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TRAINING THE WORLD'S **FIRST** FIRST RESPONDERS™

Emerging Technologies

Terms like *Voice over IP*, *broadband phone*, *Wi-Fi*, *telematics*, and *Internet protocol* have revolutionized the way that we make and receive phone calls, Internet service, and how we spend our leisure time. Technology is changing daily and commercial and public safety providers are trying to keep up with the demands of the public for all the services they want, all the time.

Voice over Internet Protocol, VoIP, is defined as an assortment of specialized equipment and computer software that allows people to communicate with each other vocally using the Internet. Data has been traveling via the Internet in the form of web pages, email and instant messaging. Technological advances now allow voice to join the crowd.

Numerous broadband phone services have launched home and business VoIP options. The term "broadband" refers to communication networks that are used to send a variety of signal types all at once. Satellite, cable and broadcast television are all examples of broadband. Now phone services have joined this phenomenon. The wide availability of equipment and choices has reduced prices significantly. The voice quality of broadband services is usually clear, although there is some difference between broadband quality and traditional hardwire services.

Broadband phone services have ushered in other consumer demands like number portability. This allows users to keep their original phone number issued via traditional methods while taking advantage of the new technology. Number portability has brought with it a few challenges, such as knowing where callers are when they expect Enhanced 9-1-1 service. Broadband phone companies continue to experiment with delivering services that the public expects. One company conducted experiments in Rhode Island during October 2004. They were able to successfully deliver the caller's location, as well as the callback number via the broadband phone service. APCO International is concerned about the absence of location data for callers who are seeking to access 9-1-1. APCO is working diligently to support requirements where VoIP providers would enable their callers to record a location and/or allow dynamic location data to be derived.

While not all broadband companies are currently experimenting with Enhanced 9-1-1, a few of them are willing to continue testing until their customers receive all the benefits of traditional telephone services. This means that the public safety telecommunicator will need to be always aware of technological changes and enhancements.

Wi-Fi, which means wireless fidelity, has additional concerns for the public safety arena. Wi-Fi apparatus allows several devices, like laptop and desktop computers, to use and share a single high-speed Internet connection. High frequency radio signals transmit and receive data between the computers and the Wi-Fi interface equipment in order to provide the connection.

It is now possible for someone to use a laptop with a Wi-Fi connection to access the Internet as well as a broadband phone system. This means that any number of locations could be transmitted automatically if a user needed to contact emergency services. Would responders go to the location of the Wi-Fi device? Would they respond to the billing location of the broadband phone account? All these challenges and more will have to be addressed as technology becomes more portable.

Amateur radio operators have conducted experiments over the past few years in Europe and the United States involving the use of Voice over IP (VoIP). These experiments involve software that links radios to computers. People who are interested in this experimentation can use radios linked to computers, or may choose to communicate with others via computers while using headsets and microphones attached to computer sound cards. Users in such wide-ranging areas as London, Missouri, Florida and Kuwait City can be all talking together in real time, with audio properties that generally sound as clear as telephone calls.

Telematics is a general term referring to the emerging technology and industry involved in delivering location-based services to consumer-driven vehicles, whether personal or rental ones. The term may also be applied to portable devices brought into the vehicle that are capable of interacting with the vehicle electronics as well as a wireless communications network. Telematics integrates cellular communications, GPS satellite technology, in-vehicle crash sensors, and off-board data processing. The vehicle's location is determined at the time of the call; it is not updated automatically if the car is moving. The telematics center must query the car for an updated location. After receiving this information, telematics centers use a database to identify and contact the Public Safety Answering Point (PSAP) with jurisdiction.

The primary benefits of these services to emergency call taking and dispatch include quick notification of an incident and verification of its emergency nature; an accurate location of the vehicle emergency; the ability to conference the emergency call taker or dispatcher into the vehicle; a call-back number to the telematics response center in the event of a disrupted call; accurate vehicle description; direction of vehicle travel, i.e., eastbound or westbound, etc. and identification of the vehicle's owner.

APCO International is positioning itself to test the exchange of associated call data between telematics call centers and PSAPs this spring.

VoIP, broadband phones, and telematics will continue to influence the way that public safety responses are provided to callers. Emerging technologies will require communications centers to stay well versed with the various services available.

By Helen Straughn, APCO Institute Online Instructional Designer

Quiz

CDE Article – Emerging Technologies

Name: _____ Date: _____

Agency: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

1. VoIP is defined as an assortment of equipment and software that permits people to speak with each other via the Internet.
 - a. True
 - b. False

2. No one has experimented with Enhanced 9-1-1 and broadband phone service.
 - a. True
 - b. False

3. Wi-Fi will only allow one device to connect to the Internet at a time.
 - a. True
 - b. False

4. Amateur radio operators are experimenting with VoIP.
 - a. True
 - b. False

5. One of the benefits of telematics to emergency call taking is an accurate location of the vehicle emergency.
 - a. True
 - b. False

6. The term “broadband” refers to communications arrangements that are used to send diverse types of signals all at once.
 - a. True
 - b. False

7. Number portability works well with Enhanced 9-1-1, so that public safety communicators know exactly where callers are located.
 - a. True
 - b. False

8. One broadband phone company experimented with Enhanced 9-1-1 in the southeastern United States.
 - a. True
 - b. False

9. The term telematics may refer to portable devices brought into vehicles.
 - a. True
 - b. False