CommunicAsia 2015

The potential of the Satellite Industry in Asia

Deepak Mathur, Senior Vice-President, Commercial APAC & the Middle East

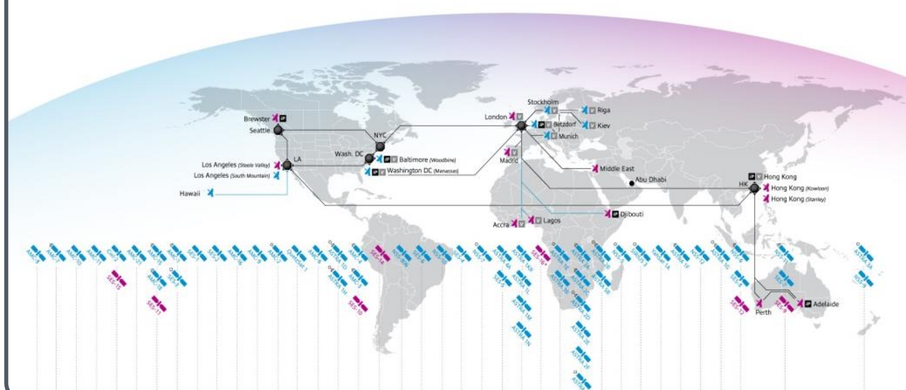
SES

Who we are: Worldwide & in Asia

SES worldwide

World-leading satellite operator and dynamic market leader

- Owns and operates one of the world's largest commercial satellite fleets
  - **Over 50 satellites** covering 99% of the globe
- Partner of choice for major global broadcasters, telcos, enterprises, governments and institutions
  - Technical **reach of 312 million households** in 2014
- Global reach, regional support
  - Over **1,230 employees** around the globe
  - **23 locations** worldwide



SES in Asia-Pacific

A leading video player and a strong base of quality data customers

China Satellite Communications Co. Ltd. | bharti | SingTel

Digicel group | pactel | SpeedCast | RELIANCE | TELIKOM PNG Always there!

#1 in DTH channels carried and subs reached — **>1,000 TV channels** — **44 million homes**

#1 in Indian VSAT — **150k sites in India alone**

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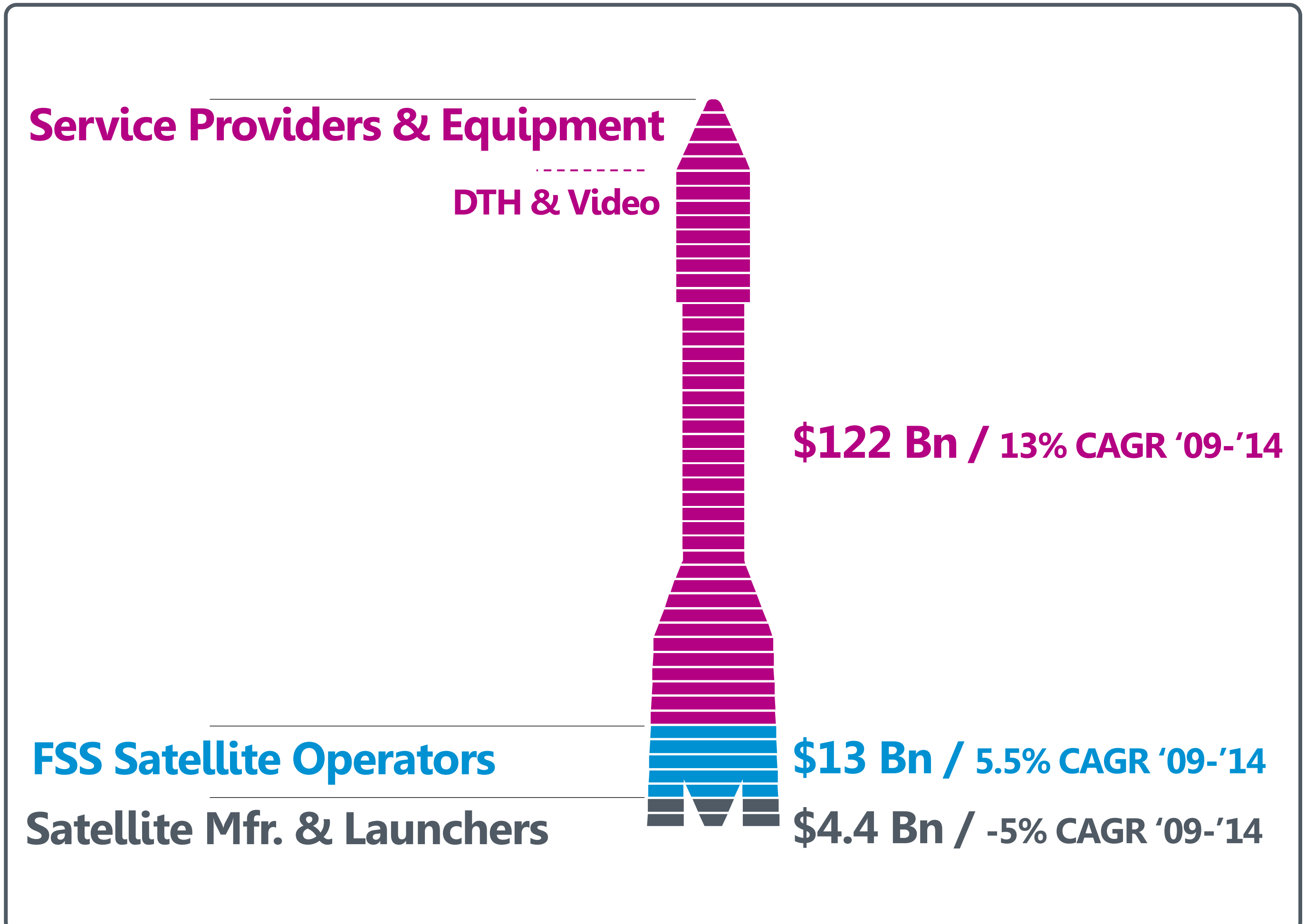
The Global Satellite Industry in transition

