

# Spectrum and growth



52o Encontro TeleSintese  
Brasilia

# Relevant topics to trigger discussion



1

Relevance of Spectrum

2

The different types of Spectrum

3

The coming auctions

# The relevance of Spectrum



## — Brazil is a Global reference

- Aprox 600Mhz spectrum in Brazil
- Leveled with developed countries
- Double in comparison to LATAM countries

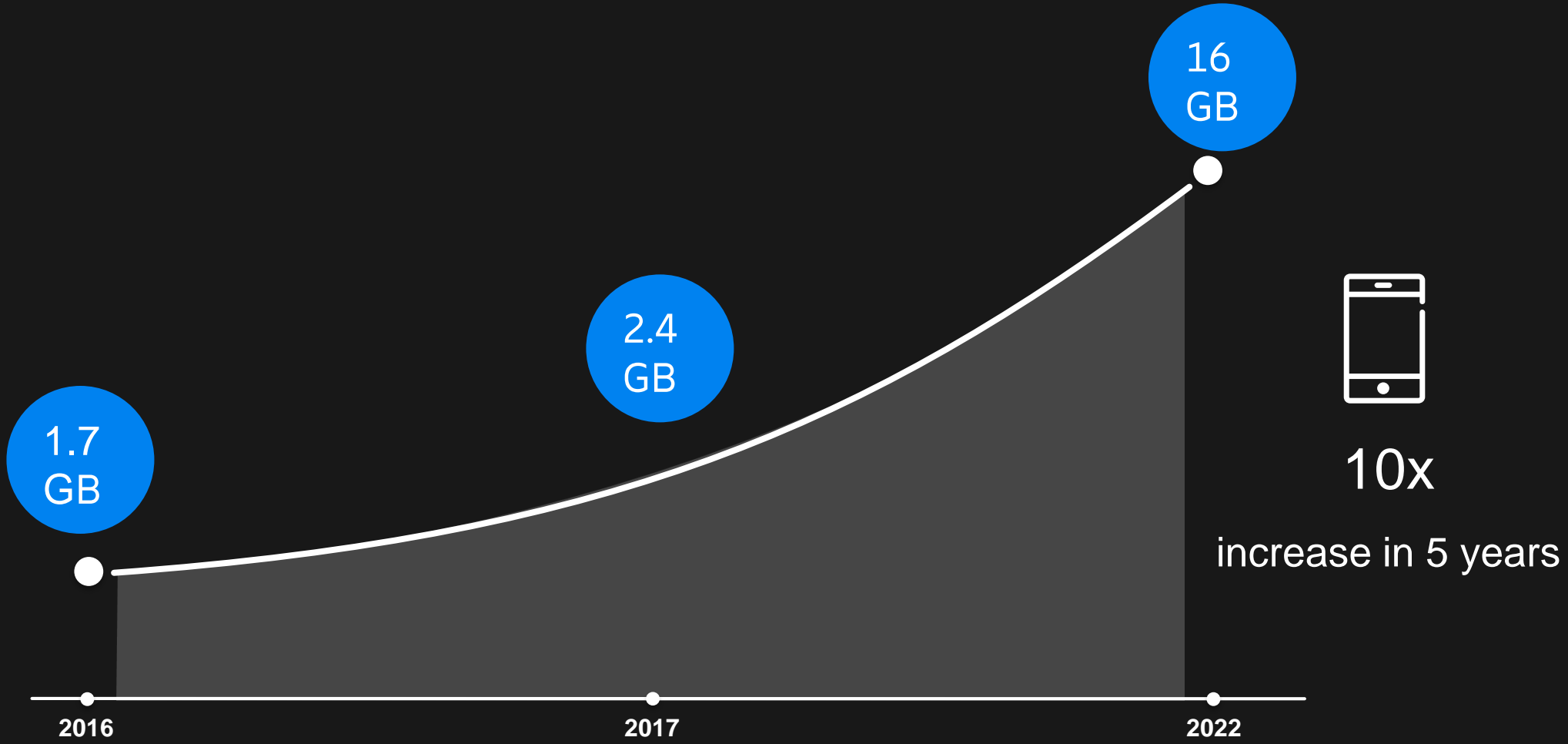
## — Traffic Growth

- Average traffic growth a year, 60%
- Video as the main driver
- 50% today and 90% in 2023

