CWTe Research Retreat 2013:

Closing

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Tuesday, October 29th 2013

CWTe
Centre for Wireless Technology Eindhoven

TU/e Technische Universiteit Eindhoven University of Technology

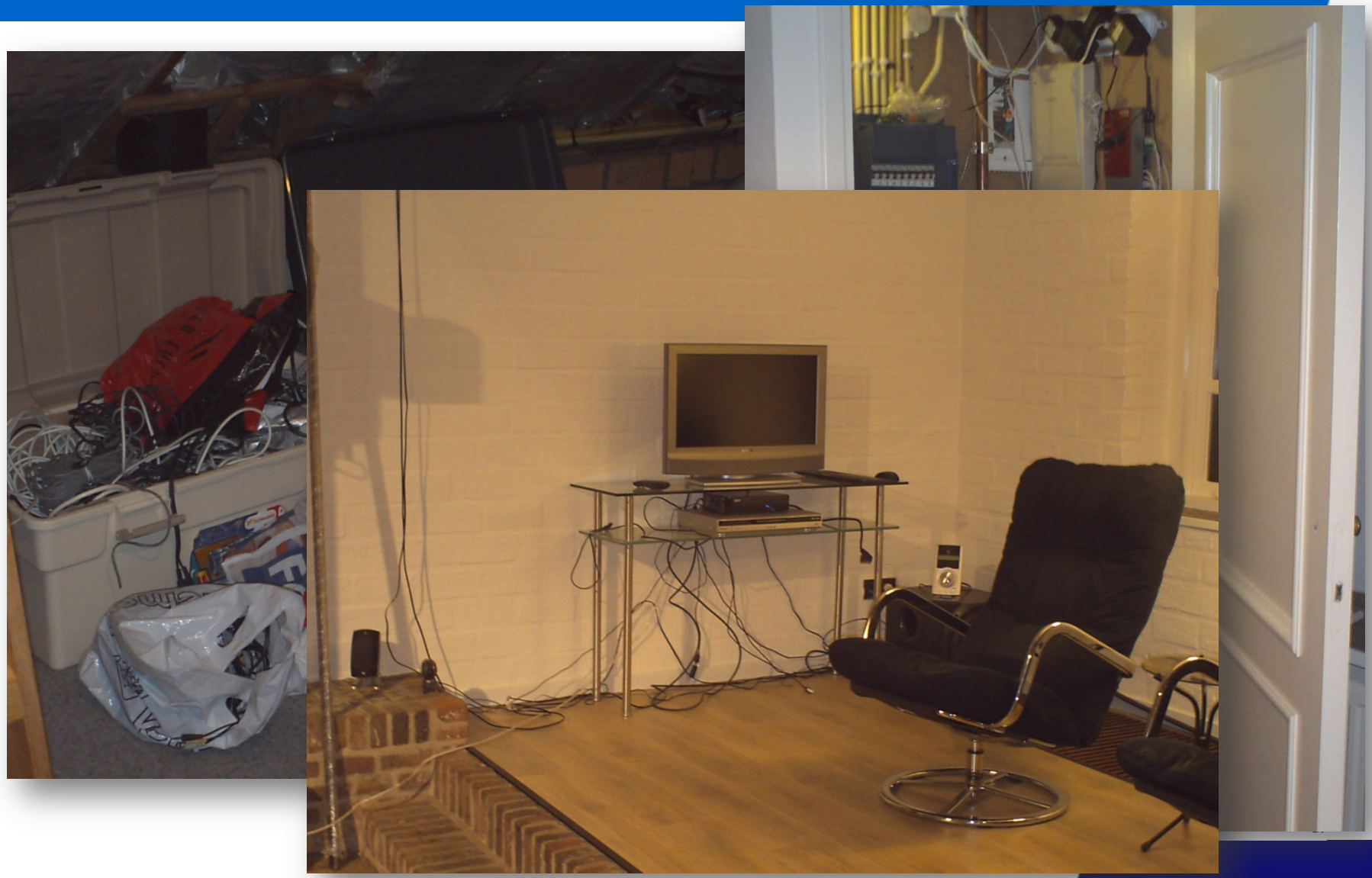
Where innovation starts

