Beyond 4G Panel

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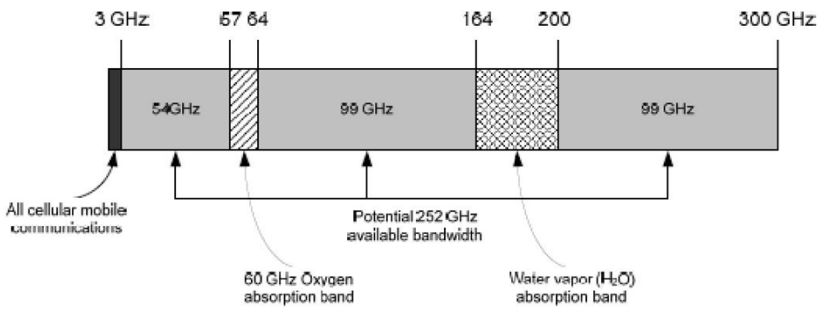
Current Thinking for 5G

- Requirements:
  - Need much more data (~1000x)
  - Low latency (e.g. 1ms)

- Combination of three technologies

Small cell



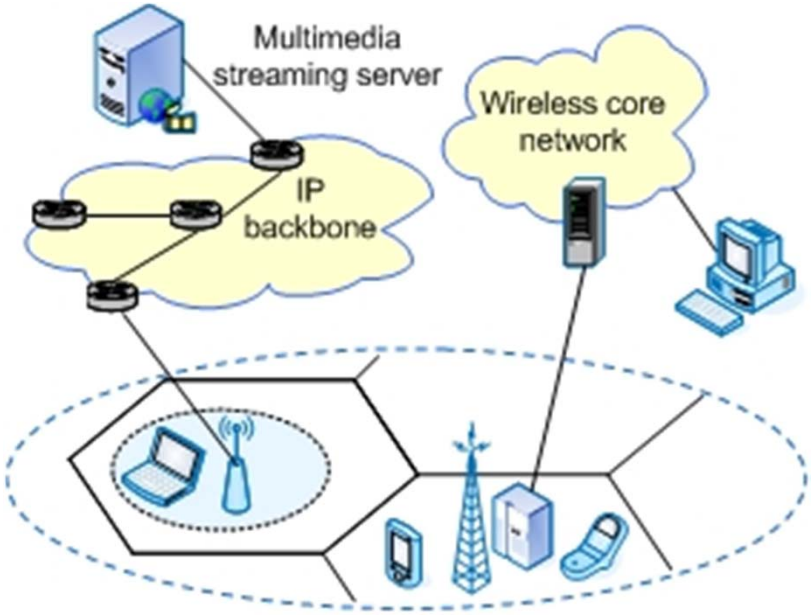
Millimeter wave

Massive MIMO

What is Really Driving Requirements?

- What applications can drive huge amounts of data?
  - Many applications for human interaction are limited.
    - Video < 20 Mbps. Much lower on mobile devices.
  - Will data be driven by machine to machine?
  - Many users bursty vs. few users continuous?
- What will drive very low latency (e.g. ~1ms)?
  - What will be the network delays?
  - What is the partition of mobile vs. cloud?
  - Where will data be located?
- What about power, form factor, cost?

What is the Right Architecture?



- Who will supply data?
  - Carriers vs. third party
  - Air interface and backhaul.
  - How much offloading?
- Distributed vs. centralized
- Where will users be?
  - Indoor vs. outdoor
  - Mobile vs. stationary.