

Makuhari, Japan
October 18 – 19,
2018



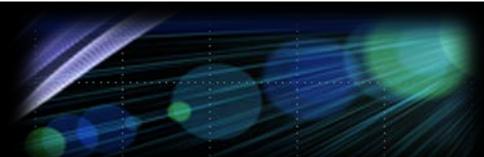
3GPP MRP Report

Chris Pearson

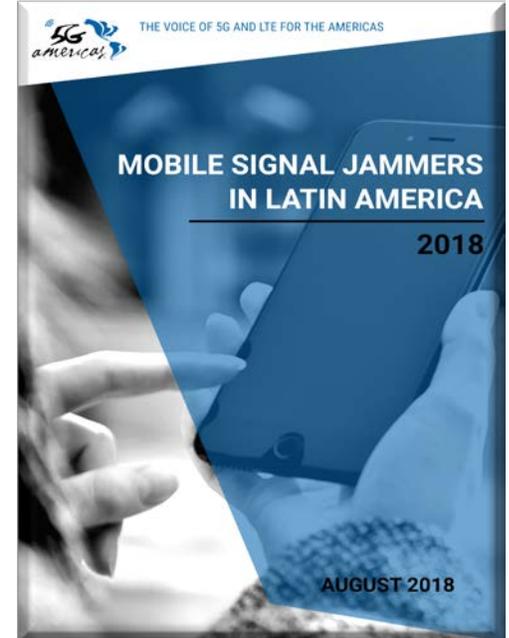
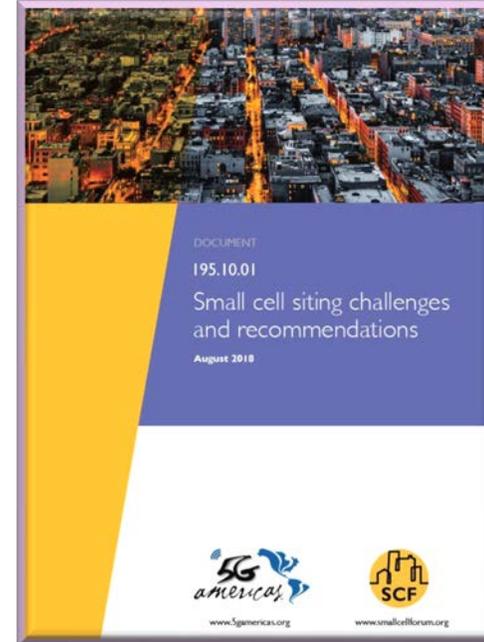
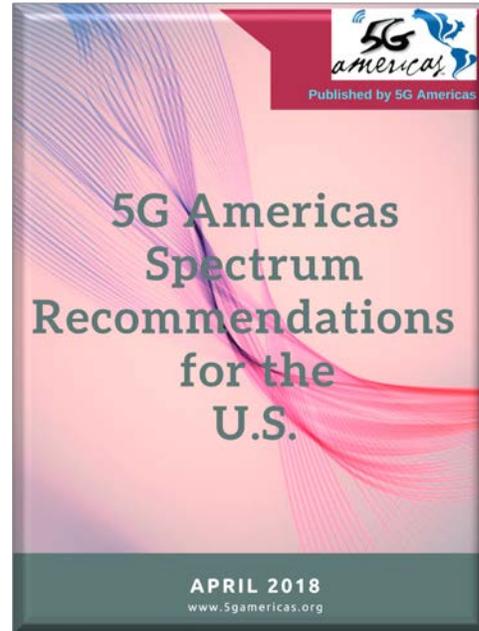
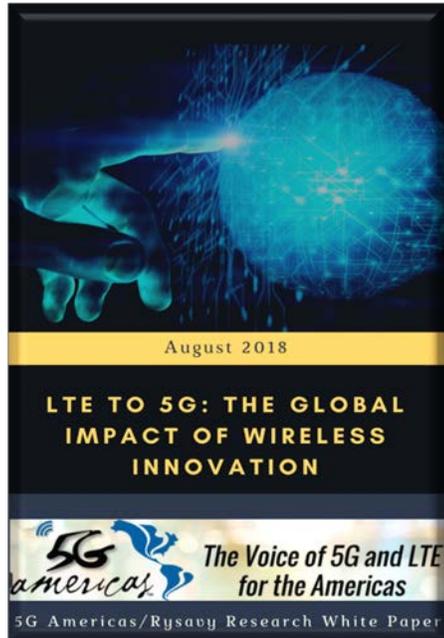
President,
5G Americas

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5G Americas will advocate for and foster the advancement of 5G and the transformation of LTE networks.



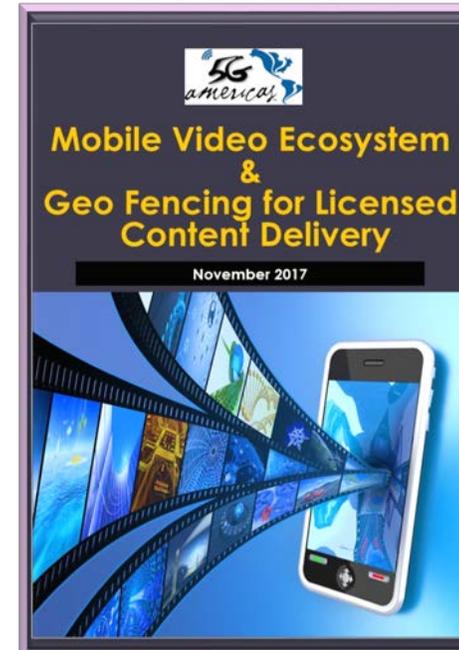
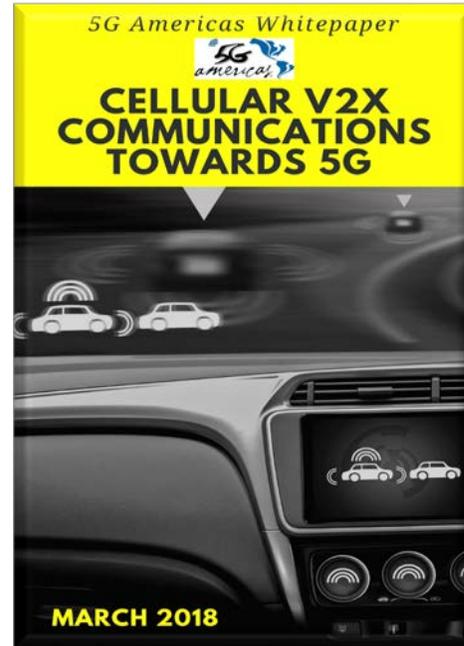
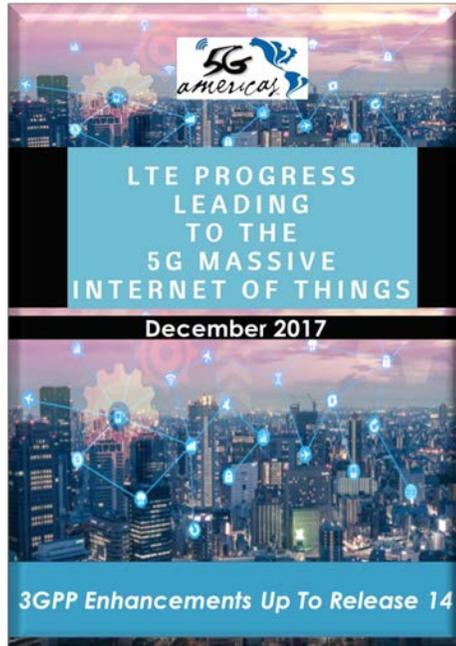
5G Americas White Paper Contributions