What does the SATCOM Sector Look Like?



- **450 Mio** DTH households consuming a total one zettabyte of video content yearly
- **4 Bn** viewers get their video directly (DTH) or indirectly (DTC/IPTV feed) through satellite : enabling a **$1,900 Bn** Global Media and Entertainment Industry
- **2.2 Mio** Satellite Broadband Subs
- **1.6 Mio** Enterprise and SME VSATs
- **28%** of all STBs sold in 2014 where satellite

Sources: Primary - Euroconsult, supplemental – NSR, Dataxis, Infonetics Research & SES Market Intelligence

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Satellite World in Transition

New Usages and Applications

- Non-linear media, OTT
- Mobile data and video
- Multi-play, mobility, disaster recovery
- M2M - Internet of Things
- Big data

New Ecosystems

- Very significant increase of complexity
- New players and segments

More Delivery Technologies

- Next Generation Access, FTTx
- LTE, LTE-A, WiFi, TV white space, 5G
- MEO S-HTS, GEO HTS
- LEO constellations, Small-Sats
- High Altitude Platforms

New Competitors

- Within and external to the satellite industry
- Trillion USD ICT arena
- New business models (“freemium”, cross-subsidization, big data monetization)
- New “converged” regulations

Opening New Opportunities

New Usages and Applications

- **88%** of Internet traffic will be video by 2018
- **$2,200 Bn** (6.3% CAGR) Global Media and Entertainment Industry by 2018
- **10,000** HD/4K satellite ch's by 2025
- **5,500** new satellite ch's by 2023

New Ecosystems

- **30x** In-flight broadband traffic by 2025
- **$4 Bn** incremental maritime revenues by 2023
- **$20.6 Bn** OTT revenues by 2019

More Delivery Technologies

- **$5.3 Bn** satellite backhaul by 2024
- Off-loading and backhauling, feeding towers and edges with linear video and data
- **120 Mio** new DTH households by 2018
- **36%** STB' revenue from satellite by 2018

