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Telephone Systems and Using Voice-Over-IP (VOIP) to Stay In Touch

**Jonathan Gaddy
Director, Calhoun County EMA**

The trouble with telephones

Two-way radio, email, smartphones and social media are great, but when emergency managers need to coordinate with colleagues in a hurry nothing beats a regular desktop telephone. Most EOC's have dedicated phone line trunks (sometimes referred to as PRI lines) and some even have backup POTS (plain old telephone service) lines. POTS is the type of landline telephone service most people use at home. Office phone systems (sometimes called PBX or private branch exchanges) are usually very stable, but when they do go down they go down hard. Not hearing a dial tone when you pick up the phone is not a problem you want to have in the middle of a disaster.

PBX systems are essentially computer-controlled phone switching systems. While a building may have 40 telephones inside, only a smaller number of actual outside lines may be installed. The PBX works behind the scenes to seamlessly match up incoming and outgoing calls to share the small number of outside lines among everyone working in the building. PBX's are usually pretty expensive, and some agencies maintain maintenance contracts on their telephone systems. But like any computer system, a PBX can fail.

Here are some things to look at when doing a checkup on your PBX:

1. The PBX should be connected to a battery backup, commonly called an Uninterruptible Power Supply (UPS). This will keep your phone system online temporarily while the building generator is starting-up after a power outage. UPS batteries are typically good for about 5 years. If your UPS is older than 4 years it's a good idea to replace the battery or the entire unit. The cost of a UPS large enough to run a typical phone system is less than $100.

2. If you have a PRI providing phone service to your EOC, consider adding a couple of POTS lines. The PRI is a dedicated circuit from your phone provider carrying the inbound and outbound calls. This is also sometimes referred to as a trunk line. POTS lines are simply an old-school copper wire connection into the building but PRI trunks are more finicky. If the PRI trunks go down POTS lines may still be working. The simplest way to use POTS for backup is to have a dedicated phone installed with its own dedicated phone number completely separate from the PBX system. Think of it as an emergency backup phone. Another method of using POTS is to connect it to the PBX. ine. to get an outside line. alls would still ring on your internal phone system, but the calls would be 'call forwarded' to the backup POTS line instead of using the regular PRI route.

Jefferson County Employs New Communications Platform

By Jody Hodge
Jefferson County Emergency Management Agency

As emergency management practitioners, we know the importance of communicating during times of disasters. It's critical that we not only communicate with each other, as well as first responders, our partner agencies and citizens as well. It is equally important that this communication system be reliable.

Jefferson County EMA was looking to improve its communication with fellow agencies, cities and citizens. We wanted a system that was integrated and scalable. In addition, Jefferson County EMA looked for a tool that would fit the multiple communication channels and platforms we all use today.

We also wanted a system that was flexible and easy to use. It also had to fit into our developing social media plans. In the end, we chose Everbridge® as our critical communications tool.

Jefferson County EMA partnered with the City of Birmingham in purchasing Everbridge®. As the most populous county in Alabama, the system had to be able to reach an audience quickly. In the first test over Christmas, Birmingham Mayor William Bell sent a recorded holiday message to over 68,000 residents in less than six minutes.

As Jefferson County's critical communications tool, this new system allows multiple agencies, organizations and governments to communicate with their staff and each other. The system can be used to let staff know about current needs and deployment of first responders. In addition, as it can be used on a smart phone or tablet, it makes this a reliable tool to be used in the field.

Pictured above from right to left is Congressman Robert Aderholt; Eddie Hicks, Morgan County EMA Director; Phyllis Little, Cullman County EMA Director; Martha Braddock, IAEM; and, Anita McBurnett, Marshall County EMA Director and current President of the AAEM

The Alabama Association of Emergency Managers sent a contingency of board members and committee members to Washington, DC on behalf of the AAEM Membership. Talking points were created and pre-planning was done to make sure your message was delivered. All meetings were successful as a lending ear was offered and even some suggestions were made to us by Elected Officials and their Staff Members. Topics discussed included: EMPG funding and the importance of its continuation for successful local level planning; preparedness; response; recovery; NWS Clearwater tower issues (already have been addressed since their return); DHS funding; and, leadership concerns - plus more.

Normally you might dial 9 to get an outside line. This instructs the PBX to connect your call using the PRI trunk. To use POTS you would dial another number—like 5 or 7—to tell the PBX to dial out using the POTS line instead of the PRI trunk. For advanced users, you can also work with your telephone service provider to forward your regular business number to the POTS line in case the PRI goes down. In this scenario, incoming calls would still ring on your internal phone system, but the calls would be 'call forwarded' to the backup POTS line instead of using the regular PRI route.