Trends & Developments in Wireless

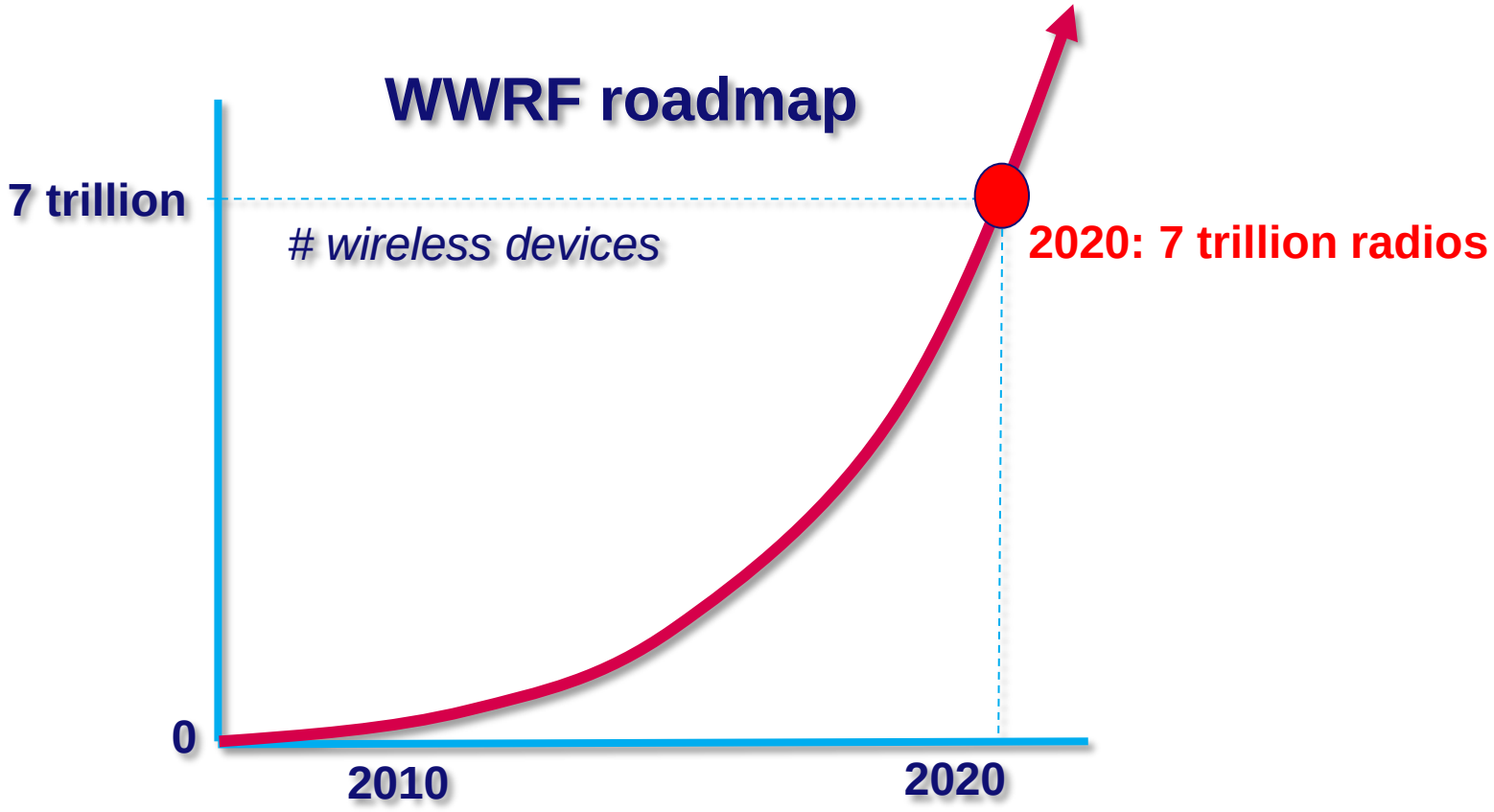
Some closing thoughts:

- **Looking at the big picture & trends:**
  - **Why are we doing this?**
  - **Where are we going?**
- **Speculation about the future!**
- **Food for thought…**

Why Wireless?

