Frontiers of Engineering 2013: Wireless Broadband Session
Wireless Data Tsunami

Cisco Forecasts 3.6 Million Terabytes per Month of Global Mobile Data Traffic by 2014
(TB per Month)
108% CAGR 2009 - 2014

Mobile data to increase 1000-fold in current decade (2/3 video)
• Smartphones: 1 Billion shipped in 2013
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• Rise of the Machines: 50 Billion machines are ready to communicate (90% of humans already own a mobile phone)
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• The cloud
Past Two Decades

Communication engineers worked hard to improve efficiency of using radio resources.

But there is a fundamental limit to the efficiency one can ever hope to achieve.

Going forward: increasing radio resources
Three Approaches

Network densification

More antennas

Spectrum sharing
① Mehmet Yavuz: “1000x Wireless Data Capacity Increase by Small Cell Densification”

② Stephan ten Brink: “Industrial Perspective on Perception of Physical Layer Stagnation and New Research Avenues”

③ David Gesbert: “Handling Interference Using Distributed Cooperation”

④ Anant Sahai: “Radio Spectrum Management and Regulation”