Overview of Lawfully-Authorized Electronic Surveillance For Wireless Communications Systems

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Abstract:
Wireless communication systems provide important and convenient way of voice and data communication to many people. In various places, wireless cell/smart phones are used more than the traditional landline telephones. This created a need to have standardized support for lawfully-authorized electronic surveillance (LAES) to the law enforcement agents. In 1994, the U.S. congress has passed a legislation known as the Communications Assistance for Law Enforcement Act (CALEA). CALEA requires both landline and wireless U.S. carriers to provide surveillance information to a lawfully authorized law enforcement monitoring center. The J-STD-025-A/B Standards define the interfaces between a telecommunication service provider (TSP) and a Law Enforcement Agency (LEA) to assist the LEA in conducting lawfully-authorized electronic surveillance. Wireless networks continuously change to support new voice/data Access Terminals (AT) and new Radio Access Networks (RAN). These rapid changes in the wireless communication systems create new challenges that require new innovations and forward thinking that allow the electronic surveillance technology to keep up with the advances in the wireless technology.

This lecture provides an overview of the Lawfully-Authorized Electronic Surveillance (LAES) on wireless communications subscribers through an outline that can show from system requirement prospective. The new system components of the wireless system interception functions, the network architectures, and various interception necessities are explained. In addition, the standard requirements and challenges in both the wireless networks and in the surveillance technology are presented. As a closing point, some open areas that may need further academic research in the future are mentioned.

Biography: Kafi Hassan is currently a senior Telecom Design Engineer at Sprint Nextel Corporation. Since 2006, he has been the lead engineer for the Network Development laboratory in Sterling, VA. From 1995 to 2006, he worked as a Member of Technical Staff at Bell Laboratories, Whippany, New Jersey, doing research and development in design and analysis of wireless communication systems. He has been a recipient of many professional honors, including the Bell Labs President's Gold Award in 2000, the Bell Labs President's Silver Award in 2002. He received B.S. and M.S. degree in electrical engineering from University of North Carolina at Charlotte, in 1992 and 1994, respectively, and Ph.D. degree in electrical engineering from the City College and Graduate School of the City University of New York, NY, in 2005. Dr. Hassan's current research interest include wireless security and lawful surveillance, high performance network optimization algorithms, network architectures and resource management, evolutionary computation and mobile applications.