



# CDMA2000/LTE Workshop

# Welcome

Presenters:

Airvana

Alcatel-Lucent 

  
HUAWEI



QUALCOMM®

ZTE中兴

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# Agenda

- 2:30-2:35      **Welcome Remarks**  
*Perry LaForge, Executive Director, **CDMA Development Group (CDG)***
- 2:35-2:50      **Strategic Overview**  
*Joe Lawrence, Vice President, Marketing, **CDG***
- 2:50-3:10      **Update on Multicarrier EV-DO Rev. B**  
*Harjot Saluja, Director, Product Management, **Airvana***
- 3:10-3:30      **CDMA2000 1X Enhancements**  
*Dave Readman, Director, Global Business Development, **ZTE***
- 3:30-3:50      **EV-DO Enhancements**  
*Eduardo Esteves, Senior Director, Technical Marketing, **Qualcomm***
- 3:50-4:10      **Factors Driving LTE Adoption**  
*Anil Barot, Director, Broadband Strategy & Device Alliances, **Motorola***
- 4:10-4:30      **Perspectives on LTE for CDMA2000 Operators**  
*Sarvesh Sharma, Director, Network Solutions, **Huawei***
- 4:30-4:50      **CDMA2000/LTE Interoperability**  
*Joe Tarallo, Director, Base Station Systems Eng. & RF Technology, **Alcatel-Lucent***
- 4:50-5:00      **Questions and Answers**



