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Inside this issue:

Long-term Evolution (LTE) - It's Not a Done Deal

As you are all probably aware, 4G Mobile Broadband, also known as Long Term Evolution (LTE) has become the latest "buzz phrase" in the communications industry. Initially viewed as a data over broadband technology, more recently the possibility of mission critical Voice over Internet Protocol (VoIP) via LTE for public safety agencies is being discussed. Many are saying that the current land mobile radio (LMR) technology for mission critical voice transmissions is destined to go the way of the dinosaur as discussions regarding a nationwide public safety broadband network continue. However, not everyone agrees with this view given the extensive "unknowns" of deployment costs, infrastructure requirements, and uncertainty of sufficient available spectrum to support LTE.

Additionally, 3GPP, the organization who controls the standards for the LTE, currently has no vested interest in the public safety arena. Their focus is, and will likely continue to be, primarily on the commercial market.

The following excerpt is taken from the Public Safety Advocate e-newsletter, *LTE Support for Mission Critical Voice for Public Safety* (Andrew M. Seybold, June 19, 2011)

> *LTE or fourth-generation (4G) wireless broadband was designed and implemented primarily as a data over broadband technology. Voice in the form of Voice over IP, which is being designed to implement voice calls in the traditional cellular fashion of dialing a number and completing the call using the LTE network as transport, is being developed.* ***The issue is whether LTE can and will support other types of voice services, specifically Push-To-Talk (PTT) voice and most importantly, PTT off-network,*** *when units are out of coverage of the network or when they need short-range communications in buildings and in other areas where the network does not provide coverage.*
>
> *The standards for LTE are largely controlled by the 3GPP, an organization made up of hundreds of commercial members including chipset companies, infrastructure vendors, network operators, handset companies, software developers, and others. In order to add mission critical voice requirements to the LTE standard, the Public Safety community must petition the 3GPP for its inclusion AND there must be a number of other members of 3GPP that concur. Once* ***(if)*** *this happens, the amendment to the standard is assigned to a future release of LTE and when that release is being worked on, the amendment will be considered.*
>
> ***IF*** *LTE broadband can meet both the voice and the data requirements of the first responder community, a single device could be deployed that would provide not only data/video interoperability, but voice interoperability as well. This would be an ideal situation and one that is worth pursuing. However,* ***existing narrowband spectrum should not be reallocated for other uses until such time as LTE broadband can and does meet all of the requirements for Public Safety mission critical voice as well as data and video services.***
>
> *In order for the amendment to the standard to be considered, all of the requirements must be defined and support must be garnered from members of the 3GPP.* ***At present, there is no incentive for network operators that largely drive the direction of 3GPP, to embrace mission critical voice,*** *especially the part of mission critical voice that is of paramount importance to Public Safety: The ability to communicate between devices without having to make use of a network.* ***Commercial network operators are not inclined to agree to this type of voice communications because they won't have control of their customers and the minutes of use cannot be billed to the customer.*** (continued on page 4)

Why Public Safety Responders Should Not Use Cell Phones

When asked during their testimony before funding bodies, Alaska Public Safety first responders have answered repeatedly that cell phones are not a viable replacement for the current Alaska Land Mobile Radio system during an emergency. However, as "smart phones" become evermore capable, the questions still arises about why responders don't use cell phones instead of a dedicated land mobile radio system.

The recent earthquake on the East coast, which was felt from the Carolinas up into Canada, has shown beyond a shadow of a doubt that cell phones will more than likely be useless in a major catastrophe. Events such as the earthquake in Virginia and closer to home, a serious vehicle collision on one of Alaska's highways, can quickly "max out" available cell phone capacity in the vicinity of the incident. The cause can either be a result of infrastructure damage at cell sites or overloading from call demand or a combination of both.

A dedicated, robust and technologically current land mobile radio system is, and will continue to be for the foreseeable future, a necessary and critical tool for first responders in Alaska and elsewhere.

