



5G

# IMPACT OF 5G

CANTO 2018

PANAMA CITY, PANAMA – JULY 28, 2018

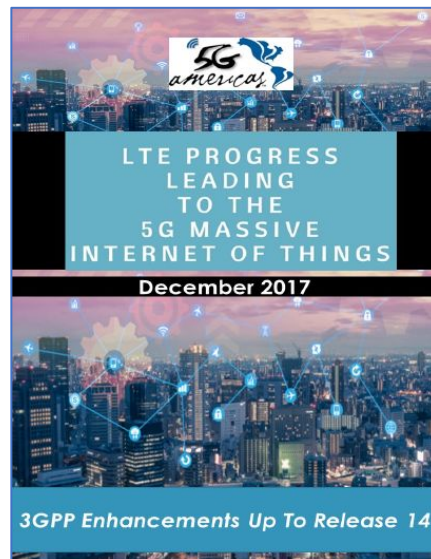
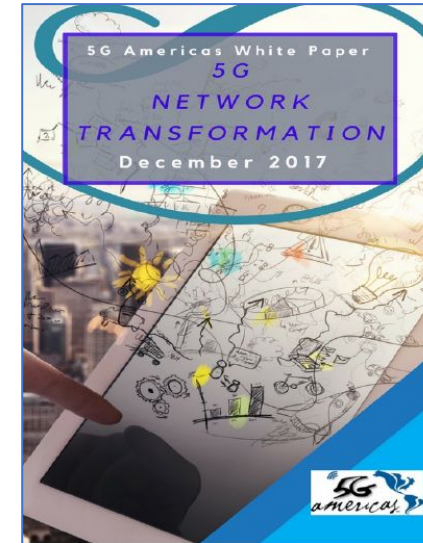
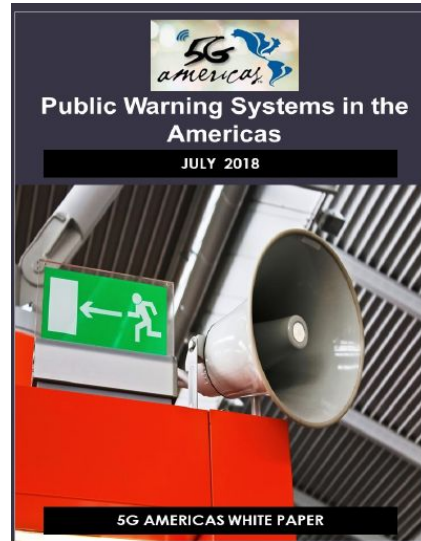
## The Voice of 5G and LTE for the Americas

5G Americas is an industry trade organization composed of leading telecommunications service providers and manufacturers. The organization's mission is to advocate for and foster the advancement and full capabilities of LTE wireless technology and its evolution beyond to 5G, throughout the ecosystem's networks, services, applications and wirelessly connected devices in the Americas. 5G Americas is invested in developing a connected wireless community while leading 5G development for all the Americas.

## BOARD MEMBERS



# WHITE PAPERS



# THE CARIBBEAN

- The Caribbean is the most diverse region in the Americas with 30 markets speaking 6 languages (Spanish, English, French, Dutch, Creole and Papiamentu).
- Small countries in most cases with less than 1 million inhabitants over a 2 million Km<sup>2</sup> area;
- Diverse political and cultural backgrounds;
- Most countries considering using ICT to improve the living standards and quality of life of their constituents.
- Regional governments exploring eHealth as an alternative for improving public services and eLearning

Source: ECLAC

Market	Population	Market	Population
Anguilla	14.763	Guyana	770.610
Antigua & Barbuda	92.738	Haiti	10.889.907
Aruba	104.263	Cayman Islands	60.764
Bahamas	392.718	Turks & Caicos	34.904
Barbados	285.006	Puerto Rico	3.680.772
Belize	366.942	Dominican Republic	10.652.135
Dutch Caribbean	25.328	St. Kitts & Nevis	56.183
Cuba	11.425.001	Sint Maarten	39.538
Curaçao	158.635	Saint Vincent & Grenadines	109.644
Dominica	73.016	Saint Lucia	186.383
Grenada	107.327	Suriname	547.610
Guadeloupe	470.547	Trinidad & Tobago	1.364.973

