

Webinar Transcript - Internet of Things (IoT) Trackers

Today's webinar is titled The Internet of Things, IoT, Trackers. It is going to be presented by Wayne Nichols and Matt Powell. This webinar is funded out of a grant from the Bureau of Justice Assistance, which is a component of the US Department of Justice's Offices of Justice Programs and also includes the Bureau of Justice Statistics, the National Institute of Justice.

The Office of Juvenile Justice and Delinquency Prevention, the Office of Victims of Crime, and the SMART office. The opinions expressed by the presenters in their oral or written material are theirs alone and do not necessarily represent those of the National Criminal Justice Training Center of Fox Valley Technical College or the Department of Justice.

And I'm going to introduce your two presenters today. Your first speaker of today will be Wayne Nichols. Detective Wayne Nichols retired from the Henderson Police Department in August of 2020. During his tenure at the Henderson, Nevada Police Department, he worked ICAC-related investigations, including proactive enticement cases, peer-to-peer investigations, as well as being a forensic examiner.

His last five years were spent as a robbery and homicide detective. And since 2013, Wayne has consulted for Fox Valley Technical College, where he continues to teach other law enforcement investigators how to investigate online exploitation of children. Wayne holds a bachelor's and master's degree in criminal justice.

Your second presenter will be D. Matt Powell. And Corporal Powell was a Pennsylvania State Trooper for over 25 years, retiring this past January. Over the course of his career as a computer crime investigator, Matt has conducted proactive and reactive computer- and internet-based investigations, participated in the execution of hundreds of search warrants, and has provided computer forensic services to local, state, and federal law enforcement agencies, including the Federal Bureau of Investigation, the Department of Homeland Security, Bureau of Alcohol, Tobacco, and Firearms, US Secret Service, and US Postal Inspection Service.

Matt is a certified computer forensic examiner as an end case examiner, access data examiner. Matt now serves as a detective within the Indiana County, Pennsylvania Detective Bureau. He has instructed with the National Criminal Justice Training Center of Fox Valley Technical College since 2006, including investigative techniques, undercover chat, OS triage, and peer-to-peer classes. And with that, I thank Wayne and Matt for presenting today. And Wayne, it's all yours. Take it away, please.

Hey, thank you, everybody, for making it out today. We have a lot of information to cover in just an hour and a half. And I'm very thankful to my co-presenter, Matt. He has done all the heavy lifting when it comes to the Android side of these types of internet of things. And if you guys have seen me present in the past, as you guys know, I teach innovative approaches in ICAC investigations, as well as an iOS course as well for Fox Valley.

You guys know I'm an Apple fanboy. So it makes sense that they tasked me with talking about IoT trackers, specifically AirTags. So let's give you a quick rundown of what you can expect in this quick hour and a half.

Those learning objectives are going to include an overview of Bluetooth Low Energy. What is it? How does it factor into these AirTags, as well as Tile trackers?

Ultra-wideband is also important to understand that technology because that's going to assist, especially Apple users, in finding more precisely their lost item. We'll give you an overview of these trackers. And the focus today is going to be on both platforms, the Android side, what devices can you connect and find and track? And then on the Apple side, you've got a couple of options.

Even though we only have AirTags listed, technically you can find your AirPods. And if you guys have been following some of the technology advancements with AirPods, the AirPods Pro 2, these are now acting just as if a AirTag were with you. So it's important to note it's not going to be just exclusive to AirTags. And then, of course, we'll break down the common uses of these trackers. And unfortunately, like all great technology and things that are out there, there are going to be misuses of this technology.

So a quick summary here of Bluetooth Low Energy. It was created to provide reduced power consumption while maintaining similar communication range. It really has a focus on that battery life versus that high data transfer. So be mindful of that.

And those benefits really comes down to the duration in which you can operate an AirTag. For example, an AirTag, we're going to show you here a button-size device. This is exactly what it looks like. This bad boy can run on about a year-- a year-- worth of life just on that one single battery. It's not rechargeable. It is replaceable, but very easy to do.

With these Bluetooth Low Energy devices, there is a compatibility with mobile devices, tablets, and computers. And as far as AirTag goes, that's what you need to have to find your lost or stolen item. Now, the range of these devices continues to increase as the technology advances.

I recently updated this PowerPoint. I don't want to put an exact number. Because every time they release a newer, low-energy Bluetooth item, we continue to see a different range as far as how far or how close it can be tracked. So be mindful of that.

Regarding Ultra-Wideband, or UWB, very similar to GPS, but think of it more of an indoor platform. It really offers precision tracking. During a live demo here, I'm going to go ahead and just quickly toss this AirTag here behind me. And you'll see, using the technology from my iPhone 14, which has ultra-wideband, obviously, on it, it really allows you, the user, to really lock in and enable that precision tracking, even in a small room like this or a big room.

It's real time. It does work on multi-floors or multi-buildings. Admittedly, though, I think about last week. I was traveling. And I could not find my AirTags for the life of me. And I wasn't sure if it was in my bag. I wasn't sure if it was in my hotel room.

And so when I pulled my phone out, I wasn't obviously able to find it in my bag. So I just assumed that it was in my hotel room. As I began to go to my hotel room, I really didn't get that precision finding and alert until I was about six hotel rooms or six rooms down.

So it's not like I was on the second floor, and the iPhone told me to go to the third floor. So it does obviously support multi-floor and multi-building. But in real-world application, it may differ. So be mindful of that.

It does have the ability to penetrate walls and obstacles. That's the power of UWB. That's why Apple is all about this technology. And it's also known as pulse radio. Now, it can typically be discovered within 15 feet. This kind of goes back to this example last week when I was trying to find my lost AirPods Pro 2, which is really no different in the form of technology from an AirTag.

It wasn't until I reached that coveted 15-foot limit, then I was able to narrow it down as little as centimeters. Some devices out there that support ultra-wideband are going to be your iPhone 11 and newer. There's going to be some Samsung devices and tablets that also support that, as well as some Google Pixel devices that support ultra-wideband technology.

And there's a quick rundown, breaking down all of the devices. I got to tell you, moving forward, it's pretty clear your newer Android phones, your newer Apple phones or Apple devices, such as iPads, they're going to have this ultra-wideband technology on all of these devices. It's not just inclusive of phones, right? It also includes some other Apple devices, like your HomePod Minis, as I mentioned, your AirTags, which is what the presentation's all about, and then, of course, your AirPods Pro second generation.

I have these, right here, as a matter of fact. Again it's just the case. So if I remove the actual earbuds out of the case, the case itself is what allows you to enable that precision tracking. So just to give you a heads up on that. So let's go ahead and get into it, talking about these trackers.

We're going to go ahead and start things off with the Apple side. And then I'm going to go ahead and turn things over to my colleague Matt to give you a rundown on these Android-supported devices. So I've said this before in previous courses, you're only going to become knowledgeable about the technology if you are using it, if you have it.

Obviously, if you're an Android user, what you decide to use and practice with might be more applicable to these Tile devices or other Android-supported devices. But these AirTags have really been a game changer and not all good. There's going to be some bad out there. So I'm glad that we have a lot of users today, or a lot of attendees that are users as well

I think one of the things that we're used to seeing, especially as an investigator, is these news headlines. And here, you'll see a couple of hyperlinks. Let me go ahead and just pivot here to my browser.

And you'll see, just today I did a Google search in the News section for AirTag news headlines. And it seems like every day we are seeing stories like this, where these devices are being used to stop people. They're being used for all of the wrong reasons.

I found this-- not humorous. I'm a dog lover, so I'm not cynical. But I found this interesting, right? What happens when your dog eats your Apple AirTag? That's a story that I'll have to add to to-read list.

But you can see a lot of it, what we see in the news, is going to be synonymous with activity of stalking. Or once in a while, you'll see a great story of somebody who was able to find their lost or stolen items. So I always keep track of these headlines.

