

printout

Keystone MacCentral Macintosh Users Group ❖ <http://www.keystonemac.com>

Our February 21st Meeting

At our meeting on February 21st we will have presentations by Dennis McMahon and Eric Adams.

You can share a reminder list with other iCloud users. You might want to do this, for example, to keep all the members of a sports team apprised of what needs to be done for the next game. It also works great for a family grocery list that everyone in the family can add to. Participants in the shared reminder list can view and edit the list (mark items as complete, add items, and delete items), and see who else is sharing the list using these apps: iCloud Reminders, Reminders on an iOS device, Reminders on a Mac, and Microsoft Outlook on a Windows computer.

Dennis will compare screen recording applications QuickTime Player and third party application Voila (or the upgrade Capto.) Time permitting we also see some short videos and a command line demonstration. 🍷

Meet us at

Bethany Village Retirement Center

Education Room

5225 Wilson Lane, Mechanicsburg, PA 17055

Tuesday, February 21 2017 6:30 p.m.

Attendance is free and open to all interested persons.

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Keystone MacCentral is a not-for-profit group of Macintosh enthusiasts who generally meet the third Tuesday of every month to exchange information, participate in question-and-answer sessions, view product demonstrations, and obtain resource materials that will help them get the most out of their computer systems. Meetings are free and open to the public. The *Keystone MacCentral printout* is the official newsletter of Keystone MacCentral and an independent publication not affiliated or otherwise associated with or sponsored or sanctioned by any for-profit organization, including Apple Inc. Copyright © 2017, Keystone MacCentral, 310 Somerset Drive, Shiresmanstown, PA 17011.

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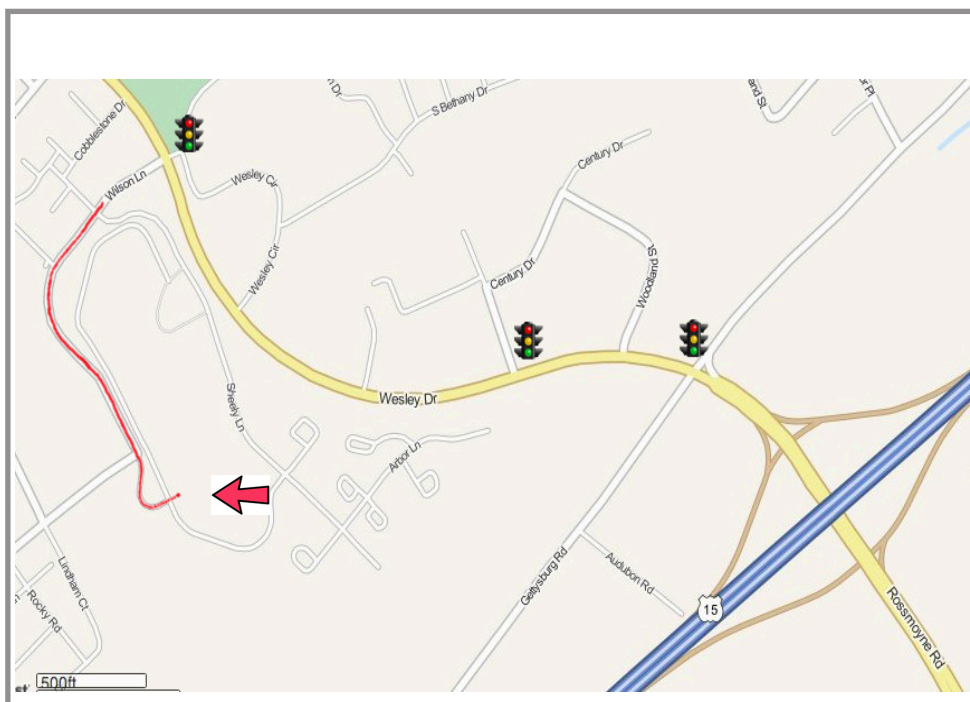
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A Prairie HomeKit Companion: Setting Up Accessories and Rooms

In “A Prairie HomeKit Companion: Core Concepts” (3 November 2016), I discussed the general principles of HomeKit automation, such as Accessories, Rooms, and Scenes, and offered a general overview of HomeKit. In this installment, we’ll explore some of the details involved in setting up the software. If you’re impatient, I have a compact guide to HomeKit in “iOS 10: A Take Control Crash Course.”

