



5G

**4G Americas'
Recommendations on 5G
Requirements and
Solutions**



4G AMERICAS BOARD OF GOVERNORS

The mission of 4G Americas is to promote, facilitate and advocate for the deployment and adoption of the 3GPP family of mobile broadband technologies throughout the ecosystem – including networks, services, applications and wirelessly connected devices – in the Americas.



THE 4G AMERICAS 5G PROJECT

Nine
Months

Consensus
Driven



Subject Matter Experts



White Paper Objectives

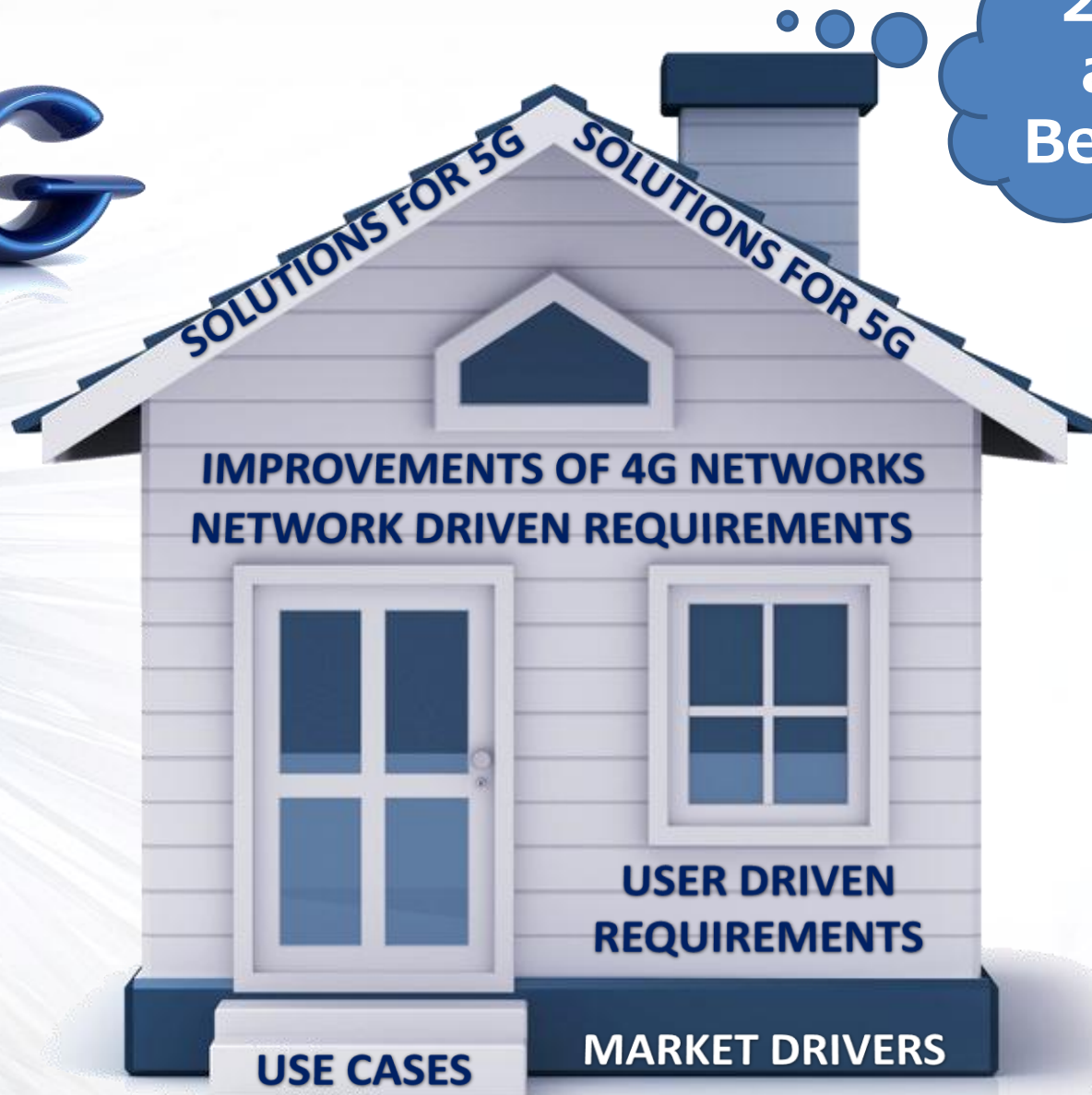
- Address key use cases, challenges and requirements for future wireless access
- Pinpoint key new technologies and solutions that can be used to address those challenges



