



**The Digital Broadband Migration:  
Imagining the Internet's Future**

**Impact & Opportunities of  
Ubiquitous Mobile Internet Access**

**2/9/2009**

**Irwin Mark Jacobs**  
Chairman

## Safe Harbor

Before we proceed with our presentation, we would like to point out that the following discussion will contain forward-looking statements from industry consultants, Qualcomm, and others regarding industry trends, anticipated future results and product availability, potential market size, market shares, and other factors which inherently involve risks and uncertainties, including the rate of development, deployment and commercial acceptance of CDMA- and OFDMA- based networks and technology and fluctuations in the demand for CDMA- and OFDMA- based products, services or applications.

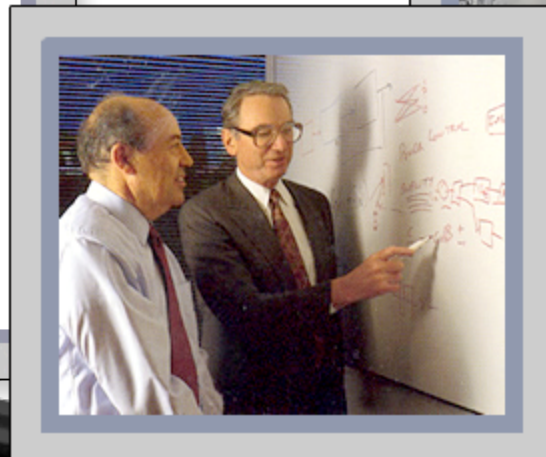
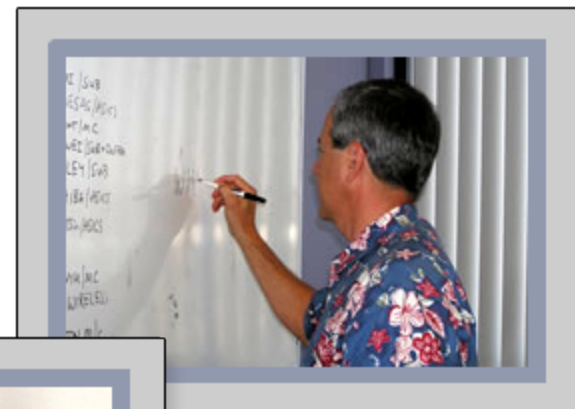
- These and other risks and uncertainties relating to Qualcomm's business are outlined in detail in our most recent 10-Q and 10-K forms filed with the Securities and Exchange Commission.
- Please consult those documents for a more complete understanding of these risks and uncertainties.
- This presentation includes a discussion of "non-GAAP financial measures" as that term is defined in Regulation G. The most directly comparable GAAP financial measures and information reconciling these non-GAAP financial measures to the company's financial results prepared in accordance with GAAP have been included at the end of this presentation.

## Disclaimer

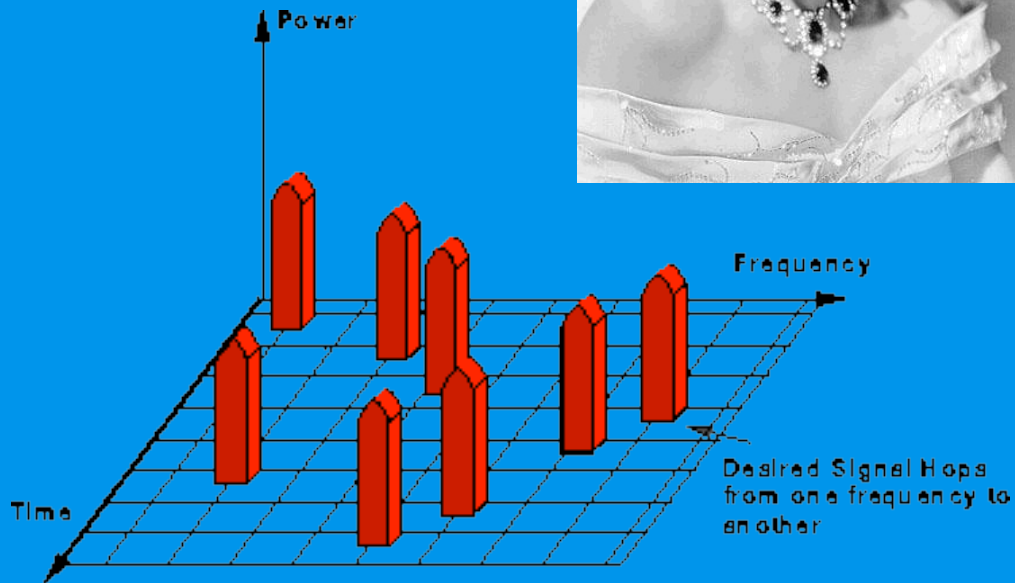
Nothing in this presentation is an offer to sell any of the parts referenced herein. This presentation may reference and/or show images of parts and/or devices utilizing parts whose manufacture, use, sale, offer for sale, or importation into the United States are subject to certain injunctions against Qualcomm. This presentation is intended solely to provide information for those products and uses of products that are outside the scope of the injunctions. Any device utilizing 1x-EVDO parts that are intended for activation on a U.S. wireless network (other than Verizon Wireless) must utilize Qualcomm's hybrid mode alternative solution.