Personally, I use AirTags. I've got one in my backpack. I've got one in my vehicle. My daughter, who just turned 16, she began driving. I've got one in her vehicle. So I kind of like the idea that something as cheap as \$20 allows me to do what maybe I might pay a significant service premium for, like LoJack. And again, LoJack's a great product out there. It has its place. But again, I think AirTag is really a game changer in the consumer finding item sort of a catalog of services that are out there.

So I'm sure you guys maybe even not only have seen stories. Maybe you've got cases, as well. So I'd love to hear from you in the chat or the Q&A. Throw it out there if you yourself have been tasked with following up on a stalking case. Were you successful? Was Apple able to give you the information that you needed? And we'll talk about the information that you're going to be able to request.

So let's talk about how the AirTag works, how to find a lost or stolen AirTag. Remember, it is going to rely on that Bluetooth and ultra-wideband technology. We'll give you a rundown of the Find My network. When you have the AirTag, you essentially have to enable a couple of crucial services on your Apple device in order to connect, and then subsequently track your devices.

We'll break down lost mode and how it's really important. If this item is not in loss mode, you're not going to receive regular updates of where your devices are. It's only until you actually enable lost mode that you're going to be able to have frequent contact with where your device was last seen.

And then we'll give you kind of what Apple's been trying to do since this device went live. Even as recently as a couple of weeks ago, Apple continues to push out firmware updates for these devices. And a lot of the firmware updates really are aimed at combating unwanted tracking or stalking. So be mindful of that as well.

We'll talk about disabling AirTags. And of course, along the way, we'll give you some live demonstration. So how does the AirTag work? We're going to break it down.

As I mentioned here, you can see in my photo or my live webcam, an AirTag is really nothing more than a quarter-sized Bluetooth tracking device, right? It's pretty small. I don't know that it would be comfortable in a wallet. But as far as putting it in your backpack, your luggage, your dog's collar, it's very, very lightweight. You forget that it's even there.

Again, it was really designed to assist with you finding items. Apple's very clear about its intention with these devices. That's car keys, luggage, vehicles, pets. I don't even think they really would consider vehicles being on that list, but that's what I use it for.

It is powered by a single 3-volt battery. And as I mentioned, I'm receiving about a year's worth of battery life. And that's got me doing active demonstrations. I've also left an AirTag in my off-road vehicle, which was at some point parked out of state for quite some time in very, very cold, frigid temperatures. And I was still able to get a year plus out of battery life.

It's not a rechargeable battery. You have to replace that 3-volt battery altogether. How do you activate an AirTag? So activating an AirTag is relatively simple. How simple? Before this presentation, I thought, how am I going to be able to do a live demonstration every single time? And it's not going to happen.

So I made a video. And truly, it took me about 30 seconds to connect and activate my AirTag. That's how fast of a process it now takes. So it is important to note that AirTags can only be paired with iPhones running iOS 14.5 or later. So if you have much older or legacy Apple phones, it's not going to work. You have to be able to run 14.5, the iOS software, to be able to run those.

Now, Two-factor Authentication, Location Services, Find My, and Bluetooth must all be activated. And truth be told, I like that two-factor authentication is part of the requirement. I go back to, you are ultimately hoping-- if you have an AirTag investigation, the name of your game is to be able to see who owns that device. So the fact that a potential bad guy, bad character, a stalker, if they're going to deploy a device like this, I like the idea that they have to have two-factor authentication, which means there's some verification on their end of who they really are. And I think that ultimately helps you down the road when it comes to your legal compliance follow up and hopefully the results that you get.

Now, after holding an unpaired AirTag-- the keyword being unpaired-- next to your phone, you're going to go ahead and see a pop up. And you're just going to go ahead and follow the prompts. It is important to note, currently, an AirTag can only be paired with a single user. If I were to tell you personally what I wish it were able to do, this is one that I wish. I wish that I could allow my family members to see these devices.

So for example, if my daughter driving her car, she's not able to see the location of her vehicle unless she has an AirTag that belongs to her, is sent to her account and her vehicle. So even though we're on the same family plan, she is not able to see my AirTag. Only I can see my AirTag that are synced to my Find My Account. And I think Apple did this on purpose because they want to make sure that if legal compliance comes their way, it comes back to one person, right?

They don't want this idea, like, well, this tracker is used amongst four or five, six people. So currently, they only allow one tracker per single user. But that's a good thing for maybe you in law enforcement because you hope to be able to track that device back to a single user, not, let's say, two or three people in a family. So it cannot be shared amongst family and friends.

Let's go ahead and give you a quick video. And now, this video has no audio. But notice here-- I'm going to go ahead and hit Play on this. Look how easy it is. Now, this was literally recorded earlier.

You'll see here, this is me holding my unpaired AirTag next to my phone. It's giving me the ability to name that. I just chose The Backpack. You'll see here that just like that-- this is not sped up for time-- it's telling me real time that this AirTag is now connected to my phone number, as well as my email address. And right here it's telling me now that this is going to be sensed with my Find My app.

Again, this is all real time. Now let's go back to the Find My app. And you'll see here that this newer AirTag now populates, amongst the other tags of the other AirTags that I have. And there, you guys can see, that's my real-time location from here. I'd be able to enable play sound, or I can find it, or I can list it as being lost or stolen. So that's how quickly-- and I truly did that here just before today's presentation.

So let's get into finding an AirTag. Now, an AirTag essentially emits a Bluetooth signal that anonymously connects to nearby Apple devices specifically that have the Find My Network turned on from their device. Now, this is important because it's not as though every iPhone out there is having this anonymous handshake, or digital handshake, I should say. It's only those devices that are nearby that are participating in the Find My Network.

But I'll tell you from experience, most Apple users have their Find My Network turned on. You want to know why? Because they want to be able to find their lost or stolen iPhone. But if they are participating in the Find My Network, they're not only able to find their devices. They are anonymously able to help others find their lost or stolen devices.

Now, when a nearby Apple device connects to your AirTag, the location of where the AirTag was observed is uploaded to the cloud. Now, this is not even seen by, let's say, somebody walking past my AirTag, right? This is all done behind the scenes, unbeknownst to them.

But when that information is uploaded to the cloud, the AirTag user, and only that AirTag user, can see that location data. Apple's made it very clear that they can't even see that information. So that's also important to note. Apple has created a product where, yeah, they might be able to tell you who owns that AirTag. But you're not going to be able to send them a legal request to say, hey, where is this AirTag currently located? Only the user with those user credentials and two-factor authentication's going to be able to follow up and find their specific AirTag.

Now, it is important to note the exact location could vary based on the strength of the Bluetooth signal that encountered the AirTag. I always think about my dog. I live nearby the desert. And if I have an AirTag on my dog's collar, and he goes running into the desert and he's missing, it's not as though I'll be able to log in to Find My and be able to immediately find his location. It is depending on my dog encountering other nearby individuals that might be on a walking trail or in the desert.

So you have to remember the whole technology simply relies on the Find My Network and the hundreds of millions of other devices that are out there that are participating in that Find My Network. But I often bring up that desert scenario because you may not always be able to find your lost or stolen item in real time. Now, AirTags can also be found by two additional methods.

Using the Find My app, you can activate the AirTags chime. So right now, if I want to go ahead, and let's say I couldn't find this, but I know it's in the room. I can simply go ahead and activate the chime. And from that audio cue, I would be able to find its location.

And then we go back to what we talked about earlier with the ultra-wideband technology. We've got precision finding. And I'm going to go ahead and do a live demo on that shortly.

Now, finding an AirTag, when you turn on that chime, you have to do that from the Find My app, right? So you can't just activate it, unless you actually have the Find My app and, of course, you have that AirTag synced. Finding an AirTag via the ultra-wideband, very, very similar, you're going to go ahead and launch that Find My app. And this time, when you look for your item, rather than enabling the chime, if you're close enough, you can go ahead and get nearby direction.

