Betti Thompson: I'll talk a little bit more about myself and my experience. I was born deaf. My husband is hard of hearing so we make a great team. His hearing loss is different from my hearing loss. I am very, very, VERY deaf. My husband is hard of hearing. He can pick up on some sounds. My parents are becoming hard of hearing now too. So there's a lot of hearing loss in my family and that makes me feel I'm not alone.

Technology is my first love and that goes way back to a time. I don't know if you remember when people had electric typewriters. I had a Smith Corona. In those days we had a problem. How does one know if the school has closed for inclement weather? There was no e-mail, I couldn't listen to the radio. My mother was deaf, as well, so we really had no way of knowing if school was closed. The only way that we knew the school was closed was by showing up.

I remember telling myself I wish my Smith Corona typewriter could hear the radio and tell me what the radio was saying. That was my fervent wish all those many years ago. And now, in this day and age, it is a reality. You can open an app on your phone and it will listen to the radio and caption it for you. So technology has really taken off, and I'm really excited about the directions in which it's going.

The number of apps is growing exponentially. I cannot keep up with the number of apps that are out there. I rely on the deaf and hard of hearing community to find these apps and tell me what's useful. It is very hard to keep up with the rapid growth of apps out there. There's just too much information to keep track of. Thus, I put into my presentation the things that I think are useful for you depending on level of hearing loss, that is, deaf, hard of hearing or late deafened or even speech challenged or blind.

More and more smartphones and tablets have accessibility features in them. This presentation has just a sampling. Some of these apps are built into your smartphones or tablets. Some you have to download yourself such as Skype or ooVoo. You can access VRS, video relay service, through Purple, Sorenson and Z4. Clear Captions, Hamilton, and Sprint also provide VRS. More and more we also see remote interpreting being used in classrooms or a doctor's office.

Just a few years ago, very few of the apps were closed captioning friendly. Now more and more apps are so we've seen a lot of great growth. I'll give you a demo in a bit. A question: can you use text and e-mail? You can use mono-audio. You can use a program called Louder TV so you can crank it up. That is useful on your tablet or smartphone device.

You may be familiar with a pocket talker. Pocket talker can be synced with your iPad or your
iPhone to listen to TV. You can also send visual light notifications or vibration notifications and customize them to your need. More and more of these are also hearing aid compatible.

When you are looking around for a new iPhone or smartphone, make sure that you get a very high-end number. The higher read ratings, like M3, M4, the better for those of you with hearing loss. There are apps, too, for people with low vision. Let's say you're at the drugstore to buy something over the counter but you can't read the fine print on that bottle or the box. You can't see it either with or without your glasses. You might just look around for those magnifying glasses they sell so you can possibly read that fine print. However, there are apps that will help zoom in on that small print on the item you want.

Other options are also available for people with low vision. Some of these helps are VoiceOver, Siri, Speak Selection, Dictation, Dragon, Naturally Speaking, Zoom and Large Text. If you have a visual acuity issue which means you need to switch the contrast, you can invert the colors on your phone. You can change those colors so you have a black background with yellow text or a yellow with red. Whatever suits your need.

If you go to a ball game and you're not able to see things far away, an app exists to help you see things that are far away. It's not only for people with limited vision. It is good for everyone.

Many of these apps are free, but if you want the better or best quality apps, or the best zoom, you have to pay. It's still not much, usually the better apps run around $2 or $3 a piece.

Another important part of everyday life is knowing what you're supposed to be doing during the day. We all need a secretary. Without this set of reminder apps, I would be completely lost. I would go completely crazy because my schedule changes minute by minute and there's no way I can keep up with that. Google calendar is one of my favorite apps. I can access my calendar any time, anywhere. It syncs from my computer to my phone and that syncs with my iPad. So whether I am on my iPad or my iPhone, I can get an alert that reminds me I have a doctor's appointment in an hour. I can dismiss that or have it remind me again. There are other popular apps that you can download for those life management tools.

The Apple operating platform, or operating system, is iOS. You then can use iOS or Android calendars.

Many people have told me they love something called EverNote. I like one called "GotMilk." There is another one called Prescription reminder or RX Reminder. I use Two Touch Timer for my laundry so I can know when my wash load is finished and I can move it to the drier. Obviously, I rely heavily on these apps. For example, I set a timer on my phone to tell me whenever a wash cycle is finished. If it's an hour, I can just go down and change the laundry, shuffle the laundry around because I've gotten that alert on my phone or computer. Without that reminder on my phone, my laundry would never get done.