General Advice — Before you begin, you need at least one HomeKit device. In “A Prairie HomeKit Companion: Core Concepts” (3 November 2016), I recommended two categories of HomeKit device:

- A smart plug, such as the [Elgato Eve Energy](#) or the [iHome SmartPlug](#). You plug one of these inexpensive smart plugs into an electrical outlet to turn it into a smart outlet. Then you can turn any device plugged into it — a lamp, heater, or fan, for instance — on or off by controlling the plug.
- A smart lighting system, such as the [Philips Hue](#). The Hue system is much more expensive than a smart plug, but it offers capabilities that a smart plug and lamp combo can’t, such as dimming and color changing. For more on the Hue, see “[Getting Started with the Philips Hue Smart Light Bulbs](#)” (1 August 2016).

I recommend these devices for two reasons: they’re immediately useful and they’re not scary. A smart lock or a thermostat is a big investment that might require professional installation, but bulbs and plugs can be installed by anyone. Plus, if you program your lamp incorrectly, it could annoy you by turning on or off at the wrong time, whereas a mistake with a smart lock or thermostat could result in you being locked out of a cold house.

Remember that not every home automation gizmo is HomeKit-compatible — Apple must approve all HomeKit devices, which is an expensive and time-consuming process for manufacturers. Apple publishes a [full list](#), and if you have any doubts, check the box for the “Works with Apple HomeKit” badge.



Finally, when you first launch the Home app, you’ll be prompted to create a Home, name it, and choose a background photo. Don’t stress about these choices, because

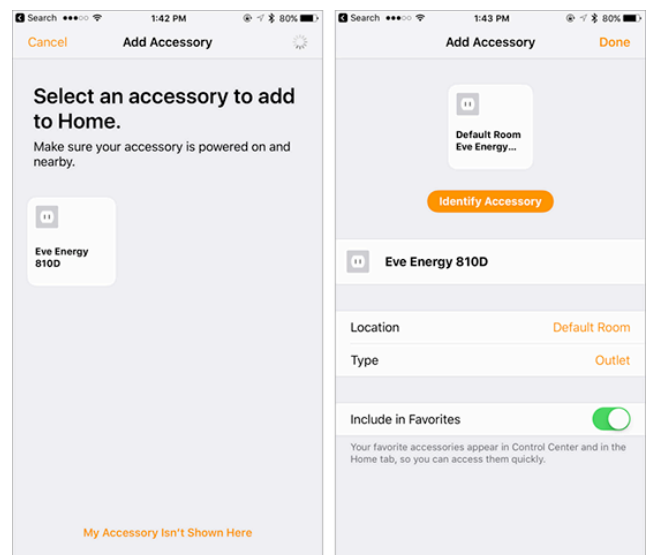
you can easily change them later. The name “Home” and the default background picture are sufficient. You can set up multiple Homes, but for the sake of simplicity, I’ll assume that you have only one.

Setting Up Accessories — To take advantage of Home, the HomeKit control app built into iOS 10, you have to add your HomeKit Accessories to it. As I explained in “A Prairie HomeKit Companion: Core Concepts,” Accessories are the actual home automation devices.

First, power on your Accessory. The next step depends on your device. You have to set up Hue lights in the Hue app itself and then add them to HomeKit from the app, as I explained in “Getting Started with the Philips Hue Smart Light Bulbs.” However, you can set up many standalone devices, such as the Elgato and iHome plugs, directly in the Home app. Here’s how to do that:

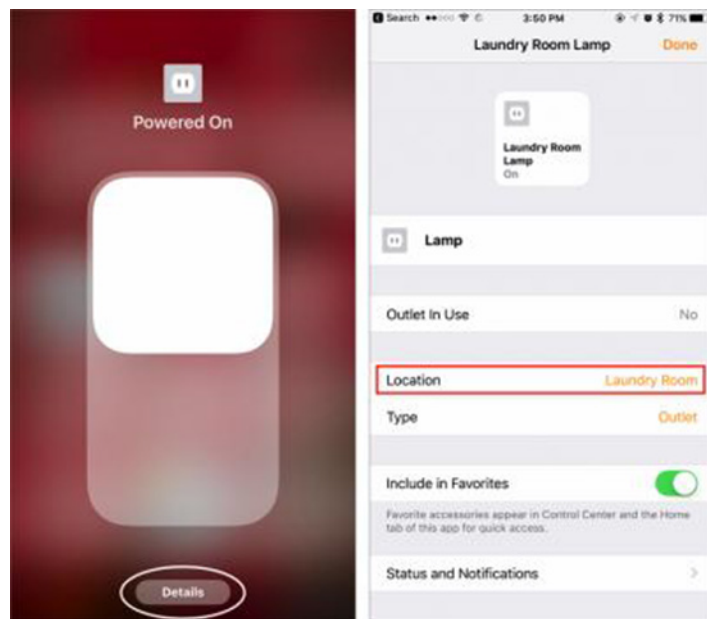
- 1 In the Home or Room screens, tap the plus button in the upper right.
- 2 Tap Add Accessory.
- 3 If everything is working correctly, your Accessory should appear on the Add Accessory screen. Tap it.
- 4 Next, you’ll be prompted to either type in or scan the device’s HomeKit code. That code can be found either on the device or in the box. Some devices, like those from Elgato, provide their codes on convenient cards. Be sure to save those codes, ideally in a secure vault like 1Password, because you need them every time you set up the devices.

The final screen offers a number of options:



- **Identify Accessory:** Tapping this button activates your Accessory so you can spot it in the real world, often with some sort of blink or flash. This is handy if you're not quite sure which device in your house you're working with. That might seem ridiculous, but just wait until you're setting up multiple smart bulbs with names like SMARTBULBFN2187.
- **Accessory Name:** By default, this is the factory name of the device, like "Eve Energy 810D." I recommend changing it to something more descriptive, like "Music Room Lamp."
- **Location:** From here, you should choose the Room in which your Accessory will live. The default is — get this — Default Room, which is sort of a waiting room for your Accessories. If you haven't yet set up a Room, you can do so from the menu — just give it a name and choose a picture (the default is fine).
- **Type:** This field describes the type of Accessory. You can leave it alone.
- **Include in Favorites:** Enabling this switch makes it so the Accessory appears in the Home screen of the Home app, as well as in the Home pane of Control Center. Unless you have a lot of HomeKit Accessories (one TidBITS reader told me he has 75!), I recommend leaving this switch turned on.

Accessories are always in a Room, even if it's just the generic Default Room. As you set things up, you'll want to move Accessories from one Room to another. To do this, tap and hold an Accessory (or use 3D Touch if your iPhone supports it), tap its Details button, and then choose Location to pick a new Room from the list.



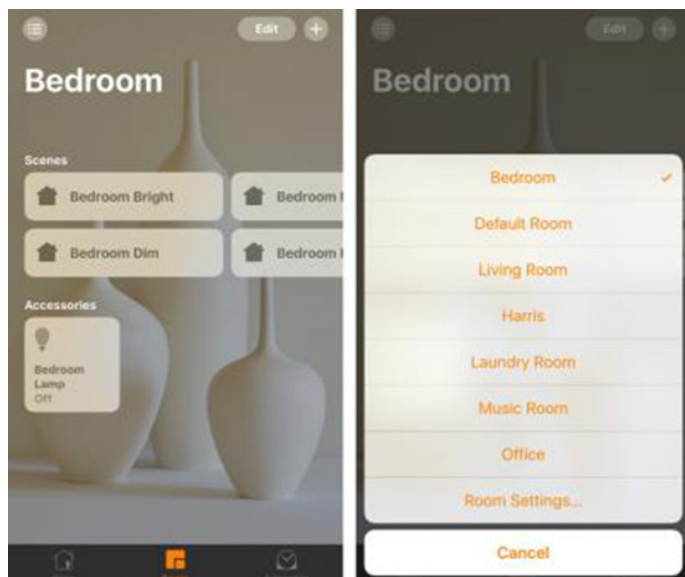
Why are Rooms so important? Two reasons: they organize your Accessories in a logical manner and to support Siri. I can tell Siri to turn on my Living Room lights, and all the lights associated with that Room turn on.