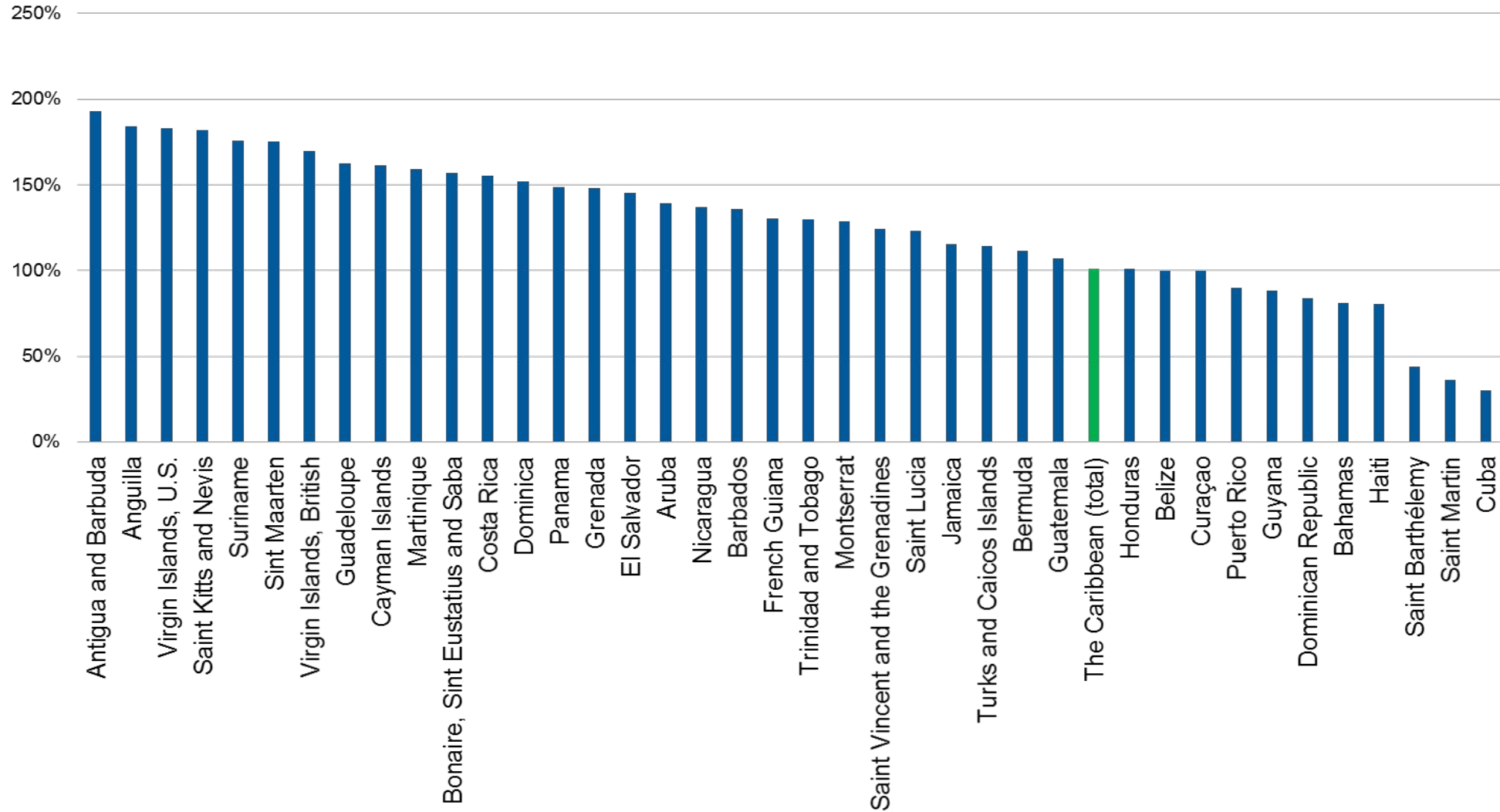
## THE CARIBBEAN

<b>Pop. (Millions)</b>	<b>Mobile subscribers (Millions, estimated end 2015)</b>
43.9	35.2
<b>Mobile Penetration</b>	
80.1%	
33 Markets	85 Operators