## Qualcomm - Founded July 1, 1985

- Seven co-founders – all previously worked together at Linkabit
- No products or decision about business model at beginning
- Strategy - Innovation: digital/wireless communications and applications



# Spread Spectrum Frequency Hopping patented by Hedy Lamarr & George Antheil, June, 1941



UNITED STATES PATENT OFFICE

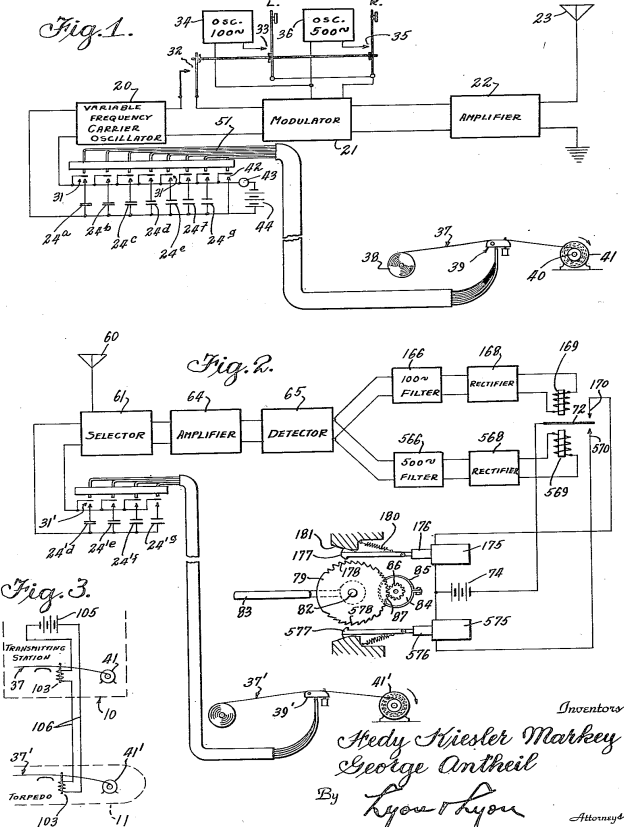
2,292,387  
SECRET COMMUNICATION SYSTEM  
Hedy Kiesler Markey, Los Angeles, and George Antheil, Manhattan Beach, Calif.  
Application June 10, 1941, Serial No. 397,412  
6 Claims. (Cl. 250-2)

This invention relates broadly to secret communication systems involving the use of carrier waves of different frequencies, and is especially useful in the remote control of dirigible craft, such as torpedoes.  
An object of the invention is to provide a method of secret communication which is relatively simple and reliable in operation, but at the same time is difficult to discover or decipher.

Fig. 2 is a schematic diagram of the apparatus at a receiving station;  
Fig. 3 is a schematic diagram illustrating a starting circuit for starting the motors at the transmitting and receiving stations simultaneously;  
Fig. 4 is a plan view of a section of a record strip that may be employed;  
Fig. 5 is a detail cross section through a rec-

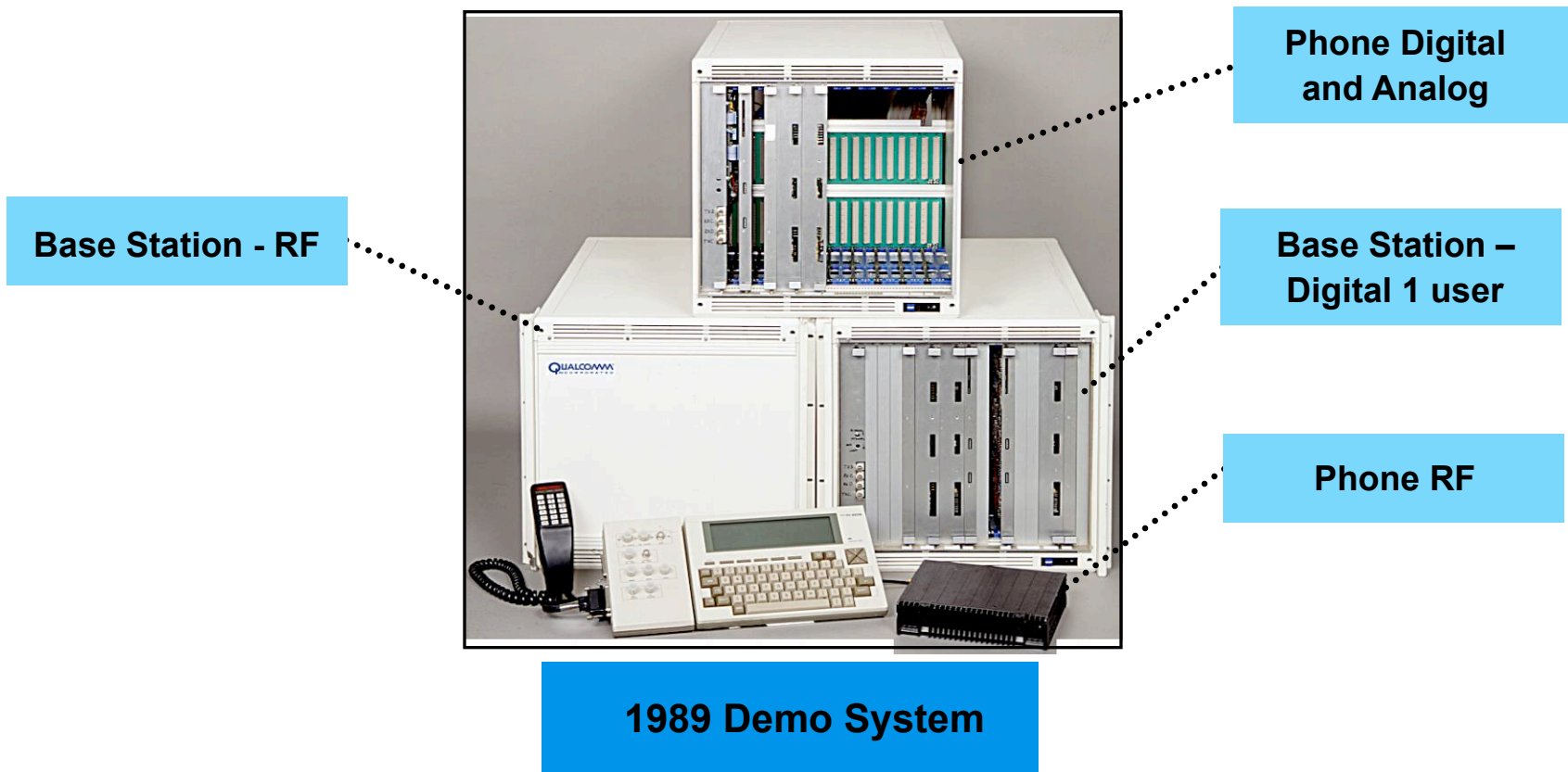
Aug. 11, 1942. H. K. MARKEY ET AL. 2,292,387