Once you've set up one or more Accessories and Rooms, and put the Accessories in the appropriate Rooms, you're well on your way to automating your home or office.

Just as Accessories are tied to a Room, so are Scenes, which are collected actions for your Accessories. In the next installment of this series, I'll discuss additional Accessory options, controlling your Accessories, and creating and using Scenes. 🗑️

Setting Up Rooms — Now let's talk about Rooms. As you might recall from "A Prairie HomeKit Companion: Core Concepts," Rooms are the second level in the HomeKit hierarchy, under Homes. HomeKit Rooms, of course, should match up with the physical rooms where you have Accessories. I have Rooms like Bedroom, Living Room, and Laundry Room. You get the idea.

You access Rooms in the Rooms screen of the Home app. In that screen, tap the hamburger button to see and switch among a list of your Rooms. To add a Room, tap that hamburger button, choose Room Settings, and tap Add Room.



CES 2017: Tech Trends to Watch

This year's CES began with two unwelcome realizations: 1) the USB-C connector on my Nexus 5X phone is considerably grippier to the cable than to its internal connections, and 2) my middle-aged tuchus apparently exerts a more considerable lateral force on both than I realized.

So I find myself at the world's largest tech show, where everyone is promising "futuristic" and "ubiquitous," and I'm deprived of a smartphone for 48 hours. (A new one is on its way; there's something to be said for \$250 base prices.) It's mundane to note how central a smartphone is to modern life, but that doesn't change how devastating it is to be without one: it's how I know where I'm going, how I get there, what I do along the way, and (when I'm working) a substantial part of what I do when I arrive. Instead, for at least two days, I'm going to be more reliant on a paper pad and pencil than I have since 1999. (And here I'll pour one out for my beloved [Palm VII](#) and [Sony Ericsson P800](#).)

In any case, welcome back to CES (formerly the Consumer Electronics Show), the annual Las Vegas bacchanal of approximately 165,000 attendees, thousands of exhibitors, and around 20,000 newly announced gadgets, gizmos, and networks that aim to be your next "so important I'd be lost without it" technology. I've received press releases on gear ranging from smart spoons and trashcans to infrared iPhone cameras and artificially intelligent telescopes, and I'll be writing about the slice of newsworthy technology that I'm able to see, because everything here happens in dozens of venues simultaneously spread out over the entire city.

I'll also try to convey what it's like to be here. CES is a closed show for industry and press, and while it's exciting, more of my colleagues on Twitter seem to be expressing joy that they're not coming than looking forward to working the show. It's fun but also akin to surfing during a hurricane. CES is the kind of event where, when I took a break, I was thankful for the relative peace and quiet of a casino. This is the 50th anniversary CES, covering 2.6 million square feet of convention space; the Consumer Technology Association, which runs the show, estimates that CES will be covered by 1000 more journalists than attended the Olympics.

I kicked off the show with a presentation by CTA's chief economist, Shawn DuBravac, who spoke about consumer technology trends in 2017. The first of these is the increasing adoption of voice technologies as a user interface for electronics. DuBravac discussed the switch to the GUI interface in the 1980s, then the use of smartphones in the past decade, and said that voice interaction removes the need for the screens that these earlier technologies required. Each of these interface approaches is, in its way, redundant; anyone who has worked with Terminal knows you can do nearly

everything from the command line. But taking excess CPU horsepower and using it for a GUI made for a transformative experience. Likewise, you interact differently with technology when you're talking with it, even if that conversation is an "unnecessary" additional way of doing things.

Voice recognition has made massive improvements in the past 20 years. In 1995, 100 percent of all input resulted in voice recognition errors, but today, technology is about as good as humans are at understanding what you say. (People have trouble recognizing what's said about 5 percent of the time, apparently, so maybe you're being unfair to Siri.)