Source: ITU, Operators, Regulators, WEF, World Bank



# CARIBBEAN MOBILE PENETRATION



Source: ITU, Operators, Regulators, WEF, World Bank

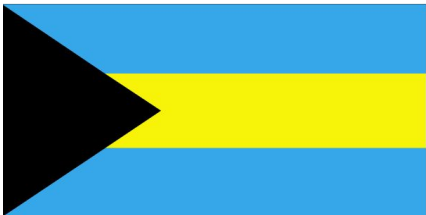
## LTE DEPLOYMENT STRATEGY



- ★ Improve competitive position vis-à-vis incumbent telecom operator



- ★ Continue strategy of positioning itself as innovation leader in the Caribbean



- ★ Strengthen incumbent position prior to mobile market liberalization



- ★ Competitive dynamics respond to US operators' national strategy



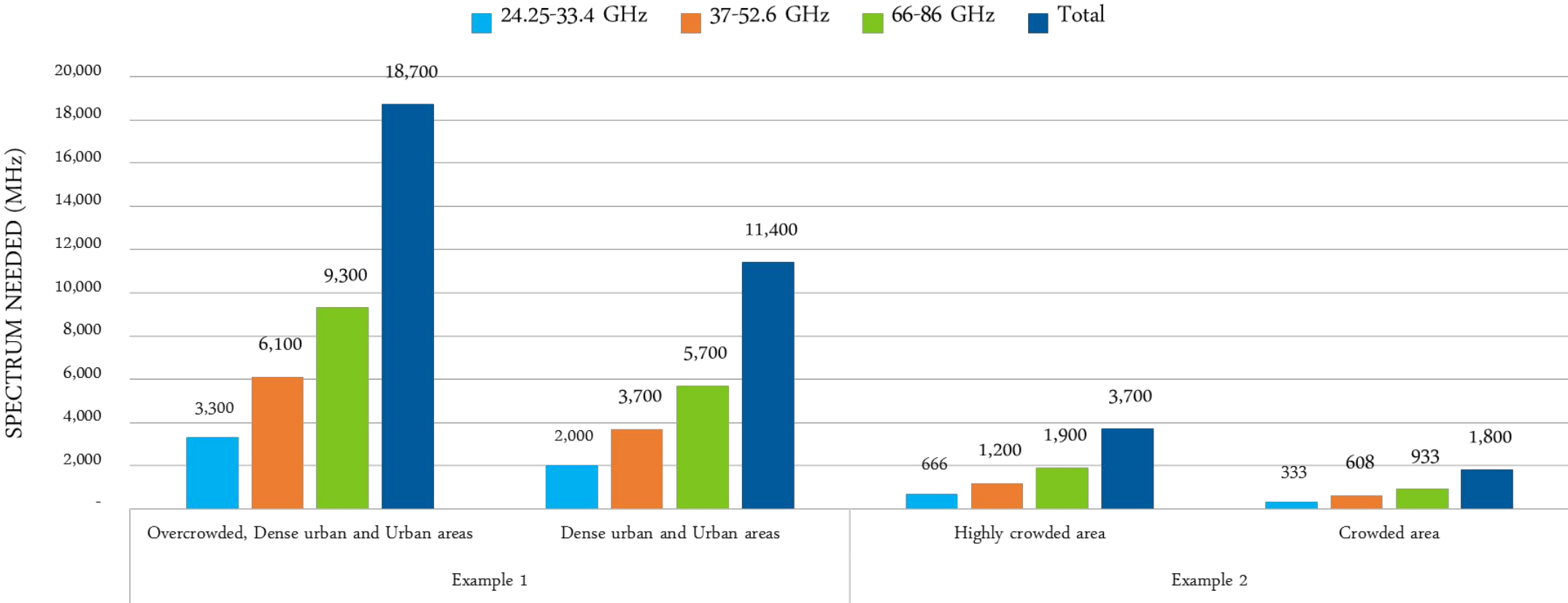
# ITU SPECTRUM RECOMMENDATIONS

	Spectrum Requirement RATG 1 (MHz)			Spectrum Requirement RATG 2 (MHz)			Total Spectrum Requirement (MHz)		
Year	2010	2015	2020	2010	2015	2020	2010	2015	2020
Low POP Density	840	880	440	0	420	900	840	1300	1340
High POP Density	760	800	540	0	500	1420	760	1300	1960

Source: International Telecommunications Union

# SUGGESTED MID- HIGH- BAND SPECTRUM FOR 5G

IMT-2020 Estimated Spectrum Needs Based on  
the Application-based Approach for the Frequency Ranges Above 24 GHz.