SECRET COMMUNICATION SYSTEM  
Filed June 10, 1941 2 Sheets-Sheet 1



## CDMA Development Followed Commercial Launch of OmniTRACS

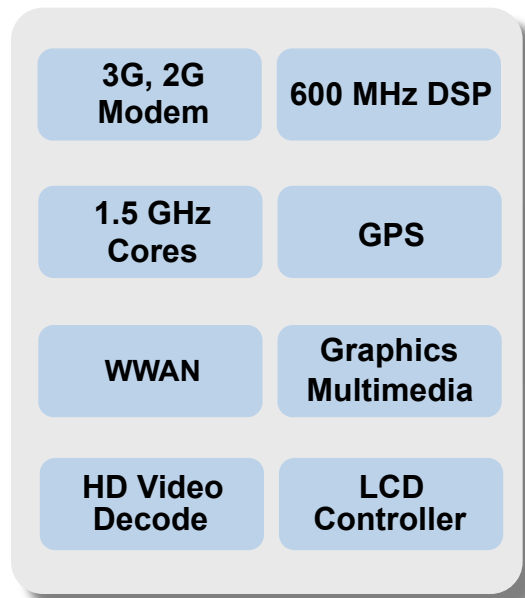
- November 1988 - Researched CDMA for 2nd Generation (2G) Cellular
- November 1989 - First CDMA Demonstration in San Diego
  - Two Base Stations and Van-size “Mobile” Phone
- November 1991 - CDMA demonstration with Commercial-sized Phones
- November 1995 - First Commercial 2G CDMA Network Hong Kong



## Mobile & Smart Phones & Pocketable Computers enabled by Moore's Law

1991 - 3 separate chips needed to implement 2G CDMA modem

2008 - 1 chip implements multimode 2G & 3G modems, GPS, and much more



snapdragon™

### ➤ The Benchmark for Single Chip Performance

- ▶ Superscalar CPU: Scorpion surpasses **2100 DMIPS at 1 GHz; enhanced performance at 1.5GHz this year**

# Snapdragon Powers A New Mobile Internet Experience Netbooks and MIDS (Mobile Internet Devices)



POWERED BY  
**snapdragon**

-  Always-On Connectivity
-  All Day Battery Life
-  Instant On  
(NO standby/sleepstates)
-  Location Aware

## Toshiba TG01

First Commercial Snapdragon Device

- 4.1-inch touchscreen
- Windows Mobile 6.1
- WVGA(800 x 480) resolution
- 9.9mm thick
- 1Ghz Qualcomm Snapdragon processor



snapdragon™





**Excellent Mobile Broadband**  
Voice and Full Range of IP Services

**Enhanced User Experience**  
Improved voice and data capacity

CDMA2000  
1X

1x Advanced

EV-DO  
Rel 0

EV-DO  
Rev A

EV-DO  
Rev B  
Phase I

EV-DO  
Rev B  
Phase II

DO Advanced

Rel-99  
WCDMA

Rel-5  
(HSDPA)  
HSPA

Rel-6 (HSUPA)

Rel-7

Rel-8

Rel-9 & Beyond

HSPA+ (HSPA Evolved)