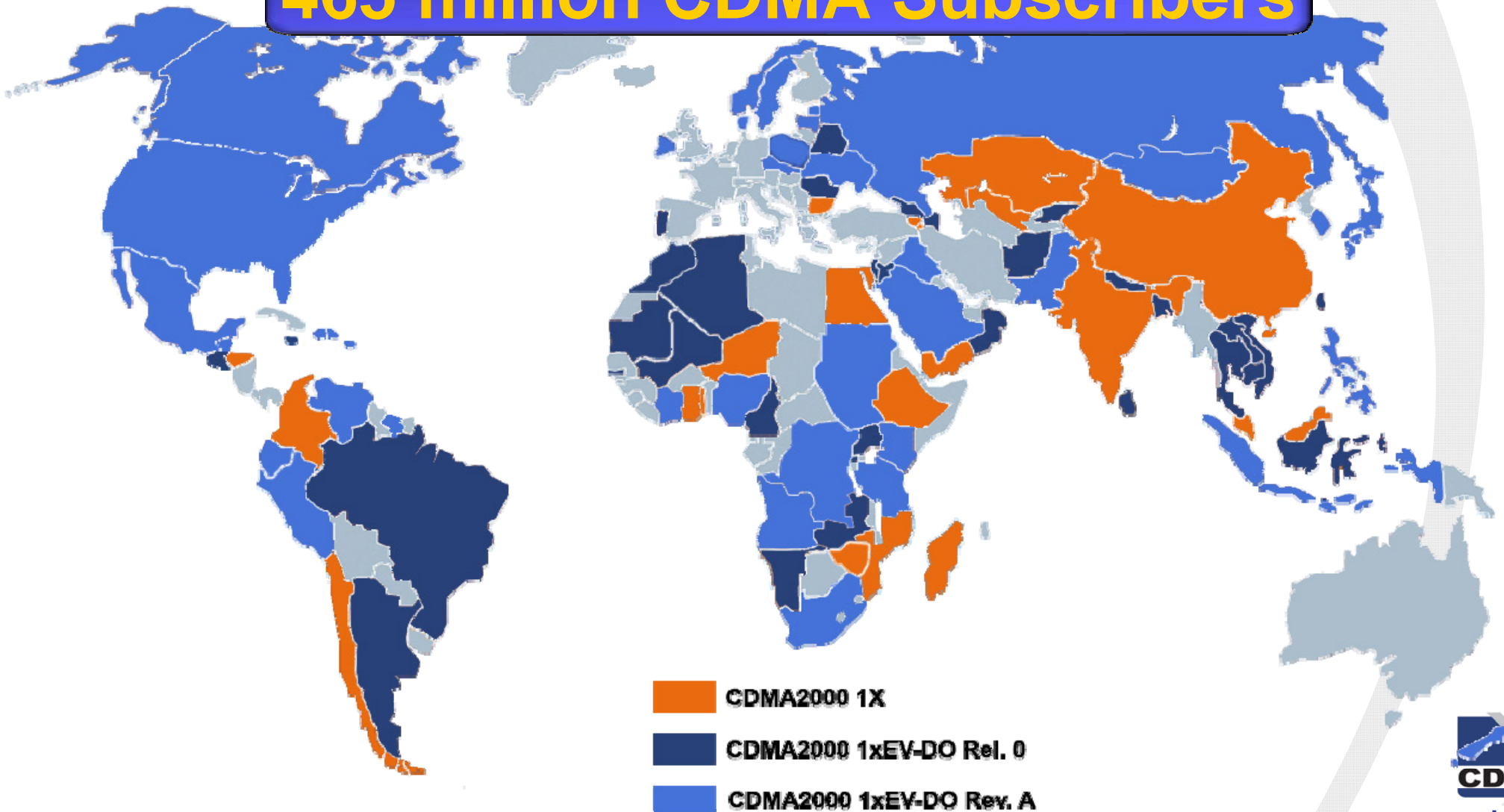
# Strategic Overview

# CDMA: Strong Global Presence

*CDMA2000 has built a strong ecosystem and enormous economies of scale*

**More than 300 operators in more than 109 countries/territories have deployed or are planning to deploy CDMA2000**

**465 million CDMA Subscribers**

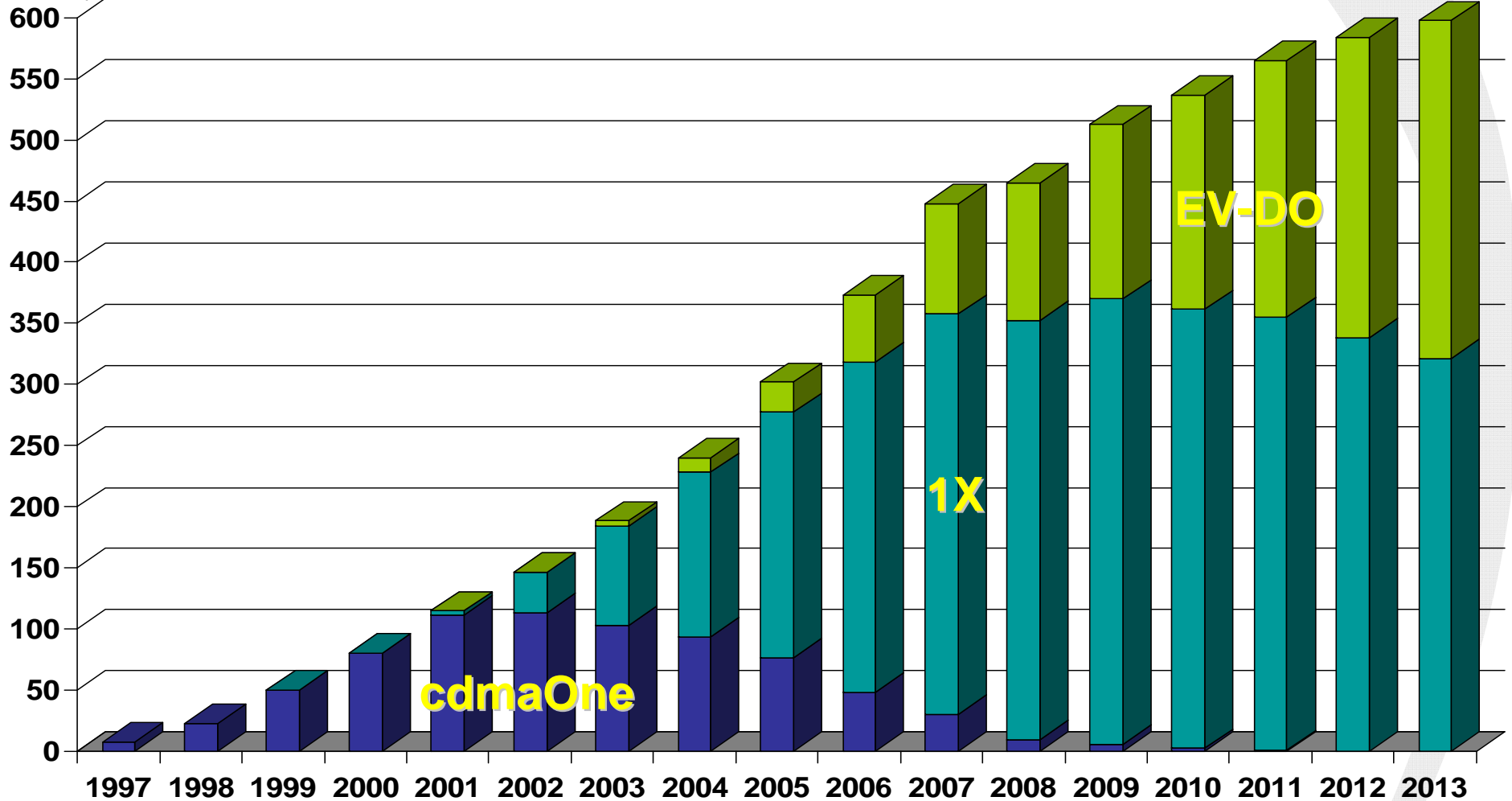


