

Course ID
**EMERGE-
LAW**
Course Duration
2-3 days

Course Title
**Emerging Communications and Technologies in Public
Safety, Law Enforcement, and Homeland Security**

**Related
Courses**

- Unified Communications in Public Safety, Law enforcement, and Homeland Security (UNIFIED, 2-3 days)
- Voice Communications and Technologies for 911 Call Takers, Supervisors and Trainers (VOICE-911, 2-3 days)
- VoIP for 911 Administrators, Managers, Directors and Regulators (VOIP-911, 2-3 days)
- IP, Location and Geo-Location Technologies for Law Enforcement, Intelligence and Public Safety (IPGEOLOC, 2-3 days)
- State-of-the-art of Wireless Communications for Non-engineering Professionals, Managers, and Executives (WIRELESS-EXEC, 4 days)
- Architecture and Operation of Wireless Networks for Technical Investigators: From Their Analog Origins to the Emerging 3G Technologies (WIRELESS-TI, 4-5 days)
- Security, Privacy and Information Integrity for Managers Executives and Policy Makers (SECURITY-EXEC, 2-3 days)
- SIP Security: A Comprehensive Short Course (SIPSEC, 2 days)
- IP Security v2 (IPSec v2) Architecture and Protocols (IPSEC, 2-3 days)
- IP Security v3 (IPSec v3) Workshop (IPSECWS, 2-3 days)
- VoIP Security (VOIPSEC, 2 days)
- IEEE 802.11 (WiFi) Wireless LAN Security (WIFISEC, 3 days)
- Principles of Network Security: CompTIA Security+ and US DoD Directive 8570.1 (NETSEC, 3-4 days)
- Communications Assistance to Law Enforcement Act (CALEA): Technologies and Compliance for TDM and Packet Voice Services (CALEA, 2-3 days)

Aimed At

Individuals in Information Technology (IT), planning, strategic, tactical and logistical roles within public safety, law enforcement, and homeland security agencies at the local, state, and national level who need to keep abreast of the evolving communications methodologies, systems, and technologies.

Group Size

5-25

Prerequisites

You should have a basic understanding of IP network terminology and current public safety, law enforcement, and homeland security communications and technologies.

Course in a Nutshell

This tutorial consists of two halves, with the first half emphasizing functional explanation, productivity, and Return on Investment (ROI) issues. The second half focuses on the underlying technologies, necessary components, and changes. Both halves will be of interest to the target audience. However, the first half will be of particular interest and applicability to the management and strategic, tactical and logistical planning personnel, while the second half will be of greater interest to the engineers, technicians and technologists.

The topics listed in the detailed outline below should be seen more as examples of the type of material to be covered than the actual course agenda. Since what qualifies as “emerging technologies” is always changing, the content will be updated to reflect the technologies prevailing at the time of a given class. It is our intent to cover in this course the most up-to-date information available at any time.

Customize It!

We can adapt this course to your group’s background and project requirements at little to no added charge. Depending on your needs, the course can be tailored to emphasize business or technical issues, include or skip certain topics, or made more or less technical.

Course Outline

- Introduction: Macro Drivers and Changes

An overview of the drivers and changes that are occurring at a macro level. Special consideration will be given to market segmentation both geographically (rural, metro, regional, national, global) and by vendor (carrier and service provider).

- Human Communications 2008
- Productivity and Business Transformation
- Risks and Rewards
- Changing Business Models
- Global Trends
- MICE: Multimedia, Internet, Communications, and Entertainment
- MICE vs Triple Play

- Module 1: Multimedia Services

The M in Mice stands for multimedia. This section will provide a deeper understanding of many of the emerging service elements inherent in multimedia voice/data/video services.

- Speech-to-Text
- Text-to-Speech
- Translation Machine
- Video Conferencing
- Voice

- VoIP
- IP Telephony
- Unified Communications
- Telepresence
- Rich Media Conferencing
- Module 2: Internet Services

Basic Internet services are well understood. Module 2 assumes that base of knowledge and delves into the fine points of Internet service delivery such as multi-network QoS, Quality of [User] Experience and other extensions to the basic Internet services model.

