

CDG and 3GPP Cooperation

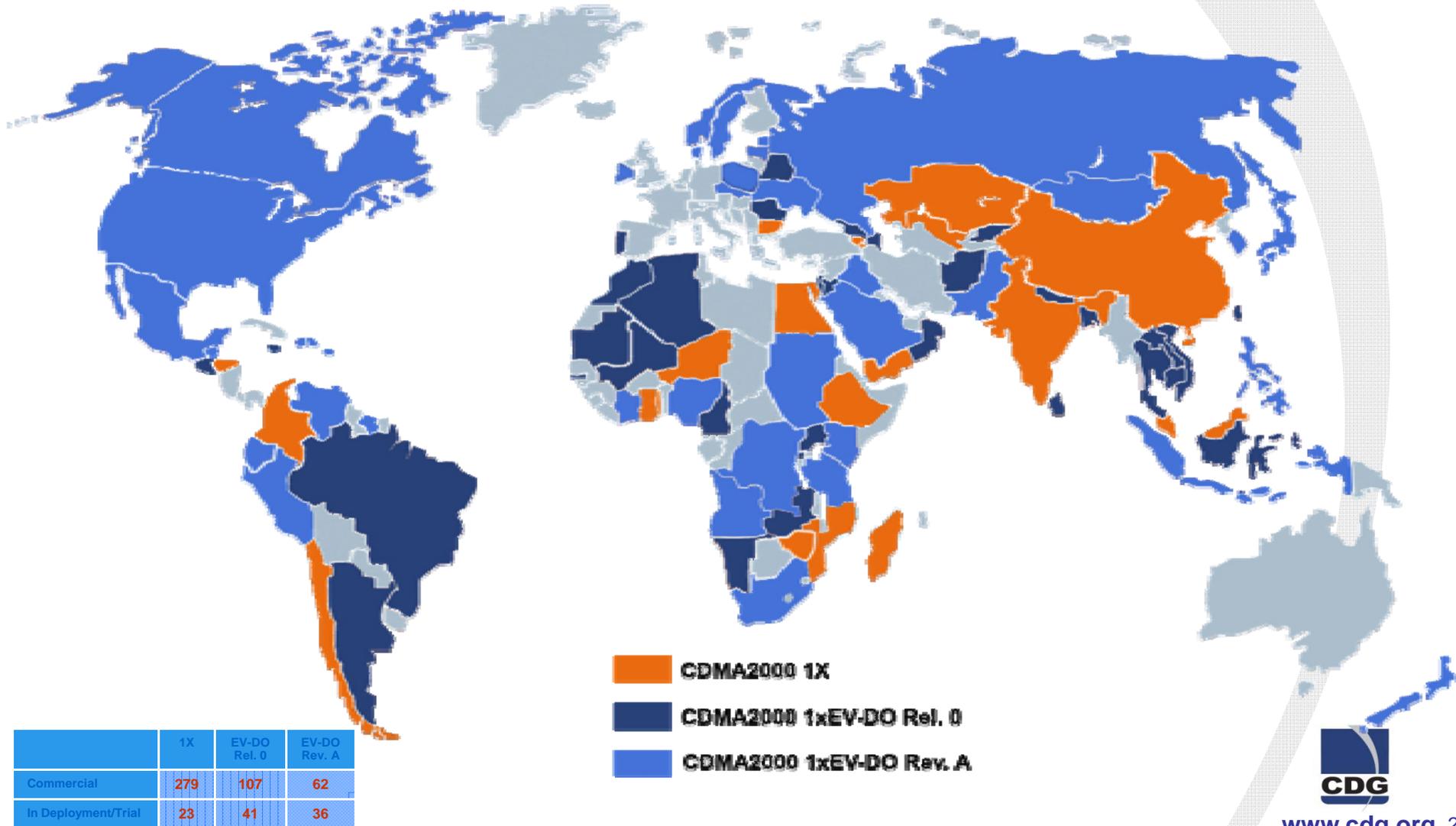
CDMA Development Group

April 28, 2009



CDMA: Global Presence

*486 Million Subs from more than 300 operators
in 110 countries/territories*



Why CDG Wants to Join 3GPP

- **Our members have asked us to support LTE**
- **LTE is part of the CDMA2000[®] Evolution roadmap**
- **Our Charter supports the rapid evolution and deployment of “open standards” that encompass all core architectures**
- **Most leading CDMA2000 operators are driving the commercialization of LTE**
- **To support the global standards collaboration**



