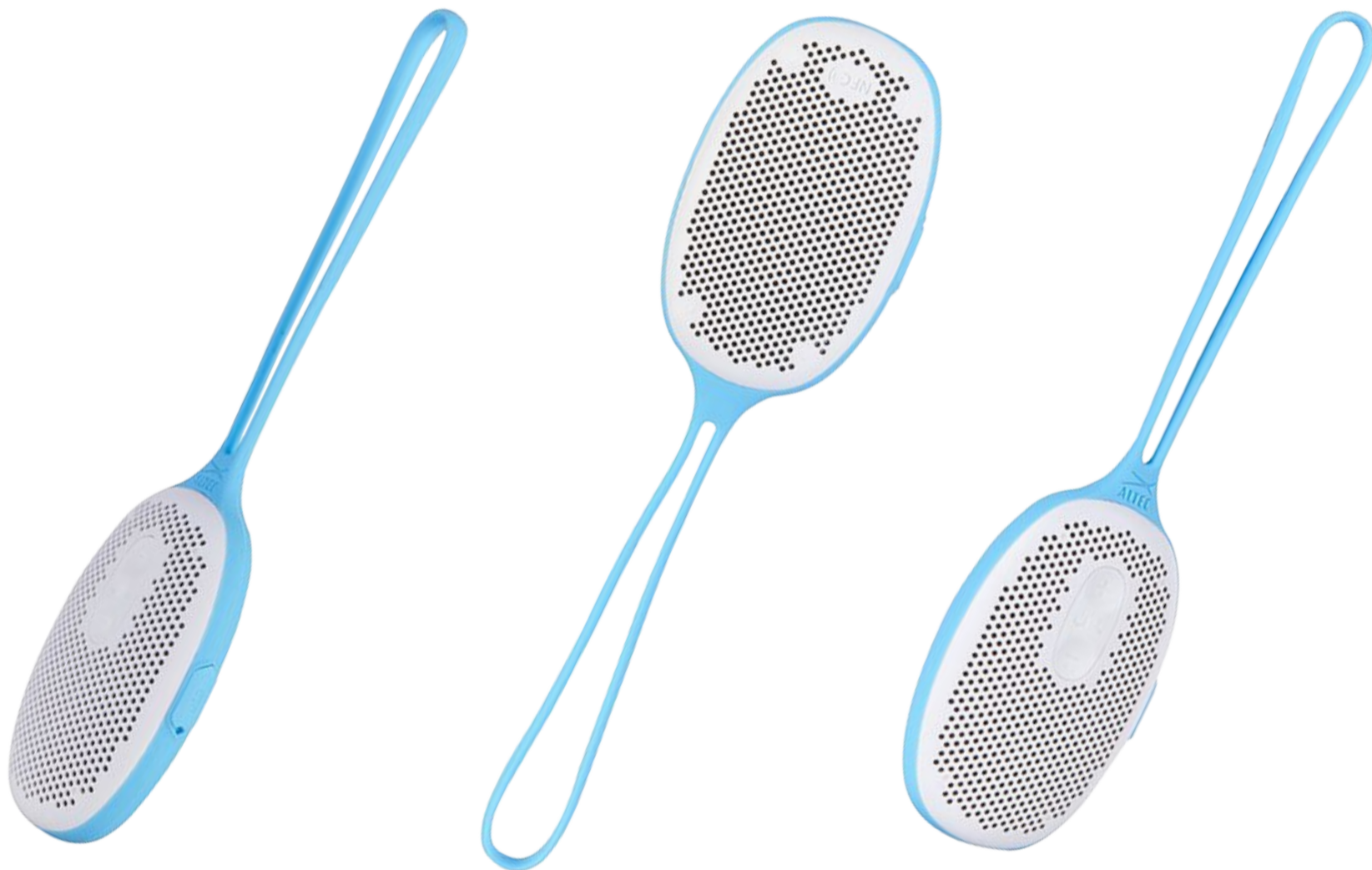
For the kid in you, the Boosted Dual electric skateboard lets you carve, goofy-foot, grind, kickflip, and pop your way to the office every day. The tech-savvy longboard flies at a maximum speed of 20mph, for about six miles between charges. It also comes with a wireless Bluetooth remote to control your speed and direction (try it in reverse), and keep track of the board's range. (Okay, okay, actual teenagers would like the Dual, too.)

\$1,299 shop.boostedboards.com



What We Love Most This Month

BY STEPHANIE MLOT



ALTEC LANSING SHOWER SPEAKER

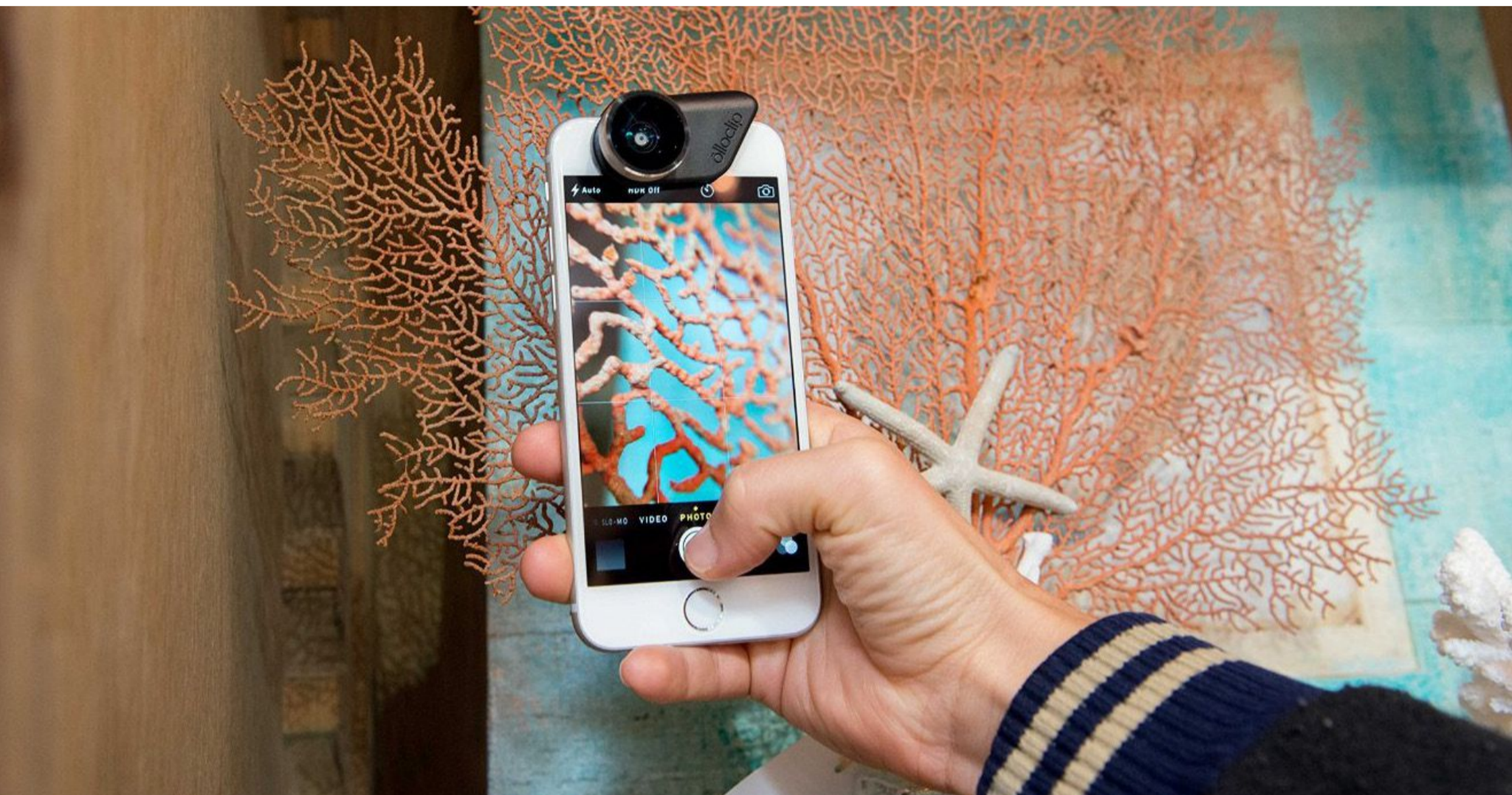
Grab your shampoo bottle and really lay into the chorus of “Let It Go” with the Altec Lansing shower speaker, which comes with onboard song navigation, 5 hours of battery life, and NFC compatibility. Running late to work? Get down to business from the bathroom via the speakerphone capability, which conveniently eliminates the sound of spritzing water and lets you bathe while phoning in to the staff meeting.

\$79.99 alteclansing.com



What We Love Most This Month

BY STEPHANIE MLOT



OLLOCLIP IPHONE 4-IN-1 CAMERA LENS

Each new generation of smartphone promises a better camera and more built-in photography features. But even the best pocket-sized equipment can be improved. Try olloclip's 4-in-1 Lens, which has been redesigned to fit the front- and rear-facing iPhone 6 and 6 Plus cameras. Whether you're shooting a wide-angle selfie, looking for a fish-eye view, or zooming in for your close-up, each of the four clips snaps on and off your phone in seconds, and can attach to a wearable pendant when not in use.

\$79.99 olloclip.com



What We Love Most This Month

BY STEPHANIE MLOT



GRACE DIGITAL MONDO INTERNET RADIO & WI-FI MUSIC PLAYER

If you can look past the car-stereo-like façade of the Grace Digital Mondo music player, you'll find that this bedside gadget packs big sound. Available in black, white, or red, the machine comes with a 3.5-inch color screen that displays album art while you listen, and lets you navigate your favorite radio stations, set alarms, and check the weather. It comes with five individual alarms, 30 backlight brightness settings, and Wi-Fi connectivity.

\$179.99 gracedigital.com



What We Love Most This Month

BY STEPHANIE MLOT



SATECHI USB PORTABLE AIR PURIFIER & FAN

Whether you're health conscious or just like to keep your personal space clean and cool, this electrostatic air purifier fits easily into a backpack or suitcase—perfect for the home, office, car, or hotel room. The miniature cleaner covers an area of about 71 to 88 square feet, and requires a USB connection to remain powered on and disinfecting your surroundings.

\$39.99 satechi.net



Hot Future Tech Releases

Wondering what's coming out in the world of technology, gadgets, and games? This calendar tells you when the best new stuff ships.

BY ANTONIO VILLAS-BOAS 

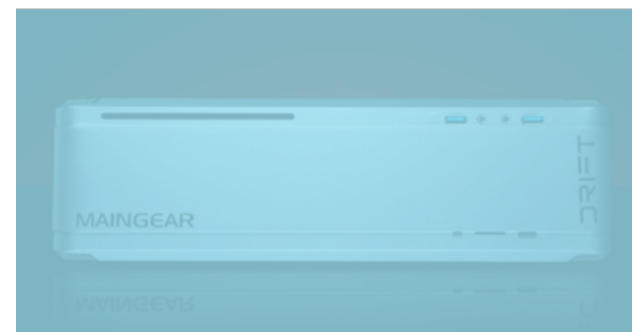
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MYBRAIN MELOMIND

melomind.com

Release: Late 2015

There are countless ways to relax. For example, you could go on vacation, unwind in the tub, or get lost in a good book. But we're in the 21st century, so there's obviously some battery-powered method out there. Enter the myBrain Melomind. It measures the electrical activity and brainwaves through your scalp with electroencephalography (EEG) sensors. Melomind then sends the information to a mobile app to let you visualize your results and monitor your progress, and it coaches you to relax better.



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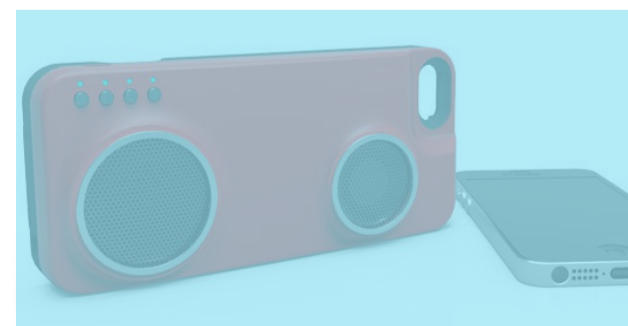
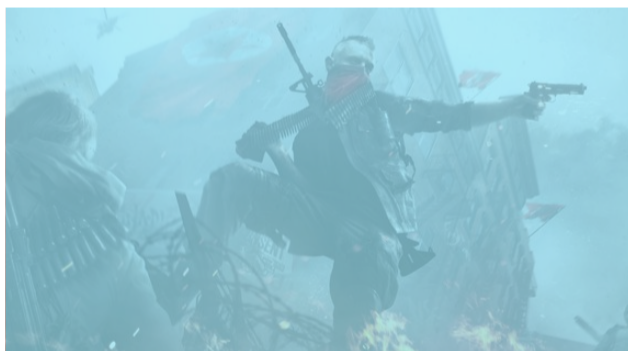
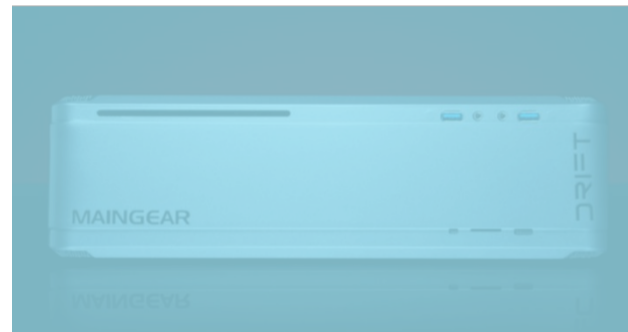
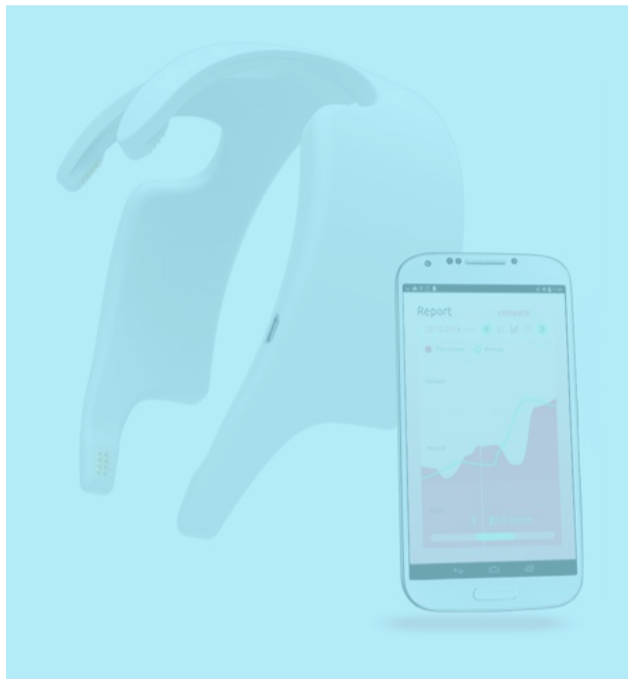
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MYFOX SECURITY SYSTEM

getmyfox.com

Release: Q2 2015

The MyFox Security System prides itself on preventing break-ins before they happen with its IntelliTAG sensors, which distinguish between harmless vibrations and malicious events. If the sensors detect sound and vibration patterns matching those of a break-in, the Security System will sound an alarm before the burglars even get inside. The Security System integrates with the MyFox security camera, which you can control remotely with a mobile app.



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BY ANTONIO VILLAS-BOAS

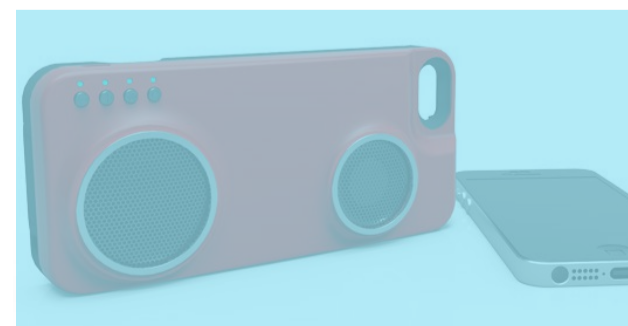
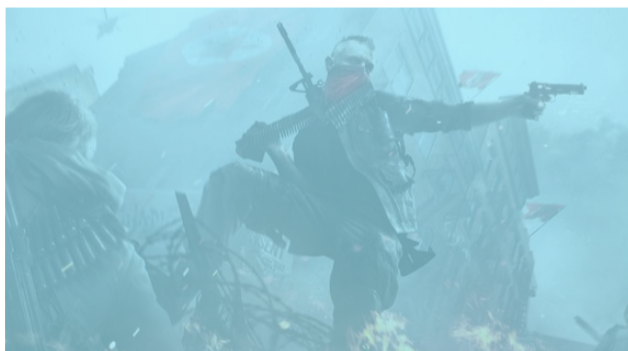
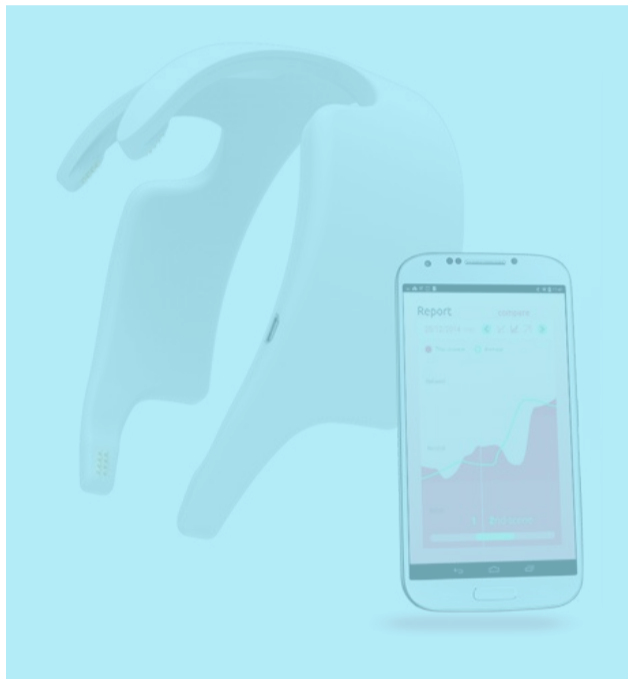
3

MAINGEAR DRIFT

maingear.com

Release: Spring 2015

Home theater PCs have been passé for a while, but that doesn't mean computers have no place in the living room. The Drift, the latest from boutique manufacturer Maingear, is about the same size as a console, and primed for PC gaming on your HDTV. It's equipped with liquid cooling and designed to optimize airflow, so it should run almost silently. And the Drift will be available in a variety of custom paint colors to match your home's décor.



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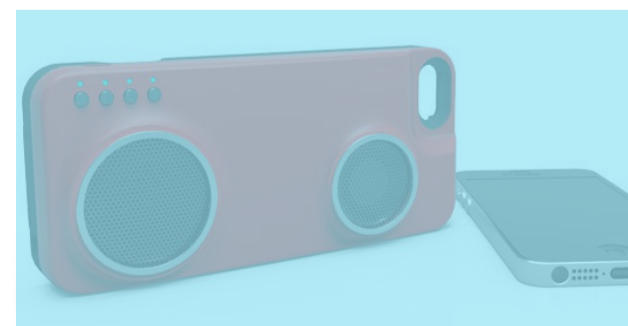
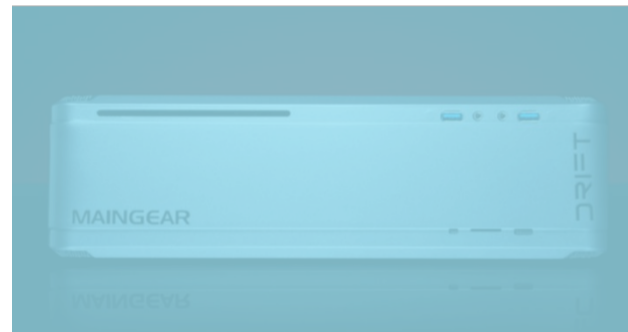
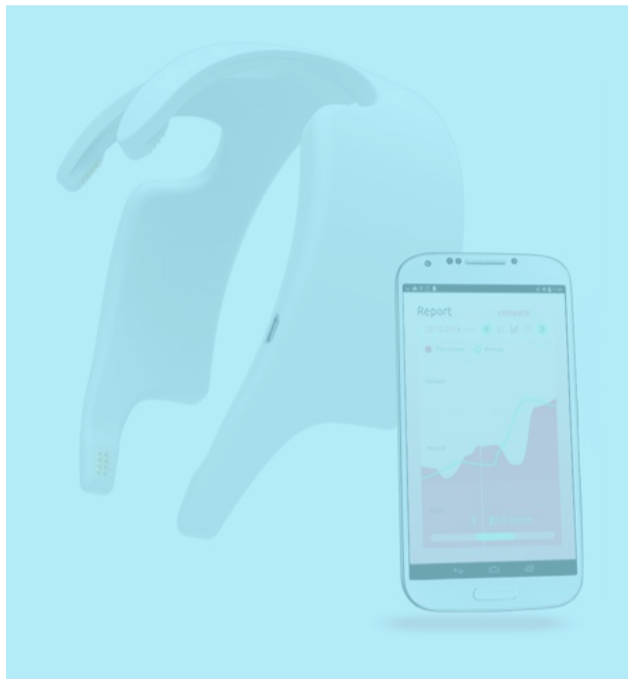
4

HOMEFRONT: THE REVOLUTION

homefront-game.com

Release: December 2015

This sequel to the successful 2011 game Homefront is set two years later, in 2029. Americans have reclaimed the Western United States from the Greater Korean Republic, and you play Ethan Brady, who's tasked with staging a resistance movement against the GKR's occupation of Philadelphia. The game is being developed by Deep Silver Studios and Crytek, and will be released for PC, OS X, Linux, Xbox One, and PlayStation 4.



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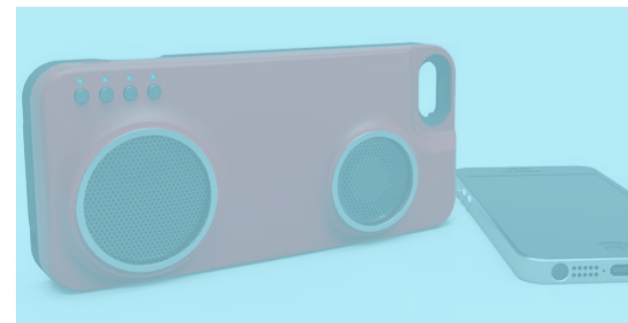
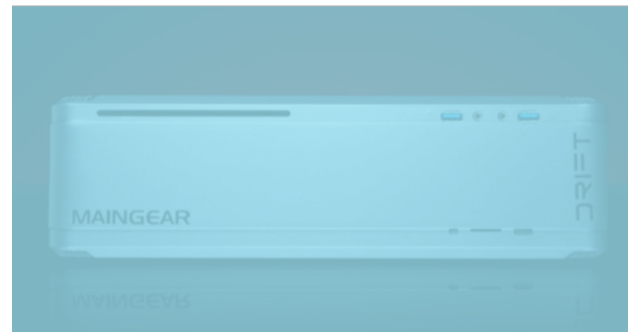
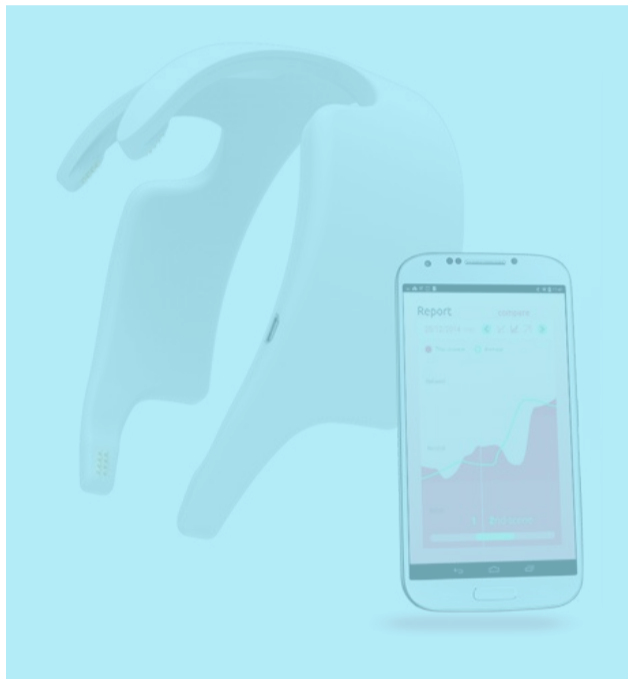
5

SAYGUS V2

saygus.com

Release: Q1 2015

PC Magazine's Sascha Segan called the Saygus V2 the most desirable new phone at this year's Consumer Electronics Show. In addition to a Kevlar exterior, it has two microSD slots capable of providing 320GB of extra storage—more than you'll find on some current laptops. With mobile screens getting larger and larger, the V2 may be the top choice for those seeking the 5-inch 1080p sweet spot.



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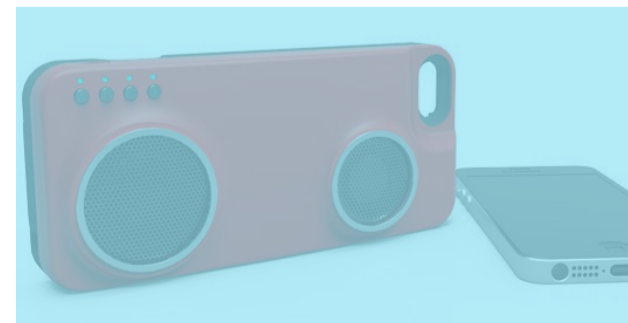
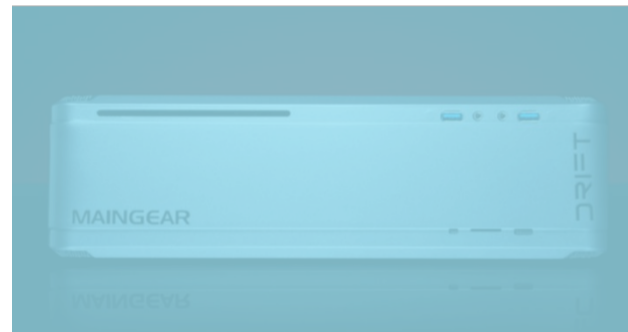
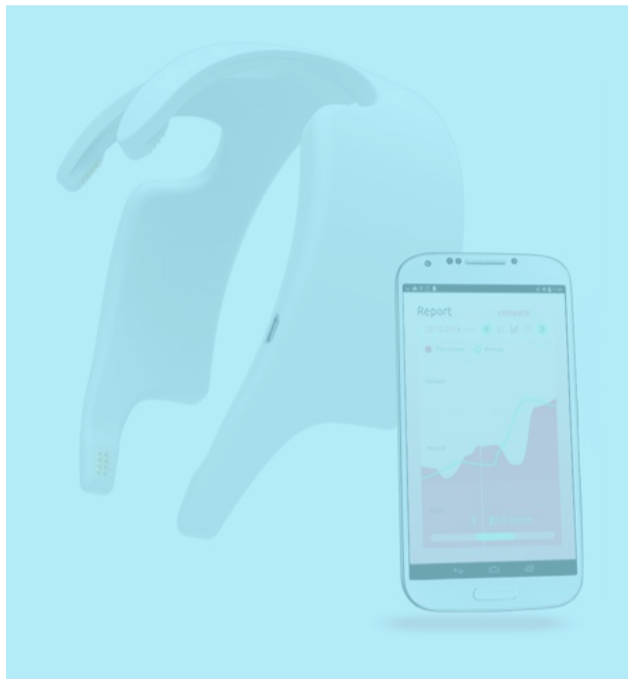
6

ADOBE LIGHTROOM 6

adobe.com

Release: Q1 2015

Adobe is keeping largely mum about the newest edition of its photo-processing application, Lightroom. What we know is that it's dropping 32-bit OS support and that it won't be offered as a standalone product. Instead, you'll need an Adobe Creative Cloud subscription. So far, Adobe has been referring to the software as Lightroom 6 rather than using the CC nomenclature it has recently employed for other products, like Photoshop (which will be included with a \$9.99-per-month Photography plan subscription).



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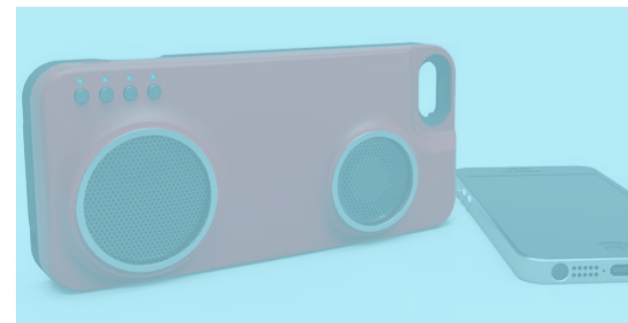
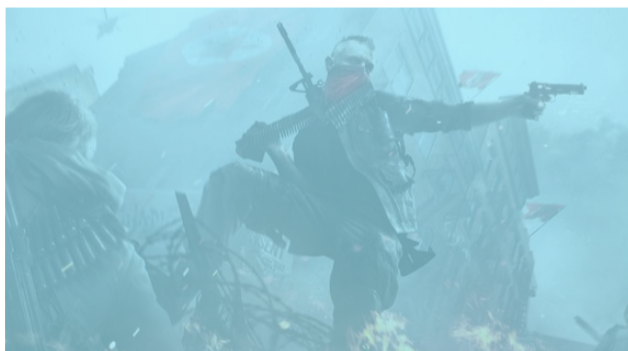
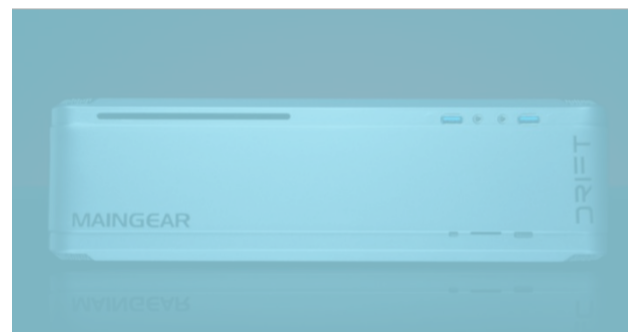
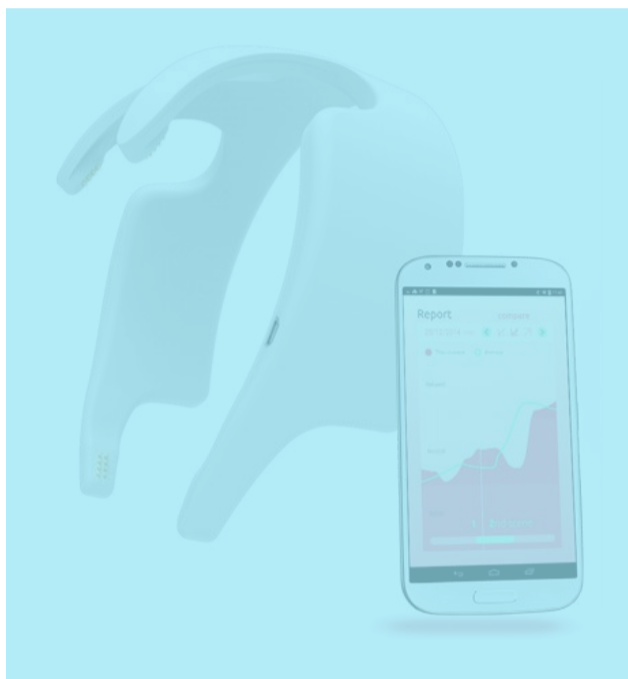
7

AMP STRIP

ampstrip.com

Release: June 2015

Tired of bulky fitness trackers? The Amp Strip packs an ECG sensor (for heart rate), an accelerometer (for movement and activity tracking), and a thermistor (for measuring your skin temperature)—and it's no bigger than a Band-Aid. It will attach to your body using an adhesive resistant to sweat and water that can last up to a week, and you'll be able to connect it your favorite fitness apps on your mobile device with Bluetooth 4.0.