Another app that I use recently is Google Task Manager. Google Task Manager is basically a checklist. Whenever I need to get something from the store, I put it on this list. Then, I refer to
this list when I go shopping. My shopping list is already compiled by Task Manager.

Some other reminder tools are the Evernote app, Sorenson Buzz Cards and Rx Reminder app. The Evernote app is especially for people who can't speak for themselves, or have unclear speech that other people can't readily understand. Evernote lets you write that you want a hamburger, for example. The other one speech helper, Sorenson Buzz Cards app, allows you to select from a pre-entered list of questions, such as "where's the rest room?" The RX Reminder helps make sure you stay on your pill regimen.

We know that CapTel or similar devices caption the telephone services, right? But what if the power is out? Or what if you're not hear your computer and you need to make a phone call. Sprint, Hamilton and Z5 all have phone apps that help for your smart phone. If you use Sign language, you can use the Z5. Yesterday for example, I got a call from my doctor's office requesting I give them a call about my appointment next Tuesday. But I was in the middle of a conference and I didn't want to make the call from here. So I went up to my room, used the Z5 app on my phone. Z5 is a better and a safer option than nothing or having to rely on just being at home to make these kinds of calls. Sorenson video phone also has an app that you can use on the go.

InnoCaption has an app that displays text on your smart phone faster than any of the other internet relay systems so far. For those of you who don't use sign language, or for those of you with slow internet connections, it would be difficult to make video phone calls on the fly like this because the picture quality is not sufficient to effectively make the phone call. You can go back to the old school version of relay service, which is telerelay service, and use IP Relay from Purple or Google Voice. Google Voice is a must for every deaf or hard of hearing person in my opinion because Google Voice is my secretary. Anyone who calls my house for example will automatically be routed from voice to a program that will change it from voice to text. It goes right to my e-mail. It's really nice. It's a wonderful program. I understand it is not perfect but I think it is good enough for now.

If something is still not clear, then I go to CapTel and listen to the voice mail with that system to help clarify the text or the e-mail that I got through this program. Otherwise I will call the person and make sure that they said what I thought they said.

For those who cannot speak for themselves, you can type a message that will then be converted to voice. This is similar to Google Translate where you just type and it speaks for you. It's almost like a communication board that uses pictures to speak. You can use it for English or for any language, English to Spanish or English to Chinese or Arabic. I know one one deaf person who speaks Arabic, doesn't know Sign language and does not use English. This person had an appointment with us in the office and I remember sitting there thinking "How are we going to communicate?" But I remember my personal motto: make the impossible possible. So I open up an app on my iPad and download the international keyboard, as well, and download the Arabic keyboard. Then I type on the American English keyboard and hit translate into Arabic. That I could show to the Arabic speaker. He in turn used the Arabic keyboard to type a message to me which got translated into American.
We started with "Hello" and "How are you doing?" We didn't get right down to business because we wanted to make sure we were on the same page and that the translation wasn't completely inaccurate.

Tobii Sono Flex is like a talking board that I mentioned earlier. It converts speech to text. Dragon Dictate allows you to speak into your phone and it will type what you are saying. The nice thing about that is you can teach it to understand your speech so it will become more accurate. You do have to take some time to train it but when you do that, the text becomes very clear.

With closed captchaed, you can open this app and have text of what's being spoken around you.

You already know that the state of Arizona already has an iPad or mini-iPad equipment distribution program for deaf and hard of hearing or deaf-blind or speech challenged people. So they can then include their apps.

South Dakota also has this feature. Here in Virginia, we're working on it. But we're not distributing equipment yet. We hope to add iPad in our equipment distribution program in the near future.

How many of you have seen closed captioning on your smartphone? And iPads? So you already know that you can change the size of the font, change the color and invert colors. You can set up captions with your favorite TV station whether it's CBS, ABC, Discovery Channel, Hallmark Channel, CBS, etc. Then you adjust the closed captioning font size and colors as you want the. I remember that NetFlix doesn't work on this app, but they'll figure that out. Now more and more closed captioned offerings are out there. As we said yesterday, all the programs on television need to be closed captioned. From my experience not ALL of them are, but a lot of them are.

You already heard of Glide, right? Glide is a new release. A deaf person is able to sign the text via video. You have up to five minutes time that you can sign your message and then send it to someone else who is then able to read the sign and offer a response in Sign language. "Hello, hello, hi, I love you." The receiver then is able to read the message in Sign language.