So let's go ahead and give you a live demo here. So I'm going to go ahead and take this AirTag. And I'm just going to go ahead and toss it here behind me. I'm in my home office here. And you'll see on my phone, I'm going to go ahead and launch Find My. Now, Find My, we're going to do a quick demo as this. I can also find people. I can find my other devices that I'm currently logged into.

On the family environment, I can find my son, my daughter's devices. But here we have items. And these are all of the AirTags that are currently registered to my account. You can see I've got one in my vehicle. I've got one in my off road vehicle.

And then I've got this backpack that I just created here before the beginning of the class. Let's go ahead and click on this. And right off the bat it's giving me some good information. Of course, the information's pretty accurate because I'm in immediate proximity to my AirTag.

But let's go ahead and do Find Nearby. And why and I enable this right off of the bat it is looking for my paired AirTag, right? It's not going to be able to find anything yet but my paired AirTag. And right now, you guys can see, I'm going to go ahead and lift my phone up here. And on your screen you can see here I am slowly beginning to navigate towards where this device is.

And look what happens on the screen. The minute I get within three feet, I can now begin to turn my phone directionally. And you will see here, at some point, it's going to actually say, hey, why don't you get a little bit closer. Let me, of course-- I was waiting for the arrow to pop up here.

Let me see if I can get-- oh, there we go. I was hoping to get-- as I go away, it should implement an arrow. Did it do the arrow? No. Oh, there we go. Ah, sometimes you'll see an arrow, where it actually tells you where to go.

So right now, I am just simply taking my phone. And you guys can see on my screen, I'm turning the directional portion of my phone. And then right there is where I get, oh, OK, this is nearby. And then from there, I can also enable. So there you have it.

Now, if this-- and we'll go ahead and turn this off. If I were to be looking here for my vehicle, let's take a look here at the F-150. If I were to find my F-150, this thing is parked outside of my home. So I'm not within that ultra-wideband proximity to start getting those alerts.

Now, would I be able to see where I think my vehicle last was? Yeah. It's right here on the map. So I could go to that area of where I'm looking for my lost or stolen item. And then at some point, when I get into that, I think the 15 foot is that sweet spot, where you're going to start seeing what you saw here, when I was doing the demo on the backpack AirTag that's out there.

So we talked about finding an AirTag. Let's give you a quick rundown on that Find My Network. So--

Excuse me. Wayne, a couple of questions. Would you like them now, or would you like them later?

Yeah, let's do it, brother. I'm sorry. And I'm only rushing because it's our first time, by the way. So I want to make sure I get through these slides, do some live demos, and not take any of Matt's time. So, yeah, let's have it.

So the question I think that's related to-- there's two questions in the Q&A. But the one I think that's most related to what you're talking about now or just talked about is if you pair an AirTag, can you transfer it to another person, in some way, to another device owner? Is there a way to do that? And the second question that's up there-- I'll give you both at the same time-- a little bit different. If someone's being stalked-- I'm sure you're going to talk about this later-- is there a way to stop the tracking device so the person that's doing the stalking can't see where the AirTag is?

Yeah, great questions. And I do apologize. So Mike, thanks for interrupting me. I like that you're stopping here. So I see that Patrick asked the question. And Vicki, thank you so much for your question. Vicki, I'm going to go ahead and table your question because we are going to get into the unwanted tracking and how you, or how a user or consumer would be able to stop that unwanted tracking.

Let's start here with Patrick's question, can a paired AirTag be moved with cooperation from the device owner to another device? And the answer is yes. But my son, for example, wouldn't be able to take that device and pair it to his phone, unless I have gone through the steps or unpairing.

Now, you can manually enable a nonpairing sort of event. And I think that involves you removing the battery from the AirTag. So let's just say I find an AirTag. No one comes forward to claim it. There's no user information associated with the NFC contact info.

I could go ahead and remove the battery-- I think it's three times There's a series of manual steps, where you can basically completely unpair that from its paired device. But the easiest way to be able to enable that transfer, Patrick, would be if you-- like for me, if I go to my AirTag right here-- and we'll go to the live demo.

If I go to my AirTag, and I remove this item, I have to first remove that item. If I don't remove the item, then there is a manual way to do it. But if I'm not mistaken, it takes a couple of steps. And I think it involves you having to obviously have the AirTag. You've got to remove the battery three times There's a whole sort of steps in succession that have to take place as well.

And Jason, I see your question as well. We're going to go ahead and also table that Tile question because Matt's going to be on deck in just about 15 minutes here. So Mike, I appreciate that. And again, I will circle back to Vicki's question, if we want to leave it in the open Q&A queue.

So let's talk about this Find My network because the Find My network is, I think, as an investigator, we need to ask the questions, right? And it's not just these AirTags, right? We think about all types of IoT devices, right? It could be phones. It could be a Mac computer. It could be people.

So the Find My is the one app that allows you to find all of your items. And it also allows you to find people, as well, that allow you, or that allow their location to be shared as well. So let's give you here a quick rundown. We're already in the Find My app.

And if you guys are following along, I'll go ahead and close this out. Again, I'm going to go ahead and navigate to the app called Find My. And we'll start off with people, right? My son is in My Find my circle, so to speak. And I can actively see where he is located at. This is why my kids probably dread technology because there he is, at school.

Let's go and look at devices. And yes, guys, when I told you I was an Apple fanboy, I was not kidding. Take a look at all these Apple devices. And all of them offer me the ability to find where these items are currently located. So we also have this technology just within a MacBook Pro or, let's say, an iPad.

Or can see here, I can also find my son's devices. I can also find my daughter's devices. So this is also very useful if my son or my daughter lose their items as well. And then I showed you guys earlier the items that are out there.

And then I've got me, right? I can decide whether or not I want to share my location. Do I want to share it from this phone? Do I want to share it for maybe another device? So there's a lot of options that you can do. And again, I always go back to if you're working a missing person case or an endangered runaway, one of the first things that I would think about asking that family is, does anybody have an app like Life360? Does anybody have an app like Find My, where maybe that parent, that friend, that roommate, that spouse, they don't even realize they have the ability to find that person's location.

But remember, items, just like you guys see where I can see my son's devices and he might be able to see my devices, he's not going to be able to see my items, which is AirTags. I'm not going to be able to see AirTags he has associated with his account. So you're only able to see from that user's Find My AirTags that they're actively logged into. I'm not going to be able to see other ones as well. So be mindful of that.

And Vicki, I see your question as well. Let me circle back here in just a get through this. And I promise you, I'm going to go through your scenario here.

So enabling lost mode, this would be what you would do if you lost your backpack, if your dog was missing, in my case, if my vehicle was stolen. So if you've lost an Apple device that has been registered to your Apple account and-- the big one, and has the Find My turned on, you can activate lost mode. Now, it's also important to know that Apple does support very limited third-party devices. So something like an electric bike or some Belkin earbuds, those third-party devices may be supported within that Find My application as well.

Now, by enabling lost mode, you can add a message and include contact information. So let's say I leave my backpack at the airport. I realize when I'm on the plane I left it behind. I can immediately enable lost mode. And if somebody comes across that and there's a prompt on their phone, or let's say they see the AirTag affixed to the outside, they would be able to hold up their Apple device and retrieve that lost mode information, such as contact information. Hey, there's a reward. Or hey, I'm on a flight. Please help me on that as well.

Now that the AirTag has been listed in lost mode, the Find My network, essentially it begins to look for this device. So remember I mentioned earlier where I'm not going to receive alerts about where my vehicle is at or where my backpack is. But if I enable lost mode, this is where I'm going to start receiving these regular alerts saying, hey, your item has been seen at this location.

Remember, everything is done anonymously. So it's not as though it'll say, Mike Kalmbach's iPhone with this phone number saw it on this date and this time. It's not going to say anything other than, hey, your device was seen at this approximate location. And it really is important to note, it is just an approximate. There are so many variables.