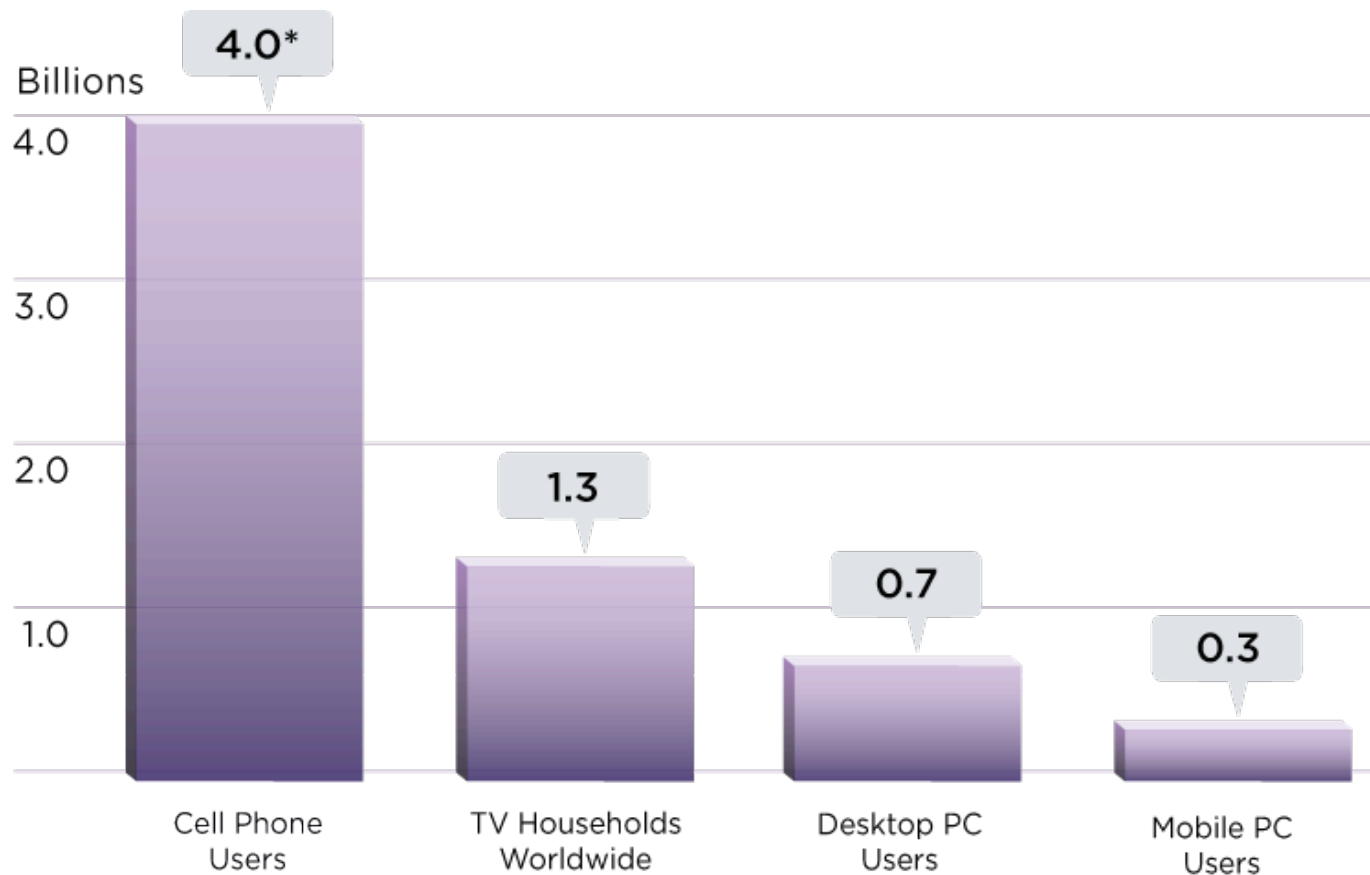
OFDMA complements 3G  
Leverages wider  
bandwidths

Rel-8 Rel-9 & Beyond  
LTE

*Telstra, Australia, currently operating "Next G" network with peak download speed of more than 14 Mbps; Next year expects to launch upgrade with peak download speed of 21 Mbps*