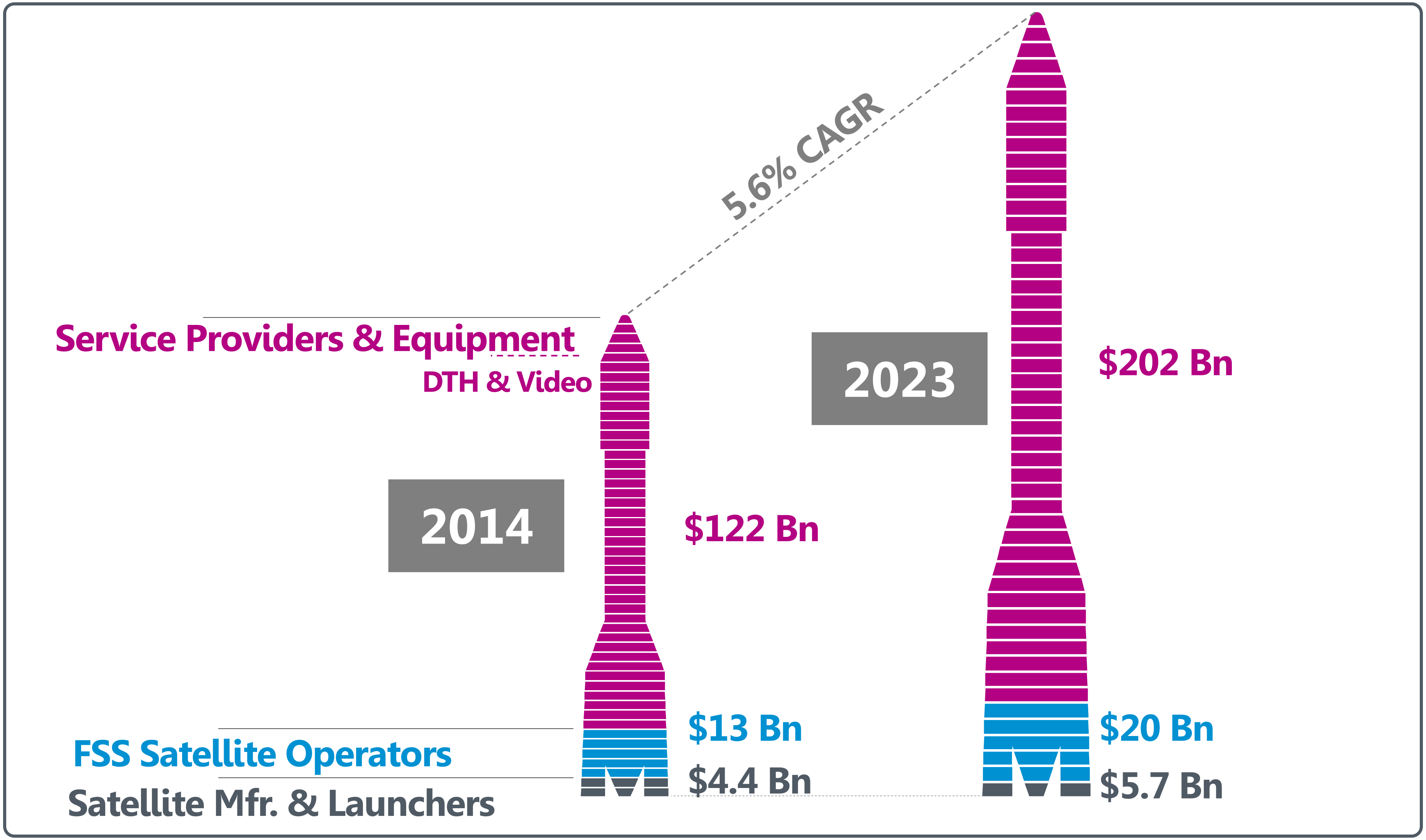
New Competitors

But serving all will require combining strengths of available technologies

- **4.2 Bn** People still offline by 2018
- **50 Bn** IoT devices by 2018

Sources: Euroconsult, NSR, Dataxis , Cisco, Infonetics Research, Ovum, McKinsey

2014 to 2023 perspective



Sources: Primary - Euroconsult, supplemental – NSR, Dataxis, IHS, Infonetics Research & SES Market Intelligence