If we're in a major busy area with consistent foot traffic, I would feel confident right that, OK, my backpack is here or my car is at this location. But I go back to that lost pet scenario. Remember, just because your pet was seen 34 minutes ago at a certain spot in the desert does not mean if you were to go to that desert it's going to be there. And so everything is contingent as to how often your lost AirTag is having that digital handshake with other nearby devices.

But if the AirTag is seen, you should receive a push notification with that last seen location. And this is also, I think, what Apple did not anticipate is people whose items are stolen or their vehicles are stolen, they're going to retrieve them. And so this is also the scary part of the reality of somebody saying, oh, there's my car. I'm going to go ahead and track it down my [INAUDIBLE]. I don't need to involve the authorities.

So let me go ahead and enable a lost item. And so one of the things that Apple makes it a little bit difficult is for you to enable lost mode when the proximity of my phone and my AirTag is so close. So I'm going to go ahead and enable lost mode on my F-150.

And one of the things here-- I want to go back here to the F-150. Take a look here, right? Recently, it was seen here at home, not by me, but by obviously another nearby, whether it's a jogger or somebody driving to work. That's the interesting thing about these devices. They're being seen not just by your phone, but other users as well.

So let's go ahead and enable lost mode. And you'll see here when I enable lost mode, it's going to say, hey, this is your AirTag you have titled F-150. What's going to happen once you initiate this lost mode? It's telling me. It's going to start notifying me when it is seen by other users. It's going to allow me to get a location.

And then if I want to, I can list, let's say, a phone number that I want to put there. Maybe I want to put a message on there. So essentially that would be how I enabled lost mode. And when it's enabled, now, when that device has contact or a digital handshake with another Apple user, it will immediately push out some alert. So that's there is how it's going to be for you to find your device after enable lost mode.

So Vicki, I go back to your question here. You would ask, can the signals for location be blocked? If someone is being stalked and they leave the tracking device with the police, I am wondering if police can block the signal? So Vicki, the easiest way to block the signal would be to literally remove the battery, right?

You would screw off the top, and that's the easiest way for you to disable the hard way. That's an actual easy one. The problem becomes is, what happens if you can't find that device, right? What happens if somebody believes they're being stalked? They're looking in their car, and they can't find it.

So I'm going to leave a screenshot here of Apple's response to this unwanted tracking slash stalking. There's an article that we included. And I'll read it here. So "we have been actively working with law enforcement on all AirTag-related requests we've received. Based on our knowledge and discussions with law enforcement, incidents of AirTag misuses are rare. However, each instance is one too many. Every AirTag has a unique serial number."

So think about this from a law enforcement standpoint. You are looking to follow up on this. So every AirTag has a unique serial number. That's a good thing for you as the investigator. "And paired AirTags are associated with one Apple ID, not multiple." That also helps you in your investigation. Now, "Apple can provide the paired account details in response to a subpoena or a valid request from law enforcement."

And they go on to tout how cooperative they've been and how they're able to help, obviously, reunite that person with their property. I want to hear from you, though, in the chat or even the Q&A. How many of you-- and what we can do is you guys can upvote a question. How many of you are not believing or have not had the same experience as to what's being described by Apple? And this is from their website.

So I'm not throwing shade. This is Apple saying that they consistently work with law enforcement. How many of you are going to say, yeah, you know what? I've had the opposite. I have not had that level of cooperation. Throw it out there in the Q&A. And again, you could be like, yeah, I've had a case, and I had little to no help, or I wasn't able to get that information back in a timely manner.

And then if you were also seeing this, and you've had the same in your law enforcement experience, go ahead and give it an upvote on that. But this is what Apple-- and I'll kind of monitor the Q&A here. But this is what Apple is saying that they will do in response to a law enforcement compliance request.

Going back here to-- and again, I go back to Vicki's question, how do you deal with this unwanted tracking? What's nice about the updates that Apple has pushed out in the last year plus is they are taking more aggressive steps in notifying that user who is being tracked, right? So Apple will now notify you via push notification within 8 to 24 hours if there is a nearby AirTag that has been separated from its owner.

And that's really an important scenario because let's say me and my son go for a drive, right? We go to the movies. We go to get some food. We go to the dinner. We go for a road trip. And that entire time, I've got my AirTag in my backpack, right?

In that scenario, my son is never going to receive an alert that there was an AirTag tracking his location. Why? Because it was never separated from me. So Apple just assumes if the person-- if I am traveling with Mike Kalmbach or if I'm traveling with Matt Powell, and I've got my AirTags with me, it's not going to give Matt or Mike an alert that there's unwanted tracking.

It assumes that if it's with the owner, then the person knows the owner is with them. It's only when that device is separated. So now let's say I take an AirTag, and I place it in my daughter's vehicle. And this is also what I love about Apple because Apple no longer treats family members as being exempt from these notifications, right?

And I think it's a great thing because you could have a family dynamic where a husband and wife are legally separated, but yet they share or they have a Family Share Apple plan. Apple no longer says, hey, we're not going to notify the wife. Apple will now notify anybody if that AirTag has been separated from its owner.

So in this scenario-- and I'm going to show you here a screenshot-- I took my son's AirTag, and I placed it in my vehicle. And I drove to a couple of locations without him. Not only did it emit a sound, which unfortunately you guys weren't able to hear I think because of the microphone. But it also gave me a real-time location of where my whereabouts were and what could have been potentially tracked.

So this is also some additional. And you guys would probably see this in the slides that were provided to you in the webinar chat. What we'll do is just in case we have any attendees who came late, we'll make sure that we push out the handouts at the conclusion of today's presentation. So you'll be able to see this.

And it kind of just breaks down everything that has to happen for you to basically stop this unwanted tracking. But let me show you here this demo. So this is a scenario. My son has an AirTag registered to his account. He leaves that AirTag in my truck.

And after about-- it truly wasn't even 8 hours. It was probably about 5 hours, right? So I began my journey in the morning. And by mid to late afternoon, this was the push notification that I had with me, right? And actually, you know what? This was probably a later notification.

But it says right here, hey, your current location can be seen by the owner of this AirTag. So this is what you hope, if there's a stalking case, right? You would hope that person says, wait a minute, what is this device that's tracking me?

The second screenshot shows exactly what could potentially be learned about my traveling habits. And guys, this is spot on. This shows exactly my house and where I went during this day of running errands. Now, again, Vicki, I know you asked this question. Take a look as to what I can now do, right?

So now I get this alert notification. I'm like, holy heck, someone's tracking my location. Is the AirTag on me? Is it in my vehicle? Is it on the outside of my vehicle, like the bed of my truck? Is it maybe in the gas cap, right?

There are so many scenarios. But this person would be able to click on Play Sound, and it would aid them in finding that foreign AirTag. This person, after receiving this prompt, could also initiate that live demo that I did, where they are finding the AirTag. So maybe they can't find the AirTag inside of their vehicle. But using their phone, they would be able to locate that foreign AirTag outside of their vehicle.

This is the scary one. And I'll tell you, this is what I think we should be concerned about from a consumer standpoint, not law enforcement. This one right here, pause tracking notifications.

Now, this is what my son and my daughter would do if they were like, oh, yeah, this is dad, right? He has these tutorial videos he makes, or he has these presentations. So this is nothing more than my dad placing an AirTag in my vehicle. I'm OK with being tracked.

Once you pause those tracking notifications, that's it. This person's not going to receive this prompt. And so I do think this is problematic, especially for the younger crowd because maybe someone who's younger might just assume, oh, it's my friend's AirPods, or oh, it's my friend, their device that was with me. So it's really important-- I'm actually fearful of how easy it is to pause these tracking notifications.

It doesn't mean you wouldn't be able to go back and find it. But this is also something that you should be aware of. Now, it does give you some information how to disable that AirTag. And quite simply, it involves you manually separating the battery from the device as well.

