



**STUDY OF IMPLEMENTATION OF
FOURTH GENERATION OF MOBILE
COMMUNICATIONS TECHNOLOGY
STANDARDS (4G - LTE) IN JAPAN**



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The purpose of research work:

Learning Japanese experience to seek opportunities for further implementation to Uzbekistan

Objectives:

- ✓ Determination the developing trends of wireless communication networks;
- ✓ Assessment conditions of implementation of 4G networks in the world and Japan;
- ✓ Analysis prospects and forecasts of further spreading of 4G networks;
- ✓ Determination the economic advantages and disadvantages of 4G;

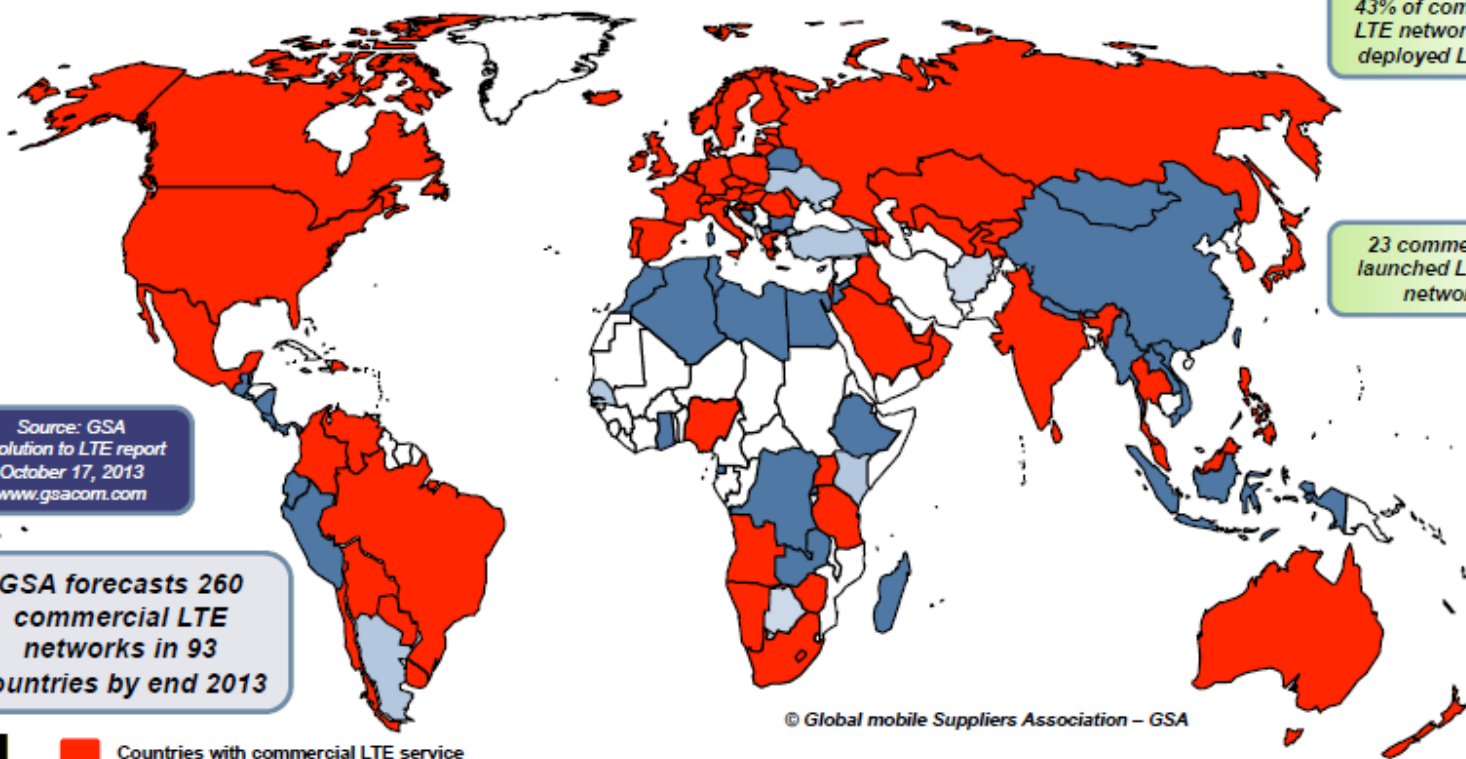
“LTE-Advanced” and “WirelessMAN-Advanced” being accorded by ITU’s Radiocommunication Sector (ITU-R) the official designation of IMT-Advanced, qualifying them as true 4G technologies [1].



