



# Broadband: Changing the Game

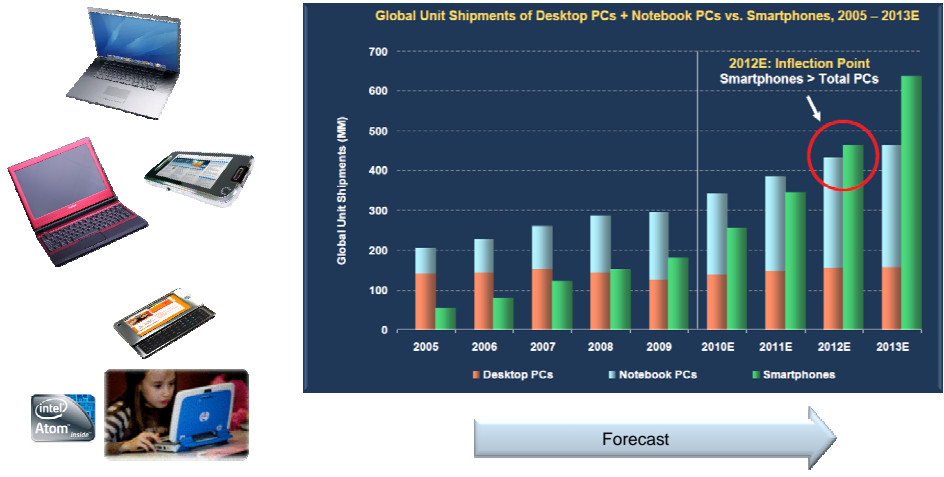
Dr. Hani Elgebaly  
Director, Middle East Mobile Innovation Center  
(MEMIC)  
Intel Corporation

## Agenda

- **Why Mobile Broadband?**
- **Drivers & Facts**
- **Regional Opportunities**
- **Intel MEWIU Initiatives**
- **Conclusion**



# PC Access to the Internet Has Gone Mobile ...



Source: Morgan Stanley, Q4 2010



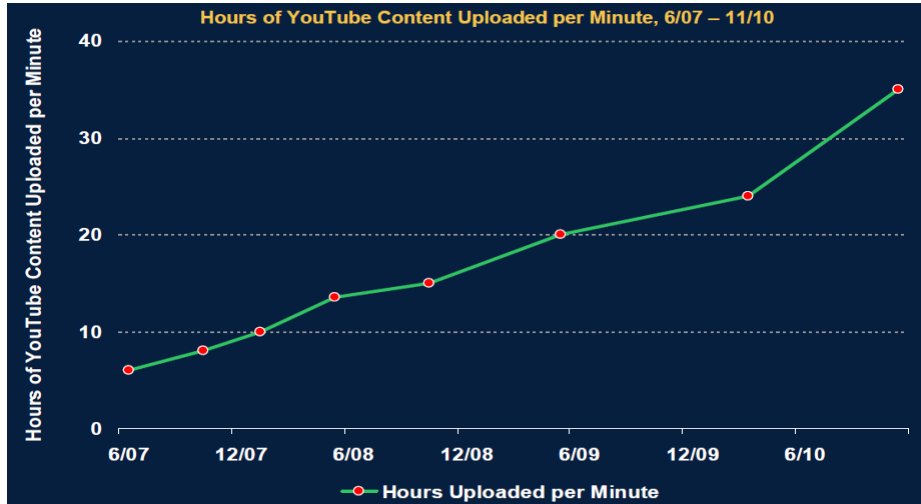
## ... New Devices, Consumer Behaviors and Applications Are Fuelling Broadband Demand.....