Source: 5G Americas

# 5G ECOSYSTEM

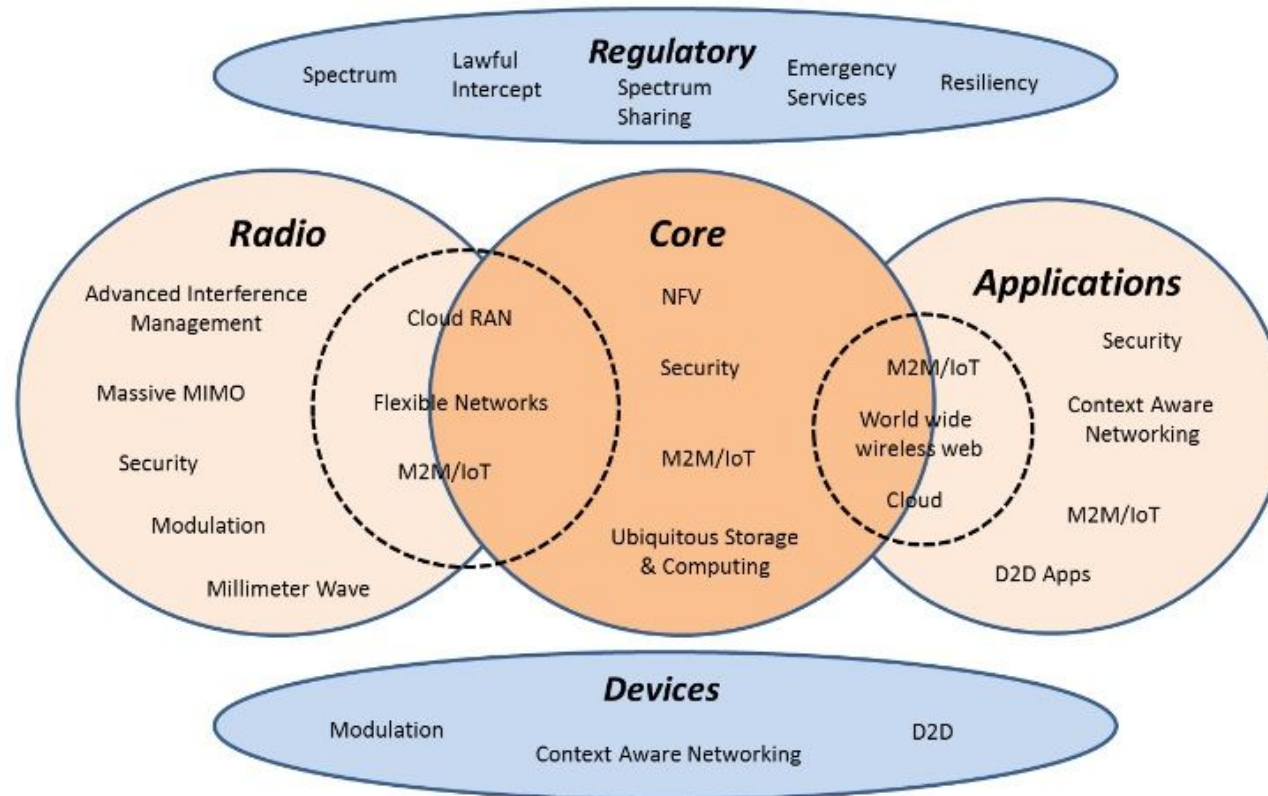


Figure 2. A Preliminary View of an End-to-End 5G Ecosystem.