Voice interaction is the emerging interface for robots and other technology similar to [Amazon's Alexa](#) or [Google Home](#). DuBravac called this a new era of "faceless computing," where you can get things done while looking at other things; color me skeptical about whether it's better. Yes, Alexa can call you an Uber, but I like having my phone show me that the driver is picking me up in front of my house, instead of the back alley that Uber keeps sending them to. That said, for casual interactions, voice is excellent. Look for new capabilities to make this better, such as services that can tell who is speaking based on their voice-print, allowing for things like customized search results and parental control of their kids' interactions.

DuBravac's next trend is the infusion of artificial intelligence into a wider range of applications. The falling price of both chips and software allows for reasonable intelligence to be installed in just about anything, although I think there's too much hype around both the terms AI and "smart," which can apply to nearly anything. Is a refrigerator with sensors and a computer chip "smart" or "artificially intelligent?" No... but on the other hand, it might take care of small chores that no human would bother to do, like micro-adjusting its temperature to best suit the foods it's storing.

Likewise, it's a bit hard to tell when a new device is usefully smart, or when it's taking "smart" a step too far. For example, it would be trivial for a washing machine to count the number of loads it has done, keep track of how much detergent you have left, and automatically order a refill when you need it. Alternatively, you can buy an [Amazon Dash button](#) and push it when you need more Tide. Or you could just remember to buy detergent. DuBravac suggested that in the future, maybe 40 to 50 percent of all of our household purchases could be made by designated agents like smart washers.

I have no issues with removing minor annoyances from my life, but it seems a bit Brave New World to me if my appliances do my shopping without any interaction on my part. Perhaps I want to change detergent brands, or some

friends gave me an extra bottle when they moved, so I'm not out when the washer thinks I am.

Beyond that, I note that this futuristic vision requires an affluent lifestyle that reliably remains affluent. I doubt the average person living paycheck to paycheck would be well served by having so many automatic deductions from their bank accounts, and woe to the laid-off person who suddenly needs to remember to cancel a hundred different automatic orders.

This leads us to the smart home, part of DuBravac's next trend, that of widely connected everything-to-everything. He compared smart homes to the adoption of the dishwasher, which was invented in 1893(!), but took until the 1980s to make its way into half of U.S. homes (penetration is around 80–85 percent today). The jump in adoption didn't happen until the necessary infrastructure was adopted after World War II: indoor plumbing, electrification, and the standardization of kitchen countertop heights.

DuBravac sees ubiquitous Wi-Fi and cellular broadband as the standardized countertop of the smart home; it's the prerequisite that allows the smart home to be built up piecemeal, from many competing vendors, as opposed to the whole-house model that made little headway in the market previously. Smart home gadgetry will be a global \$25 billion market this year, with \$3.5 billion of that in the

United States. On the downside, market competition that allows on-the-fly adoption also makes for competing standards, which slows mass market adoption.

Rounding out DuBravac's home connectivity trend will be wearables that enable your house to monitor you. Whether it's biometric feedback designed to improve your health or interactive environment sensing that lets your home know whether you're there and where you are, technology you carry on your person will integrate you into a data set about your home, which will let your home be responsive to your needs and expectations.

The path to making smart things smarter comes from the interconnected nature of many of these devices; when one device senses an error condition or learns something new, it can improve the responsiveness of all other devices in its class. That's how self-driving cars went from an 11-minute failure in 2004 to millions of test miles successfully driven on the roads today. This kind of aggregation puts many devices on an exponential learning curve, enabling rapid development from beta testing to seriously road-tested.

Of course, it's one thing to predict overall trends; it's another to see how 2017's devices are living up to these models. And that's one thing I'll be sure to look for in the demos at CES. 🐼

by Jeff Porten

Ideas from CES 2017: 5G in Your Future

One of the events I attended at CES was a panel discussion on 5G, the umbrella term for the next generation of cell phone network technologies. Industry watchers don't expect 5G to be widely available until 2020, but work is already underway to develop the necessary technology and standards.

Historically, new cell technologies are faster, and prices will be high at first but will eventually come down to "normal," with different people deciding what's reasonable to spend. 5G will likely be different, however. Yes, it will be faster, breathtakingly faster, in fact, with peak speeds of perhaps 26 gigabytes per second. (Yes, that's bytes, not bits.) But 5G will be better in numerous other ways too, which could make what we're using now seem rapidly antiquated, in much the same way that a modern broadband connection isn't merely faster than dial-up.