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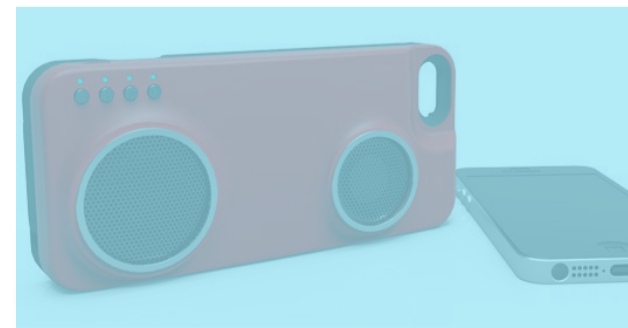
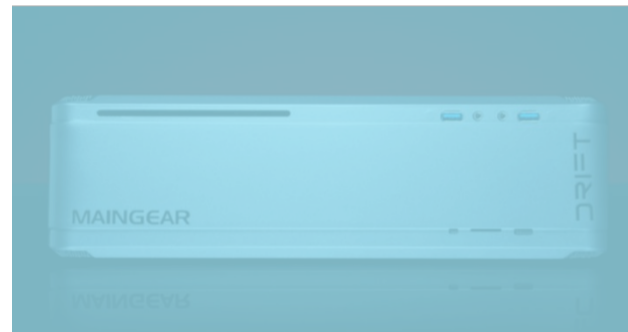
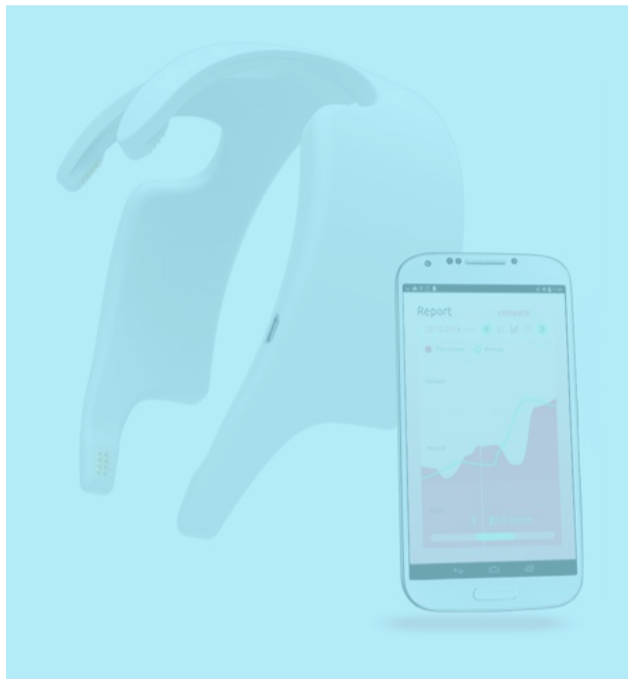
8

SAMSUNG NX500

samsung.com/us/

Release: Spring 2015

Photographers, rejoice—the NX500 is almost here. It will perform identically to the best-in-class NX1, but will do away with the weather sealing and integrated electronic viewfinder, and will have a reduced burst capability (down to 9fps from 15fps). You'll get the 28-megapixel BSI-CMOS APC-C image sensor and the ability to record in both 1080p and 4K formats, and you'll be able to set up your shots with the 3-inch rear touch-screen LCD.



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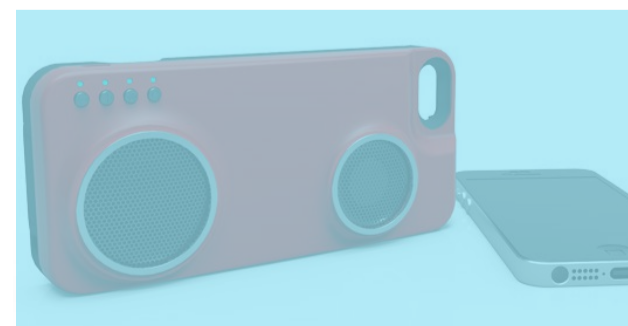
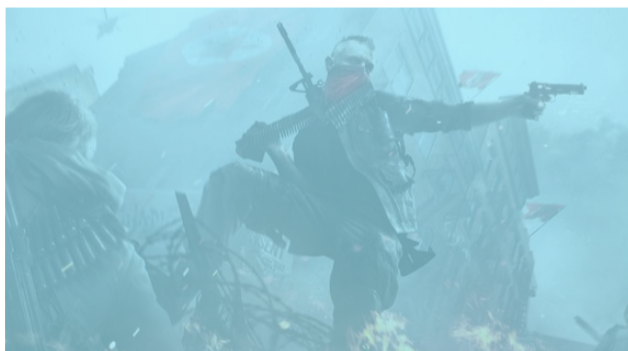
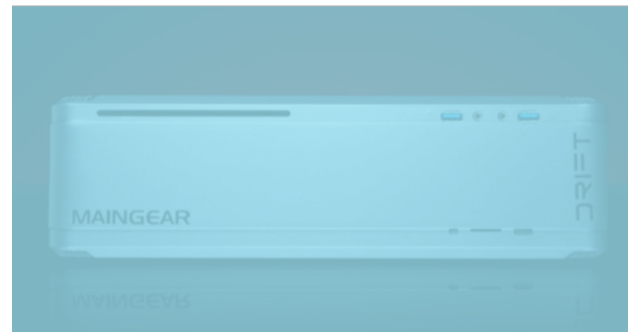
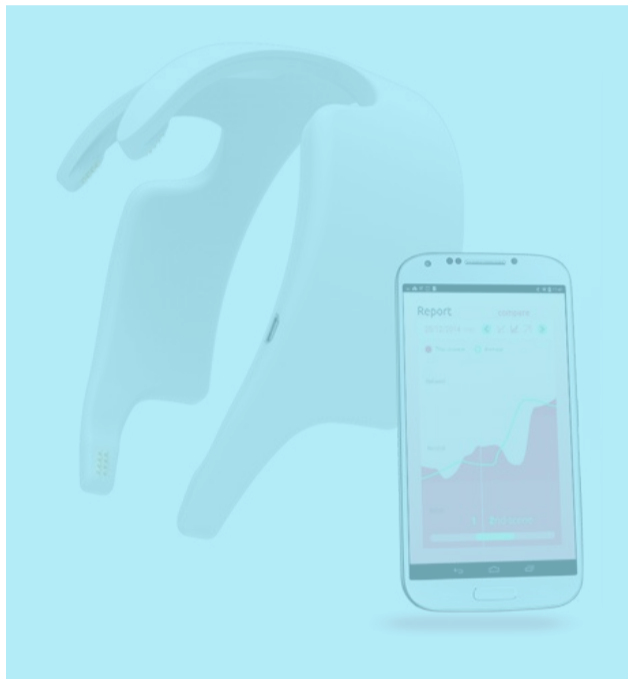
9

ZUTA POCKET PRINTER

zutalabs.com

Release: September 2015

The ZUtA Pocket Printer will connect to anything that supports Wi-Fi, and let you print on any size paper. ZUtA claims it has a 1-hour battery life, and will be able to print more than 100 pages on a single ink cartridge at about one page per minute. All you'll need to do is line up the printer's pointed corner with the paper's corner and print away. It's no 40ppm inkjet, but you'll be able to take it more than 6 feet from a power source.



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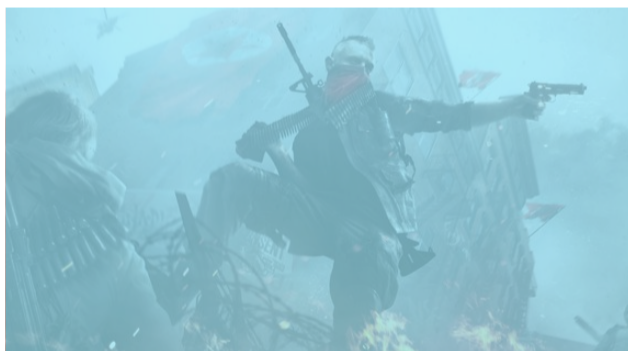
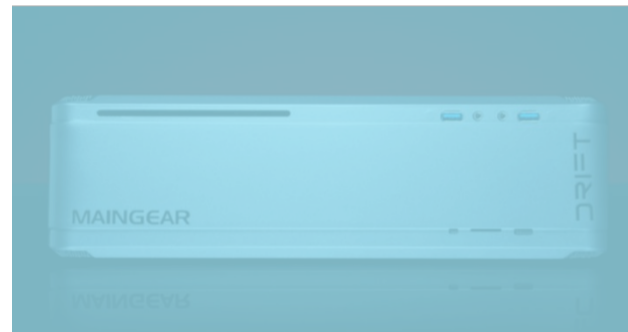
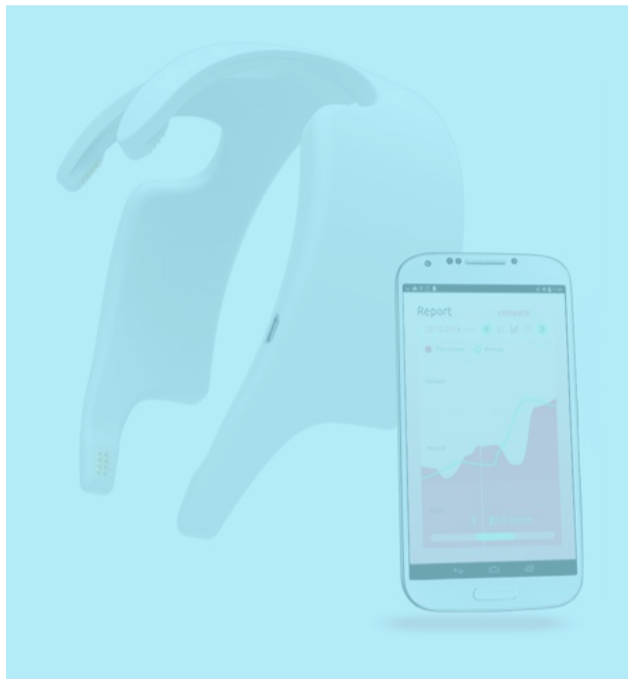
10

PERI DUO

myperi.com

Release: April 2015

For years, we've been restricted to the iPhone's loudspeaker if we forgot, or couldn't bring along, a separate Bluetooth speaker. No longer. The Peri Duo is a slim iPhone speaker case that connects over Bluetooth or Airplay to play your tunes. It will have its own battery, which will let you take off the case to use as a standalone Bluetooth speaker if you so wish. You'll also be able to multicast your music to several Duos for a more powerful sound.



Opinions

SASCHA SEGAN

JAMIE LENDINO

EVAN DASHEVSKY

**Electronics
hobbyists
used to
consider
RadioShack
a godsend.**

JAMIE LENDINO
A EULOGY FOR RADIOSHACK

Anthem's Data Breach, and Why We're Doomed

Hackers may have stolen up to 80 million names, addresses, birthdays, Social Security numbers, and medical insurance IDs from giant health insurer Anthem, which could be used to steal identities, get fraudulent prescriptions, and wreak general havoc among the populace.

The truly shocking part about this news is that it isn't news. Massive thefts of personal data have been a perpetual, dulling drumbeat over the past year. Recent data breaches included JPMorgan Chase (76 million people), Home Depot (56 million), and Target (40 million).

The hackers didn't get any specific health data from Anthem, but the information they did nab could be used to sign up for bogus credit cards and discount drugs from pharmacies. Anthem had a security breach in 2010, too. This time around, the company has set up a website, anthemfacts.com, where it will inadequately attempt to soothe you.

According to *Time* magazine, Anthem's ridiculously poor security was to blame here: Hackers just got hold of a top executive's username and password, and used them to suck out all that juicy personal data. If the company's systems were really secured only with a username and password, somebody needs to pay.

Time says that New York State is considering requiring banks and insurers to use multifactor



Sascha Segan is the lead mobile analyst for *PC Magazine*. His commentary has appeared on Fox News, CNBC, CNN, and on radio stations and in newspapers around the world.

authentication—you know, the kind you're already using on Gmail—but that wouldn't help potential victims of retail store hacks.

SOMEONE NEEDS TO PAY

Criminal law is no deterrent here because the perpetrators are usually overseas. There's very little that individual victims can do to protect themselves. Yeah, sure, maybe you can only buy things with cash or prepaid cards, but you're going to have to give your address and Social Security number to your health insurer.

The breaches are also a perfect example of the “socialization of risk and privatization of reward.” Right now, if a corporation's customer data is stolen, all of the cost of that goes to the individual customers. That creates no incentive for the businesses to protect our data.

There's really only one way this changes: if companies are held financially responsible for their poor security practices. You can't use the same insurance model as you would, say, in a bank theft, because it's impossible to trace any specific instance of identity theft back to any specific breach. It's more reasonable to fine the companies the black-market value of a stolen credit card number, which security firm Trend Micro says is around 50 cents.

Using that math, Anthem would be sucking it up to the tune of \$40 million. Certainly not crippling for a major health insurer, but not pocket change, either.

The problem is, as anyone who works in a bank will tell you, real security is a pain. People can't share passwords. They can't play Spotify over the corporate network. They have to log in using those little key fobs. They may not be able to work at home. Companies have to hire more system

administrators, and the sysadmins have to act like tyrants.

Secure practices are unpopular with employees (who want to play Spotify on the corporate network) and seen as an expensive cost center by the bean counters who ultimately control what companies do. Once more, big fines could help turn the tide there.

IT HAPPENED TO ME

On a personal note, I've had to change my American Express card number twice in the past six months. I wouldn't be surprised if my card was swept up in the Target and Home Depot hacks. Each time, AmEx has called me up and stopped the charges, and I've never had to pay for anything I didn't actually buy. Go AmEx. Thank goodness I don't use a debit card, or thieves could have had direct access to my bank account.

I am protected by an identity protection service, AllClear ID; I started using it a few years ago after an earlier security breach at the university I graduated from. Pretty much everybody should use one of these now; it's just another form of insurance you need to have.

Considering that banks and large corporations basically own our government, the chance of them imposing huge fines upon themselves for being lazy about security is pretty low. So it's on us, as it usually is: Turn on two-factor authentication everywhere you can, sign up to protect yourself, read your statements, and wait. If you aren't a victim now, well, you probably will be soon.

sascha_segan@pcmag.com



Considering that banks and large corporations basically own our government, the chance of them imposing huge fines upon themselves for being lazy about security is pretty low.



A Eulogy for RadioShack

The days of the electronics hardware hobbyist are pretty much over—at least as I grew up with them in the 1980s.

RadioShack Corp. declared bankruptcy on February 5 in a deal that leases 1,750 stores to Sprint and closes the rest, essentially shutting down the 94-year-old retail chain for good.

Several decades ago, RadioShack was indispensable, as crazy at that seems now. The company rode the CB radio craze of the 1970s, and even helped launch the computer revolution in 1977 with the TRS-80, one of the first viable home computers along with the Apple II and the Commodore PET.

Electronics hobbyists used to consider RadioShack a godsend. Years ago, there was no Amazon or Circuit City (itself now defunct). If you needed a funny-looking plug to connect two of your stereo components together, or if you wanted to find a way to make the VCR in one room play on a TV in another room, RadioShack was where you went—period. And if you wanted to solder together wires for your remote-control car's motor or servos, upgrade your ham radio setup, buy a new multimeter, or hack a memory card into an old 8-bit computer for flash storage? There's only one retail chain that would almost definitely have what you needed.

For decades, RadioShack made an inexpensive, industry-standard decibel meter for sound and mixing engineers. And speaker wire—oh, the rolls



Jamie Lendino, managing editor of *Consumer Electronics for PC Magazine*, has also written for *Laptop*, *Sound and Vision*, *Popular Science*, and other publications.

and rolls of speaker wire and RCA cables I purchased there. My fingers have the battle scars to prove it, from all the copper wire stripping and twisting. You could get it all pretty inexpensively; in a world of useless \$80 Monster Cables, RadioShack had your back for much less money. Two bucks extra would get you the fabled “gold-plated connector,” which to this day does nothing for you, but sure as heck sounds like it does.

Unfortunately, those days are long past—how many people do you know with stereo components now? Home theater enthusiasts persist, but most people have moved on to much smaller and wireless consumer electronics. There’s certainly still a booming computer hardware community. And Arduino and the Raspberry Pi have enabled a new maker community hacking together things that don’t normally belong together. But RadioShack no longer has a place in any of this.

IT’S ALMOST OVER

These days, the chain’s stores are pretty barren and devoid of useful electronics parts, and Amazon can mail you anything in a day for less. I wouldn’t mourn the RadioShack of today—basically all it sells now are cell phones and overpriced accessories for them, along with unnecessary extended warranties.

And now the end has arrived. The bankruptcy announcement follows several years of one bad earnings report after the next for RadioShack, so it’s little surprise to see this happen. We’ve all been watching the slow death of the entire chain.

The thing is, RadioShack certainly worked hard to alienate its customers even years ago. There were the pushy salespeople, for starters. In the 1990s, a friend of mine got sick of how

RadioShack would harvest all of your contact information whenever you tried to buy something at the retail counter. Back then, the salespeople literally wouldn't ring you up unless you gave them your name, address, and telephone number, so they could mail you a million catalogs. My friend Pete went one step further: Whenever they asked him for his address, he gave them the one for another nearby RadioShack that he had memorized. This way the two RadioShacks would mail each other the catalogs.

This was all around the same time my friends and I used to jokingly call the store Radio Scrap, because of all the tiny spare parts it sold. There was even a fake store in the Sierra On-Line game Space Quest IV called Radio Shock, in an obvious homage to the real thing.

I grew up thinking that RadioShack stores were important and necessary, even if the retail experience wasn't always great. And despite the hollowed-out shell of its former self that the retail chain became, it still stings to see things you used to care about fade away.

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I grew up thinking that RadioShack stores were important and necessary.



Why Google Cardboard Is the Only VR Headset You Need

Google Cardboard has, on more than one occasion, been referred to around the *PC Magazine* office as “the poor man’s virtual reality headset.” And, to be sure, Cardboard—in any form—certainly comes off more low-rent than beefier VR options like the Oculus Rift (though there are plenty of affordable non-pizza-box incarnations available). But for those who don’t have access to the latest developers’ build of Oculus or Samsung’s Gear VR, let alone things like Microsoft’s new interactive 3D AR tech HoloLens, Google Cardboard is your best bet.

Using only your smartphone (either Apple or Android) and a simple headset, Cardboard has more than enough oomph to render a compelling virtual reality experience. And it’s affordable: Most kits cost less than \$10. If you’re feeling particularly ambitious, you can even build one yourself from scratch (adding to its DIY, Michel Gondry–esque charm).

But considering that most people are still not that well acquainted with VR of any kind, just know this: It’s worlds beyond the virtual reality sets you may have been first introduced to in the video arcades and fairgrounds of the 1990s.

As someone who’s experienced many early VR technologies, I can honestly say that most people



Evan Dashevsky, a features editor for *PC Magazine*, has been writing about tech since 2010 for such publications as *PC World*, TechHive, ExtremeTech, and Digital Times.

will find that Cardboard offers an experience on par with that of Oculus.

Though I've always believed Cardboard was a cool little platform, I wasn't sure what exactly I was supposed to do with it—there simply wasn't much content. There are only a dozen apps specifically made for Cardboard, and most feel like little more than demos or experiments.

But that's beginning to change.

BIG STEPS FORWARD FOR VR

On February 13, toy company Mattel announced that it was collaborating with Google to make a new View-Master based on the Cardboard platform. This View-Master is, like all Cardboard devices, a smartphone holder with lenses that separate the inserted device's screen into two images for the user, and that works with all the Cardboard-compatible VR apps in the Google Play Store. Mattel has reimagined the classic View-Master picture discs as “augmented reality” markers and downloadable content tokens; the View-Master app will scan them and load content into the View-Master, using the discs as positional anchors that will let the user, for example, tour Alcatraz, walk among the dinosaurs, or experience the moon landing.

There are even more daring usages, too. A recent *New York Times* article highlighted a new project bringing journalism to the virtual reality realm. Vice News and video directors Chris Milk and Spike Jonze created *Millions March NYC 12.13.14*, a short immersive documentary about the protests that erupted in New York City last year in the wake of the police killings in Ferguson, Missouri, and Staten Island. Regardless of your politics, this documentary is an exciting new exploration of the medium.

The documentary is making its debut at the Sundance Film Festival, but it's also available via Chris Milk's VRSE iOS and Android app for Cardboard. (You don't actually need Cardboard to take it in, but it provides a more future-y experience.) I should also note that the video you download through the app is huge, so make sure you have extra virtual space. One associated quibble is that the VRSE app does not provide an easy way to delete these huge files after you are finished with them.

But small UI issues aside, it's easy to see the possibilities in this form of storytelling. You have the ability to concentrate your gaze anywhere throughout the short film, but it's easy to discern where the director would like your attention to be through the placement of the omni-capture camera and the sounds that are highlighted in the audio mix.

For example, in the first scene in Washington Square Park, the viewer is naturally drawn toward a group of loud protesters speaking, not to the camera, but to the surrounding crowd. Unlike a traditional 2D experience, you have the option to move your gaze to any of the nearby protesters and see their reaction. It's a far more comprehensive picture than is available through any other medium.

Millions doesn't only present a new mode of storytelling—it's one of the first VR experiences I've had that actually felt like a finished product. Not to overstate it, but I had a similar reaction the first time I saw *Avatar* on the big screen. Although I'd seen 3D movies before, *Avatar* was the first time the new technology actually felt like it had a reason to be there.

In addition to *Millions*, director Milk has also released a VR documentary about a Syrian



***Millions* doesn't only present a new mode of storytelling—it's one of the first VR experiences I've had that actually felt like a finished product.**



refugee camp called *Clouds Over Sidra*, which is available for free through the VRSE app. (Milk also has a non-documentary VR film available through the app called *Evolution of Verse*. It's a short, surreal art film with a weird Kubrickian twist. It's a beautiful ride.)

Although this content is available on Oculus, Google Cardboard gives everyone with a smartphone the ability to watch it right now—for cheap. Previously, I felt that Cardboard was a sort of stopgap technology the Google folks plopped together so they didn't get railroaded by other VR technologies. But I don't think that anymore.

NEW VIRTUAL VISTAS

Cardboard is starting to feel like a legitimate platform that is worthy of our attention. Oculus will eventually make its way to the public, and surely it will have its adherents—particularly in the gaming world. But Cardboard's price demands that it has a place at the VR table. Even if Samsung, Oculus, or anyone else is able to create a superior product, unless they can match the near-nothing cost of Cardboard—when it ships in October, the View-Master is expected to retail for approximately \$30, with packs of four picture discs running about \$15 each—Google's entry will maintain a very convincing argument for market share.

After many false starts, I'm finally excited to see where VR is going. And for the first time, I'm starting to believe Cardboard will be part of that evolving story.

evan_dashevsky@pcmag.com



Cardboard is starting to feel like a legitimate platform that is worthy of our attention.



Reviews

CONSUMER ELECTRONICS

Amazon Echo

Fitbit Surge

Dell Venue 8 7000

HARDWARE

Razer Blade

Dell XPS 13 Touch

Matter and Form 3D Scanner

SOFTWARE

**TaxACT Deluxe 2015
(Tax Year 2014)**

Sling TV

Comodo Firewall 6

Echo Is Much More Than Just a Connected Speaker

Forgive me if I wasn't terribly excited about the Amazon Echo, a Bluetooth speaker/digital home hybrid with a built-in voice control assistant. After all, I've had Siri in my pocket for nearly three years, and I haven't used it in any appreciable manner. And talking to a watch is my least favorite part about testing Android Wear devices. But talking to Alexa, the voice behind the Echo, felt immediately more natural and organic than other forms of voice control I've tried. Even though the Echo isn't a perfect speaker or a perfect voice assistant, I found that I actually liked using it—and I think there might be a place for one in my home.

DESIGN

The Echo is a matte black cylinder that measures 9.25 inches high and 3.27 inches wide. Its lower half is covered in tiny circular perforations, and there's a gray Amazon logo at the very bottom. The top half is completely unadorned, save for the volume ring, which occupies the uppermost half-inch of the device. The ring twists left or right to adjust volume, which you can also control by voice or using the included remote (which also controls music playback on the companion app, and is equipped with a microphone for issuing voice

Amazon Echo

\$99 for Amazon Prime members; \$199 for non-members



commands from across a noisy room and a magnetic holster for easy storage anywhere).

On the very top of the Echo are two buttons: one that turns off the microphone, and a multipurpose Action button. A sleek translucent panel lining the perimeter lights up when you're controlling the speaker. One of the coolest parts about this light ring is that when you're talking, the cluster of lights nearest the microphone (there are seven) that detects your voice will light up. You don't even notice it at first, but it helps add a human element to the device.

SETUP AND APP

Setup instructions are spelled out clearly in Amazon's documentation, but the procedure goes something like this: Plug in the Echo, download the Echo app (available for iOS and Android, Amazon Fire phones and tablets, and on the Web), and follow the instructions. After you give the Echo access to your home Wi-Fi network (that's how it connects to the cloud), the app then plays an introductory video and walks you through some basic voice commands, and you're up and running. You don't even need your setup device on hand for the Echo to connect to the cloud; once it's on Wi-Fi, it's good to go.

The Echo app itself is relatively spare, with a home screen that defaults to the most recent questions and commands you've issued the Echo. A tab in the upper-left corner slides out to reveal all of your options, which are divided into three categories. At the top you can access your to-do list and shopping lists, as well as set alarms and timers that will sound through the Echo. Below that you can access your music options: Amazon Prime Music, iTunes, Pandora, Spotify, iHeartRadio, and TuneIn. Generally, the Echo defaults to Prime Music if you don't specify something else, but having choices

Amazon Echo

PROS Excellent voice recognition. Solid sound quality. Fun to use. Attractive design.

CONS No built-in battery. Distorts at high volume. Can't remove items from lists by voice. No access to calendars, email. Invite-only.

WHERE THERE IS LIGHT

The Amazon Echo's light ring detects your position and illuminates in that direction.



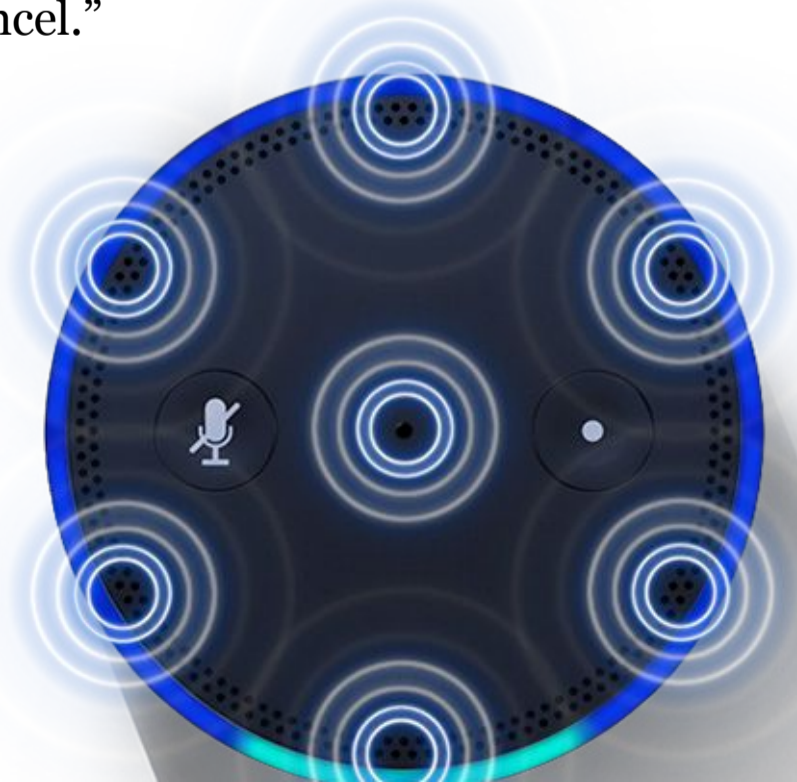
outside of the Amazon ecosystem is a nice plus. (You can also connect to the Echo via Bluetooth to use it as a traditional speaker and play any local content on your device.) Various options for Help, Settings, Voice Training, and recommendations for Things to Try are at the bottom.

VOICE CONTROL AND PORTABILITY

Once you're set up, you can start talking to Alexa. She sounds less robotic than Siri, but nowhere near as fluid and natural as the OS voiced by Scarlett Johansson in the movie *Her*. You can't change the voice (at least not yet), but it's fairly agreeable.

The Echo uses on-device keyword spotting to detect a wake word, so as soon as you say "Alexa," the light turns on and the Echo springs into action. Out of the box, voice recognition is pretty fantastic. I didn't have any trouble with Alexa misunderstanding anything I said, though my coworkers were able to occasionally cause her to trip up. The voice services should get even better over time, as you spend more time with the Echo or the training tool in the app.

In addition to the commands you learn in the introductory video and Things To Try, Amazon includes with the Echo a handy, bookmark-size, double-sided list of things you can ask Alexa. The topics range from everything in the app, such as alarms, lists, and music, to facts, weather, and general commands like "Repeat," "Stop," and "Cancel."



SEVEN SENT

The Echo's seven microphones help give it excellent voice recognition capabilities.

FAST FACT

HOW TO GET AN ECHO

You can't just log in to Amazon and buy an Echo. Right now you must request an invitation, after which you might be given the chance to buy one. And even if you're given that chance, you may need to wait a few months for it to arrive.



Alexa had no trouble telling me the New York weather forecast for the day or weekend, as well as the weather forecast for other cities around the world. You don't need to wait for Alexa to catch up, either; you can pretty much just say "Alexa, what's the weather?" without skipping a beat. Other things Alexa had no trouble with: state capitals, word definitions, holidays, and measurements. The Echo links to Wikipedia, so you can also receive spoken information on just about anything.

That said, Alexa definitely isn't as smart as Siri or Google Now, and she lacks access to services like your email and calendar, which makes her far less useful. For example, you can set an alarm for 6 a.m., which is perfectly fine if you simply want to use the Echo as an alarm clock, but you can't schedule a meeting on your calendar for 11 a.m. next Tuesday. Alexa also can't access other connected areas of your home so you can control your lighting via voice. Alexa is useful for the occasional question around the house, but none of the services provided here makes the Echo indispensable.

Although I like having the ability to add items to shopping and to-do lists, the lists themselves are extremely rudimentary. You can add items manually or by voice, but you can only remove them through the app. You can search for the items directly through Amazon or Bing from the list, but in general, this would definitely not be my first choice for a list-making app.

Another problem: The Echo doesn't have a built-in battery. Sure, you can just pull the power adapter out of the wall and plug it in somewhere else, but between this and the included remote, Amazon is sending a clear message that the Echo is meant to remain stationary. I'm not sure that really works for me. After all, I pretty much always have a phone in my pocket, and some phones can be woken by the sound of your voice, just like the Echo. And what good is a list-making feature if I realize I'm out of flour in the kitchen, but need to hold that

thought until I'm nearer the Echo in the bedroom?

And yet, something about the Echo feels more approachable than a cell phone. For instance, I never asked Siri to convert kitchen measurements for me, but I asked Alexa. And I never told Google Now to add items to my shopping list, but I asked Alexa. It's not that Alexa is smarter than Siri or Google Now; in fact, both of those more mature voice assistants offer a wider range of useful options and features. Perhaps subconsciously, the idea that the Echo is meant to live in your home makes Alexa feel less like a disembodied application and more like a genuine home assistant.

AUDIO AND CONCLUSIONS

Let's not forget, the Amazon Echo is first and foremost a speaker. And as speakers go, it's fine. I tested it against the \$129 Bose SoundLink Color, our Editors' Choice for affordable Bluetooth speakers. There's no question the Color is a better speaker than the Echo, as it provides deep bass without distortion, two things the Echo struggles with. If you're primarily looking for a speaker, the Echo does a reasonable job for the current \$99. But for non-Prime members who must pay \$199, you're now competing against speakers with significantly more power and better sound quality, not to mention built-in batteries.

The Amazon Echo is more than just a speaker, and yet I don't want to exaggerate its additional features too much. After all, there's nothing you can do with it that you can't with your smartphone or smartwatch. There's just something about the Echo that keeps drawing me back. I let my purchase invitation expire when my time came in January, but after spending some time with the Echo, I've already signed up for another one.

