# IEEE 802 5G Propositions

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Purpose:
For discussion at 5GSG meeting of 2016-04-13, as the basis of discussions toward consensus.
Notice:
This document represents the views of the author and is offered as a basis for discussion.

# Overview

- This Standing Committee should address some foundational questions that underlie an understanding of its scope, which includes reporting on “Costs and benefits of creating an IEEE 5G specification.”
- Among these foundational questions are:
  - What is our understanding of 5G?
  - Given that understanding, what role do we want IEEE 802 technologies to play in 5G?
  - What kind of IEEE 5G specification would let IEEE 802 play that role?

# What's in a G?

- "5G" does not exist in a vacuum; 5G is one integer beyond "4G" and two integers beyond "3G".
- 3G and 4G were new "generations" because:
  - They represented significantly new radio technologies with important new capabilities.
  - They were major, 10-year upgrades to the cellular network.
  - They represented global agreement by an industry with a set of of major operators, vendors, SDOs, and governments to roll out specified, backward-compatible technology in a managed timeframe.
- 4G is the upgrade of 3G; 3G was the upgrade of 2G.
  - note: there were two independent major 3Gs, both created by organizations using the name "3G"
- By extension, what is 5G?

# What's the next generation?

- 5G can represent global agreement by an industry with a set of major operators, vendors, and governments to roll out specified technology in a managed timeframe.
- There can be more than one such agreement.
- One 5G will surely be the next major upgrade of existing 4G networks.
- Prediction: another 5G will arise based on agreement among another set of operators, vendors, SDOs, and governments to roll out specified technology in a managed timeframe.
  - because some potential 5G operators are not 4G operators
  - IEEE is well placed to play a strong role in this 5G.

# 5G Proposition 1

- No one owns the right to specify the requirements or details of “5G”.
  - 5G is in the eye of the beholder.
  - A technology that is perceived by the beholder to be 5G will be, in effect, 5G.
    - The “5G” tag will derive from the credibility of the claims.
    - The operator/customer will care about the capabilities, and will decide how to label the resulting service.

# 5G Proposition 2

- A “G” is a big, integrated network technology pitched at a big industry.
  - A “G” is not a great descriptor of nimble technology elements that serve multiple purposes and evolve quickly and nimbly.
  - Those components evolve on their own natural generational timeframe.
  - A “G” results from a coordinated industry roadmap describing alignment of all the elements.

# 5G Proposition 3

- A successful “5G” based significantly on IEEE 802 technologies will represent an integrated network specification set that could support a large operator deployment.
  - The full network needs to be stable for the long haul, and support multiple applications and access technologies.
  - Elements of that network could evolve nimbly and be used in other deployments.

# 5G Proposition 4

- A unified network, based on core IEEE 802 technologies along with aligned non-802 technologies, will be well placed to be a world-class 5G network.
  - variety of access technologies
  - wireless access targeted for bands with non-exclusive use
  - Such a network could (optionally) become an IMT-2020 network, though that would require major effort and entail major compromises.

# 5G Proposition 5

- IEEE 802 is capable of coordinating a unified network.
- IEEE-SA can work in many ways, but its strength is in making standards.
- If IEEE coordinates a unified 5G network, it should do so by standardization.

# Proposal

- The author suggests that consensus should be developed on these issues within the Standing Committee.
- The author offers these Propositions as the basis of discussions toward such consensus.