This raises a chicken-and-egg question, though: what exactly would we do with networks that are this fast? Do we really need streaming 4K video on our phones? Will we look back on our current video technology the same way one might regard a first-generation 3GP video today? What other

media and Internet services become available when such throughput is widely and reliably available?

I'll provide an overview of the session and then bring us back to Earth with an analysis of whether we'll get what's being promised. The irony of the session is that we were discussing multi-gigabyte cellular throughput in a hotel conference room that promised free Wi-Fi at 384 Kbps.

384 Kbps hasn't been considered a decent Internet speed for years, and selling 1 Mbps service for \$15 per day is the very definition of "shameless." This disconnect with reality was good cause for skepticism in the room.

Goals for 5G — No one on the panel talked about 26 gigabytes per second; that came from the descriptive materials that CES published before the event. Interestingly, the [Wikipedia page for 5G](#) says that faster speeds are not a goal, so I'm unsure where the Consumer Technology Association came up with it. Is it a technical or marketing goal, or something that just naturally pops out of technology in current planning? Why not 8 GBps, or 100 GBps? Pretty much any number in front of "gigabytes per second" is a major improvement on what we have now.

But it's not just about speed. 5G is designed to have much lower latency than current wireless services. Latency is the amount of time it takes for the network to figure out what to do before it actually happens; if bandwidth is analogous to the amount of water coming out of a garden hose, latency is the amount of time between turning the spigot and the water first spurting out of the hose. Some latency is unavoidable because the speed of light can be annoyingly slow for some purposes, but we humans perceive actions as instantaneous when latency takes only a few milliseconds. This could blur the distinction between what's in the cloud and what's on our devices; if we download something the perceived instant we press a button, what difference does it make if it's local or on a server?

5G will also support extremely low-throughput, low-frequency data that will be useful for Internet of Things devices. On a 4G network, a network-enabled sensor needs to be on the network at all times, which kills its battery life. 5G will include protocols that use far less power, enabling devices that can run for years without a battery recharge or replacement. In keeping with the belief that far more of what's currently not "smart" will be network-enabled in some way, 5G networks will be able to handle far more devices on a single cell simultaneously.

Several panelists referred to 5G's capability to do this as "[network slicing](#)." I've been unable to find a reference comprehensible to the layperson on how this magic takes place, but in effect, a network slice is a guaranteed slot of airtime and bandwidth to a 5G device granted by the cell tower. You don't need to worry about dropped calls or temporary Internet data brownouts; the connection to the network is a guarantee of high service quality. This in turn allows for different expectations of what can be done with the network. For instance, it's not a big deal on 4G if you can't get through to Netflix for ten minutes, but it could be a bigger deal if a hypothetical robotaxi loses connectivity for that time. (That said, increased network reliability makes it easier to sell time-limited services like movie rentals if no one is concerned about download time or jittery connections.)

In theory, the promised nirvana of 5G is that the network is so fast and so reliable that we forget it's there. If you're not sure how different that is from today, think about how often you check the bars on your phone for signal (or Wi-Fi bars in your Mac menu bar). 5G hopes to be so reliable that those indicators can go away. Ask yourself how certain you'd need to be about network connectivity before you'd be willing to let those bars disappear.

5G Timeline – For devices and software from hundreds of vendors to interoperate effectively, a standard must first be drafted so that everyone can build on the same platform. These standards are recommended and issued by a cornucopia of acronym agencies, including the Next Generation Mobile Networks Alliance (NGMN), the International Telecommunications Union (ITU), the 3rd Generation Partnership Project (3GPP), and the Institute of Electrical and Electronics Engineers (IEEE). It's unclear to me which,

Regardless, standards are voluntary, so it's more a question of getting everyone to agree on technological protocols than bureaucratic ones.