ALEX COLON



There's just something about the Echo that keeps drawing me back.





Wrist-Based Fitness Tracking at Its Finest

Fitbit Surge

\$249.95



Fitbit's latest and most advanced fitness tracker to date, the Surge, is a rather sophisticated piece of machinery in the form of a touch-screen wristwatch. It not only tracks your steps and sleep, but also alerts you to incoming phone calls and text messages, keeps tabs on your heart rate with a built-in optical heart rate monitor, uses GPS to track outdoor activity, and has much more functionality especially for runners.

The Surge isn't a perfect activity tracker, runner's watch, or smartwatch, but nothing is. What the Surge gets right is the blend of those three categories, and rather beautifully at that. When compared with other trackers on the market, it clearly rises to the top and sits alongside an elite few.

DESIGN AND SPECS

The Fitbit Surge comes in three sizes: small (for wrist sizes 5.5 to 6.7 inches), large (6.3 to 7.9 inches), and extra large (7.6 to 9.1 inches, only available at Fitbit's website). The test unit I received was black, though you can also choose blue or tangerine.

The elastomer polymer strap is 1.34 inches at its widest point, and a stainless steel buckle fastens the band elegantly and securely. Unlike the Fitbit Flex, no part of this band detaches, so there are no small parts to lose. On the rear side is the charging connection point as well as the optical heart rate monitor, which looks like two glowing green lights with a tiny sensor placed between them.

I like the design, but the watch is a little chunkier than the measurements reveal. The watch is stiff and not bendable for a good stretch both above and below the screen. So in terms of wearing it on your wrist, think of the watch as being 2.5 inches long. That's just about the full length of my big-boned wrists, so if you're more petite, the Surge might look like a monster.

The backlit monochrome LCD screen measures 0.82 by 0.96 inches. Three buttons line the edges, one on the left and two on the right. I like having buttons on sport and activity-tracking watches because touch screens can't read input when you're wearing gloves. With the Surge, there are times when you must use the touch screen, though I found it more reliably recognized my finger than did the Mio Fuse's capacitive display. One minor problem I encountered: Often, I'll glance at the watch to check the time, but instead see my stairs climbed data or steps. The screen doesn't stay on the home screen, probably a result of the touch screen being so responsive.

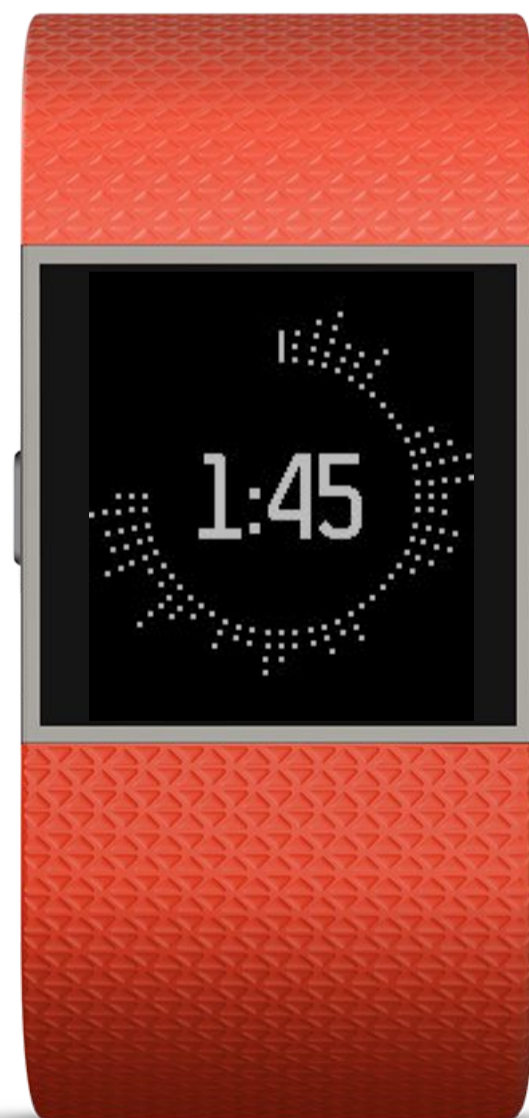
CUSTOMIZATIONS AND BATTERY LIFE

You can customize the Surge to add up to seven activities, in addition to running, to choose from when

Fitbit Surge

PROS Continuous heart rate monitoring. Built-in GPS. Secure, comfortable fit. Tracks new activities like hiking, yoga, weight lifting. Excellent app with easy syncing. Supports incoming texts, notifications. Accurate.

CONS Limited push notifications. Moderately large. Not waterproof. Below-average battery life with GPS enabled. Charger not interchangeable with other Fitbits.



you work out. By default, they are hiking, weights, elliptical, Spinning, yoga, and a generic workout. The other choices are stair climbing, circuit training, boot camp, Pilates, kickboxing, tennis, martial arts, golf, and walking. In the running options, you can choose from free run, treadmill run, and lap run.

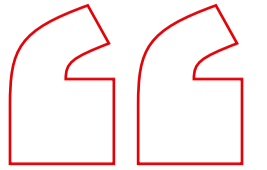
You can also customize the Surge's home screen, though I like the default screen best; it shows the time in digits and a dial of dots that fills in around it as the minutes tick by, and the dots turn to little sunbursts at the times when you were active.

Without GPS enabled, the Surge's expected battery life is five days, and that's with the continuous heart rate monitor running. With GPS on, which is only when you're tracking an outdoor activity like running, the battery life is about 5 hours. That's decent, but other GPS runner's watches get 8 to 12 hours, though they don't typically have built-in heart rate monitors running at the same time.

A USB charger comes included with the device, but it's unique to the Surge, meaning if you live in a multi-Fitbit household, you can't borrow someone else's charger.

One more item in the box when you buy a Surge is a Fitbit USB dongle, and it's one of my favorite aspects of Fitbits. If you set up your Fitbit account via computer, you can leave this tiny USB key connected, and any time you're within a few feet of your computer, your activity data will wirelessly sync to your account. That's so much more convenient and power efficient than relying on mobile device syncing alone (though you can use only the mobile app, if you prefer).

Setting up a Surge is as simple as with any other Fitbit device. With either a mobile app or a computer, you install the Fitbit app, create an account or log in to an existing one, and follow on-screen prompts to enable



Without GPS enabled, the Surge's expected battery life is five days, and that's with the continuous heart rate monitor running.



syncing. If you're setting up a Surge to replace an old Fitbit tracker, you have to disassociate the old device first.

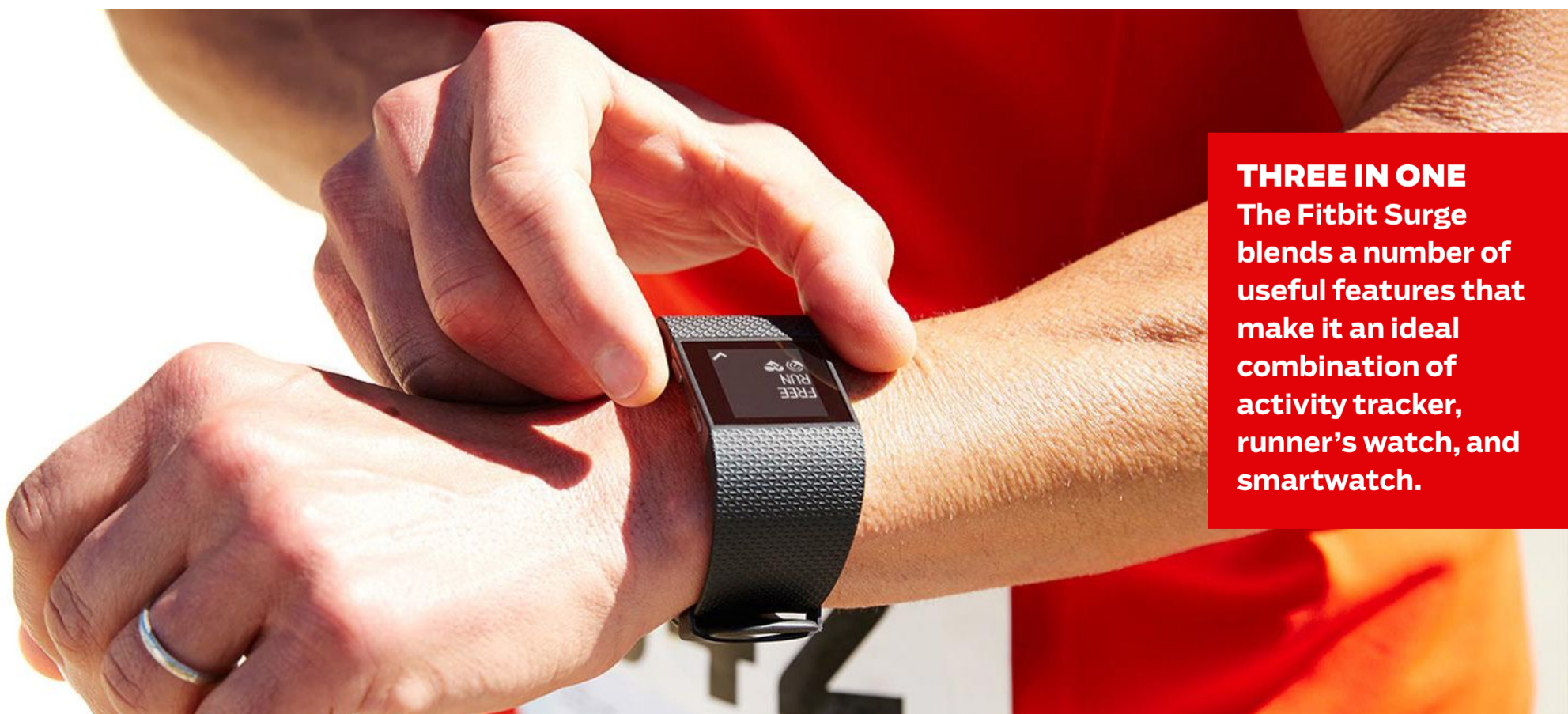
SPECIAL FEATURES

The optical heart rate monitor is continuous, though you can turn it off from the settings to preserve battery life. The readings looked accurate enough to me both at rest and during activity, based on what I know about my heart rate, readings from other devices, and the number I get from the two-fingers-to-the-jugular test. I've noticed a blip of incorrect heart rate on the Surge here and there, usually when the watch slides down my wrist and is too loose for a few moments. When I readjust it, though, the readings quickly return to expected values. You don't get as much fine detail tracking your heart rate in Fitbit as you do with the MyBasis app for the Basis Peak, but you get quite a bit.

From the Fitbit app, you can customize and preprogram a few activities to be at your fingertips the next time you work out. For example, by keeping yoga in your customized list of activities, you can select it right from the watch before you start doing sun salutations. Based on the activity you choose, Fitbit will adjust the estimated calorie burn to match.

If you select outdoor running or hiking from the activities list, the GPS will automatically engage and stay on until you finish. That's great. The GPS signal also picked up in less than 30 seconds in my neighborhood, which is fast. If it's taking too long, you can select Quick Start and be on your way. The GPS will connect when it can.

The Surge records distance, pace, elevation, routes, and splits—all the core data runners want. You can see your time, pace, and distance right on the main screen, though some data you won't see until you finish and pull up a summary



THREE IN ONE
The Fitbit Surge blends a number of useful features that make it an ideal combination of activity tracker, runner's watch, and smartwatch.



IT'S BETTER WITH A BAND
Whatever your workouts of choice, the Surge is designed to smartly help you reach and exceed your goals.

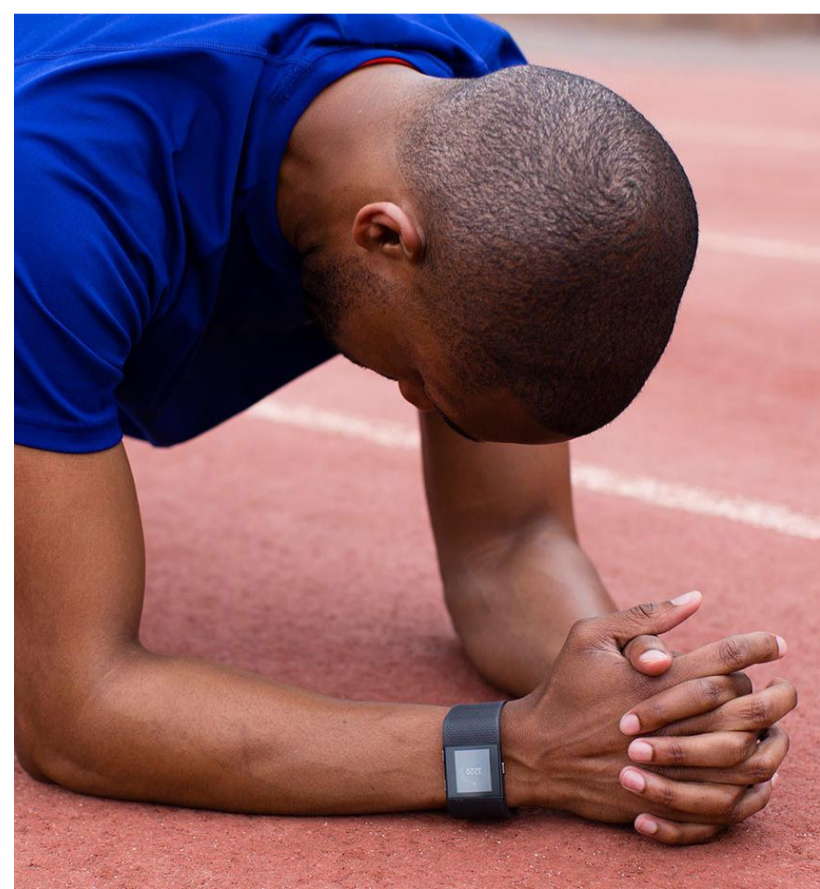


screen. In the Fitbit app, you can turn on voice coaching, customize your heart rate zones, and more. There's really a lot to explore, though the Surge doesn't do the really high-end running stuff, such as calculate cadence, ground contact time, and vertical oscillation. You'll want the \$399 Garmin Forerunner 620 for that.

While you're on the pavement, you can use the Surge to control your music, too, and get notifications of incoming text messages and calls. Or you can leave your phone at home and run just with the watch, which will save your data until you sync.

The notifications are useful, but rudimentary. They turn on when you connect your Surge to a smartphone, and you can turn them on and off from the Account Settings in the app. Any time a phone call comes in, the Surge vibrates and you can see the name of the person calling on your wrist. For text messages, the Surge vibrates, an icon appears on the screen, and you can select it by pressing the adjacent button to read the full message on the watch.

The Surge also does a remarkably good job at estimating your sleep cycles. You can put the band into sleep mode manually if you want to,



but if you fall asleep while wearing it, tracking is automatic. That automation really helps make sleep tracking more useful, and its information is both generally accurate and easy to correct if it gets something wrong.

THE BEST FROM FITBIT YET

The Surge is a wonderful activity tracker that elevates the Fitbit brand a tremendous degree. For the first time, it offers runners and other exercise enthusiasts the more advanced functionality they expect from a GPS watch. Because it's in the Fitbit family, Surge users get all the benefits that come with the best fitness-tracking app on the market, such as a supportive community and integration with dozens of other apps and services.

As I said, the Surge is not perfect. It isn't the watch for you if you are hoping to PR in your next marathon, are training for a tri, want to track bicycling effortlessly, or need a heart rate monitor that can coach you through interval training. Its trade-offs seem to be in the name of simplicity and price, but I think they're well managed. All around, the Fitbit Surge has the broadest appeal of all our Editors' Choice fitness trackers. If you've had a Fitbit product in the past and are looking to upgrade both your device and your workouts, I cannot recommend anything better.

JILL DUFFY



**Dell Venue 8 7000**

\$399.99



Slim and Attractive, Yes. A Good Performer? Not Quite

The most beautiful Android tablet is also one of the most frustrating. The Dell Venue 8 7000 is the slimmest tablet in the world, a gorgeous slab of metal and glass with a fascinating set of 3D cameras on the back. But nothing on the Venue 8 7000 works as well as it should, leaving it, ultimately, a disappointing experience.

PHYSICAL FEATURES AND NETWORKING

Let's start with the best thing about the Venue 8 7000: its design. The ideal tablet vanishes into the background; it's a feather-light, paper-thin window onto the Internet. The Venue 8 7000 comes really close. It's 8.5 by 4.9 by 0.24 inches (HWD) and 10.7 ounces, slimmer than the Samsung Galaxy Tab S 8.4, but a little heavier because of its all-metal construction.

Most of the front of the tablet is a glass slab that runs up to the edges of the body, although there's a bezel for the screen under the glass. Below the screen,

there's a half-inch "chin" with the front-facing camera and speaker on it. That's a convenient way to hold the tablet when you're doing things like reading or watching videos, but it causes real trouble when you want to take some pictures.

The back of the tablet is mostly matte aluminum in a nice gunmetal finish, although the bottom is plastic. There are three cameras on the back—a main one very near the bottom (trouble, again) and two RealSense cameras above that one that sense depth.

The screen on the Venue 8 7000 is a rich, sharp 8.4-inch OLED, at 2,560 by 1,600 and 359ppi. That's the same size and resolution you get on the Galaxy Tab S 8.4, but the Dell's screen isn't as bright, as you'll discover when you take it outside.

You get the latest network technologies on the Venue 8 7000: dual-band 802.11ac Wi-Fi, Bluetooth 4.0 LE, GPS, and NFC. But as we'll see with other aspects of the tablet, performance in our tests didn't measure up to the spec sheet. Specifically, Wi-Fi speeds against a fast corporate connection were reliably slower than on the Galaxy Tab S at both 2 and 25 feet from a Meraki MR16 router, as tested using the Speedtest.net app.

ANDROID AND PERFORMANCE

The Venue 8 7000 runs Android 4.4 (a Lollipop upgrade is coming) on the relatively exotic new Intel Atom Z3580. The Z3580 is a quad-core, 2.3GHz processor, but because it's a totally different architecture, you can't compare it with more common ARM-based chips without benchmarking it.

Something a little weird happened when we ran the benchmarks, though. On the AnTuTu Benchmark, which measures full-system performance, the Venue 8 7000 beat leading Qualcomm- and Exynos-powered devices like the Galaxy Tab S and Amazon Fire HDX 8.9. That carried over into the Browsermark and SunSpider real-world browser benchmarks, too, where

Dell Venue 8 7000

PROS Slimmest tablet currently available. Gorgeous build. Front-facing speakers. Sharp screen.

CONS Cameras are poorly designed, implemented. Performance doesn't live up to spec sheet.





the Venue 8 7000 showed consistently faster browsing scores. On graphics benchmarks, the Venue 8 7000 sat between the Exynos-powered Galaxy Tab S and the Qualcomm Snapdragon–powered Amazon Fire HDX—so far, so good.

But in real life I kept seeing lag in the UI and sluggish Wi-Fi issues. With automatic brightness turned on, the screen flickered sometimes. The game Asphalt 8 crashed on first launch. Photos I shot took several seconds to process in the gallery. None of that should happen on a tablet with 2GB of RAM and such a fast processor.

I hadn't yet activated the bloatware on this tablet, but there's some of it lurking around a basically unskinned OS. My Dell is a diagnostics app that's useful, but keeps bugging you to register. There's a 30-day trial of McAfee malware protection, as well as custom photo and gallery apps that use the cameras' depth features.

Battery life was only decent, at 6 hours, 5 minutes, of Wi-Fi video streaming. The Dell was easily outpaced by the Galaxy Tab S. I'm also trying to track down why the tablet kept running down its battery in standby mode overnight—a bug I haven't seen on a lot of other tablets.

An optional accessory called the Dell Cast (\$79) plugs into any HDMI-equipped monitor or TV and purports to give the Venue a productivity mode that supports a mouse, keyboard, and multiple windows, but it's laggy and frustrating. Typing in Google Docs had noticeable lag, followed by a crash. Asphalt 8 was a juddery, blocky mess. Switching from Productivity to Mirror mode, I couldn't type in a WPS Office document reliably at all.

STORAGE AND MULTIMEDIA

The Venue 8 7000 comes with 9.12GB of its 16GB of internal storage free. There's a microSD card slot on the side that you can pop out with a SIM card tool, and it accepted my 64GB microSD card just fine.

The tablet's camera layout is very poorly thought out. For some reason, as I mentioned above, all the cameras are on the bottom of the tablet. The first thing you have to do when taking a picture is flip over the tablet so it's upside down. Holding the tablet either right side up or in landscape mode, you'll probably block one of the cameras. That also means you'll take most of your photos and videos in portrait mode.

Taking a depth-enhanced image is simple enough, although the camera app frequently told me I was blocking one of the cameras when I wasn't.

Camera quality is poor. The 8-megapixel camera defaults to 6MP, which you can change in the settings. Simulated daylight shots were all blown out. Indoor shots were all grainy and blurry thanks to low shutter speeds. Actual outdoor shots varied between blown out and slightly out of focus. The 2MP front camera was insanely grainy in low light. I have a charming indoor video of my kid taken with the main camera in 1080p, but it's extremely noisy and only 18 frames per second (fps). I actively regret using this tablet to record that video. Outdoors, of course, 1080p video from both cameras records at 30fps and looks just fine.

Including depth information in the images lets you do a few unusual things with them. Note that this isn't a real 3D camera system; it's



TOUGH ROAD FOR A TABLET
Although the Dell Venue 8 7000 is thin and beautiful, performance issues and iffy features don't make it ideal for all users.



SHOT SHOOTER

Still photo quality is poor on the Venue 8 7000, though video looks good (when taken outdoors).

more like the HTC One's Duo Camera. The Ruler tool is supposed to measure the height of objects and distance between them; I found it worked about half the time. There's a refocus tool to create bokeh effects, and a bunch of intriguing filters that can do things like turn only the foreground objects black and white. But you're applying these gimmicky filters to low-quality images, and the results are disappointing.

Media playback is a much happier story, thanks to the huge, front-facing speaker. It's loud and deep enough to pull the Venue 8 7000 up to Amazon levels of audio fulfillment. There's some MaxxAudio equalizer bloatware, but it doesn't do much. The tablet had no trouble playing MPEG-4, DivX, and Xvid video, but MKV files will need a third-party app.

COMPARISONS AND CONCLUSIONS

I'm very frustrated here, as the Dell Venue 8 7000 is one of those gadgets that doesn't deliver in person what it promises on paper. Yes, it's the most beautiful tablet available today. But the camera location is downright idiotic, the depth camera is a gimmick, Dell Cast hardly works, and the laggy performance doesn't show up in the specs or benchmarks.

For a no-compromises, no-worries smaller tablet, the Samsung Galaxy Tab S 8.4 still reigns supreme. If cost is an issue, the Nvidia Shield Tablet (\$299) isn't nearly as shiny as either of these tablets and doesn't have the high-res screen, but it has terrific performance for the price.

SASCHA SEGAN



Razer's Gaming Laptop Is Back, Sharper Than Ever



Last year's Blade, the second in Razer's line of highly influential ultraportable gaming laptops, disappointed us with its short battery life and graphics hardware that was outstripped by the display; our favorite laptop along these lines has remained the original 2013-model Blade. But the Blade is back for 2015, with improved components that polish out the last version's rough spots and help return the line to its preeminent place in this category.

Razer Blade

\$2,399.99



DESIGN

The slim and sleek Razer Blade is unchanged design-wise from last year, still looking very much like a matte-black MacBook Pro. The aluminum chassis measures 0.7 by 13.6 by 9.3 inches (HWD) and the laptop weighs just 4.47 pounds, making it light enough to carry in a laptop bag. The Blade is accented with bright-green touches—the USB ports, the glowing Razer logo on the lid, and the backlight of the keyboard all sport the same verdant glow.

With an indium gallium zinc oxide panel that offers stunning color quality and excellent viewing angles, the Blade's display (again, the same as last year's model) unquestionably looks good; and it boasts ten-point touch capability, which is still relatively rare on gaming systems. But the QHD+ (3,200-by-1,800) resolution, which is higher than you'll find on most laptops, might not be ideal for gaming—that's still up for debate. (Razer also sells a \$1,999.99 version of the Blade equipped with a 1,920-by-1,080, non-touch display.)

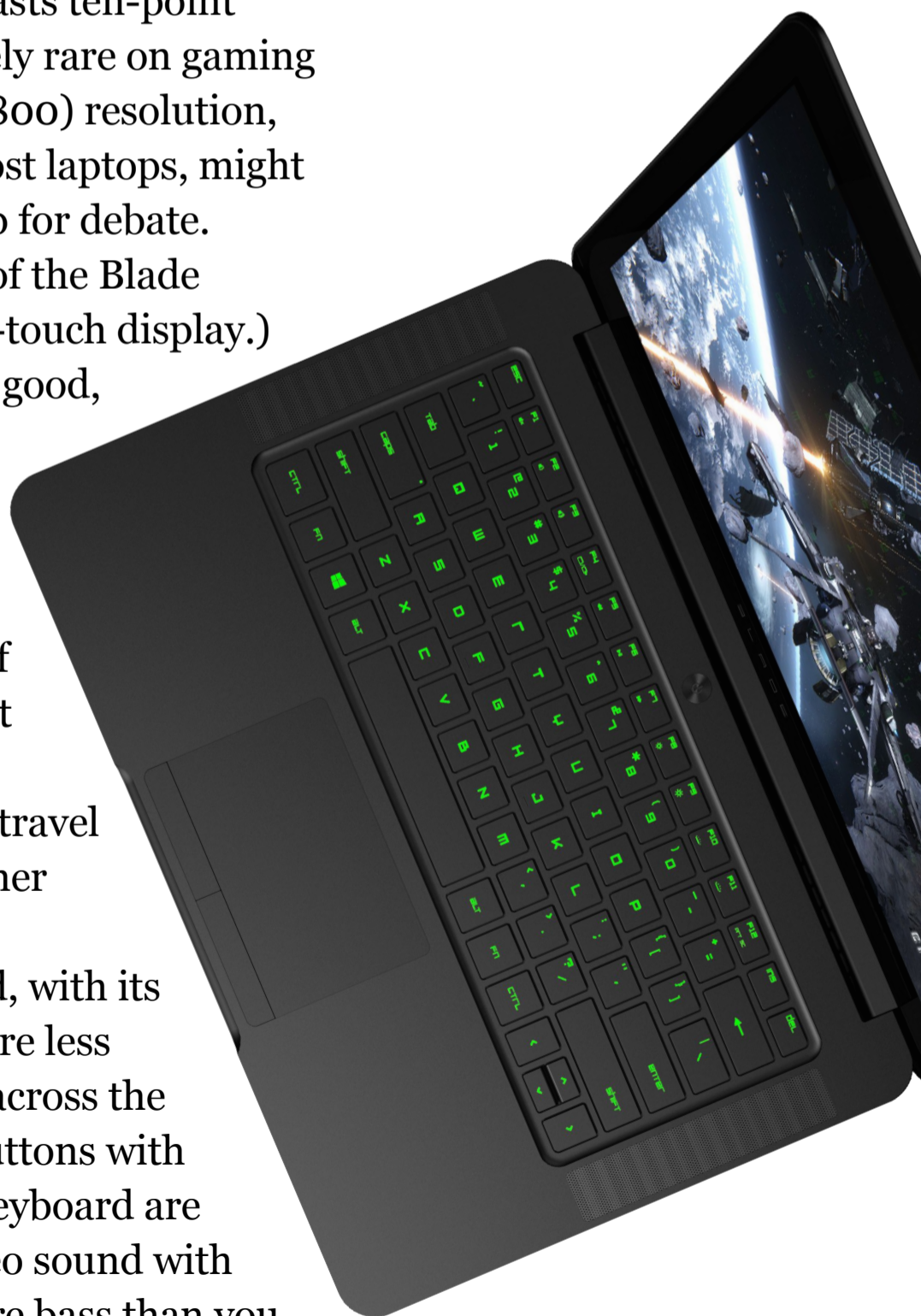
The keyboard is (predictably) quite good, as Razer's bread and butter has long been gaming peripherals. It's programmable and optimized for gaming, with full antighosting, meaning you can press any number of keys simultaneously without the input locking up or slowing down. The keys have a solid feel to them, and the key travel is deeper than you'll get with most other chiclet-style keyboards.

The touchpad is similarly optimized, with its size and touch calibration set to require less lifting of fingers for smooth tracking across the display, and separate right and left buttons with firm feedback. On either side of the keyboard are built-in speakers, which provide stereo sound with enough volume to fill a room and more bass than you

Razer Blade

PROS Sleek, light design. Excellent touch display. Powerful, up-to-date processing and video hardware. Improved performance, battery life over previous iteration.

CONS Runs very hot. Discrepancy between graphics, display capability.



may expect.

Heat is a significant problem, and it's little wonder with high-performance components packed into such a narrow space. Though Razer does tout its thermal management, I still felt the heat, with temperatures hitting 128° F during testing (as measured with a Fluke IR thermometer). Fan noise doesn't seem to be as annoying this time around, but it's still quite noticeable.

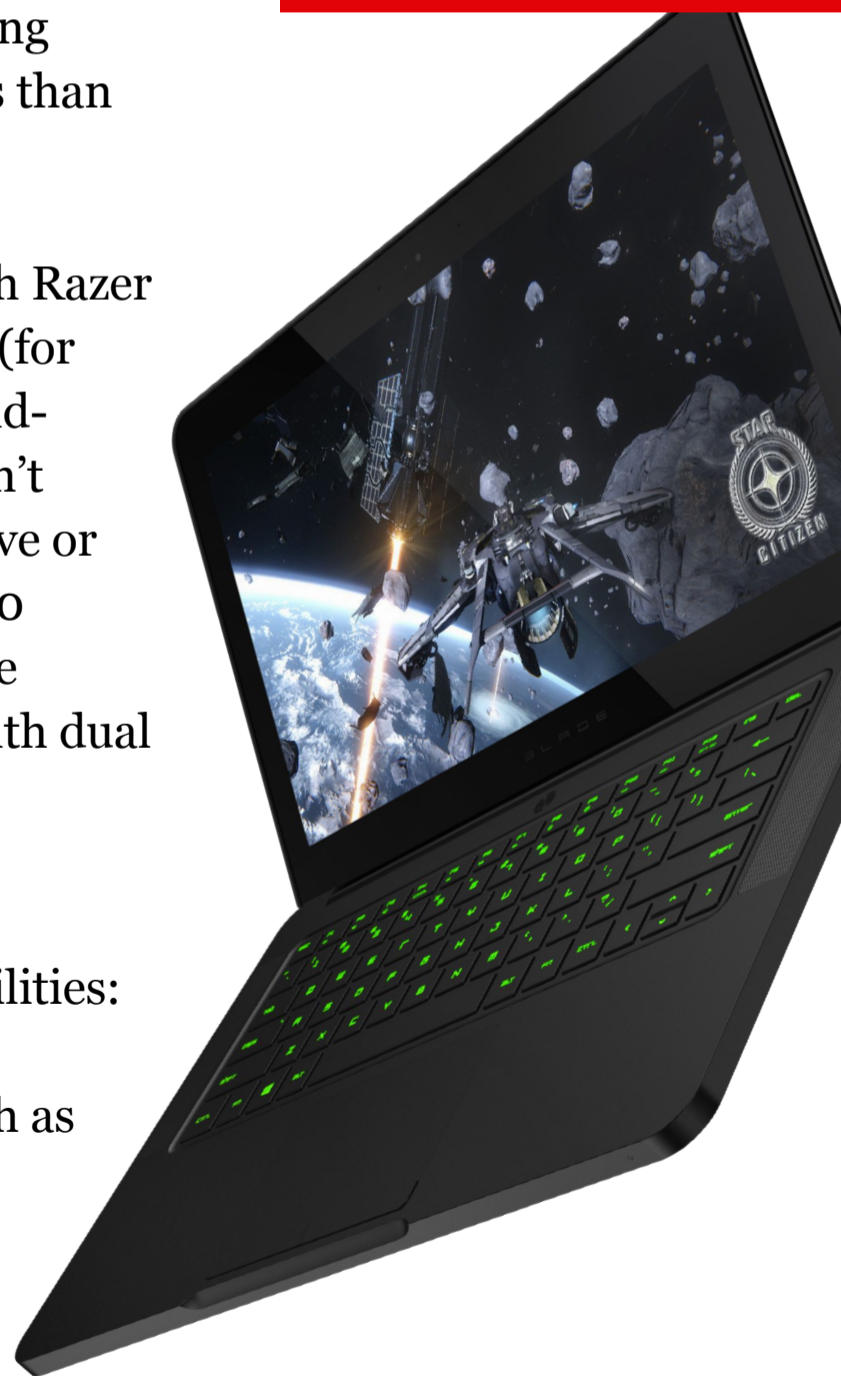
FEATURES

The connector options are also the same as before, with one USB 3.0 port and an HDMI-out port on the right side of the system, and two USB 3.0 ports and a headset jack on the left. In terms of wireless connectivity, there's dual-band 802.11ac Wi-Fi and Bluetooth 4.0. For improved portability, the power adapter also has a compact design, with the 150-watt brick measuring just 0.87 by 2.36 by 5.9 inches, and weighing less than a pound.