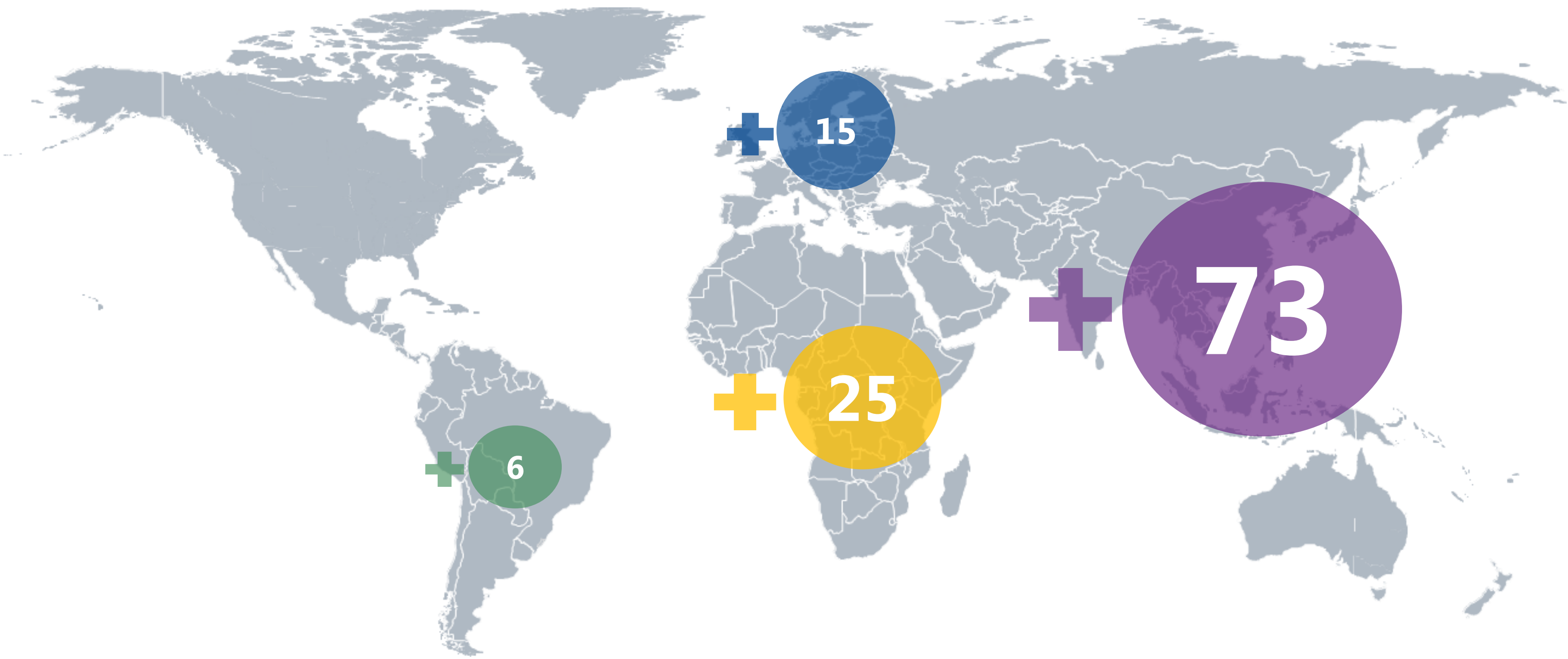
What’s in for Asia?

01 Video

Linear TV perspective

Sizing the Asian opportunity
DTH homes

Additional number of DTH households over the next 4 years [million]