# Global CDMA2000 Subscriber Forecast

*CDMA2000 continues to grow at a rapid pace*

## CDMA2000 Subscribers Worldwide (Cumulative)

Subscribers  
(Millions)



\*Source: Actual CDMA Development Group

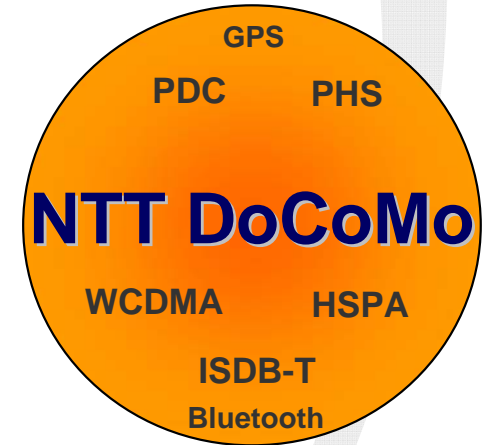
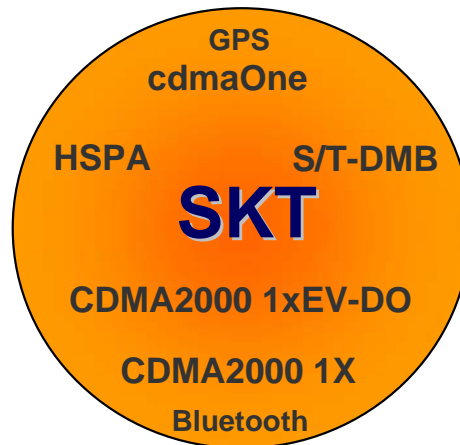
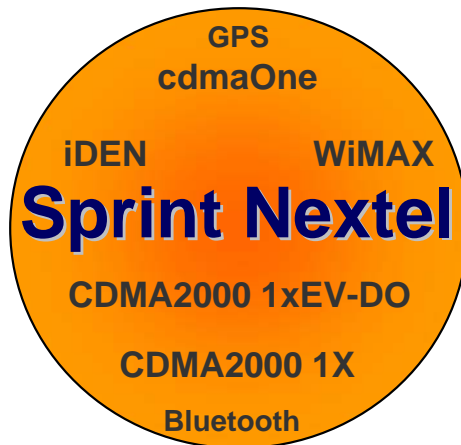
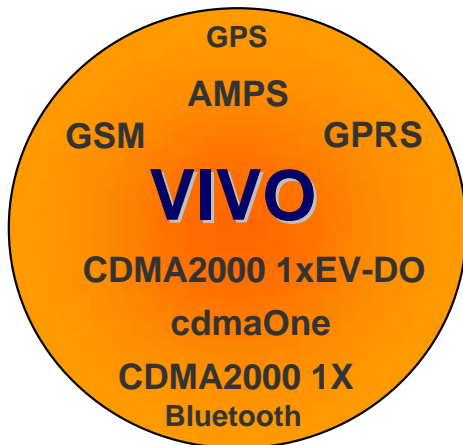