My younger friends are up all night chatting with one another using Glide. They're sending video messages in Sign language to one another.

Something you have to look out for is the automatic correct feature. I've never seen a tomato in Alabama. The radio said there's a tomato warning, though. I'm pretty sure tomatoes aren't that deadly. Never mind, the tomato is in Tuscaloosa. Better keep moving or the tomato might ketchup with you. That's one of my favorite examples. I know that you have been frustrated with autocorrect. You say click, click, click, that's not what I typed. So you have to erase it and back it up and fix it.
For those of you who love music, Sound Hound is a really nice app. Let's say you're able to listen to music but you can't identify what song is playing. Sound Hound will identify name of the lyrics and who is singing it, et cetera.

There are many apps for visual and vibrating alerts. You already know that you can customize your smartphone, right? You can add whatever it is that you would like. For example, you want a light flashing notification on every e-mail. But not at 2 o'clock in the morning. You don't want that. You can customize your smartphone or your tablet by downloading an app to customize for those specific things that you need, such as not having the light flash notification off in the middle of the night. Maybe you don't need an advertisement from Wal-Mart waking you up at 2 o'clock in the morning with a light flash notification.

You can customize it to only let your e-mails or alerts come through from family in the middle of the night, but not other entities. So you have the capability to customize what you are receiving in the middle of the night. Now these don't hurt to try. And if you try them and if you like them, great. If you don't, you can remove them.

But you have to remember the more that you download, the more it will impact the performance of your tablet or smartphone device. It may become sluggish. It's prudent to keep only a small number of apps working on your phone in order to keep your device functioning well.

The Autoalert is an app with one story I would like to share with you. Audio Alert has become my listening assisting device for a doorknob or a fire alarm or a baby crying or any loud noise. Because I travel so much, I don't want to ask the hotel front desk for the deaf kit. It's too much trouble. Also, many hotels don't have the deaf kits ready. Maybe they have some pieces of it, but there are crucial parts that may be missing.

So in lieu of that, I have the Autoalert app. That becomes my deaf kit right there on my phone. So I am able to travel and use my audio alert. On my iPad, I use it to watch NetFlix.

I may not always know that the sound is on because I've taken my hearing aids out. So I'm get in bed to watch the movie and I see a baby crying on the movie. And what happens? My audio alert on my phone starts flashing! It's like oh, no! That's not what I want! That's not real! There's not a baby here in the hotel room. So I have to turn off my iPad's sound and then turn off my audio alert. But it's good to know that it works.

A couple of things that are nice to have are an app to check the speed of your device and a keyring app. You probably already know to check if your internet is working properly. You can do a speed test of your device with an app. There are several speed test apps you can use.

Once I lost my keyring with my loyalty card, my Walgreens, Wal-Mart, Sam's Club card. All of those now go into what I call a keyring. All of those cards are there in my phone. When I go to Wal-Mart, I open up my keyring app and then I'm able to click on the Wal-Mart card and I have it there. It's scanable which reduces that the number of cards I have to carry.

Another app is a flashlight that you're able to use in the dark.
There are many deaf and hard of hearing people who have challenges in their everyday life. Apps that will help with everyday life are a dictionary, the Yellow Pages and Google Maps. You probably already know about Google Maps which puts a GPS on your phone. It's probably your favorite app I imagine.

Many people think, "I'm not going to lose my phone, I will never lose my phone. That will never happen" but I'm here to say it can happen. You already know it can happen and some people have experienced it. We also say, "I'll be careful. I'll never drop it." I always thought I was careful! A long time ago, before a smartphone, I had a Motorola device, the Motorola Rim. Then I wanted to buy a new one but insurance didn't come with it. The Rim had insurance. I had insurance on all my previous devices. But this new one, I said, "Oh, it doesn't have insurance? Well, I don't need it. I've never dropped, never cracked all my previous phones. Two days later after I walked out of the store, it fell and cracked! Oh, my God! I had to pay $400 to replace it. The full cost of it! That hurt. You must have insurance. No matter what. Plus, you must and I'm going to repeat must have a backup. Back up your phone, put all of your pictures, your music, your files on the cloud.

Here's a list of different cloud type options: DropBox, Google Drive, iCloud, Lookout, Prey. I can't emphasize enough that you have to be able to have a backup or a way to synchronize your phone with some other device. If I'm taking a picture, any time, anywhere, automatically, I send it to my home computer in DropBox. DropBox is always open, always ready. Then at home, there it is on my computer. I don't have to go through the rigamarole of then pulling out a cord and then syncing my phone to my computer. The DropBox app has already taken care of that for me. Question?