Our review unit came configured with a PCI-connected, 256GB solid-state drive (SSD), though Razer also offers the Blade with 128GB or 512GB SSDs (for \$2,199.99 and \$2,699.99, respectively). That solid-state memory promises fast performance, but can't match the overall capacity of a standard hard drive or multiple-drive setups, like those on the MSI GS60 Ghost Pro 3K or Maingear's 14- and 15-inch Pulse systems, all of which combine 1TB hard drives with dual 128GB SSDs.

The Blade comes with nothing we'd classify as bloatware, though there are a few preinstalled programs. Several of these are Razer-branded utilities: Synapse 2.0, which manages settings and customization for all of your Razer products, such as the Ouroboros mouse or the Tartarus gaming keypad; Comms, a gaming-friendly messenger and voice chat platform; Cortex, a unified game launcher that collects all of your games from

“
Heat is a significant problem, and it's little wonder with high-performance components packed into such a narrow space.
”



Steam, Origin, and the like; and Surround, a utility that offers 7.1 surround sound for both speaker systems and gaming headsets, which Razer normally sells separately for \$19.99. Also preloaded is Nvidia's GeForce Experience, which serves as a dashboard for managing driver updates and GPU settings, and includes features like Battery Boost, which offers dramatically improved gaming performance when the system is on battery power; ShadowPlay, which lets you record in-game video; and Game Stream, for streaming your games to an Nvidia Shield. Razer covers the Blade with a one-year warranty.

PERFORMANCE

Razer has outfitted the new Blade with a 2.6GHz Intel Core i7-4720HQ quad-core processor and 16GB of RAM (twice what the 2014 model had). This combination makes for some excellent general-use performance, with the Blade leading in Photoshop CS6 with a time of 3 minutes, 25 seconds, and topping CineBench with a score of 675. In terms of productivity it ranked well ahead of most consumer laptops, but it landed in the middle of the pack for ultraportable gaming systems. On PCMark 8 Work Conventional it scored 2,955, ahead of the 2014 Blade (2,787), but behind the MSI GS60 (2,988) and the Maingear Pulse 15 (3,047).

With an Nvidia GeForce GTX 970M and 3GB of dedicated graphics memory, graphics performance is very good, and does a lot to fix some of the problems seen in the previous iteration. On 3DMark CloudGate the Blade scored 19,454, and on Fire Strike Extreme it scored 3,270, beating out all of the comparable systems. This isn't a huge surprise, as the GTX 970M is the second most powerful of Nvidia's current generation of mobile discrete video cards.

Gaming performance is also significantly improved, and results from its baseline gaming tests (run at 1,366-by-768 resolution) were the best we've seen. Unfortunately, the improvements in graphics processing aren't quite good enough to fix the disparity between the display and GPU. There are still some





scaling issues at lower resolutions, and the GPU still doesn't have the oomph to be playable at the Blade's native 3,200 by 1,800. That said, if you back off on the resolution and tweak the graphics settings, you can play demanding current titles at better-than-full-HD resolutions (though not a lot better).

The system also showed significant improvement in battery life, lasting 4 hours, 52 minutes, in our rundown test. This isn't just an improvement—though it does add more than a half hour of usable time over the 2014 Blade (4:15)—it's also better than you'll see from any other machine in the current crop of gaming ultraportables, tying with the Maingear Pulse 14. The 2013 Blade still holds the record with 6:52, but it's a two-year-old system that didn't have the extra power demands of a 350-nit QHD+ display.

CONCLUSION

With new processing and graphics hardware, the 2015 Razer Blade delivers better performance and longer battery life than its predecessor. Heat is still a concern, but that's a problem endemic to the category. As it stands, the 2015 Blade not only outshines the 2014 model, it also offers a better overall value than the 2013 Blade. If you still aren't sold on the Blade, the MSI GS60 Ghost Pro 3K is an excellent alternative (and our top pick for midpriced gaming laptops), but for ultraportable gaming, the 2015 Blade is the way to go—and our new Editors' Choice.

BRIAN WESTOVER

**Dell XPS 13 Touch**

\$1,399.99



Speed, Screen Size Fuse in Dell's Touch Ultrabook

The latest version of the Dell XPS 13 ultrabook is slimmer than its predecessor, and offers an insanely detailed 13.3-inch QHD+ In-Plane Switching (IPS) screen. It's one of the first systems we've encountered with a fifth-generation Intel Core i5 ultrabook-class processor, and so far, we like what we see. This XPS 13 is a very good choice if you're looking for the most detailed screen you can get in a system that's barely larger than many 11-inch laptops.

DESIGN AND FEATURES

The XPS 13 is constructed from machined aluminum and the keyboard deck and palm rest are clad in carbon fiber. The screen is covered with Gorilla Glass NBT, with barely a few millimeters of bezel around the screen. This makes the screen look larger and minimizes wasted space, though it also makes it a little

trickier to swipe from off screen to bring up the Windows 8.1 Charms bar. The 3,200-by-1,800-resolution display is beautiful to behold, and shows an incredible amount of detail when viewing Netflix and YouTube videos. In testing, even the shadow-filled skyscraper fight scene in *Skyfall* was detailed enough to see clearly.

The system measures 0.6 by 12 by 8 inches (HWD) and weighs 2.76 pounds. That's slimmer and about a quarter-pound lighter than last year's XPS 13, and puts it right in between Apple's 11- and 13-inch MacBook Air systems. That's also lighter than Windows competitors like the Acer Aspire S7-392-5410, and the same weight as the Toshiba Kirabook 13 i7 Touch, our Editors' Choice for high-end ultrabooks. What's notable about this is that the XPS 13's screen height is lower than on these other 13-inch laptops, which means that the system will work well on an airline tray table in coach. Typing on the chiclet-style, backlit keyboard is comfortable, as is using the wide touchpad and ten-point touch screen.

Port selection is adequate, if a bit sparse: one Mini DisplayPort, two USB 3.0, and an SD card reader. Dell sells a \$60 adapter that adds Ethernet, HDMI, USB 2.0, and VGA, but that's another box that you may accidentally leave at your desk or on the road. For wireless connectivity, there's 802.11ac Wi-Fi and Bluetooth 4.0.

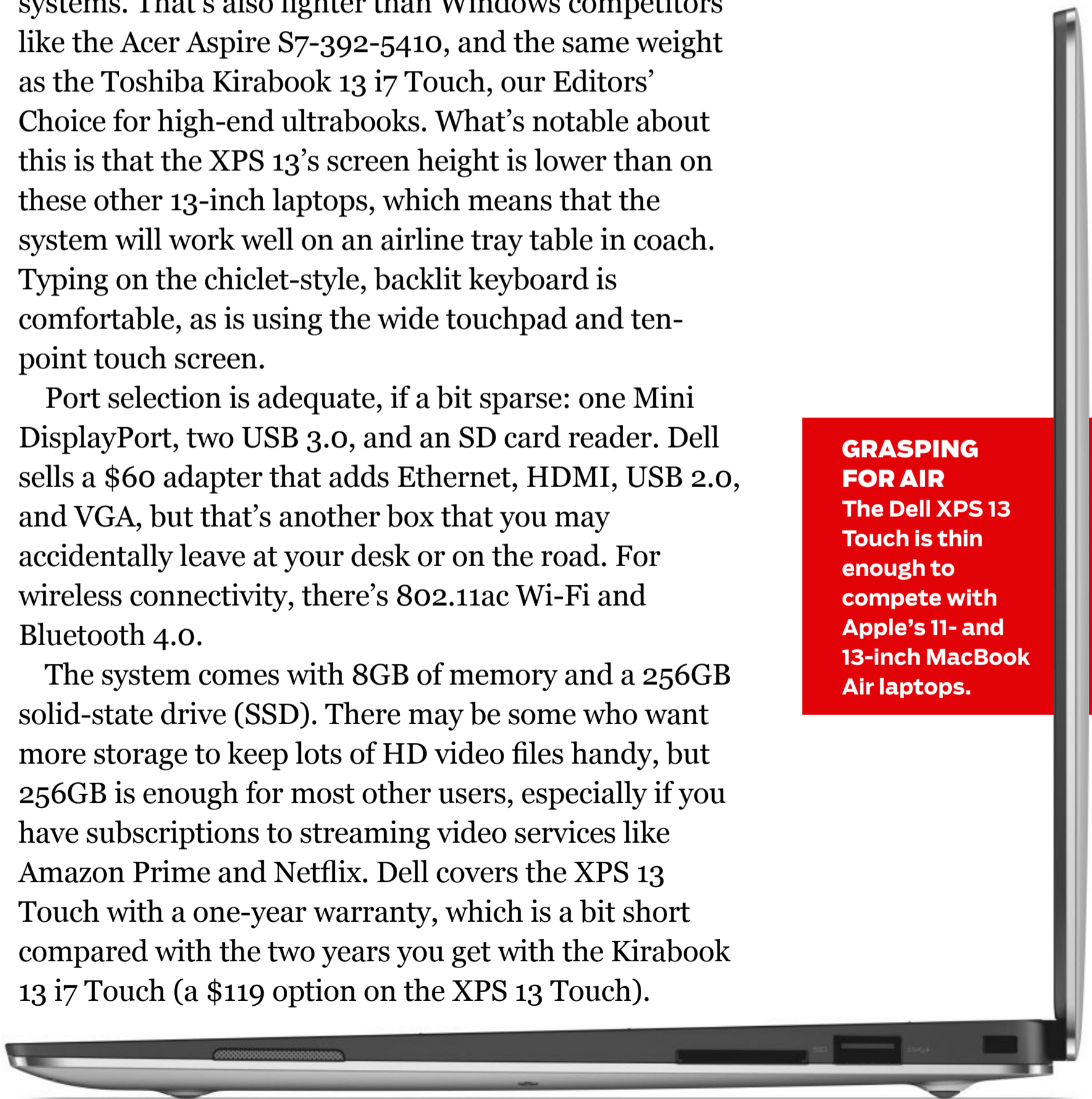
The system comes with 8GB of memory and a 256GB solid-state drive (SSD). There may be some who want more storage to keep lots of HD video files handy, but 256GB is enough for most other users, especially if you have subscriptions to streaming video services like Amazon Prime and Netflix. Dell covers the XPS 13 Touch with a one-year warranty, which is a bit short compared with the two years you get with the Kirabook 13 i7 Touch (a \$119 option on the XPS 13 Touch).

Dell XPS 13 Touch

PROS Strong performance. Excellent high-resolution display. Lightweight. Weighs less than 3 pounds.

CONS Shorter battery life than rivals. Limited port selection. Only covered by a one-year warranty.

GRASPING FOR AIR
The Dell XPS 13 Touch is thin enough to compete with Apple's 11- and 13-inch MacBook Air laptops.



PERFORMANCE

An Intel Core i5-5200U low-voltage CPU with Intel HD Graphics 5500 powers the XPS 13, and it's good enough to score 2,987 on the PCMark 8 Work Conventional test, beating the Toshiba 13 i7 Touch by about 500 points. It even squeaked by the Toshiba Satellite Click 2 Pro P35W-B3226 (2,939), which has a slightly faster Core i7 processor. Its 3DMark Cloud Gate and Fire Strike Extreme scores are also better than those of previous systems, but as the Heaven (9 frames per second, or fps) and Valley (9fps) tests at medium quality settings show, you won't be playing many 3D games on this ultrabook (or any of its competitors, for that matter).

The XPS 13 has the multimedia power to complement its 3K UHD+ screen. It handily beat the competition on the Handbrake test with a time of 2 minutes, 58 seconds. Most of the other systems ran from 3 to almost 6 minutes on the same test. Its Adobe Photoshop (5:54) and CineBench (249) results are quite competitive, but not the best we've seen. The XPS 13 is ready for 2D content creation, so photographers, videographers, and Web developers who prefer Windows should take a good look at this system.



The XPS 13 has the multimedia power to complement its 3K UHD+ screen.



SPRAWLING SCREEN

The 3,200-by-1,800-resolution display on the XPS 13 Touch is beautiful, and ideally suited for photo and video work.



Battery life was a mixed bag in our testing. The XPS 13 Touch's time of 7 hours, 40 minutes, on our rundown test was respectable, but somewhat disappointing compared with 8:44 for the Kirabook 13 i7 Touch and 9:31 for the previous XPS 13 Touch. The 13-inch MacBook Air is still our current battery champ at more than 15 hours. You can extend battery life many more hours (we recorded 12:55) using Dell's 12,000mAh Portable Power Companion battery pack (\$108).

When all is said and done, the latest Dell XPS 13 Touch's strengths are its brilliant touch screen, sturdy build quality, thin construction, and solid performance. The Toshiba Kirabook 13 i7 Touch, however, remains our top pick for high-end ultrabooks, thanks to its better battery life, longer warranty, and bundled software. That said, the XPS 13 Touch should be on your short list if you're looking for a well-built, thin, light, and powerful touch-screen Windows laptop.

**PUTTING THE
ULTRA IN
ULTRABOOK**

**The XPS 13 Touch is
an excellent modern
laptop in almost
every way.**

JOEL SANTO DOMINGO

**Matter and Form
3D Scanner**

\$650



A Simple Way to Scan Objects for 3D Printing

The Matter and Form 3D Scanner is a laser-based 3D object scanner geared toward consumers and hobbyists. It can scan small objects and save them as 3D files you can import into a virtual environment or output on a 3D printer. Scan quality in our testing was satisfactory, a hair better than the Occipital Structure Sensor, which is the one other inexpensive 3D scanner we've looked at.

DESIGN AND FEATURES

Unlike the Occipital Structure Sensor, a 3D sensor that attaches to an iPad to provide 3D scanning, mapping, and other functions, the Matter and Form

model is a dedicated 3D scanner that's controlled from a computer. Its scanner-and-turntable design is conceptually similar to that of the MakerBot Digitizer, another dedicated 3D scanner, and the Ortery 3D MFP, a self-contained product photography studio for which 3D scanning is just one of many features.

The scanner is small and light enough to be portable, weighing less than 4 pounds. The frame is cleverly designed. When closed, it's a tall box with a handle and measures 13 by 5 by 3 inches (HWD). When you open it, the front swings forward on a hinge, revealing the turntable, and the handle folds underneath the front to become a riser to hold the turntable steady and flat. Unfolding the scanner adds another 10 inches to its depth, but you can fold it back up when it's not in use.

The device uses a combination of lasers and a camera in scanning. The object to be scanned is placed on a 7-inch turntable. At the back of the scanner is a carriage that can move vertically. On it is a camera that's flanked by two red lasers. When you initiate a scan, the two lasers alternately train a beam in a narrow vertical slice on the object. The camera records the reflections from the beams, from which the scanner's software creates a point cloud of depth data—a mathematical representation of the object's three-dimensional structure. The turntable rotates slightly, and the two lasers play over the object again.

The process is repeated until the object has been fully rotated. The carriage then rises to the level of the highest point the beam reached on the object (roughly 3 inches), the lasers resume scanning from that point, and the turntable turns the object

Matter and Form 3D Scanner

PROS Easy to use.
Saves scans in several useful formats.
Mostly good scan results in testing.
Solid help resources.

CONS Some test scans showed significant detail loss.
Software sometimes froze in tests.



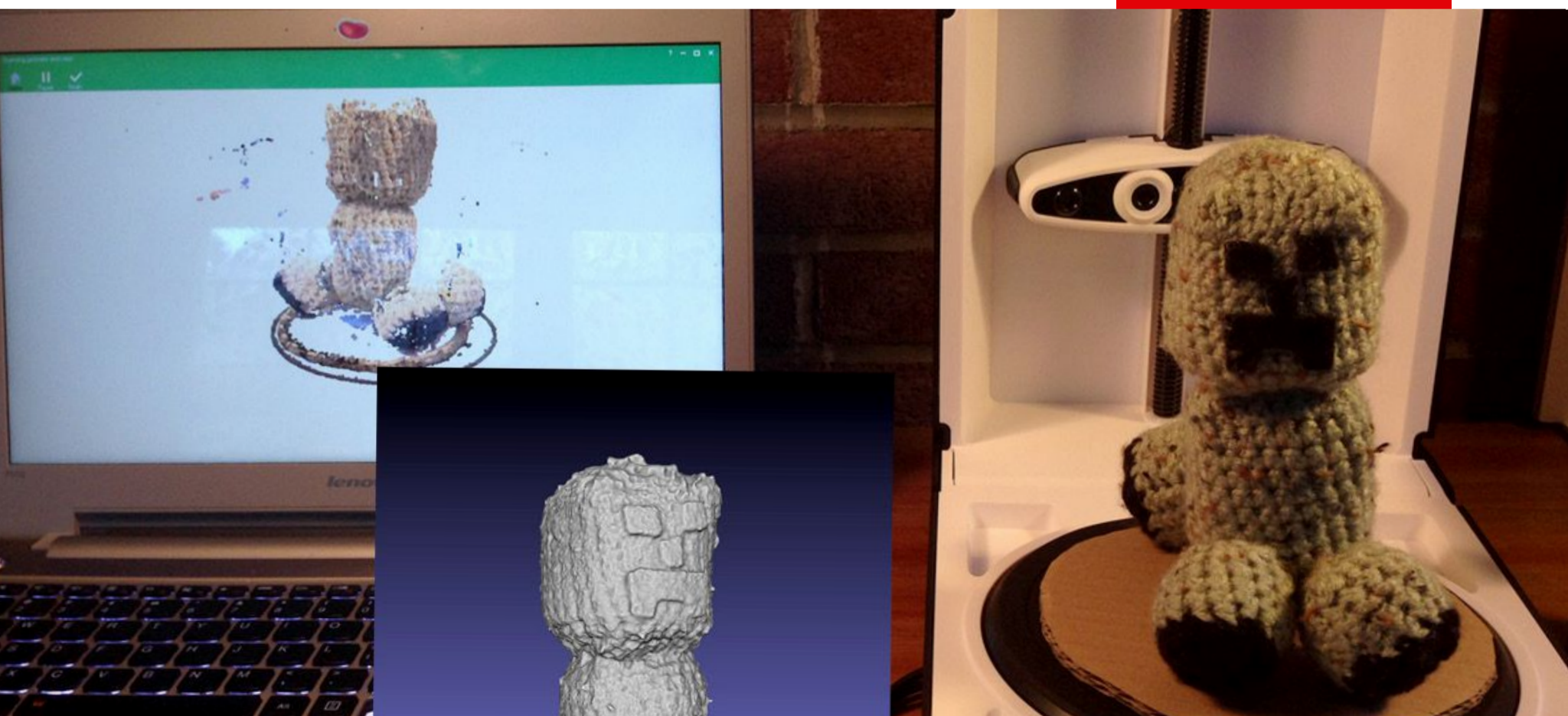
through another full rotation. The process continues until the entire object is scanned. It takes about 7 minutes for the object to complete a single rotation. Depending on how tall the object is, it can take several full rotations to complete the scan.

SOFTWARE

To download the software for the 3D Scanner, you need to go to the Matter and Form website to set up a free, password-protected account, and then enter the serial number from the bottom of the scanner. From there, you can download the software for either Windows or OS X. Once you've set up the software and attached the scanner to your computer via the included USB cable, you calibrate the scanner using an included block with a checkerboard pattern on it. Once it has completed the automatic calibration routine, which you launch from the software's main page on your PC or Mac, you're ready to scan. The site also has good resources for beginners under the Help tab.

You can scan objects up to 9 inches tall by 7 inches wide. To do so, you place the object on the turntable and center it. Then you press the New Scan button from the software's main page, and select whether the object is of one or multiple colors. If it's a single-color object,

MATTER PATTERN
The Matter and Form 3D Scanner is capable of scanning objects up to 9 inches tall by 7 inches wide.





COLOR LIBERTY
Though the Matter and Form is limited to fairly small objects, it can scan in multiple colors.

you can immediately launch the scan. If the object is more than one color, the software will ask you to perform a calibration by rotating the object until the lightest color is illuminated by the laser beam, clicking, and then rotating it until the darkest color is lit. Once you've done that, you can launch the scan.

When a scan is complete, you're given the options Save Now and Save Later. Save Now saves the raw scan in Matter and Form's proprietary MFC format, which is the only file format you can open in the company's software interface; with Save Later you can modify the scan first. Whichever option you choose, the file remains open on screen for you to work on. For instance, you can clean and crop the scan: remove everything below a certain height, which includes the turntable (which gets scanned along with the object), and crop in a tight circle around the object. Then you can apply auto-clean, which removes any spurious points that are left. Once you're done, you can save the scan in any of several 3D file formats: MFC, PTX, XYZ, PLY, and STL—the last choice being widely used in 3D printing.

TESTING

I scanned a number of small objects with the Matter and Form, including several I saved in STL format and printed out on a MakerBot Replicator 2X 3D printer. The quality of the scans was fair, with considerable variation from scan to scan. In some, there was considerable loss in finer detail, for example, with facial features smoothed over and crevices filled in. Some printed objects had spurious blobs of plastic added, mostly on top. Overall, scan quality seemed slightly better than that of the Structure Sensor.



When a scan is complete, I strongly recommend you use the Save Now option. Even if you save the file in another format as well after working with it, you still have a clean copy of the original. Once, in testing, when I'd failed to save the raw scan and had cleaned and cropped it and was trying to save it in an STL file, the software froze up and I had to relaunch the scan from scratch.

If you want a 3D scanner as a companion to a 3D printer, the Matter and Form 3D Scanner is a good, modestly priced choice. It's a self-contained appliance controlled from a computer, unlike the Occipital Structure Sensor, which requires an iPad and an app to scan. The Matter and Form's scan quality is satisfactory, and it can do the job of taking small objects and scanning a digital representation of them, for printing on a 3D printer, to include in animations or games, or for other uses. Although there is some loss of detail in many scans, it's not severe enough to negate the scanner's usefulness.

TONY HOFFMAN

TaxACT Online Deluxe Preview My Return ▾

Basic Info Life Events Federal Q&A State Q&A Review Filing Next Year

Income Deductions Credits Taxes Miscellaneous **Summary** Forms & Topics Bookmarks

Federal Tax Summary

Income:	\$40,000
Adjustments:	\$4,750
Adjusted gross income:	\$35,250
Deductions:	\$8,140
Exemptions:	\$3,900
Taxable income:	\$23,210
Tax:	\$3,038
Alternative minimum tax:	\$0
Credits:	\$600
Other taxes:	\$0
Payments:	\$6,421
Underpayment penalty:	\$0
Federal Refund:	\$2,783

Help Forms Images Tools

Popular Help Topics

- Earned Income Credit
- Preparing Your Federal Return
- Adding, Reviewing, or Deleting Form W-2 or Form 1099

TaxTutor Guidance

- Wages and Withholding Topic
- Retirement Topic
- Adjustments Topic

IRS Form Instructions

Need More Assistance?

Search Answer Center:

TaxACT: Still the Best Online Tax Prep Solution



After years of being dominated by TurboTax in the personal tax preparation website space, TaxACT Deluxe broke away from the pack last year and won our Editors' Choice award. It does the same this year. The websites we assessed for the 2014 tax year—H&R Block Deluxe, TaxACT Deluxe, TaxSlayer Classic, and TurboTax Deluxe—have more similarities than differences. But those few differences are more than enough to show that TaxACT is clearly superior. It supports all IRS forms and schedules that can be electronically filed, and it does it at the lowest cost for federal and state. It has a fast, functional look and feel, and a navigation system

TaxACT Deluxe 2015

(Tax Year 2014)

\$12.99; \$19.99 with State edition



that's clear and understandable. And TaxACT's rivals can't compete with its context-sensitive, comprehensive help features.

TaxACT Deluxe didn't repeat 2014's win because of any spectacular changes. Its screens have been tweaked, its import tools are more flexible this time around, and it costs \$2 more this year to buy federal and state together. It prevails over the others because of its winning formula: low-cost, all-inclusive, well-designed, and capably supported personal tax preparation with guidance tools that improve every year.

HOW IT WORKS

Like its competitors, TaxACT Deluxe produces your completed Form 1040 and its assorted forms and schedules based on the answers you provide as you advance through the wizard-like interview process. If you used the 2013 edition of TaxACT, you just supply your username, password, and Social Security number to import relevant data. TaxACT can also import data from PDF versions of any 1040, 1040A, or 1040EZ form prepared using TurboTax or H&R Block.

Once you've supplied the initial information needed (which includes estimated tax payments and your 2014 health insurance status), TaxACT's Life Events tool provides in-depth information and advice about how life changes over the last year (marriage, military service, retirement, and so on) might affect your tax return. Then, as you advance through the next several screens and answer questions about your household, your income, and your expenses, TaxACT does all of the

TaxACT Deluxe 2015 (Tax Year 2014)

PROS Strong user interface, navigational tools. Supports all IRS forms, schedules that can be e-filed. Inexpensive. Superior variety, accessibility, depth of help resources.

CONS No direct import from competitors' sites. Not as visually attractive as TurboTax.

TIPS FROM TOP TO BOTTOM

It can be difficult to report on tax-related events, but TaxACT accommodates both experienced and novice users throughout the site.

Investment Sales - Form 1099-B - Entry Method

How would you like to enter this Form 1099-B?

Quick Entry

Enter your 1099-B information directly on the form.

Step-by-Step Guidance

Follow our interview process with detailed instructions & help while entering your 1099-B information.

Help Forms Images Tools

Popular Help Topics

- Form 1099-S - Sale of Real Estate Property
- Cost Basis
- Wash Sale Definition and Entry

TaxTutor Guidance

- Covered vs. Noncovered Security
- Information Required for Reporting Sale
- Capital Gains and Losses

necessary calculations in the background. When you've finished the federal section, TaxACT alerts you to errors by presenting them one by one on separate screens and supplying fields, lists, and anything else for immediate corrections.

TaxACT then moves relevant data into your state return (if you have one). State editions function similarly, and you sometimes have very little work to do on them. Once you've completed every topic that applies to you and corrected any mistakes, TaxACT helps you print or electronically file the completed IRS forms and schedules it has prepared in the background while you were busy answering questions.

The screenshot displays the TaxACT Online Deluxe Preview interface. At the top left is the TaxACT logo and the text 'Online Deluxe Preview'. On the top right, there is a 'My Return' dropdown menu. Below the logo is a navigation bar with tabs for 'Basic Info', 'Life Events', 'Federal Q&A', 'State Q&A', 'Review', 'Filing', and 'Next Year'. Underneath this is a secondary toolbar with links for 'Import', 'Personal Info', 'Dependents', 'Filing Status', 'Estimated Payments', 'Forms & Topics', and 'Bookmarks'. The main content area is titled 'Name, Social Security Number and Date of Birth' and contains a form with the following fields: 'First name:', 'Middle initial:', 'Last name:', 'Social security number:', 'Date of birth (mm/dd/yyyy):', and 'Occupation:'. Below the form is a question: 'Should you file a Form 1040NR - U.S. Nonresident Alien Income Tax Return?' with a 'Form 1040' icon. On the right side, there is a 'Federal Refund: \$2,783' display, a 'Help' section with links for 'Forms', 'Images', and 'Tools', 'Popular Help Topics' (including 'Name, Birthdate and Social Security Number Mismatch', 'Social Security Number Change', and 'About Preview Edition'), 'TaxTutor Guidance' (including 'Name or Address Change', 'Social Security Number (SSN)', and 'Individual Taxpayer Identification Numbers (ITINs) for Aliens'), 'IRS Form Instructions', and 'Need More Assistance?'.

HOW IT LOOKS

TaxACT's user interface looks more polished than it did last year. Both it and the site's navigational scheme are similar to those of the competition, though TaxACT makes more of its background content visible; it's a busier look, but at least as effective and clear. A toolbar at the top of the TaxACT screen lights up to show you which section you're in (such as Life Events, Federal Q&A, and Review), and a smaller toolbar below shows you the subsections for each (Income, Deductions, and so on). You can click on any of these to jump around, but it's really better to go through the site sequentially. The opening screen of the Federal Q&A lists every topic that will be covered and gives you a choice between selecting the topics you know apply to you or letting the site take you through all of them (you can skip any that aren't applicable).

Once you're inside a content area, you just go with the flow. Each screen tells you what it needs from you. Sometimes you'll fill in a blank field, such as Principal Business or Gross Receipts. Other times, you'll click on buttons labeled "Yes" or "No" to questions like, "Do you keep inventories of merchandise for sale or..." You might get a list of options and be asked to click on the button in front of the correct one, or sometimes you select from a drop-down list.

You move through the interview by clicking the site's navigational buttons. As you finish each subsection, you might be told that there are errors that you can correct either immediately or in the comprehensive review at the end of the return. This critical tool explains errors or omissions and provides fields for the correct answers. Two other conventions help you get around. If you don't have an answer on a particular page, you can click the Bookmark button to remind yourself to come back later. Click on Forms & Topics to see a list of every IRS form and schedule within the site and another list of forms you've received. TaxACT also displays all of the site's topics in outline form, showing you which you've completed. Clicking on any entry in either of these lists whisks you to that specific screen in the interview. No other site offers the variety of navigational tools that TaxACT does.

HOW TAXACT DELUXE HELPS YOU

TaxACT most outshines its competition in its multiple types of help content. Sometimes it hyperlinks a phrase and pops open a window containing an explanation when you click on the link. Or it displays "Learn More" after something like Citizenship (which is a drop-down list) and offers similar help. Sometimes, hyperlinks point you to a more detailed help section within the site, such as "TaxTutor Guidance."

There's a four-tabbed window in the right vertical pane. It defaults to Help, which contains context-sensitive questions and links to answers. You can pull



GREAT GUIDANCE
TaxACT offers the best help of any tax website, giving you multiple forms of aid and advice whenever you need it.

up the actual IRS instructions if you'd like, and enter a word or phrase in the box supplied to open the Answer Center, which contains links to the best answers and displays a list of links to screens on the site that deal with that topic. You can also email a question to the support team, or call on the phone (there's a \$7.99 fee for unlimited calls during filing season). No one else provides such generous phone assistance.

Click on the Forms tab to see a list of all of the forms, schedules, and documents used in the preparation of your return. Here, as well as at various points in the interview, you can open a PDF copy of the actual IRS document to see where your answers are landing (if you've paid your \$12.99). Under Images, you can upload and store related files in the DocVault, and Tools gives you access to additional assistance via, for example, the Donation Assistant, which lets you enter and look up the Fair Market value of items you're donating to charity.

You may not need much assistance with your tax return, in which case you wouldn't necessarily need the voluminous help TaxACT offers. But it's there, and it's context-sensitive.

WHY IT WINS

As competitors have altered and/or reduced the help they offer over the years, changed the scope of forms supported in a particular product, or announced that fees would increase as the filing season grew shorter, TaxACT Deluxe has remained comparatively stable. Today, it offers the best variety of guidance resources, with help that is accessible, clear, and ubiquitous. TaxACT's overall comprehensiveness, affordability, and usability earn it another win this year.

KATHY YAKAL

Error or Omission: Dependent Information
You need to complete all of the fields below for this dependent.

First name:
Last name:
Social security number:
Relationship:
Citizenship: [Learn More](#)

Investment Income
Do you have interest, dividend, or other investment income to report for 2014?

