



# Greater China Market Update

April 24, 2012

Xiang Wang  
SVP & Pres, QC Greater China  
April 2012



# China Snapshot

- ▶ IMF forecast China economic growth for 2012 is 8.25%
- ▶ China has three mobile telecom carriers, China Telecom (CT), China Unicom (CU) and China Mobile (CMCC) with total subscribers of 1.02 billions by Q1 2012.
- ▶ Qualcomm started business in China since end of 90s, with 4 offices located in Beijing, Shanghai, Shenzhen and Xi'an.
- ▶ China continues to be Qualcomm's #1 revenue contributor in fiscal 2011.

**80+**

Chinese partners

**Over 15x**

Smartphone Unit Sales Growth in 2011

**#1**

Supplier for 3G Modems and APs

**ZTE中兴**



**lenovo** FOR  
THOSE  
WHO DO.

**Hisense**

**K-Touch** 天语



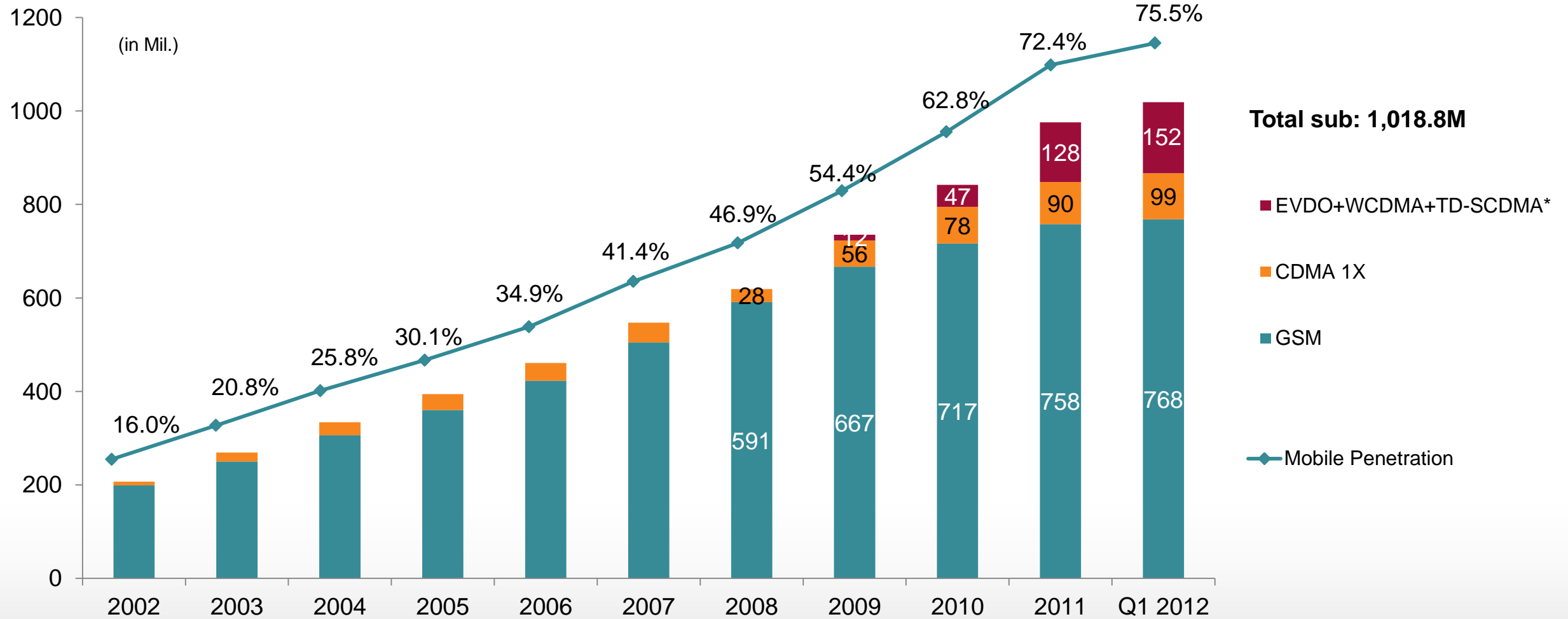
**oppo**

**Haier** | CHINA



***And more...***

# China Subscriber Milestone: 1 Billion+ by end of Q1 2012



Source: MIIT, company data

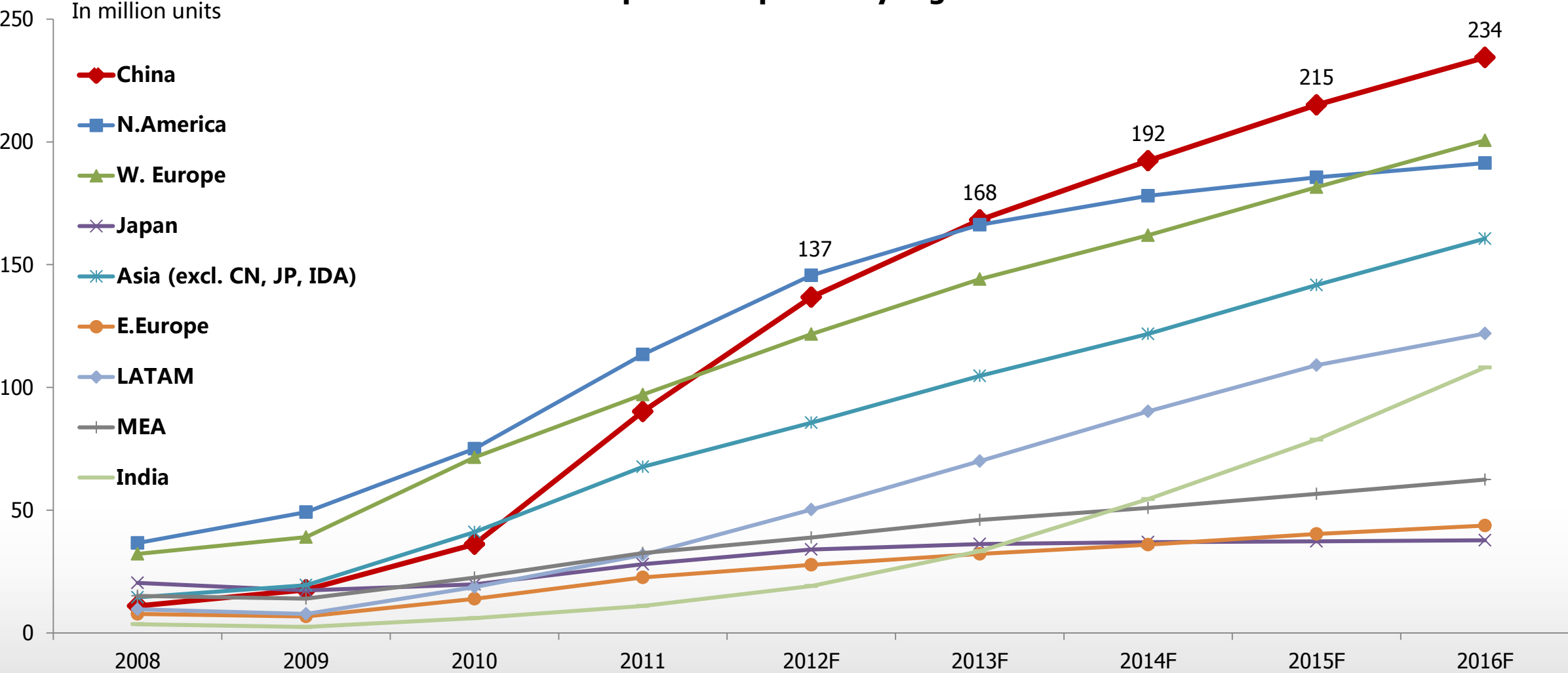
\* China Telecom data is calculated by MIIT and the other two operators' published data



# Global Smartphone Focus Shifting To China



Smartphone shipment by region



Source: IDC



# Support China Telecom's Eco-system & Device Variety

**HUAWEI  
C8650**



**Samsung  
SCH-i509**



**HUAWEI  
C8650+**



**ZTE-C N760**



**Samsung  
SCH-E329i**



**Coolpad  
5860**



**Lenovo  
A390e**



**ZTE-C N880S**



**Coolpad 5820**



**Coolpad 5855**



Top ten hot sell EVDO phones as of Feb., most are by Chinese OEMs.

Source: Sino MR



*Qualcomm and CT jointly host major industry events to encourage more OEMs to make EVDO smartphones.*

# Key Partner in CU's 1,000yuan Smartphone Promotion



*China Unicom RMB1,000 smartphone strategy grand launch. Five out of the eight use Qualcomm Snapdragon S1 processors.*



Philips  
W635



Hisense  
SH-U8



CoolPad  
7260



HuaweiU  
8818



ZTE  
V889D

5/8

snapdragon  
by Qualcomm





# Supports CMCC' Network Evolution

- Support MIIT/CMCC TD-LTE large scale trials Ph2 & CMCC pre-commercial trial



*Qualcomm CEO Dr. Paul Jacobs speaks in GTI (Global TD-LTE Initiative) Summit to support CMCC as leading technology and chipset company.*



# Build Strategic Partnership with #1 Retailer in China



Qualcomm and Gome announced strategic partnership on Snapdragon smartphone promotion on Apr. 9<sup>th</sup>. Gome signed 12 million units of Snapdragon-enabled smartphone procurement contracts with handset vendors.

# Qualcomm Invests in Snapdragon Brand



Snapdragon has got a Chinese name – 骁龙

# Snapdragon Enables Customer to Expand Device Portfolio



Xiaomi Mi-ONE



Lenovo K91



Huawei MediaPad



# QRD Helps Customer To Enhance Product Go-To-Market

- ▶ QRD Shanghai Design Center was established in FEB 2010
- ▶ Team beginning fourth-generation QRD devices
- ▶ Collaboration and sharing amongst multiple Qualcomm design centers (ie. San Diego, Hyderabad, Bangalore, etc.)
- ▶ Extensive team with industry leading OEM experience



# Thank You

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A scenic view of Central Park in New York City. In the foreground, a man is sitting on the grass, looking towards the right. The middle ground is filled with many people sitting on the grass, enjoying the park. The background shows a dense line of trees and a city skyline with several tall buildings. The sky is bright and clear.

# India Update

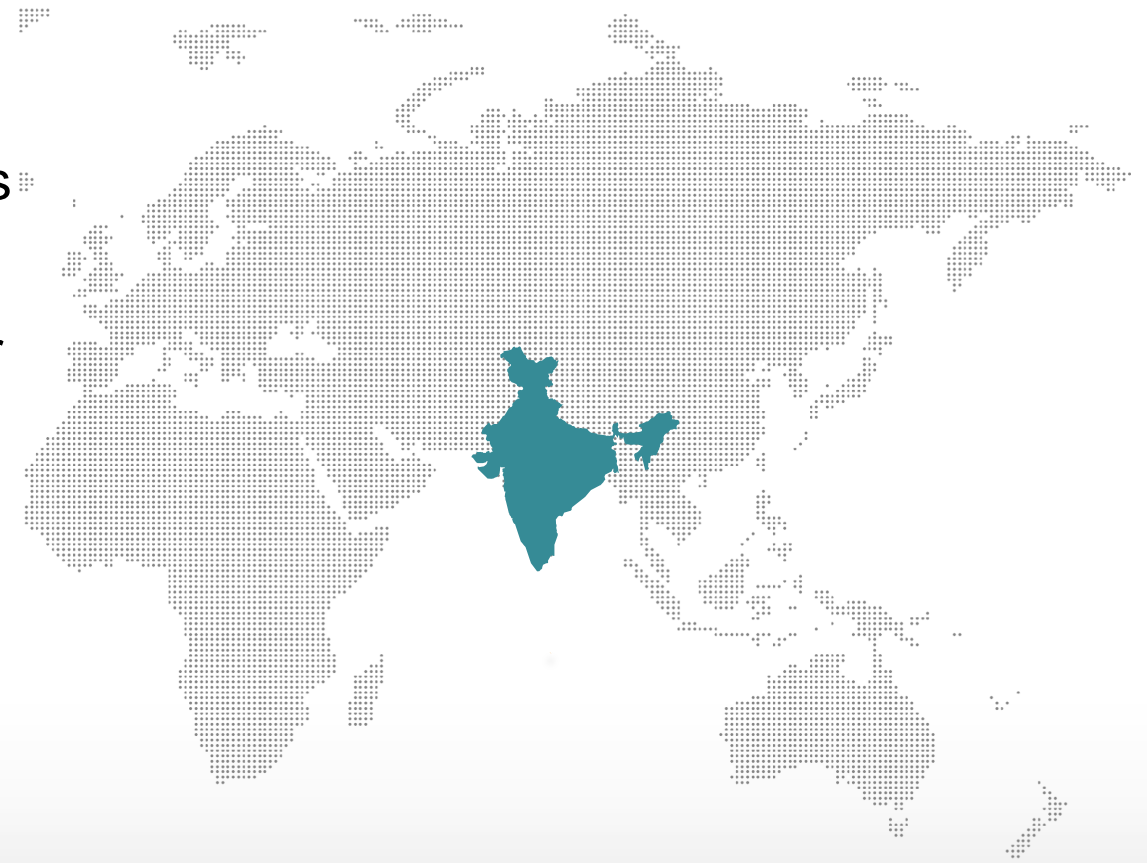
**Avneesh Agrawal**  
**SVP & Pres, QC India & S. Asia**  
**April 2012**

**QUALCOMM®**



# India: Huge Opportunity for Mobile Broadband & Computing

- ▶ 1.2 Billion population
- ▶ 665M active mobile subscribers
- ▶ 3<sup>rd</sup> largest internet market with 120M subscribers
- ▶ 184Mu mobile handsets shipped in 2011
- ▶ Smartphone volumes nearly doubling every year
- ▶ Low PC penetration: 4%
- ▶ Low fixed broadband penetration: 1.1%



# India: Co-existence of 3G HSPA, EV-DO & LTE

## ► 3G HSPA

- All 3G operators have launched HSPA networks
- Networks now available in 333+ cities across India

## ► EV-DO

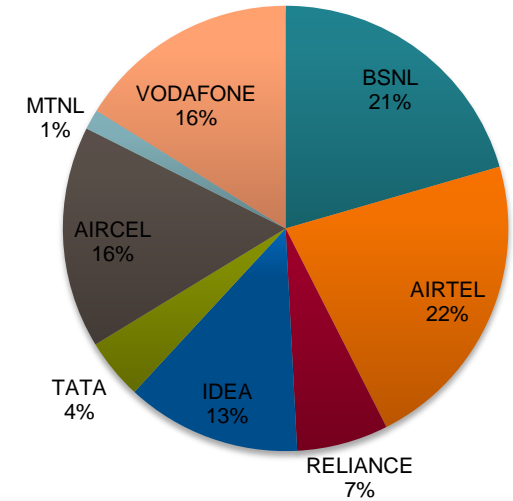
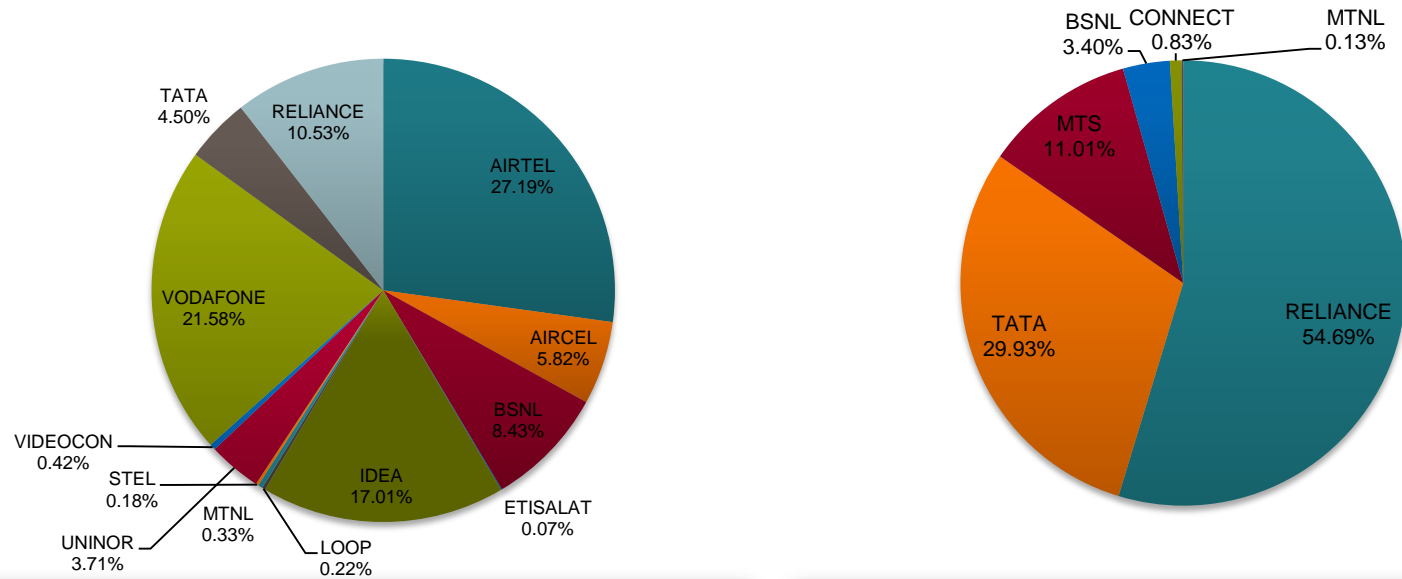
- Rev B launched by MTS and Tata
- Rev-A in 800 towns