## — 5G & IoT

- Applications becoming more heterogenous
- From smartphones to Cities, different devices, apps
- More spectrum but different spectrum

# Average smartphone data consumption



# Three layers of spectrum



## FREQUENCY BANDS REQUIRED: CAPACITY, COVERAGE, APPLICATIONS



### HIGH FREQUENCY - Super data layer

>6GHz

Use cases requiring ultra-high capacity (from Mbps to Gbps)

New possibilities with gigabit capacity and sub-ms latency

26Ghz, aligned to Europe d 42Ghz



### MID FREQUENCY - Coverage & Capacity

1 to 6GHz

Compromise between capacity (Gbps) and coverage (km)

Global alignment, early ecosystem and harmonization (USA, Europe, Asia)

3.5Ghz TDD – main band for 5G intro, 100Mhz per Operator



### LOW FREQUENCY - Coverage Layer

<1GHz

Wide area coverage and deep indoor penetration

Rural areas and remote locations, digital dividend

700Mhz today, plan on 600Mhz

# A new spectrum approach with the coming actions



1

- Not only 'More Spectrum', but also different types:
  - Low bands
  - Medium Bands
  - High Bands
- Prioritize 3.5GHz
- Secure 26GHz and 42GHz
- Assess 600MHz

2

- Revenues from spectrum auctions should not be the objective
- Countries that apply low reservation prices are more successful in the widespread adoption of technology
- 700MHz auction cost was R\$9 bn

