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

Glenn Parsons - Ericsson

glenn.parsons@ericsson.com
+1 613 963 8141

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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

Proposed Table of Contents

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- Options Considered
  1. IEEE 5G
     - Description
     - Benefits
     - Costs
  2. IMT-2020 – single technology
     - Description
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     - Description
     - Benefits
     - Costs
  4. IMT-2020 – external proposal
     - Description
     - Benefits
     - Costs
- 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