## ► LTE

- Commercial LTE TDD network launched by Airtel with multi-mode dongle based on MDM 9x00



# Active Subscriber Market Share: 2011



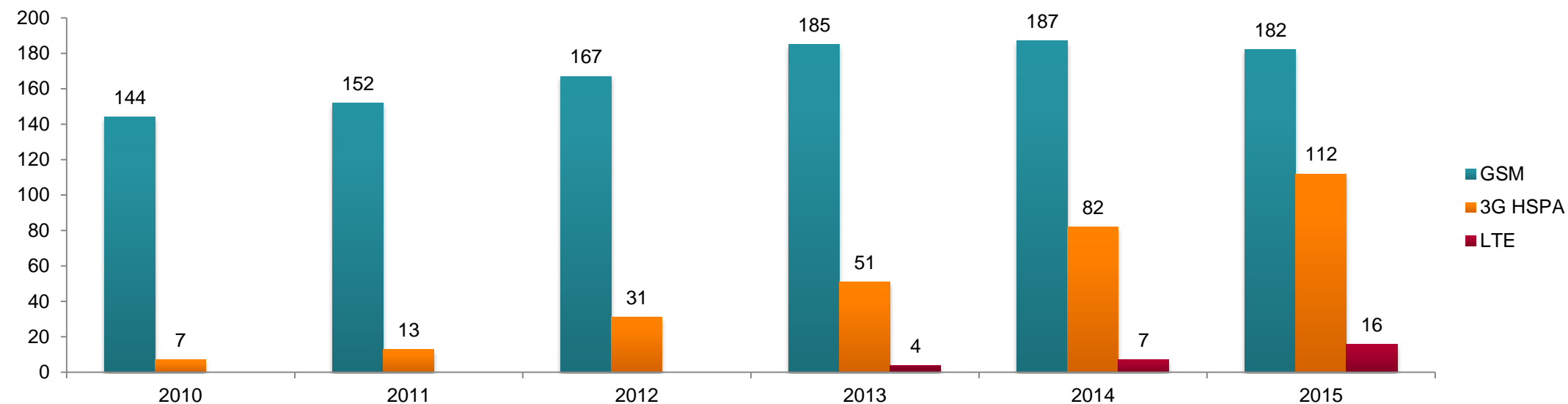
GSM + 3G HSPA	
Operator	Subs (Mn)
AIRTEL	158.12
VODAFONE	125.46
IDEA	98.91
RELIANCE	61.25
BSNL	49
AIRCEL	33.84
TATA	26.16
UNINOR	21.56
VIDEOCON	2.44
MTNL	1.91
LOOP	1.29
STEL	1.06
ETISALAT	0.42
Total	581.48

CDMA + EVDO	
Operator	Subs (Mn)
RELIANCE	35.70
TATA	19.53
MTS	7.18
BSNL	2.22
CONNECT	0.54
MTNL	0.08
<b>Total</b>	<b>65.27</b>

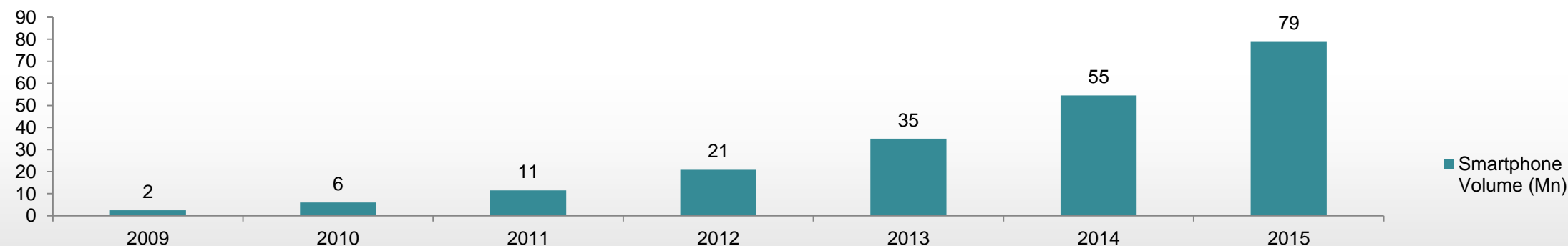
3G HSPA	
Operator	Subs (Mn)
AIRTEL	9.2
BSNL	5.5
AIRCEL	2.2
VODAFONE	4.5
IDEA	2.3
RELIANCE	3.9
TATA	1.3
MTNL	0.96
<b>Total</b>	<b>29.9</b>



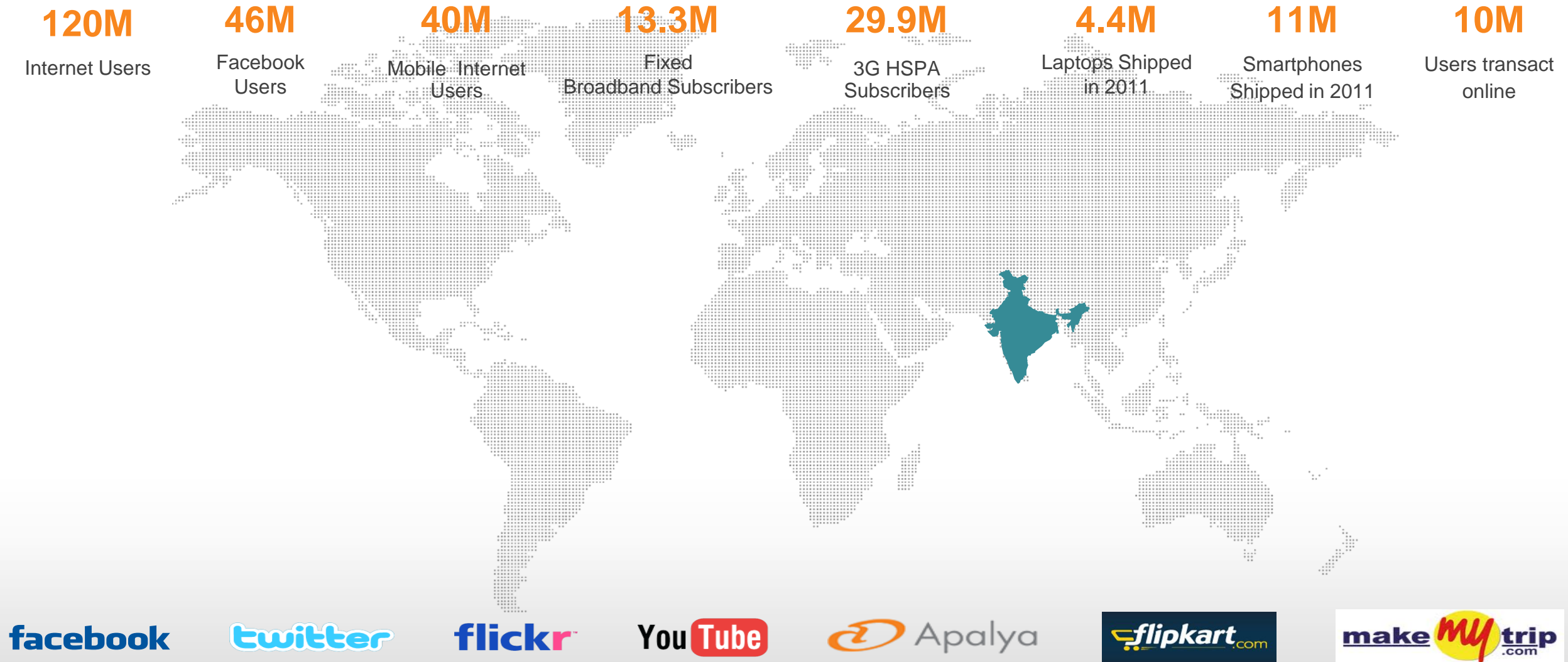
# India Handset Market Trends



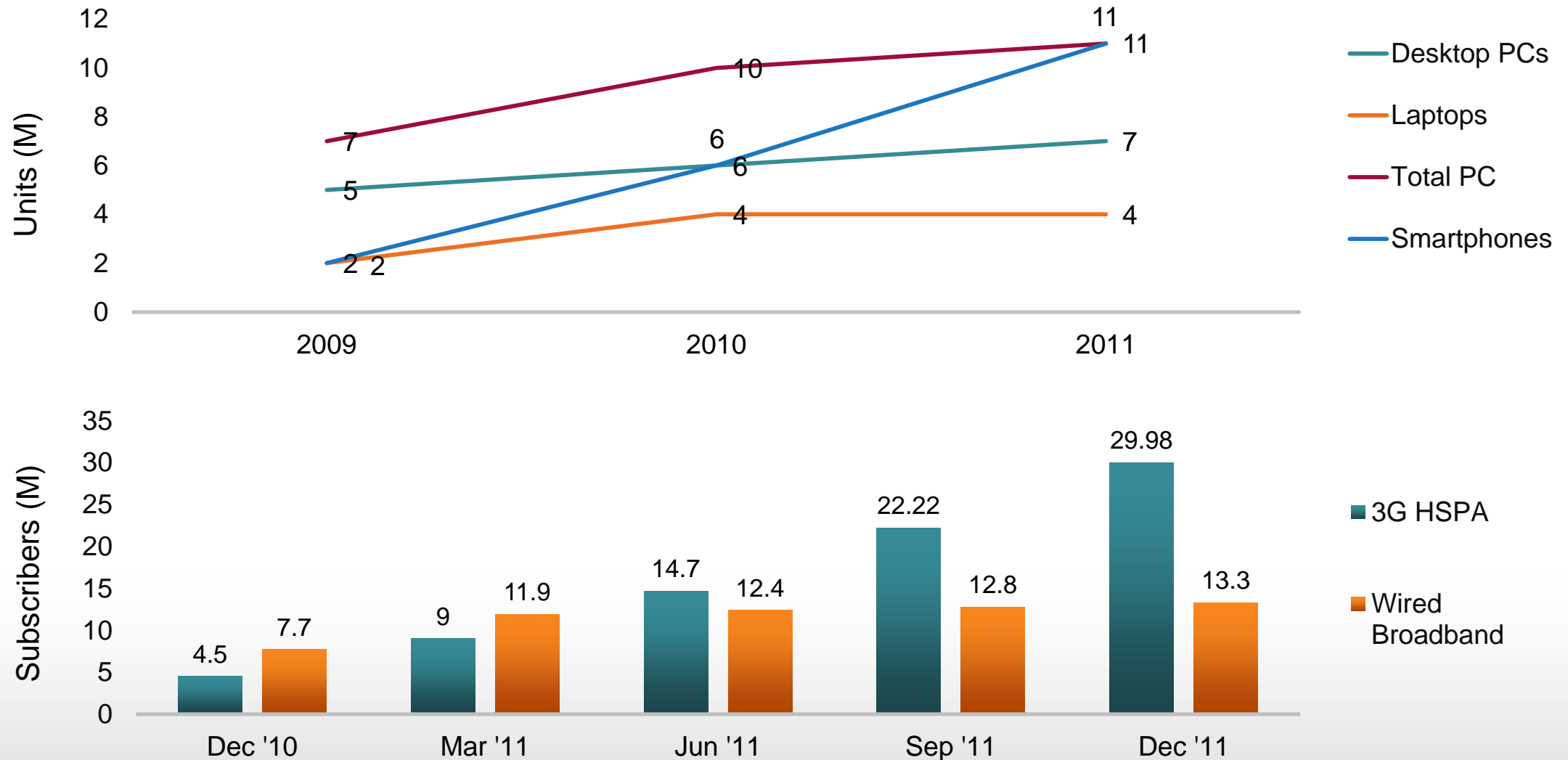
## Smartphone Volume (Mn)



# The Rise of Mobile Broadband in India



# Mobile: The Only Way to Drive Computing & Broadband





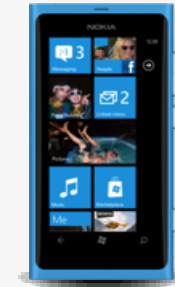
# Smartphone: The First Computer For Many Indians

Also the First Camera, MP3 Player, Gaming Device...

Cost and Complexity of use:  
Conventional PCs



Scale and Intuitive UI:  
Mobile Devices



Vodafone Smart  
Snapdragon S1  
US\$ 100



LG Optimus ME  
Snapdragon S1  
US\$ 170



Nokia Lumia 710  
Snapdragon S2  
US\$ 320



Samsung Omnia W  
Snapdragon S2  
US\$ 400

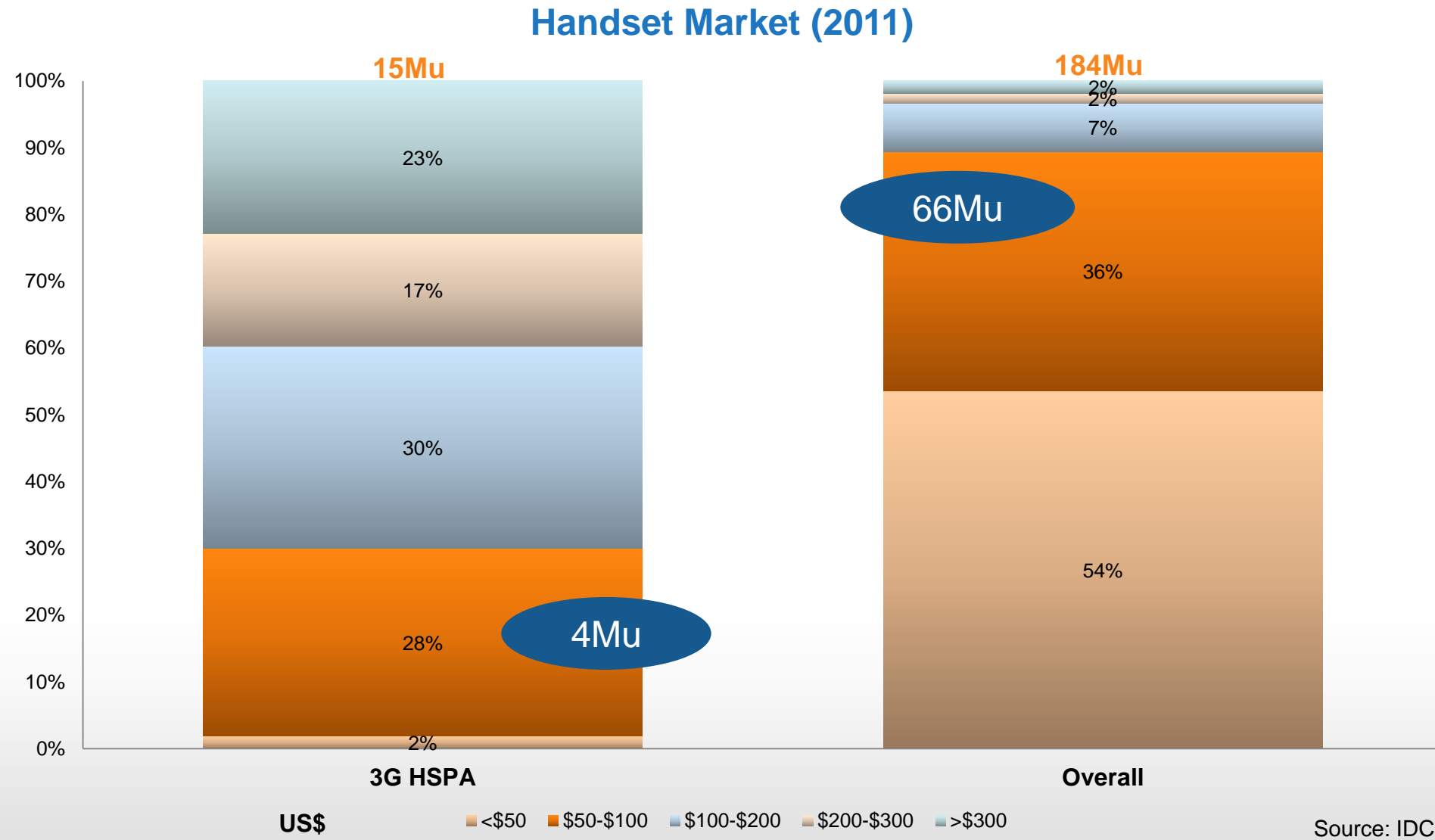


Sony Xperia Ray  
Snapdragon S2  
US\$ 380



HTC EVO 3D  
Snapdragon S3  
US\$ 720

# Affordable 3G Smartphones : A Huge Opportunity



Source: IDC CY2011

# Broadband Computing is Transformative

## PHYSICAL

ROADS  
HOSPITALS  
SCHOOLS  
BANKS  
GOVERNANCE



## DIGITAL

BROADBAND HIGHWAY  
M-Health  
M-Education  
M-COMMERCE  
M-GOVERNANCE



# Opportunities for 3G in Education

- ▶ Shortage of 400,000 teachers driving the need for technology intervention
- ▶ Only 15% of 18-24yrs olds in college in India
- ▶ Strong government push to provide broadband connectivity to villages, and tablets to students
- ▶ Companies enabling digital classrooms and content