**Cell Phones Greatly Outnumber Other Computing & Consumer Electronics Devices with the Lead Increasing**

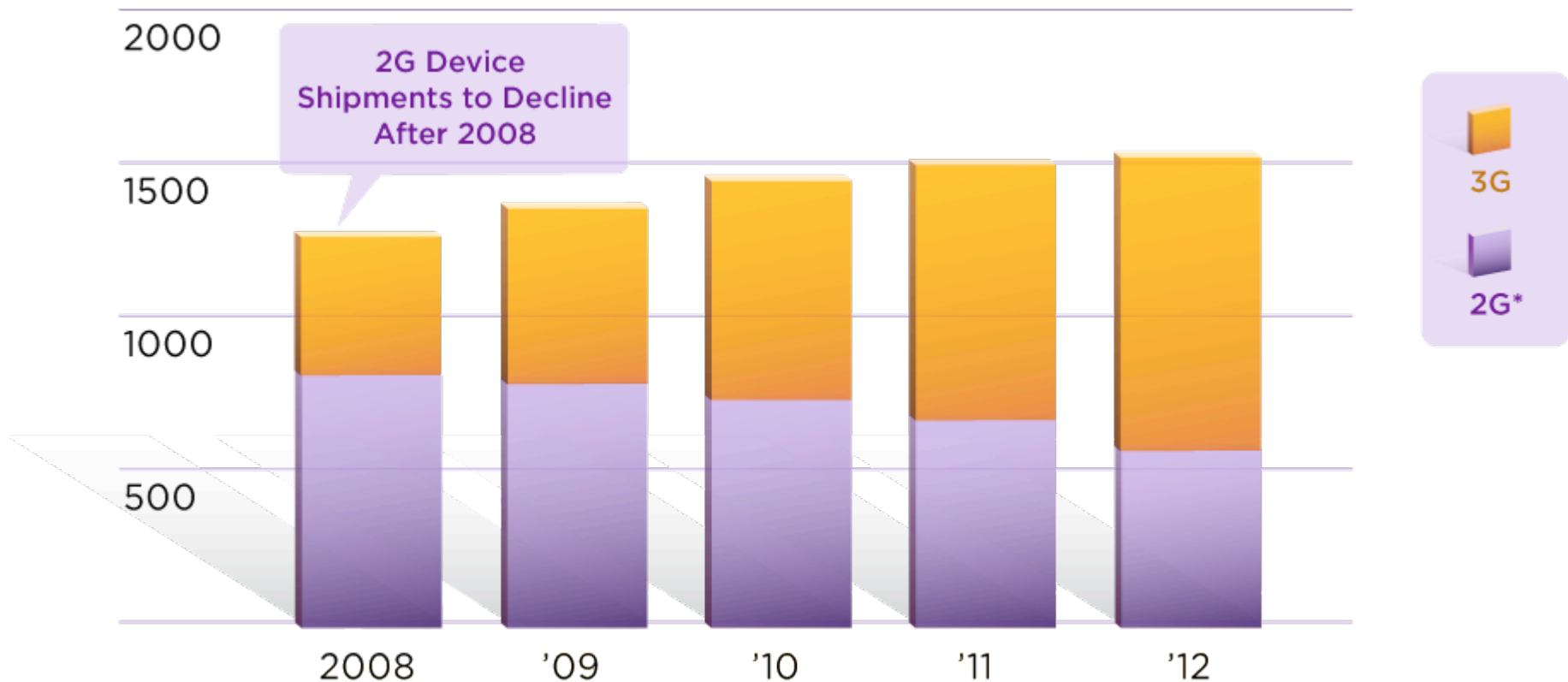
*More than One Billion Sold per Year*



\*2008 Estimated

Source: ITU, Informa, Wireless Intelligence, Instat, IDC

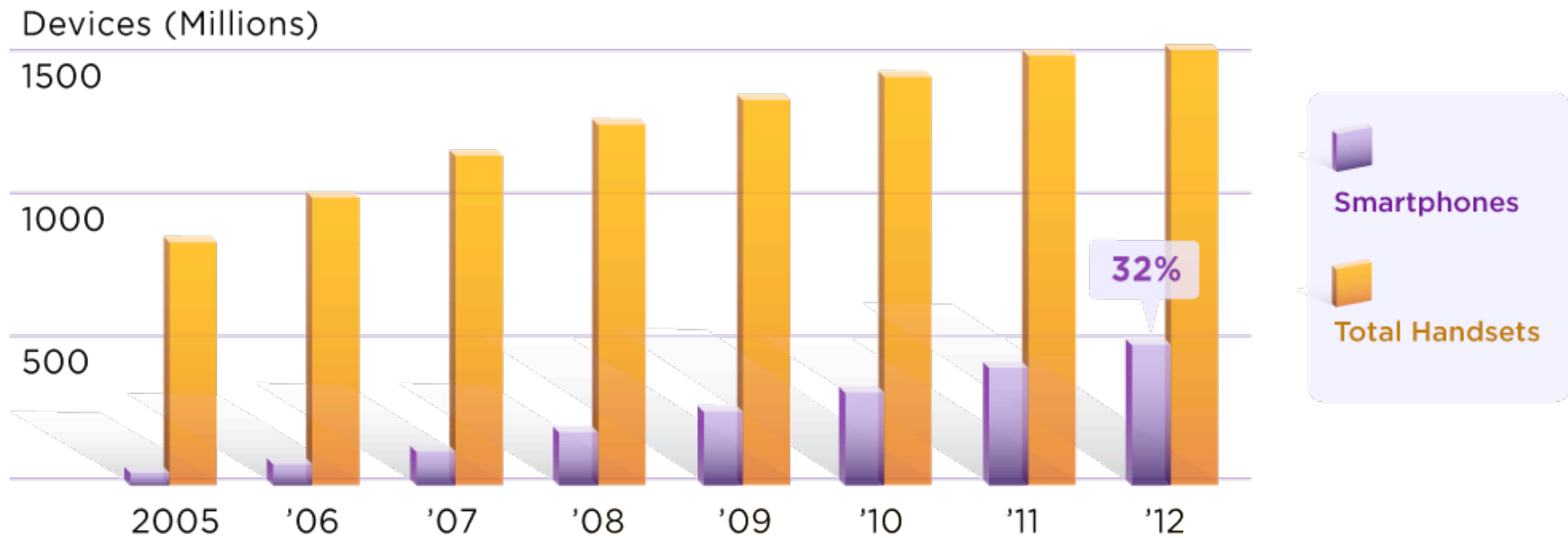
## 3G CDMA Global Handset Shipments Now Forecast to Exceed 63% of Total Handset Shipments by 2012