5G AMERICAS publishes dozens of white papers for technical facilitation, guidance and recommendations

Download free whitepapers at www.5GAmericas.org

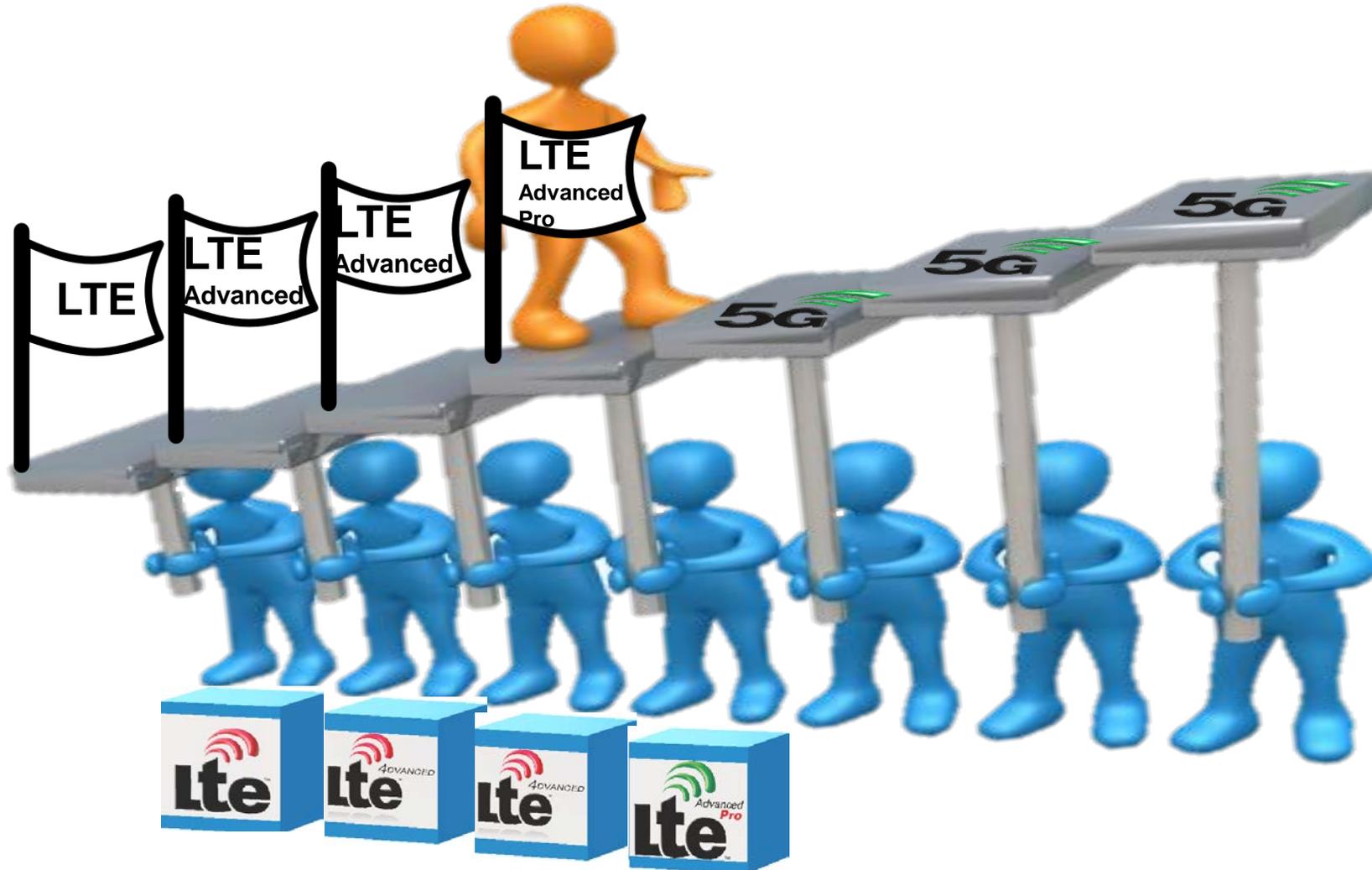
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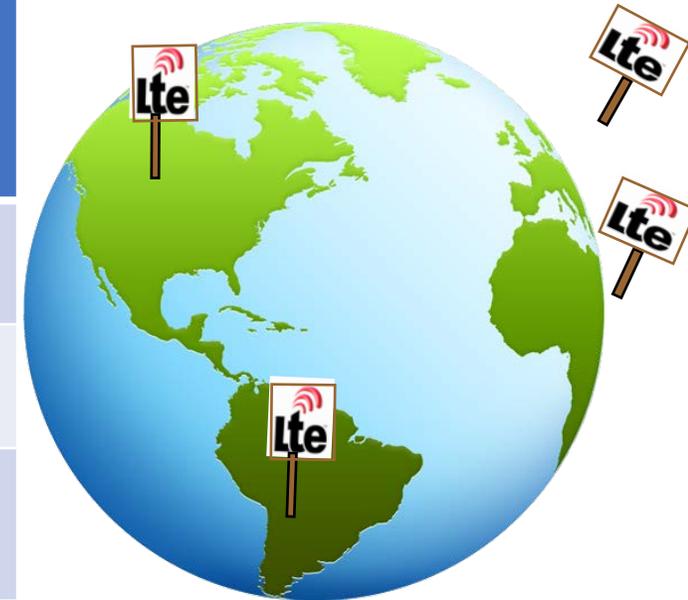
LTE – The Mobile Wireless Foundation for