Total number of schools: ~1M

Students Enrolled: ~200M



**Large Opportunity for Mass Market 3G Smartphones & Tablets in Industry Verticals**

Education

Health

Retail

Media & Entertainment

# India Ecosystem: Driving Affordability And Local Needs

**Large Domestic Market**  
**Global Aspirations**

**Vibrant Software Ecosystem**  
**Large Engineering Talent**  
**Increasing Internet Population**  
**Rise of Mobile Broadband**



**QRD**





# Drive Computing & Connectivity for a Billion Indians

- ▶ Affordable Smartphones and Tablets
- ▶ Enabling LTE Multi-mode
- ▶ Develop India Ecosystem
- ▶ Opportunities in Industry Verticals: Education, Healthcare, eCommerce



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# Japan Update

## Subtitle Placeholder

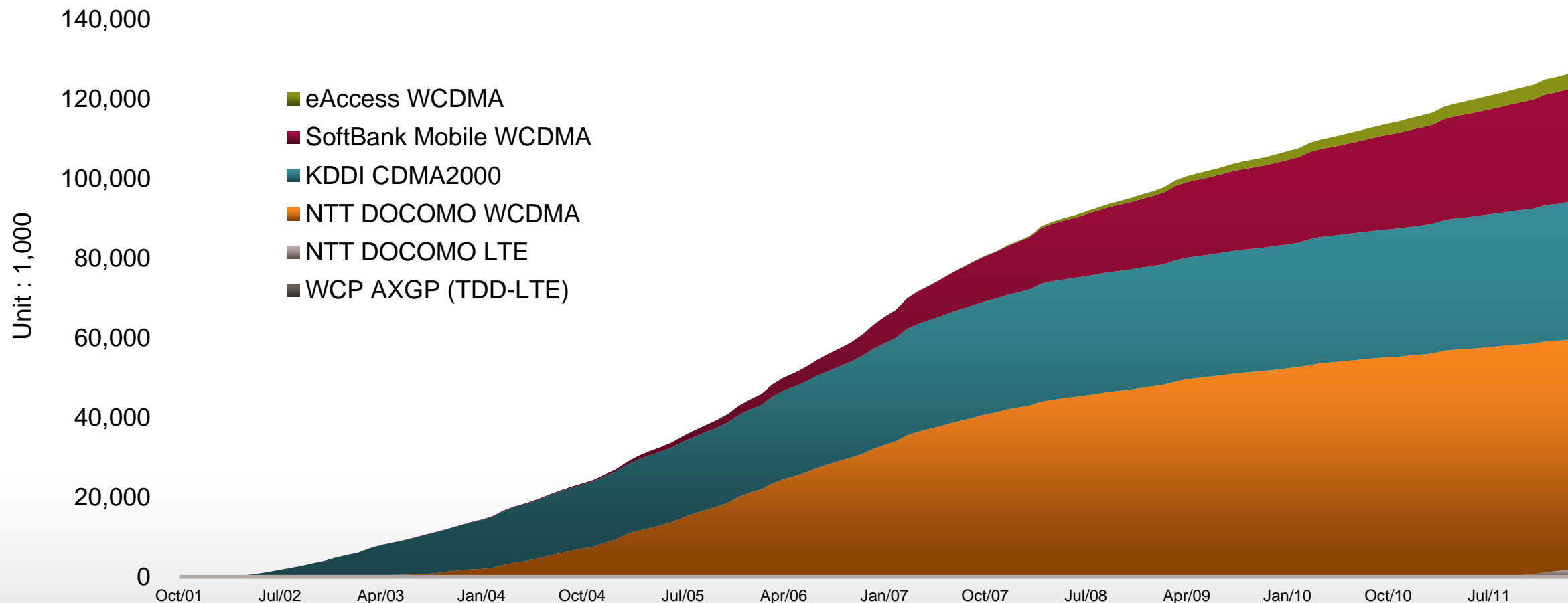
**Takayuki Nozaki**  
**Sr Dir, Business Development**  
**April 2012**





# More Than a Decade of Partnership in Japan

3G/LTE Subscribers : 127.9 Million (100.2% Penetration)





# Smartphone is Rapidly Increasing

## Smartphone Sales in FY2010 and FY2011

FY2010  
(Apr. 2010 – Mar. 2011)

FY2011 Projection  
(Apr. 2011 – Mar. 2012)

**NTT**  
**docomo**

2.52 Million Units

8.50 Million Units

**au** *by KDDI*

1.09 Million Units

5.55 Million Units

# Diverse Smart Connected Devices

In Addition to Rapid Increase of Smartphone, Diverse Data Devices are Increasing

Digital Photo Frame

Car Navigation

Home Security



Remote Camera

Entertainment

Bicycle Navigation



NAVITIME

Pioneer



ZTE中兴

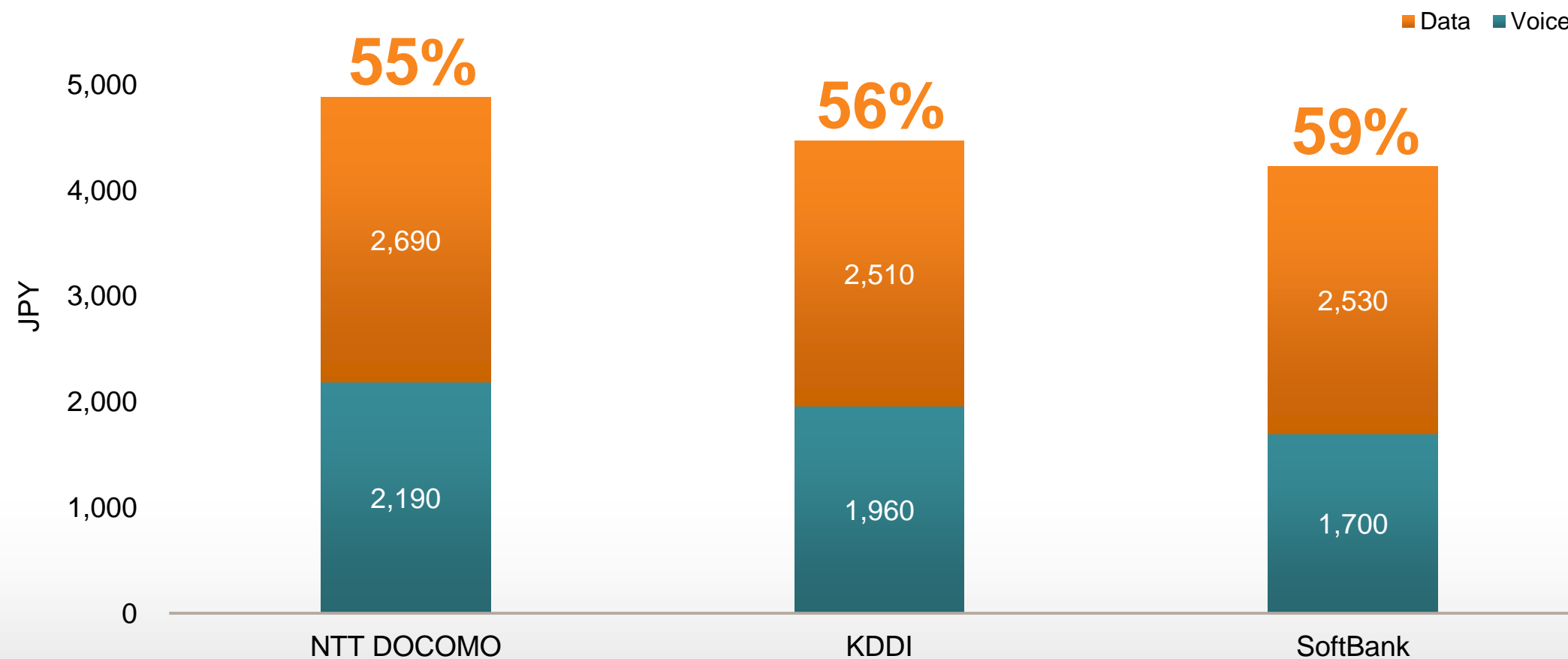
au by KDDI

NTT docomo

SoftBank

# Data is the Source of Revenues in Japan

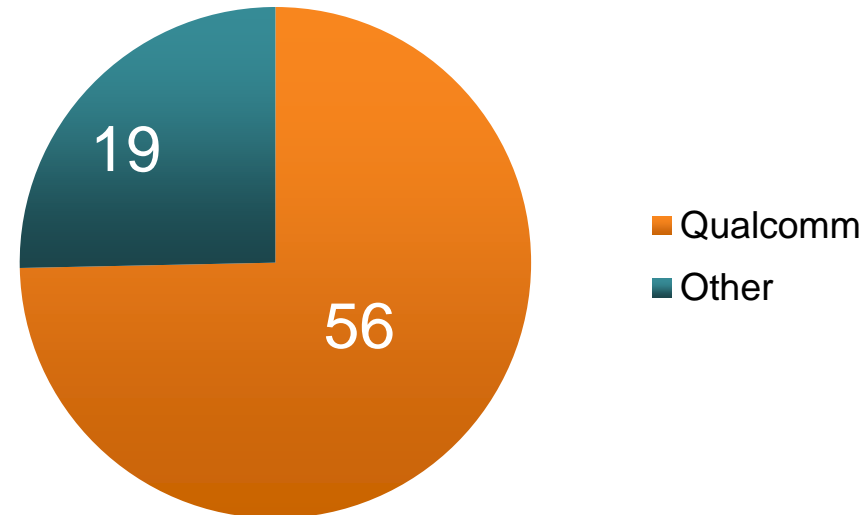
October-December 2011 Monthly ARPU





# Qualcomm drives Japanese Smartphone Market

Number of Smartphones Announced in 2011: 75



# Qualcomm Enables Wireless Network Evolution

## LTE Launch Enabled by Gobi Modem Solution



NTT  
**docomo**



Dec. '10

SoftBank

SoftBank **4G**

SII



Feb. '12

**EM**  
EMOBILE

EMOBILE **LTE**



Mar. '12

# Qualcomm Leads LTE Smart Connected Devices

NTT  
**docomo**



**SAMSUNG**

**NEC**

**LG**  
Life's Good



**snapdragon**  
by Qualcomm

**gobi**  
by Qualcomm

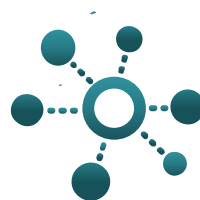
# Qualcomm Continues to Lead Innovation

Qualcomm Will Continue to Lead Smart Device Innovation in Japan with Partners



## Devices

- Tablet
- Smartphone



## Wireless Networks

- LTE
- LTE Advanced




## Non-Handset Devices

- Consumer Electronic
- M2M



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A scenic view of Central Park in New York City. In the foreground, a man is sitting on the grass, looking towards the right. In the middle ground, many people are sitting on the grass, some in groups, some alone, enjoying the park. In the background, a dense line of trees separates the park from a city skyline featuring several tall skyscrapers. The sky is bright and slightly hazy.

# KOREA Market Update

**Te-Won Lee**  
VP, Qualcomm Korea  
April 2012





# Korea Factsheet

Korea is one of the most advanced telecom markets in the world

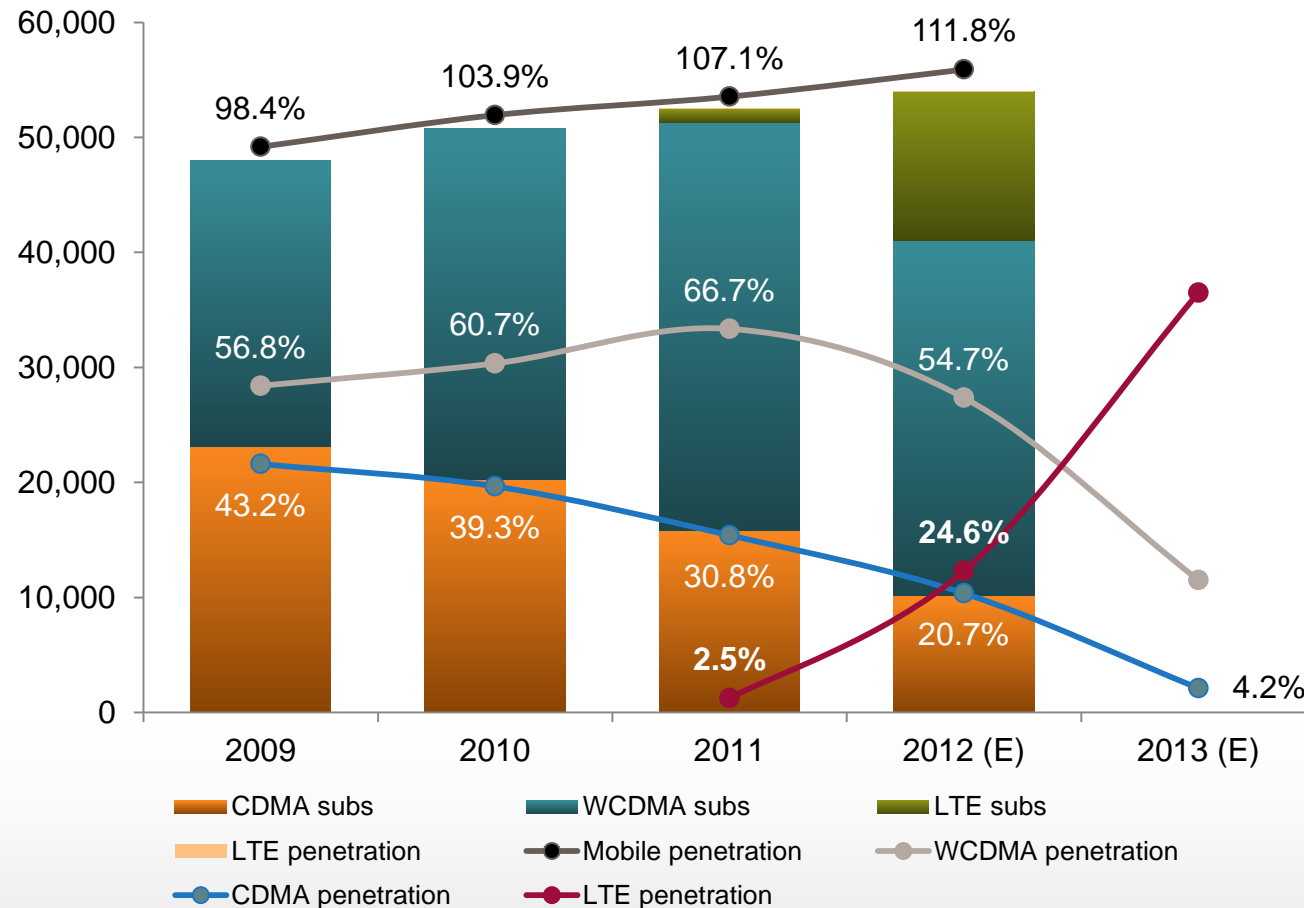


- ▶ Population: 48,860,500 (July 2012 est.)\*
- ▶ Mobile Penetration: 107.2% (Q4'11)\*\*
  - 100% mobile users on 3G/4G
- ▶ Broadband penetration: 102.9% of HH † (Feb'12)\*\*\*
  - from xDSL & cable modem to FTTH ††
- ▶ Fixed line telephone pen.: 106.7% of HH (Feb'12)\*\*\*
- ▶ Leading OEMs : Samsung, LGE and Pantech
- ▶ First to commercialize in the world:
  - CDMA 95A/B
  - CDMA 1X
  - EVDO (Rev.0)
  - HSDPA (handset)
  - BREW
- ▶ Leading global test bed:
  - Tech: Mobile WiMAX, S-DMB, T-DMB
  - Services: M-commerce, M-SNS, etc.