I see some questions that are here. Let me get through here these common questions. And then I'll pore over these questions. We'll allow Matt some transition time to jump on with the last half of today's presentation. These are some common questions about the AirTag. And Mike, do me a favor. If these common questions answer the questions that you see in the Q&A, we can go ahead and mark those as answered.

So what's the range of an AirTag? It's about 33 feet. Remember, when I showed you the demonstration of trying to find my F-150, my F-150's parked just outside of my house. But that exceeds that 33-foot range. And so unless somebody else, whether it's a neighbor, somebody walking their dog, unless somebody passes by my vehicle, that's the only way that I'll be able to get that location relayed to me. So it's not a satellite tracking device.

How about this, does an AirTag have GPS? And the answer is no. Remember, AirTag relies exclusively off of that Bluetooth and that ultra-wideband technology. So you're at the mercy of other nearby Bluetooth devices being able to relay that information as to where it was last seen.

How about this one, does the AirTag work with Android? And the answer is yes and no. And this is something also interesting, is that Apple has recently pushed out an application for Android users. Up until about 9 months ago, this was the big problem. Because if you were stalking somebody that was not an Apple user, that person on their Android's not going to receive that pop-up prompt like you saw on mine.

So Android now makes a Tracker Detector app. And Matt might address that a little bit. But if he doesn't, it is in the Google Play store. So yes, if you have a case where somebody says, listen, I have a feeling I'm being stalked. I don't know who it could be. One of the questions you might want to ask them is, do you own an Apple phone? If they say no to the Apple phone, you might want to instruct them to download this Tracker Detector app from the Google Play store.

How about this one, are AirTags waterproof? And the answer is no, they're only water resistant from 3 to-- sorry, for up to 3 feet of water for about 30 minutes. I actually find that to be pretty impressive, though.

And the last one, before we give it over to Matt, can you track a moving vehicle? And the answer is no. It seems like Apple does not allow for that real-time, live tracking. It seems like every time I received an alert that I had my son's tracker with me or, let's say, my son receives an alert that he's being tracked, it's not going to be while he's on the move. It's going to be when he parks his vehicle or when he remains stationary.

That might differ for some of you. But I have not been able to receive any alerts while I'm driving real time. I only receive the alert after I stop. And so that might be something to keep in mind. Because you've got a vehicle that was just stolen. I don't know that you're going to be able to track it real time.

So there you have it. I'm going to go ahead and stop sharing here and. Then Matt while, you come on, let me go ahead and take a look here at these questions here. And I'll start at the very top here. Deric with a C, my man, thanks for making it out today. Is that specific to AirTags only? Is the same capability available with the Apple Watches and AirPods?

Yeah, Deric so what we're seeing is the Find My capability does extend to other devices. However, the Apple AirTag has that ultra-wideband technology. So if I lost my watch, I don't know that I'm going to be able to find it. You saw that great directional map out there.

Josh says, are there dates and times provided with the location info when lost mode is enabled? Josh, thanks for making it out today. And the answer is no, I have not seen dates and times. What I have seen, though, is that my phone was located 30 minutes ago, or my phone was located approximately at this time.

I've seen it, though, where today, I actually was surprised to see an exact time. But a lot of it's going to be an approximate. I've also done testing where I know that there is another Apple device in proximity of that AirTag. And yet it didn't give that real-time update. So I don't quite know the rhyme or reason as to why the AirTag only updates.

Darren, thanks for making it out today, my friend. We had one case since the AirTag was purchased on Amazon. There was more steps involved. Yeah, so it sounds like maybe the point of purchase was difficult for you. But hopefully, Darren, you were able to get-- as long as that person obviously registered that AirTag to that device, hopefully they were able to do that

David said, Apple reps were unable to confirm what data they store in regards to AirTags. I was provided web articles that did not address the information. Yeah, David, I always go back to sometimes it's best just to read that information here. And I took some of those screenshots directly from their website. I'm sorry you had those difficulties as well.

Caden says, what would cause a map to appear similar to the one that you were showing, but a straight line from one location to another? So hold on, Mike, before you dismiss this because there's a second part. I think, Caden, what's happening is Apple is just showing an approximate path. That straight line that I showed you on my iPhone, I was like, yeah, that wasn't exactly the path that I took. So I'm not quite sure.

I think maybe Apple just looks at it like, all right, let's share with this person that they're being tracked. Let's give them an approximate travel location and path. I've seen a lot of straight lines as well. I don't quite know why it doesn't get more detailed. Maybe the bigger theme of the message behind Apple is to just show this.

And then Caden, you add, we've had a couple of cases where a victim can see this map with a straight line and, say, home to their work. Yeah, so it sounds like you've worked in cases as well. And maybe you've seen this where there's that theme of that straight line and not the exact travel path. But Caden, thanks for your question as well.

Christopher says, so do all students and teachers get alerts all day long when your kids are at school? Christopher, so glad that you asked that question because yes, that is why I had to stop with having an AirTag in my son's backpack. Now, my son, by the way, he just got his phone when he went to sixth grade. And so now I can track him via his phone.

But yes, that was a problem. When I dropped an AirTag in his backpack, it was causing a disruption. Students in his class, the teacher, yes, they were receiving the alerts. And I've got to imagine teachers now are probably used to that. And the teacher would probably disable that. But imagine if a teacher was being stalked by somebody, imagine the teacher's mindset of being, oh, this is just another student who came to school with an AirTag that belonged to their parents.

That's why it's also-- I think it's important as the consumer, we look at that map, and we see, OK where am I being tracked from, right? Because being tracked at school, in the playground area is different than being tracked, let's say, going to and from work.

And then Kyle, your last question, can you explain the pause tracking function a little bit more? If you receive a notification that an AirTag is moving with you and not yours, how long is the pause? Is the owner notified? So the pause tracking would be for-- and again, the pause tracking allows for that person to say, I do not want to be notified.

To my understanding, Kyle-- and I'm glad that you asked this question because I need to do additional testing on this. I have not received an alert when my son or my daughter have paused the tracking, meaning they do not want to be tracked anymore. And I have not received that alert. So I do apologize Kyle, in advance. I haven't done much testing as to what happens because you can. You can pause that tracking. You can also disable the AirTag. But more testing is in store on that. So I appreciate your patience.

And Matt, my man, sorry for eating up into your time. I know you're going to hit it out of the park. So I'll go ahead and turn it over to you.

Well, thank you. And if we have some extra time at the end, I'll open it back up to you, Wayne, because there's probably a lot more iPhone and AirTag users out there. So they may have some questions even after mine. So I will say just since we're talking about AirTags, I had one activated on a friend's account. And I have it right here. It was added. I threw it in my backpack.

And I was never notified outside of manually running the Apple Detector app. However, what I did find was last week while I was teaching, the two other instructors with me who had iPhones, when we got to the training facility, they both got notifications that they were possibly being tracked. And it was because that AirTag that was separated from the owner, who was many states away, was in my backpack. So they were being notified that they were possibly being tracked.

So I thought that was really neat. So they actually-- I wasn't with my-- I was teaching. And they couldn't figure it out. So they activated the chime. And they realized it was an AirTag in my backpack. So they didn't get too concerned. But, yeah, so those notifications didn't go out. I thought that was a little bit funny for those users. They were a little paranoid.

So we'll just touch on some of the trackers that can be used with Androids. The first is the Galaxy SmartTag. It's made by Samsung, obviously. And I know earlier in the presentation there was a slide that showed the relative size. So I will just kind of hold these up. So here, in my hand, you can see the three different-- we have an Apple AirTag. We have the Galaxy SmartTag, and a Tile. They're all relatively the same size. Except I will say the AirTag is just a little bit smaller and easier to get into if you need to remove the battery.

But with the SmartTags, they are paired with the SmartThings application. And I know that SmartThings is also an application that you can put on an iPhone. So I don't own any i devices. I leave that to Wayne. I have all Android devices. So my SmartTags I paired with my phone. And you can see that the favorites that I have, I have three tags-- ones in my carry on. I have one in my backpack. And I also have one attached to my car keys. And that's the one that says Tahoe Keys.