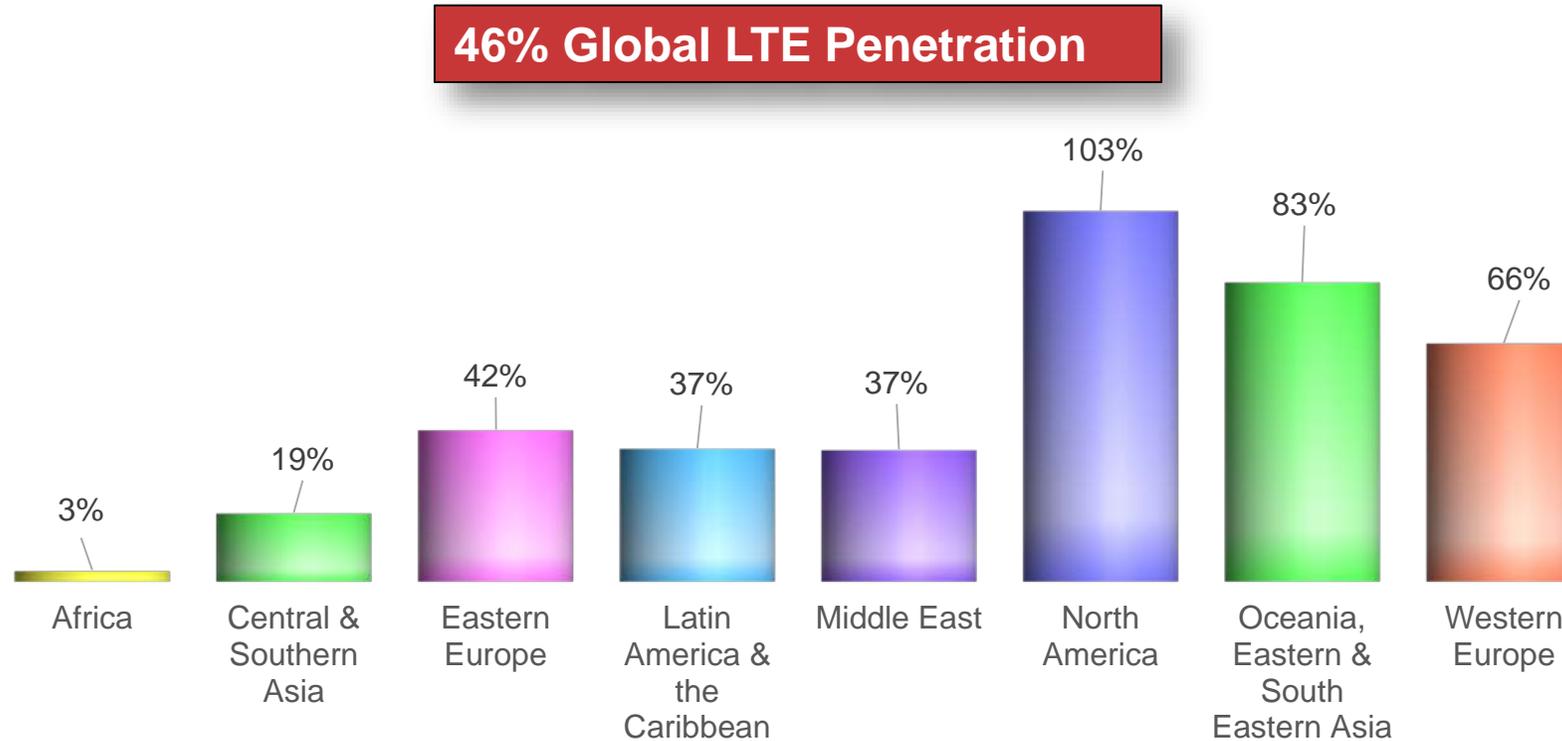
LTE Deployments – September 2018



	LTE	LTE-ADVANCED
GLOBAL	609	267
US & CANADA	16	9
LATIN AMERICA & CARIBBEAN	117	35



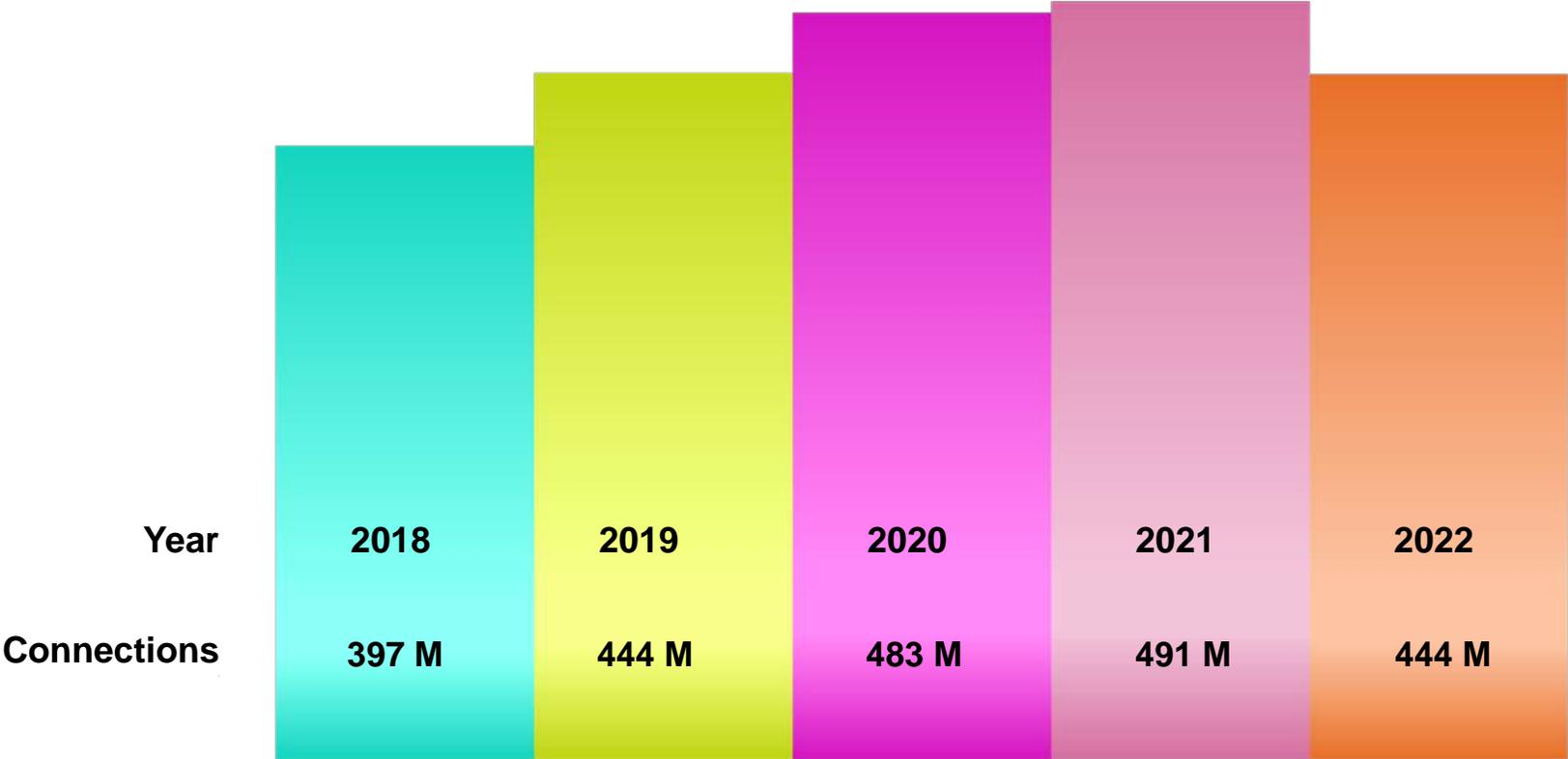
2018 LTE Penetration by World Region June 2018