474 operators in 138 countries are investing in LTE

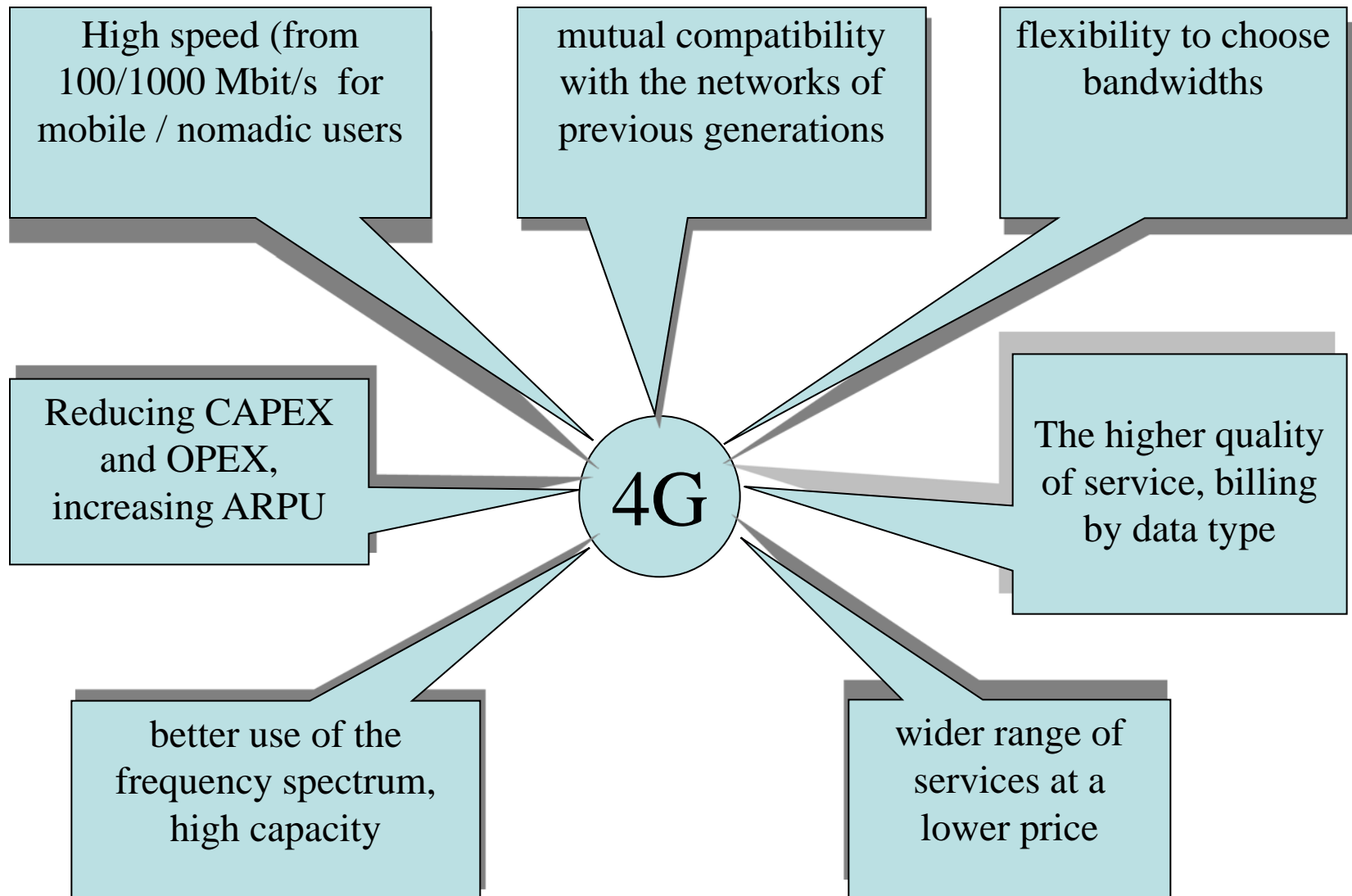
- 421 commercial LTE network commitments in 128 countries
- 53 pre-commitment trials in 10 more countries

- **222 commercially launched LTE networks in 83 countries**
- **126.1 million LTE subscriptions – Q2 2013**