# CARIBBEAN UNDERSEA CABLES

Landing submarine  
cable systems

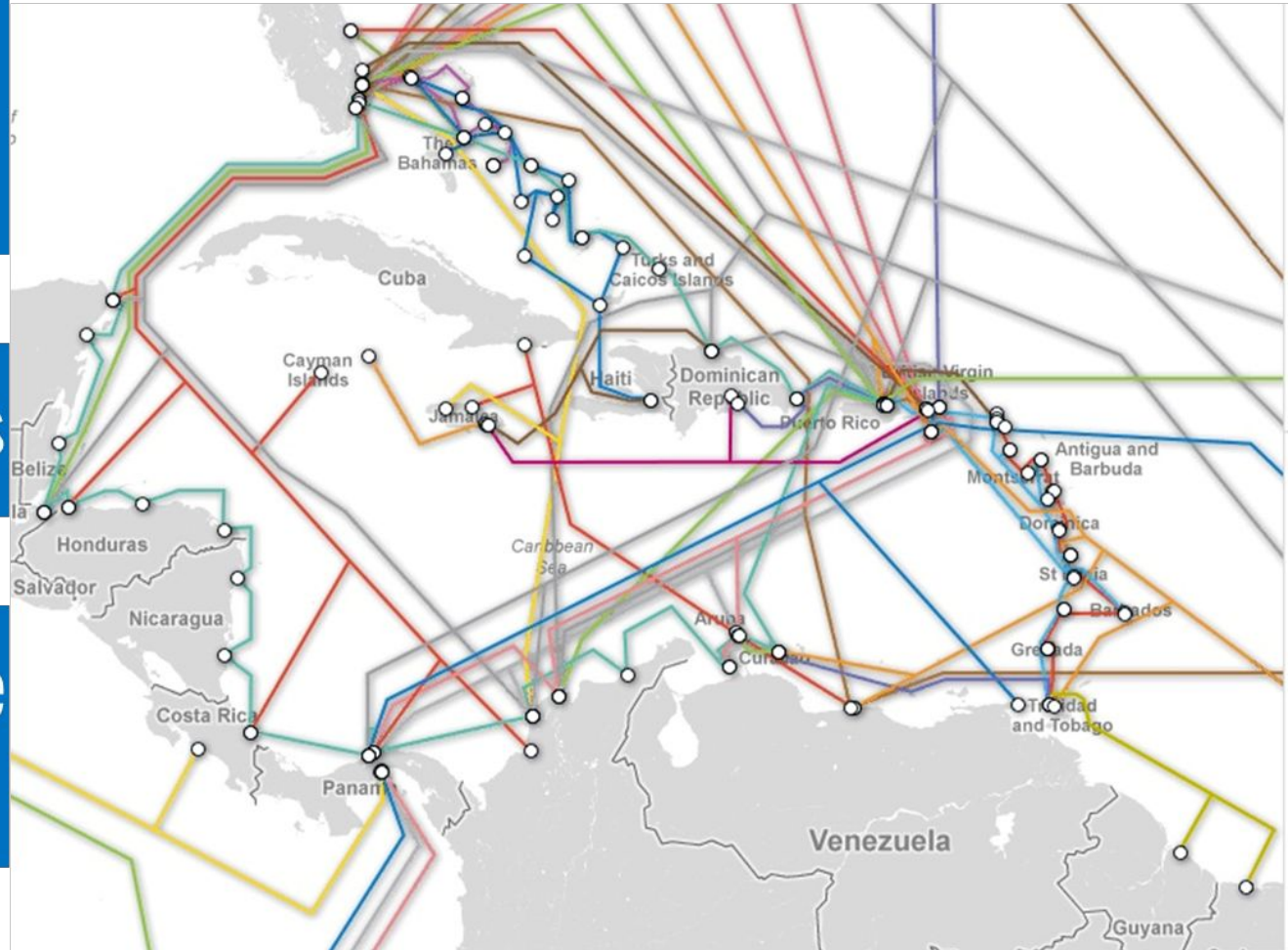
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Internal Island Systems