Penetration rate is determined by comparing number of connections to total population

Source:  Ovum June 2018
TMT Intelligence | Informa

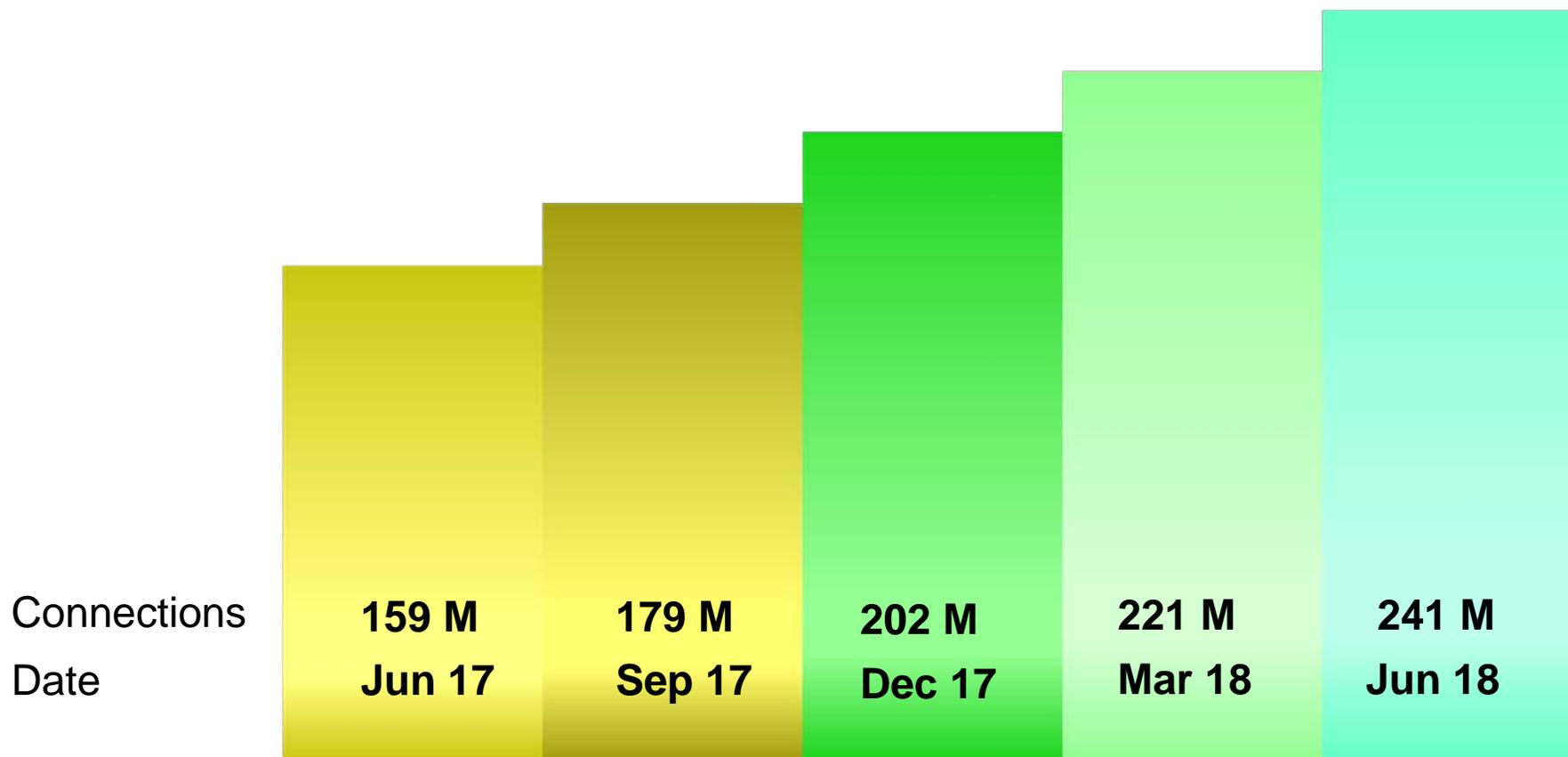
North America LTE Forecast Connections 2018-2022