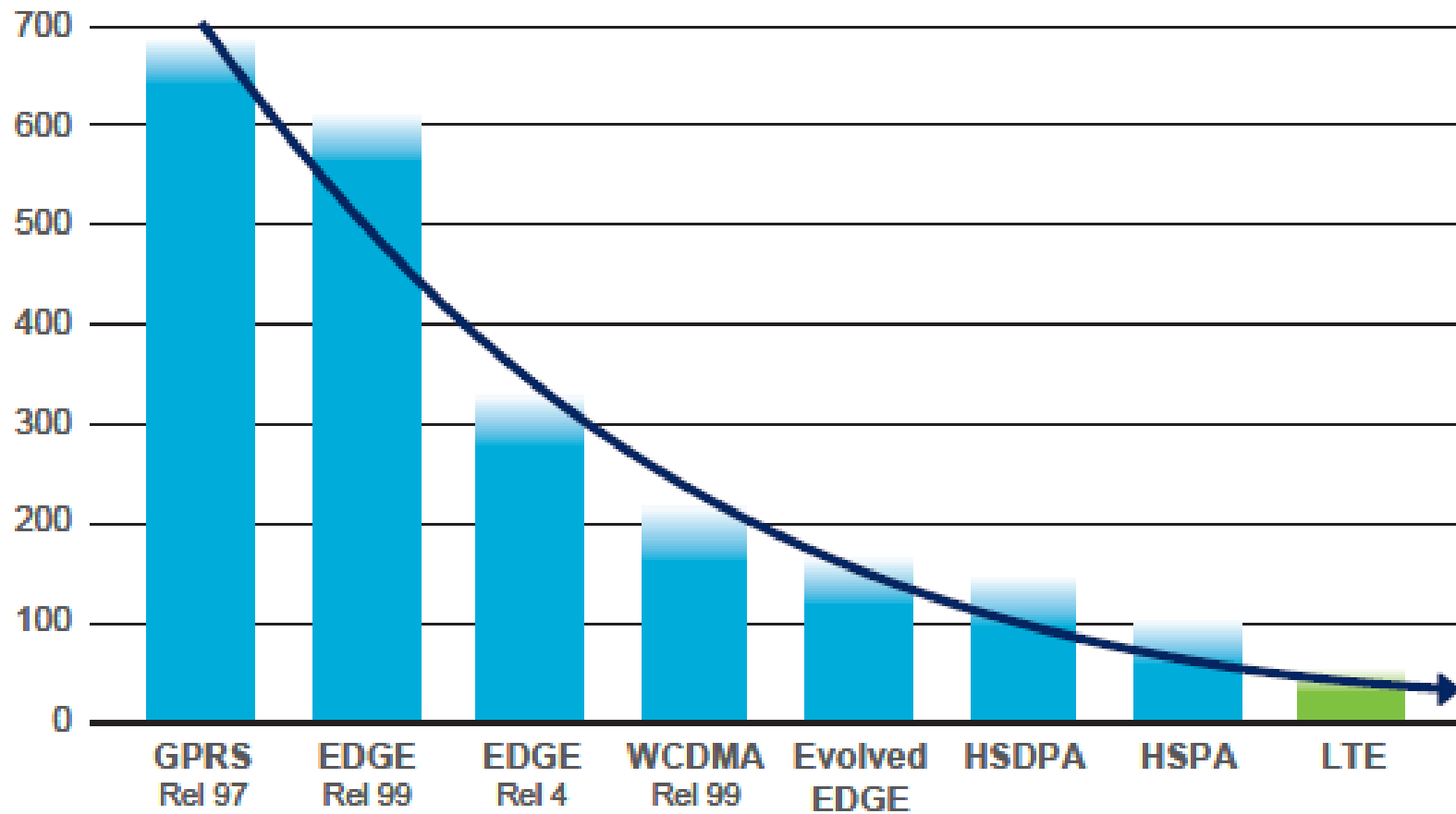


- Countries with commercial LTE service
- Countries with LTE commercial network deployments on-going or planned
- Countries with LTE trial systems (pre-commitment)