The panel was consistent in suggesting that 2020 was going to be when most people (presumably, in technologically advanced nations) would get their first taste of 5G; Wikipedia is less optimistic, suggesting the early 2020s for when the final standard would be released. Draft standards will exist between now and then, but because the drafts can and will change, those buying hardware (or companies investing in networks) may suffer an early adopter penalty if their devices aren't fully compatible with later drafts or the final standard. So while a [5G modem chip is already available](#), don't rush out and buy devices using it.

5G deployment may be delayed in the United States for two additional reasons. The first is network investment; our telecom carriers invested heavily in 4G LTE networks, and they may balk at moving to 5G until they've effectively recouped that investment.

Second, as with earlier networks, rollout in the United States might also be delayed by its vast rural geography, as well as relatively light regulation for cellular networks, whereby the major carriers decide their own plans for upgrades and competition. Nothing that I've heard of in 5G allows for wide-area coverage from a single cellular tower, so urban areas will almost certainly get 5G coverage first — along with major arterials between cities. Less-populated areas will lag behind.

Beyond that, of course, your devices must support 5G before the fancy network does anything for you. Some manufacturers will introduce it early to compete on technology, but if Apple isn't among them, you'll have to wait longer for a 5G-enabled iPhone.

Depending on the cost of 5G chips during the early adoption period, you may see more 5G networks deployed to compete with existing home cable and fiber networks, with standalone modems coming in more cheaply than those small enough to fit in a cell phone. (This would be excellent for people currently living under Internet monopolies, but again, the less dense your population, the less likely you'll see rapid 5G buildout in your region.)

In any case, South Korea's SK Telecom has committed to having a test 5G network up and running at the 2018 Pyeongchang Winter Olympics, so you're about two years away from hearing breathless news articles about a network technology you won't be able to use yet.

Potential Uses of 5G – It would be wonderful to live with a technology where we truly forget about networks and coverage, and everything just works all the time. When I'm traveling, I ritually check my cellular network signal in every new hotel room and then compare that to the speed of the local Wi-Fi. In most large hotels, the quality of both varies widely based on room assignment.

I can see a near-perfect network being possible in urban areas, but I don't see how it could work as well in the countryside or tricky locations like subways and elevators. Barring some breakthrough technology for piercing radio dead zones, the laws of physics will have their say. 5G networks will allow for simultaneous use of multiple radio frequencies, and some are better than others for penetrating substantial physical barriers, so you can expect some improvement. But in general, some frequencies are good for lots of data, and others are good for lots of distance or obstructed connections to a cell tower. If you're in a zone where you're relying on lower-frequency penetration of lots of physical objects, you won't get the best speeds.

Vastly higher maximum speeds might also enable new media that are inconceivable today. The most obvious of these are virtual and augmented reality services that would strain the networks and phone bills of current 4G users. One panelist mentioned a VR program that requires several gigabytes to download; that's limited to your home network now. Plus, 5G's low latency is necessary to prevent motion sickness for VR users.

Imagine if virtual and augmented reality apps became as commonly used as mapping apps are today. That would be a sea change in both how we interact with mobile technology and what we require of our networks. Similarly, wearable technology becomes much more important when there's a steady stream of useful data about our local environment being fed to us.

Finally, we've already seen the start of personal broadcasting, but 5G could make it big news. Current networks are geared for around 90 percent downloading and 10 percent uploading, on the theory that people are more interested in getting than publishing data. 5G is expected to put equal emphasis on upstream and downstream traffic to support autonomous vehicles, remote surgery, and other scenarios where plenty of upload bandwidth is crucial. Consider too the debates about whether police should wear body cameras at all times; 5G could create an environment where anyone could choose to wear one and make it public with a button press or a voice command.

From Predictions to Reality – I am, to use the word from the name of the panel, "stoked" about 5G and its eventual adoption, but I'm less optimistic about how rapidly we'll see these benefits. First, there's no agency in charge of making sure that what's being sold as 5G is truly 5G. Just as some augmented 3G services were marketed as being 4G before 4G was widely available, I expect the same thing to occur with 5G.

