IEEE 802 EC 5G/IMT-2020 SC draft report

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April 2016
5G SC report
Philosophy

• Include and describe all options
  ▫ That are derivatives of the four requested cases

• Expand cost/benefit for each
  ▫ In a prioritized manner

• SC conclusion recommended
  ▫ Consensus preferred on preference
    • not required
    • Worst case straw poll preference
  ▫ Recommend way forward for preference (s)
What are “costs and benefits”?

- This is a cost-benefit analysis
  - But without monetary cost, only relative costs
  - A quantitative pros vs cons
  - Strengths, Weaknesses, Opportunities and Threats
- Brainstorm all costs and benefits
  - E.g., resource cost, standards development cost, installation cost, operational cost, energy cost, etc.
  - Are the unexpected costs?
  - Are there unanticipated benefits?
- Estimate value relative to a baseline
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• Conclusion
What is 5G?
Will the SC define 5G?

- There will be two contexts
  - IEEE 5G
    - Some sort of description will be required
    - This may include use cases and requirements
  - IMT-2020
    - This is (or will be) defined by ITU-R
5G architecture

... simplified
What are all the derivatives of options?
1. IEEE 5G

- Description
  - Not related to IMT-2020
  - At least simplified architecture, but likely more
  - A combination of multiple IEEE standard technologies, profiled in a single standard

a) IEEE 802 wireless 5G
   i. 802.11 only
   ii. 802.15 only

b) All IEEE 802 5G

c) All IEEE 5G
2. IMT-2020 - single technology

- Description
  - Just radio interface of simplified architecture. Single or multiple singles...
  - IMT-2020 proposal by IEEE

a) Hotspot (<6GHz)
   i. IEEE 802.11ax
   ii. IEEE 802.11ac
   iii. IEEE 802.11n

b) Hotspot (>6GHz)
   i. IEEE 802.11ay
   ii. IEEE 802.11aj
   iii. IEEE 802.11ad

c) Low latency – IEEE 802.11p

d) MTC – IEEE 802.11ah

e) P802.15.3d

f) 100Gb/s THz project

g) P802.15.7 REVa, Optical Wireless Communications,

h) P802.15.4 family.
3. IMT-2020 - set of technologies

- **Description**
  - At least radio interface of simplified architecture, but likely more
  - A combination of multiple IEEE 802 standard technologies, profiled in a single standard
  - IMT-2020 proposal by IEEE

  a) **IEEE 802.11**
     i. Hotspot (<6GHz) – IEEE 802.11 ax,ac,n
     ii. Hotspot (>6GHz) – IEEE 802.11 ay,aj,ad
     iii. Low latency – IEEE 802.11p
     iv. MTC – IEEE 802.11ah

  b) **IEEE 802.11 with 802.1/3**

  c) **IEEE 802.15**
     - P802.15.3d
     - 100Gb/s THz project
     - P802.15.7 REVa, Optical Wireless Communications,
     - P802.15.4 family.

  d) **IEEE 802.11 with 3GPP 5G**
     i. LWA
     ii. LWIP
     iii. New?
4. IMT-2020 - external proposal

• Description
  ▫ Part of a complete architecture
  ▫ A combination of IEEE 802 standard technologies with other technologies (e.g., 3GPP)
  ▫ IMT-2020 proposal by external party (e.g., 3GPP)

a) IEEE 802.11 with 3GPP 5G
   i. LWA
   ii. LWIP
Next Steps
Contributions requested

- **Derivative options**
  - Expand list
  - Prioritize list

- **Report content**
  - Indicate which option
  - Expand costs and benefits