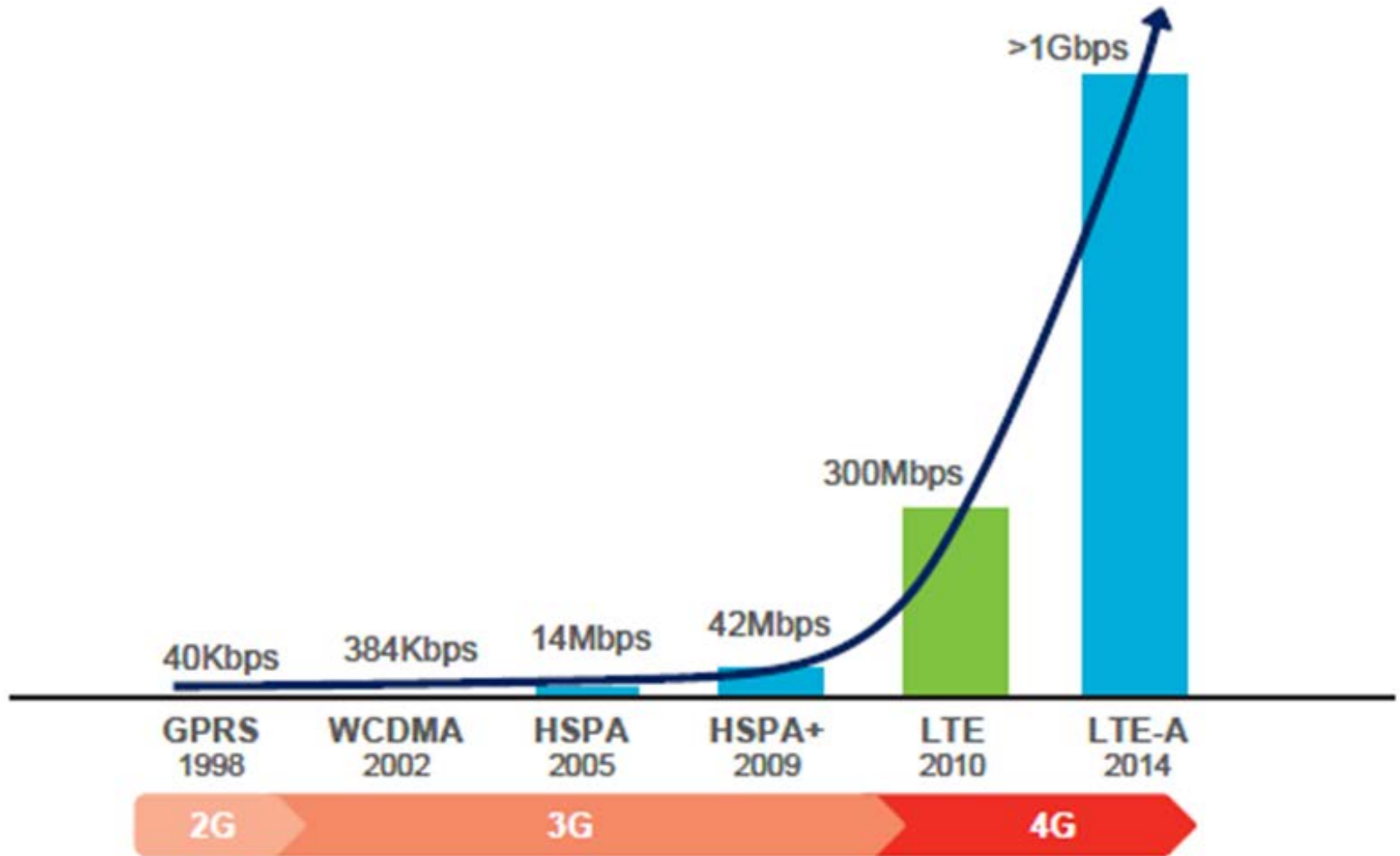
The main distinctions and advantages of 4G



Latency
(ms)



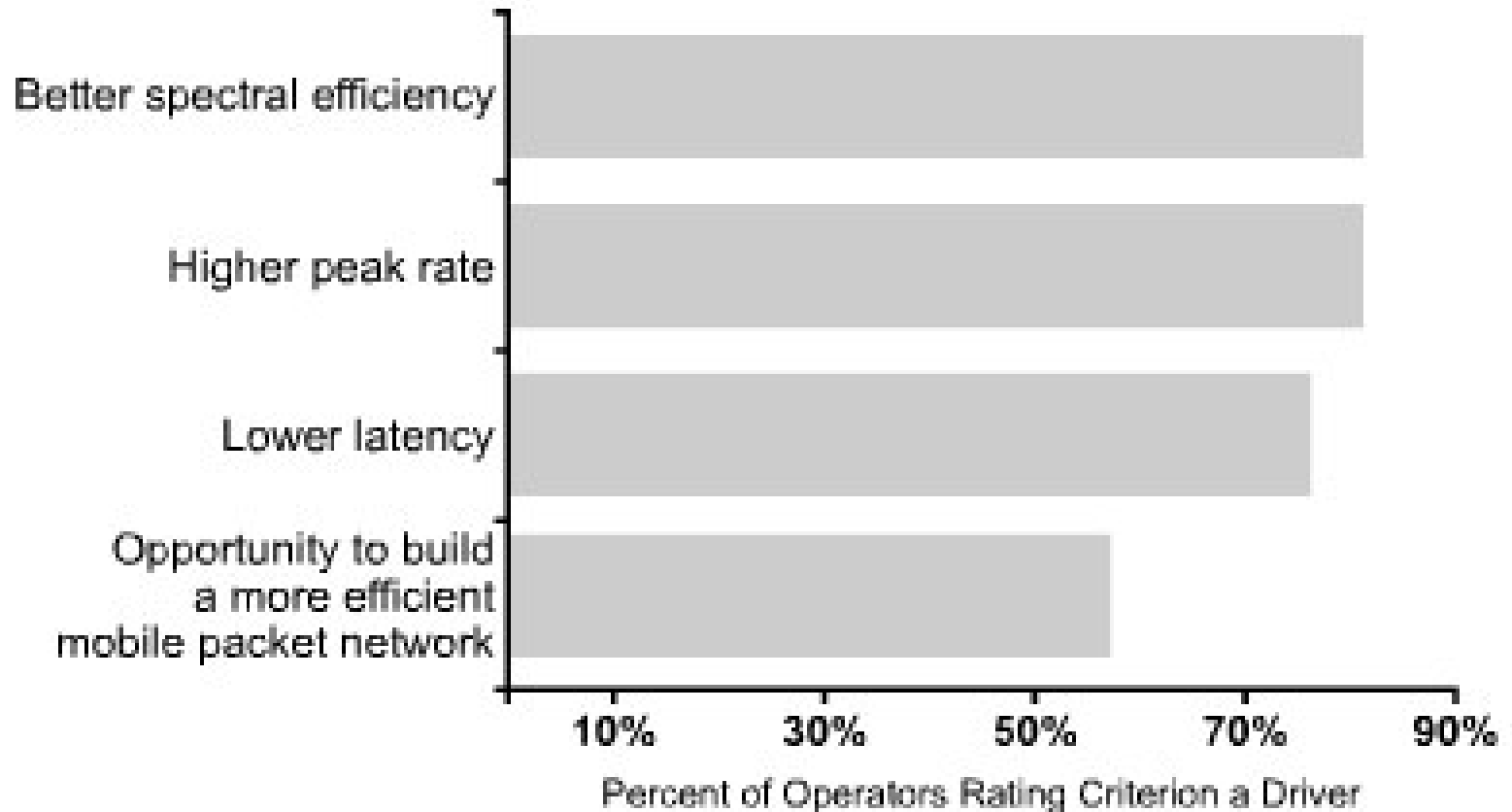
Latency evolution in operational LTE networks [2]