CDG Operators Deploying LTE

The following CDG operators have publicly announced their plans to deploy LTE



CDG Manufacturers Working on LTE

The following CDG members are developing LTE equipment

Infrastructure Vendors



HITACHI



NORTEL NETWORKS



ZTE中兴

Chipset and Device Vendors



NOKIA
Connecting People



QUALCOMM

Test Vendors



What Operators Want

- 1. Meet the growing demand for voice, data and advanced broadband services**
- 2. Offer an unsurpassed user experience in delivering these services**
- 3. Reduce the overall cost of delivering these services**
- 4. Maximize the return on existing investments while gracefully transitioning to newer technology**
- 5. Provide consistent and seamless user experience during this transition period**
- 6. Revenue generating applications to create market advantage regardless of the underlying access technology**

CDMA Evolution to OFDM

CDG endorses LTE as a next-generation technology for mobile broadband services

CDMA2000 - based Technologies



IMS

OFDMA - based Technologies



2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012+

"OFDM-based technologies have become a desired component of the CDMA2000 roadmap, along with the enhancements to 1X and EV-DO which we believe many CDMA operators will continue to use as viable solutions for voice and mobile broadband services." - Perry LaForge



Value CDG Brings to 3GPP

- A. Market Representation:** Representing the collective needs of a large and strategically important global market
- More than **486 million** subscribers served by over **120** vendors and close to **300** CDMA operators in **109** countries/territories
- B. Commercialization Support:** Supporting the commercialization of LTE in a variety of ways, including;
- Network Interoperability and Mobility
 - Multimode Device Service Determination and Availability
 - Inter-Standard Global Roaming
 - Technical Training
 - Marketing and Advocacy
 - Regulatory Affairs
- C. Market Collaboration:** Collaborating on developing the market requirements for LTE and its future evolution – to create a global standard



CDG Value Proposition

- **Mature, focused and agile industry organization**
 - Established in December 1993 – currently has 134 members
 - Focused on supporting existing CDMA2000 operator business interests, while they transition to LTE
 - Responsive to the unique needs of CDMA2000 operators
- **Established, experienced and influential organization**
 - Experienced in supporting 1G/2G/3G networks and multimode device solutions
 - Developing the requirements and ecosystem that will ensure seamless interoperability with LTE
 - Inter-standard network interoperability and system determination standards
 - Inter-standard roaming
 - Multimode device procurement (requirements, test, and certification, etc.)
 - Seamless delivery of services across CDMA2000 and LTE networks and devices
 - Able to influence key decision makers, without conflicts of interest
 - Device strategy, regulatory affairs, roaming, evolution, advocacy, etc.



Current CDG Focus Areas

CDG is working towards ensuring a graceful integration with LTE

Seamless Mobility:

- To ensure service continuity, inter-standard hand-offs between LTE and CDMA2000 networks is essential

System Determination:

- To maximize revenue, the appropriate system determination algorithms must exist in every CDMA2000/LTE device

Device Certification:

- To ensure Device Availability, full compliance, device certification from an independent third-party is sanctioned

Inter-Standard Global Roaming:

- To enable global roaming, inter-standard roaming between LTE and CDMA2000 networks is essential



CDG LTE Advocacy

CDG's Advocacy Council is communicating the solid and long-term path forward for CDMA2000 operators, which includes LTE

- **Revamping the CDG website**
 - Improved visibility on the technology roadmap, which includes LTE
- **Hosted a “Technology Forum” on enabling CDMA2000 and LTE interoperability**
 - San Francisco, April 30, 2008
- **Hosted “Mobile Broadband Workshops” to describe the evolution to LTE**
 - China, Mexico, United States and Vietnam
- **Incorporated LTE interoperability discussions in several CDG conferences**
 - Cancun, Cape Town and San Diego
- **Presented at the ATIS 3GPP LTE Conference**
 - Dallas, January 26, 2009
- **Organized a “CDMA2000/LTE” Workshop**
 - CTIA, Las Vegas, April 1, 2009
- **Issued a fact sheet on “Next Generation Networks”**
 - Distributed at CTIA, 2009
- **Publishing an article entitled “CDMA Operators Lead the Way to 4G”**
 - June 2009 issue of *Mobile Leader*