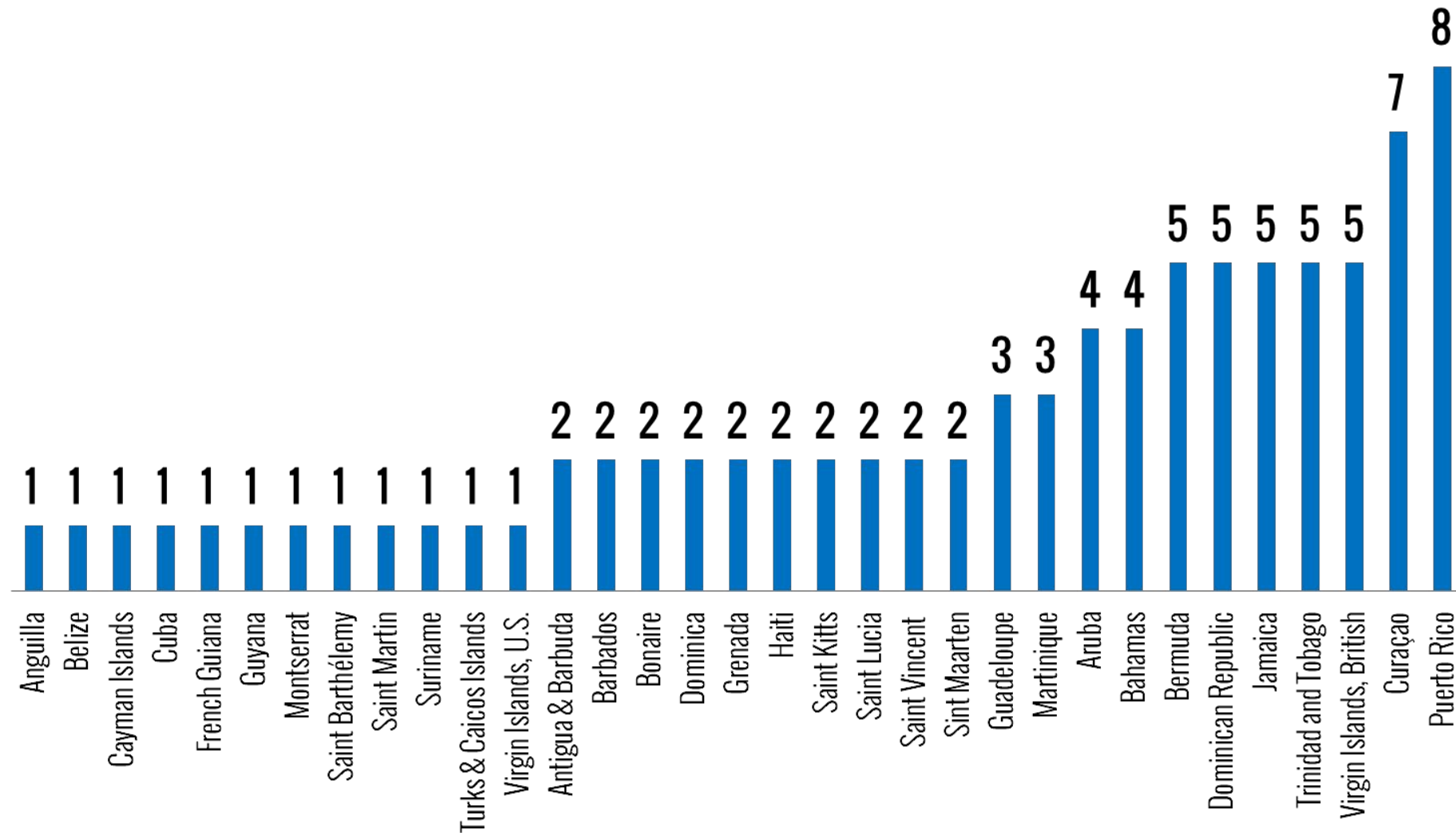
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Non-internal submarine  
cable systems