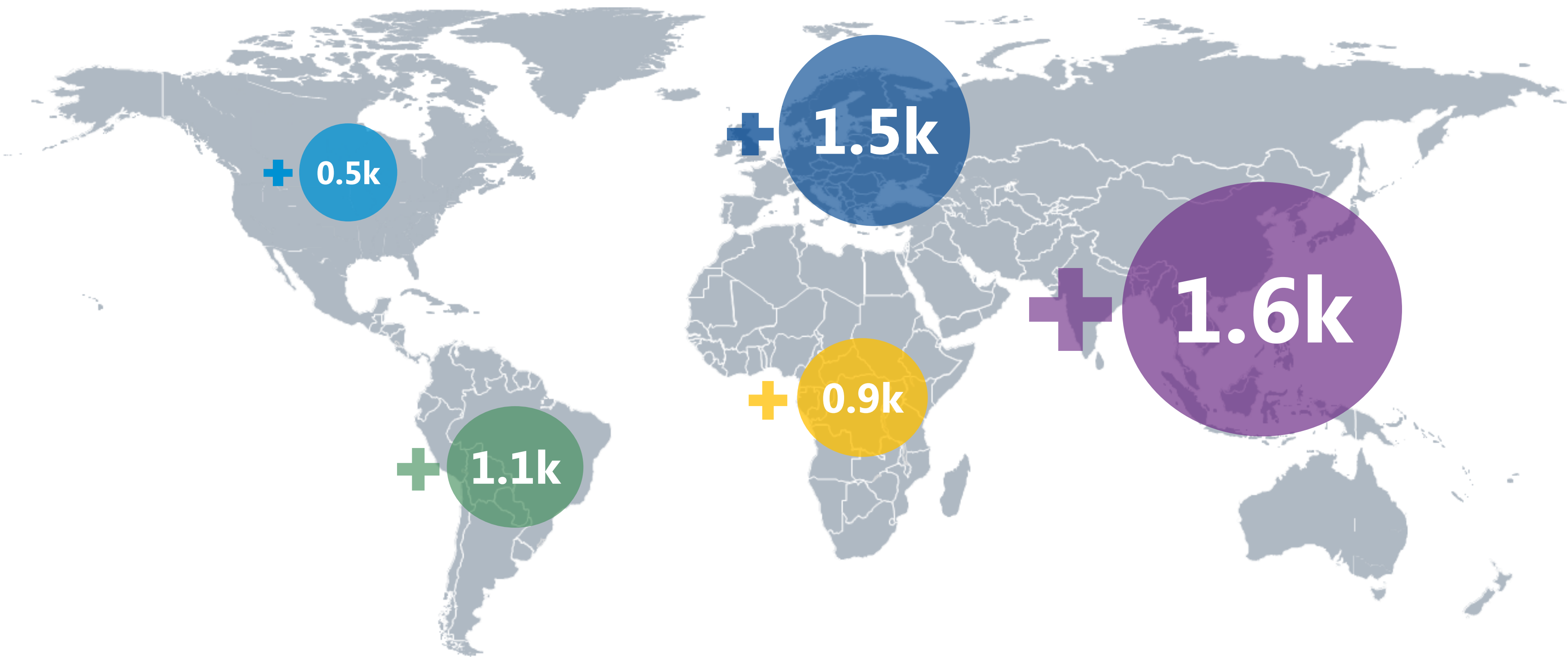


Source: Dataxis, 2015

Sizing the Asian opportunity

Satellite TV channels

Additional number of satellite channels over the next 4 years



Source: NSR, 2015

The upcoming quality revolution

Ultra HD

Consumer demand

2/3 of consumers want to have an UHD screen once they've seen it
Every 4th consumer would be ready to pay more for receiving UHD

Content

Major feature films & sports events are captured in UHD quality
Close to 800 feature films & TV shows were available in UHD by 2013

Technology & Consumer Equipment

<\$700 50"inch and <\$2,000 65"inch UHD TVs are now available (-40% drop in prices)
HEVC codec to facilitate storage & distribution

Forecasts

Asia will represent the largest market of UHD TV homes: 184m by 2025
Fragmentation of Asian markets will drive the # of UHD channels: 250 by 2025

02 Video

Non-linear TV perspective

From Households to **USERS!**

More **Screens**: Device penetration

	LAPTOPS	SMART PHONE	TABLET
WORLD	21%	39%	12%
ASIA	12%	34%	8%

Avg. # of screen per home (world)