3. Your PRI may be 'virtual.' In this type of set-up, the trunk lines come into your building over the internet instead of using a dedicated circuit. The same principles apply as in #2, except you have the added vulnerability of relying on an internet connection as well as keeping the PBX online and working. If this is the case, ask your IT department about failover or backup internet connections. Usually, firewalls and routers can be setup to automatically transfer to a backup internet connection in case of a failure.
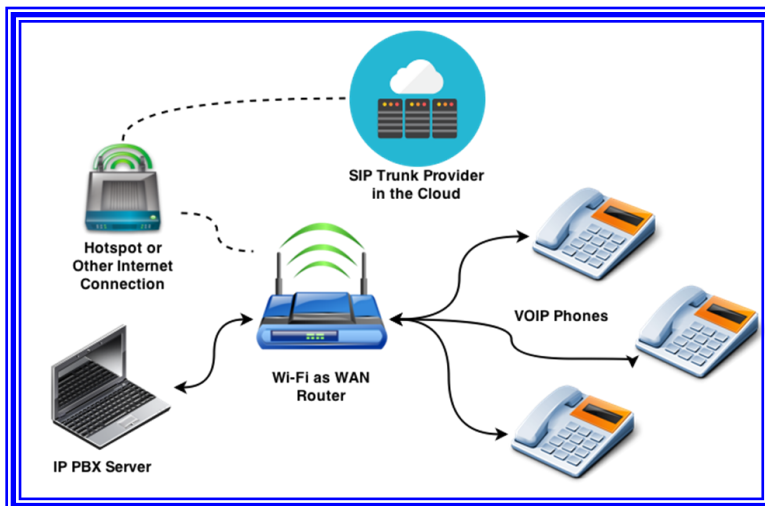

But, what if the worst case scenario happens and you need to setup an entirely new phone system?

Using VOIP as a backup solution

If you are a technology guru or have one in your office, one good solution is to build your own 'PBX in a box.' It's simple and cheap. Using voice-over-IP (internet protocol) equipment and free open-source software, you can have a fully functioning telephone system up and running in just a few hours.

What you need:

1. Better-than-average knowledge of computer networking and 3 to 6 hours. If you are comfortable reinstalling Windows on your computer and setting up your own wireless router but wouldn't risk doing those same tasks for a friend, then this project probably isn't for you. If you have ever used Linux, you should be good to go.

2. A laptop computer. Most older laptops (especially Windows XP and Vista laptops) will work. If you have one of these collecting dust it may be time to bring it back to life. Note that you will lose whatever data is saved onto the laptop and you won't be able to use it for anything other than running the phone system.

3. IP PBX software. There are several options available for free on the internet. Asterisk is one of the most robust and well-supported IP PBX packages and by far the most popular. Two frequently used versions are AsteriskNOW and FreePBX which both come ready-to-install with a Linux operating system. Do some research online, and then burn the PBX software image of your choosing to a CD.

4. A "Wi-Fi as WAN" router. This type of router actually has two radios so that it can connect to a wireless internet signal while also sharing that internet connection out over its own wireless network built-in switch. Cradlepoint is one popular brand that is commonly used by emergency managers in Alabama, but there are many options. A Wi-Fi as WAN router will set you back $150-$300 depending on brand and features.

5. A few VOIP telephone handsets. A VOIP phone looks like a regular telephone, but connects using an Ethernet cable (CAT5) rather than a telephone cord. Basic VOIP phones are available for under $40 each and will have the same features as most office telephones. There are tons of options for VOIP phones and they have also been available through state surplus in the past.
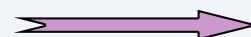
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6. A subscription to a SIP trunking service. SIP (Session Initiation Protocol) works behind the scenes to connect callers using VOIP telephones. For a dedicated phone number with unlimited usage (referred to as a virtual PRI), expect to pay $15-$20 a month. For our setup, we use a pay-as-you-go service which charges $1 per month for the dedicated phone number (called a DID or direct inward dial number) but also allows unlimited concurrent incoming and outgoing calls. Usage is charged at less than $0.01 per minute. When not in use, the only fee is the $1 monthly DID charge which is deducted from the prepaid balance.   To put this in perspective, a dedicated phone number with 60 hours of prepaid talking time costs less than $40 per year.   Additional DID's can be added on-the-fly in case you need dedicated phone numbers for specific phones on your system.