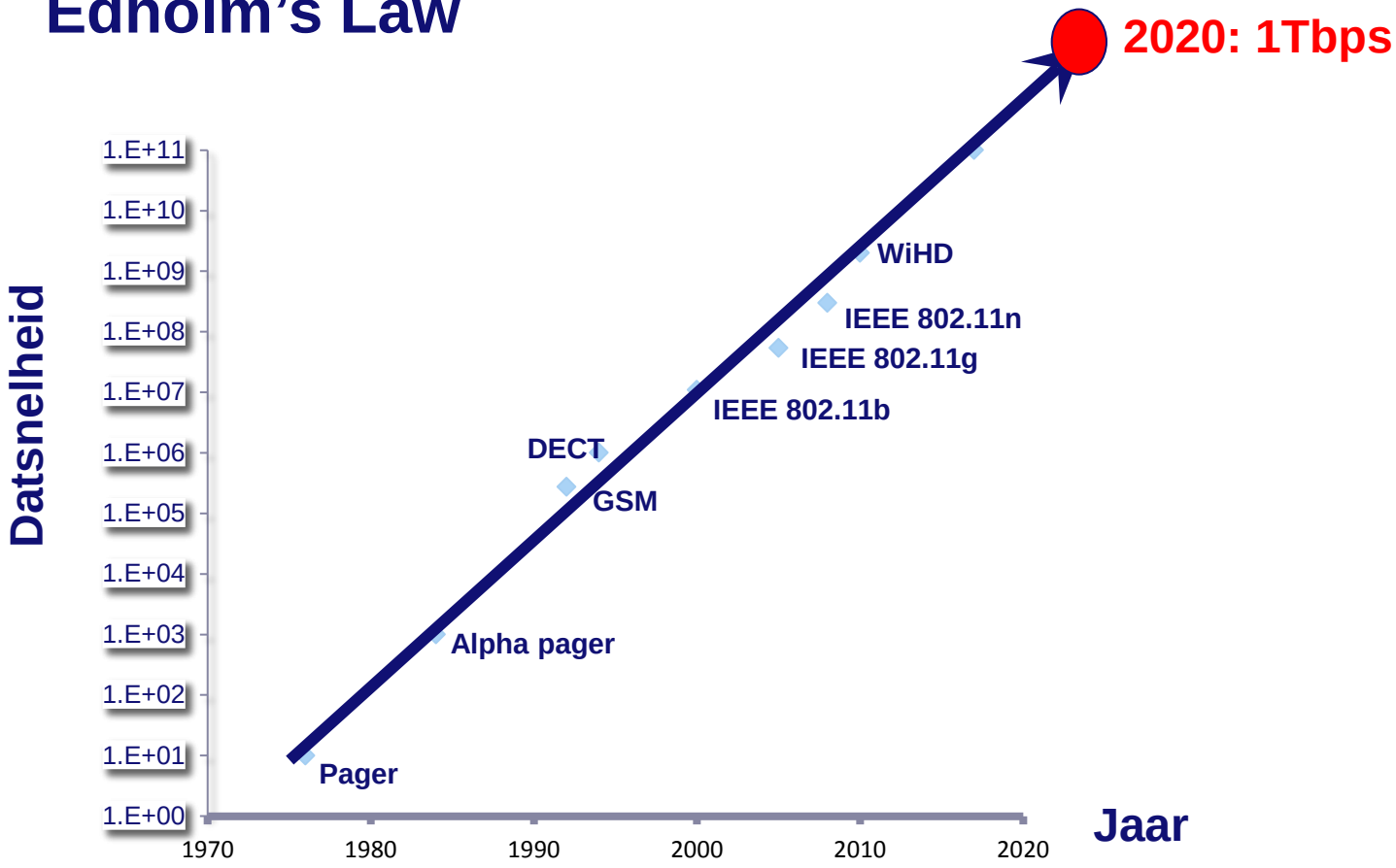


Developments: #wireless devices



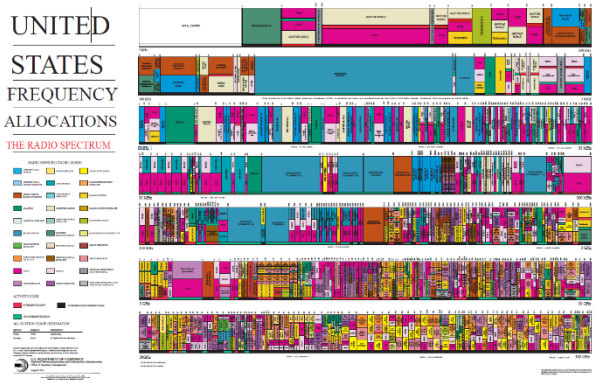
Developments: Data rate

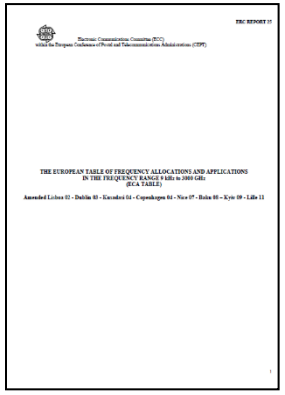
Edholm's Law

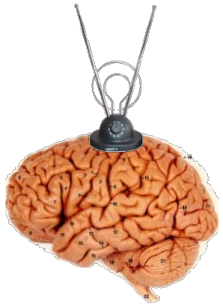


Upcoming problems:

- **Wireless = success: more & faster devices**
  - **More interference**
  - **Higher requirements**