"Watching a YouTube video on a smart phone can use the same capacity on the network as sending 500,000 text messages simultaneously."  
*O2 technology Chief Derek McManus*



## YouTube Content Growth Accelerating (+2x Y/Y) – 35 Hours of Content Added Every Minute

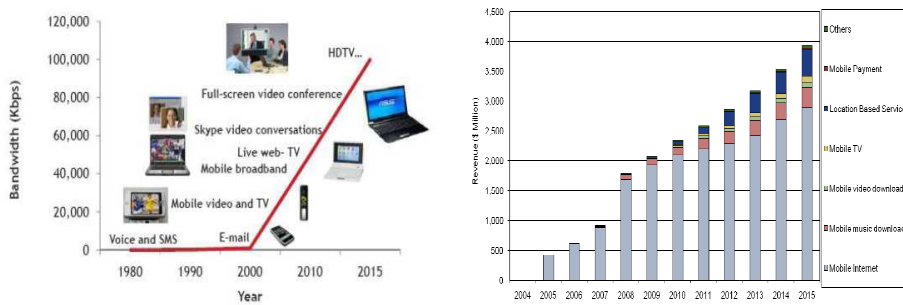


Source: Morgan Stanley, Q4 2010

- 5 -



## Mobile Broadband Services Require Higher Capacity Networks And Devices

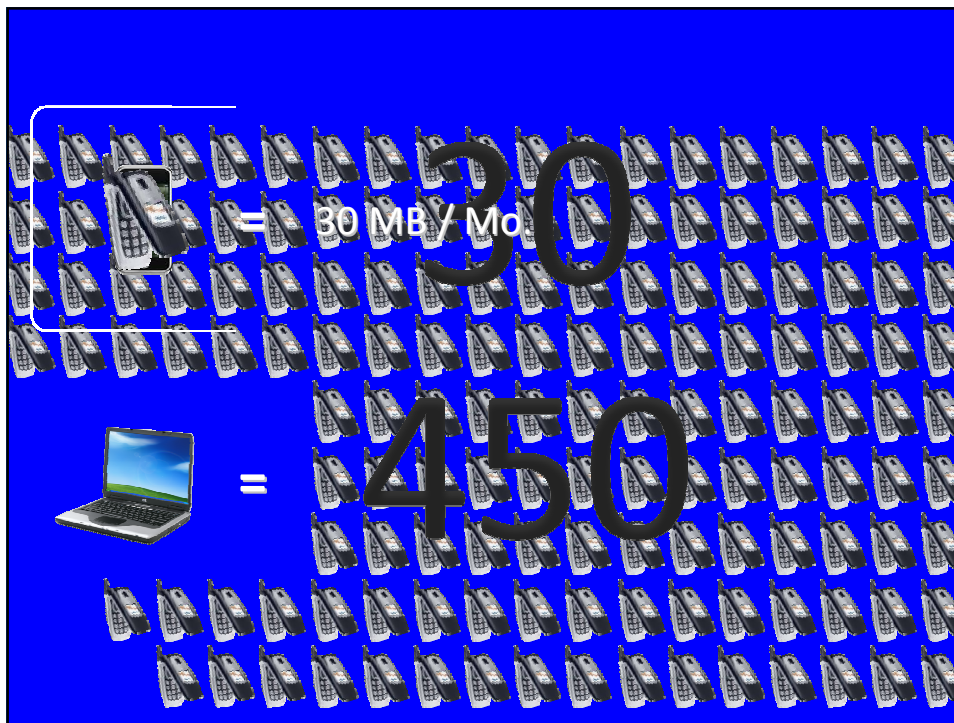


- The demand for new services, which require larger bandwidth, played a major role in the evolution of mobile devices and networks
- Mobile Broadband services revenues will reach \$4B by 2015