The following excerpt was taken from a Radio Resource Group article in Mission Critical Communications e-magazine.

Virginia Earthquake Overloads Cellular Networks (8/24/11)

A 5.9 magnitude earthquake hit northern Virginia Tuesday. Although no fatalities or major damage was reported, ***the earthquake overloaded cell-phone networks.*** *The earthquake was felt from North Carolina to Toronto, according to reports.*

While there were no reports of outages or congestion on public-safety radio systems, there was an impact on first responders and emergency personnel who relied on their commercial cell phones and data cards to communicate with their colleagues and families," said a statement from the Public Safety Alliance (PSA). ***"Clearly, public safety cannot rely on commercial networks during critical incidents and major events, as they cannot gain access to roam onto or gain the level of priority access necessary to be effective in such incidents."***

The statement noted that public-safety organizations have repeatedly asked Congress to enact D block reallocation legislation before the 10th anniversary of the 9/11 terrorist attacks — just a few weeks away.

"How many more warnings, close calls and critical incidents do we need before Congress breaks through the politics as usual and acts for the good of the nation's safety, citizens' safety, and for the protection and effectiveness of our first responders?"

Commercial cell phones can and often do provide communications capability to first responders in non-emergency situations. However, to adequately respond, protect and serve the citizens of Alaska, public safety responders require dedicated, interoperable land mobile radio systems as their primary means of communications to meet their needs into the foreseeable future.

Communications Training Sessions

In response to numerous requests for radio communications training focused on the types of radios and systems used in each area, the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) has contracted with 5 Star Team, to conduct five types of communications training sessions throughout the State. The available sessions are National Interoperability Issues, Alaska Interoperability Issues, Radio Operations, Communications Planning and Exercises and Radio trouble-shooting. Funding for the sessions is being provided through a Homeland Security grant administered by DHS&EM.

Working closely with local responders, 5 Star Team staff developed a curriculum based on the articulated local needs, locally available communications assets and interoperability between jurisdictions. During planning for the sessions, consideration has been given to flexible scheduling to accommodate the local first responder's availability.

To date, training sessions have been conducted in the Denali Borough, Juneau, Kodiak, the Kenai Peninsula and the Matanuska Borough. A session is currently scheduled for Bethel. Scheduling for sessions in other locations is underway. A description of the content of these classes is available on the ALMR website under training (http://www.alaskalandmobileradio.org/training.htm).

To inquire about scheduling a session in your area, please contact Leon Morgan, DHS&EM, at 907-428-7138 or e-mail leon.morgan@alaska.gov, or Joe Quickel, 5 Star Team, at 907-227-5048 or email joequickel@5starteam.net.

Copper Theft and Radio Communications

In recent months there have been several copper thefts around the State of Alaska, including one at the construction site of the new State Crime Lab. How does this affect you or your communications?

The Department of Homeland Security (DHS) released a warning about the increasing threat of copper thefts to critical infrastructure and recommended precautions that public-safety and critical-infrastructure companies should take to combat the problem.

In November 2010, a series of copper thefts from radio transmission towers near Houston, Texas, prevented emergency-service dispatchers from communicating with firefighters and paramedics for nearly an hour. In Alaska, it could take days or weeks to restore communications if we were to experience such thefts.

Communications infrastructure (sites) is loaded with copper assets, such as antenna cabling, antennas, ground cabling, electrical wiring, and ground systems, just to mention a few. Thieves know the copper hot spots and target the easiest of them.

If you are responsible for communications sites, please provide employee awareness training on the dangers of copper theft and identify preventive steps employees can take. Where appropriate: 1) use physical security measures such as fences, gates, lights and locks to deter theft; 2) install alarms and video surveillance to detect theft; 3) conduct post-event analysis to identify security gaps; 4) post signs indicating the premises are being monitored; and 5) physically respond to intrusions. Report any suspicious activity at ALMR sites to the Help Desk at 907-334-2567 or email ALMR-Helpdesk@inuitservices.com.