CDG Advocacy Plan

Advocacy Efforts will include but not be limited to:

- **Full CDG's commitment to support the commercialization of LTE**
 - Support of standards, device requirements, device certification, inter-standard roaming, etc.
 - Promote support of “open connectivity” solutions
- **Issue white papers on how CDMA2000 networks interoperate with LTE networks**
- **Webcasts on CDMA2000 evolution and LTE interoperability**
- **Participate in LTE-specific industry event presentations**
- **Media and industry analyst outreach (interviews and press briefings)**
- **Financial analyst seminars**
- **Submit editorials and contribute articles**
- **Collateral marketing**



LTE Beyond Just Interworking

- a) **CDG fully supports LTE as next evolution of CDMA2000 technology**
- b) **CDG supports migration of CDMA2000 services to LTE when it makes business and economic sense**

"The CDMA Development Group (CDG) and its members fully endorse the LTE technology developed by 3GPP and the future evolution path of CDMA2000® to LTE to meet the growing demand for advanced mobile wireless broadband services. Our main purpose in joining 3GPP as an MRP is to assist both 3GPP and 3GPP2 in developing the appropriate specifications to make this transition possible. I can assure you that CDG will work hand in hand with all 3GPP OPs and other MRPs to make LTE a great success including the future enhancements of LTE."

-Perry LaForge-
Executive Director-CDMA Development Group



Back Up Slides

CDMA Development Group

April 28, 2009



CDG Current Web Page

NEWS

TECHNOLOGY

MEMBERSHIP

CDMA HIGHLIGHTS

3G

- ▶ **CDMA2000/LTE Workshop**
Presentations now available for downloading
- ▶ **Mobile Leader Vol. 2, Issue 1 2009**
- ▶ **CDMA2000: Path to LTE**
By CDG, January 26, 2009
- ▶ **Network Growth and Subscriber Forecast**
By CDG, December 17, 2008

[More 3G Resources](#)

PRESS RELEASES

- ▶ **April 1, 2009**
CDMA Roadmap Offers Enhancements to CDMA2000 1X and EV-DO and a Path OFDM-Based Technologies
- ▶ **March 25, 2009**
CDMA2000 Continues Steady Growth in 2008, Poised for Rapid Uptake in China and India in 2009

LATEST NEWS

- ▶ **Tata Indicom Races On With 'Photon+'...**
- ▶ **Reliance Communication Launches 'Netconnect Broadband ...**
- ▶ **Alcatel-Lucent To Develop Satellite Base Station ...**

Quick Market Facts

- ▶ 279 commercial operators
- ▶ 102 countries/territories
- ▶ 271 commercial 1X networks
- ▶ 23 1X networks in deployment
- ▶ 107 commercial 1xEV-DO Rel. 0 networks
- ▶ 41 1xEV-DO Rel. 0 networks in deployment
- ▶ 62 commercial 1xEV-DO Rev. A networks
- ▶ 36 1xEV-DO Rev. A networks in deployment
- ▶ 454,900,000 CDMA2000 subscribers (4Q 2008)
- ▶ 112,370,000 CDMA2000 1xEV-DO subscribers (4Q 2008)
- ▶ 2,087 devices have been introduced in to the market including 528 1xEV-DO Rel. 0 and 118 1xEV-DO Rev A devices (as of March 27, 2009)
- ▶ [View a full list of CDMA2000 Market Statistics](#)

CDMA2000 Evolution

The CDMA2000 family of standards will continue to serve operators well into the next decade, and it will provide support for a graceful transition to next-generation wireless broadband technologies. Many CDMA2000 operators are supplementing their existing networks with OFDMA technologies such as LTE to deliver advanced mobile applications that require greater network capacity and data speeds. CDG and its members are developing solutions to ensure that CDMA2000 devices, networks and roaming will provide a seamless user experience across CDMA2000 and 4G wireless technology platforms.

CDMA2000: Market Trends and Facts

Highlights CDMA2000 leadership in delivering advanced services across the market.