Latin America and the Caribbean LTE Connections

June 2017 – June 2018



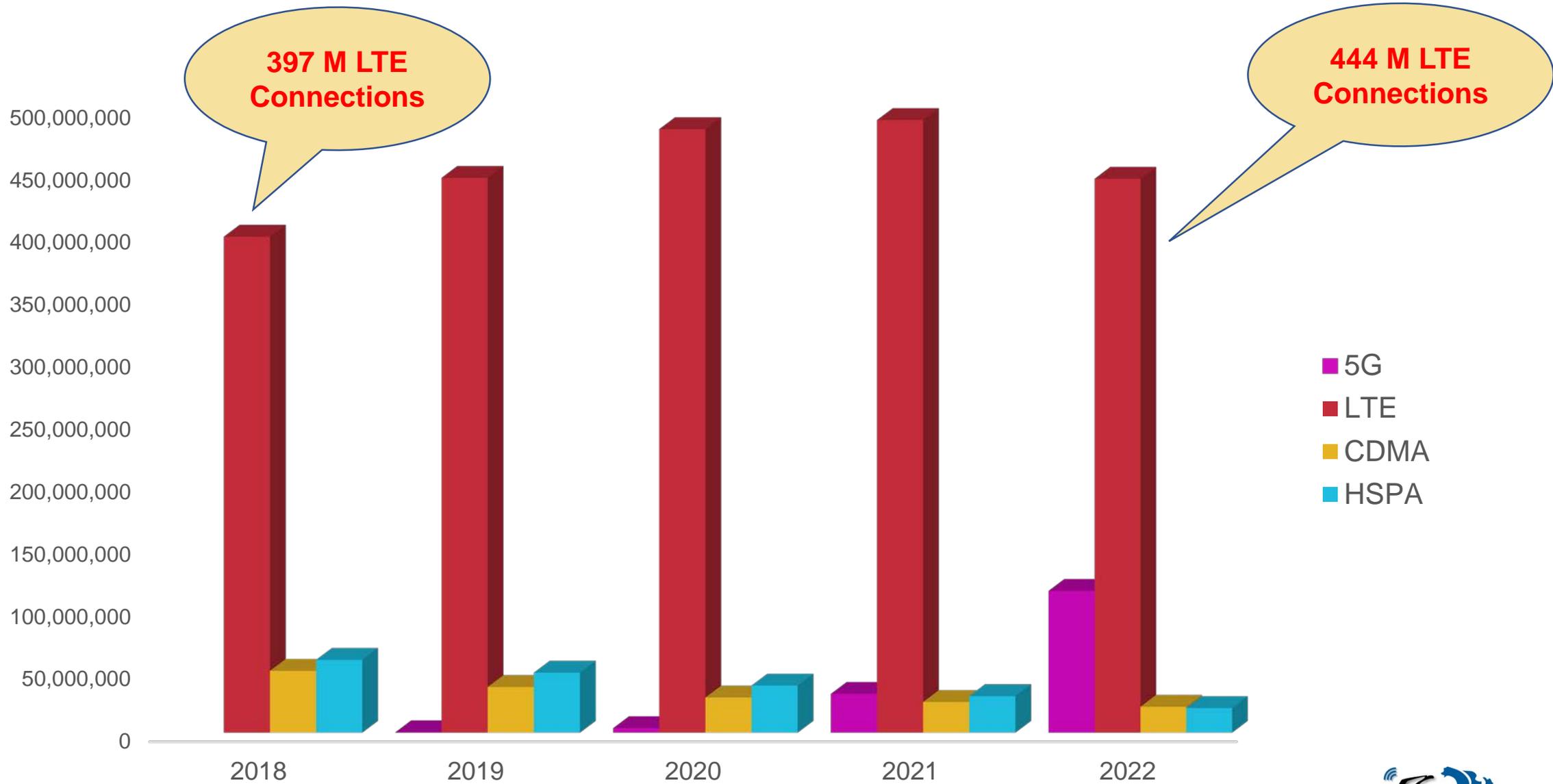
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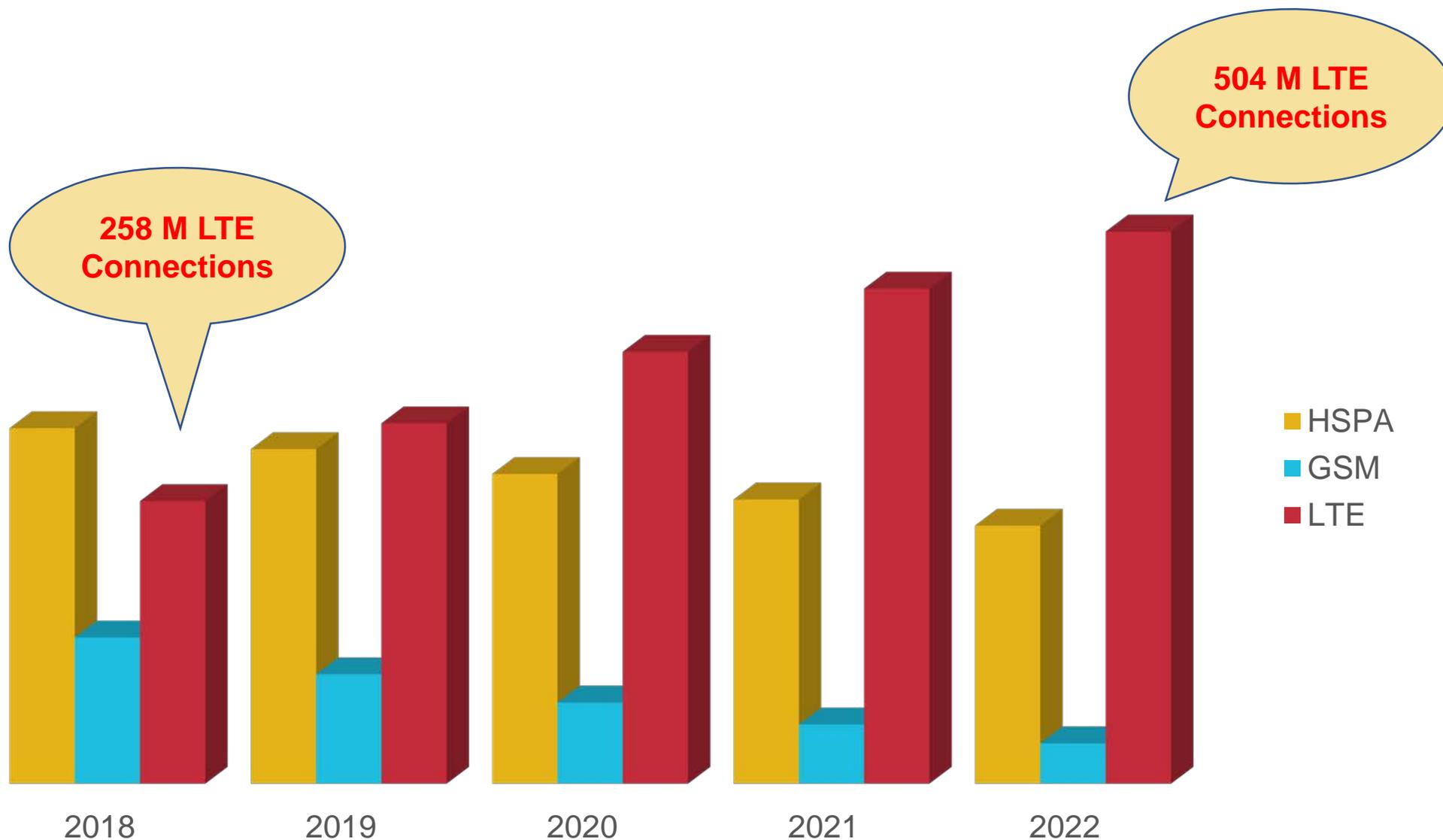


June 2018

North America Technology Forecast 2018-2022



Latin America & the Caribbean Technology Forecast 2018-2022



Source:



June 2018

Forecast includes M2M



5G™

5G Deployment Announcements

Top 4 National Carriers*

AT&T

- Standardized 5G mobile service commercial launch
- 5G service available in 12 cities by end of 2018
 - ✓ Atlanta, Charlotte, Dallas, Oklahoma City, Raleigh, Waco, Indianapolis, Houston, Jacksonville, Louisville, New Orleans & San Antonio
- Additional 5G launches in 2019
 - ✓ Las Vegas, Los Angeles, Nashville, Orlando, San Diego, San Francisco, San Jose

Sprint

- Launching 5G in 2019: Cities to include Atlanta, Chicago, Dallas, Houston, Kansas City, Los Angeles, New York City, Phoenix, Washington, D.C.
- 2.5 GHz
- Nationwide 5G launches in first half 2019
- Launched Massive MIMO in 2018

T-Mobile

- Building 5G Network in 30 cities in 2018
- 5G Commercial launch in 2019
- 5G network build out in 600 MHz spectrum in 2018
- 28 GHz and 39 GHz mmWave deployed in future
- 5G Nationwide in 2020