Sources: Pyramid Research June 2010  
ABI Research, Q 4 2010

- 6 -

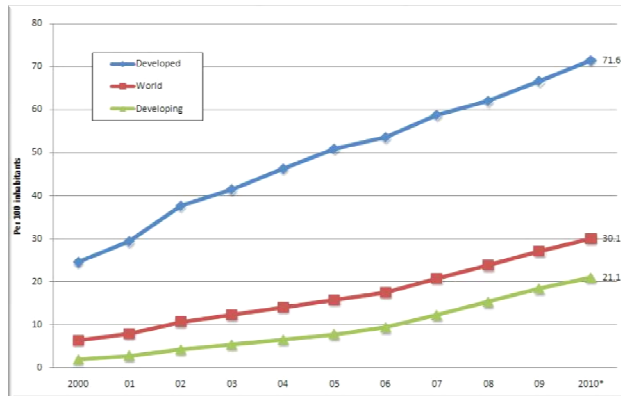




## Broadband Facts

- Number of mobile subscribers reached 4.6 billion people last year
  - ITU expects the number globally to reach 5.3 billion in 2010.
- ITU expects to see the number of mobile broadband subscriptions exceed 1.5 billion globally during 2010,
  - Fixed broadband subscriber around 555 million.
- No. of Notebook shipment surpassed no. of desktops
  - Web access via laptops and smart devices exceeds web access from desktop
- **Majority of the world's people in developing countries don't have good broadband access despite demand and need**
- Machine to Machine (Internet of things); billions of low-power devices
- Broadband penetration and service quality offering is a measure of Country's economic situation and technology advancement and attracts foreign investments

## The continuing Divide



Year 2010 Worldwide Internet Penetration rates

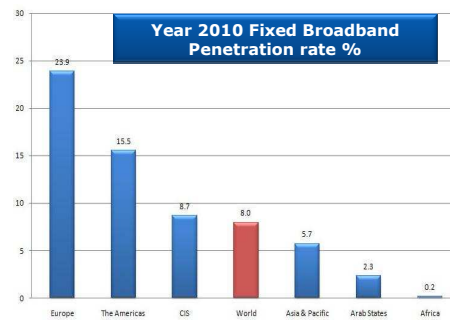
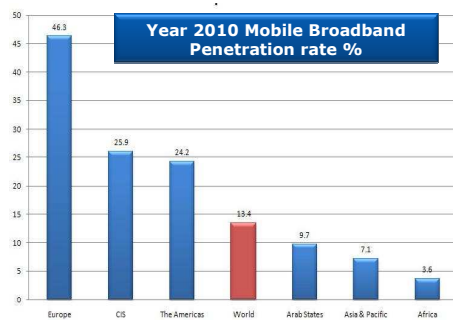
Despite these promising trends, penetration levels in developing countries remain low if compared to developed countries

Source: ITU , CT Indicators database 2010

- 9 -



## Regional Broadband Indicators



- Arab Stats & Africa broadband penetration rates are lower than the worldwide indicators
- Mobile broadband is remarkably higher than Fixed broadband and expecting to keep going in the same way

Source: ITU , CT Indicators database 2010

- 10 -



## Internet & Broadband Effect on Arab World....

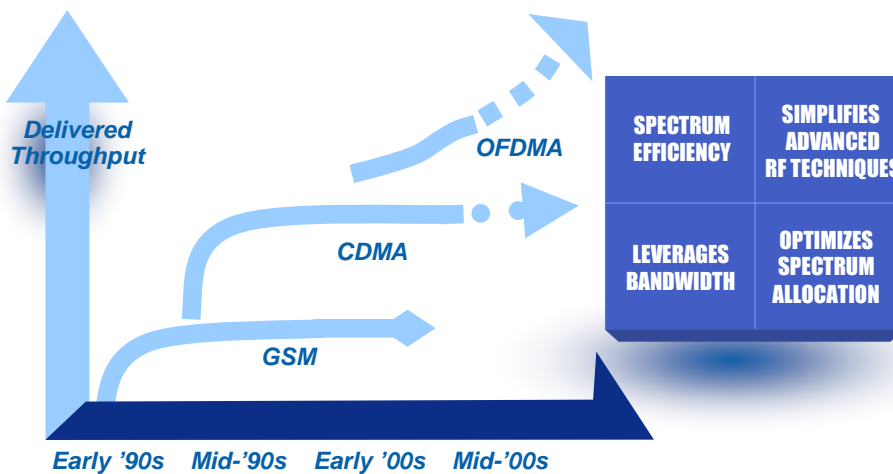


Source : Arab Advisors Group

Arab World Consumer Behavior is affected by Internet & Broadband and yet more to come.....