Now, those keys are currently in my vehicle. And it is parked outside. So similar to Wayne's, F-150, I cannot pick that up from here. The other two, you'll see the backpack logo and the carry-on logo are actually colored. And it says that they are either nearby or connected. And so they are right here in the room with me. So I do have that connection.

Now, the Tahoe Keys, if I click on that, it will tell me they're not near me. So I would have to click on the View Map to see has anybody else been in the area that also has the SmartThings app, using SmartTags, and was it picked up by another user? So very similar to AirTags.

The nice thing about these is that I can also, with the SmartTags, is I can actually set it so that-- there's actually a button. So I can actually squeeze this together. And it beeped. I don't know if you can pick that up. I know that the AirTag-- but I can actually make this-- when I press the button, my phone will ring.

So if I lose my phone, I can find my phone with the tag. Or the inverse is true. I can use my phone and activate a sound on the device itself. So you can see here I've clicked on the Tahoe Keys Map. And because I want to know where is it close to. Well, I was actually away training. And my daughter, unbeknownst to me, had asked my wife to use the car.

So I look, and I'm thinking, why is my car not at my house? And so I looked real closely and thought, oh, that's where my daughter works. So I was able to call my wife and say, hey, does our daughter have the car? She said, yeah, how do you know? And I said, well, the keys are indicating that they are in another town.

So you can see that, there on the left, they are at 208 South Main Street. And then I was in Oklahoma City. So then I switched back to my backpack and whatnot, clicked on the map.

So you can see where I'm in Oklahoma, and my Tahoe keys were in Pennsylvania. The fact that some other users had driven by-- my daughter has an iPhone. So she would not be the person that had alerted on the Samsung SmartTags.

So it was other users of the SmartThings app driving by in the vicinity that actually located my car for me. So I know Wayne kind of touched on that with the AirTags. So yeah, it really depends on the other users of the apps themselves to locate your stuff.

So let me go and do a live demo. So let me show you my phone. So I'm going to tap on the SmartThings app. And you can see there are my favorites. I can switch back and forth. I have favorites. I have all my devices.

So I can either show just stuff that's on the go, or I can show any devices that are actually Bluetooth paired to my phone. Now, other than the Bose headset, none of those other devices have that technology built in for the Bluetooth Low Energy. Therefore I kind of made favorites my on the go.

So I'm just going to tap on Backpack. And you can see it is connected. And if I tap on View Map, it does show where it's located. And I can see there are a couple of other devices at that location.

If I go back to the Tahoe Keys, it says it's not near me. Now, I can tap on View Map. And it will show the last place it was seen. Now, obviously when I was in my vehicle, it picked it up. I was in my car a little bit ago. So you can see that it is showing a map, and it is parked outside. However, that is not a direct connection right now. It is connected solely because it was seen by me.

I want to move into the Tile app. So Tile was probably one of the first trackers that I was aware of. I used trackers, Tile trackers, a lot, previously, just to keep track of-- you can see they have a couple different ones. The Mate is the one that's about the size of an AirTag. The Slim-- and I'm going to turn on my video here so you guys can kind of see me. So the Slim is about the size of a credit card. You can see it's very thin.

And I've actually been carrying that in my wallet. So if I was to lose my wallet, I could track it. It also has a button. And I guess it's not showing unless I put it in front of me. But there's actually a button embedded in it. And I can press it. And it will find my phone if I pair it.

Now, what I did was I actually disconnected this device from my account. So with the Samsung SmartTags, you can actually take it apart. So there's just a little slot that you can put a coin in, take it apart. You can actually take the battery out. Or there's a button in there where you can reset it. So you could reset it and then pair it to somebody else's account.

With the Tile app, you can't disable it from your account. What you have to do is you can transfer it to another user. So if Wayne, if I wanted to send my Tile Tracker to Wayne, I would have to go into my Tile app, and I would have to put in the email address associated with his Tile account. Then I could get that activated on his account.

But there's no way to just basically unpair this from my account. Short of the battery going dead and not renewing it, that's really the only other way. And what I do like about the Tile Trackers is right in the center there's a QR code. And there's also one here on the back of the Slim.

So there's a QR code that if somebody finds this device, they can actually scan the QR code. And I can set it up so it will either send me a text message or send me an email. But of course, I have to have those credentials in my account for either one of those.

So with the Tile app, what I will say is it was so popular way before SmartTags, way before AirTags, that I guess a smart thing on their part is, like 360-- and if I could get a show of hands. And if you click on the Reactions, there should be a Raise Hand button now available to you. Raise your hand if you use Life360. And I'm guessing there's going to be a ton of users.

If you use Life360 already-- I see a bunch of thumbs up. I see a bunch of hands-- you are actually, even if you don't own a Tile device-- tracker device-- you're in their ecosystem because Life360 purchased Tile. So very smart on their part. I know Wayne is a huge Life360 user. But you can track all sorts of stuff now through Life360 and Tile because they're the same company, basically, at this point.

So with Tile, I do like the Tile app a little bit better. This is a screenshot of the Tile app. You can see I threw-- I had the wallet, right? And I have one in my backpack So I had a SmartTag and a Tile tracker in my backpack. And then I also threw one in the cupholder of my wife's car. And that's the one that just says Tile tracker.

Now, you can see that yesterday it says that that Tile tracker was on rental car access road in Moon Township. Well, Moon Township just happens to be where the Pittsburgh airport is. So it was other people driving around the airport, driving around the parking lot area that picked up and notified me as to where that Tile tracker was. So at any time I could look and see, oh, yeah my car's still at the airport.

Whereas if it drove off, if they drive out in the middle of the woods, probably not going to be able to track that. However, if they drive into downtown Pittsburgh, other Tile users and smart-- or I'm sorry, yeah, the 360 users, they're going to alert me as to where that location is. So I see a picture there-- picture, question.

So all Life360 users can help a user locate their Tile Tracker on iOS and Android by picking up the device? I'm guessing when you say, picking up the device, I'm guessing you mean by being in proximity to it and locating it. Yeah, so that's kind of the idea behind all these trackers is the users of these trackers, as they're moving around and their device gets close enough that it senses that, that's what is locating the devices.

So that goes right back to Wayne's kind of demonstration where if his dog runs out into the desert, if there's no users out there, if he doesn't come close to a bike path where there's users, he doesn't run over into another neighborhood where there's users, then you're not going to be able to find that because it's dependent on these other users, their devices kind of sensing the location of those devices.

So let me do another demo on my phone here. You can see I've clicked on the Backpack app. And it shows me where I'm at. Again, I can activate that it's lost. I'm going to do that live here instead of showing it to you on the app. So let me get my phone back up.

So I'm going to go now to my Tile app. And I'm going to click on the Backpack. So this Tile Tracker right here is the one that was in my backpack just a few minutes ago until I pulled it out. So I can see the location history. I can see that I am connected. As you can see on the phone, it's kind of in color. There's a little green circle around that application or that icon, saying it's currently connected.

So if, for some reason, I'm scouring my backpack-- and I actually did that. I couldn't remember what pocket I put it in. I can actually tap on Find, and it will make this thing emit a sound. But, yeah, it's playing a little song. So I was able to find it. So I was able to locate this thing because in addition to that QR code on the back, there's a couple little holes in there where there's a speaker.

And I will say that the sound being emitted from the Tile is about twice as loud as what comes out of the Apple AirTag. So a lot louder. But you can see here that I have it set partway down here. Find Your Phone is on. So I can turn that on or off. Basically, if I double press the Tile logo on the front of this-- I have this turned on-- and my phone is now ringing. Hopefully, you can hear that.

So I get an alert. And now I can go find my phone. And the inverse is true. Again, I already tapped on Find. I was able to find the device itself. So that is what I like about Tile, is that if I lose my phone, I just need to have that device it's hanging off my keys. And I can find it. Or the opposite-- if I lose my keys, all I need's my phone.