Peak rate [2]

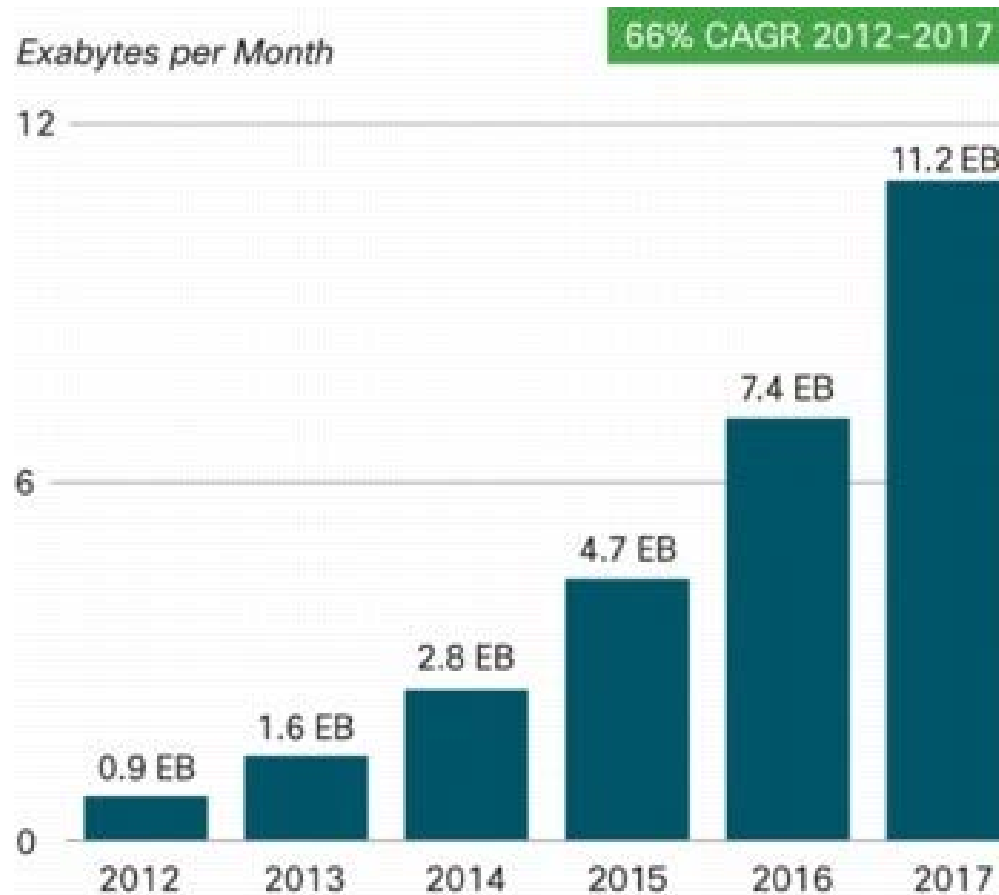
**KEY FACTORS AFFECTING THE
MOBILE OPERATORS IN THE
TRANSITION TO 4G:**

Top 4 Drivers for Operators Upgrading to LTE



© Infonetics Research, *LTE Strategies and Vendor Leadership: Global Service Provider Survey*, July 2013