**2G includes cdmaOne, TDMA, GSM, EDGE, GPRS, iDen, PDC, PHS**

**3G includes CDMA2000, WCDMA, TD-SCDMA and increasingly includes EV-DO and HSDPA**

## Smartphone Percentage of Total Shipments Worldwide 2005-2012



**Smartphone Devices** forecast to be **>32%** of Total Shipments by 2012

Sources: Smartphone Forecast - ABI - Smartphone and OS Markets( Q1 2008)

Total Handsets: Average of Strategy Analytics (July 2008), Gartner (Dec 2007), IDC (June 2008), Ovum (Mar 2008), Yankee Group (June 2008), WCIS (May 2008) and Forward Concepts (June 2008)

## Notebooks with Internal 3G Modems - Gobi Powered for Worldwide Use

Announced by Acer, Dell, HP, Lenovo, Panasonic

**Gobi** - Global Mobile Internet Solution includes:

HSDPA/HSUPA, GSM/GPRS/EDGE, EV-DO/Rev A

Stand-alone GPS

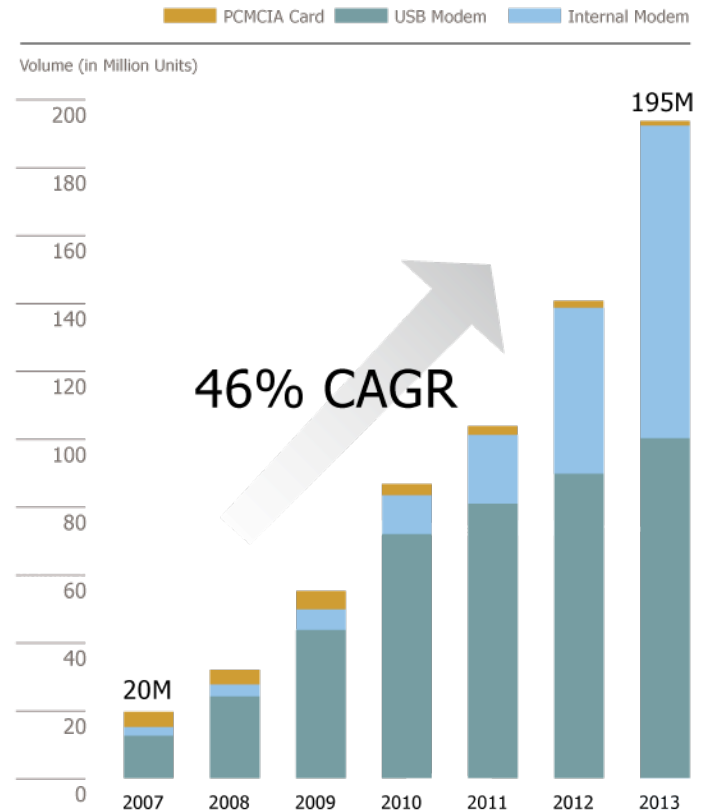
Multiple operators worldwide certifying Gobi laptops



Increase workforce productivity from anytime, anywhere access with mobile broadband

Lower cost and simplified management for only one device and one SKU across all regions