Building a DIY deployable PBX

The first step to creating your own deployable PBX is to setup the Wi-fi as WAN router. This will allow you to utilize an outside internet connection like what you might get from a hotspot, satellite or Ethernet connection at your COOP site. The router should be set to assign IP addresses to all devices on its internal (LAN) network.

Installing the IP PBX software on the laptop takes about an hour. While the installation is running, take the opportunity to learn about setting up the IP PBX. This means watching a few tutorials on YouTube and reading through the Wiki documentation (the process is essentially point-and-click). Once the software is installed on the laptop, you will be the proud owner of an IP PBX server. There are only a few steps after this point, all of which are accomplished through a web browser administrative interface:

1. Setting up the basic features of the PBX server and familiarizing yourself with the system. This takes about 30-45 minutes. You should assign a static IP address to the server.

2. Adding extensions (phones) to the PBX and programming the phones. Allow 5-10 minutes per phone for this step. The phones will communicate with the server using the static IP address you assigned in step 1. You will create an extension number and a password (called a 'secret') for each phone on the PBX server and then enter this information into the phones. When complete, you will be able to make calls between the phones on your system.

3. Setting up the SIP trunk subscription. This step is usually pretty straightforward. Most SIP trunk providers offer easy-to-follow setup instructions for FreePBX and Asterisk, so you can copy-and-paste the required settings to get up-and-running.

3. Adding outbound routes and 'dial plans.' These tell the PBX what to do if you dial 9, or 0. Setting up the dial plans takes about 10-15 minutes. When complete, you will be able to dial out using your SIP trunk.

4. Adding inbound routes and DIDs. These tell the PBX where to send calls coming in from the outside (i.e., to all phones, a specific phone, or a group of phones). Setting up inbound routes takes about 5 minutes. When complete, you will be able to receive incoming calls from the outside world.

5. Setting up additional features like paging and voicemail, if you want them.

At this point, you should have a functioning telephone system. Since most routers only have a 4 port switch, you can add additional phones by incorporating a 24- or 48-port switch into the setup. If you have a power over Ethernet (POE) switch, you can also power phones directly without needing to plug them into any electrical outlets. This is a great feature if you are setting up a call center in an improvised location where power may not be available.

A Call for Content!

Care to be a published author? Need a publication to put on your résumé?

If so, consider writing a short article of about 175-250 words for our consideration. You may send it directly to Dr. Jeff Ryan at Jacksonville State University, Department of Emergency Management (jryan@jsu.edu). Call 256-782-8334 if you have questions.

Building Y(our) PIO Bench

By Ashley Siskey, Public Information Officer
Calhoun County EMA

In order to be successful, every team needs players ready, trained and able to jump in and keep the ball moving down the field (or court, if you prefer basketball) when the starter is unable to play. This is no different for Public Information Officers in emergency management – it is physically impossible for one person to be all things to all media at all times. This is particularly true during long-duration disaster events.

So, how do we plan for a back-up and a back-up to the back-up? Calhoun County has a special team in place to supplement PIO responsibilities during times of crisis. Our team in Calhoun County is called EAST (External Affairs Support Team). In some places, these teams may be referred to as PIO Response Teams.

EAST exists to provide uniform training for members so they are able to fill in personnel gaps when needed. The team is also specifically trained to assist elected officials during disaster events.

Our way isn't the only way, but here are a few tips we've found useful in Calhoun County to build our PIO bench:

1. Every EMA staff member receives PIO training, so when the primary PIO or Duty Officer is otherwise engaged, then anyone can step in and assist with a media interview or inquiry.
2. Build a team of public information and public relations professionals from diverse industries within the county. Diversity creates more depth and flexibility for team member availability during an emergency. Let's face it, if an event is large enough, then chances are, your team members will be needed at their places of employment. Which leads us to point three…
3. Build a 3-4 person team within the team who will not have conflicting responsibilities. For example, we have requested several employers of EAST members to build in reporting to the EMA to assist with public information into their 'back home' job responsibilities, either formally or informally. The hope is to ensure there are enough trained professionals available to serve as PIO's and Assistant PIO's to cover long-duration event shift needs.

Recent Retiree and New Appointment

Mitchell Sims

After serving as Director of the Baldwin County Emergency Management Agency (EMA) for three years, and in public safety for 40 years, Mitchell Sims announced his retirement, effective March 31, 2015.