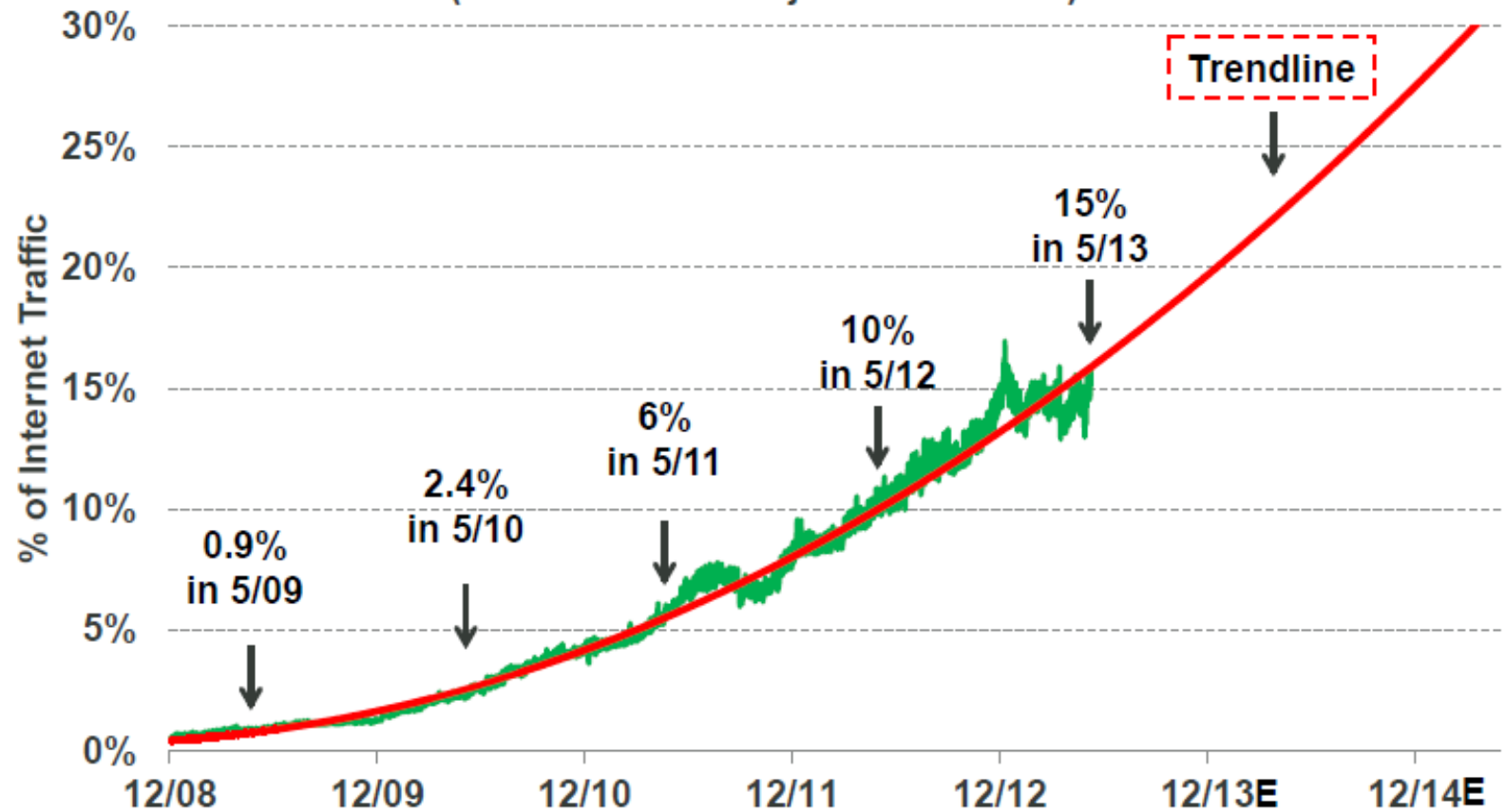
1. Growth in mobile data traffic. Overall mobile data traffic is expected to grow to 11.2 exabytes per month by 2017, a 13-fold increase over 2012. Mobile data traffic will grow at a CAGR of 66 percent from 2012 to 2017 [4].