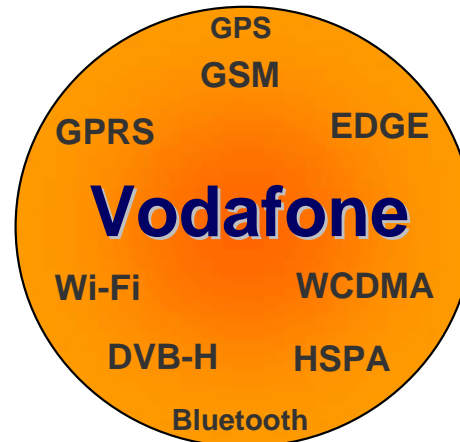
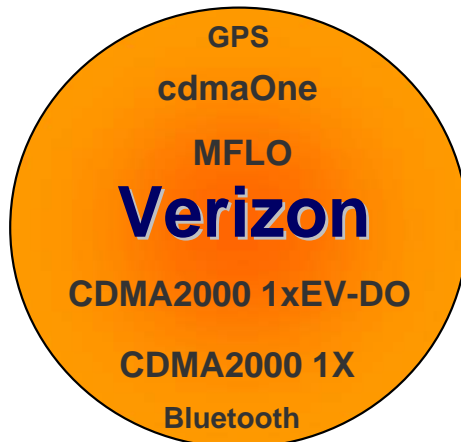
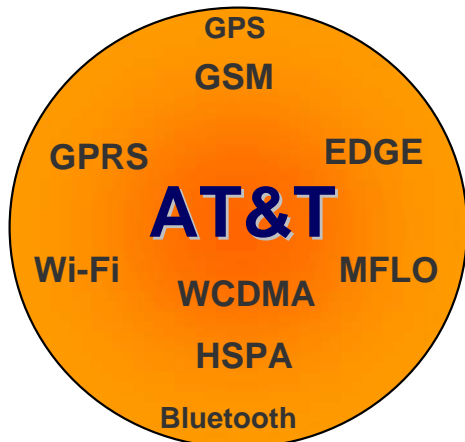
\*\*Source: Net growth average of Strategy Analytics (Jun 2008), ABI (Aug 2008), Wireless Intelligence (Jul 2008), WCIS+ (Jul 2008), iGR (Mar 2008) and Yankee Group (Jun 2008) for subscriber forecasts (2008 and beyond) summed with CDG actual numbers of 2008