Cellular Wireless Modem Worldwide Shipment by Device Type



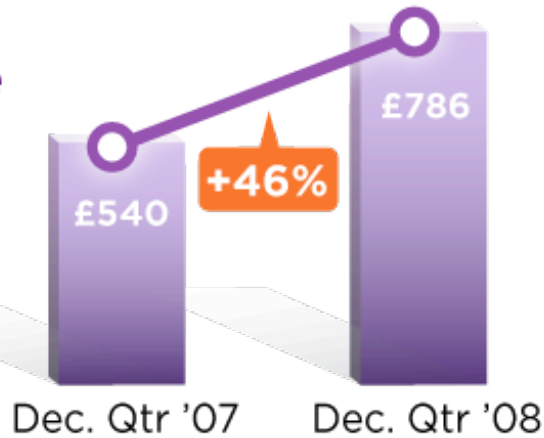
Source: ABI Research, May 2008

## Operators Worldwide Show Strong Data Growth

### Vodafone

Data Revenues

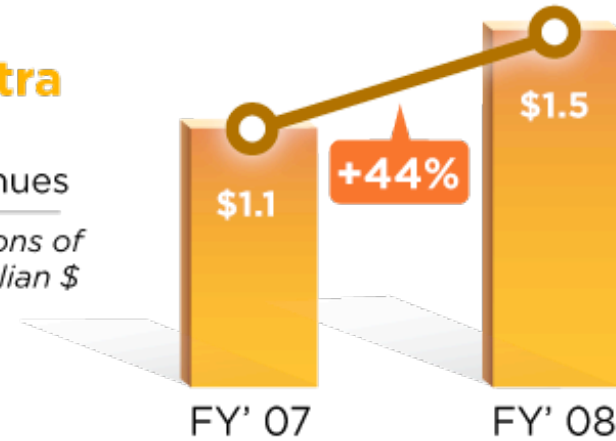
*In millions of British £*



### Telstra

Data Revenues

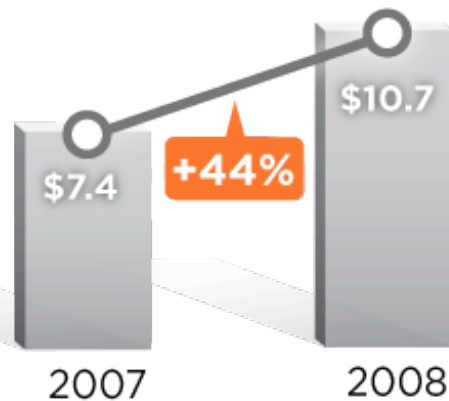
*In billions of Australian \$*



### Verizon Wireless

Data Revenues

*In billions of U.S. \$*



### AT&T

Data Revenues

*In billions of U.S. \$*





- On May 24, the Chinese government announced a restructuring of carriers
  - ▶ China Mobile absorbs China Railcom
  - ▶ China Telecom acquires the CDMA network and services from China Unicom
  - ▶ China Netcom is merged into China Unicom
- 3G licenses now issued to the three carriers; Build-outs underway
  - ▶ China Telecom: CDMA2000 EV-DO
  - ▶ China Unicom: WCDMA
  - ▶ China Mobile: TD-SCDMA

## Bringing Internet Access to Developing Markets



PC Alternative with 3G Wireless





## Amazon Kindle - Wireless Reading Device

*"This isn't a device, it's a service."* - Jeff Bezos, Amazon

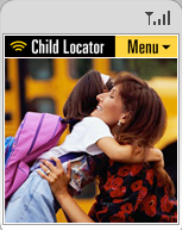
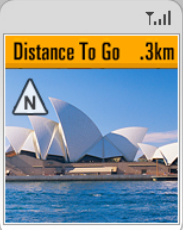



*The Kindle's real breakthrough springs from a feature that its predecessors never offered: wireless connectivity, via a system called Whispernet. (It's based on the EVDO broadband service offered by cell-phone carriers, allowing it to work anywhere, not just Wi-Fi hotspots.)*

# Growing Convergence of Consumer Electronics and Cell Phones with Always On Mobile Internet Connection



## Position Location Supports Wide Variety of Applications

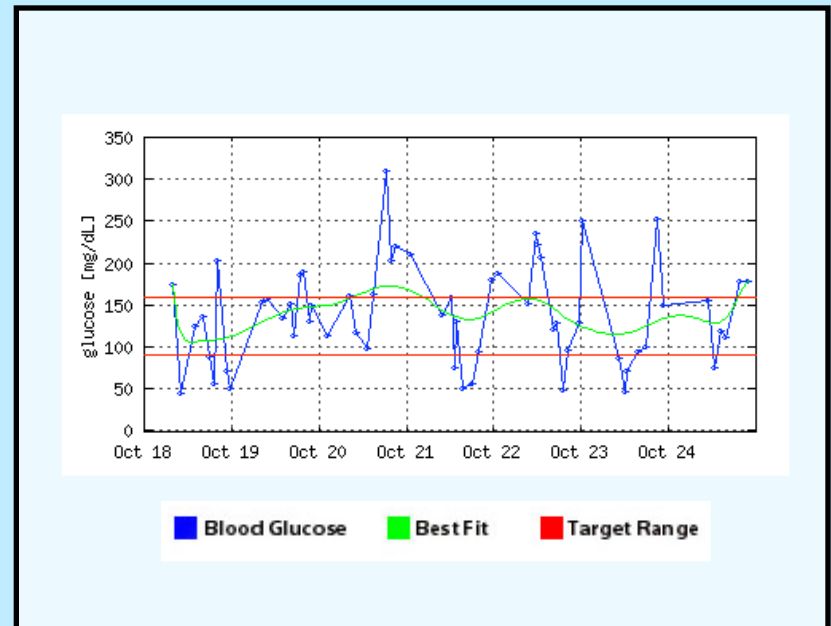
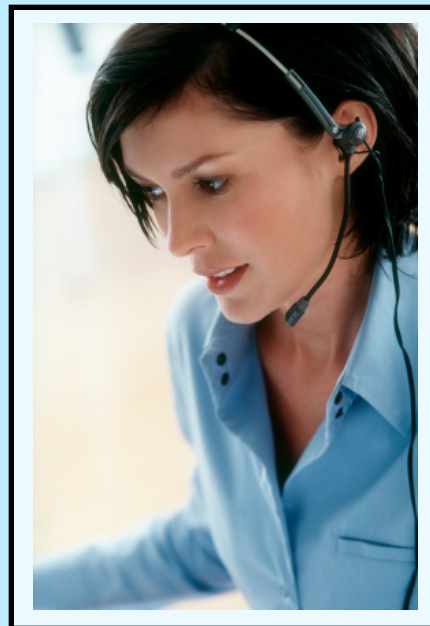
| Personal Security  | Points of Interest   | Enterprise  |
|--|--|---|
|  <ul style="list-style-type: none"> <li>• Roadside Assistance</li> <li>• E-119/E-112/E-911</li> <li>• Weather Warning</li> <li>• Child Finders</li> </ul> |  <ul style="list-style-type: none"> <li>• City Guides</li> <li>• Mobile Yellow Pages</li> <li>• Navigation</li> <li>• Traffic Reroute</li> </ul> |  <ul style="list-style-type: none"> <li>• Fleet Management</li> <li>• Asset Monitoring</li> <li>• Personal Productivity</li> </ul> |

| Peer-to-Peer   | Gaming  | Commerce   | Search  |
|--|---|--|---|
|  <ul style="list-style-type: none"> <li>• Buddy Groups</li> <li>• Dating</li> <li>• Geo-Marked Photo Sharing</li> </ul> |  <ul style="list-style-type: none"> <li>• Interactive Gaming</li> <li>• GeoCaching</li> <li>• Location Aware Games for Groups</li> </ul> |  <ul style="list-style-type: none"> <li>• Mobile Coupons</li> <li>• Customer Service</li> </ul> |  <ul style="list-style-type: none"> <li>• Access to Mobile Web</li> <li>• Location-based Ad Placement</li> </ul> |