† HH: Household, †† FTTH: Fiber To The Home

(Source: \*www.cia.gov (April 16, 2012), \*\*KT monthly Factsheet (March 2012), \*\*\*Monthly subscriber data from KCC ([www.kcc.go.kr](http://www.kcc.go.kr) , March 30, 2012) )

# Mobile Subs Migration & Penetration\*



- ▶ Mobile penetration rate is expected to reach 110% in CY12.
- ▶ LTE penetration rate is expected to be over 24% in CY12 and over 50% in CY13.
- ▶ As of end Mar 20, LTE subs amounts to 3M\*.

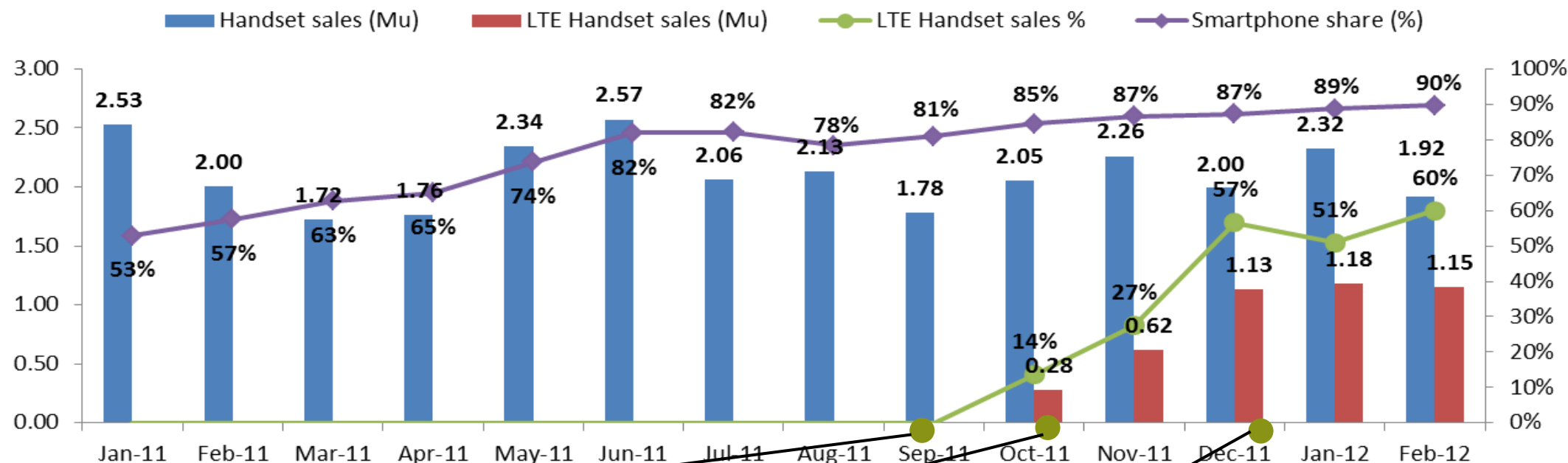
(Source: DIGIECO & ROA CY11 wrap up reports)

(\* Source: Article from Electronic Times on March 20, 2012 or [http://www.etnews.com/news/home\\_mobile/information/2571627\\_1483.html](http://www.etnews.com/news/home_mobile/information/2571627_1483.html) )



# LTE Drives Strong Smartphone Sales

Smartphone sales share reached 90% in Feb CY12 due to strong LTE phone sales.



Samsung Galaxy SII LTE



LGE Optimus LTE

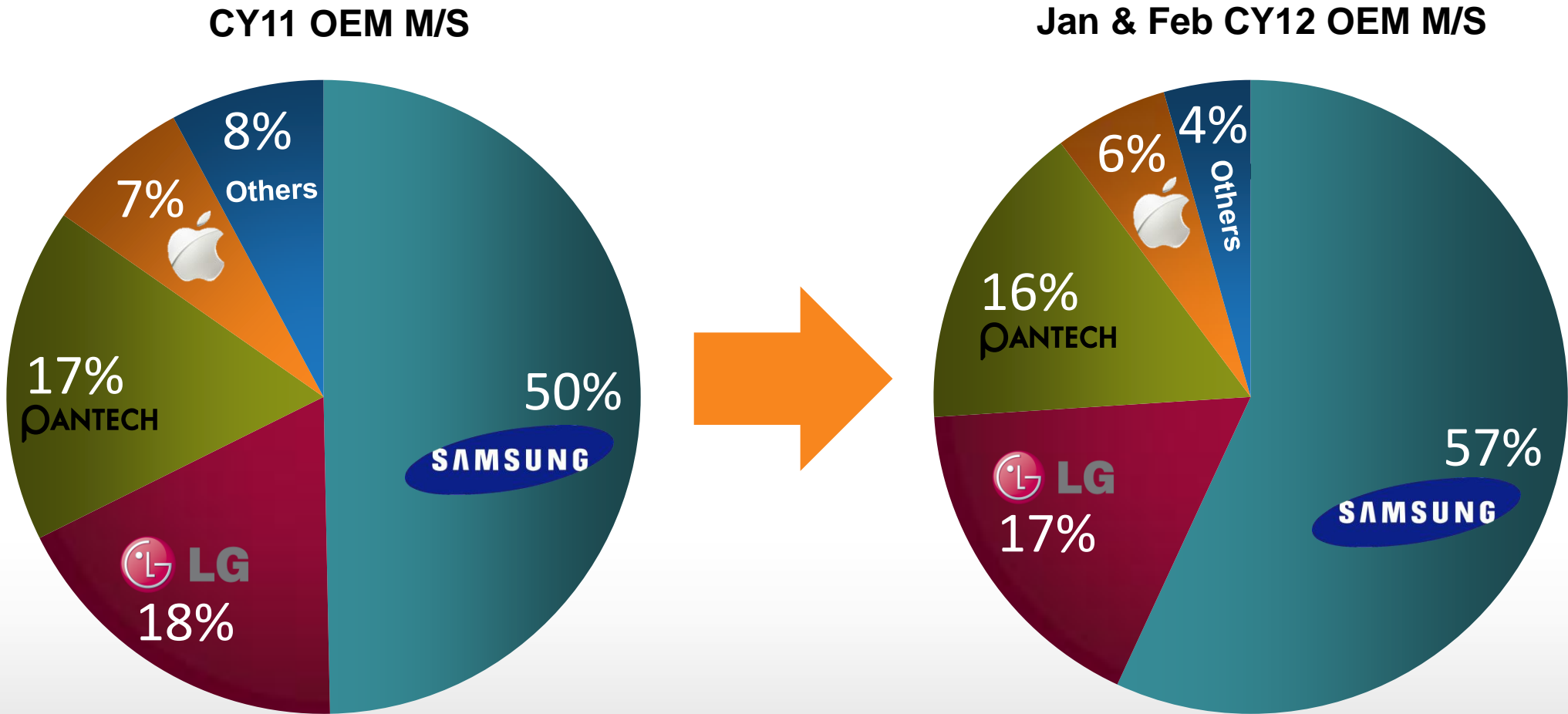


Samsung Galaxy Note



# OEM Share

Recent success of Samsung's LTE smart phone drove their M/S upward



# Qualcomm Leads LTE Smart Connected Devices

All 13 models launched so far are based on Qualcomm Snapdragon



Galaxy SII LTE



HTC Raider 4G



LG Optimus LTE



Pantech Vega LTE



Galaxy S II LTE HD



Galaxy Note



Pantech Vega M



Galaxy Tab 8.9



Pantech Vega EX



LG Optimus Pad



Galaxy Tab 7.7



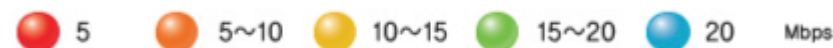
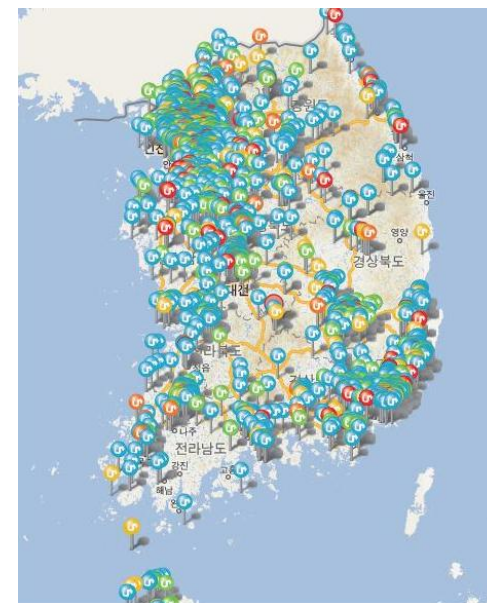
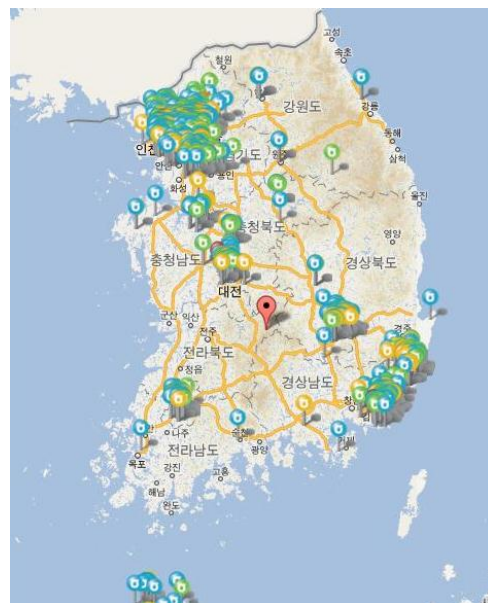
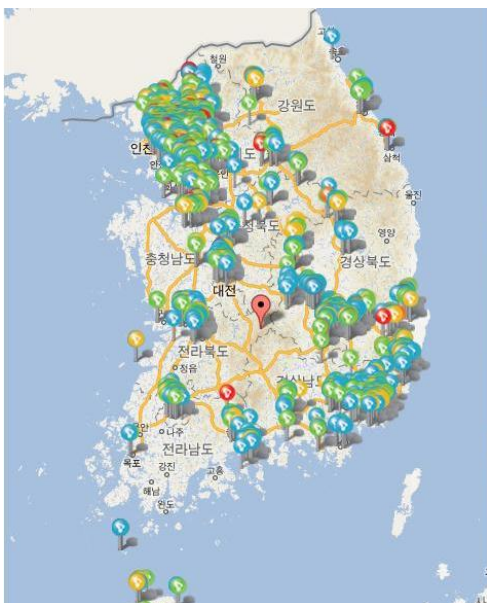
LG Optimus Tag



LG Optimus Vu



# Korean operators are building up LTE coverage aggressively



Revenue	SKT	KT	LG U+
LTE svc start	July 1, 2011	Jan 3, 2012	July 1, 2011
LTE svc coverage	82 cities (90%) by Apr'12	82 cities (90%) by Apr'12	Nation-wide
LTE subs forecast (End'12)	6M	<4M	4M

(Source: \* Income Statement from SKT ('11), KT ('11) and LGU+ ('10)/ \*\* Wireless Intelligence (Q4'11)/ \*\*\* KCC mobile subs data in Feb'12).

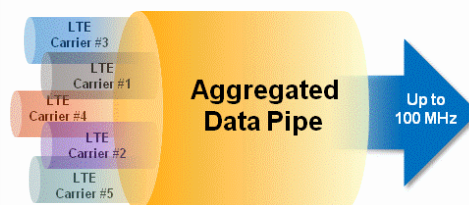


# Leading the Transition to Next-gen Networks

## Qualcomm is Helping Carriers to Implement LTE-A Features\* in Korea

### Leverage wider bandwidth

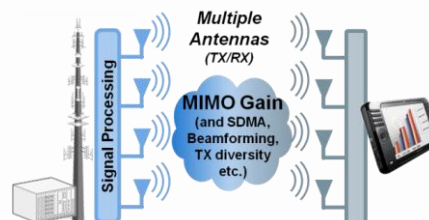
Carrier aggregation across multiple carriers and multiple bands



Primarily higher data rates  
(bps)

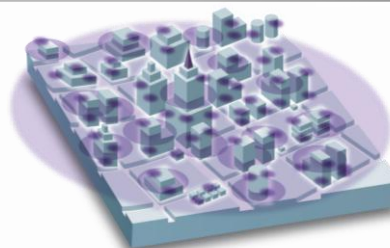
### Leverage more radio links, more antennas

Downlink MIMO up to 8x8, enhanced Multi User MIMO and uplink MIMO up to 4x4



Higher spectral efficiency  
(bps/Hz)



### Leverage Heterogeneous Network Topology (HetNet)



Higher Spectral Efficiency  
Per Coverage Area  
(bps/Hz/km<sup>2</sup>)