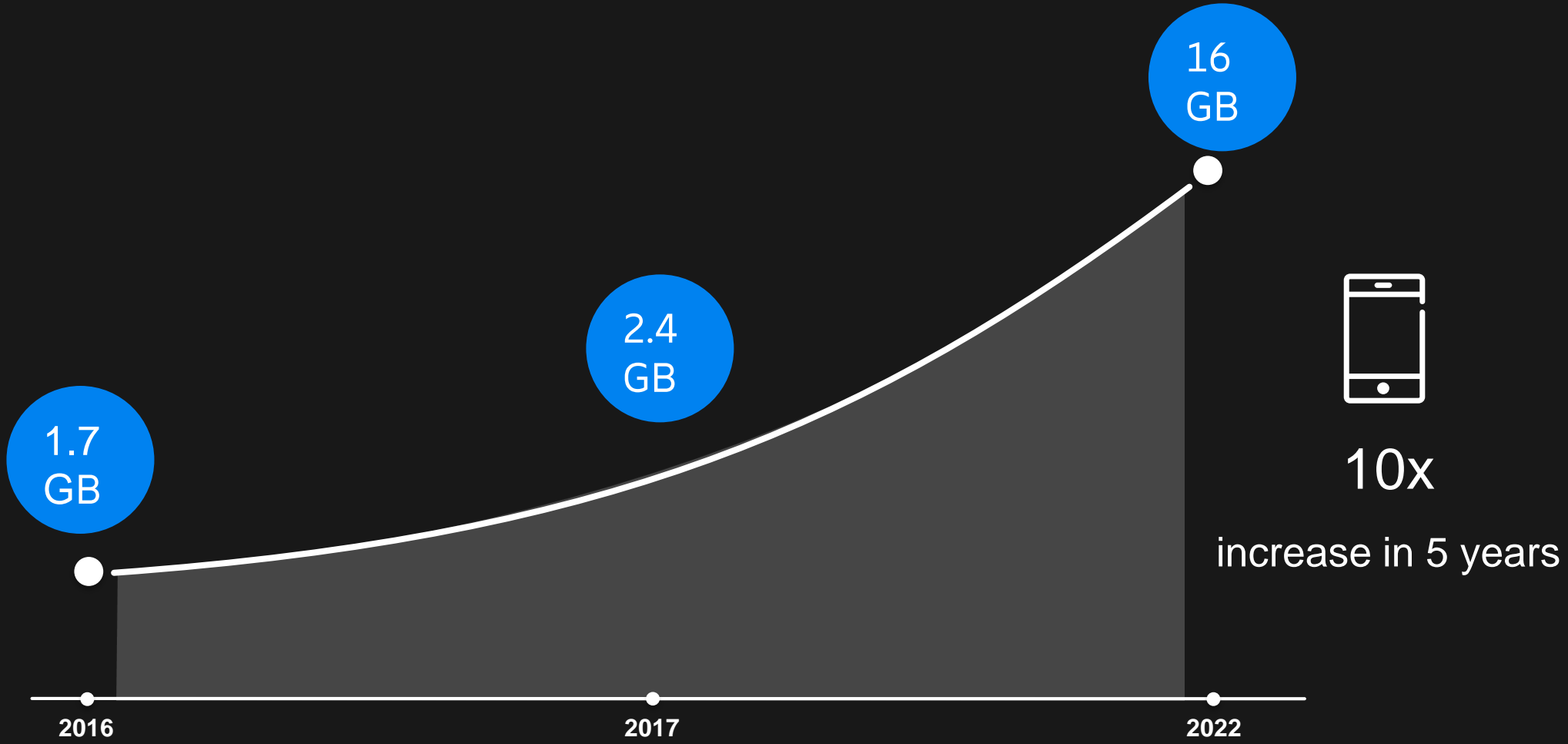
3

- Spectrum quality is as important:
  - Clean
  - Unrestricted use
  - Immediate availability
  - No power limits
- Enabling a good network quality