The investment income topic includes:

- Interest income (Form 1099-INT)
- Dividend income (Form 1099-DIV)
- The sale of stock, bonds, mutual funds, and collectibles
- The sale of your home
- Capital loss carryover from a prior year
- Foreign Assets and Accounts

Additional guidance is available for:

- Form 1099-S [Learn More](#)
- Nonbusiness Bad Debts [Learn More](#)

Entries for a Partnership or Sub Chapter S-Corporation will be covered under Business Income.

**Sling TV**

\$20 per month



Watch Live Television Anywhere, on Any Device

Since the creation of cable, we've asked why we can't pick and choose the channels we get, and pay less accordingly. Since the creation of Netflix and other streaming video services, we've asked why we can't get live television through the same system. Dish Network's Sling TV service attempts to answer both of those questions with a resounding, "You can!" It offers live television on a variety of devices for \$20 per month, plus add-on packs with handfuls of channels available for \$5 more each. It's a promising service, but whether it's worthwhile to you depends on your tastes. A small assortment of channels, including some major missing networks such as Comedy Central and FX, limits Sling TV's appeal. Still, its big-name recognition and focus on cable or satellite channels already offered by Dish should protect it from the legal troubles that shut down Aereo, the streaming video service that offered over-the-air television.

APPS

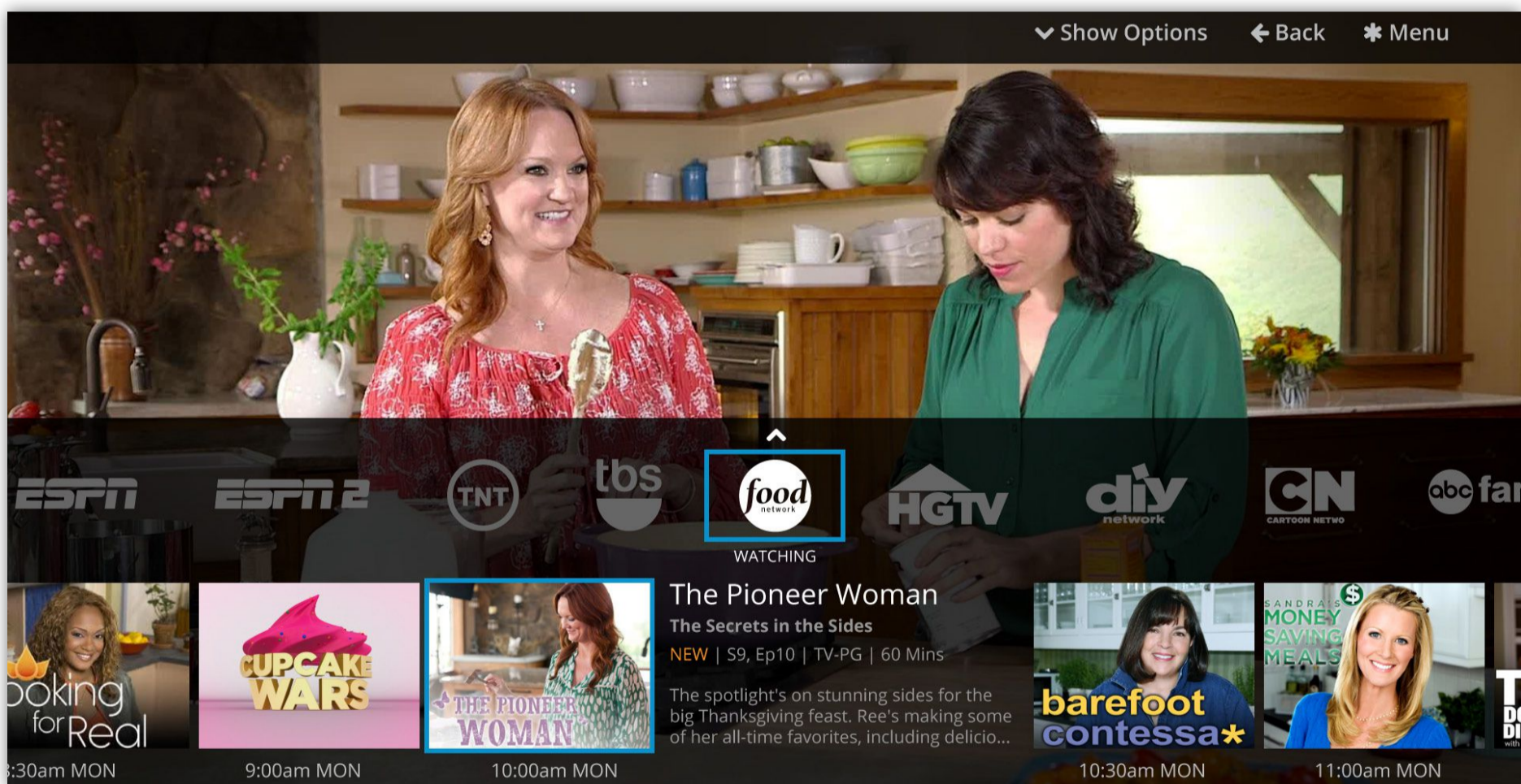
You can access Sling TV through most of the common types of computer, mobile device, or media streamer. Sling software is available on Windows and OS X, Sling apps are available on Android and iOS, and Sling content channels are available on Roku and Amazon Fire TV devices (but not Apple TV). Sling TV is a single-stream service, so you can only watch it on one device at a time.

Regardless of the Sling TV client you use, the interface will remain largely the same. It's dominated by a large Watch tab with two horizontal navigation bands. The top band shows the icons for the available channels, which you can easily flip between to see what's currently on. The bottom band shows the current

Sling TV

PROS Inexpensive. Very good picture quality, speed. Useful Start Over, 3-Day Replay features for some channels.

CONS Limited channel selection even with add-ons. No DVR function.



program by default, but can be scrolled through to see future programming. Each program block can be expanded to show additional information such as episode summaries, and if the block is at the current time, you can load it by tapping Watch Now. If you want to catch the beginning of the show, the Start Over button handily jumps back to the beginning of the

IN A SLING
Sling TV's simple but intuitive interface is almost identical across all devices that support the service.

block, or, on some networks, scrolls back up to three days to let you watch programs that have already aired (more on this below).

CHANNELS

Sling TV's current selection of channels is modest, with a clear emphasis on family-friendly programming. Terrestrial networks like ABC, CBS, Fox, and NBC are not available, but you might be able to get them simply by connecting an antenna to your HDTV. The \$20 subscription includes 12 channels, with add-ons bringing that number up to 21 for a total of \$30 per month. The service offers plenty of kids' and animation channels like Cartoon Network/Adult Swim, Disney, and ABC Family, along with major topic-specific entertainment channels like Food Network, HGTV, and the Travel Channel. Besides family programming, Sling TV offers modest lists of news, general entertainment, and sports channels: CNN, ESPN, ESPN2, TBS, and TNT are also included in the default subscription. The two \$5 Add-On packages include Kids Extra, which adds Baby TV, Boomerang, Disney Junior, Disney XD, and Duck TV; and News & Info Extra, with Bloomberg News, Cooking Channel, DIY, and Headline News.

“Sling TV's current selection of channels is modest, with a clear emphasis on family-friendly programming.”

GOOD SPORTS
ESPN is an example of the type of family-friendly, general-interest channel in which Sling TV presently specializes.

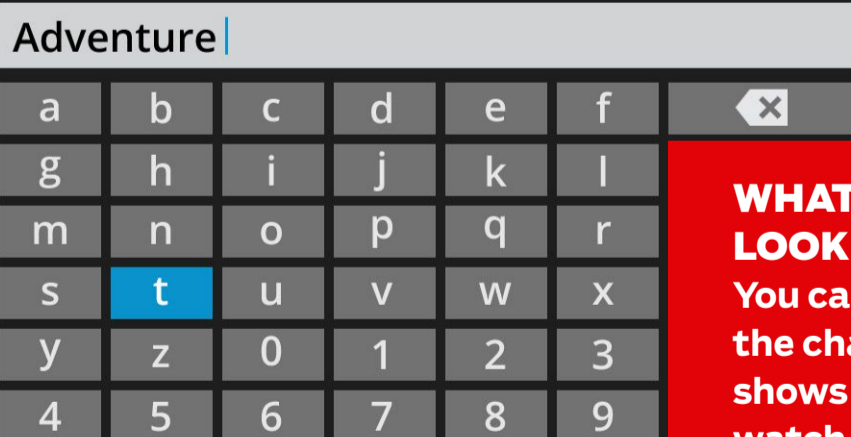


Admittedly, this isn't the most impressive list of networks. But Sling plans for additional upgrade packages that add handfuls of channels at \$5 each on top of the \$20 monthly subscription, which could pump up the choices while keeping prices well below cable and satellite rates. Sling TV just added AMC to its lineup; the big question is if it can get a few more prominent standard cable networks, such as Animal Planet, Bravo, Comedy Central, or FX. The last two would be the biggest gets, considering the popularity of *The Daily Show*, *South Park*, and *American Horror Story*. As it is, Sling TV's programming is most appealing if you have children or, like me, just really like cartoons.

FEATURES

Sling TV doesn't offer any sort of DVR service, so you can't schedule recordings to watch shows later. But certain networks feature 3-Day Replay, which lets you access much of the programming that has aired in the past three days. This doesn't apply to all channels, though, and Cartoon Network, TBS, and TNT currently lack the feature. They do, however, have a separate Start Over function that lets you jump back to the beginning of the current show, which is useful, if not nearly as powerful.

Besides the 3-Day Replay and Start Over features, the media hub clients for Sling TV also offer a library of video-on-demand movies, including recent blockbusters like *Guardians of the Galaxy*. These are available for separate rental fees, generally \$3.99 for SD and \$4.99 for HD versions of movies with 24-hour rental periods. This isn't particularly useful when any device on which you have Sling TV can also access services like Vudu or Amazon Instant Video. It's a pleasant afterthought that doesn't add much to Sling TV itself.



WHAT YOU'RE LOOKING FOR
You can search for the channels and shows you want to watch, but Sling TV's fewer options will limit the programs you find.

SEARCH RESULTS

TV (2 Results)



Movie Rentals (47 Results)

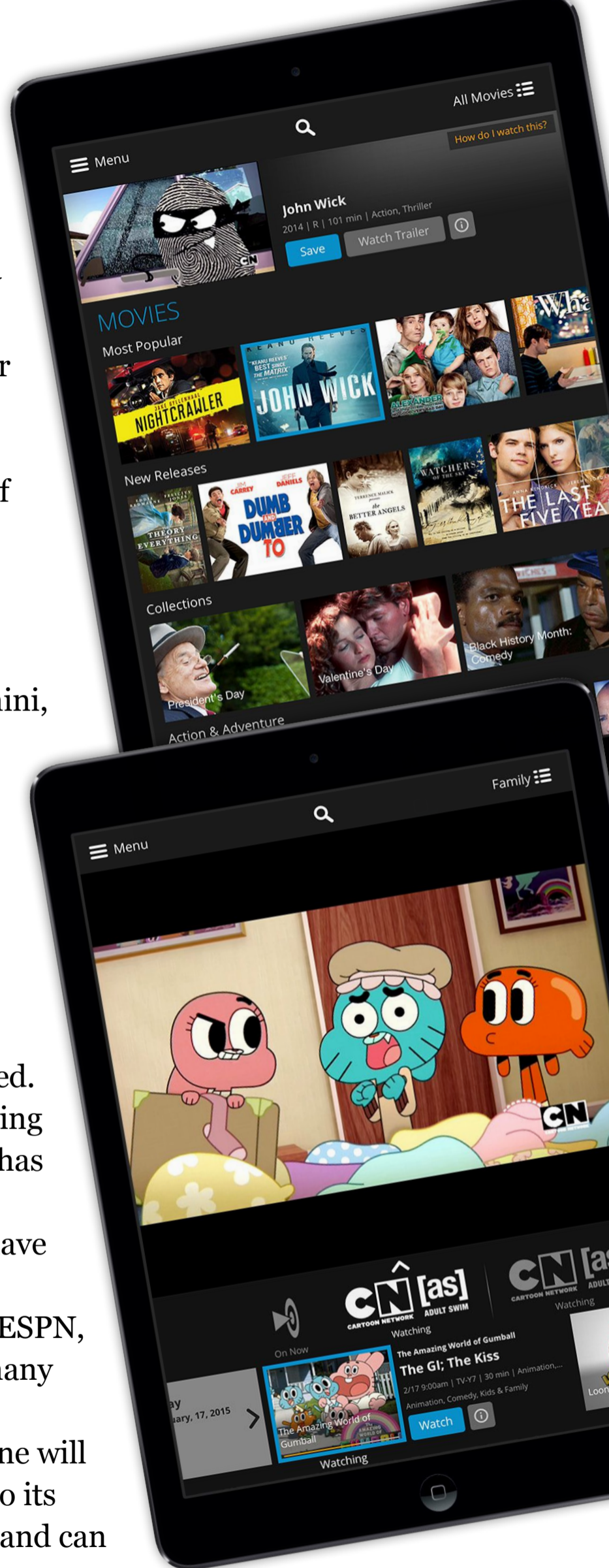
VIEWING EXPERIENCE

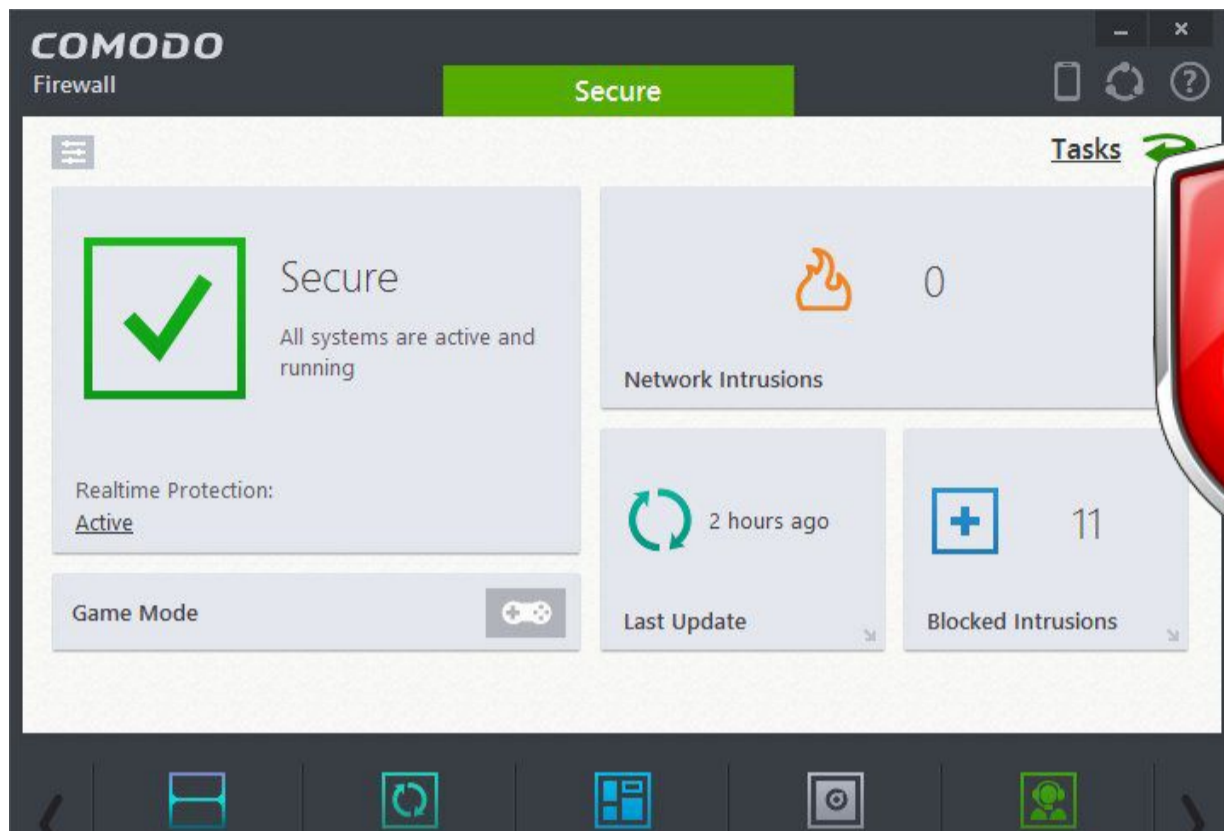
Because Sling TV is a direct streaming service like Netflix or Hulu Plus and not a place-shifting service like you'll find on the Dish Network Hopper with Sling, it is purely reliant on the client's Internet connection and not your personal Internet connection or satellite reception at home. This results in a quicker, more reliable, and generally better-looking stream. (Note: Sling Media, maker of the Hopper's Sling functionality and the Slingbox place-shifting devices, is a separate company from Sling, the Dish Network subsidiary responsible for Sling TV.)

I watched Sling TV on a Roku 3, an iPad mini, and a Google Nexus 5. In all three cases the software was quick and responsive, and loaded various channels fairly quickly. Programming looked blurry for a few moments to a minute depending on my network connection, after which the picture settled into crisp high-definition. I flipped between CNN, ESPN, and Cartoon Network, and they all looked good on each screen I tried.

Sling TV could be the beginning of something great. It's a functional, polished service that has a lot of potential. But its scant selection of channels isn't for everyone. It's ideal if you have kids and don't want to get cable to access children's television, or if you're a big fan of ESPN, TBS, or TNT, but that won't be enough for many people. The service needs a wider variety of channels to really feel like something everyone will enjoy. Whether the company can add more to its lineup will determine if it has staying power and can develop as broad a user base as Netflix has.

WILL GREENWALD



**Comodo Firewall 8**

Free



Protect Your PC With This Free, Feature-Rich Firewall



Given that modern versions of Windows include a pretty effective firewall, any company offering a third-party solution needs to demonstrate that it does more—much more. Comodo Firewall 8 definitely delivers features above and beyond Windows Firewall. The only question is whether those features suit your needs. But because Comodo is free, you can simply try it and find out.

GENERAL FEATURES

Comodo Firewall looks quite similar to Comodo Antivirus 8, and shares a number of its features. The main window visibly flips over to show a list of tasks on the back. The software can display its status in a desktop widget that also provides fast access to the most essential tasks, along with links to popular browsers and social media sites.

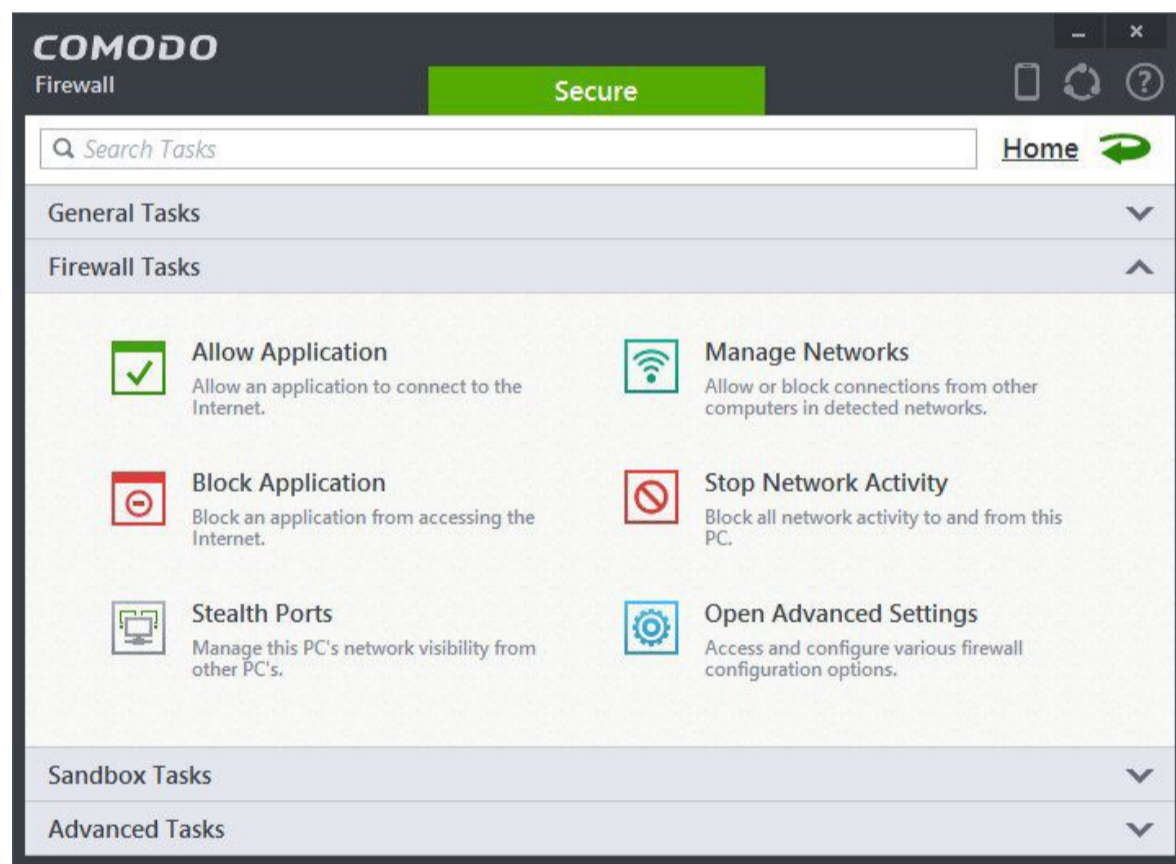
Also like Antivirus, Firewall installs Dragon, a hardened, Chrome-based browser. Dragon comes with some useful security features, including active Do Not Track and the option to perform a full analysis on the current webpage.

The Virtual Desktop lets you run Dragon (or other programs) in a secure desktop that's isolated from processes running on the regular desktop, for added security. Other security features include manual and automatic sandboxing, the ability to create a rescue disk, and a utility for analyzing running processes.

TOUGH FIREWALL

Windows Firewall easily manages the task of putting all the system's ports in stealth mode, so they're invisible from the outside. Comodo did just as well, and passed all of my Web-based tests.

I couldn't find any way to disable the firewall by tweaking the Registry or using a task-killing program.



I thought I'd found a weakness in its Web services: I couldn't stop them, but I managed to set their startup type to Disabled. On reboot, however, Comodo reported the problem and offered to fix it. That's quite good.

Comodo attempts no network-level protection against attacks that exploit vulnerabilities in the operating system or applications. Just to double-check, I attacked the test system using about 30 exploits generated by the Core Impact penetration tool. The exploits didn't

Comodo Firewall 8

PROS Firewall blocks attack from outside, resists termination. Viruscope behavior-based malware detection proved more effective than some dedicated antivirus software. Features include hardened browser, virtual desktop, sandboxing system.

CONS HIPS system flags both good, bad programs. Firewall doesn't attempt to block exploits.

breach security in my fully patched test system, but the firewall didn't acknowledge or report them.

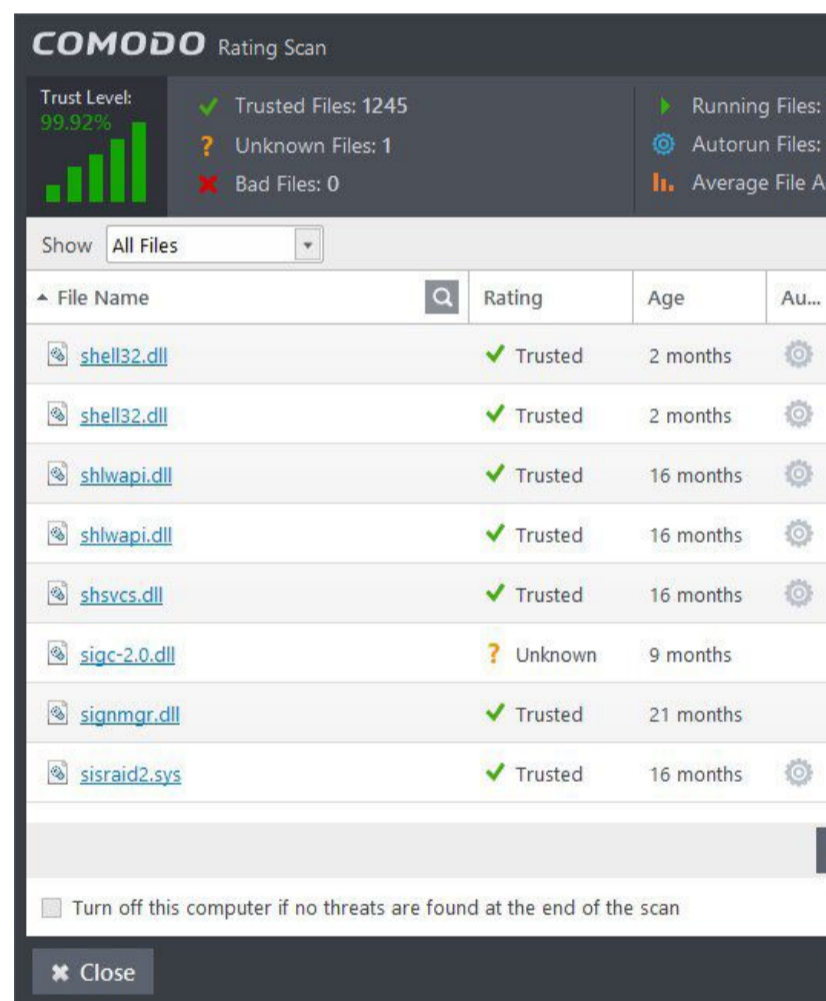
In its default Safe Mode, the firewall automatically allows Internet and network access for known good programs and for programs signed by a long list of trusted vendors. That second criterion could conceivably be a problem if malefactors managed to secretly steal certificates from a trusted vendor. Out of the box, it simply allows access for unknown programs, too. You need to uncheck the box "Do NOT show popup alerts" in the firewall settings page if you want to actually have control over unknown programs that try to access the Internet.

HIPS BEHAVIOR BLOCKING

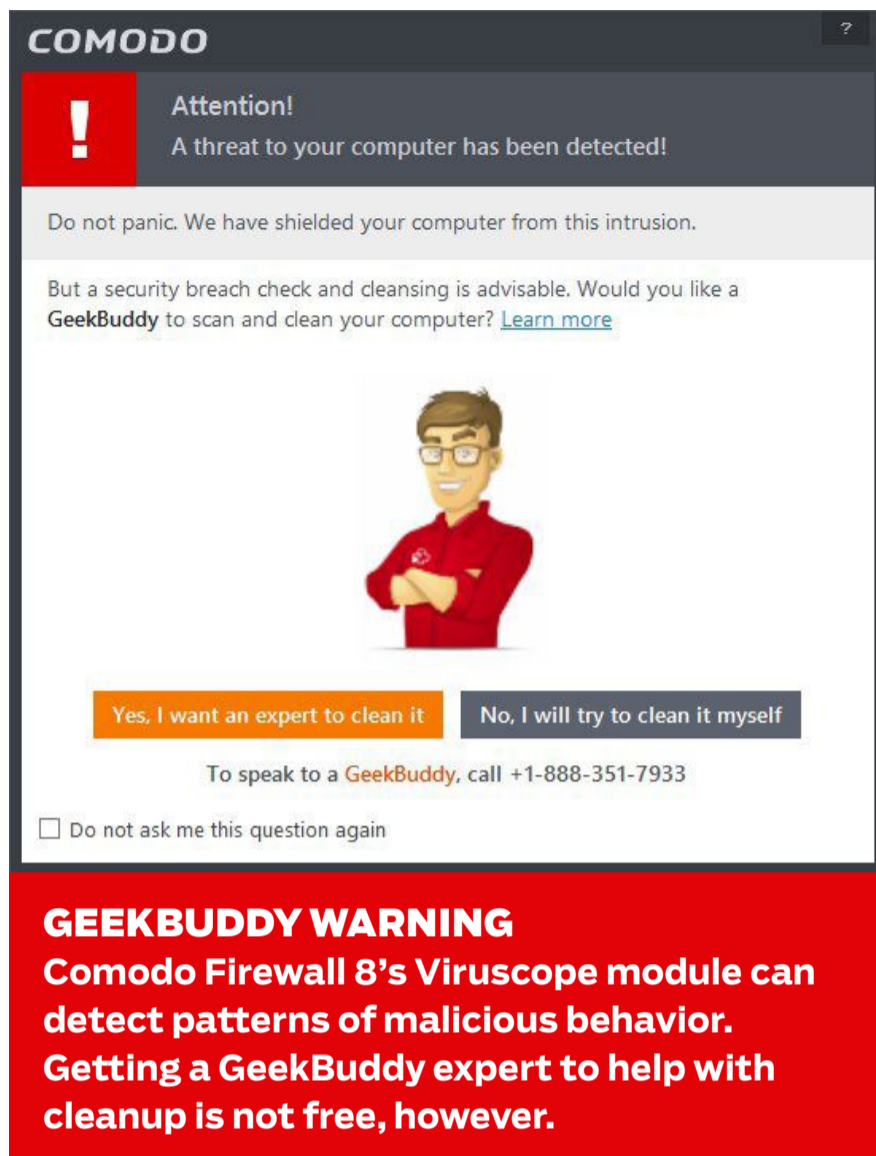
Comodo Firewall includes a feature called Host Intrusion Protection System (HIPS), which reports potentially dangerous program behaviors and asks you what to do about them. (You can turn the feature off, but it's enabled by default.)

When HIPS pops up a warning, you can simply click "Allow" to allow the action once and for always; or click the "Block" button to bring up a more detailed menu where you can block the action, terminate the program, or terminate and remove the program. You can also choose what's called a ruleset. For example, you can choose to treat the program as an installer, to head off warnings about actions that installers require. You can identify it as an "Allowed Application," removing all limits. Or you can attempt to run it while keeping it isolated.

The HIPS system wreaked havoc on my attempt to install 20 of our proprietary utilities. These necessarily hook into various Windows processes, and Comodo suspected some type of malfeasance for most of them. Only seven installed and ran without incident; all the rest triggered from one to dozens of pop-ups. I always



RATING SCAN
The rating scan assigns a trust rating to all programs, drivers, and libraries, and lets you decide what to do with them.



GEEKBUDDY WARNING
Comodo Firewall 8's Viruscope module can detect patterns of malicious behavior. Getting a GeekBuddy expert to help with cleanup is not free, however.

chose to allow the reported action and remember my answer. Even so, in a couple of cases the pop-ups just never stopped coming.

On the plus side, the automatic sandboxing feature didn't get in the way. My Comodo contact explained that the designers tweaked this feature so as to avoid invoking it unnecessarily. Automatic sandboxing kicks in for potentially dangerous situations, most importantly for unknown files downloaded from the Internet. In the past, this feature has also interfered with valid programs.

For years, Comodo has retained this noisy, pop-up-laden, behavior-based HIPS system. I really don't

see its value. The average user isn't qualified to make the decisions prompted by HIPS pop-ups. I'd like to see Comodo update this tool so it reports on patterns of aggregate malware-like behavior rather than arm-waving over individual behavioral events.

Leak test programs try to defeat firewall program control by masquerading as trusted programs, or by subverting trusted programs to do their bidding. I ran a collection of leak tests just so see what Comodo would do. In every case, even with some leak tests that no longer work properly now that I've switched to Windows 8.1 for testing, the HIPS system kicked in to report suspicious activity.

Unfortunately, quite a few of the HIPS pop-ups reported precisely the same kinds of actions that my utility samples triggered. For example, "trying to modify a protected registry key" or "trying to access a protected COM interface." Only one gave a warning specific to the kind of activity involved in leak testing: "trying to access iexplore.exe in memory." Given that HIPS flags good and bad programs alike, I can't give it total credit for blocking those leak tests.

MALWARE PROTECTION

Comodo Firewall includes a malware scanner that rates files' trust level. For each executable component on your system it reports a trust rating of Trusted,

Bad, or Unknown, as well as each file's age; it also flags files that launch automatically at startup. You can filter the list in various ways. For example, you can display only Bad files, or only autorun files. If Comodo identifies a file as Bad or Unknown, you can (but probably shouldn't) tell it to trust that file. More likely, when it finds a Bad file you can request removal.