## Mobile Commerce: For The End User



# Transforming Healthcare



## LifeCOMM Diabetes Management Solution



## Remote Diagnostics Using Cellular Technology



CardioNet Wireless Solution



Traditional Holter Monitor Solution

**“CardioNet proved nearly 3x more effective than LOOP event monitors for diagnosing clinically significant arrhythmias.”**

*-The Journal of Cardiovascular Electrophysiology*

# Mobile TV Now in More Than 50 Metropolitan Areas Across U.S. on UHF TV Channel 55 and 3G Cellular



20 Channel Capable plus Program Guide plus Data Content

Las Vegas



Chicago



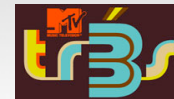
Albuquerque



MediaFLO Network Operations Center (NOC), San Diego, CA



# MediaFLO: Increasing Number of Devices





## Wireless Reach: A Global Initiative

- 37 projects in 22 countries
- Strengthens social and economic development



## Indonesia: Village Phone Replication Program, Giving Entrepreneurs New Tools for Success

**Partner:** Grameen Foundation, MBK, Bakrie Telecom, Government

**Execute:** Microfinance loans, business in a box, payphone concept

**Innovate:** Improving rural villagers' livelihoods and access to telecommunications



**India: *Fisher Friend*, Bringing Helpful Information to Rural Fisherman**



**Partner:** MSSRF, Tata Teleservices, Astute Systems Technology

**Execute:** BREW application on affordable handsets

**Innovate:** Fishermen accessing local market prices, weather reports and emergency information in their local language



**PUBLIC SAFETY**

## China: PK Unity, Bringing Internet Connectivity to Schools in Rural China



**Partner:** China Unicom, Ministry of Science and Technology, PKUnity

**Execute:** CDMA2000 1X data cards

**Innovate:** Bridging the digital divide by bringing Internet connectivity to 39 schools in rural areas of China



EDUCATION

## Kenya: Timely Medicine Helping People with HIV/AIDS



**Partner:** Telkom Kenya, the Communications Commission of Kenya, the Provincial Medical Office of Nairobi, RTI, Axesstel  
**Execute:** Wireless connectivity and software replaces paper-based system  
**Innovate:** Helps manage supply of Antiretroviral drugs for the treatment of HIV/AIDS more efficiently



HEALTH CARE

## Thailand: Facilitating Health Care and Internet Access with 3G



**Partner:** PMMV, CAT Telecom, Huawei and the Ministry of Public Health

**Execute:** High-speed data and telemedicine equipment, computers

**Innovate:** Improve access to doctors and the Internet



# HEALTH CARE

## Peru: Connecting a Rural Clinic to Doctors



**Partner:** Kausay Wasi Health Clinic, FACES Foundation

**Execute:** Laptops, datacards, printers, webcams

**Innovate:** Critical medical care for > 55,000



# HEALTH CARE

## Sri Lanka: *Easy Seva*, Encouraging Entrepreneurship and Connecting Rural Citizens



**Partner:** USAID, Dialog Telekom, SSG, Infoshare, LOLC

**Execute:** Microfinance loans, business in a box, training

**Innovate:** Entrepreneurs build businesses providing ICT services in rural communities



# ENTREPRENEURSHIP





## Guatemala: Schools of the Future, Accelerating Education Reform with Broadband Internet Connectivity

**Partner:** Telgua/Claro of America Movil, Fundacion Sergio Paiz, USAID, Ministry of Education

**Execute:** Computers, wireless access, training

**Innovate:** Students and teachers learn essential ICT skills



EDUCATION

## Spain: 3G for All Generations, Providing Social Inclusion for Elderly People



- Partner:** Vodafone Spain Foundation, Spanish Red Cross
- Execute:** HSPA data cards, modems; HTC, Samsung & Huawei devices
- Innovate:** Providing the elderly with the tools to better communicate and socially integrate themselves with family members and health care providers



HEALTH CARE

## United States: Project K-Nect, Wireless Social Networking and Teaching Enhances Student Math Development



**Partner:** NC State Board of Education, Digital Millennial Consulting

**Execute:** Mobile phone education program raises scores 20 percent

**Innovate:** Improving students' math skills



# EDUCATION

## Why Wireless Connectivity Matters



“A 1 percentage point increase in **mobile penetration** in developing countries is correlated with an increase of 4.7% of average per capita income.”

“A 1 percentage point increase in **internet penetration** in developing countries is correlated with an increase of 10.5% of average per capita income.”



**Thank You**