**Audience:** Hello. I work a lot with a lot of seniors. I generally will show people assistive listening devices, but lately for people with iPhones and iPads, I will show them the app Ear Machine. You can connect it to the iPad and iPhone and use it as an assistive listening device. What's nice ass it has a bar for volume and a bar for tone control. If somebody doesn't want to be seen with an extra device like an ALD, they can use their iPhone or an iPad.

**Audience Member:** You need to be careful with those kinds of apps to not have them too loud. It is possible to make them too loud. Just a word of caution to make sure you don't hurt yourselves.

**Audience Member:** All this information, you have a lot of great lists and apps. I've been involved with technology for the ALDA website so I know a lot about all these apps. But there's maybe a few you want to add.

You talked about closed captioning for the TV and video apps. The main reason why there are so many is they're required by law now. You talked about devices that you can use with your hearing aid that's called a HAC reading, Hearing Aid Compatibility rating. The highest rating is M4 or T4. It's important when you're looking for phones or devices to see if the rating is M for microphone or T for telecoil. Either one of those will help with your hearing aid.

Also, you talked about contrast and accessibility. You can reverse the color when you're
reading a book on your phone or your iPad. I used that when I flew out here on the plane. I changed it to white text on a black background so it wasn't so bright when I was sitting in the plane at night.

Oh, you talked about the text or TTY, the old TRS-type app like Purple and Spring have. They are the only two companies that have that. You talked about music recognition apps like SoundHound. There is also Shazam. It's great for identifying the song and usually they will also show the lyrics.

One thing I noticed about phones is my battery kept dying very quickly. I learned to turn off the location setting on my phone until I needed it for GPS or I'm doing a search. So you may want to think about that. The last thing I want to say is I really agree with you how important backup is with your phone. If you use free services like DropBox or Google Drive, there are many free storage services out there. Most of them will let you set up so automatically when you take a picture, it sends it off to the cloud. That is an instant backup right there. It's really nice and very handy. Also, in case you drop your phone or it's stolen, you don't lose that valuable information.

Audience Member: I'm hard of hearing, not deaf, and I was wondering if there was something for a group situation or in a restaurant. Is there an app that might have a little bit of voice recognition to help smooth over those spots when I can't hear what people are saying?

Betti Thompson: For free there is Google Translate. That's one app that you can use in that kind of setting. It uses dictation and voice recognition. Dragon is another really good one. It's very fast. Very efficient.

Audience Member: So Google Translate. You basically are putting it into English and then asking it to translate?

Betti Thompson: Yes, right. It will listen to the sound around you and will put into text what it hears. Dragon does the same thing; I think Dragon is probably one of the best apps around for that. If Dragon isn't working, you can try Google Translate, but it's not always accurate.

Audience Member: Dragon is not free, is it?

Betti Thompson: It is free. Yes.

Audience Member: I think I must be technologically challenged. Can you explain what DropBox is?

Betti Thompson: DropBox is an app or a program or service that acts like your cloud. You don't see the cloud. It's just like a server on another computer somewhere else. You have to set up an account. You have to have a username and a password for Dropbox or really for any other free service like this. You set that up on your phone and it gives you all kinds of options that you can configure. It works with many different devices, tablets, smartphones, and computers. My husband and I have an account. So the minute we take a picture on our smartphones, it immediately goes to our Dropbox account in the cloud. Then it syncs with all of our devices, that is, with our phones, our computers, and our tablet devices.

When you change information on your computer, those changes will promulgate to your other devices. DropBox is initially free. Depending on how many gigabytes or amount of information you use, you may have to pay a fee, maybe $20. if you need extra storage. It's worth it.

Audience Member: What is nice about Dropbox is that the more you use, the more they give.
They give free space. You can start with 5 gigabytes of free that they give you and then when you use it, they keep giving you more. For free! So I now have 50 gigabytes for free. So right, you can pay for more, or if you use it and you use up your space, they keep allotting you more.

**Audience Member:** I just wanted to say that when you send out e-mail and request that they open a Dropbox account, you get two gigabytes for free. If I send Paul an e-mail and he opens the Dropbox, I get two gigabytes for free. So the more e-mails I send to all my friends and relatives, I more gigabytes are added.