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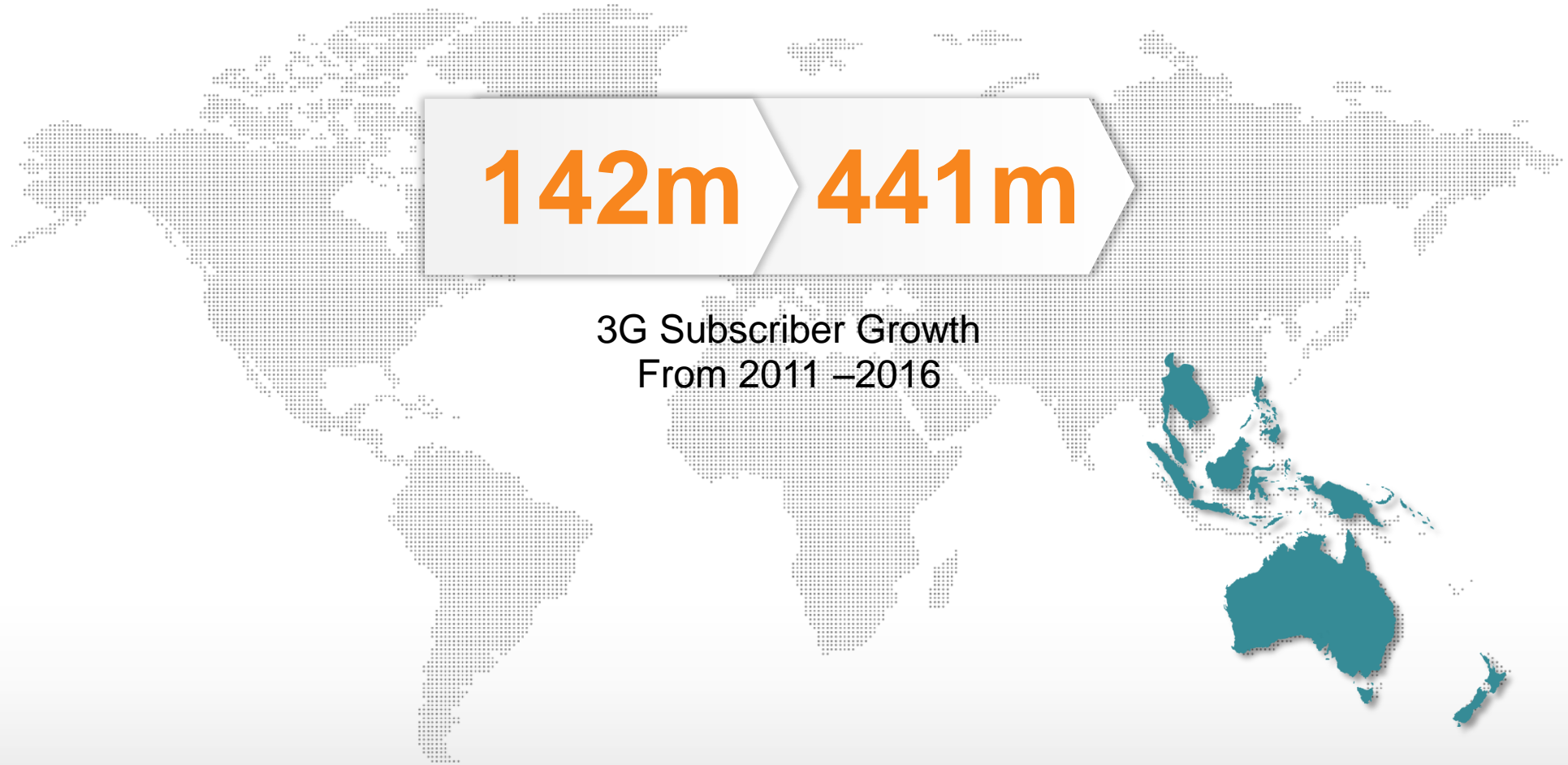
# Qualcomm & Southeast Asia

John Stefanac  
VP & Pres, Qualcomm SEA/Pacific  
April 2012





# Southeast Asia





# Highest Smartphone Penetration Rates In The World

61%

90%

47%



Tablet Penetration Accelerating

Source: TomiAhonen Consulting

Note: Australia is ranked 4th in the world in smartphone penetration after Sweden.

# Strong Uptake Through 3G Innovation

Mobile commerce is heating up across the region. In **Singapore**, PayPal is piloting a “shop & pay-as-you-go” initiative in the country’s 15 subway Stations, locating deals on billboards and paying in two clicks

---

**Mobile Preferred:** **62%** of all Internet access hits in Indonesia came from a mobile device

---

In **Thailand**, over **25%** surveyed said they would access the Internet from a smartphone because it’s pricier to use data from a desktop. **42%** would Use a mobile device for online banking

---

In **Indonesia**, **31%** surveyed by Nielsen in 2011 owned a desktop computer; **78%** owned an Internet capable mobile device



# Smartphone Experience for the Masses



**Ivio  
Icon Pro**

# Smartphone Experience for the Masses



**Smart  
Netphone  
Series**



# Opportunities, Challenges Remain



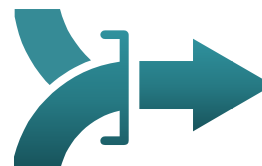
## **Spectrum, spectrum, spectrum**

The industry needs more ... and then some more

Harmonization is critical



OR



## **Industry consolidation in some markets are needed**

Overcrowded operator markets, reduced profitability may actually hinder product innovation at consumers' expense



## **It's time to explore "Next generation" services**



Southeast Asia consumers are tech-savvy

Emerging markets can leapfrog and adopt the latest technologies, catching up to mature markets

Operators should begin planning for longer-term -> focus on M2M, wireless healthcare etc.

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# **mirasol Displays: The Revolution in Display Technology**

**April 14th, 2012**

**Brian Gally, Sr. Director of Strategy and Analysis  
Qualcomm MEMS Technologies, Inc.**





# Enabling Smart Connected Devices

## ► Promotes change in usage models

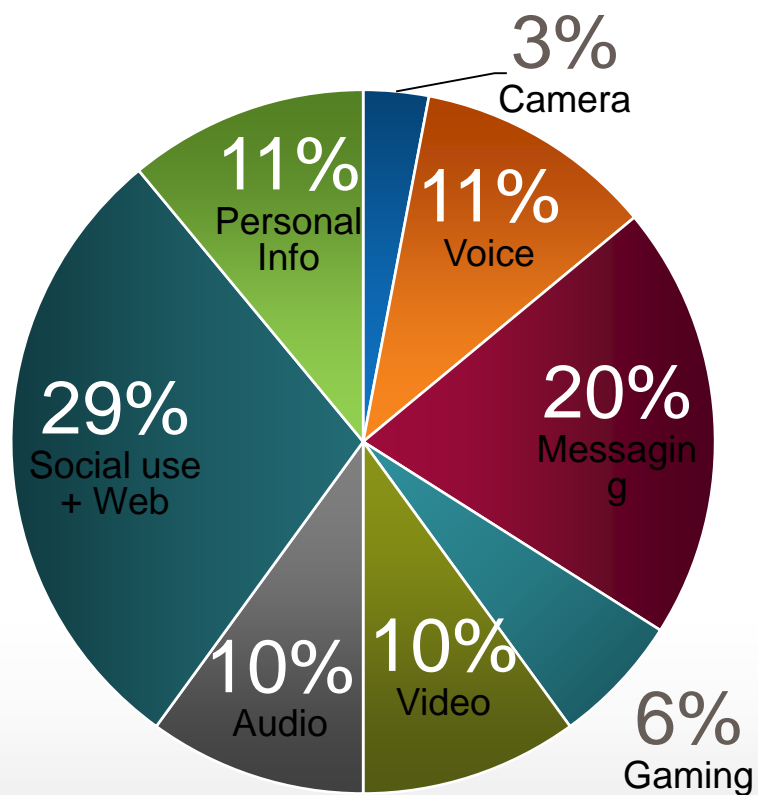
- Any place, Any time
- Rapid rise in use of Apps
- More “Display On” time





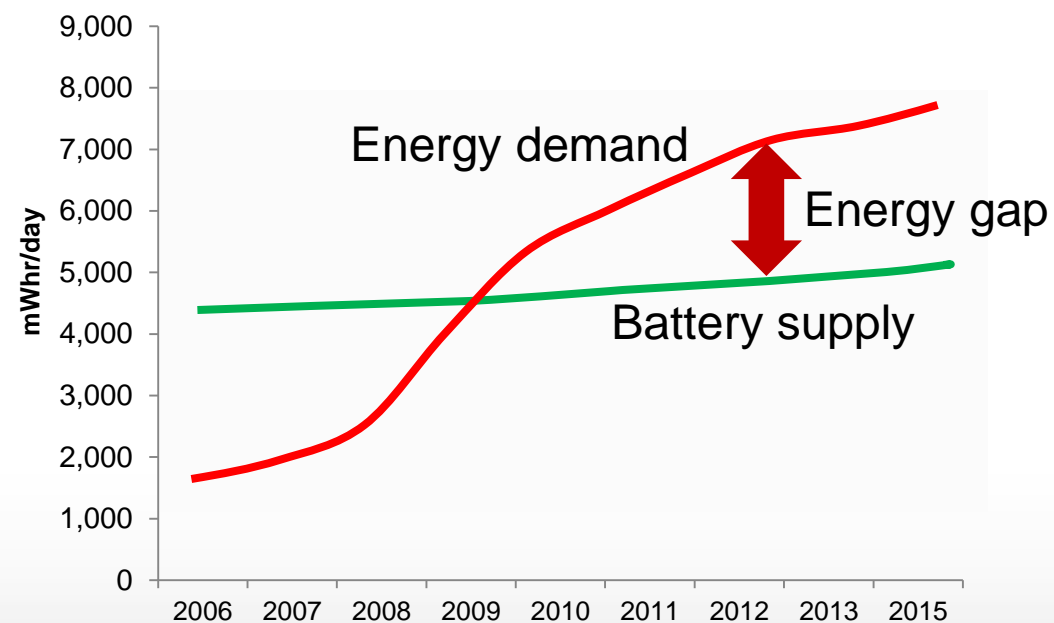
# Energy Gap is Growing

**Demand for power  
increases with social use**



Source: QCT Strategy US market research

**Battery remains a constraint:  
supply of power limited**



Source: Strategy Analytics' Handset Component Technologies Service, November 2010

# Consumer Expectations Are Changing

Higher resolution, better image quality

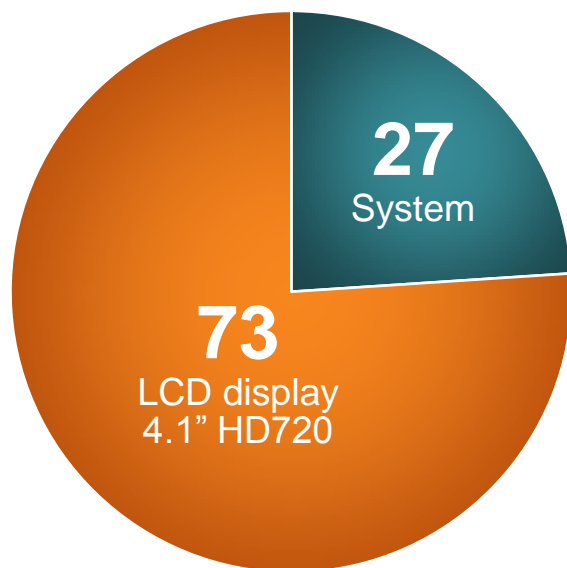


Thinner phones, larger displays, longer battery life

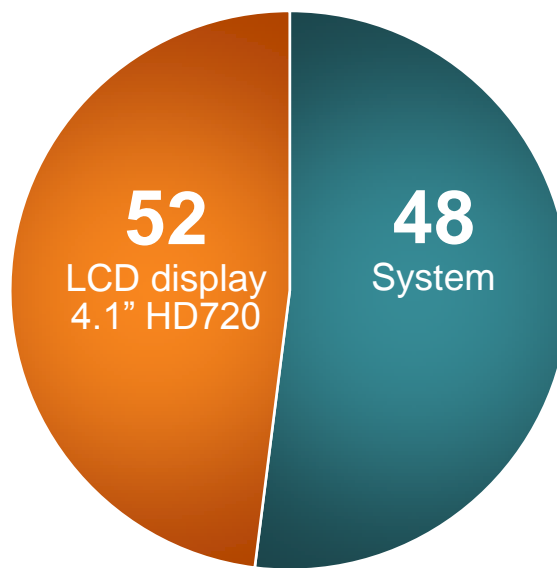


# Display Dominates Power Consumption

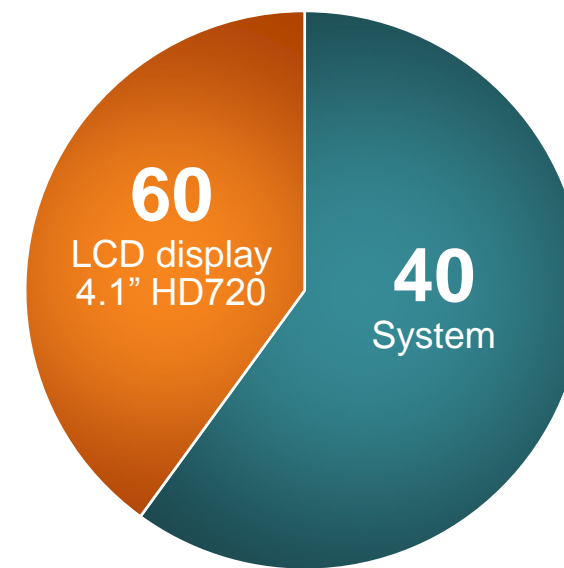
## Web browsing



## Video



## Average over use



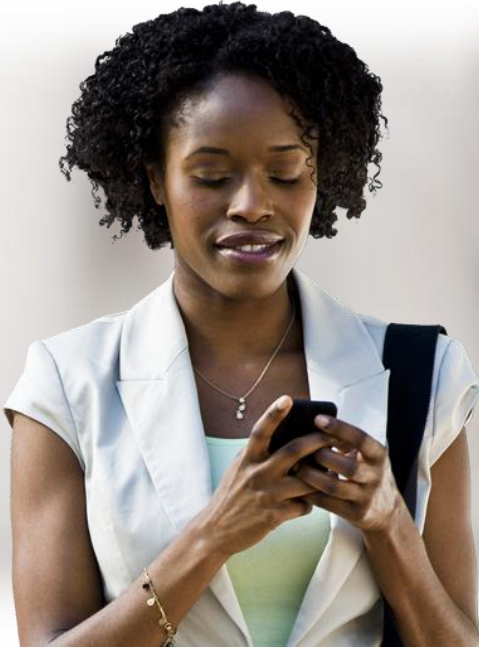
## Daily use model: 206 min/day

- ▶ 3G voice 22 min/day
- ▶ Web apps 40 min/day
- ▶ Web browsing 40 min/day
- ▶ MP3 10 min/day

- ▶ Gaming 5 min/day
- ▶ Video 10 min/day
- ▶ Email 8x day, 5 min session
- ▶ Email synch 144x /day

- ▶ Camera 5 min/day
- ▶ Messaging 12 min/day
- ▶ Personal info 20 min/day
- ▶ Display on 2 min/interaction

# New Display Required to Improve the Wireless Experience



- ▶ Lower handset power consumption
- ▶ Improved viewing experience
- ▶ Any place, Any time



- ▶ Increasingly products defined by their display



Expectations Are Changing

Color

Expectations Are Changing

Interactive

# Expectations Are Changing



# The mirasol Difference

Transform the wireless experience with an always viewable, low power, color display

- ▶ Reflective

- Visual experience like printed photograph and magazine

- ▶ Sunlight viewable

- Correct brightness ensured across lighting conditions – augmented with front light

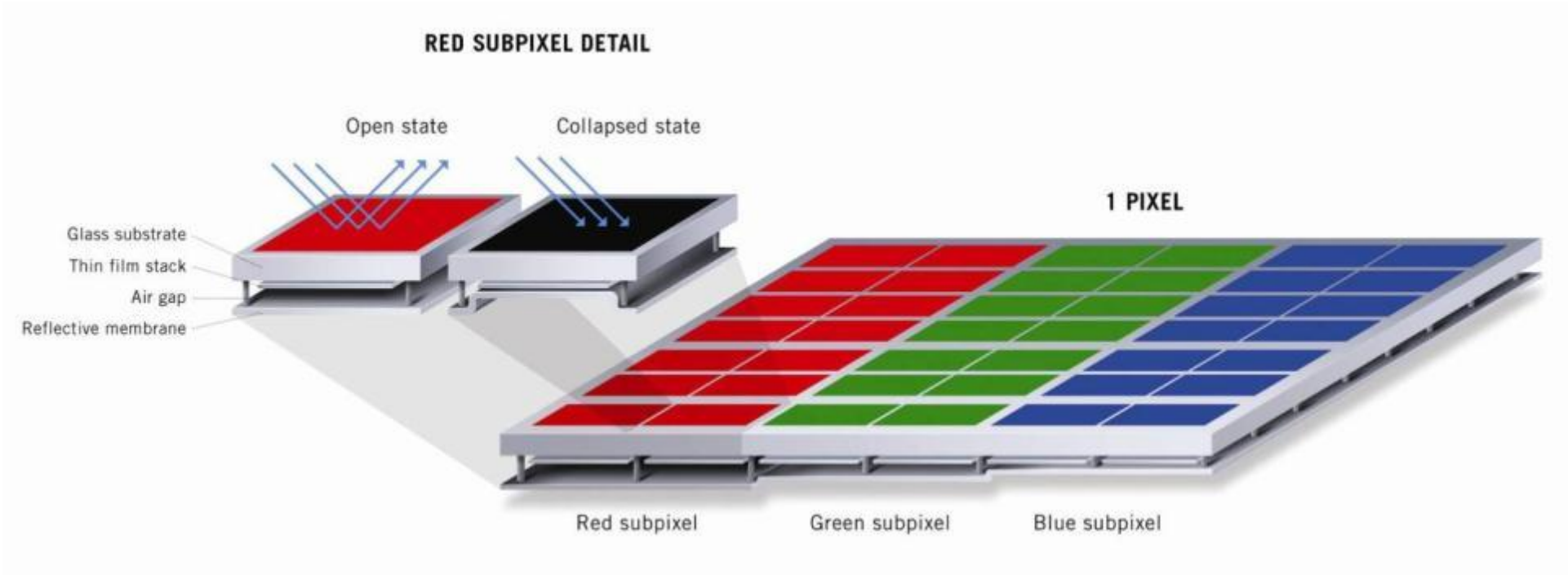
- ▶ Low power, improved battery life

- Longer use between battery charges
- Smaller batteries. Thinner, lighter devices.