Although Comodo Firewall isn't an antivirus tool, it outperformed some dedicated antivirus products when I tried to launch my collection of malware samples. A tag team of three features accomplished this feat: Viruscope, GeekBuddy alerts, and Cloud Scanner, led by Viruscope's behavioral analysis. Comodo Firewall detected fully 83 percent of my current malware samples. That's just a hair below Bitdefender Antivirus Plus 2015.

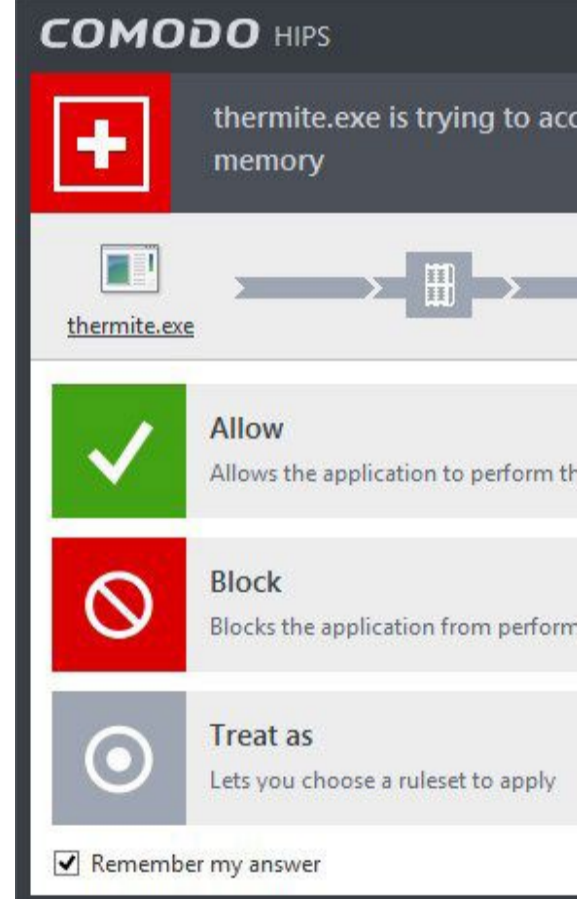
All but one of the samples not detected as malware triggered one or more HIPS warnings. For this test, I chose to block each reported action. But several of them installed despite being blocked by HIPS. I did not count these HIPS-only samples as detections, given that Comodo reported on valid programs in exactly the same way.

PLENTY OF FEATURES

You get a boatload of features with Comodo Firewall 8, and they don't cost you a thing. It does the job of a personal firewall, and its Viruscope malware detection system is impressive. And there's the hardened browser, virtual desktop, and program sandboxing—the feature list goes on and on. My only concern is the pop-up—happy behavior-blocking system. But even with this one worry, Comodo hangs on to our Editors' Choice badge for personal firewalls, an honor it shares with ZoneAlarm Free Firewall 2015.

NEIL J. RUBENKING

“
Although Comodo Firewall isn't an antivirus tool, it outperformed some dedicated antivirus products.
”



Features

**THE CHANGING FACE
OF THE DESKTOP**

**OUR EXCITING,
WEIRD, AND SCARY
FUTURE: AN
INTERVIEW WITH
PETER DIAMANDIS**

THE CHANGING FACE OF THE DESKTOP

Forget the bulky, boxy designs of years and decades past. Today's desktop looks more inventive—and packs more features—than ever before.

BY MATTHEW MURRAY

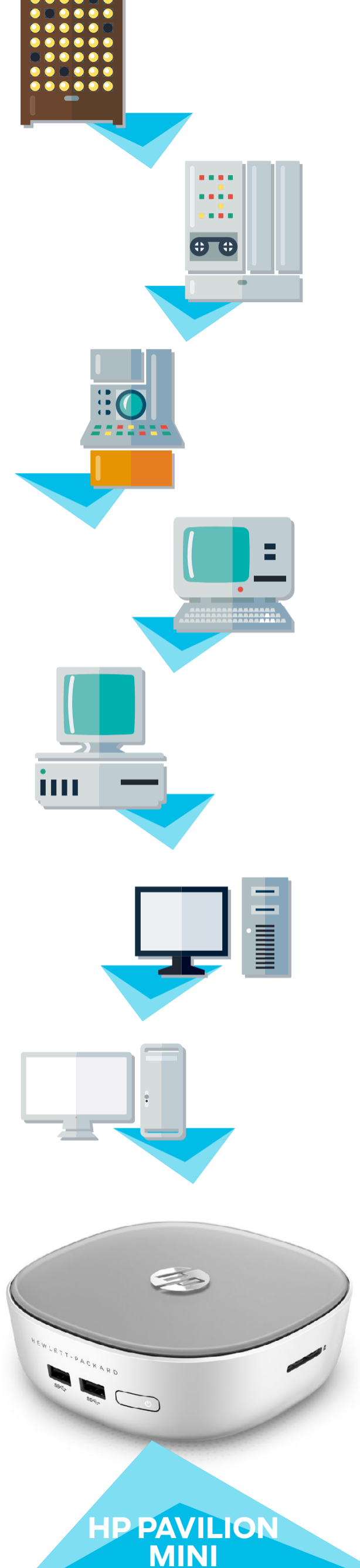


Once upon a time, if you wanted a computer, you bought a desktop—there wasn't any other choice. But that hasn't been true for many years. Laptops, tablets, smartphones, and now even smartwatches offer a wide range of form factors catering to every imaginable kind of user, plus portability of the sort that's been unthinkable for most of the PC's three-decade lifespan. As a result, the deskbound desktop has seemed in recent years as though it's been left behind, a relic of a distant, more patient, and less mobile age.

Despite countless reports to the contrary, however, the desktop isn't dead. For those who know everything computers are capable of, and want every avenue open to them whenever it's time to use one, they're not just another option—they're the best option.

Dollar for dollar, the desktop delivers the best performance on the market, and if that's what matters most to you, there's simply nowhere else to go to get it. Similarly, it's only with a desktop that you have top-to-bottom control over your computing; you can customize every part of your experience, from the external chassis to the tiniest components inside, to make things the fastest, the most affordable, or the most aesthetically pleasing they can be. And as far as breadth and depth of features, you've never been able to do better than you can today.

To distinguish their desktop releases, manufacturers have crammed them full of the latest technology and carved them into stunning designs that smash any concepts you may ever have had of what computing can be or should look like. The computers we look at in this story represent the state of the desktop art, and reveal how vibrant and creative it remains in the face of immense competition from every direction. If you're in the market for a new PC, you should absolutely consider one of these. They're all systems you'd be proud to keep on your desk.





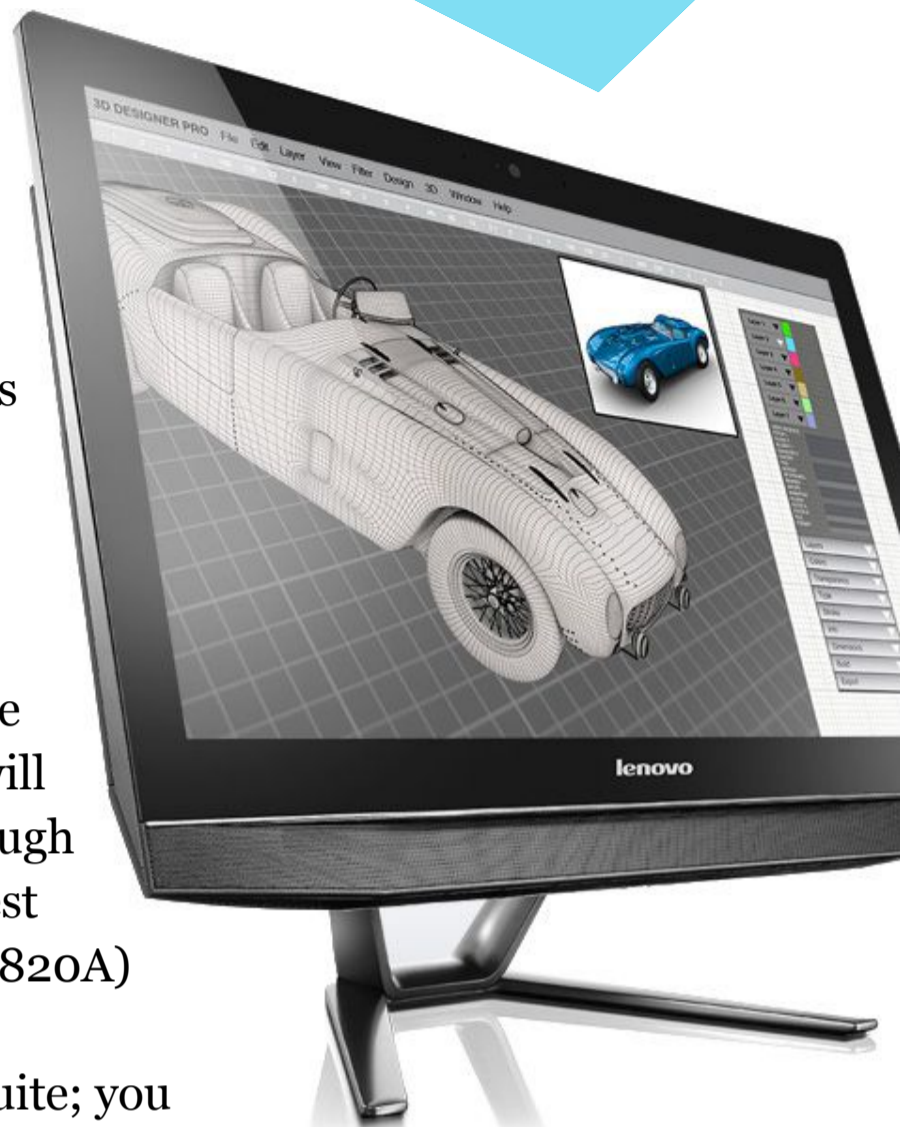
GOING 3D

To get an idea of the kind of thing desktops are capable of that other systems currently aren't, you need look no further than the recently released HP Sprout (\$1,899.99). To a standard-issue all-in-one HP has attached an overhanging arm that contains a scanner, a projector, and an Intel RealSense 3D camera. When this hardware is used in conjunction with the removable touch mat (which is placed where you'd typically find a keyboard), you can scan objects in multiple dimensions and work with them immediately using a custom software application. Use the mat as a secondary touch interface (because it has 20 points of interaction, two people can tap on it at once) and display to gain a new level of control and extensibility over projects. It's the most all-encompassing use of touch we've ever seen in a desktop, and we're only still at the earliest stages of the concept's commercial development.

Because the Sprout tries to be so many things at once, it's not ideal for everyone just yet. But it's an astonishing demonstration of what's possible, and it will give more people easier access to 3D scanning. As 3D printing continues to develop and grow in popularity, that will be a huge benefit.

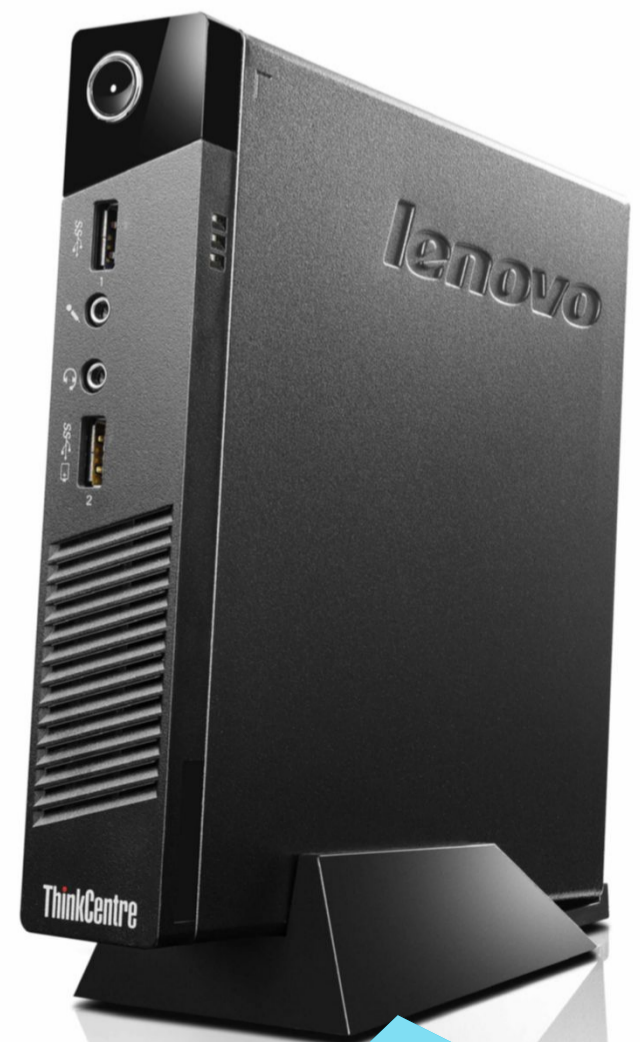
SLIMMING (REAL) SENSIBLY

The Sprout is bulky and adventurous, but those are two qualities you don't typically expect from Lenovo. For its version of the RealSense all-in-one, an update to its B50 family (\$1,249), Lenovo is staying sleek, sharp, and light, with a design that emphasizes the concept's shiny newness while avoiding ruffling any feathers. The B50 lacks the Sprout's fancy scanning and dual-touch-input opportunities, but the positioning of the RealSense camera—in the top bezel, just where you're used to finding traditional webcams—will make *Minority Report*-style interaction, through gestures and facial expressions alike, the easiest it's been to date. The graphics system (Nvidia 820A) is brand new, even if the processing hardware (Haswell) and the resolution (1080p) aren't quite; you can also expect maximums of 16GB of RAM, 1TB of storage, and there's a DVD burner option.



DECLUTTERING DESKS

Okay, so maybe Lenovo gets adventurous *sometimes*. Its ThinkCentre Tiny in One forms a truly unique approach to the all-in-one, combining a small-form-factor PC (7.0 by 7.2 by 1.4 inches) with a 23-inch display that the system actually fits into: Just remove a plastic panel at the top of the housing and lower the computer into it. That means you only need one cable for everything—yet another way to get unnecessary junk away from the top (and rear) of your desk. Upgrading is a snap, too, as all you have to do is swap out one Tiny desktop for another. Prices for Tiny in One combos vary, but range from about \$800 to \$1,000. Though its austere appearance signals its business acumen, the Tiny in One is good for anyone for whom space is at a true premium.



HP PAVILION MINI



GETTING SMALL

At every point of miniaturization along the computer's evolution, it's been popularly assumed the PC just couldn't shrink any more. And each time we've been proven wrong. That's still the case today, as a new breed of micro desktops continues to redefine everything we like to think we know about how low the PC can go.

Around the *PC Magazine* offices, the HP Pavilion Mini (\$319.99-\$449.99) is affectionately referred to as "The Cereal Bowl," though I'm pretty sure some of the cereal bowls in my kitchen are bigger. Even so, the spic-and-span Mini, which measures only about 5.7 inches across, packs more potential than most high-end systems did not that long ago. It's equipped with 16GB of RAM and more than 1TB of storage space, and can drive two monitors (one HDMI, one DisplayPort). Its ultrabook-class CPU, the Intel Core i3-4025U, gives it all the benefits of Intel's fourth-generation Core platform. Plus, in using only 45 watts of electricity, it's incredibly energy efficient.

If you don't have room for a Mini, or if you want even more performance potential, Intel has you covered. The new entries in its Next Unit of Computing (NUC) family are only about 4.5 by 4.4 by 1.9 inches (HWD), but use even newer (fifth-generation, or Broadwell) CPUs, up to and including those in the high-end Core i7 line. Room for 2.5-inch or M.2 drives means that you don't need to be limited as far as storage, support for 16GB of RAM is as generous here as on the Mini, and features such as 802.11ac Wi-Fi and eight-channel (7.1) surround sound are definitely aimed at those with especially enterprising needs or desires. Pricing on these has yet to be announced, and the full line is expected to be released by Q2 of this year.



ZOTAC ZBOX PICO

Okay, okay, so even the NUC is too big for you. How about a desktop that can literally fit into your pocket? Zotac's Zbox Pico (\$199) measures 4.6 by 2.6 inches and is a stunning 0.8 inch thick. Though there's a total of 2GB of RAM and 32GB of onboard storage, the Atom processor is pretty restrictive, so you shouldn't expect it to be even a moderate speed demon. (In our tests, it measured up to a low-end tablet or hybrid.) And its port selection is pretty limited: three USB 2.0, HDMI, Ethernet, headphone, and power, and there's a microSD card slot. But it runs Windows 8.1 With Bing, and has a stylish design—not bad for something that's only about as big as a deck of playing cards.



**Tinkerers
can get what
amounts to
a full PC for
only \$35—
and no, that's
not a typo.**

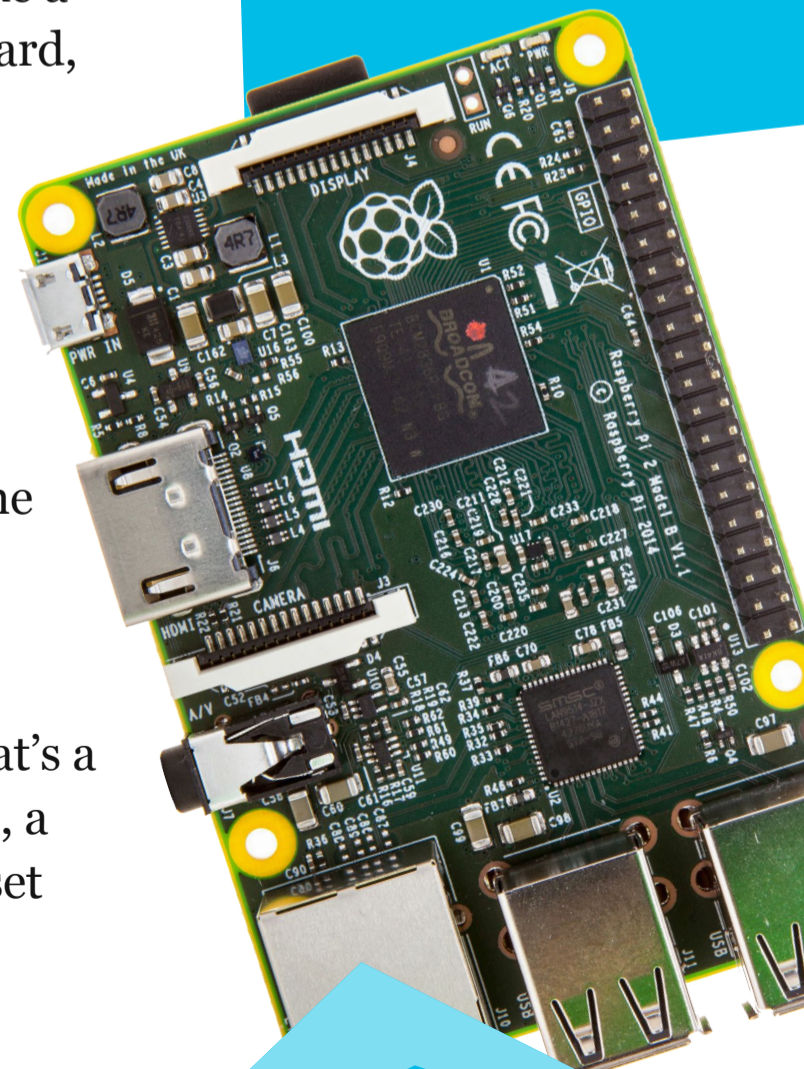


STRIPPING DOWN

DIYers are a special breed, and they've always had special avenues open to them. Though much of the industry has left them behind, that's still true today. How so? For starters, tinkerers can get what amounts to a full PC for only \$35—and no, that's not a typo.

The Raspberry Pi 2 is barely bigger than a credit card (2.1 by 3.4 inches, and 0.6 inch deep), and looks like a chunk of PCB someone chiseled out of a motherboard, but it has a quad-core ARM Cortex-A7 CPU and 1GB of RAM. You'll need to supply a few things yourself—keyboard, mouse, monitor, a microSD card for storage, and even a 5-volt micro USB power supply (your smartphone charger will probably be fine)—and be willing to download and image the operating system yourself. (Right now the choices are all GNU/Linux distributions, but Microsoft has promised to provide a specialized version of Windows 10 later this year.)

But all that's a small price to pay for, uh, a PC that's a small price to pay. And if you're really enterprising, a 40-pin general-purpose input/output (GPIO) pin set gives you a blank canvas for creating your own computing projects.



RASPBERRY PI 2



GAMING UP

More than anything else, gaming has driven desktop development, with computers dedicated to that pursuit necessarily growing to accommodate numerous beefy components, hard-core cooling systems, and room for expandability in the form of both upgrades and case mods. Most of the highest of the high-end gaming computers today are still huge, but they're also looking as dynamic and original as they ever have.

Dell has given the flagship product line of its Alienware brand a particularly radical rethink, and made its new Area-51 (from \$1,699.99) look unlike any other system on the market. All hint of square conventionality has evaporated, and what's left is a (sort of) triangular PC that looks as eye-poppingly distinctive as the games you play. (Don't worry—it's been designed so it's not that much wider front to back.) Alienware has revamped the Area-51's interior, too, using a custom motherboard and innovative fan placement to keep the components clean and in line, and the airflow solid, and has made room for as many as five drives (two SSDs, two 3.5-inch hard drives) on the other side. Plus, you get all

MAINGEAR TORQ



the usual Alienware bells and whistles, such as completely customizable lighting and a software app that gives you intimate control over every performance aspect of your hardware.

Even boutique manufacturers, some of the most stalwart holdouts, have realized that room-filling gaming PCs aren't for every taste. So they're finding increasingly ingenious ways to put full-size performance into miniature packages that still look good. For example, the Maingear Torq (starting at \$1,599) can use the speediest Intel Core i7 processors and the biggest video cards on the market, but it measures a stocky 11.4 by 10.9 by 13.8 inches. The more exciting options include custom automotive paint finishes, glitzy LED lighting strips, and full-scale liquid cooling systems.

But the best part about the Torq—as is true with most larger PCs—is that you can have it *your* way. If you care about gaming, or just having a computer strong enough to handle whatever you can think to throw at it, load it up and go to town. You'll find that sacrificing a little bit of portability in exchange for lots of freedom doesn't feel like you're giving up much of anything at all.

FEATURES

*An interview with
Peter Diamandis*

OUR EXCITING, WEIRD, AND **SCARY** FUTURE

Robots, AI, and space are the future according to XPrize CEO and Planetary Resources cofounder Peter Diamandis.

BY EVAN DASHEVSKY



Whenever the world seems hopeless, I find myself revisiting the 2012 don't-worry-it's-all-gonna-be-great TED talk from XPrize CEO Peter Diamandis. Diamandis is a passionate proponent of “rational optimism,” and uses cold, hard data to demonstrate how humanity is improving its condition thanks to technology.

According to Diamandis, in the decades to come enhancements in things like artificial intelligence, genetic engineering, and robotics will lead us into strange, uncharted territories. For example, people may no longer have to work for a living; we'll transition into being an extraterrestrial species; and aging as we know it might become a thing of the past. And that's just to name a few of them.

Anyone familiar with the predictions of the often-correct (but sometimes wrong) tech prognosticator Ray Kurzweil will be familiar with Diamandis' worldview. In fact, Diamandis cofounded the Silicon Valley-based Singularity University with Kurzweil (though it's really more of a future-watching think tank—but we'll get to that).

This big, weird, and hopeful vision of the future was laid out in Diamandis' previous book, the *New York Times* best seller *Abundance*. In his newest book, *Bold*, Diamandis explains how budding entrepreneurs can learn to not only anticipate these sea changes, but utilize them to create the next big gigantic thing.

Diamandis further details how technology has opened access to powerful tools and will let just about anyone create the next world-changing, billion-dollar idea (if not trillion-dollar idea, but there will be more on that, too).

We were able to catch-up with Diamandis for a chat about *Bold* and some of the other sweeping changes he believes are coming.

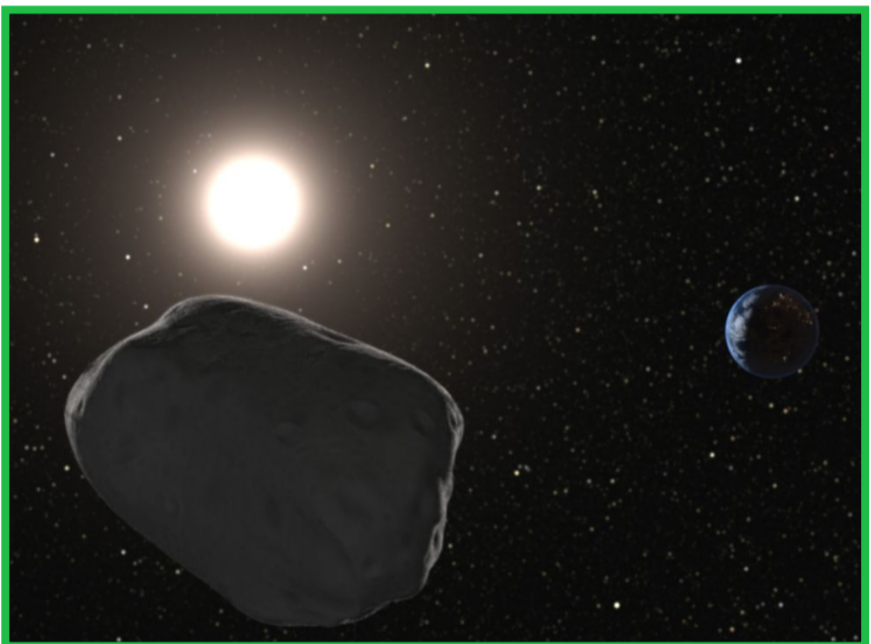
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ENHANCEMENTS
IN THINGS LIKE
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Peter Diamandis, at the Clinton Global Initiative in 2014.

Q YOU'VE MENTIONED IN PREVIOUS MEDIA APPEARANCES THAT IN THE NOT-CRAZY-DISTANT FUTURE, WE MAY SEE THE FIRST TRILLIONAIRES.

PD: So, we're at a point now when we're starting to take on the world's biggest problems and biggest opportunities. I have two ventures that are big and bold, and which I talk about in detail in the book. The first is Planetary Resources. Think about everything that we hold of value here on Earth: metals, minerals, energy, real estate... They are in near-infinite quantities in space. You know, some of the asteroids that we [Planetary Resources] are targeting to prospect are trillion-dollar assets. So, that's one place where we might see the first trillionaires made, and, you know, I'm taking my shot at it. The second place is in the life sciences. My other company I speak about in *Bold* is a company I cofounded called Human Longevity, Inc (HLI). Today there are six to seven trillion dollars a year spent on health care, half of which goes to people over the age of 65. In addition, people over the age of 65 hold something on the order of \$60 trillion in wealth. And the question is what would people pay for an extra ten, 20, 30, 40 years of healthy life. It's a huge opportunity. These are areas where we may see significant wealth creation.

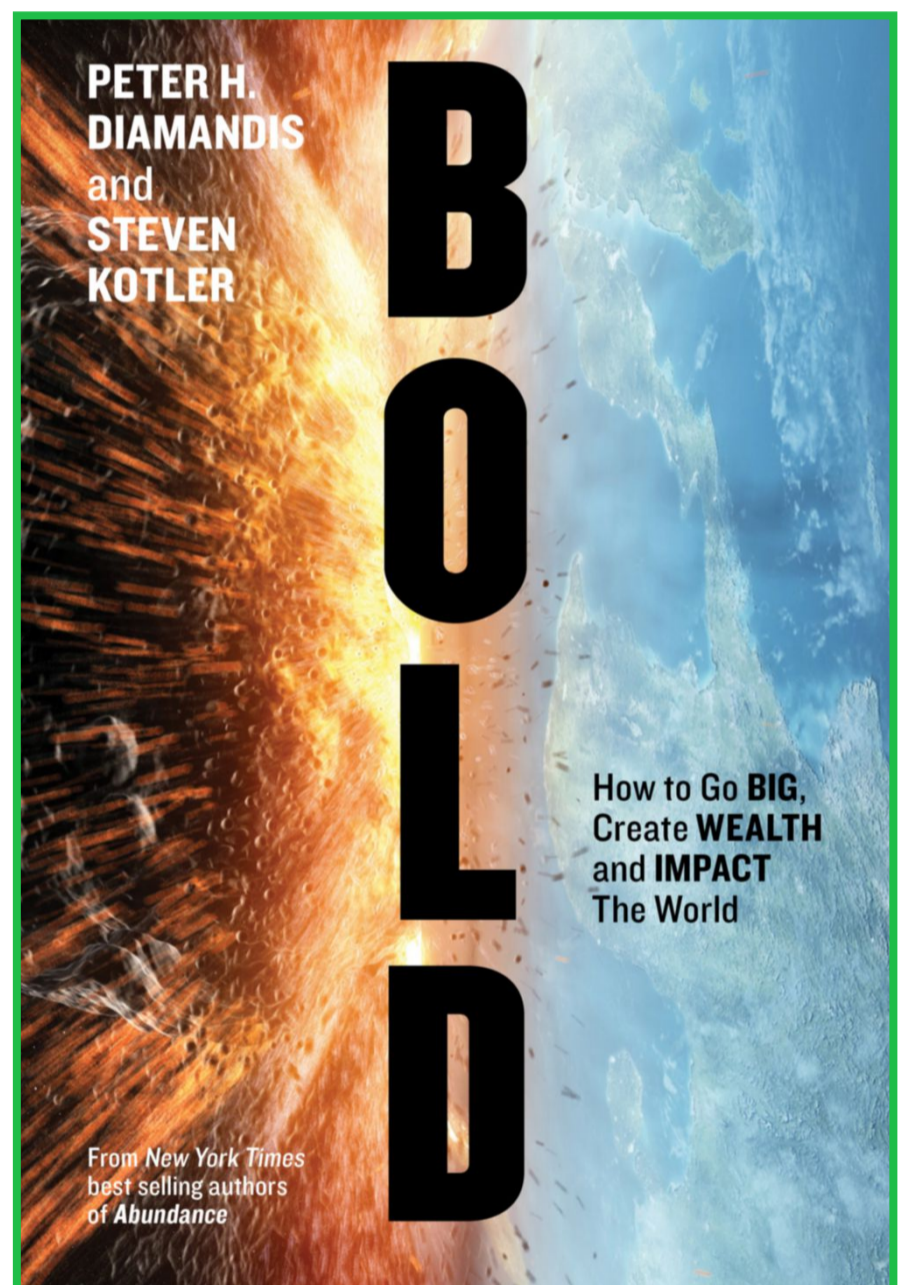


EVER-IMPROVING HUMANITY
In his 2012 TED talk "Abundance Is Our Future," Diamandis made the case for optimism, and predicted we'd solve our most vexing challenges and help everyone live better lives.

Q IN THE BOOK, YOU DON'T TOUCH TOO MUCH ON ALL THE PEOPLE WHO AREN'T ENTREPRENEURS. AS THINGS LIKE AI AND ROBOTICS DEVELOP AND GIVE BUSINESSES THE ABILITY PRODUCE BIG IDEAS, THERE WILL BE A DIMINISHING NEED FOR A HUMAN LABOR FORCE TO SUPPORT IT. WHAT DOES THE FUTURE HOLD FOR ALL OF US NON-ENTREPRENEURS AND CEOS?

PD: I think we're heading towards a world of what I call "technological socialism," where technology—not the government or the state—will begin to take care of us. Technology will provide our health care for free. The best education in the world—for free. We'll have access to more and more energy, better-quality water, more nutritious food. So, the cost of living and having your fundamentals met will come down.

So I think we're heading towards a world where people will be able to spend their time doing what they enjoy rather than what they need to be doing. There was a Gallup poll that said something like 70 percent of people in the United States do not enjoy their job—they work to put food on the table and get insurance to survive. So, what happens when technology can do all that work for us and allow us to actually do what we enjoy with our time?



GO BOLD AND GO HOME

In *Bold*, Diamandis and Steven Kotler examine how “exponential technologies, moonshot thinking, and crowd-powered tools” can “create extraordinary wealth while also positively” affecting “the lives of billions.”

Q LET'S TALK ABOUT DEVELOPING A BIG, AMBITIOUS VENTURE LIKE PLANETARY RESOURCES—NOW THAT WON'T MAKE MONEY FOR MANY DECADES...