Sims was appointed by the Baldwin County Commission in March of 2012. "As I have spoken with the County Commissioners individually," Sims said, "they have been very supportive of my decision and have all wished me well. They've said they are very pleased with the progress we've made at EMA during my tenure. I'm happy to be leaving the agency in good hands." Mitchell cited the Commissioners as his strongest supporters during his time at EMA and said he is confident they will continue to support its continued advancement. "This agency is strong and there is a great team in place here. I've chosen to go out while things are going well and there is a talented, dedicated staff in place. I have no doubt they will continue to improve upon this agency's and this County's, preparedness and emergency management operations.

During its February 24, 2015, work session, the Baldwin County Commission discussed moving forward with appointing EMA Deputy Director Reggie Chitwood as its next EMA Director. By moving forward on a contract with Mr. Chitwood, there would be no lapse in coverage of the directorship of the EMA.

Reggie Chitwood

Sims will not be resting long, as he has accepted a position as Associate Pastor with Lagoon Baptist Church in Gulf Shores. With his extensive emergency services background, Sims will also be working with the Texas A&M Engineering Extension Service (TEEX) as an Adjunct Instructor, teaching emergency management courses to various disciplines throughout the country.

Sims started his public service career in 1975 as junior volunteer fire fighter with the Bay Minette Fire Department, later becoming a career fire fighter in 1983. After serving there a year and completing his paramedic training, he joined the Gulf Shores Fire Rescue department where he served 28 years, attaining the rank of Battalion Chief.

Submitted by Ashley Siskey, Calhoun County PIO

You have your team, then what? To keep things simple, we prefer to concentrate on uniform training and primarily focus on three general areas: Messaging, WebEOC and interviews.

Messaging – Members develop skills to create talking points for media interviews, prep elected officials with messaging points for press conferences and create content for social media. This helps our team understand what items are must-shares, and which items should not be shared. While we may be privy to certain information, it is not always our information to share.

WebEOC – Or, whatever tracking program your agency uses. When all of our EAST members know how to input and extract information into and from WebEOC, things run much smoother. This way, during an event, there is a central portal for tracking media, including press releases and talking points. Anyone jumping in to assist with PIO duties can pull up WebEOC and quickly get up-to-speed on damage reports, released information, media inquiries and hot topics.

Interviewing – This is always the least favorite for anyone, as the camera has the ability to turn many of us from confident communicators to rambling, talking heads. Most of us don't have camera crews knocking on our door every day (or even every week, month) asking for us to deliver a statement. So, when the time comes, we're out of practice. By practicing in front of the camera, it is our hope that we get more comfortable in communicating important information to the public.

Uniform training is not only beneficial for building a strong PIO bench for the EMA, but it's also beneficial for the professional development of team members in their day-to-day jobs out in the community. In addition, if a team member's organization were to need an extra set of hands, there are 10 – 20 other EAST members that can be called upon to provide their services. Sort of like a PIO mutual aid agreement, if you will. It's really a win-win for everyone.

Special acknowledgement: Calhoun County EAST was implemented by Tammy Bain, who did an excellent job of recruiting and training members until her departure in August 2014. Tammy is now the Emergency Manager for the City of Hillsboro, Oregon.