# Mobile Communications Landscape

*Increased complexity is defining the future landscape of telecommunications*

**Most leading service providers support more than four radio technologies:**

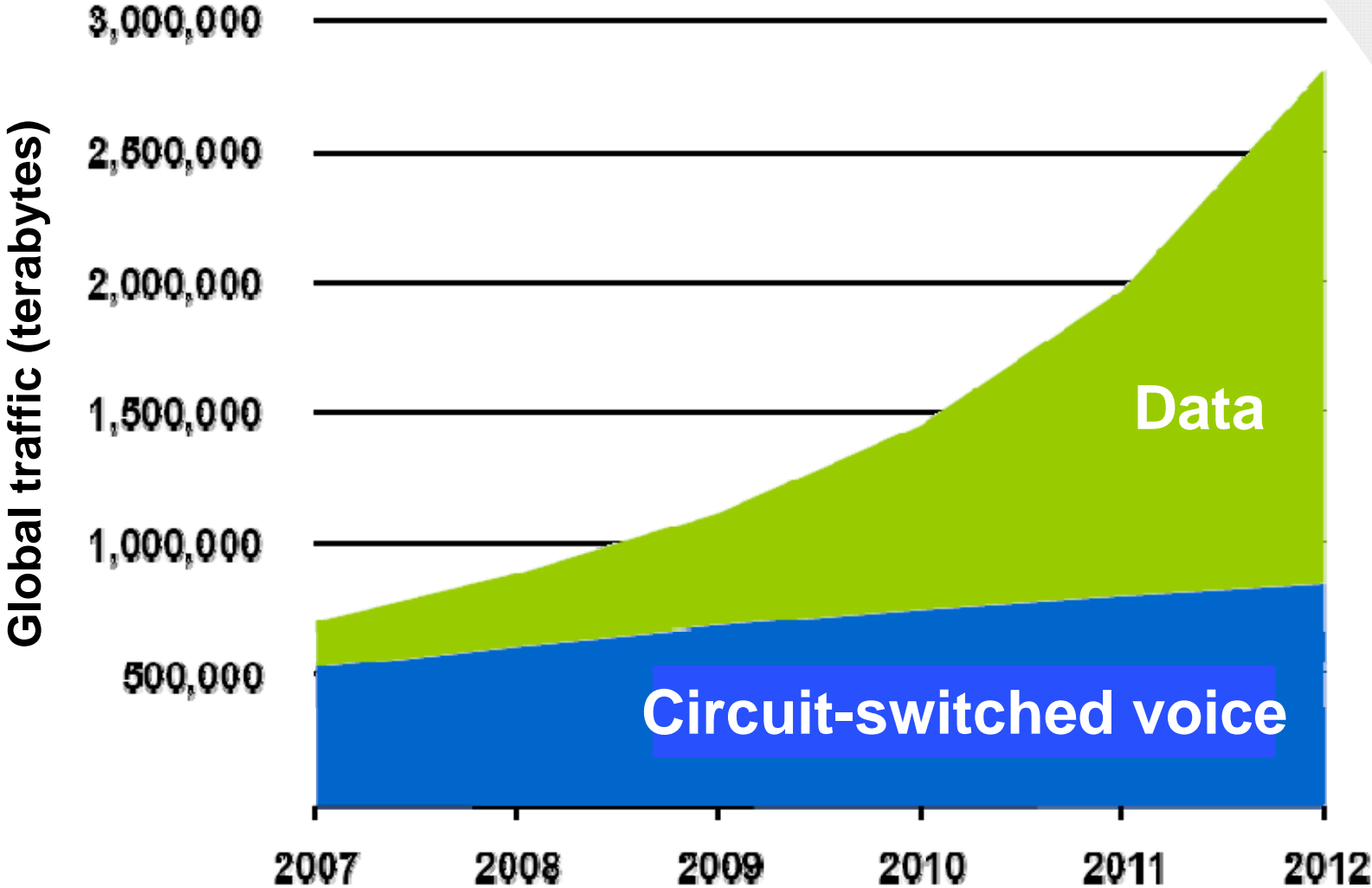


**“One Technology Fits All” or “One Network Fits All”  
strategy no longer suffices in today’s competitive markets**



# Network Traffic Demand

*The demand for voice and data is growing at an unprecedented rate*



Source: Informa



# Lessons Learned: Migration from 1G to 2G to 3G

- Takes longer, and is never as simple as it may seem
- Graceful evolutionary change
- Coverage is king
- Multimode devices
- Economies of scale
- Mature ecosystem

To sustain its exponential growth,  
the global mobile industry should continue strengthening and  
expanding its existing ecosystem, while it embraces and assimilates  
newer technologies and players within its fold

