Millimeter wave communication: hype or the future?

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Panelists

- Prof. Robert Heath (UT Austin, USA)
- Dr. Alexander Maltsev (Intel, Russia + Nizhny Novgorod State U.)
- Dr. Ji-yun Seol (Samsung, Korea)
- Prof. Gerhard Fettweis (TU Dresden, Germany)
- Prof. U. Madhow (UC Santa Barbara, USA)

Good hype, bad hype, or not hype?

- UWB for multiGigabit communication
- Bluetooth
- IS-95
- OFDM in WiFi
- OFDM in cellular
- MIMO

Why hype happens

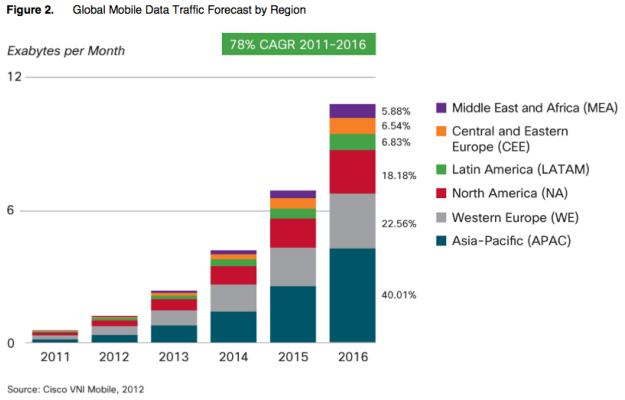
- Has become routine for high-tech industry
  - Required (?) for pushing through new ideas
  - Core component of competitive positioning?
  - Remember IS-95?
- When is hype dangerous for investors?
  - When it goes against basic physics and math
  - Remember UWB?

How is the comm "future" shaped?

- Consumer needs?
  - We now "need" unlimited data on the move
  - Will we be sated once we reach Gbps to the handheld?
- Business needs?
  - Must keep growing
  - Must keep the talent occupied
- Societal needs?
  - Clearly comm is the foundation for everything…
- Because we can?
  - If you build it,…

Mm wave comm

- What is it?
  - 30-300 GHz if we are to stick to 10-1 mm wavelength
  - (Huge amounts of available spectrum)
  - 60 GHz has received the most recent attention (unlicensed)
- Why now?
  - Because we can (mass market RFICs now feasible)
  - Smart phone induced capacity crisis
  - Fits with logic of continued WiFi growth



Some questions for the panel

- Is mm wave really different from existing wireless systems
  - (Is there anything new to do after 20+ years of wireless research?)
- What are some key emerging applications?
- Is mm wave comm fighting physics?
  - (good hype or bad hype?)
- What are the fundamental bottlenecks and interesting research problems?
  - How can academia and industry collaborate?
  - Do we need well-accepted models?
  - Do we need widely accessible (USRP/WARP style) testbeds? If so, how do we develop them?