  - **Increasing compexity radios**
  - **Increasing complexity spectrum allocation**





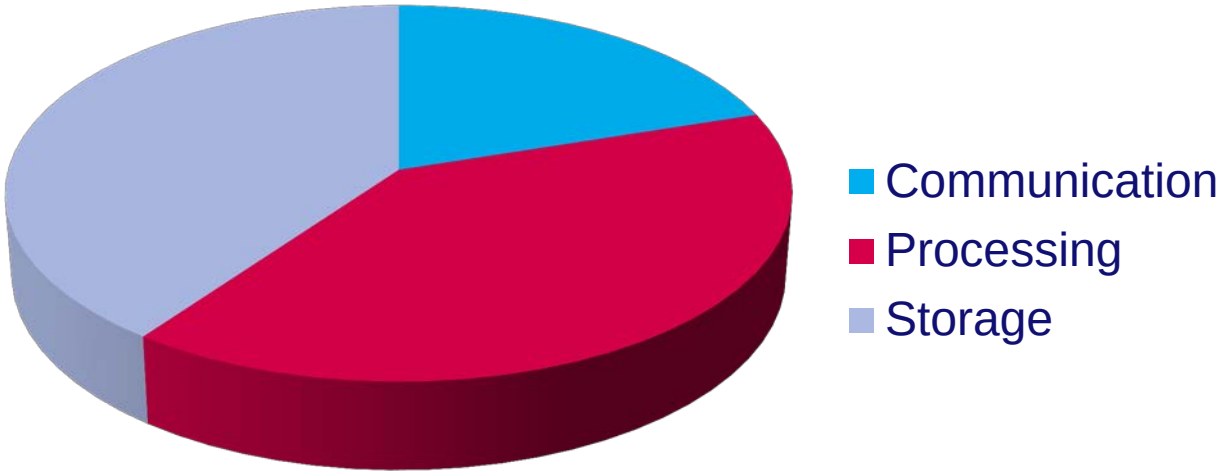


It is happening today…

- WiFi video streaming breaking up @ home
- Calling, mailing @ RAI, soccer, stranded train, …
- Internet in train, hotel, conference, MetaForum, …
- C2000
- Allocation for new services:
  - 4G bands
  - Car2x
  - Smart homes