Source: Cisco VNI Mobile Forecast, 2013

Cisco Forecasts 11.2 Exabytes per Month of Mobile Data Traffic by 2017

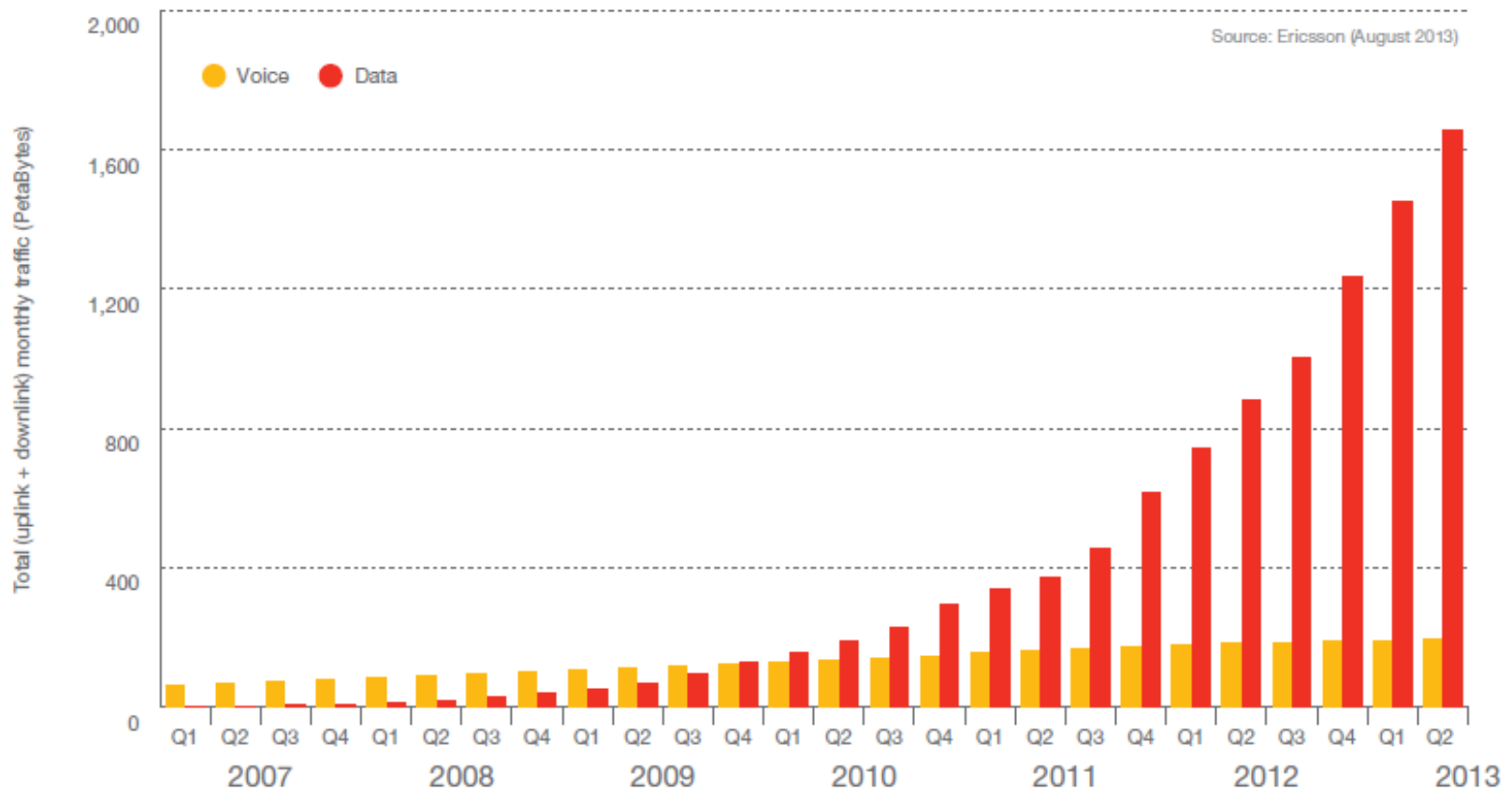
Global Mobile Traffic as % of Total Internet Traffic, 12/08 – 5/13 (with Trendline Projection to 5/15E)