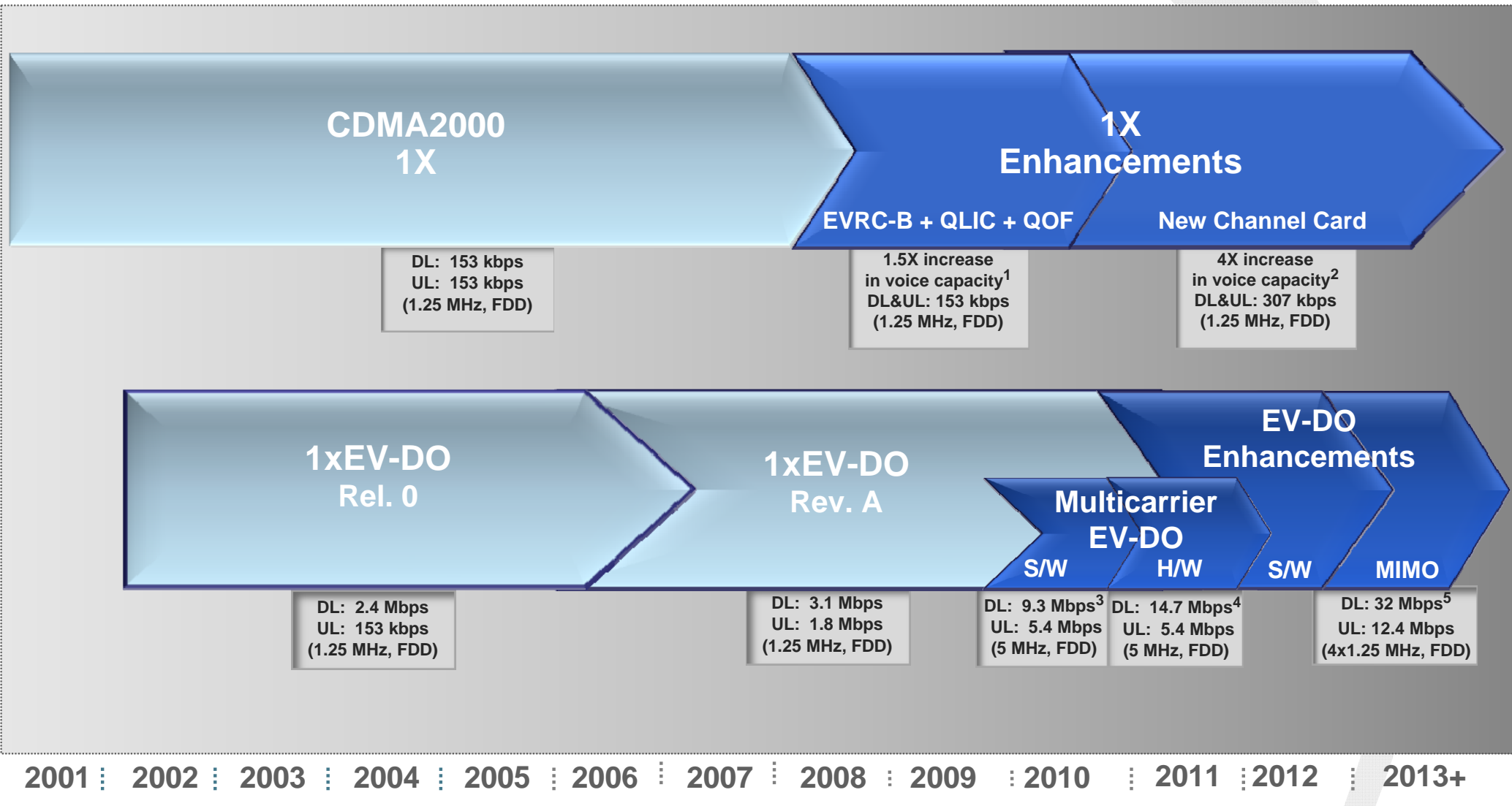


# What do operators want?

1. Meet the growing demand for voice and data
2. Offer an unsurpassed user experience
3. Reduce the cost of delivering services
4. Maximize the return on existing investments

# CDMA2000 Roadmap

*CDMA2000 offers a long-term evolutionary path forward*



<sup>1</sup> Capacity increase is primarily due to new EVRC-B codec and handset interference cancellation (QLIC)

<sup>2</sup> Capacity increase is primarily due to UL and DL interference cancellation and mobile receive diversity

<sup>3</sup> Peak rate for 3 EV-DO carriers with software upgrade. Standard supports up to 15 aggregated Rev. A carriers

<sup>4</sup> Peak rate for 3 EV-DO carriers with hardware upgrade supporting 64 QAM in the DL. Standard supports up to 15 aggregated Rev. A carriers

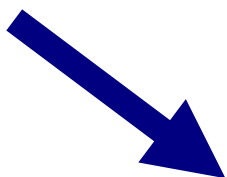
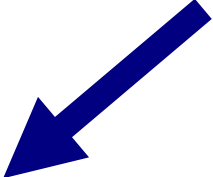
<sup>5</sup> EV-DO Enhancements include smart network techniques, new device enhancements, 2x2 MIMO support, 64 QAM in the DL and 16 QAM in the UL



# CDMA and OFDM-based Technologies

*CDMA and OFDM are complementary technologies*

OFDM-based broadband networks  
will complement 3G CDMA



Backhaul

Broadcast

Additional  
Broadband  
Capacity

WiMAX 802.16d

DVB-H  
ISDB-T  
MFLO  
S-DMB  
T-DMB  
CMMB

LTE  
Mobile WiMAX  
(802.16 e/m)  
WiFi (802.11n)



# Expanded CDMA and OFDM Roadmap

*CDMA2000 will be complemented with OFDM-based solutions*

## CDMA2000 Evolution Path



## OFDMA-based Technologies



# World's First CDMA/OFDMA WorldMode™ Device

*Enables Mobile WiMAX devices to roam onto EV-DO Rev. A networks*

## EV-DO Rev. A + Mobile WiMAX



Franklin  
U300

**CDMA2000 operators will be among the first to deploy next generation OFDMA-based technologies**



**Our members have asked the CDG to support LTE**

**Our Charter supports the rapid evolution of deployment of “open standards” that encompass all core architectures**

**LTE will compliment CDMA2000 by providing additional broadband capacity**

**LTE is part of the CDMA2000 roadmap**

**CDG is committed to the continued enhancements of CDMA2000 1X and EV-DO and the successful integration of LTE with CDMA2000**