If I lose both, yeah, I'm kind of in trouble. But back to the Tile app. They have a feature called Scan and Secure. You don't have to have a Tile account to use this. You can actually kind of search for this. So let me get back to my phone here. I'll show it to you in a minute.

But what happens is you have to be moving. So as you're moving around, it doesn't do it automatically. It's kind of tracking to see, hey, as you move-- so walk over there. You can't do it right here. Walk over there and see is something following you.

So it takes about 10 minutes to run. The Tracker app for the AirTags kind of does the same thing. It does a scan. You can't just make it alert right away. It takes about 10 minutes before you can have it make a sound for you.

But what I don't like is there is anti-theft mode. So I can put all my devices in anti-theft mode, which means other users won't be able to see my devices if they do a scan. So I don't know what prevents me from taking this Tile app, throwing it in Wayne's backpack, activating anti-theft mode, and then tracking him anyway. Because if he did the scan with the Tile app with that Scan and Secure, he would not pick up on that. He would actually have to find this in his backpack.

So I know all these companies are saying that they're doing what they can-- all they can to keep people from using these to track people unknowingly. That anti-theft mode, I think, is an oxymoron, if you will. They're kind of contradicting themselves with that.

But the feature that's on the SmartTags is kind of the same. You can put it in stealth mode. So Wayne, I'm not sure if they have that type of mode on an AirTag. Maybe you can kind of approach that when we're done. But, yeah, this anti-theft mode is kind of bad because I could throw this in my ex-wife's-- I don't have an ex-wife. But if I did, I could throw this in her car or something, put it in anti-theft mode, and she would not pick up on that.

What I did find was that when I did a scan, it does say, hey, we're detecting these different devices. There's a Mate, which is the smaller one. There's a Pro, and there was a Slim. And then it gives you an ID for those devices. So when I buy this thing, if I registered that device, you could hopefully do legal service to Tile, and they would actually be able to maybe come back with this is the person that registered that.

However, if somebody is using this for nefarious purposes, they're probably not going to register that to them. But if it was somebody that didn't know that you could go with legal service-- they didn't think the cops were going to get involved-- you may be able to track them down. So just a couple things left.

This is the app or the Tile Tracker that I disassociated with my account. And I actually activated it on another Tile account. And I threw it in my wallet. And I drove to the airport.

Now, I was hoping to get notification. Well, it didn't tell me. So it's about a two-hour drive. I didn't get anything. And I thought, well, this isn't working, right? I'm not going to get an automatic notification like an AirTag user would.

However, when I stopped and parked my car at the airport, this popped up on my phone, what you see on the screen there-- unknown tag detected near you. The only issue is I've had this thing for about two months, and that was the one and only time that I got that notification.

So I'm not sure how often it should be popping up. But I was only ever notified that one time that this Tile that's not registered to my account was with me. And it's been in my wallet for two months. So a little unsure. I'm still doing some testing to see if that would pop up more frequently or what all the kind of components would be with that.

We did the live demo. So I do want to talk about the Tracker Detect so that we have a few minutes left so that if there's any questions-- I know there's probably a lot more iPhone users. And there may be some more questions you guys have. But Apple's Tracker Detect for Android is a manual step.

So you activate the app. You do a scan. And it will pop up just like you see there, unknown AirTag first seen however long ago, et cetera. So, yeah, it's very manual in nature. I don't get those automatic notifications if there's an AirTag near me.

It'd be really nice if in the app you could set it, hey, I want this thing to scan once or twice a day or something like that. But they don't give us that option, at least at this point. But I did see where it's saying there's two unknown AirTags near me. I can click on any one of them and look for more info, and it will give me the last four digits of the phone number associated with the account.

So there it is. I tap on Unknown AirTag. After 10 minutes, I can actually make the thing play a sound. But it does have to be 10 minutes after it was first seen. If I tap on Learn About This Item Tracker, you'll see about this AirTag. There's a serial number listed and then the owner's phone number, but only the last four digits. So again, it tells you how to disable the thing.

And to disable it, again, with the AirTag-- and I just knocked it off my desk. With the AirTag, you simply just twist it. It pops right apart, and a battery comes out. So very easy to take apart.

SmartTags, again, there's a little coin slot. You pop that apart, take the battery out. That would disable it right away. So let me show you-- before we do this, I just want to show you a live demo of the Tracker Detect. So it did see that unknown AirTag. I did a scan when we started the presentation. So I'm going to tap on that.

And it says, you can play a sound because obviously it's been seen for an hour. So if I tap on that, again, you won't be able to hear the sound. But it is actually playing a much higher, louder, beeping noise than just the sound that you would normally hear out of it.

So I'm going to click on Done so it quits doing that. But again, if I tap on Learn About This Tracker, it kind of reads it. And I would have to be in proximity of the phone-- or I'm sorry of the AirTag. My phone would have to be-- it's kind of like near-field communications, like a scanner. So I would set that on the phone. And that's where I would get that phone number and serial number.

So again, very good technology. But again, we all know everything that's created to be used for good, everybody finds a way to use it for evil. So let me look over here.

So Sarah asks, I just selected Anti-theft Mode on my Tile, and is asking for me to grant permission to Tile for my camera, along with a scan of my driver's license. So I'm assuming with legal process, we could get this info if someone found a Tile, but it was in anti-theft. Yeah, I would think that if you have to scan all those, you should be able to get a legal process. I've never tried. So I don't know.

And Caden, since Tile was bought by Life360, do both Android and iOS users pick up on Tiles to help users locate their device? I didn't look into it. Again, I don't have an iOS. But since Life360 owns Tile, that would be a big reason for them to acquire Tile so that all those people using Life360 on iPhones already would be able to benefit, right? So they'd be able to pick up on both.

I didn't verify that. So I would have to look into that a little bit more. So I can't answer that question right now. But if I find an answer, or if you find an answer, that would be some awesome information to put out on the listserv that they had the QR code up for earlier, the email list. So with that, if there's any other questions for Wayne or Wayne, anything I touched on that you want to kind of maybe mention, anything about the AirTags-- what?

Yeah, first of all, Matt, thanks so much for presenting. I wanted to make sure-- because it was a question that was marked as answered. But did you cover as to whether or not Tile has unique serial numbers that can be tracked back to that user?

I believe. Let me put my phone back on the screen. Let me go back over to the Tile app. So lets just tap on Backpack. And I don't see-- I don't know if it's under Help. No, that's just a Help Center. I believe that they do have-- there it is. There you see Device Details. There's an FCC and an IC number.

So they are-- it does tell me. You can see it was activated way back in January. So, yeah, they do have unique numbers to them.

Gotcha.

Again, I only assume, since I had to put in the email and tie it to my account that they would actually be able to provide at least which account they have been activated on. So I did not see that question. So I apologize for that. But if nothing else, Mike, that's all I have. So if there's no other questions--

Matt, I actually wanted to circle back to a question that was asked. And I want to give him a shout out here because-- so Josh Newman-- let me read this question out loud. Because what happens is when you answer a question, it goes into a different tab of Q&A. But Josh had a great question. He says, forensically speaking, when looking at a cell phone extraction, whether it's iOS or Android, where do I look to see what or if any trackers have been used by that owner of the phone?

And Josh, I'm out of the forensic game. I think Matt would agree as far as his stance as well. But I did shoot out a blog. So Josh, I responded directly to you. And then if you guys also take a look at your chat, I also posted a link to a blog that I found off of Magnets website. And I actually went to a presentation this past December. FDLE had a law enforcement conference, and this was talked about.

So I can tell you from experience, from just listening in on previous presenters, there is the ability to extract that device serial number information on the iOS forensics. I think the problem that we're seeing, though, is that sometimes these devices-- and you'll see here in the blog there is a subheading titled, "protecting users with randomization." And that's been the big problem in the forensic community. Even though you have a registered AirTag to your device, it may randomize those UUID values.