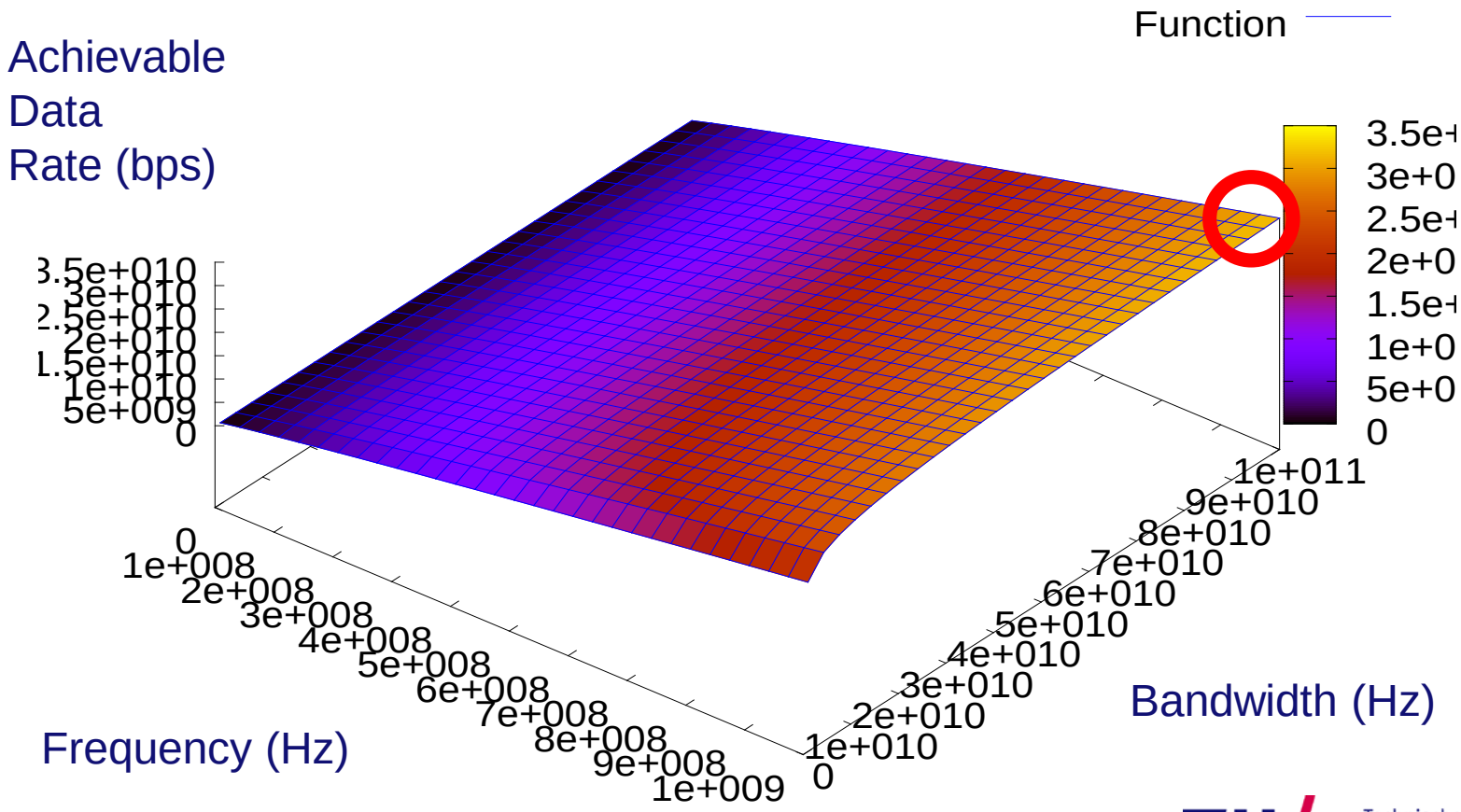
Solutions: Communicate Less

System partitioning: island

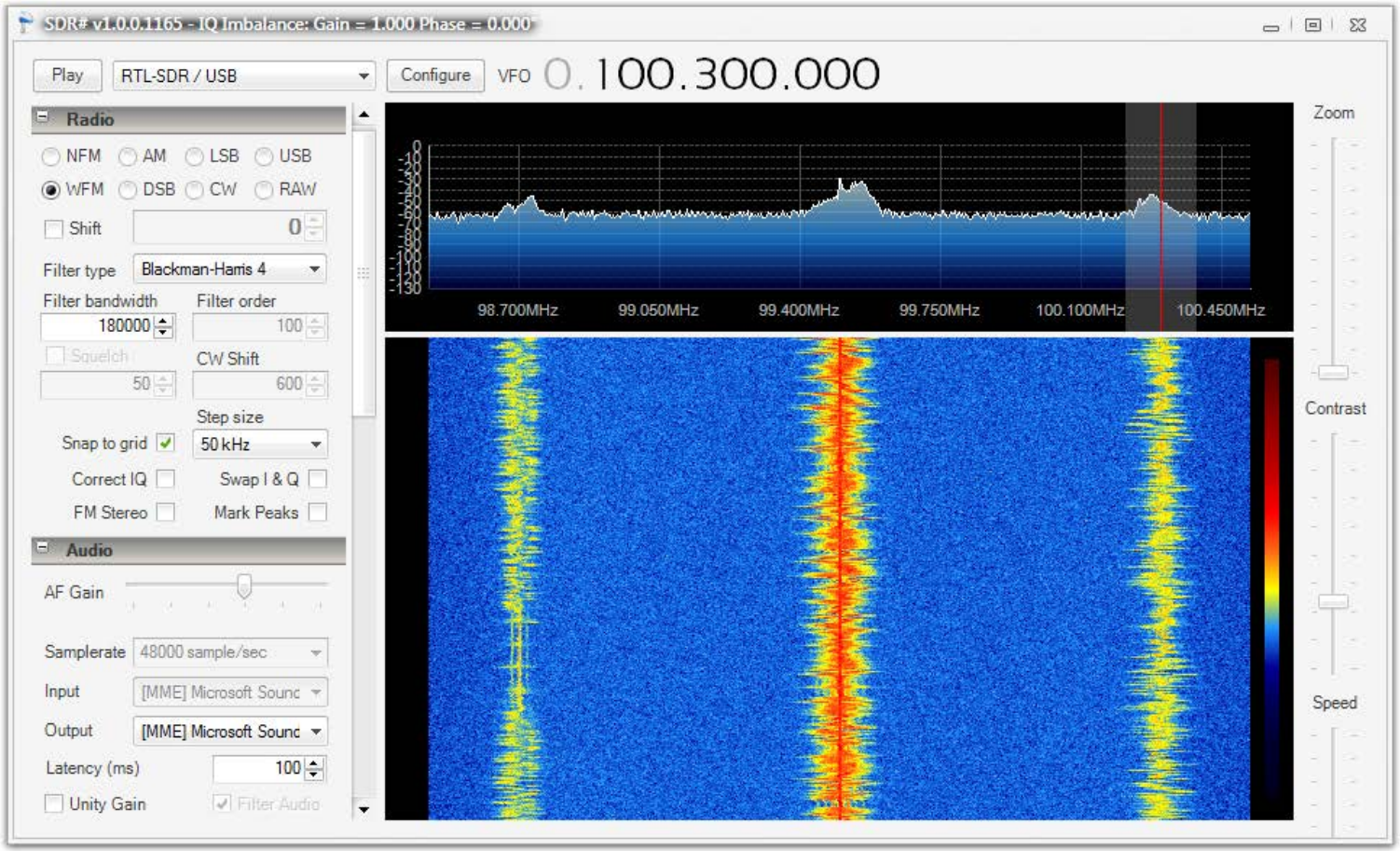


Solutions: Room at the Top

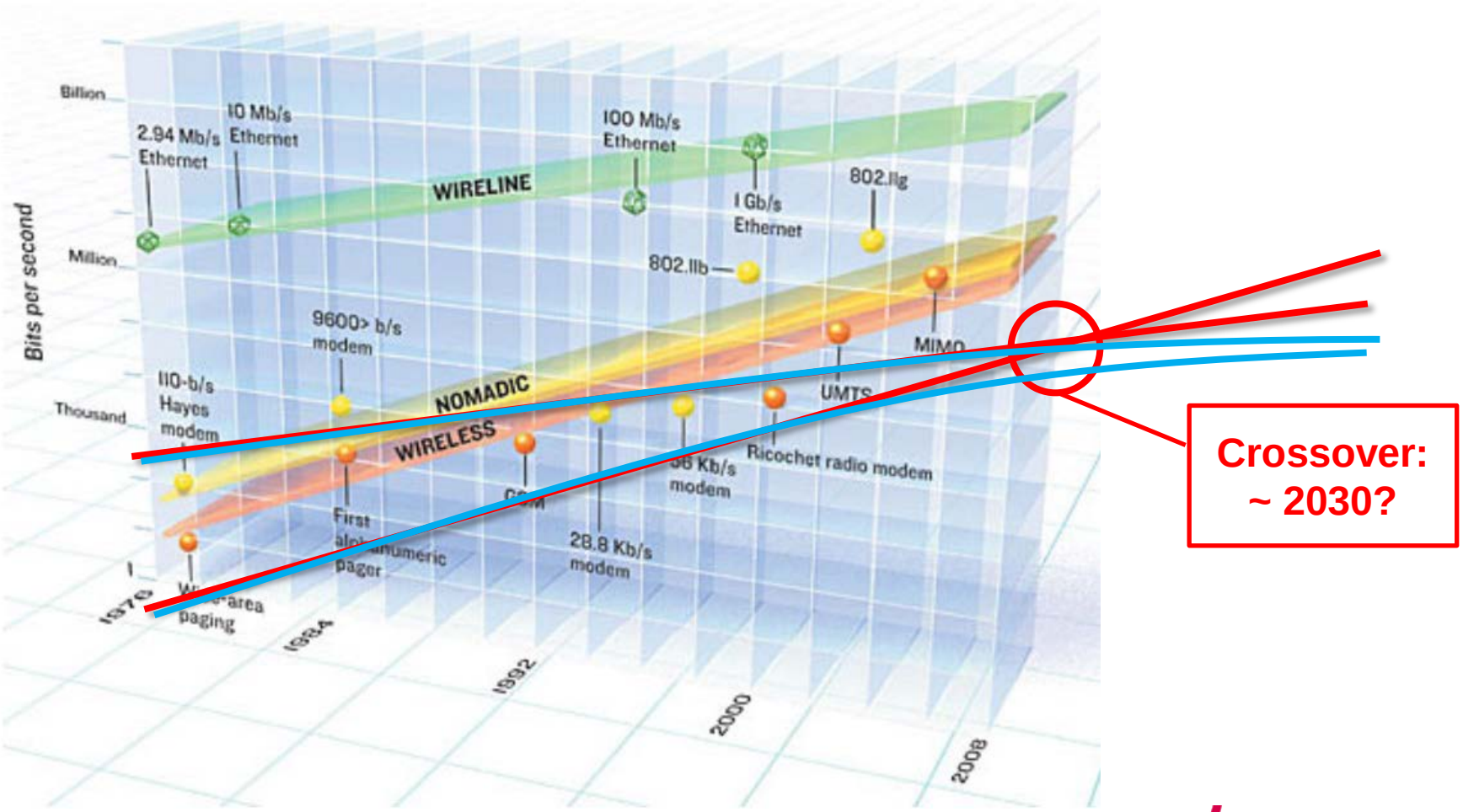
Spatial Confinement: “Wireless Wire”



Solutions: Cognitive Spectrum Use



Edholm's Law revisited

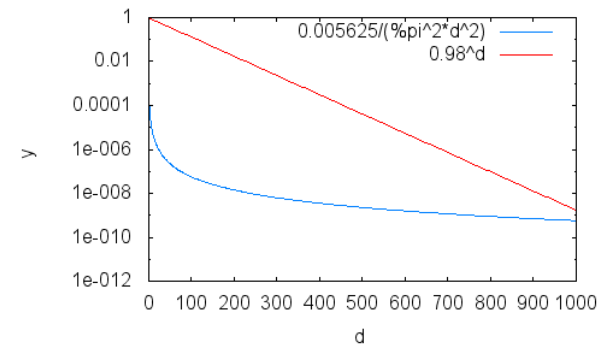