# **LTE Efforts: CDG Areas of Focus**

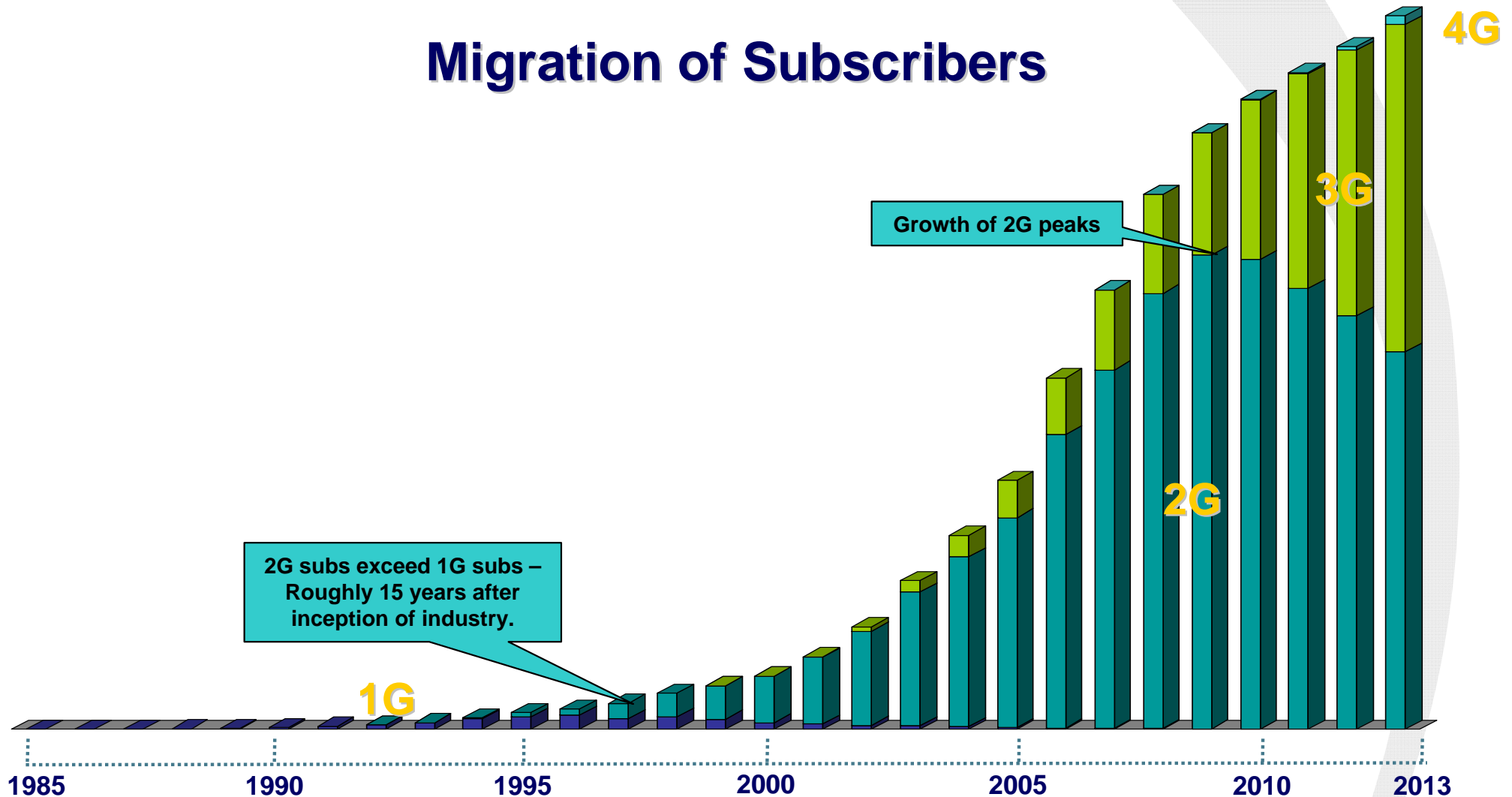
*LTE is addressing the areas critical to the deployment of LTE*

- **Seamless Mobility**
- **System Determination**
- **Device Certification**
- **Inter-Standard Global Roaming**
- **Technical Training**
- **Advocacy**

# Migration Timeline

*With an increasing number of subscribers the migration process is lengthening*

## Migration of Subscribers



**Putting things into perspective.  
The generational migration process will take many years.  
Voice will remain the Killer Application**