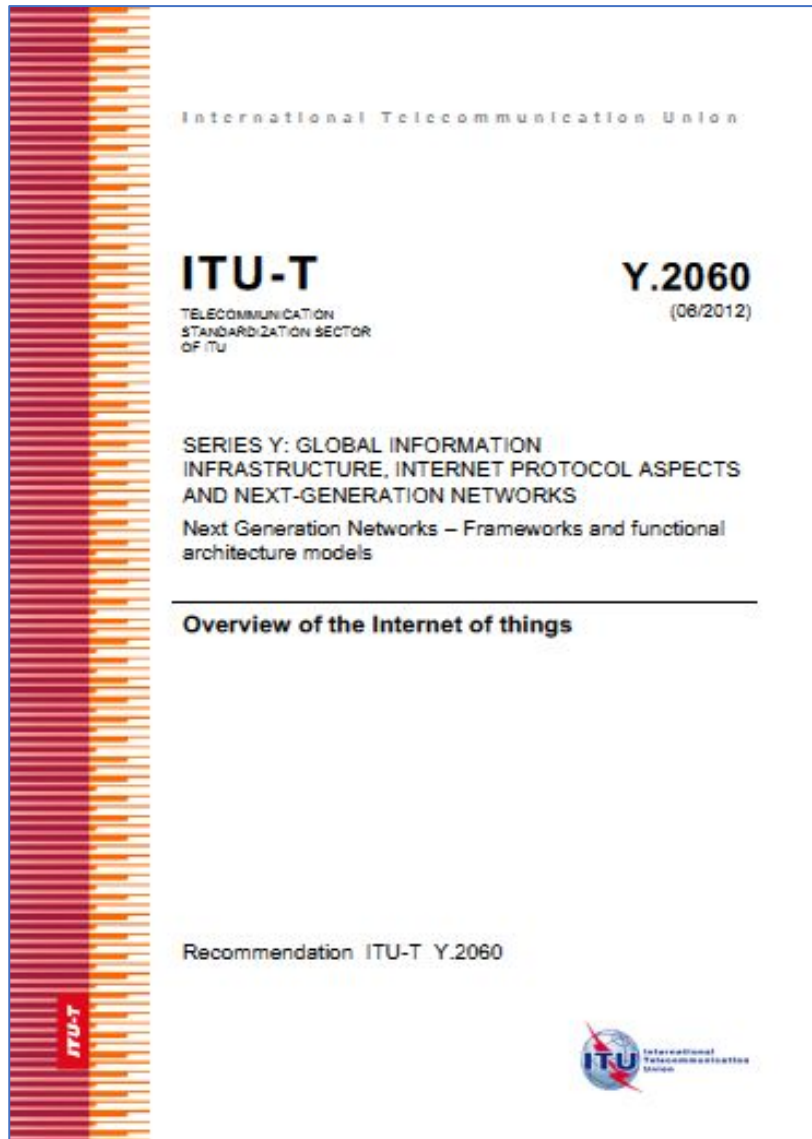
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# CARIBBEAN UNDERSEA CABLES



Source: Telegeography, 2017



## 3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

**3.2.1 device:** With regard to the Internet of things, this is a piece of equipment with the mandatory capabilities of communication and the optional capabilities of sensing, actuation, data capture, data storage and data processing.

**3.2.2 Internet of things (IoT):** A global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.

NOTE 1 – Through the exploitation of identification, data capture, processing and communication capabilities, the IoT makes full use of things to offer services to all kinds of applications, whilst ensuring that security and privacy requirements are fulfilled.

NOTE 2 – From a broader perspective, the IoT can be perceived as a vision with technological and societal implications.

**3.2.3 thing:** With regard to the Internet of things, this is an object of the physical world (physical things) or the information world (virtual things), which is capable of being identified and integrated into communication networks.



# INTERNET OF THINGS

STRENGTHS	WEAKNESS
<ul style="list-style-type: none"><li>• <b>Mobile service expansion</b></li><li>• <b>4G LTE market growth</b></li><li>• <b>Well-established operators</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Regulatory updating</b></li><li>• <b>Digital gap</b></li><li>• <b>Frequency spectrum assignment</b></li><li>• <b>Little qualified corporate sales teams</b></li></ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"><li>• <b>Users inclined to adopting new technologies</b></li><li>• <b>Governmental support to smart cities</b></li><li>• <b>Support to technological star-up initiatives</b></li><li>• <b>Globally inserted industries</b></li><li>• <b>Opening towards mobile virtual network operators</b></li><li>• <b>Spectrum reuse</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Regional economic scenario</b></li><li>• <b>Equipment importation barriers</b></li><li>• <b>Tax pressure</b></li></ul>



# CONCLUSIONS

## CHALLENGES

- ★ Authorities need to be proactive in their efforts to allocate more spectrum
- ★ International capacity is expensive
- ★ Political and demographic issues have a direct impact operators' business strategy
- ★ Need to educate government officials on the difficulties of having new entrants on the mobile market

## OPPORTUNITIES

- ★ Wireless broadband technologies are key to government initiatives of expanding broadband adoption in larger countries
- ★ Enhanced mobile broadband facilitates the implementation of eHealth, eGovernment and eLearning.
- ★ Internet of Things
- ★ Need for development of local content



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