The biggest problem isn't technology but business models. It's as silly to apply 2017's network pricing to 5G as it would be to think of our current broadband connections in terms of the AOL "pay by the hour" pricing plan. But some things about pricing models have been extremely sticky. Data caps have rarely been removed from provider plans, and even then, an unlimited data connection seldom takes advantage of the fastest speeds a network can

provide. It's still common for types of data (generic data, streaming video, and tethering, for instance) to be metered at different rates. On my current data plan, a 5G connection could run up bills of \$100 per second. The last thing I want is technology that makes me more frightened about what background apps on my phone can do when I'm not paying attention. Obviously, \$100 per second isn't going to be the pricing model (but don't be surprised by scattered reports of people with \$20,000 phone bills), and it would be difficult for nearly anyone to consume so much data in any real way, but the point stands: we don't know what 5G's pricing model will be like.

To me, the true breakthrough would be technology that requires less of my attention, not more, and that means business models without caps or metering. Even more revolutionary would be to eliminate the current necessity of thinking about various tasks as requiring different places. Despite the fact that LTE is faster than many public Wi-Fi hotspots, I still have to think in terms of "what I do at home," "what I do at Starbucks," and "what I do when I'm relying on my phone" when I do my Getting Things Done planning. It strikes me as anachronistic that there are things I still have to do at home before heading out for the day and things that I can't do when on a long trip, but that's today's state of affairs. I'd be more excited about such a change than just about anything else 5G could offer, but I don't trust the phone companies to give us that.

Instead, you can expect service plans varying based on what the market will bear, even when the technology could enable revolutionary change. The [average cellular bill in 2014](#) was reportedly \$73, and I expect 5G plans to try to nudge that number higher. Granted, what you'll get for that amount will be a higher quality of service along various technological measurements.

What I'd really like to see is a technology that makes broadband speeds truly universal and affordable to all Americans. Here, my bet is on my personal carrier, [Google Fi](#), other scrappy third-party network providers, and to a lesser extent T-Mobile and Sprint, to come up with service prices that change how we think about our monthly phone bill. 5G could help make that possible, but it will be an uphill battle, given how entrenched today's major carriers are. Nonetheless, cellular network services, alongside frequently monopolistic home Internet services, richly deserve disruption. 🗑️



Software Review

watchOS 3.1.3 Information

Jan 23, 2017

System Requirements

- iPhone 5 or later
- Available via OTA through the Apple Watch app

This update includes improvements and bug fixes.

macOS Sierra 10.12.3 Combo Update

Jan 23, 2017 – 2.04 GB

System Requirements

- macOS Sierra 10.12

This update:

- Improves automatic graphics switching on MacBook Pro (15-inch, October 2016)
- Resolves graphics issues while encoding Adobe Premiere Pro projects on MacBook Pro with Touch Bar (13- and 15-inch, October 2016)
- Fixes an issue that prevented the searching of scanned PDF documents in Preview

iOS 10.2.1 Information

Jan 23, 2017

System Requirements

- iPhone 5 or newer
- iPad 4th generation or newer
- iPad mini 2 or newer
- iPod touch (6th generation)
- Available via OTA and iTunes

iOS 10.2.1 includes bug fixes and improves the security of your iPhone or iPad.

iTunes 12.5.5

Jan 23, 2017

System Requirements

- 400MB of available disk space

This update includes minor app and performance improvements.

macOS Sierra 10.12.3 Update

Jan 23, 2017 – 1.28 GB

System Requirements

- macOS Sierra 10.12.2

This update:

- Improves automatic graphics switching on MacBook Pro (15-inch, October 2016)
- Resolves graphics issues while encoding Adobe Premiere Pro projects on MacBook Pro with Touch Bar (13- and 15-inch, October 2016)
- Fixes an issue that prevented the searching of scanned PDF documents in Preview

Security Update 2016-003 Supplemental (10.11.6)

Jan 17, 2017 – 623.9 MB

System Requirements

- OS X El Capitan 10.11.6

The OS X El Capitan Security Update 2016-003 Supplemental Update fixes a kernel issue that may cause your Mac to occasionally become unresponsive.

Security Update 2016-003 (10.11.6)

Jan 17, 2017 – 717 MB

System Requirements

- OS X El Capitan 10.11.6

Security Update 2016-003 is recommended for all users and improves the security of OS X. 🗑️