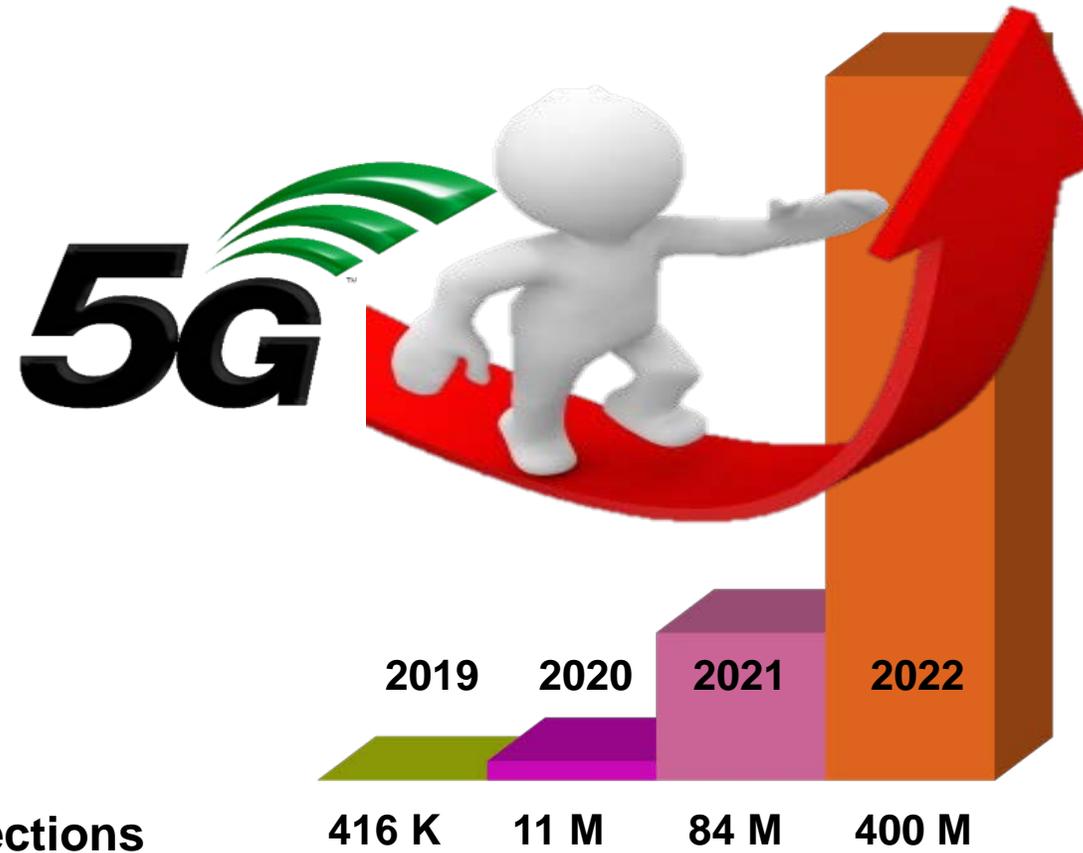
Verizon

- 2018 launching 5G commercially in 4 cities
- 2018 5G Fixed residential broadband offering
 - ✓ Houston, Indianapolis, Los Angeles, Sacramento
- 28 GHz
- Additional 5G launches in 2019 including 5G mobile service



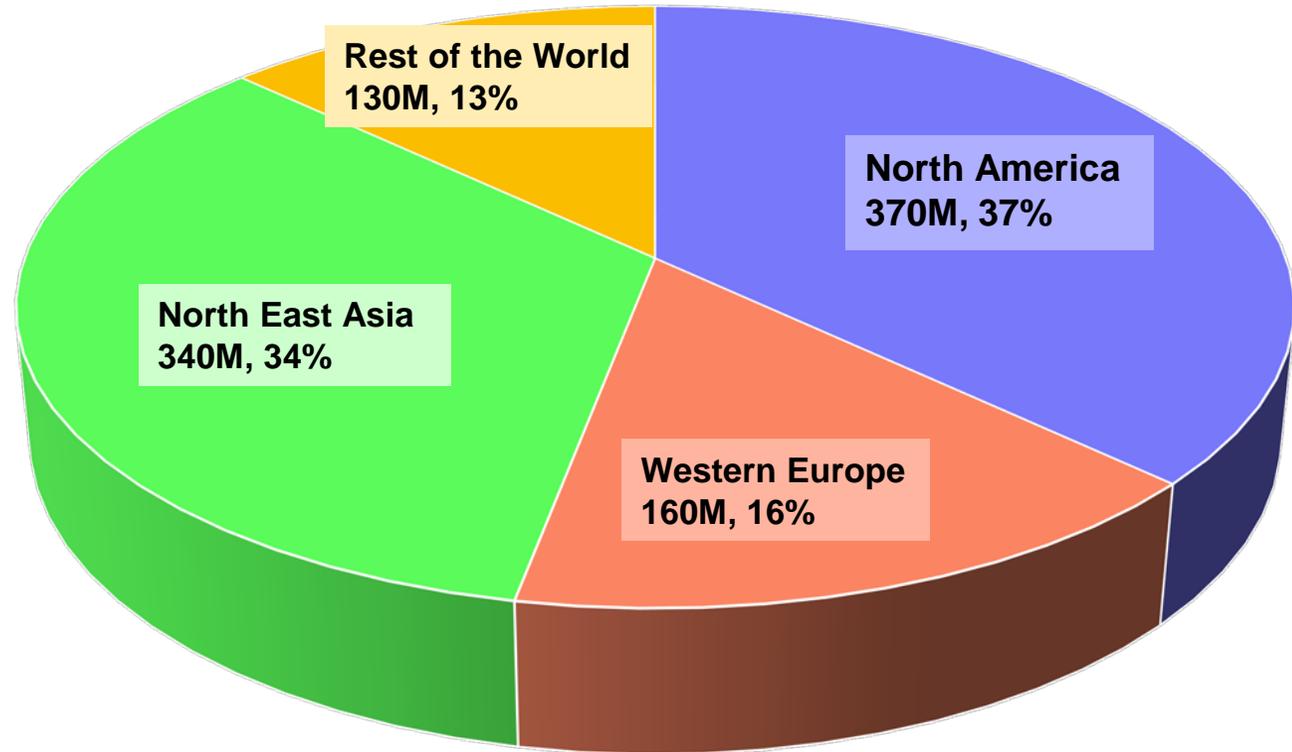
*A non-exhaustive list of 5G deployment announcements as of September 11, 2018. in the U.S. This list represents public data from listed references.