KPCB

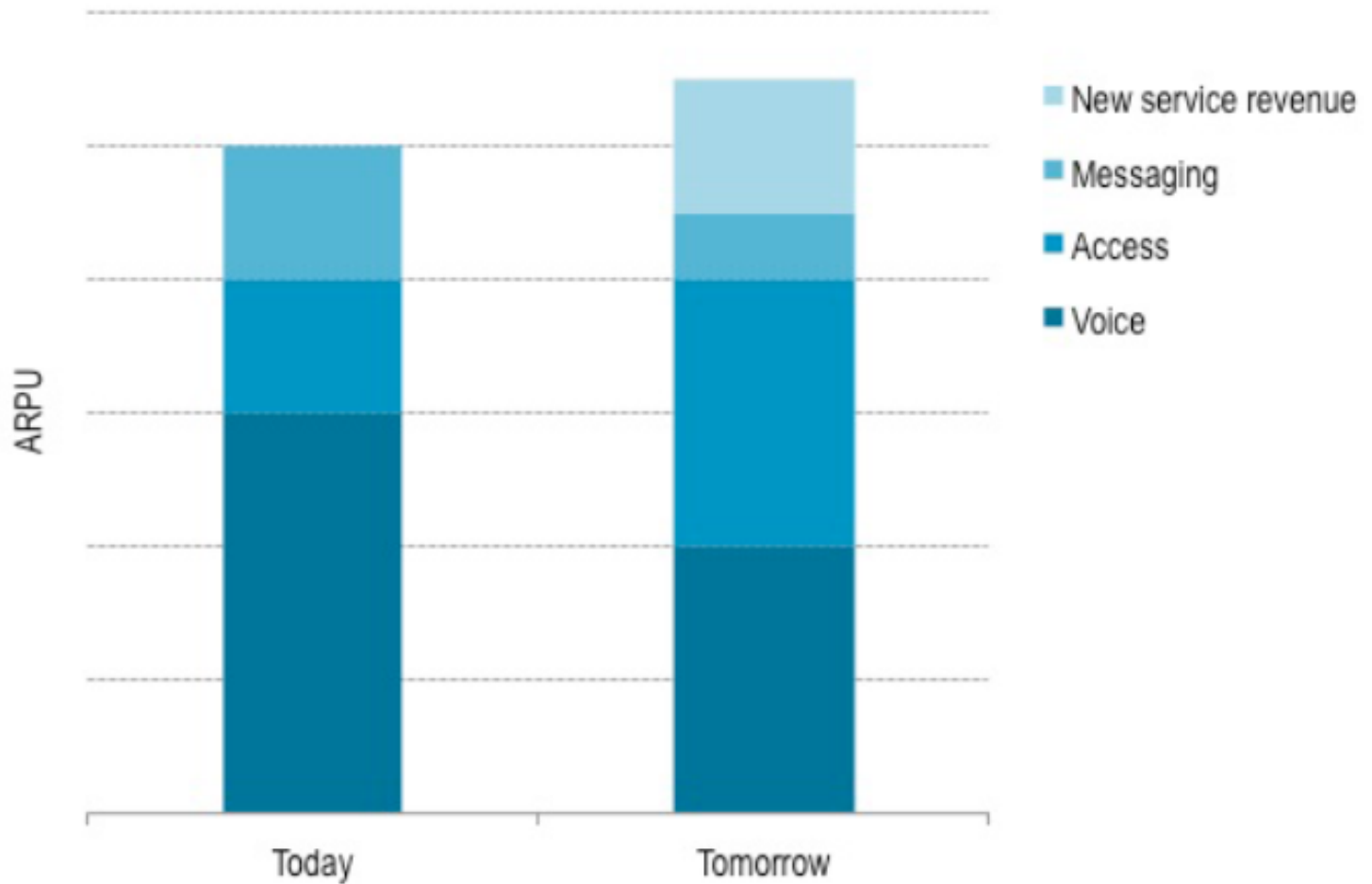
Source: StatCounter Global Stats, 5/13. Note that PC-based Internet data bolstered by streaming.

2. With the growth of data traffic, operators will have to revise the existing business model, as the voice data is not as profitable and priority.



¹ Traffic does not include DVB-H, Wi-Fi, or Mobile WiMax. Voice does not include VoIP.

Global total data traffic in mobile networks, 2007-2013 [5]



Note: "Tomorrow" equates to roughly 2–5 years. Data is intended to show a trend.
Source: Chetan Sharma Consulting, 2012

ARPU Evolution [6]

3. Spectrum management. Management Radio spectrum is a finite resource in great demand. Pressure on spectrum resources is high and operators should deploy the most efficient technologies available to them. LTE can be deployed in existing 2G or 3G bands and in new spectrum e.g. 2.6 GHz or digital dividend bands (700 or 800 MHz depending on region). In the USA, LTE deployments typically use 700 MHz (primarily band 13 or band 17) or AWS (1.7/2.1 GHz). New digital dividend spectrum is being allocated in Europe, Asia and else where enabling extended geographical coverage and improved in-building performance [7].

References:

1. http://www.itu.int/net/pressoffice/press_releases/2010/40.aspx
2. Ericsson whitepaper, September 2013
3. Internet Trends D11 Conference, 5.29.2013, Mary Meeker, Liang Wu
4. http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html
5. Ericsson mobility report, On the pulse of the networked society, August 2013
6. Mobile Data Explosion How Mobile Service Providers Can Monetize the Growth in Mobile Data Through Value-Added Services, Cisco Internet Business Solutions Group (IBSG), May 2013
7. GSA - The Global mobile Suppliers Association (<http://www.gsacom.com/>)

Thank you for attention!