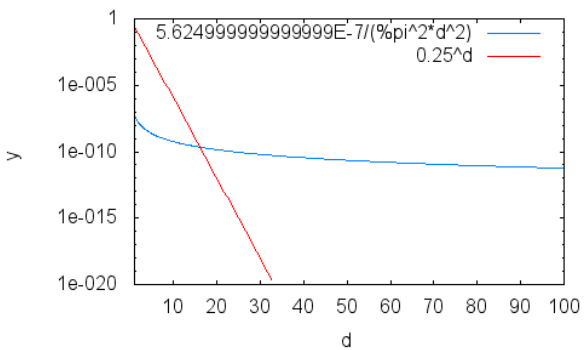
Steven Cherry, **"Edholm's Law of Bandwidth"**
IEEE Spectrum, 2004

Understanding & Modeling

- Crossover implications:
  - Advantages beyond convenience
  - Lower power
  - Higher data rates
  - Cost, reliability, security…?
- Many parameters
  - Affect wired & wireless differently
  - Not accounted in Edholm's law

Food for Thought
Until next CWTe
Research Retreat





Closing

Thanks for your Attendance & Attention!

Hope you enjoyed the retreat

Thanks to:

- **Speakers**
- **CWTe/EE Staff**
- **CWTe partners**
- **Ton Backx**
- **Jan Haagh**
- **Margot van den Heuvel**

Thanks for your attention!

Do you have any questions or comments?

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