Success with EMI Virtual Exercises in St. Clair County

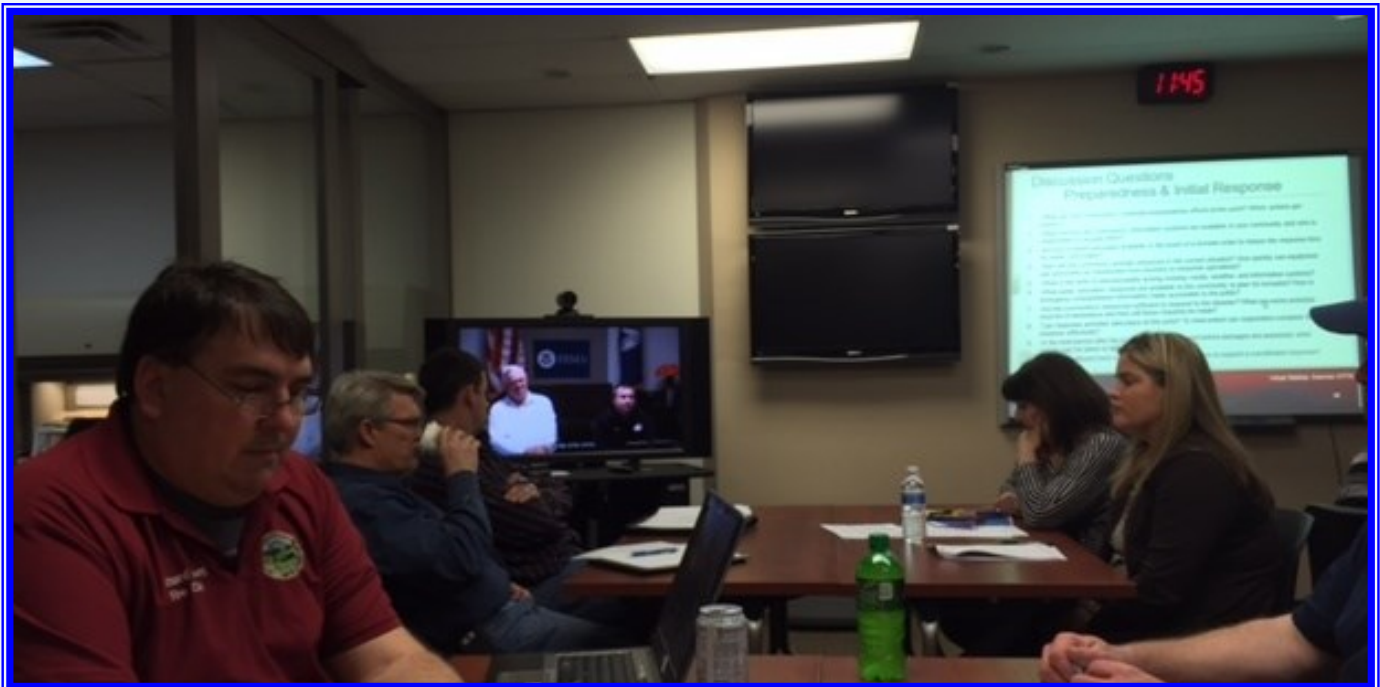**Submitted by Ellen Tanner, Director, St. Clair County EMA**

St. Clair County EMA is having a lot of success participating in Virtual Exercises hosted by the Emergency Management Institute (EMI).   On the day of the exercise, all of the participants come to the EOC and join in by virtual connection with the other sites.

After the exercise is over, there is a lessons-learned discussion at each site and everyone fills out an evaluation that includes strengths and weaknesses, tasks assigned to improve and more. Bryan Shaefers completes the After Action Report. This exercise meets HSEEP requirements and provides a means to follow up with identified training, exercises and meetings to solve issues.

On **March 4**, St. Clair County EMA participated in the Tornado Virtual Exercise. In the past three years, we have participated in virtual exercises involving these scenarios: Cyber Attack, School Bus Mass Casualty, and School Hostage. Our EOC participants tell us that it is the most exciting exercise of the year, and they learn more from this type of exercise than others.

Now, that is worth the work and makes this exercise very cool!

[See photograph below]

AAEM—A family of emergency management professionals working together to enhance preparedness across the State of Alabama

AAEM Committee Chair Appointments

Committee	Committee Chair	Employed with
Nominations and Credentials	Margaret Bishop-Gulley	Sumter County
Public Affairs	Deborah Gaither	Etowah County
Conference/Training	David Brunson	Elmore County
Membership	Patrice Kurzejeski	St. Clair County
Legislative Co-Chair	Roy Waite	Clarke County
Legislative Co-Chair	Ricky Little	AEMA
Technology	J.T. Johnston	Monroe County
Awards and Recognition	Kathy Carson	Lee County
Past Presidents/Scholarship	Phyllis Little	Cullman County
Constitution and By-Laws	Ronnie Adair	Mobile County
Business & Industry	Hub Harvey	Shelby County
Certification (Non-Committee)	Eddie Hicks	Morgan County

**AAEM Newsletter
Volume 2, Issue 2**

Show off your AAEM Pride! Purchase and Wear AAEM Apparel—

Go to http://aaem-online.us/online-store/

Simply print out the PDF Form and place your order.

Important Dates for AAEM Business

Remaining AAEM Board Meeting* Dates:

April 9, 2015, - 10:00 AM—ACCA Office
June 22, 2015 – AAEM Summer Conference Mobile

*All AAEM members are invited to attend board meetings.

Committee Reports due to the President:
May 8th, 2015

Please share your thoughts and comments with your Area Director on ways to improve our Association. Any training requests and ideas that you have will also be beneficial. Remember, we will be as successful as the time and effort that our members dedicate to our growth. Please, get involved in your future today!

AAEM—A family of emergency management professionals working together to enhance preparedness across the State of Alabama