(Portions extracted from the August 24, 2011, Mission Critical Communications newsletter.)

Current ALMR Site Maintenance

The Alaska Land Mobile Radio (ALMR) System currently utilizes two types of maintenance for System infrastructure. They are preventive maintenance and break-fix maintenance.

Preventive Maintenance

By definition, preventive maintenance is maintenance performed before a breakdown occurs. This type of maintenance has many different variations and is often subject to research to determine the best and most efficient way to maintain equipment. Studies have shown that preventive maintenance is effective in preventing age-related failures of equipment. For random failure patterns which amount to 80 percent of all failures, condition monitoring proves to be effective.

Preventive maintenance attempts to avoid failures, unnecessary productivity loss, and safety issues. As is the case of ALMR, equipment cannot be maintained 100 percent at all times. However, a plan is needed to decide when it is proper to perform maintenance. Normally, this is done by implementing inspection/maintenance intervals and maintaining those intervals. Events such as accidents, natural disasters, or adverse weather conditions may sometimes delay scheduled maintenance. With regular preventive maintenance, there is no guarantee that the equipment will not fail, even if you are maintaining it in accordance with a regular schedule. Therefore, keeping critical spares available is part of a well thought out preventive maintenance plan.

Break-Fix Maintenance

Break-fix maintenance can be defined as maintenance performed after a breakdown has occurred. This maintenance is often the most expensive because failed equipment can damage other components (collateral damage or a domino effect).

Break-fix maintenance is probably the most commonly used approach, but obviously comes with many risks. When equipment fails, it often leads to downtime in productivity and subsequently puts the safety of first responders and the general public at jeopardy. In most cases, this is a very costly business practice. Additionally, if equipment needs to be replaced, the time and cost of replacing it alone can be even more substantial

Current/Future ALMR Status

The US Army Alaska (USARAK) has put their equipment in 13 State-owned sites in a break-fix maintenance status through December 31, 2011. On January 1, 2012, the State of Alaska is expected to accept the equipment and continue to maintain it in break-fix status through the end of this fiscal year (June 30, 2012).

USARAK equipment, in an additional 28 State-owned sites, is expected to be transferred to the State on July 1, 2012. At that time, it is unknown as to what level of maintenance the divested sites will be maintained.

Note: ALMR sites not affected by break/fix are those sites with State-owned equipment, the two transportable units, St. Paul Island, all Air Force sites, Birch Hill, Black Rapids, Donnelly Dome, Fort Greely, and the Municipality of Anchorage AWARN sites.

LTE (continued from page 1)

Therefore, Public Safety will have a difficult time convincing the 3GPP to address the issue of mission critical voice. ***If a non-standard workaround can be and is developed, it would mean that the devices used by Public Safety would not be nearly as standard as the devices being envisioned today for data and video, thus the cost of these devices would be considerably higher.***

If you factor in the costs of adding an estimated five to ten times more sites than current LMR systems use to provide equivalent coverage, plus the power requirements, then you can see how costs could quickly escalate out of control. Also, consider an organization currently without public safety representation dictating costs, usage allowance and timing to you. Does embracing this concept wholeheartedly at this stage seem like stepping blindly off a rooftop and hoping that someone below catches you?

Public safety first responders **MUST** stay involved in discussions and make themselves heard. Decision makers in legislative bodies often are urged to focus on the "latest and greatest technologies," but in the end, mission critical communications are often a matter of life and death, so the tools provided to first responders must be of proven reliability.

The public safety first responder community has worked long and hard to get current LMR systems deployed, and to meet mandates for narrowbanding. To throw that away and start over with only a concept and some promises puts not only the responders at risk, it also puts the very people they vow to protect at risk.

Let's all look before we leap and move forward with an open, but questioning, mind.

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