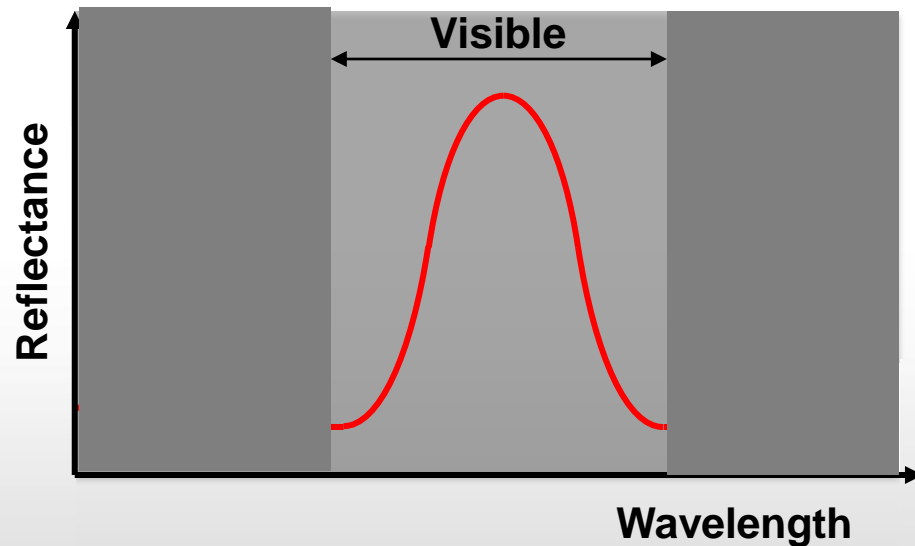
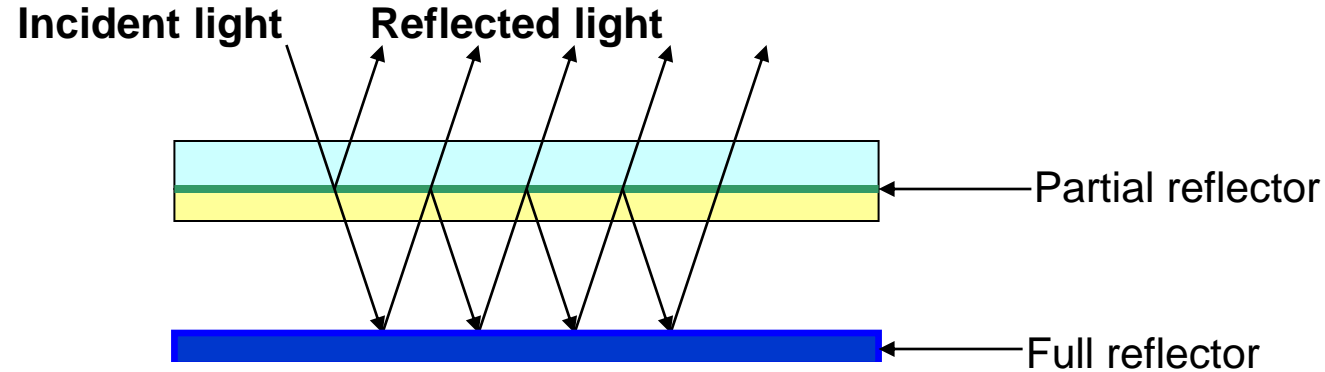
# mirasol Is the Low-Power, Color Video Solution



## **MEMS based reflective display**

- ▶ Light modulation from applied voltage
- ▶ Color selection from constructive interference
- ▶ Memory from electro-mechanical behavior

# IMOD Core Concept - The Adjustable Etalon



- ▶ Reflectance peak outside visible range
- ▶ Display appears dark

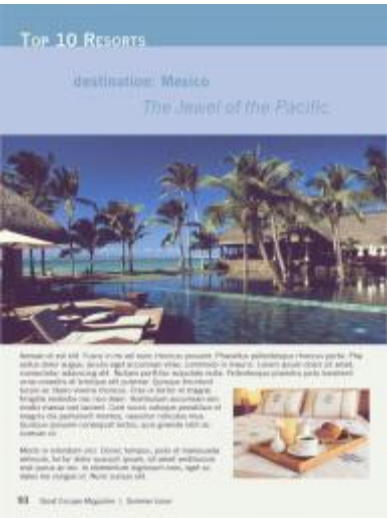
# The Value of Consistent Viewing Quality

## Indoor Lighting



EPD Display

## Overcast



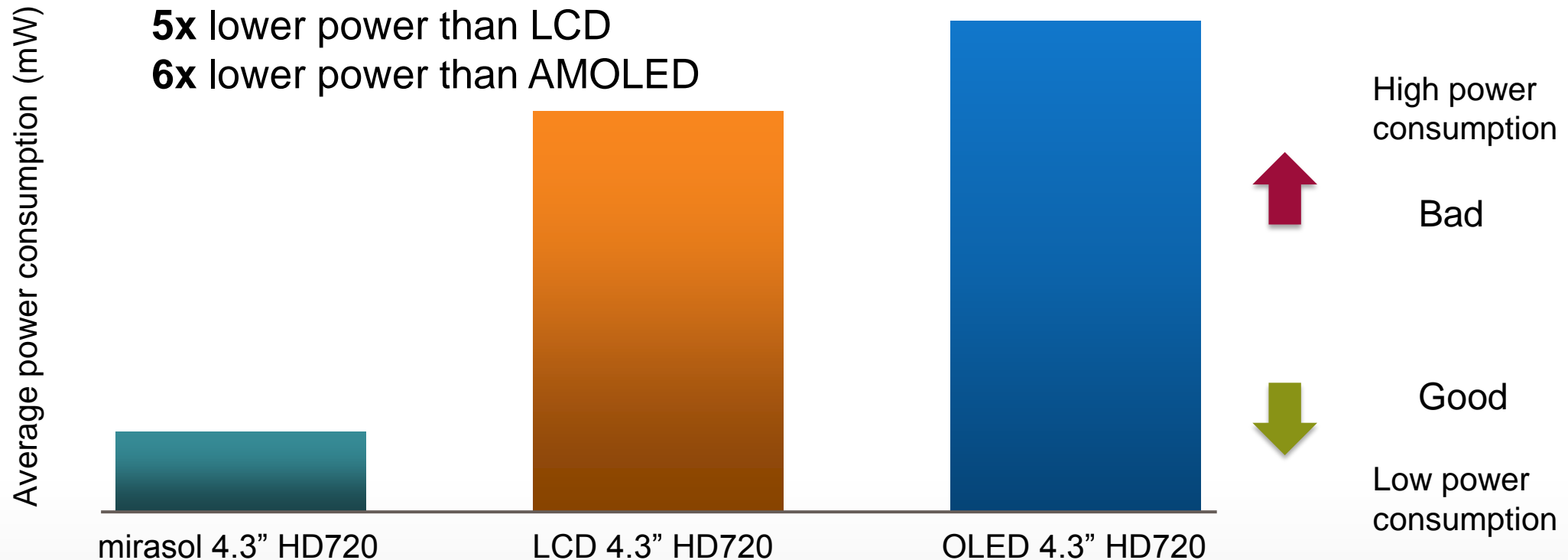
mirasol® Display

## Bright Sunlight



TFT Display

# Display Power Comparison – Average Over Ambient and Usage





# 2x Longer Battery Life In a Smartphone

## SmartPhone Comparison

Battery Life  
Benefit of  
mirasol  
displays

Up to  
**2.2x**  
The use of a LCD  
based phone

Up to  
**2.5x**  
The use of an AMOLED  
based phone

**4.3" mirasol**  
1280x720,  
343 ppi

Up to  
**2.7 days**  
9.0 hours use

4.3" TFT-LCD  
343 ppi

Up to  
**1.25 days**  
4.2 hours use

4.3" AMOLED  
343 ppi

Up to  
**1.1 days**  
3.7 hours use

## Usage Model

206 minutes/day of active use

- ▶ 3G Voice – 22 minutes/day
- ▶ Web Apps (3G) – 40 minutes/day
- ▶ Web Browsing – 40 minutes/day
- ▶ MP3 10 minutes/day
- ▶ Gaming – 5 minutes/day
- ▶ Video 10 minutes/day
- ▶ Check email 8x a day, 5min/session
- ▶ Email Synchronization 144x per day
- ▶ Camera – 5 minutes/day
- ▶ SMS Messages 12 minutes/day
- ▶ User Navigation 20 min/day
- ▶ Display on 2min/interaction

Notes:

75% indoor use/25% outdoor use

Display power estimates based upon typical content (required for AMOLED) and content update rate (required for mirasol) for each application

Usage model equivalent to model used in module comparison

Smartphone model assumes a 1420 mA-hr battery

# mirasol Color eReaders

eReaders commercially available since November 2011



Color Nook

mirasol eReader

mirasol Advantage

Battery Capacity	4010 mAhr	2000 mAhr	< ½ battery capacity
Continuous Reading	7.7 Hours	17.4 Hours	2.2x more
Reading Usage	15 Days	21 Days	1.4x more
Reading + Web Usage	6.3 Hours	11 Hours	1.75x more

Source: QMT research labs

# What Does This Mean?

## Everyone in the Value Chain Benefits

### Designers



Design flexibility with  
potential use of  
smaller battery

Product Differentiator

### OEMs



Lower costs via  
smaller battery

### Product Managers



Improved energy  
budget - enables  
flexibility in  
applications and  
features

### Carriers



More energy = more  
Available Revenue  
Time = higher ARPU

### Consumers



Fewer charging cycles,  
extended battery life  
Increased viewability  
Increased access to  
services due

# mirasol Commercialization

Currently available devices in Korea, China and Taiwan



Bambook  
Sunflower



Hanvon  
C18



Kyobo  
eReader



Koobe Jin Yong  
Reader





# mirasol Fabrication Facilities



**Current mirasol display fabrication facility**

**Pilot Line**  
**Longtan Science Park**  
Taoyuan, Taiwan



**Planned mirasol display fabrication facility**

**Generation 4.5 fab**  
**Longtan Science Park**  
Online end 2012



# Mobile Devices of Tomorrow

The mirasol display technology is not an evolution but a first of its kind revolution

- ▶ mirasol aligned with mobile display market dynamics
  - Higher formats, finer resolutions and larger diagonals
  - Thinner, lighter devices, with longer battery life
  - 1/5<sup>th</sup> the average power consumption\* of competing displays
- ▶ mirasol displays enable new consumer experiences and new use models

# Thank you

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QUALCOMM Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714





A scenic view of Central Park in New York City. In the foreground, a man is sitting on the grass, looking towards the right. The middle ground is filled with many people sitting on the grass, some in groups, some alone. The background shows a dense line of trees, and beyond that, a city skyline with several tall skyscrapers. The sky is bright and slightly hazy.