So if you don't mind, guys, take a look at that blog. I think it's going to be very informative. And Matt, I'll throw it to you. Do you have any experience with-- all the examples that you showed today, would there have been any value that, to your knowledge, from a forensic standpoint, if someone were to forensically examine your Android device?

Again, I've been out of the forensics game for a while, like you said. I have to assume that there has to be some sort of remnant left behind. I just don't know what that would be. But I can't believe that it's making any connections, especially with the SmartTags seeing all my Bluetooth devices because SmartThings is so much more than just trackers. It's obviously for the internet of things, like the connected homes, the Ring devices, all your appliances, things like that.

So I have to assume that there are some sort of remnants. I just don't know what those are because I don't do the forensics on the phone. So unfortunately, I can't answer that.

OK, Matt. And I do see that another question came in from Joni. Joni, thanks for being here today. Joni did ask if we were able to address Sarah's question. So just double check, it's in the open queue. I have a feeling that Sarah is asking-- like, let's say the example, Matt, you lose your Tile item. I find it. But when I enable the scan functionality, I'm wondering if Sarah means would Tile be able to provide my information that I had to give to Tile to enable that research? Would they be able to show what I provided in the form of a DL or things like that? I don't know if I read that wrong or not, though.

Well, when you put-- she's saying that she put her Tile device in anti-theft mode, right? And then it was asking for permission to use a camera for a selfie, along with a scan of her driver's license, if I understand DL correctly. So I'm guessing if you're going to put that in stealth mode, anti-theft mode, they want to know that it's you putting it in anti-theft mode and not somebody else. So if they're asking for permission to scan that and take a picture, they're saving it somewhere.

So again, I've never submitted legal process to Tile for those. But I would assume if they're capturing that information, that they should be able to grab that. And I see that Sarah has actually just added in Axiom, it lists connected devices. So in some cases, you can see the devices it was connected to, like Alexa. So again, maybe we find somebody with Axiom or Cellebrite. And maybe we do some further testing for future information that we can put out to the listserv or maybe an additional webinar on the forensics of these things.

Yeah, I agree. And I want to thank everybody for making it out. This is the first time that Matt and I have put on this presentation. And when Matt and myself and Mike Kalmbach kind of brainstormed on this, we just wanted to kind of put out, if you will, a very generalized and basic information about these trackers. They're going to be involved in your criminal investigations, in every asset-- or every aspect.

And I want to circle back to what Caden asked. Caden, I'm going to go ahead and follow up on this because you bring up a good point, right? If there are Life360 users out there-- and most Life360 users will allow their location to be obviously shared always-- not just while using the app, while always. So it brings up a good point. Is my Life360 app essentially helping others find their locked Tile devices, even though I don't own a Tile device.

So there's a lot more to follow up on. And one thing I will say about this presentation is we do plan to build on it. It seems like even with Android devices, the technology continues to evolve. And so we'll see if in the interest of time, we can add that forensic component. But I think Matt hit it on the head. It might even be worth to maybe looking in to those that are in the forensic community to put on a presentation.

So, yeah, you'll have to hit us up if you yourself have done forensics and you have experience. Because Matt and I, I think, are going to be more in tune with the interface side of things as well. And--

Wait, I have a couple of questions for you.

Sure.

Maybe you could talk about some of the research we do with taking the speaker out of some of these devices. There's a bunch of YouTube videos out on how to do that. And we [INAUDIBLE].

Yeah, I do know that. Yeah, so Mike, I'm glad that you mentioned that because I didn't add that in the interest of time. But what Mike is addressing is one of the things that we're seeing. It's very, very easy. And we've confirmed this by networking with a research center. And one of the things that we asked the research center to do was, can you disable the audio alert functionality that the Apple AirTag will emit?

Remember, if a foreign-- or I'm sorry. If an AirTag is separated from its owner, it's going to begin to push out push notifications. And it's also going to emit that audio sound. And so what we were easily able to do was disable the audio speaker of an AirTag. And it no way affected its normal functionality other than the speaker was disabled.

So this is also something that we should be aware of. I know there's a lot of content out there on YouTube that shows people how to do this or how it works. But this is something that we're also working on. And we're working with our counterparts when we pitch these scenarios. And

So throw it out there in the Q&A. Is there a scenario that you can think of that you might want us to pitch to our researchers, whose job is nothing more than to take these devices and push the capabilities and see what it can do as well? And Mike, I do see that there's a chat that says that the webinar chat was disabled and that the slide deck provided appears to be corrupted. Is anybody--

I think what he's saying, Wayne, is that he had to put it in the Q&A because he couldn't type in chat. I did download the PDF, and it won't open. So the PDF that we gave them of the slide deck appears not to be working, Mike.

We'll email that out to everybody.

Fantastic. And then Mike, any other questions?

Yeah, one for you, Wayne. Just kind of to follow up on what we-- we had a training session yesterday on IoT in general and security around how important it is to secure your phone. And as you talked about pause mode on your iPhone, I was just thinking you know husband-wife scenario. When a marriage goes bad or whatever it is, if he or she has access to the partner's or soon-to-be ex partner's phone, they could disable that feature and then use the tracking mechanisms.

Yeah. And you know what? I actually wanted to circle back. I'm in the Android queue because somebody asked me that. Maybe it was Kyle. Kyle asked a question about pause tracking. And it wasn't until I answered it, I'm like, I didn't get that 100% right. So Mike, thanks for this opportunity to circle back.

So pause tracking allows the user to pause the alerts. And Kyle's question was, so I place an AirTag in my daughter's vehicle. She can pause those notifications. And typically she's offered two opportunities, to do it for the day or do it indefinitely.

What does not happen, though, Kyle, is when-- or if she pauses those notifications, I do not receive the notification. What the worst-case scenario would be if I had my vehicle stolen, somebody steals my vehicle, and they receive an alert that there's an AirTag tracking my vehicle. Ironically, the criminal could use that alert against me. And they could find that AirTag, and they could easily disable it by tossing it out the window or simply separating the battery from the device itself.

So these are imperfect devices, even on the legitimate side of finding your lost or stolen items. And then we have the bad side of people doing the unwanted tracking or stalking. So yeah, lots of different scenarios to discuss on that. Mike, what was your other question, too?

I just going to follow up on Sarah in the anti-theft. If you go to Tile's website, they'll explain more about that anti-theft feature. But they do demand some identification. And according to the website, they will cooperate with law enforcement when it's being misused. And it sounds like there's the ability to give civil fines for misuse of it as well. But just go up to Tile's website, and there's some more information about that. And

Then I was just going to kind of share a story. I had a law enforcement agency call me for some advice on a AirTag that was taped to a car. This was last week. And actually the victim called. The police hadn't called. And the device was-- it was taped to the car. So don't forget about the regular forensics-- the fingerprints on the tape, potential DNA, all those traditional law enforcement things.

And then I think it was Vicki asked a question earlier about police disabling it or whatever. And I had that advice of you really don't want to drive to the police station with your car because whoever's tracking you is going to know that you're at the police. And you really don't want the police to come to your house because the person tracking you may see the police there.

So anyways, we made arrangements for them to get to the police in a different way. So just things to think about. There's still additional forensics. Think about that car or whatever is going to be driven to the police station. That might be the end of your investigation or hinder your investigation. So things to think about outside the box, I guess.

Just in closing, I want to thank Wayne and Matt for their presentations today. And the slide that's up now, we do have an IoT listserv. The IoT listserv is only open to law enforcement and prosecutors. Do have two classes on IoT devices. One is Crime Scene Response to IoT Devices.

And the second one is How to do Outreach into your Communities in regards to securing their networks around IoT. And look for upcoming trainings on those. And with that, I'd like to thank everybody in the audience for attending today and for your great questions and for your interest. And thanks again to Wayne and Matt.