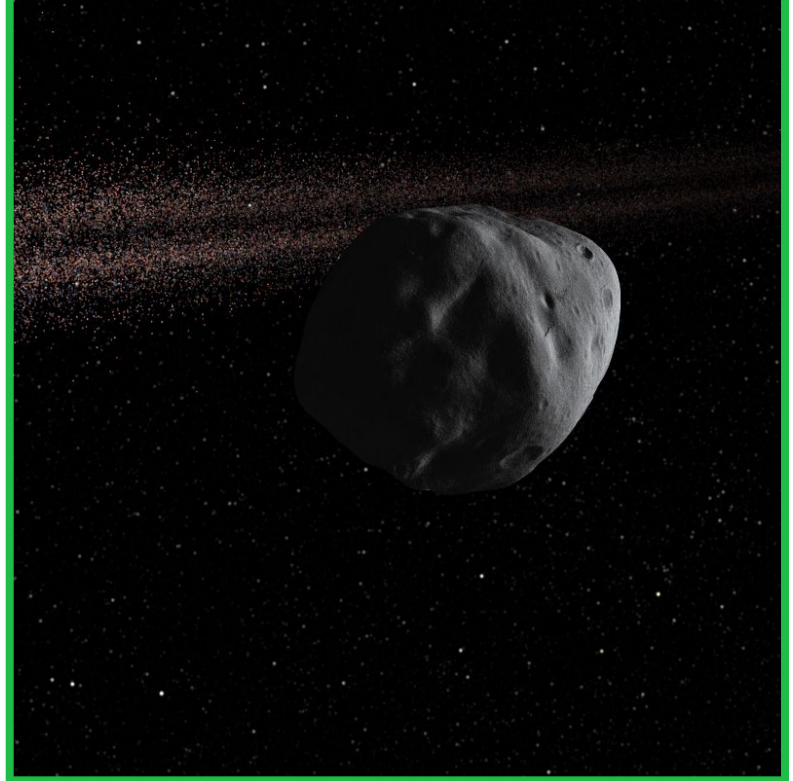
PD: Dude, the company is making revenue and is cash flow positive now.

Q OH, I STAND CORRECTED.

PD: I mean we're building and launching satellites today. We have a launch in a couple of months, we have another launch at the end of the year. We have contracts—commercial contracts, defense contracts, NASA contracts. So, the ability to prospect and extract resources and return them to a customer is a five-to eight-year horizon, but there's lots of ways to make money.

You know, Elon [Musk] has a plan to go to Mars, but you wouldn't say it's going to be 20 years before he makes money sending people to Mars, because he has a business that he builds on the way there. Same thing for us.

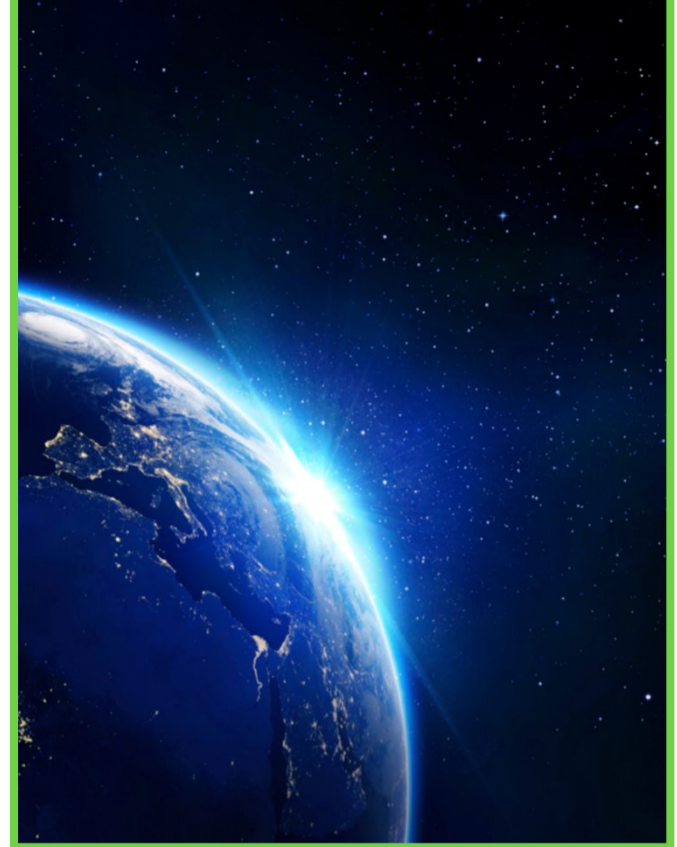
A NEW WAY TO ORBIT
Diamandis and colleagues Chris Lewicki and Steve Jurvetson show off Planetary Resources' 3D-printed satellite in February 2014.



Q SPEAKING OF ELON MUSK, HE HAS TALKED ABOUT HIS FEAR ABOUT ARTIFICIAL INTELLIGENCE. SO HAVE STEPHEN HAWKING, BILL GATES, AND A LOT OF OTHER FUTURE WATCHERS. WHY DON'T YOU SHARE THESE SAME FEARS ABOUT AI?

PD: Well, listen. I have twin 3-year-old boys. I am not fearful about a fully developed, general AI that is actually aware and capable and massively intelligent. I don't believe there's a need for an intelligence—once it gets there—to wipe out the human race. There are plenty of resources out there and we are using a minuscule amount of them. I think the more intelligent a species is, the more peaceful it becomes because scarcity is a contextual mindset—that's what *Abundance* was all about.

My concern is with AI on the way to development—when you have a partially developed AI, that is like when you have a 3- or 4- or 5-year-old kid who doesn't understand his own strength, doesn't understand that when they're pounding on something they're damaging it. The thing I take solace in is that the majority of people who are experts in the AI field don't have that concern.



FLOATING FOR A CAUSE
Diamandis, shown here with *Avatar* filmmaker James Cameron (left) and Elon Musk floated weightless in zero gravity to raise money for the XPrize Foundation in 2010.

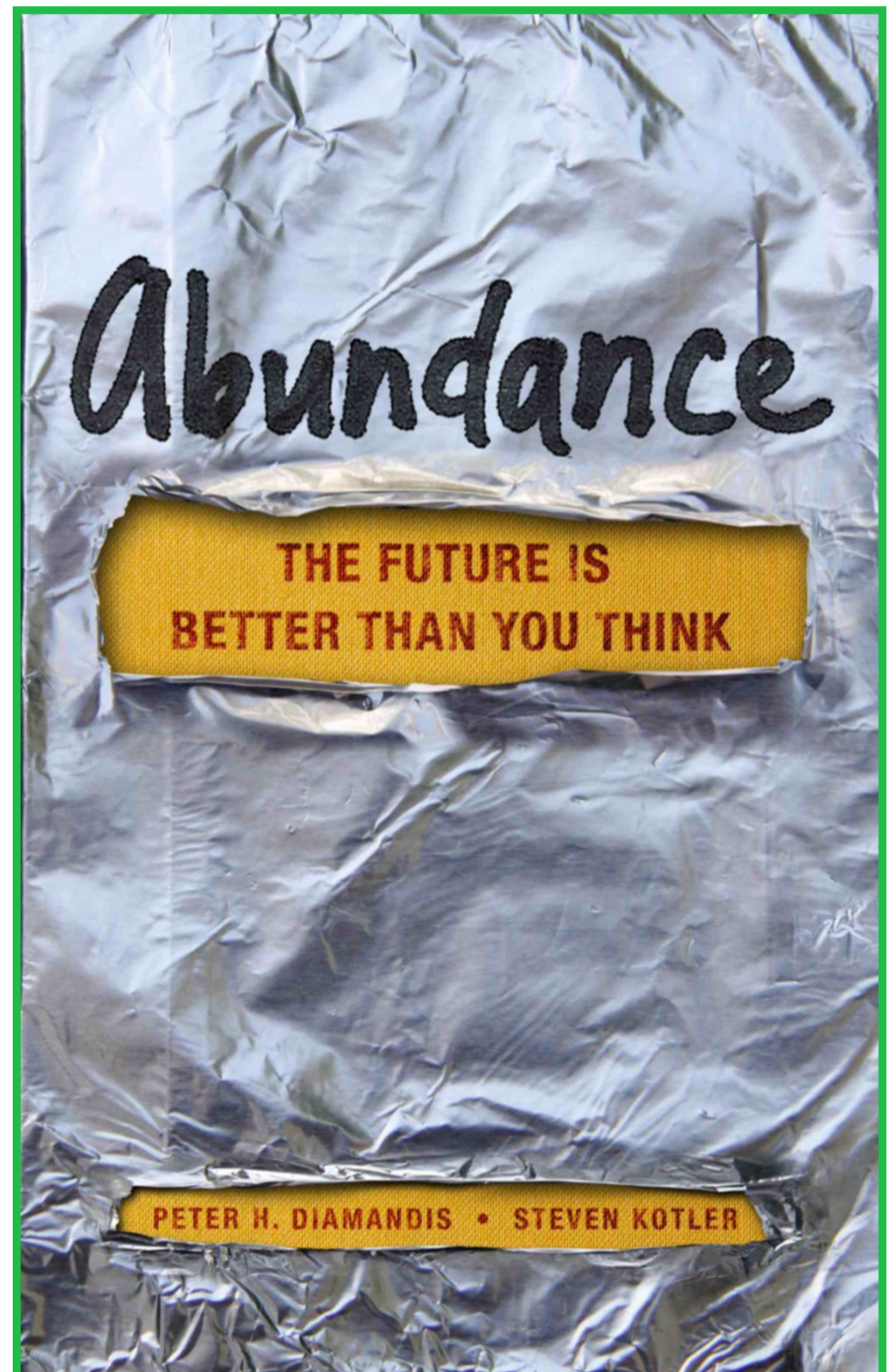
Q YOU MENTION YOU HAVE YOUNG CHILDREN AT HOME. AS A FATHER OF A TODDLER MYSELF, I'M INTERESTED TO KNOW HOW YOU GUIDE THEM TOWARD A FUTURE IN WHICH YOU BELIEVE COMPUTERS WILL TAKE ON MOST TASKS AND HUMAN SKILLS WILL BE DEVALUED.

PD: I think about things like “will my kids need a college account? Will they even go to college?” I don’t know if that will be the case. I don’t know if in 15 years—or in your case, 17 years—college will be something that people do because the whole concept of education is changing.

So I’ve thought about what is most important for me to teach them. And I have come down to two things: One is to help them find out what they are most passionate about. Because passion trumps everything. Because passion drives you.

And the second is curiosity. We live in a world where you can do more and more and more because of things like AI coming online and other things, so you should always want to look to the horizon because you will have the ability to use more and more tools. And if it’s driven by a true passion, as opposed to something your parents told you to do, then you’ll want to do it all the more.

So passion and curiosity are the most important things in my mind. Everything else is secondary.



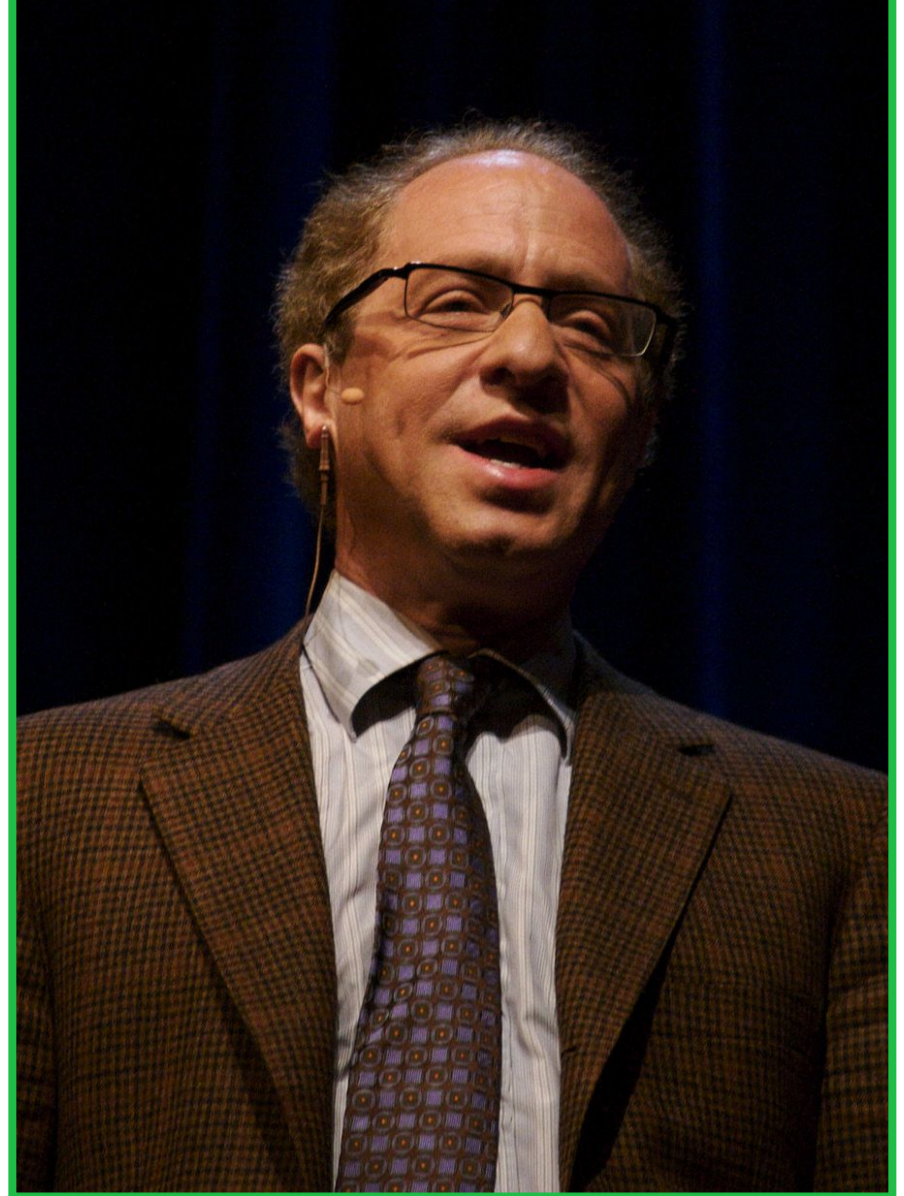
HIT THE ACCELERATOR

Diamandis and Kotler’s 2012 book, *Abundance*, showed how advances in many emerging technologies will help us “make greater gains in the next two decades than we have in the previous two hundred years.”

Q AS ONE OF THE COFOUNDERS OF SINGULARITY UNIVERSITY, HOW CONVINCED ARE YOU THAT “THE SINGULARITY” WILL HAPPEN AS RAY KURZWEIL PREDICTS?

PD: So, listen. The university is named after [Ray Kurzweil’s book *The Singularity Is Near*]. But we don’t discuss The Singularity and we’re not truly a university. Our focus is fundamentally on the next two to ten years—it’s the horizon that drives business and business relevance now.

Having said this, do I believe that we massively underestimate the future because we’re linear thinkers? Absolutely. We’re coevolving with technology. We’re beginning to incorporate our bodies, we’re beginning to generally increase our capabilities. I believe we that we are going to create more and more intelligent machines and we are going to be interfacing our bodies with our machines. I think Ray is not someone I would bet against with his predictions.



SINGULARITY SENSATIONS
Diamandis founded Singularity University with noted futurist Ray Kurzweil in 2008.

Q JUMPING TO THE XPRIZE, ONE OF THE MOST INTRIGUING IS THE LUNAR XPRIZE, IN WHICH THE FIRST TEAM TO LAND A PRIVATELY FUNDED ROBOT ON THE MOON WILL WIN A \$30 MILLION PURSE. ARE YOU CONFIDENT THAT ANY OF THOSE TEAMS WILL BE ABLE TO INDEPENDENTLY SEND A MACHINE TO THE LUNAR SURFACE?

PD: Yeah. I think that it's very possible—the ability for a small team to do it is without question a possibility. They're in a fundraising race against time because sending stuff to the moon isn't cheap. The other question is, will they be able to take enough shots at it? It's not a question of if, it's a matter of when.

PD: The paperback that came out a few months back has a bunch of additional charts in it. So I remain more optimistic and more compelled than ever. But my mission about writing *Bold* is the realization that 1,000 years ago it was only the kings and queens who could impact a region or a country. One hundred years ago it was only the industrialist. And today it's all of us.

TO THE MOON

The Lunar XPrize will award \$30 million to the first team that can land a privately funded robot on the moon.

Photo courtesy of Astrobotic



Q SINCE ABUNDANCE CAME OUT IN 2012, HAS ANY MORE DATA COME OUT THAT HAS MADE YOU MORE OR LESS OPTIMISTIC?

GET ORGANIZED

5 Ways to Improve Your Professional Networking

TIPS

Become a Facebook Power User

GAMING

Open Worlds and Universes, With Zombies and Without

TECH ETIQUETTE

Ask Alex: Not Without My Laptop

Digital

Life

5 Ways to Improve Your Professional Networking

Don't neglect your most important connections. The right apps and a few tips can help you become a master of your network. BY JILL DUFFY



Networking takes effort. We all know we should do it, but it's hard. And you need to be crazy organized with your address book and have an impressive memory to network effectively, right? Not necessarily. Several apps have the power to take the “work” out of networking—if you know how to use them. These tips will get you started so that you can be a better and more efficient player in your network, and that could in handy the next time you need a favor.

MASTER YOUR CONTACTS DATABASE

How can you network efficiently if contact information for the people in your network is spread out over personal email, business email, Facebook, LinkedIn, Twitter, and who knows where else? Consolidate all those disparate sources with Brewster, which is available for Web, Android, and iOS. Brewster pulls information from all those places and others, and lets you search for the person you need to find. It also has tools for merging duplicate contacts.

DON'T FORGET TO SCHMOOZE

Flattery will get you everywhere, but not if you forget to schmooze. An app called Cloze (for Web, Android, and iOS) connects to your email and social media accounts to keep tabs on all the people who are most important to you and let you know what they're doing.

Cloze knows, for example, based on my history of communication with my boss that he's probably a pretty important guy in my network. So when I opened the Cloze app today, a tweet from him was at the top of my feed. That helps me remember to pay attention to his activity and reply to it when relevant. Cloze also has other tools and filters to help you keep tabs on the people who matter most.



GET A LITTLE CLOZE-R
The Cloze app consolidates all the most important information (emails, phone calls, notes, and more) about the people you know in one place, so you always have what you need.

REFRESH YOUR MEMORY BEFORE RE-MEETING

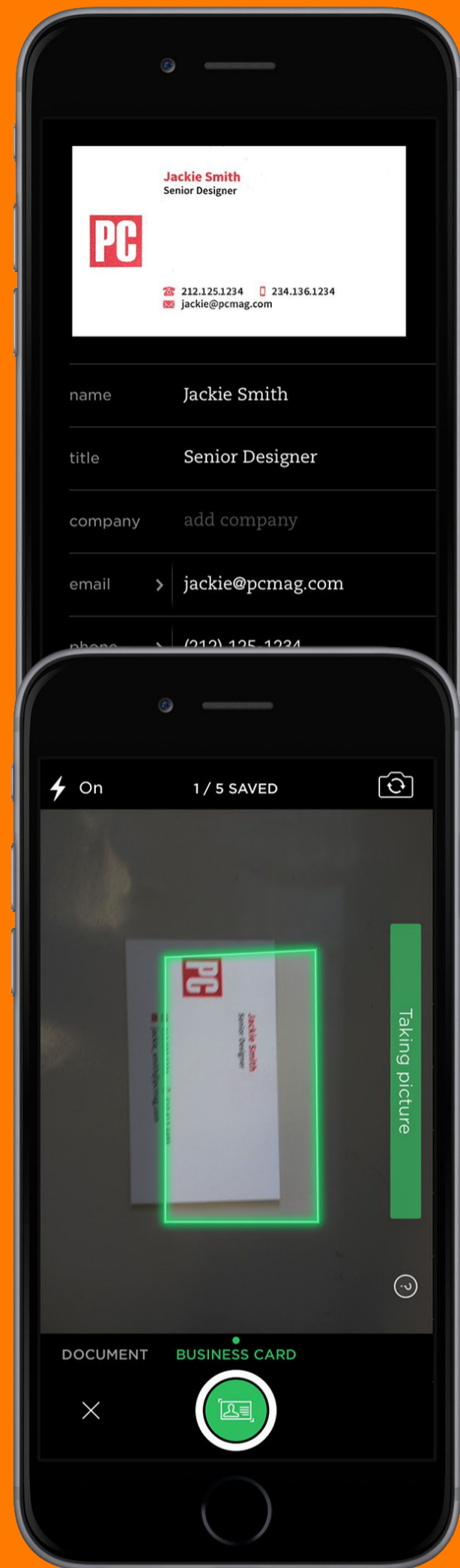
The worst thing you can say to someone you've met before is, "It's a pleasure to meet you." (Among Washington, D.C., schmoozers, the standard greeting is, "It's a pleasure to see you.") The mobile app LinkedIn Connected (formerly called LinkedIn Contacts) can prevent you from that kind of embarrassing situation.

LinkedIn Connected looks through your calendar, email, address book, and of course LinkedIn, and tells you when you last saw or communicated with a particular person. You'll see a history of communication in snippets, plus quick links for emailing or calling the person. You can also see connections you have in common, as well as the person's background as listed on LinkedIn. The app gives you an impressively quick summary so that you can go into meetings feeling much more confident that you know at least a little about the people you're meeting and your history with them.

DITCH THE BUSINESS CARDS

In an age of digital information and high-tech search capabilities, what the heck are you still doing with a stack of business cards? People still give them out (who knows why), and it's polite to accept them. Once they're in your hands, though, the best thing you can do is scan them, digitize them, and make the information on them searchable.

Evernote's mobile app (available on most smartphones) has a business-card-scanning feature that's ideal for quickly snapping an image or two and automatically parsing contact information. Say you're at a conference or trade show, though, and have accumulated a stack of business cards. For that job, you want the Scannable app, which is also from Evernote. Scannable can plow through a stack of



YES, YOU SCAN
With Evernote and Scannable, you can scan easily scan your stacks of business cards, add their information, and then toss them to declutter your desk once and for all.

business cards, and you never have to press a camera button. It just scans, and quickly. You can save the data captured to Evernote or another location of your choosing, whether to your Camera Roll or vCard files.

USE LINKEDIN SMARTER

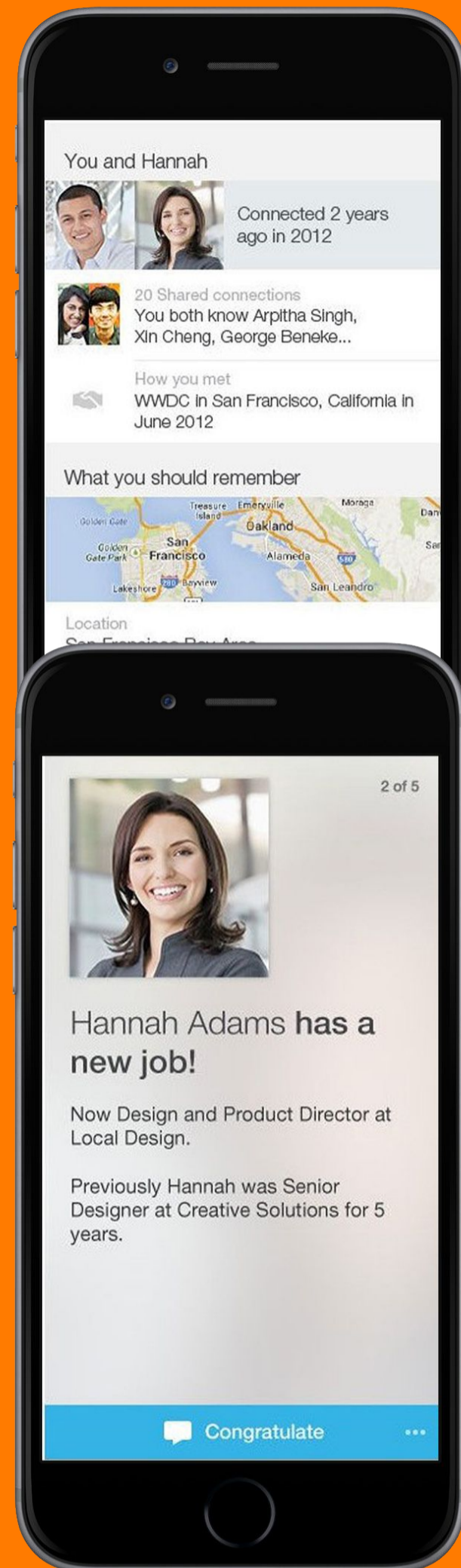
Back to schmoozing: You know what people on LinkedIn hate? They hate when you endorse them in an effort to schmooze, but promote a skill of theirs that's beneath their current role. For example, don't ever (ever!) endorse an editor-in-chief for her copyediting skills.

You should use LinkedIn to network, but use it in a smart way.

Start by rekindling relationships with people personally when you see that they are on the job market or have had a recent successful moment. A personal email or direct message on their social networking platform of choice—I'll take a Twitter DM over a LinkedIn InMail any day—will carry more weight than a standard “liking” of activity on LinkedIn.

And ask real questions when you rekindle your relationships: What are you looking to do in your next role? How do you want others to view your skills and strengths? How did you manage to land that promotion? Would you like me to write an endorsement for your work, and (here's the crucial part) what would you like it to say?

Being someone's buddy is way better than being their “liker.”



IN LIKE LINKEDIN

LinkedIn is an excellent way to maintain your business relationships, but make sure you endorse and connect with people in a way that's best for you as well as them.

Become a Facebook Power User

BY EVAN DASHEVSKY

facebook

Search for people, places and things

Kris



Designer at Facebook
Studied at UVA
Lives in San Francisco, California
From Edmonds, Washington

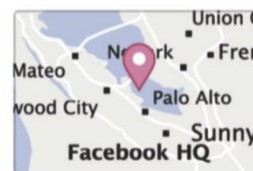
About



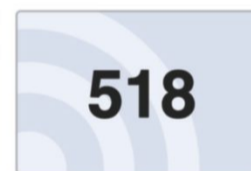
Friends 124



Photos 60



Map 89



Subscribers

Status Photo Place Life Event

Activity Recent

What's on your mind?

Facebook is the principal digital public square of today. Though the company's business model has evolved to include its mobile incarnation and other associated apps, the website is still the preferred venue for many. And why not? It rivals many standalone software apps with the sheer amount of personalization, tweaks, and tinkering available to users. In fact, there are so many things you can do on Facebook.com that you probably don't know about them all. Here are some of our favorite ways to make the most of the ultra-popular social network.



Inbox **Other (32)** More ▾

Tip: See a message from someone you know? Just reply or click Move to Inbox from the Actions menu.

[Edit Preferences](#) · [Mark All as Read](#)

Search



Tom Eric Douglas
hey

10/1/14
1 new



Melinda Madalene Milam 7/20/14
Im looking for matthew murray...



Tracy Morgan 5/25/14

THE FACEBOOK INBOX YOU DIDN'T KNOW YOU HAD

If you've been on Facebook for a while, you probably have a folder full of unread messages you don't even know about: the "Other" messages folder.

To review your messages, click on "Messages" in the top of the left column. By default, you'll find yourself in your main Inbox; this is where you read all the messages you've received from your connections. But if you look directly to the right of your "Inbox" at the top, you'll find the "Other" folder. This is where Facebook directs the messages from people you are *not* connected to—believe it or not, some of them may even be legitimate.

CREATE AN INTEREST LIST

There's a little-known Facebook function boringly called "interest lists." It's basically Facebook's version of Twitter lists (and should not be confused with Facebook's "Friends lists"). Interest lists are curated

collections of posts from websites, companies, or individuals that you follow in one streamlined feed (such as "indie hip-hop" or "local restaurants"). Interest lists may be kept private just for you or some friends, or can be made public for the world to follow.

To access interest lists, scroll down to the "Interests" section in the left column, then click on the header. On the next page, click the "+Add Interests" button and you will have the option to search and follow other publicly available interest lists or create your own.

Keep Up With Your Interests

Love action flicks, winter sports or runway fashion? Subscribe to interests featuring experts, pages and celebrities — and get a special news feed for each topic.

Add Interests

+ Create List

Follow interest lists or create your own.

Search for lists...

Suggestions

Photographers by Thomas Hawk
Featuring Scott Jordan, Jordana Rothman and 185 others
251,257 followers

Follow

Tech News by Vadim Lavrusik
Featuring Tom Stocky, Lee Linden and 122 others
79,356 followers

Follow

Musical Theatre Songwriters by Kevin Ireland
Featuring Kait Kerrigan, Brian Lowdermilk and 111 others
282 followers, including 2 friends

Follow

Role Playing Games by Al Baxter
Featuring Bush Whacker, Pokémon Mystery Dungeon: Explorers of Time and Explorers of Darkness and 39 others
67,794 followers

Follow

That's Entertainment by Seamus Condrón
Featuring Vulture, Deadline Hollywood and 6 others

Follow

Design by Seamus Condrón
Featuring mocoloco, designboom and 5 others



DETAIL YOUR FACEBOOK ROMANCE

If you want to relive everything you and your significant other have been through together, go to www.facebook.com/us and you will see your complete Facebook history with whomever you are listed as being in a relationship with (“us,” get it?). If you’re not listed as being in a relationship, it will just go to your regular page because Facebook thinks that you are just in love with yourself.

MAKE FACEBOOK UPSIDE DOWN (OR MORE PIRATEY)

Remember about ten years ago, when pirates were all the rage for a minute? Well, at one point the Facebook engineers got swept up in this ironic buccaneer frenzy and programmed a peculiar Easter egg that lets you translate your Facebook interface into pirate or upside-down speak.

Does this sound appealing to you for some reason? Go to the General tab of your Settings page, and among dozens of other language options you can choose to view Facebook in either “English (Pirate)” or “English (Upside Down).”

Think this is a whimsical little feature that you will never, ever get sick of? You’re wrong. It’s actually quite annoying.

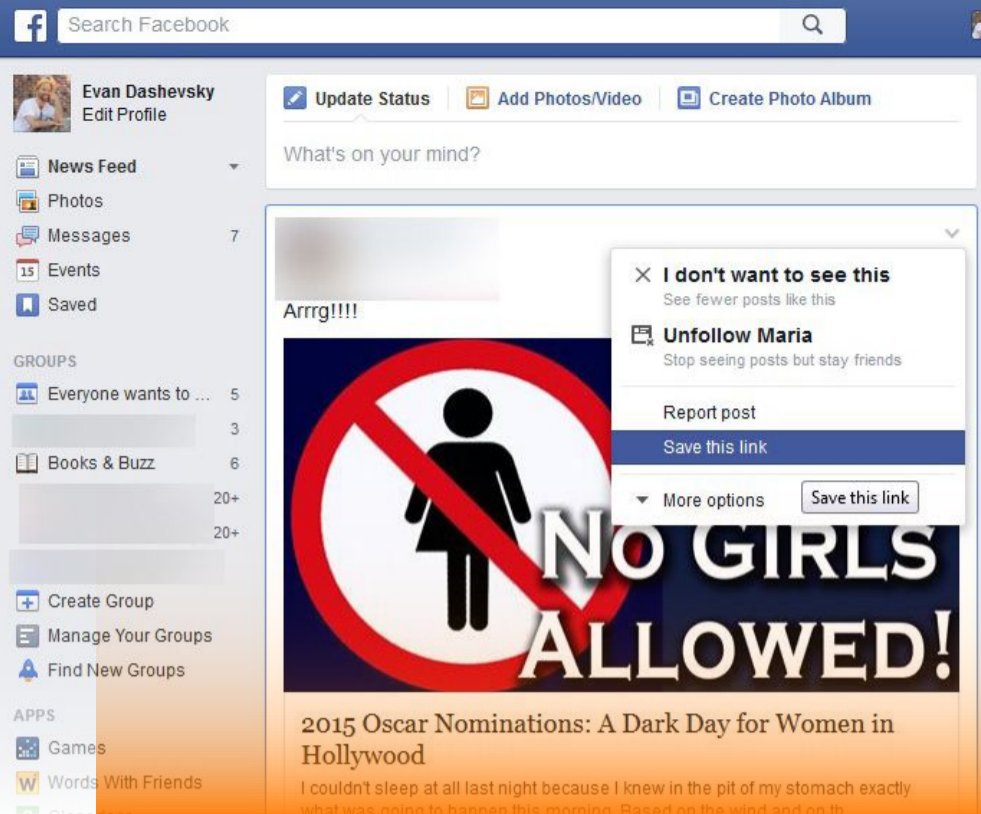
TRANSFER FILES USING FACEBOOK CHAT

If you open a Facebook Chat window, you’ll notice a little gear icon in its top-right corner. One of the options is “Add Files..”, which lets you upload files directly from your computer to transfer over. The receiver can just click on the included link to download the files.