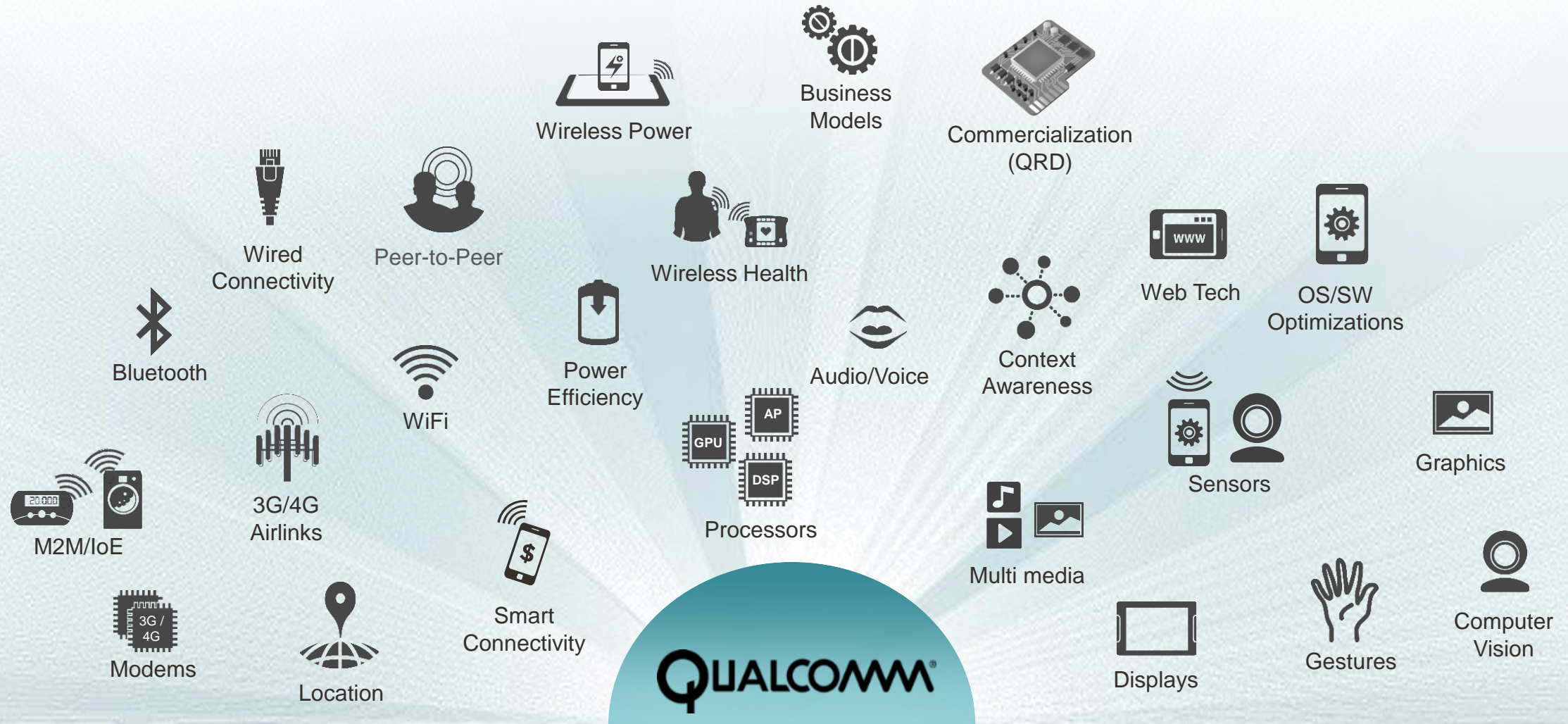
# Innovation at Qualcomm

**Samir Khazaka, Sr Dir**  
**Head of Analyst Relations**  
**April 2012**





# Driving Innovation in the Era of Smart Connected Devices



Mobile

Computing

Consumer Electronics

Internet of Everything

Networking

# Enabling Smart Connected Devices

## Connecting Everything

Supporting More Users,  
at More Places,  
with More Capacity

**Evolve 3G/4G/WiFi**

**Small Cells/HetNets**

**Intelligent Connectivity**

**Peer to Peer**



## Making Devices Smarter

Leveraging Computing  
Power and Sensors to Enable  
New User Experiences

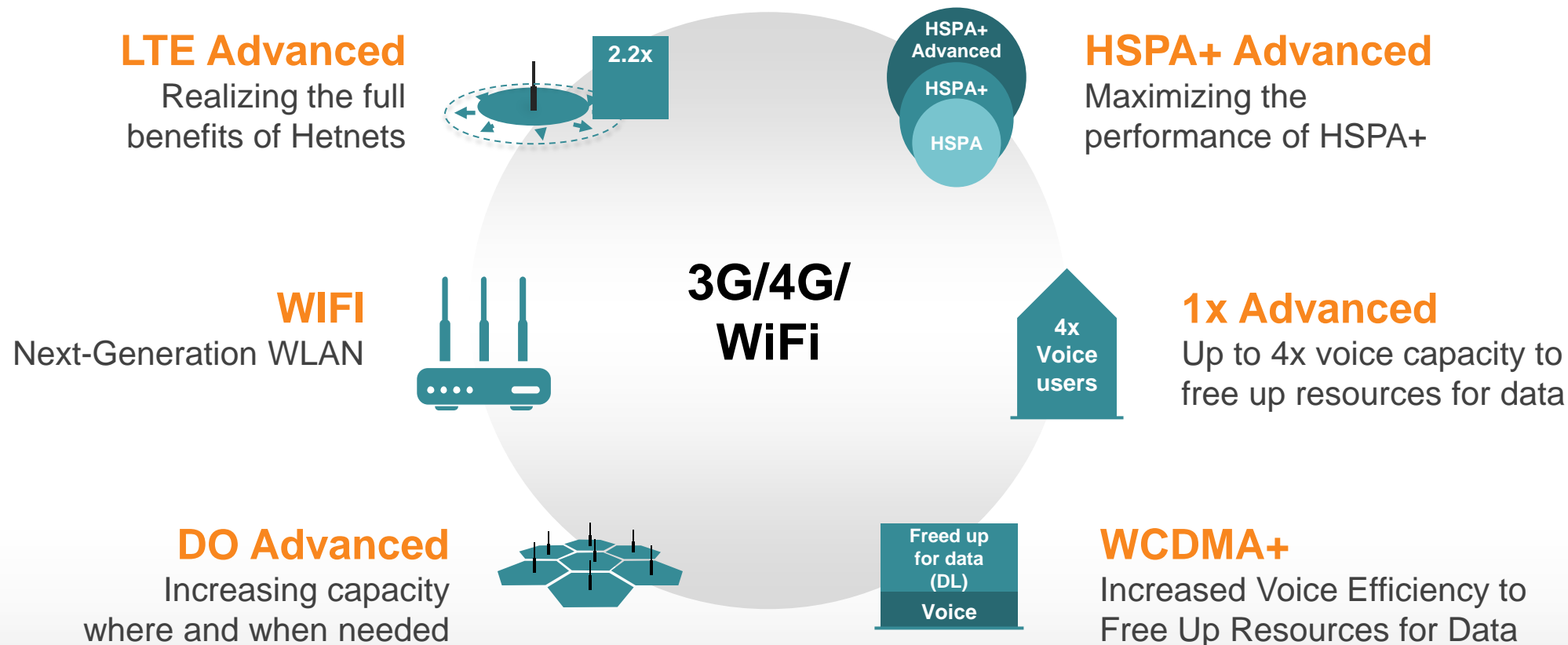
**Computer Vision**

**Indoor Location**

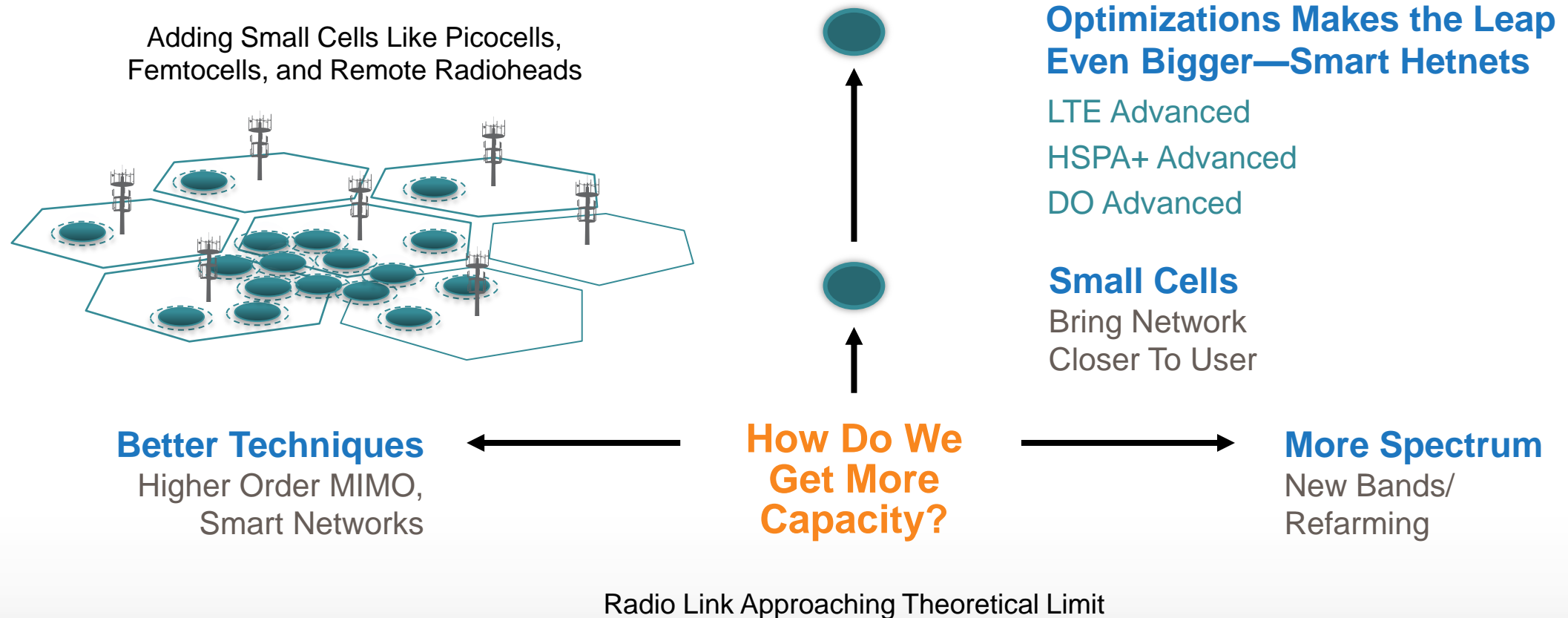
**Improving Web Experience**

**Context Awareness**

# Continuously Improving Wireless Performance



# The Next Leap in Performance: Small Cells



Note: Other improvements, such as higher order modulation will also help, but 64QAM is already commonly used.  
Other options are to use the available capacity better and reduce, e.g., power or signaling overhead to get more usable capacity.





# UltraSON™ Enables Expanding Role of Small Cells



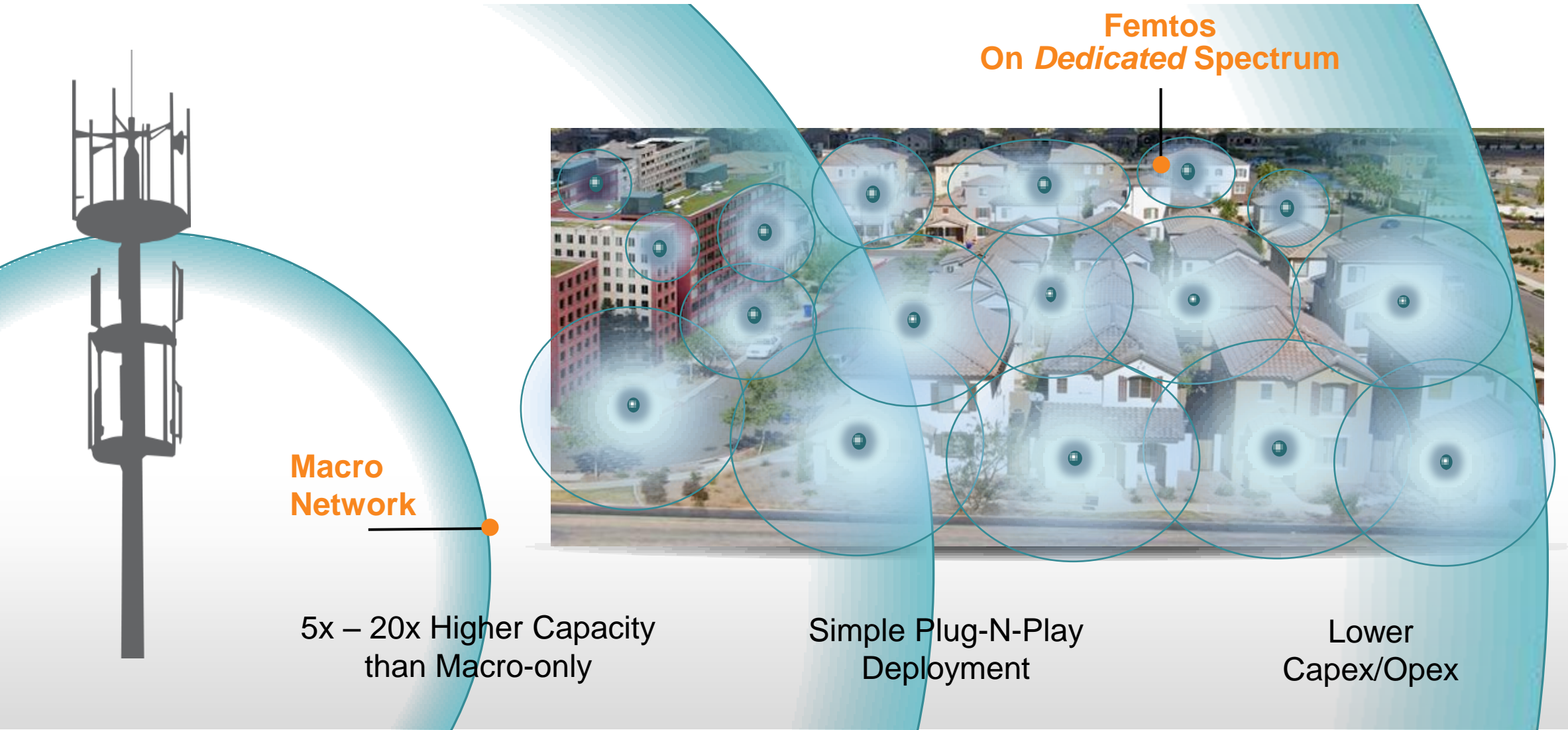
Unplanned  
Restricted  
User's broadband connection



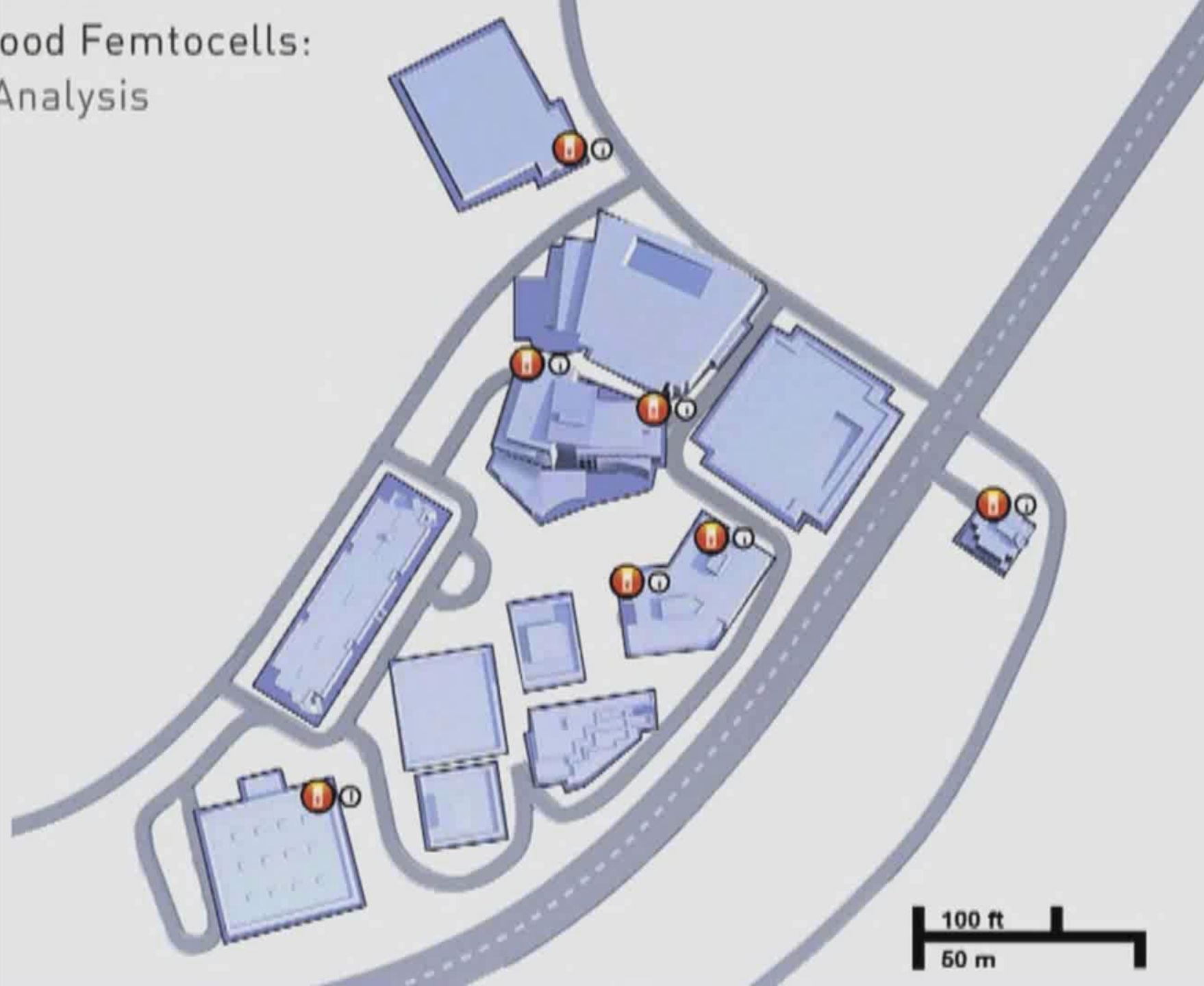
Open  
Seamless handoff  
Interference coordination