**Betti Thompson:** It's really helpful to have this information at your fingertips, as well. You can sign up for emergency alerts and select your local area from which to receive alerts. For example I want to know if there are any train malfunctions or accidents or if there is an evacuation order or bad weather coming, or if a storm is on the way. You can pick the alerts that you want to receive from emergency e-mail. You can also download your favorite television station apps to get information about the weather in your local area. You can download Weather Bug or Weather Channel to get weather information on your smartphones. You can also get alerts about earthquakes and things like that. You can Google these apps or you can find them in your app store. You just select which ones you want and then download them and try them out. It doesn't hurt to try and if you don't like the app, you can delete it from your device.

As a deaf person, I really want to know about tornadoes for my own peace of mind. I don't have a weather notification system. I use several different sources on my iPhone and on my iPad to receive these notices to make sure that I'm safe. You can set G-mail filters. I have set mine to alert me any time there's a subject about a tornado. I get a flash that lets me know that I need to pay attention to something. This occurs even at night so I know I need to go to my cellar. You never know when these things will hit. If you're in a serious car accident or if you suddenly without warning pass out, or maybe you just have lost your phone, you can make the names of your emergency contacts show up. Then strangers know who to get in touch with.

You might have your phone pass code protected. However, this could be a problem for emergency personnel on site. They need to be able to know who to contact. There's an app called ICE, which stands for In Case of Emergency.

**Audience Member:** Virginia Emergency Management has an app I really like. It's called Ready Virginia. If you are traveling in Virginia, you can press on the local button, and it tells you any emergency information or emergency alerts for where you are in Virginia.

**Betti Thompson:** That's very helpful. Other states have similar apps. Check with emergency planning organizations in your state to see if they have one. Most states have one. Often your local area governments will have alerts if there's a blizzard or a tornado or a flood coming.

(Visual demonstration of apps follows)

**Audience Member:** Do you know if the iPad is compatible with Dragon? If I had another
iPhone and then I give it to another person, will Dragon grab that? If so, then we can pass the microphone around the group will Dragon be able to recognize and use the voice recognition?

**Betti Thompson:** That would be really nice. I think that's a great use of that application. Really, you can do anything you want with these apps. You can make it your own. You can build your own communication access through your smartphones. Often these work better if you train them in advance to listen to you.

Here's how magnification works. I have a special stand for my iPad and it becomes your CCTV for people with limited vision. If you don't have that special kind of stand, you can make something out of cardboard. You just put a hole where the camera is, and then you can put whatever document you want to magnify underneath it and you'll be able to magnify the text.

**Audience Member:** Chris Littlewood. I just wanted to remind everybody with regard to emergency preparedness apps, the American Red Cross has several free apps to explain what you need to do as a person with a disability or what you can do to prepare for an emergency or disaster. Also, FEMA, ready.gov, has an app. Another very important thing is to go to your local county emergency management. If they don't have an app, they usually at least have a place where you can get text alerts. If there's a tornado in your area, or an earthquake or a hurricane coming, you can get information about that. All that information is very important for emergency preparedness and there are apps for being prepared.

**Audience Member:** There's also an app called Life360, that tells you if there is any crime in your neighborhood. It tells you about anything that would be good to know about that's happening in your neighborhood so you can protect yourself. Just to be aware.

**Audience Member:** I don't know if anyone uses Waze to navigate with. It's free. It's community based. If there are other Waze users in your area, you can report on traffic accidents, debris on the road, where the police are hiding. Information it will show up on your screen and they usually give you a notification about a half mile before you get to that problem. For example, I can program in a destination and sometimes it will come back and say there's a major accident, take another route. It will give me another route to go. It's really good mainly because it's community-based. As you're driving, you can plug in information about what you're seeing, backups, debris on the road, cars on the side of the road. Waze. W-a-z-e. Waze.

**Betti Thompson:** Yes, Waze is really nice to have. Unfortunately I don't use it because I can't use a phone while I'm driving. I have to put it away for my own personal safety. If I have a passenger, then we're able to utilize Waze. But if I'm in the car by myself, I don't use it.

Thank you very much for sharing your information with me.

Betti Thompson, deaf since birth and mainstreamed in school, graduated with a community
college degree in computer science, has worked in accounting and computer programing for 10 years. She is Executive Director of the Deaf and Hard of Hearing Services Center, Roanoke, VA, a not-for-profit organization she helped form in 1995. In 1997, she became Outreach Specialist for DHHSC with the Virginia Department for the Deaf and Hard of Hearing.