Global 5G Subscription Forecast 2019 - 2022



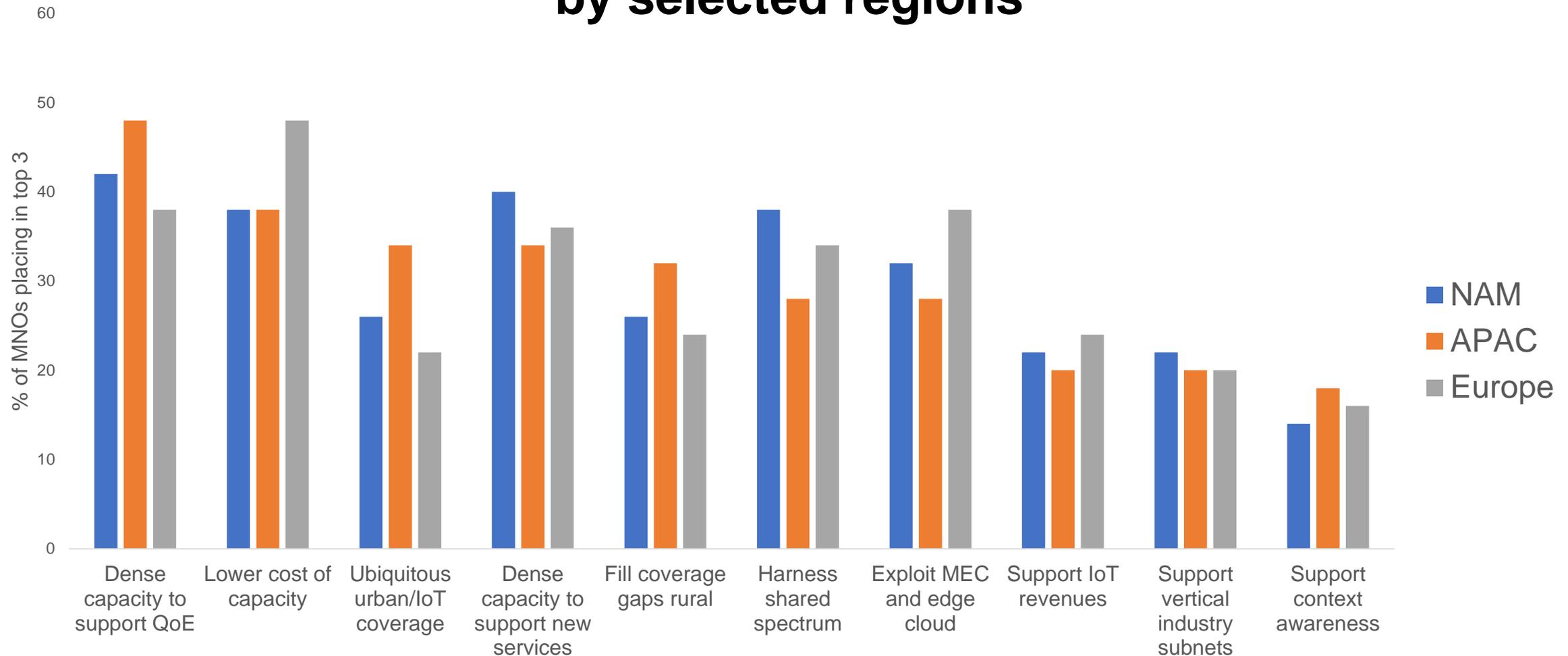
5G Forecast

2023: 1 Billion 5G Subscribers are Predicted*



*Ericsson Mobility Report, November 2017

Operators' Top Three Drivers to Density by selected regions

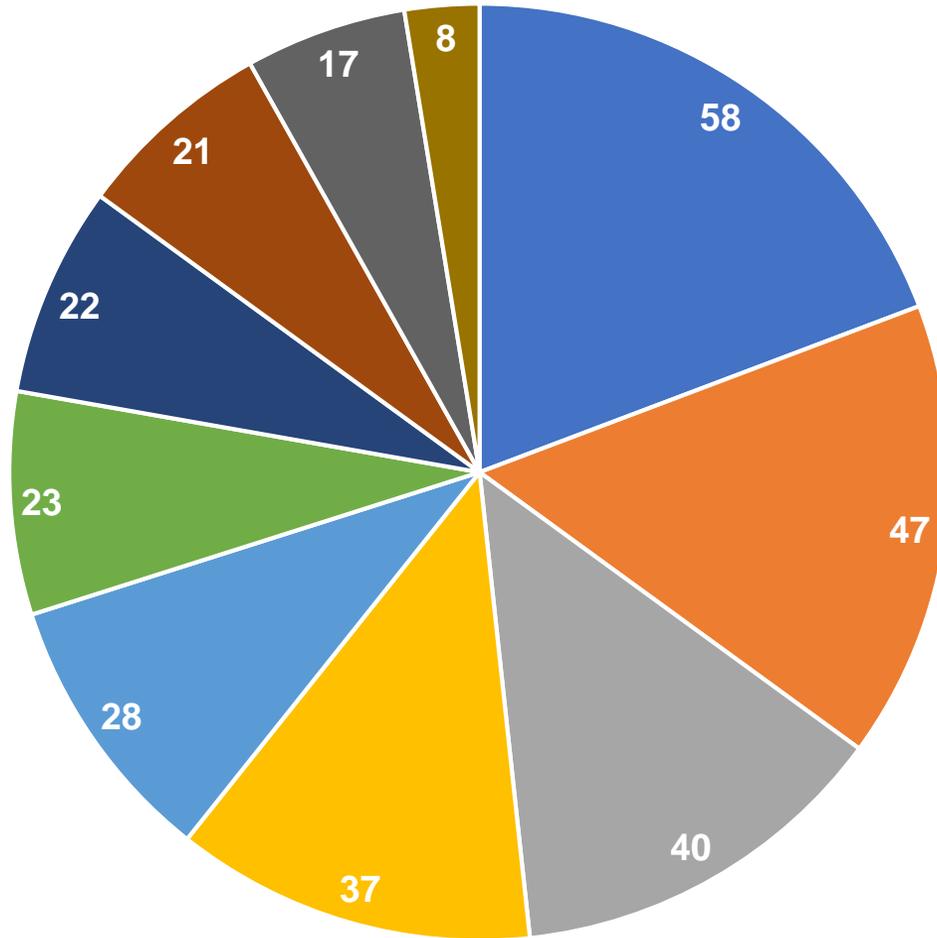


Source: 5G Americas whitepaper *Small Cell Siting Challenges and Recommendations*