# Neighborhood Femtos - New Deployment Model

Open-Access Indoor Femtos Providing Outdoor Coverage



# Neighborhood Femtocells: Coverage Analysis

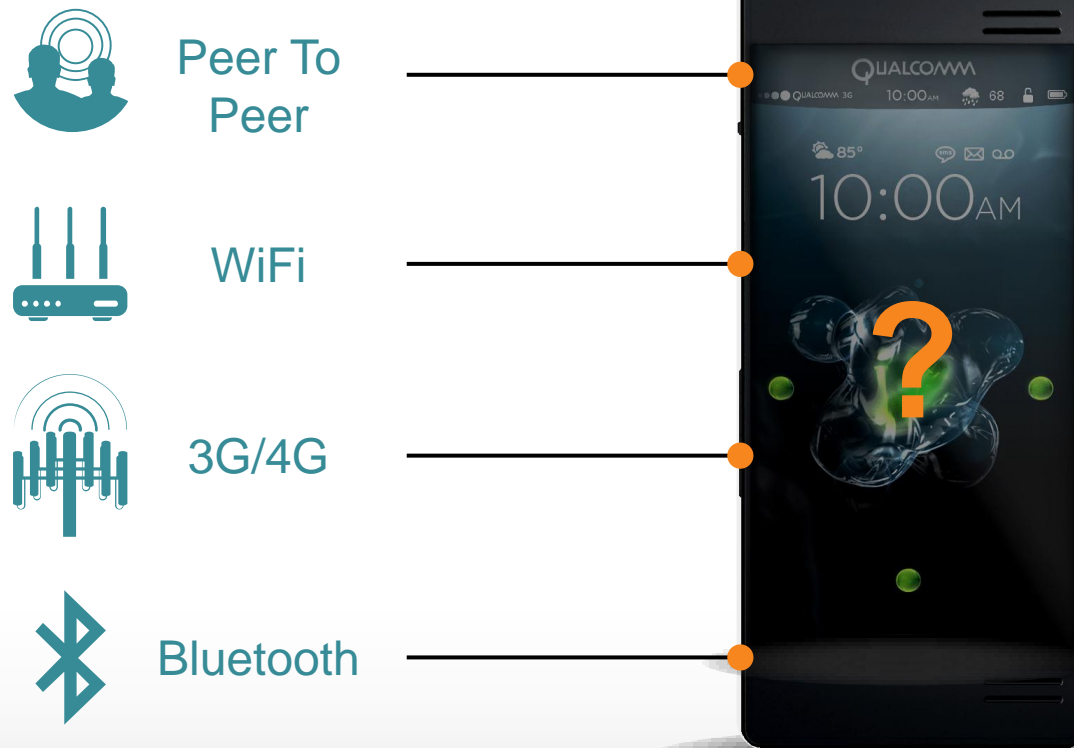


Pilot Ec/Io

0  
-1  
-2  
-3  
-4  
-5  
-6  
-7  
-8  
-9  
-10  
-11  
-12  
-13  
-14  
-15  
-16  
-17  
-18  
-19  
-20



# Intelligent Connectivity



Connection Based On:

**Coverage**

**Data speed**

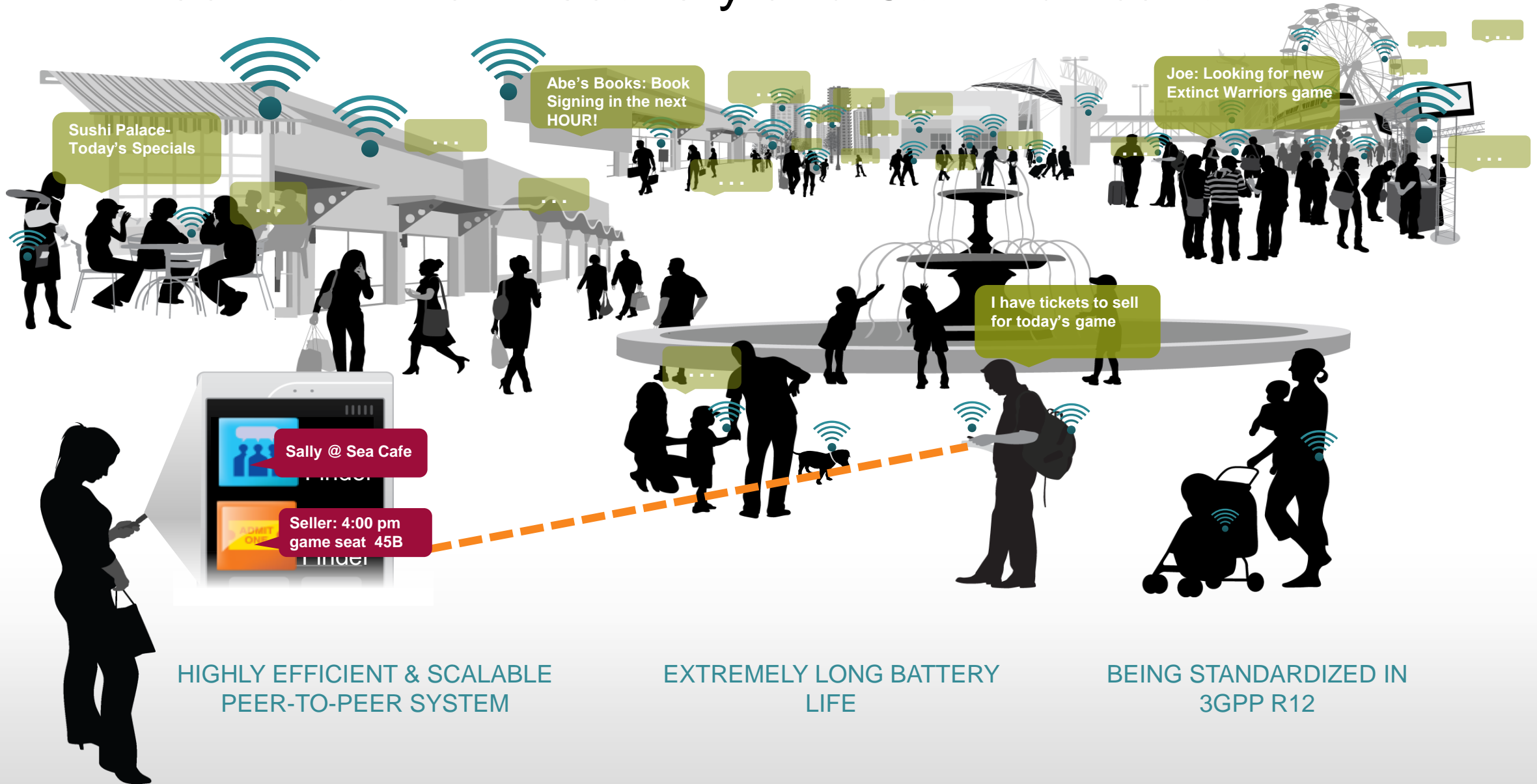
**Internet connectivity**

**Type of app**

**Operator policies**

**Per link decision**

# LTE-Direct: Proximal Discovery and Communication



# Enabling Smart Connected Devices

## Connecting Everything

Supporting More Users,  
at More Places,  
with More Capacity

Evolve 3G/4G/WiFi

Small Cells/HetNets

Intelligent Connectivity

Peer to Peer



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Computer Vision

Indoor Location

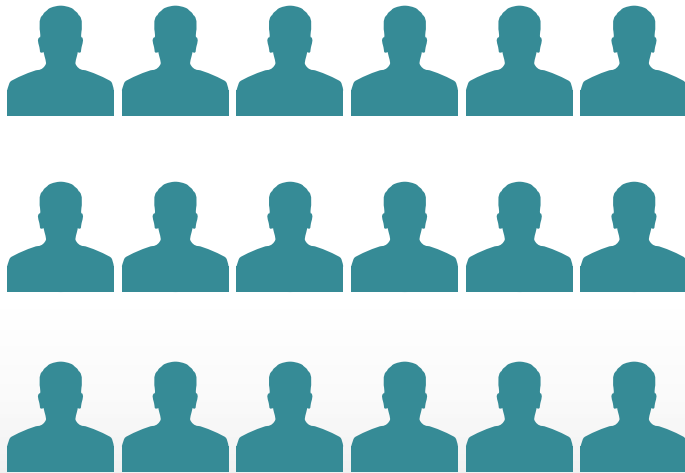
Improving Web Experience

Context Awareness

# Vuforia™ – Strong Market Traction

**22,000+**

Registered  
Developers from  
130 Countries



**400+**

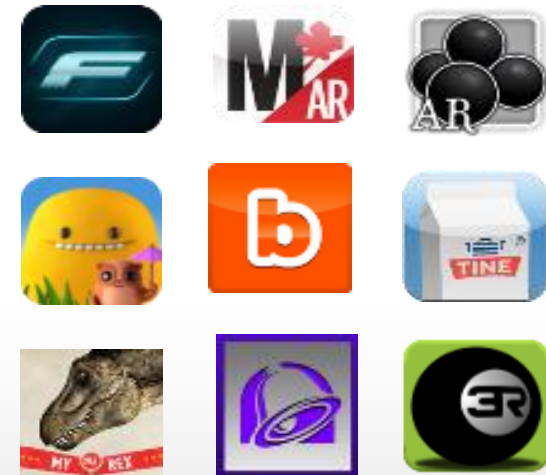
Models of  
Smartphones and  
Tablets Supported

Video



**300+**

Apps in Android  
Market and  
iOS Apple Store



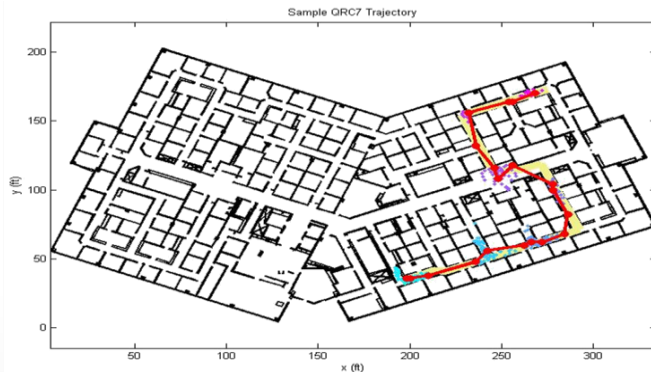




# Accurate Indoor Positioning

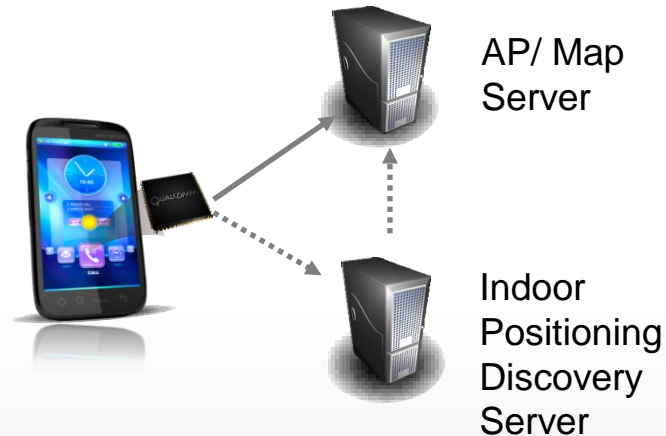
## High Accuracy (<5m)

Leverages existing  
WLAN AP and  
infrastructure



## Integrated into Qualcomm Chipsets

Highly efficient  
mobile based solution



## Scalable Across Commercial Venues

Airport, train stations,  
malls, museums, hospitals,  
sports venues etc.





# In-Nav Demo

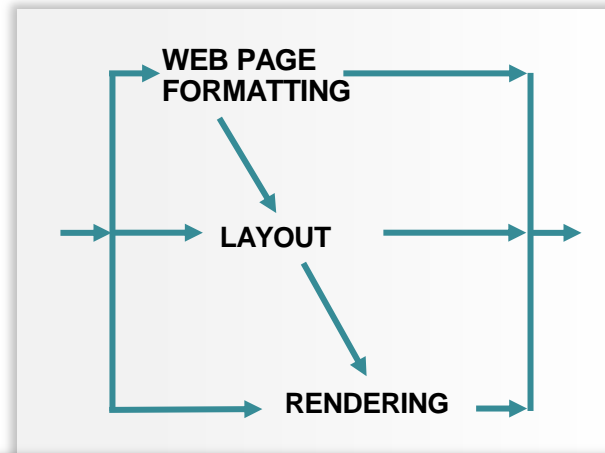
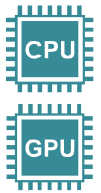
Indoor Navigation System by Qualcomm

# Web Browser Acceleration

## Exploiting Concurrency for HTML and Javascript

### Mobile Computing Increasingly Multi-core

Multi-Core CPU/GPU, DSPs,  
and Hardware Accelerators



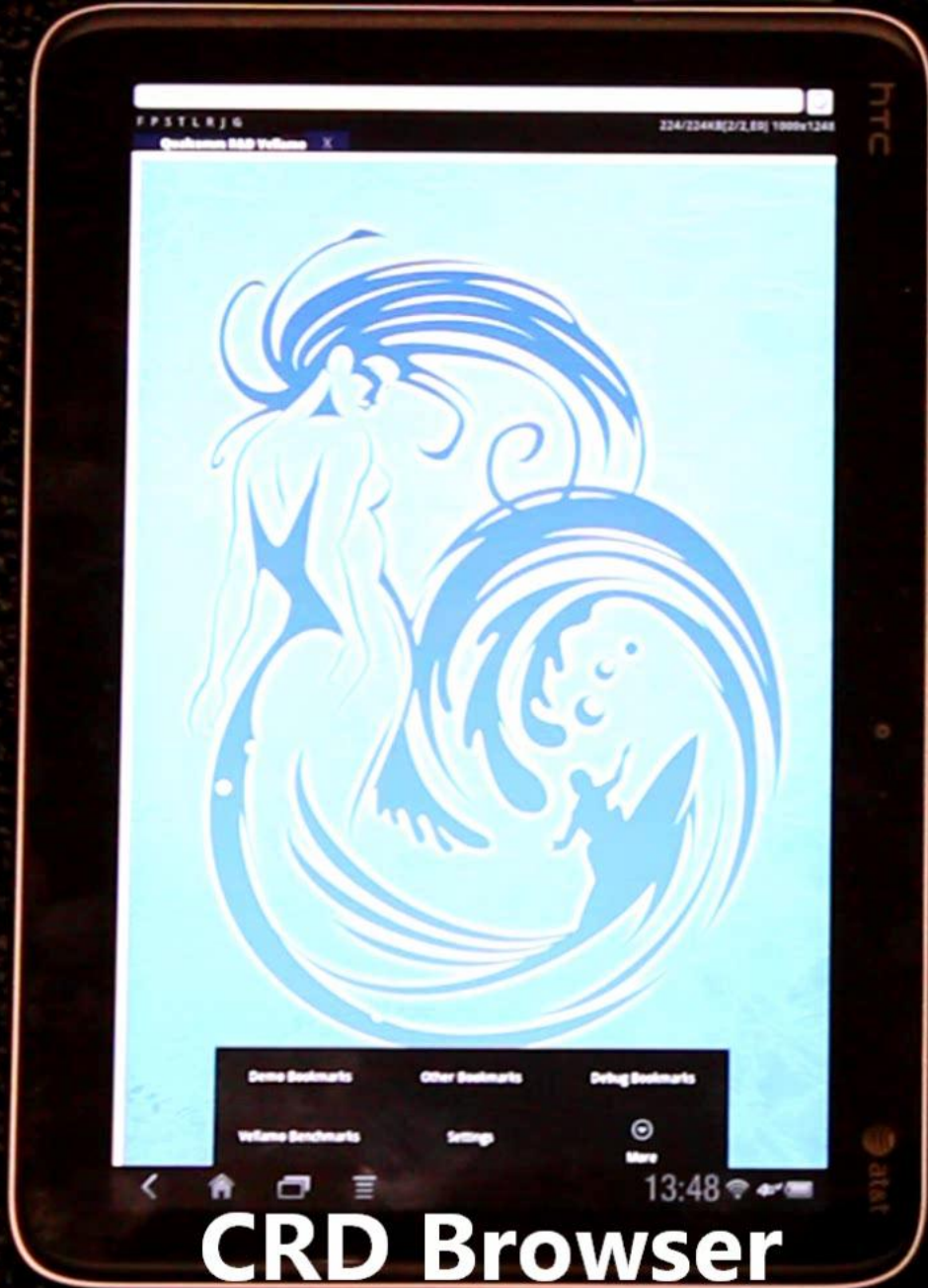
### Developing for Snapdragon SoC

Concurrently use all CPU  
cores & Designed to exploit  
Adreno GPU, Hexagon DSP,  
& other hardware accelerators



**Significantly Faster  
Browsing Experience**





**CRD Browser**



**WebKit**



# Context Awareness Enables New User Experiences



# Enabling Smart Connected Devices

## Connecting Everything

Supporting More Users,  
at More Places,  
with More Capacity

Evolve 3G/4G/WiFi

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Peer to Peer

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## Making Devices Smarter

Leveraging Computing,  
Power and Sensors to Enable,  
New User Experiences

Context Awareness

Computer Vision

Indoor Location

Improving Web Experience



# Leading the Way in the Era of Smart Connected Devices

- Strong track record of leadership
- Broad R&D initiatives to drive innovation
- Well positioned to lead the era of smart connected devices





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