

Course ID

EVDV

Course Duration

3 days

Related Courses

Course Title

1xEVDV: Network Architecture, Operation, and Design

- 1xEVDO: Network Architecture, Operation, and Design (EVDO, 3days)
- UMTS-FDD: Network Architecture, Operation, and Design (UMTS-FDD, 3 days)
- UMTS-TDD: Network Architecture, Operation, and Design (UMTS-TDD, 2 days)
- HSDPA: Network Architecture, Operation, and Design (HSDPA, 2 days)
- HSUPA: Network Architecture, Operation, and Design (HSUPA, 2 days)
- IP-Based Systems: TCP/IP and Mobile IP (IPSYS, 2 days)
- Multimedia Applications: IMS, SIP, and VoIP (MULTIMEDIA, 2 days)
- IMS: The Technology, Applications, and Challenges (IMS, 2 days)
- Traffic Engineering Models for 3G Network Design (TRAFFIC3G, 3 days)
- RF Systems Optimization Workshop: GSM, GPRS, EDGE, UMTS, cdmaOne, 1xRTT, EVDO (RFOPT, 3-5 days)

Aimed At

Those experienced with 1xRTT who wish to study the advanced capabilities of 1xEVDV.

Group Size

5-25

Prerequisites

- 1xRTT: Network Architecture, Operation, and Design (1XRTT, 2 days)

You should have good understanding of cellular network architecture and operation, at least one year job experience with any CDMA-based technology, and prior exposure to 1xRTT.

Course In a Nutshell

The cdma2000 1xEVDV technology, often abbreviated 1xEVDV or just EVDV, represents an advanced step in the evolution of the cdma2000 family of standards. Designed specifically for data, 1x EV-DV provides wireless service providers with the option of enhanced data capabilities with shared resources for voice capacity. This course covers the evolution of cdma2000 1xRTT through Releases 0, A, B, C and D. The enhancements for 1xEVDV contained in the cdma2000 releases C and D are the major focus of this course.

Building on your knowledge of the 1xRTT/cdma2000 networks, revision 0 through revision B (which is reviewed in the course) you'll learn all the additional capabilities and complexities that 1xEV-DV brings to the network design,

operation, and optimization process. This will help you interact more effectively with the equipment vendors as well as design better EV-DV networks, devices, and applications.

Customize It! We can customize the content and orientation (business versus technical) of this course to suit the needs of your audience. We can also adjust the content to your purpose for taking this course whether technology evaluation or business strategy, network design/optimization, equipment or application development, services design, marketing or sales, service or support, or other. There is usually little to no added charge for such customization.

This is a companion course to 1xEV-DO Network Architecture, Operation, and Design. If your job requires comparative understanding of or working with both EVDO and EVDV, we can teach a 5-day combined course at a combination course discount.

Course Outline

- Introduction and Course Overview
- cdma2000 Evolution: 3GPP2 and cdma2000 Standardization Process
 - 1xRTT (cdma2000 release 0)
 - cdma2000 Release A
 - cdma2000 Release B
 - cdma2000 Release C and D (1xEV-DV)
- cdma2000/1xRTT System Architecture (Release 0 to Release B)
 - cdma2000 air interface
 - Adaptive modulation and coding
 - Variable channelization and spreading
 - Reverse and forward link physical channels
 - Reverse and forward link channel coding
 - Convolutional encoders
 - Turbo encoders
 - Reverse and forward link modulation
 - cdma2000 call setup and processing
 - Mobile station idle and initialization states
 - System access state
 - Traffic channels
 - Voice and data transmission
 - Traffic channel handoff algorithms
 - Traffic channel power control features
- Introduction to 1xEVDV
 - Operational and technical advantages of EV-DV
 - Evolution of 1xRTT to EVDV

- Enhancements Offered by cdma2000 Release C
 - Improved data rates and QoS reliability on the forward link
 - Forward link data packet channel
 - Description of new physical channels
- Enhancements Offered by cdma2000 Release D
 - New packet data channel on the reverse link
 - 1xEVDV protocol layers
 - Forward and reverse packet data channel control function (F/R PDCHCF)
 - F-PDCHCF attributes
 - R-PDCHCF attributes
- New Physical Channels in 1x EVDV Releases C and D
 - Forward link packet data channel (F-PDCH) (0-2 channels)
 - Forward link packet data control channel (F-PDCCH)
 - Reverse acknowledgement channel (R-ACKCH)
 - Reverse channel quality indicator channel (R-CQICH)
 - Forward acknowledgement channel (F-ACKCH)
 - Forward grant channel (F-GCH)
 - Forward rate control channel (F-RCCH)
 - Reverse packet data channel (R-PDCH) (0-1 channel)
 - Reverse packet data control channel (R-PDCCH) (One per F-PDCH)
 - Reverse request channel (R-REQCH)
- Release D Channel Configuration Capabilities
- Forward Packet Data Channel Operation
 - F-PDCCH processing functions
 - Hybrid ARQ on the F-PDCH
 - Channel quality measurement and cell switch operational details
 - Flexible code division multiplexing (CDM)and time division multiplexing (TDM)
 - Adaptive and asynchronous incremental redundancy (AAIR)
- Reverse Packet Data Channel Operation
 - Flexible rate control
 - Hybrid ARQ
 - QoS control with scheduling and rate determination
- Physical Layer Structure for the New 1xEVDV Channels
 - Forward packet data control channel physical layer structure
 - Forward packet data channel physical layer structure
 - Payload size
 - Fast adaptive modulation
 - QPSK
 - 8PSK

- 16QAM
 - Code rates and modulation orders
 - Data modulation and channelization spreading
 - Forward indicator control channel
 - Forward grant channel
 - Forward acknowledgement channel
- Reverse packet data and control channel physical layer structure
 - Reverse acknowledgement channel
 - Data rates and Walsh code allocations
 - Reverse packet data control channel coding
 - Effective coding and data rates on the reverse packet data channel
- Call flow in 1xEVDO
 - Origination without a dedicated traffic channel
 - Origination with a dedicated traffic channel
- Additional Enhancements Incorporated in 1xEVDV
 - Broadcast/multicast service
 - Fast call setup
 - Reduced cycle index
 - Other signaling additions and enhancements
 - Direct channel assignment and mobile tracking
 - Mobile equipment identifier support
- Conclusion: Recap, Q/A, and Evaluation

How You Will Learn

- You will learn in interactive lecture format from an instructor who's well versed in a range of CDMA- technologies.
- Along with lecture, we will employ exercises and interesting group activities to add clarity and interest to the class.
- If you already know something about the CDMA technology family, we will build on that. If your background is less technical, we will use examples and analogies to communicate the important points.
- You will also receive a participant book that contains a copy of the instructor presentation and other reference material to act as a refresher and reference when you're back on your job.

Revised

May 5, 2007f