Also available in: [Español](#)

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CDMA2000 / LTE Workshop at CTIA Wireless 2009

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Leading in Mobile Technology
and Service Innovation

CDMA2000 Worldwide

CDMA2000 Evolution



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[CDMA2000 Evolution](#) | [CDMA2000 Technologies](#) | [LTE](#)

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CDMA2000 News

Member Spotlight

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For carriers who roam.



New CDG Website (Continued)



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Latest News

LTE

LTE (Long Term Evolution) is a new air interface technology that incorporates Orthogonal Frequency Division Multiple Access (OFDMA) in the downlink and Single-Carrier Frequency Division Multiple Access (SC-FDMA) in the uplink. Together with Multiple Input Multiple Output (MIMO) and beamforming antenna technology, LTE is designed to increase data throughput rates and quality of service, while significantly improving network capacity and reducing delivery cost. LTE supports MBSFN (Multicast Broadcast Single Frequency Network) to deliver multicast and mobile broadcast television services. LTE can be deployed in 1.5 MHz bandwidth increments up to 20 MHz of contiguous spectrum.

The standard for LTE along with its flat IP-based core network, known as System Evolved Architecture (SAE), is defined by the Third Generation Partnership Project (3GPP) as Release 8. LTE is considered to be a next generation mobile technology solution. The more advanced version of LTE, known as LTE-Advanced (LTE-A), is expected to meet the requirements being established by the International Telecommunications Union (ITU) for "IMT-Advanced" systems; and, if so, will be considered a fourth generation (4G) mobile technology solution.

CDMA2000 operators will be among the first to commercialize LTE in the world. LTE will coexist with and augment the network capacity of CDMA2000 EV-DO broadband networks by leveraging wider bandwidths (e.g., greater than 5 MHz).



CTIA CDMA2000/LTE Workshop

CDMA2000/LTE Workshop



CDMA2000/LTE Workshop

Las Vegas Convention Center Room N 254

April 1, 2009 • 2:30-5:00 PM

Official Show Partner



A Division of CTIA - The Wireless Association

CDMA2000® has been a very successful 3G technology, with 276 operators in 102 countries and territories serving more than 463 million subscribers. Today it leads 3G in terms of performance, affordability and adoption, and will continue to do so well into the future. With an elegant evolution path to faster and faster data rates and capacity efficiency, CDMA2000 provides a strong basis from which operators can grow their core 3G systems.

The technology also provides a strong base from which to expand to complementary 4G technologies. In fact, many CDMA operators will be the first to augment their existing core networks with 4G OFDM-based systems. Much of this has to do with the remarkable success they have had with 3G and CDMA in particular.

CDMA systems will continue to offer ubiquitous high performance mobile broadband and voice services with a defined evolution path, while OFDM solutions will augment CDMA2000 capacity by leveraging wider bandwidths in high-teledensity areas.

The CDMA Development Group (CDG) is offering this workshop to:

- provide insight into the enhancements to the CDMA2000 evolution path
- share how LTE will be integrated into CDMA2000 networks, and
- reinforce that CDMA2000 operators can deploy LTE directly, without having to switch evolution paths.

Featuring leading infrastructure vendors Airvana, Alcatel-Lucent, Huawei, Motorola, Qualcomm and ZTE, the workshop is targeted at industry analysts, journalists, operators and vendors.



Upcoming Industry Events

Upcoming Events

Event: Vietnam Telecoms International Summit

Location: Melia Hotel, Hanoi, Vietnam

Date: May 19-21, 2009

20% registration discount for CDG members

[More Information](#)

[Conference Brochure](#)



Event: LTE World Summit

Location: Berlin, Germany

Date: May 19-21, 2009

[More Information](#)

Event: CDMA World Forum

Location: Beijing, China

Date: June 9-11, 2009

[More Information](#)

[Conference Brochure](#)



Event: LTE Asia

Location: Hong Kong

Date: September 8-9, 2009

[More Information](#)



Event: LTE Americas

Location: Atlanta, GA

Date: October 27-28, 2009



CDG Publication



Ericsson Video Interview

Ericsson: Perry LaForge Video Interview “Perspectives on 4G” Wednesday, April 1, 2009

Interview:

Perry LaForge, Executive Director, CDMA Development Group

Video will be posted on Ericsson web site in May

