

WIRELESS 2.5G AND 3G FUNDAMENTALS

This very aggressive, information packed two day seminar provides a solid background in 2.5G and 3G fundamentals in a very short period of time. A basic knowledge of wireless communications concepts and principles are beneficial if you are to get the most out of this course, making it the perfect companion course to our Wireless 2.5G and 3G Fundamentals course. After a very brief refresher on first and second generation wireless networks and circuit and packet networks, the course very quickly moves on to cover GSM, CDMA and other 3G technologies with a strong emphasis on mobile data, touching briefly on 4G.

Audience:

Telecom carriers, service providers, wireless software and application developers, equipment manufacturers, Venture Capitalists (VCs), consultants, marketers and anyone else needing a clear understanding of the next evolutionary steps in mobile wireless with a data emphasis.

Prerequisites:

A basic knowledge of wireless communications concepts and principles is beneficial to get the most out of this course.

Objectives:

At the conclusion of this course the student will be able to:

- Understand technologies supporting next generation wireless systems
- Identify the wireless data technology evolution path for GSM and ANSI networks
- Understand the system, function, and operation of 2.5G and 3G networks
- Understand the differences between GSM and CDMA-based technologies
- Identify the issues involved in migrating from 2G to 2.5G and beyond
- Identify the applications and related network requirements for next generation wireless data services
- Understand the challenges and opportunities involved in deploying and operating wireless data networks

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COURSE OUTLINE

Day 1

1. Introduction to Wireless Data Technologies

- Circuit versus packet switching
- 1G wireless data
 - CDPD
- 2G wireless data
 - Circuit switched data
 - WAP
 - SMS
 - USSD
- Introduction to 2.5G
 - Improvements with 2.5G
 - "Always on"
 - Greater bandwidth available to users
 - Faster connections
 - More efficient use of spectrum
- Application example: WAP
- GSM path
 - HSCSD
 - GSM-to-GPRS-to-EDGE-to-W-CDMA
- ANSI path
- cdmaOne-to-CMDA2000

2. GSM

- GPRS
 - Introduction
 - Why is it faster than GSM?
 - Calculating GPRS data speeds
 - Evolving from GSM to GPRS
 - GPRS Core Network (CN)
 - i. Network architecture and configuration
 - ii. Network element functions and capabilities
 - Mobility management in GPRS
 - i. Network management
 - a. Attachment
 - b. PDP contexts
 - c. GPRS tunneling protocol

- ii. Mobile stations management
 - a. Ready state
 - b. Standby state
 - c. Idle state
- GPRS mobile station capabilities
 - i. Class A, B, and C terminals
 - ii. Time slot classes
- EDGE
 - Radio Access Network (RAN) improvements
 - Core network remains the same
 - EDGE evolution
- W-CDMA
 - Changes to RAN
 - New core network elements
 - W-CDMA vs. CDMA2000

3. CDMA

- Introduction to CDMA2000
 - RAN network
 - Core network
 - i. Network architecture and configuration
 - ii. Network element functions and capabilities
- 1xRTT
- 1xEV-DO
- 1xEV-DV
- 3xRTT

Day 2

4. Other 3G standards

- FOMA
- TD-SCDMA

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5. Evolution of Wireless Data

- Evolution from 2.5G to 3G
- 3G standardization
- 3G compatibility
- What about 4G and WLAN's?

6. Technical and Business Challenges and Opportunities

- Actual vs. theoretical data speeds
- Charging and billing for 2.5G and 3G services
- Quality of service, performance, and network optimization
- Integration of presence and location technologies
- 2.5G and 3G applications
 - MMS
 - MIM

7. Deployment and Operations Update

- Status of 2.5G and 3G deployments
 - Challenges of migrating from 2G to 2.5G
 - Case evaluation of mobile network operators
- Applications offered - successes and failures
 - Applications delivered
 - Service plans offered
 - Customer uptake, usage and network impacts

8. Conclusion

- Focus on Wireless Data
- The Mobile Wireless Future