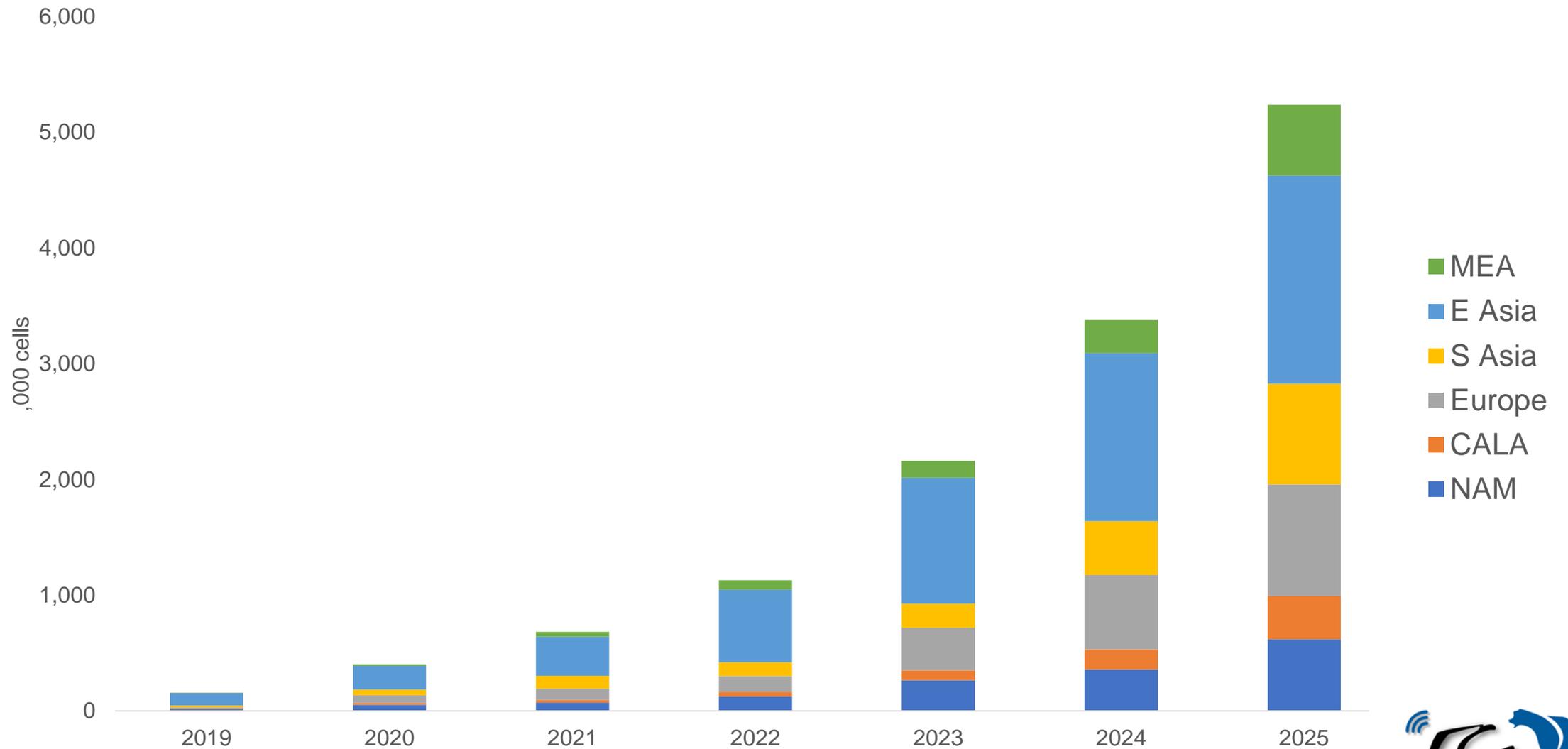
Key barriers to embark on large-scale densification

Operators were asked to list their three most important barriers (chart sums to 300)



- Uncertainty about TCO
- Site cost and availability
- Macro interworking
- Ability to monetise via new services
- Backhaul cost and availability
- Site approvals
- Equipment approvals
- HetNet interoperability and standards
- Immature automation/virtualisation
- WiFi interworking

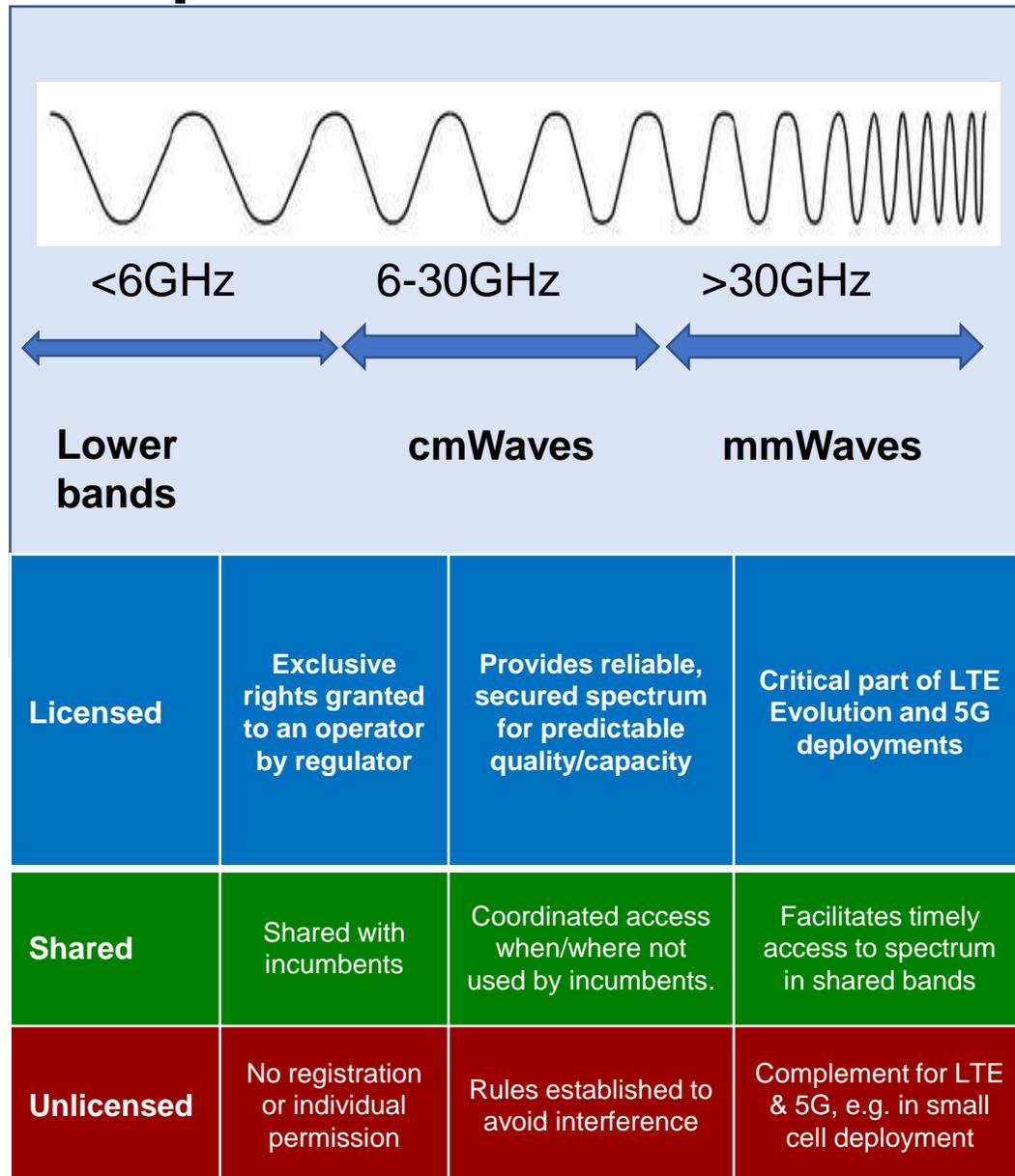
Forecast deployments of 5G or 5G/multimode non-residential small cells 2019 to 2025 by region



Source: 5G Americas whitepaper *Small Cell Siting Challenges and Recommendations – (Rethink/SCF market status update, March 2018)*



Spectrum and the Evolution to 5G



- Additional harmonized spectrum needed in existing and new bands
- High frequencies for ultra- dense 5G small cell deployments
- Both licensed and unlicensed exclusive and shared spectrum



THANK YOU!