- Quality of Service (QoS)
- Quality of Experience (QoE)
- Policy and Policy Enforcement
- Data /Mobile Data/Wireless Data

- Module 3: Communications Services

A great deal of the revenue to be realized from both residential and commercial consumers is from some of the traditional services but with a unified messaging / unified communications spin and incorporating new facets such as presence, preference and personalization.

- Presence
- Preference
- Personalization
- Messaging
 - Instant Messaging
 - Short Message Service (SMS)
 - Unified Messaging
 - 9-1-1 Call Enhancements
- Location Based Services
 - Telematics
 - Automatic Crash Notification
 - House Arrest
- Mobility / Extension Mobility
- Digital Signage/Digital Billboards
 - Emergency Notification
 - Traffic Management/Alternate Routing
- Call Routing
 - Find Me Services
 - 911 Call Handling, Routing and Overflow
- Communications Assistance to Law Enforcement Act (CALEA)

Ramifications

- Module 3: Entertainment Services

This section will provide a very brief overview of entertainment services and how they are being exploited by criminals.

- Digital Millennium Copyright Act (DMCA)
- Entertainment Services
 - Infotainment
 - IPTV
 - Personal Video Recorders (PVR)
 - Slingbox
 - Video on Demand (VoD)
 - Wireless Video

- Module 4: Architectures

Because of the substantial amount of time, money and effort involved in moving to new architectures, emerging architectures are shaping the future of communications for the foreseeable future. Module 4 discusses a range of new architectures and architectural considerations.

- Fixed-Mobile Convergence (FMC)
- Internet Multimedia Subsystem (IMS)
- Service Oriented Architectures
- Web 2.0/3.0/4.0
- Network Neutrality

- Module 5: Infrastructure

Whether it is leased or owned, infrastructure represents the biggest cost area for any carrier or service provider, representing two thirds or more of total expenses. The impact of infrastructure directions on emerging and emergent technologies and services will be discussed in Module 5.

- Convergence/Consolidation
 - Transport
 - Service
 - Application
- MOCA

- Module 6: Technologies

Knowledge of a number of emerging and changing technologies is needed to complete one's understanding of emerging communications technologies.

- Open Source: Asterisk, etc.
- Gateways
 - Media Gateways

- Session Border Controllers
- Signaling Gateways
- IPTV
- WiFi/WiMax
- 3G/4G Cellular
- GSM to GPRS
- Satellite
- RFID
- 700 Mhz Wireless
- Storage Area Networks (SAN)/Caching
- Facial Recognition

- Module 7: Protocols and Languages

Some new protocols and languages accompany emerging technologies. Module 7 will provide a survey of these protocols and their relationships with existing and emerging systems.

- IMS Protocol Suite
- CAMEL
- IPv6
- XML/VML
 - Global Justice XML Data Model (Global JXDM)
 - GSA XML Tags

- Module 8: Trends

Module 8, Trends, will be where the foregoing information is summarized and pulled together in a manner that will allow the knowledge gained during the prior two or three days to be applied. The Trends module represents analysis and observations on where things are going and where else they might go.

- Mash-Ups
- Rich User Experience
- Architecture of Participation
- Blog/blogging
- Social Networking
- Leveraging Collective Intelligence
- Hackability/Remixability
- Lightweight Programming Models
- Wiki
- Virtualization
- Business Continuity/Disaster Planning

- Conclusion

- Applying Web 2.0 and Unified Communications to YOUR Agency
- Future of Human Communications
- A Call to Action!

**How You Will
Learn**

- This is a tutorial, consisting of lecture and discussion.
- The course will be taught by a highly qualified communications and technologies specialist who's intimately familiar with the public safety, law enforcement, and homeland security space.
- The course will cover the topics from both a "business" and a "technical" perspective.
- If you already know something the subject matter, we will build on that knowledge base. If your background is less technical, we will use examples and analogies to make the technical content easier to understand.
- We will provide you with a Participant Handbook that will help you recall and reference what you learned in class.

Revised

May 5, 2008f