BUILDING

5G

**2020
and
Beyond**





KEY PRINCIPLES

5G is:

- Architected to meet the expected use cases/demand in 2020 and beyond
- Inclusive of the entire ecosystem, including air interface, devices, transport, packet core and more
- Allows time for true advances of technology, feasibility studies, standardization and product development
- A critical investment of the Americas

Features considered 5G requirements should be implemented as LTE-Advanced extensions in advance of full 5G availability.

5G MARKET DRIVERS & USE CASES

INTERNET OF THINGS



CONTEXT AWARE SERVICES



PUBLIC SAFETY



EXTREME VIDEO AND GAMING APPLICATIONS



EXPLOSIVE DATA DENSITY USAGE



PSTN SUNSET



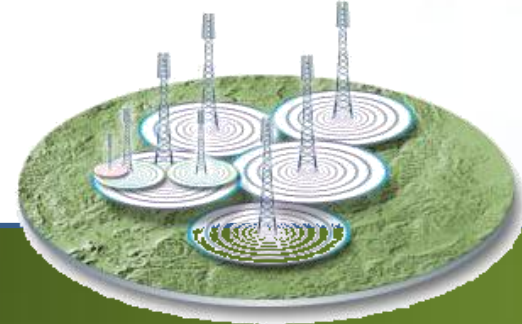
5G REQUIREMENTS

USER DRIVEN REQUIREMENTS



- Battery Life
- Per-user Data Rate and Latency
- Robustness and Resiliency
- Mobility
- Seamless User Experience
- Context Aware Network

NETWORK DRIVEN REQUIREMENTS



- Scalability
- Network Capacity
- Cost Efficiency
- Automated System Management & Configuration
- Network Flexibility
- Energy Efficiency
- Coverage
- Security
- Diverse Spectrum Operation
- Unified System Framework

BUILDING ON 4G FOR 5G

5G WILL ENHANCE SOME OF THE BUILDING BLOCKS DEFINED IN 4G

**Networking
Flexibility**

**Additional support
for essential
functions as
fundamental
attributes of
networking layer**

**Providing more
flexible mobility
solutions**

**Expanding form
of multi-RAT
integration and
management**

**Enhanced efficiency
for short burst or
small data
communication**

**Expanding context
information known
to the network**

POTENTIAL 5G TECHNOLOGIES

- Massive MIMO
- RAN Transmission – Centimeter and Millimeter Waves
- New Waveforms
- Shared Spectrum Access
- Advanced Inter-Node Coordination
- Simultaneous Transmission Reception
- Multi-RAT Integration & Management
- D2D Communications
- Efficient Small Data Transmission
- Wireless Backhaul / Access Integration
- Flexible Networks
- Flexible Mobility
- Context Aware Networking
- Information Centric Networking
- Moving Networks

A 3D rendered logo for 5G, with the numbers '5' and 'G' in a bold, blue, metallic font. The '5' is on the left and the 'G' is on the right, both casting a soft shadow on the surface below them.

5G

REGULATORY CONSIDERATIONS

FC



Alerts

Accessibility

Lawful
Surveillance

Next Gen 911

Tower Sharing

Public Warning
System &
Wireless
Emergency

Location
Accuracy
(including
indoors)

Public Safety

- Mission Critical Voice & PTT
- Broadband Data

END-TO-END 5G ECOSYSTEM