YOU CAN EMBED PUBLIC CONTENT

Like other social media sites, Facebook lets you embed publicly available content on your personal webpage or blog. Just click the pull-down menu in the top right of the post and click “embed” to place the code wherever you’d like.





SAVE POSTS FOR LATER

Have you ever wanted to read a link that a friend shared on Facebook, but you didn't have the time at that particular moment? Then, when you did have time, you either forgot about it or the post had been buried under so much other junk that it was no longer even worth searching for? We've all been there.

That's why you should get acquainted with Facebook's incredibly handy "Save for Later" function.

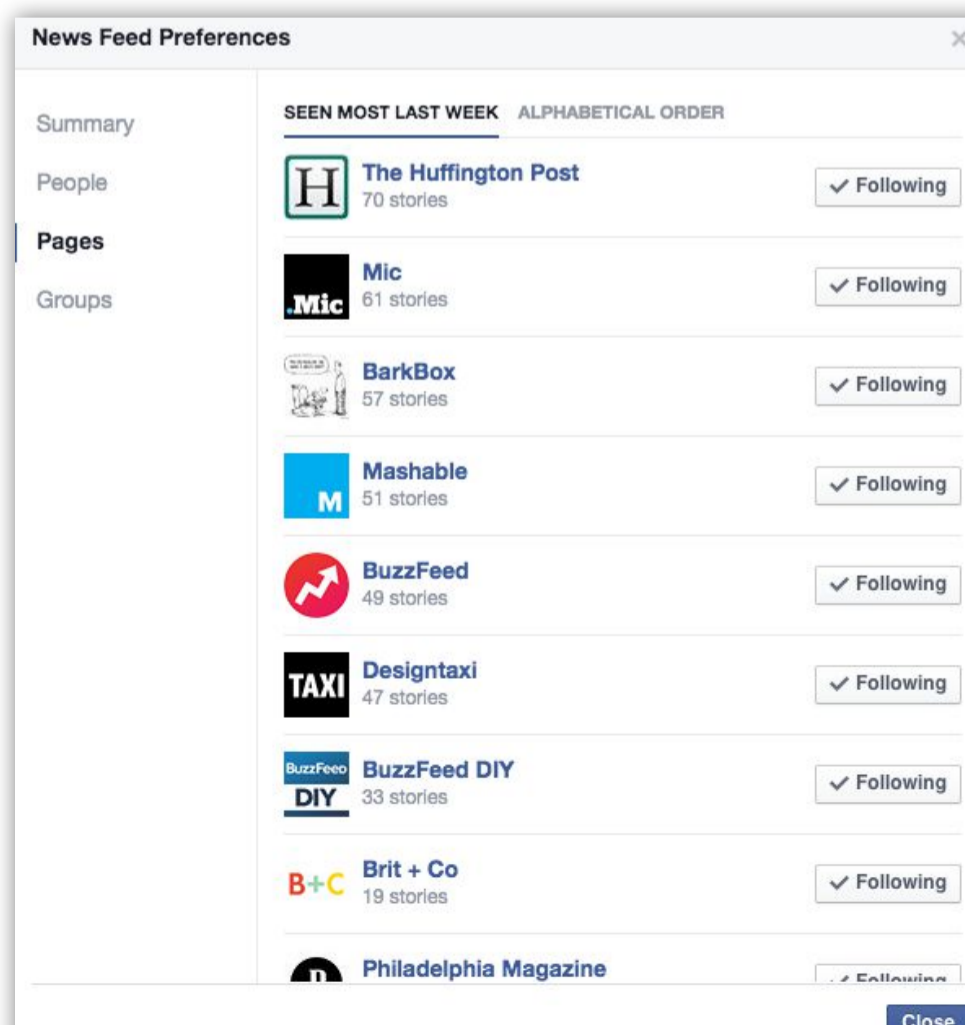
If there's anything you want to save for later, click the little arrow in the top right of any post. Then click the Save "[name of story]" button from the pull-down. This will send the link to your Saved folder. "Where's the Saved folder," you ask? Good question! You actually won't see it until you save something for the first time. Then you will see a little "Saved" ribbon in your left-hand favorites bar. Click that to find all your stored stories. This also works with any videos your friends have posted.

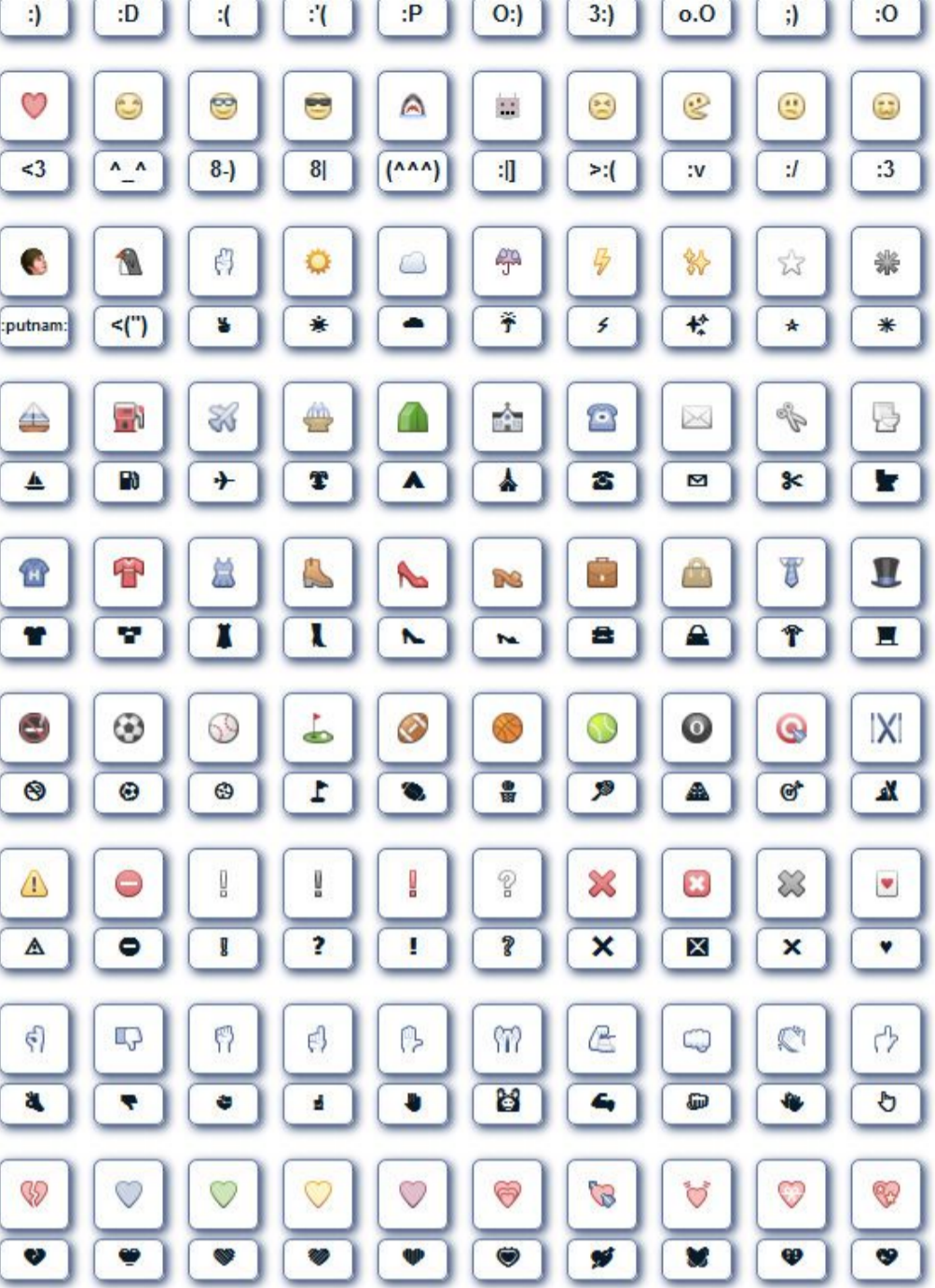
PRUNE YOUR NEWS FEED

Your News Feed is your home on Facebook, so you should try your best to keep it clean, orderly, and free of distractions. You don't want to be inundated with posts from that one brand or friend you follow who just posts all the time.

One of the most direct ways to do this is by pruning out offenders from your News Feed. The quickest way to access this feature is by hovering your mouse over "News Feed" in the top-left corner and then clicking on the little gear icon that appears. Click the "Edit Preferences" prompt to see a list of whose posts you've seen the most recently. If they are one of the offenders, you can just click the "Follow" buttons next to their names to unfollow them.

If you'd prefer to do this on a case-by-case basis, you can click the little arrow in the top-right corner of a person's post to follow or unfollow that user.





THERE ARE LOTS OF SECRET EMOJI

Emoji. They take away some of the horrible pain of writing in plain language. Facebook will render all the usual face emoticons into pictorial representations: :) :D ^_^ You know the ones. But there's a whole bunch you may not even be using.

(y) = thumbs-up "like" symbol

(^^^) = great white shark

:|] = robot

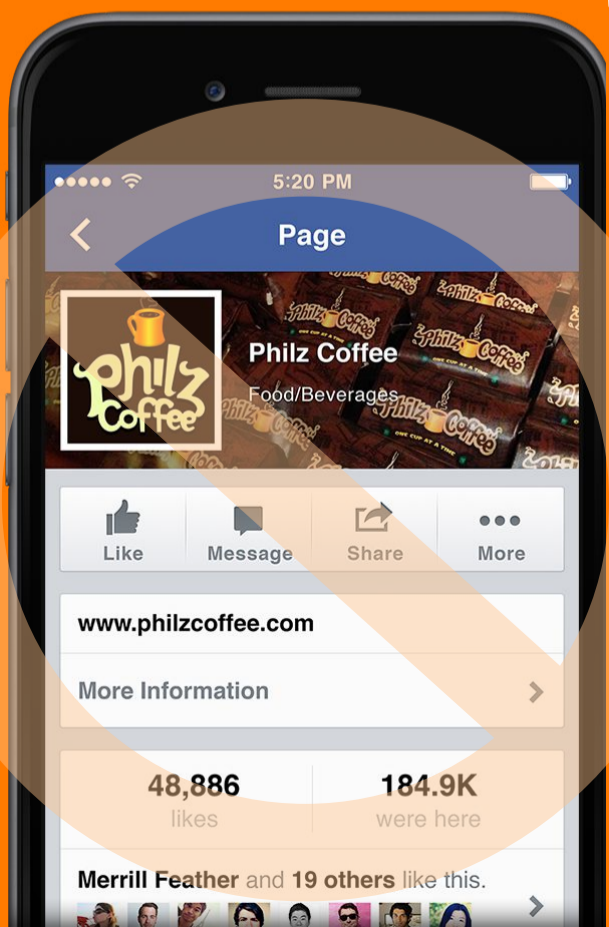
<(") = penguin

You can use these in wall posts, chats, and comments, but they don't always seem to render in mobile. You can find a full rundown of Facebook emoticons at <http://www.symbols-n-emoticons.com/p/facebook-emoticons-list.html>

DON'T LET FACEBOOK TRACK YOUR MOBILE BROWSING

Here's one feature you unfortunately won't find anywhere in Facebook, and that's the problem. When Facebook announced it was going to give users more control over ads in order to make them more targeted, it didn't exactly publicize that it would also start using your app and Web-browsing history to show targeted ads from advertisers.

Unlike with most Facebook privacy settings, you can't opt out of this kind of tracking. But you can take steps to surf in private. You can opt out via a special third-party site courtesy of the Digital Advertising Alliance: <http://www.aboutads.info/choices/> (You'll need to disable AdBlocker Plus or other similar software you may be running.) Follow a simple set of directions, and make sure to click the box next to Facebook and you can go about your Internet business without third-party advertisers getting wrapped up in it.



If you notice any unfamiliar devices or locations, click 'End Activity' to end the session.

Desktop (4) ▾

Last Accessed Today at 7:09am [End Activity](#)
 Location New York, NY, United States (Approximate)
 Device Type Firefox on Windows 7

Last Accessed Today at 1:10am [End Activity](#)
 Location New York, NY, United States (Approximate)
 Device Type Firefox on Windows 7

Last Accessed February 12 at 4:44pm [End Activity](#)
 Location New York, NY, United States (Approximate)
 Device Type IE on Windows 7

Last Accessed February 5 at 12:09pm [End Activity](#)
 Location New York, NY, United States (Approximate)
 Device Type IE on Windows 7

Facebook for iPad (5) ▲

Facebook for Android (1) ▲

SEE WHO'S SNOOPING IN YOUR ACCOUNT

Want to know if someone is logged in to your Facebook account without your permission? First, go to your settings page. Click "Security," then click on the "Where You're Logged In" option. Click that to display all your active Facebook logins from both desktop computers and mobile devices. The option will (usually) provide data on location, browser, and device. If something seems fishy, you can click a link to "End Activity" on the suspicious login.

This function can also come in handy if you logged in to your friend's computer or some public laptop, but forgot to log out again when you were done.

WANT TO SEE WHAT YOUR FRIENDS ARE UP TO WITHOUT YOU?

When you see a post that a friend posted on another friend's wall, you have the ability to see a detailed history of those two people's friendship. Just click the little arrow in the top right of that post and then click "More Options." There you will see the "See Friendship" option.

There is one other way to access this: type in the URL of your Facebook page, which is probably something like `www.facebook.com/[first name].[last name]`, and directly follow it by `?and=` and the name of the second person. When playing with this URL trick, be sure to check the official URL of each person—Facebook can insert some strange characters into their official URL (for example, it will add a number if there is someone else with the same name).

The screenshot shows a Facebook profile for Matthew Murray and Jackie Smith. The profile picture shows two men. Below the name, it says "Facebook friends since November 2012" and "Living in New York, New York". There is a "Share Friendship" button. Below the profile, there is a "FRIENDS - 22 Mutual" section with a grid of friend photos including PJ Jacobowitz, Eddie Schneckloth, Sal Cangeloso, Andrew Frankel, Stephanie Mlot, Jenny Bergen, Nicole Price Fasig, Will Fenton, and Leslie Horn. To the right, there is a post from Matthew Murray to Jackie Smith that says "Hey, Jackie. I know you like cooking--this could be a problem. Ha ha ha." Below the post is a news article titled "Will These 12 Robots Makes Chefs Obsolete?" with a photo of a woman at a robot kitchen counter.

Open Worlds and Universes, With Zombies or Without

BY MATTHEW MURRAY AND WILL GREENWALD



For decades, almost every computer game was linear. Limited memory and storage space meant that if you weren't progressing from one objective (or level) to the next, you probably couldn't be doing much of anything—spending a few (or a few hundred) turns developing your character was about all the free rein you had. But that's all changing now. So-called “open world” games, whether single-player or online, let you specify when, how, and how much you play, and in pursuit of what goals, and are becoming more popular as people discover just how much fun telling their *own* stories in a game can be. And you have plenty of options in the kind of game you play: science-fiction, fantasy, or even realistic (albeit occasionally with an added dose of the fantastic). Here are three current titles you may be interested in trying if you want the only limits of your entertainment to be your imagination.



ELITE: DANGEROUS / elitedangerous.com / \$60

You can't really appreciate the vastness of space until you try to travel anywhere in *Elite: Dangerous*. This PC game by Frontier Developments is a crowdfunded follow-up to the classic *Elite* series of space sims that's been around for 30 years. Set in the 34th century, it gives you a ship, a handful of equipment, and a full tank of fuel, then sets you out on your own in the vast cosmos to get money and lead your interstellar life however you choose. It's huge, slow, deliberate, and open, and it will reward players with the patience stay with it.

There's no epic story told where you're the main character and the universe is at stake. You're just trying to make your way in space. Once you leave stardock for the first time, your actions, goals, and destinations are entirely up to you. And the galaxy has 400 billion star systems (the vast majority of which are procedurally generated, and yet to be explored) to see while you do it.

But this isn't to say that the galaxy is empty or static. *Elite: Dangerous* is a persistently online game that automatically lets you encounter other players online if you're in the same part of space; you can optionally play solo without the player interaction, but that mode still needs an Internet connection. Politics and economics are the lifeblood of the galaxy, and every cargo run, government crackdown, and pirate raid influences the price of goods in a given system. Larger, overarching events take place in the background, letting players work en masse to back different factions in certain systems, running missions for them in the hopes of overthrowing the ruling government or, if they prefer, protecting the status quo.

You can make your way as a pirate or mercenary, fitting your ship with tons of weapons and going after targets. You can also avoid battle entirely and outfit your ship to be a deep-space exploration vessel with advanced sensors, and later

sell information about your discoveries. Or you can get a mining laser and an onboard refinery and mine asteroids all day, scooping up ore and processing it into usable material. You can also simply travel from star to star, buying and selling commodities to make a profit. But watch out: You might get attacked by the very pirates you would otherwise be chasing.

Jumping between stars requires charting a course to your destination and making a series of warp jumps that will take your ship several minutes to go any significant distance. Landing at a space station requires pinpoint precision as you enter the complex and land in a specific bay. Mining requires careful shooting of asteroids and then even more careful scooping up the minerals by aligning your ship at a specific angle and very slowly flying into them. Even combat is as much a game of cat and mouse as it is dogfighting, with jumps, chases, and jockeying for position.

Elite: Dangerous is fantastic for the patient: a sprawling, intergalactic sandbox. It's not fast-paced, exciting, or even very personal outside of the stories you craft for yourself, but it's so incredibly vast and intriguing that at least some of you will find yourselves jumping back into your cockpit so you can scan another star or mine another asteroid—just because they're there.





THE ELDER SCROLLS ONLINE: TAMRIEL UNLIMITED / elderscrollsonline.com / \$60

Ever since the first chapter of the Elder Scrolls saga, Arena, was released in 1994, Bethesda Softworks has been upping its open-world approach by giving the player a constantly expanding way to live in the fantasy wilds of Tamriel. It seemed to hit its apex last spring with the release of The Elder Scrolls Online, an MMORPG version of the series, and it's been skyrocketing in popularity ever since. And in mid March Bethesda is poised to rebrand it for PC players as Tamriel Unlimited, which will offer the same expansive gameplay without monthly subscription fees. (Xbox and PlayStation owners will get their chance to join in June.)

One of the most vibrant and fascinating spins on the tried-and-true MMORPG formula, Tamriel Unlimited gives you about as many options for customizing your character and your life as you had in the most complex entries in the standalone series (particularly the last two, Oblivion and Skyrim). You can tweak everything about your appearance, including your race, select an umbrella class from the four available (Dragonknight, Sorcerer, Nightblade, and Templar), then, after a brief introductory sequence that proposes the plot and teaches you the intricacies of weapons, magic, and character interaction, your destiny in Tamriel falls completely under your control.

You'll quickly discover that most of your questing assignments are richer and more detailed than the typical go-here, bring-back-that, fight-this-thing variety (you know, the type popularized by World of Warcraft), though your journeyings along the main plotline will reveal its own creative options. (Keeping track of everything you have going on is easy with the convenient online journaling system.) You don't have to feel constricted by your character type, as you can revamp, rethink, and retrain your skills at will. And crafting

items is a good way to relax and get in good with those around you, as is linking up with the class organization of your choice (such as the Fighters' or Mages' Guilds). Each of the game's three major factions (the Aldmeri Dominion, the Daggerfall Covenant, and the Ebonheart Pact) has its own specific quests, too, so whichever path you follow, you'll never run out of things to do.

The visually sumptuous world makes a compelling canvas on which to paint your adventures, with each of the individual provinces gorgeously distinct and cohesive in design. Waterfalls tumble into pools amid clouds of mist, the gnarled roots of giant trees camouflage houses for gentle forest dwellers, towns and castles are built around consistent stonework designs, and so on. Even a walk on the beach brings out the details, with scuttling crabs and painstakingly rendered seashells flawlessly setting the scene.

Two other major innovations in Tamriel Unlimited include a new Champion System, which eliminates much of the grinding required of characters who reach level 50, and the Justice System, which will incorporate new player-versus-environment (PvE) and player-versus-player (PvP) content. Both of these additions should push Tamriel even closer to the real world, but because The Elder Scrolls Online has long been one of the most immersive MMORPGs out there, they probably won't need to do much to keep the game a winner.





DYING LIGHT / dyinglightgame.com / \$60

Even though zombie stories can be a lot of fun, chances are you've never really wished you could be inside an episode of *The Walking Dead*. But Techland's game *Dying Light* draws an astonishing amount of suspense and entertainment from just that concept. A mysterious plague that turns people into zombies is ravaging the vaguely Middle-Eastern Harran City, and you're airdropped in to try to find out who's in charge and devise a cure before it's too late. But even though you're given a handful of smaller quests to complete, and can track down many others (or not) as you see fit, your only real objective is to help others—and yourself—stay alive.

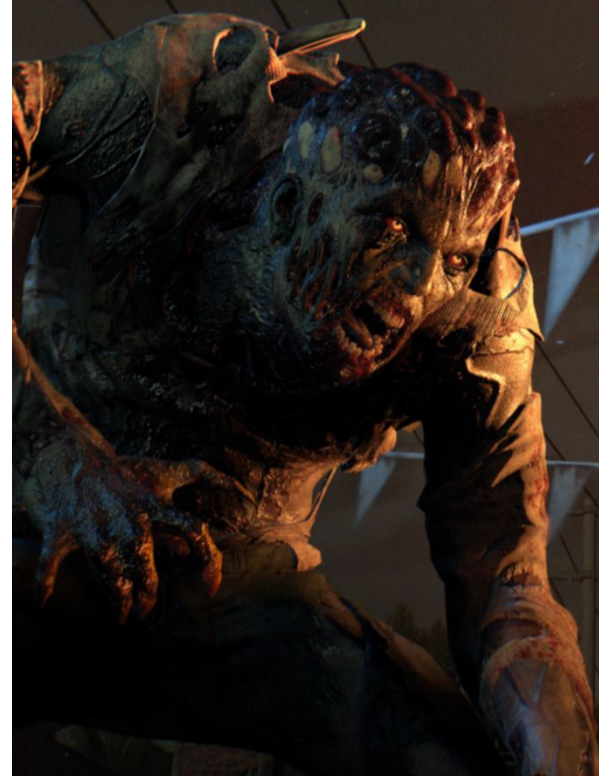
This is much harder than you may think. During the tutorial-like section at the beginning of the game you're given extensive training in a variety of parkour-style tricks that let you leap to and scale any structure in seconds, and these are abilities you'll need to stay ahead of the surging hordes of undead clogging the streets. Not only do they congregate in packs and sneak up on you, some explode when hit or run as fast as you can, so developing strategies and staying out of their way is crucial for your survival. Don't forget to search their decaying corpses and the containers they're guarding to find the tools and money you'll need to repair and strengthen the puny hardware you start with.

Did I mention this is just during the day? The night is a whole other matter. The zombies become even more numerous, violent, and daring then, and can attack from multiple unexpected fronts the sun's unforgiving rays cut off to them. You can tip the odds in your favor by setting up lighted traps and safe zones during the day, and collecting items you can craft into weapons, medical supplies, and other handy tools, but withstanding the post-dusk onslaught will require razor-sharp wits and split-second reflexes regardless. Nighttime in

Harran is truly harrowing, and each second you're outdoors can feel like an eternity as you struggle mightily to stay hidden, stay moving, and above all stay alive.

Few open-world games have environments as robust as *Dying Light*'s, and it won't take you long to adapt to a place that's disquietingly like our own Earth, where every window ledge, rafter, and collapsed wall section can spell the difference between a narrow escape and a bloody, brain-chomping death. You have a stunning number of ways to deal with the shambling adversity put before you, and the process of learning everything you can do—to say nothing of what works and what doesn't—is a big part of what makes this game so wryly delightful. You'll need to experiment to see what gives you the best shot at seeing another sunrise, but you'll thrill to every moment of it.

An alternate play mode lets you assume the role of a zombie and try to gnaw others into submission in a wild online multiplayer frenzy. It's a nice spin on the formula, but as it is, the rest of *Dying Light* is already loaded with features for you to sink your teeth into.



Ask Alex

Not without my laptop.

BY ALEX COLON



I like to work on my laptop from coffee shops, but I'm curious as to what the rules are. What do I need to buy? How long can I stay? —*Home Away From Home Office*

Alex Says: For the most part I work from an office. But as a New Yorker with a tiny apartment, I completely understand the appeal of getting out, stretching out, and working from your local coffee shop.

The first thing you should always make sure to do is buy something while you're there. At the very least you should order a drink, but if you get there in the morning and work to noon or so, then you should buy lunch as well. And don't forget to tip your barista well, as they'll be the first to let you know if you've overstayed your welcome.

In addition, turn off your computer's sound, stick the rest of your belongings on the floor, and don't even think about taking any Skype meetings or conference calls. And pay attention to how much bandwidth you're using. This is not the place to catch up on Netflix or download torrents.

That sounds like a lot of rules, but it's all really just common courtesy. And on the bright side, if you follow them all, then I think you can feel free to stay for as long as you'd like.



Ask Alex

Not without my laptop.

BY ALEX COLON

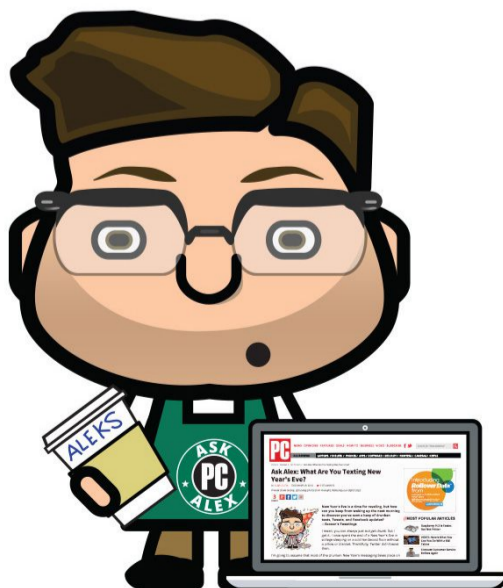
Q

When is it appropriate to take a laptop to a work meeting? —*Bored Meeting*

Alex Says: This depends on two factors. First: What is the laptop culture of your office like? If everyone already carries a laptop everywhere, then sure, go for it. But if taking a laptop to a meeting is a relatively new frontier, I'd shy away from being the first one to break new ground.

It also depends on what type of meeting you're talking about. If you're going to be learning something new and you want to take notes, then I think it's appropriate—and maybe even helpful—to bring along your laptop. But if it's a quick, casual meeting, or a really big meeting about the state of the company, then your laptop is probably better off left on your desk.

Whether or not it's appropriate to bring your laptop to a meeting is one thing, but whether or not you *should* is another matter entirely. I, for one, can't even listen to a podcast and look at photos on Instagram at the same time without getting distracted. When you add emails, instant messages, and *all of the Internet* to the equation, I can't imagine paying much attention to even the most interesting of meetings. If that sounds like you, then perhaps just a pen and paper will suffice.



Ask Alex

Not without my laptop.

BY ALEX COLON



Is it rude to pull out your laptop while on a flight or other method of public transportation? —*Flight of the Comp Cords*

Alex Says: As long as there's enough room for you to use your laptop without elbowing your neighbor, I think it's perfectly acceptable to use your laptop on public transportation. As always, though, there are some things to keep in mind.

Use headphones. This might seem obvious, but based on some experience I've had on trains, well, you'd be surprised. And be mindful of what you're watching. Obviously don't watch porn. But you should also shy away from anything you know is going to be particularly violent. Just pretend you're sitting next to a 10-year-old when trying to decide whether or not something is appropriate.

If you're going to plug in your laptop, make sure there's enough slack in the cord so that anyone seated near you can step over it. Nothing stresses me out more than feeling as if I've been cord-blocked from getting up to use the bathroom.

Finally, be prepared for neighbors to snoop. I do it all the time. I don't care if I have my own laptop in front of me; there's just some irresistible allure to a foreign screen. Whether it's spreadsheets or episodes of *Girls*, I'm going to peek at least once. Expect others to do the same.

**Have a question
for Alex? Send it to
askalex@pcmag.com**





The New Microsoft

There's been a lot of talk lately about how Microsoft is trying to reinvent itself into something other than a dreary company relying on income from two cash cows, Windows and Office. It wants to become something more dynamic. This, to me, is futility and foolishness.

Microsoft got its start selling a BASIC language onto early microcomputers running CP/M. This boosted both the company and the fortunes of the industry that began with no real programming languages. Everything had to be coded in machine language.

In the early years, Microsoft studied the landscape better than any other company and saw the opportunities emerge with the first popular word processor, WordStar, and the first spreadsheet program, VisiCalc.

The companies behind these applications, MicroPro and VisiCorp, dominated the ranks of the software providers and became leaders. But neither locked down the business. So when its Lotus 1-2-3 hit the market in 1983, Lotus Corporation became the top software company.

Microsoft settled in by finding the coders and code for Word (they'd worked on Xerox's Bravo) and Excel. It had already bought code for MS-DOS and was licensing that to others as the IBM PC took over the scene.

This would become Microsoft's model—exploit the best of breed and simply do a better job of selling it—and it persists to this day. At one point in the 1990s, everyone believed that the software business was hopeless because Microsoft would

come along and beat you at your own game.

But it turned out that Microsoft was not invincible, and it often entered markets clueless and then quickly failed. At one point, there were more Microsoft flops than successes. Product after product, market after market. Telecom programs, graphics programs, online services, online magazines, MSN, and so on. All flops.

It's with the origins of desktop computing and its seminal programs—operating systems, word processors, and spreadsheets—that Microsoft succeeded big and maintains that lead. For 20 years it's been predicted that that lead will go away, but I'm now convinced that these predictions were only wishful thinking. The cash cows make billions and billions of dollars for the company, and there is no evidence that this flow of money will ever fade. Serious threats to these three products have never materialized and probably never will.

So why doesn't Microsoft just focus all its energies into these three products (and the support products, like PowerPoint) and stop trying to be Apple, Facebook, or Google? The company could pay massive dividends to shareholders and settle down to do what it does best.

I've analyzed this phenomenon before and tried to explain it away with four or five possible rationales, including the fact that the company—because it's not creative in any way, but instead completely derivative—has low self-esteem. It's notorious for being a fine-tuned copycat. When Microsoft is original, its lack of self-esteem guarantees its failure.

The new CEO of Microsoft, Satya Nadella, is an old-time Microsoft employee and he also suffers from this complex. Thus he has gone on a buying spree, trying to find something new for the



Nadella will not be the one who closes ranks and says, “We are going to become the OS and office productivity company for the world, period.”



company to sell. He has fallen prey to the 20-year-old notion that Windows and Office are dead products, despite what the numbers say.

Nadella will not be the one who closes ranks and says, “We are going to become the OS and office productivity company for the world, period.” Because phones are more exciting. Social media is happening. Search makes millions. “Let’s do those things!” I still muse over the fact that, some years back, Steve Ballmer predicted Microsoft would make most of its money from advertising.

What is the one worldwide universal commonplace that has become a household word, but languishes under Microsoft’s Office umbrella? PowerPoint, of course. It’s openly discussed in all venues of life. Schoolchildren use it. Famous public speakers use it. Everyone uses it or some modernized alternative version.

Why are there any modernized alternative versions at all? Microsoft should buy all the clones and make PowerPoint modern and even more necessary for presentations. Instead, it’s looking to add a stylus to the Surface tablet, itself a huge money loser. Microsoft has thrown away billions.

Microsoft needs to look within and make its profitable products unassailable by making all of them software applications you cannot live without. I think it’s forgotten how to do that. Neglect is the enemy of the cash cow.

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