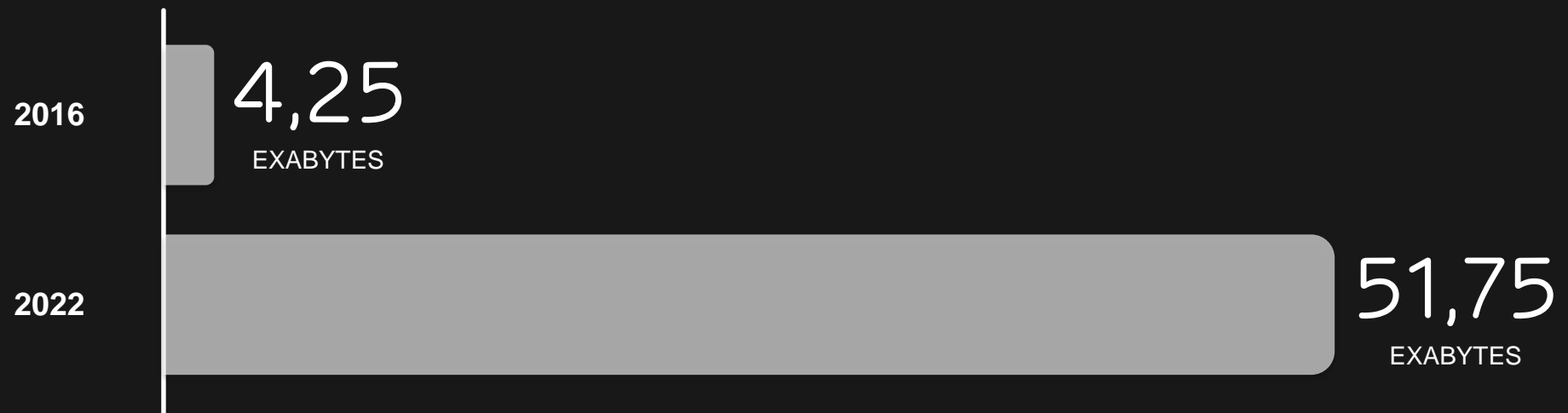
Ericsson.com

# Average smartphone data consumption





# 12x growth in video traffic




mobile video traffic per month

# 70% data Growth per year

Mobile networks need more capacity everyday



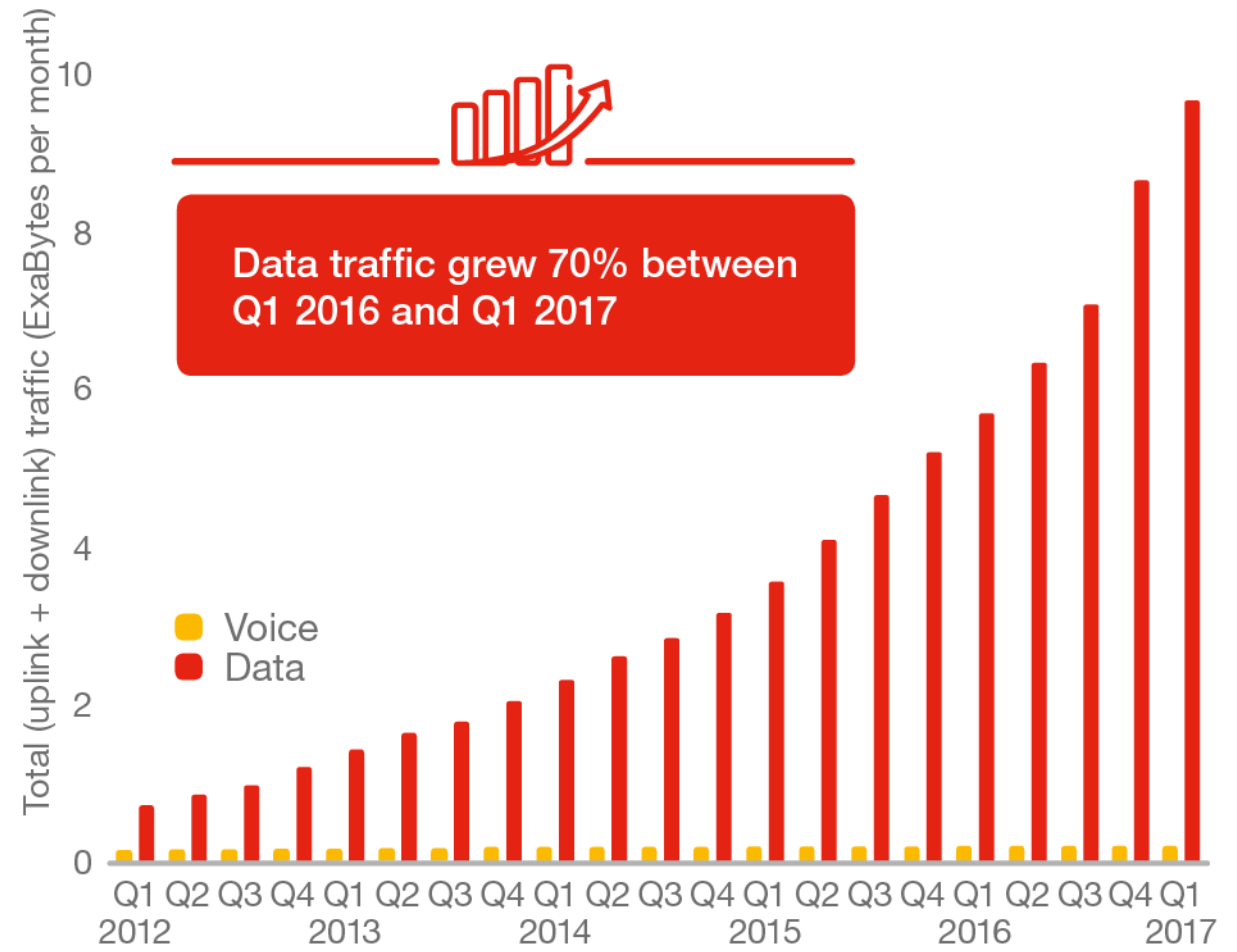
**MOBILE DATA TRAFFIC**



**GROWS AT**

# 42%

**CAGR in LATIN AMERICA IN 2016-2022**



Data traffic grew 70% between Q1 2016 and Q1 2017

Source: Ericsson traffic measurements (Q1 2017)