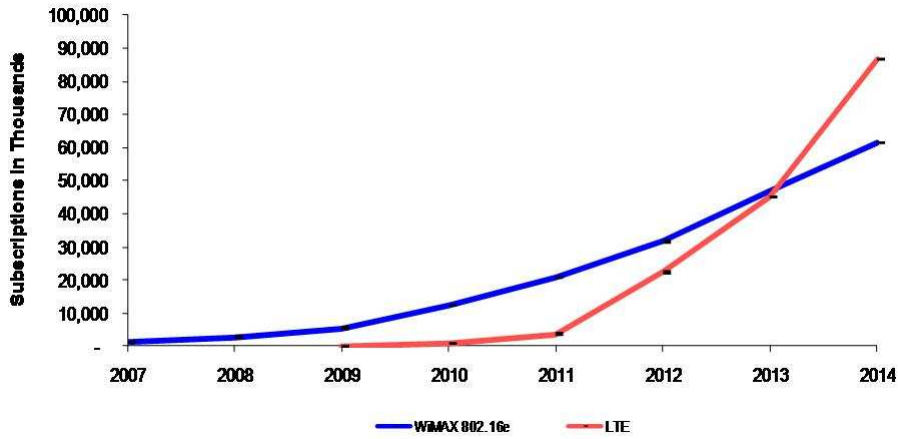
## Shift to OFDMA Based Technologies: WiMAX and LTE



CDMA=Code Division Multiple Access, OFDM=Orthogonal Frequency Division Multiplex



## WiMAX 802.16e & LTE Subscriptions



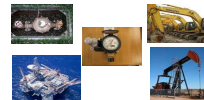
Source: In-Stat, Aug 2010

- 13 -



## Intel Middle East Mobile Innovation Center (Cairo Innovation Center)

- Located at Smart Village in Cairo
- Showcase Wireless innovations on vertical application with real test-beds
- Intellectual Property (IP) generations
- Chartered to drive wireless innovation agenda in the Middle East that serves Intel research & innovation goals
- Delivered CEWA as the first Middle East state of the art wireless test-bed



- 14 -



## Intel Middle East Mobile Innovation Center (MEMIC) Pillars

### 4G+ Technology Testbed

Region-Focus Test-beds  
WiMAX + LTE Testbed  
Opnet Testbed  
Matlab SLS

CEWA Testbed (Saudi)



MEMIC Testbed (Egypt)



### Wireless Vertical Applications



### Future Wireless Standards

Communication Standards  
(LTE, WiMAX)

Universities Collaboration



Government Collaboration



- Middle East Mobile Innovation Center drives Intel research agenda on wireless R&D pilots, test-beds and innovative vertical usage models
- Employ and grow Innovation competency in the Middle East



## Center of Excellence For Wireless Applications (CEWA)



- Knowledge transfer & Capacity building
- 4G Testbed & Video over wireless Trials
- Opnet Testbed (High-Speed Mobility, Crash Alert,.....)
- [www.wirelesscewa.com](http://www.wirelesscewa.com)





## CEWA Inauguration Sept. 28<sup>th</sup> , 2010



- 17 -



## Summary

- The need for broadband changes the game name from technology oriented into consumer oriented
- Technology is important only to serve & match consumer needs
- Even after using LTE & WiMAX & all their networks & spectrum, there will still be more demand than supply
- Intel MEMIC is playing a leading role in pushing wireless innovation into MEA region



- 18 -



Thank You