8

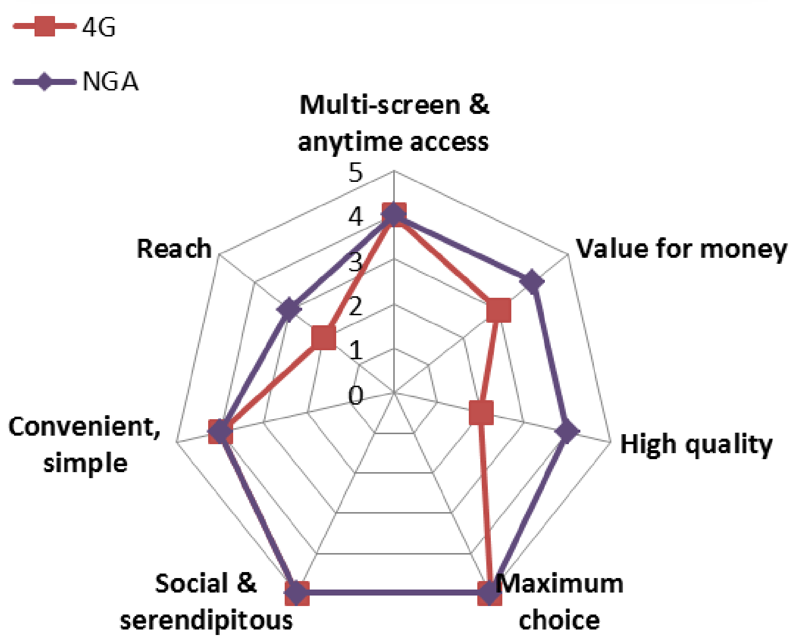
Source PWC, 2015

A distribution challenge

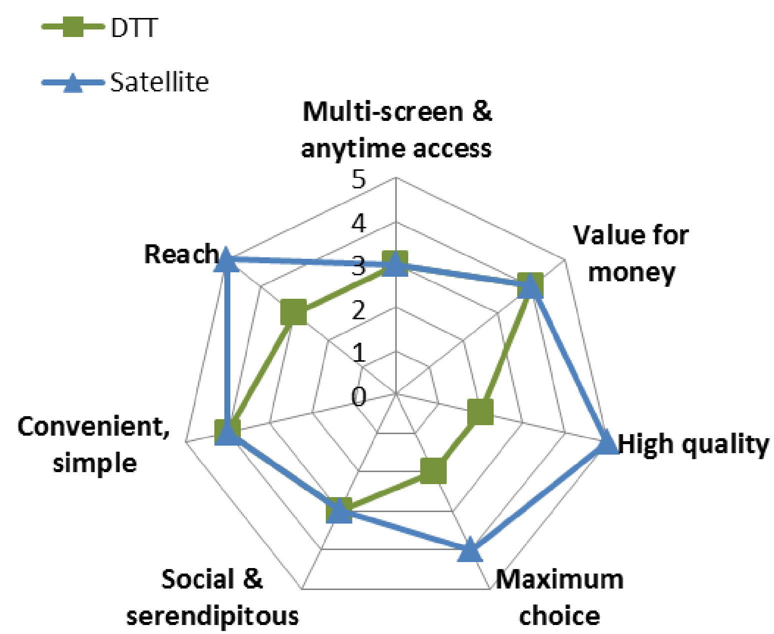
Technologies

Making this new video experience available to all consumers requires distribution networks capable of enabling and supporting all required video-related features

Broadband Technologies



Broadcast Technologies



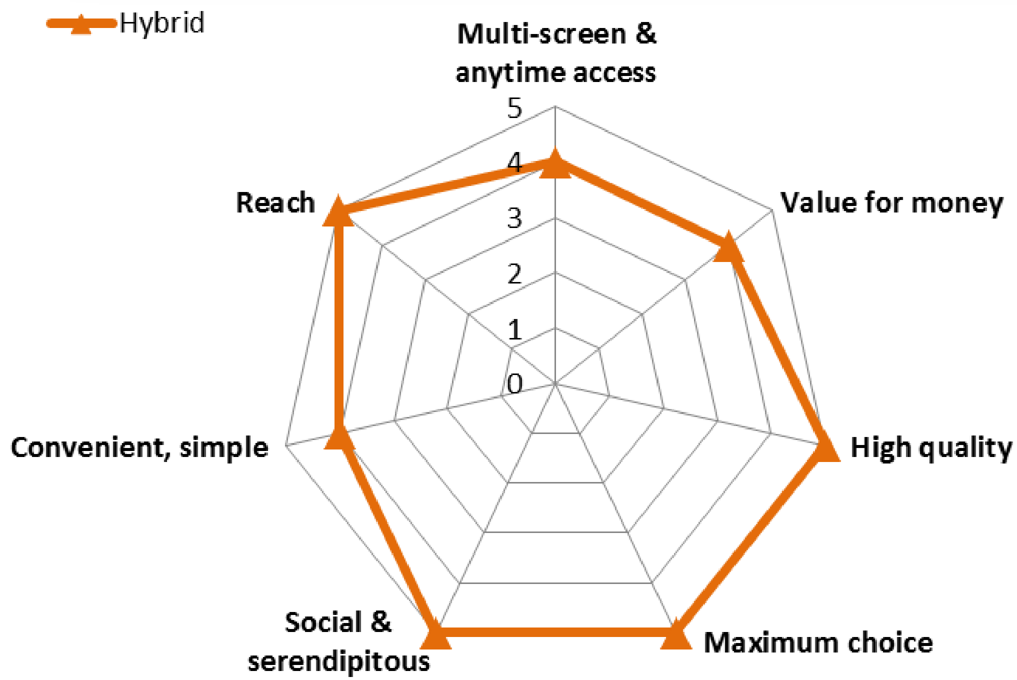
No single technology ticks all the boxes

A distribution challenge

Technologies

Making this new video experience available to all consumers requires distribution networks capable of enabling and supporting all required video-related features

Hybrid solution



Combining both worlds to deliver the best video experience!

A distribution challenge

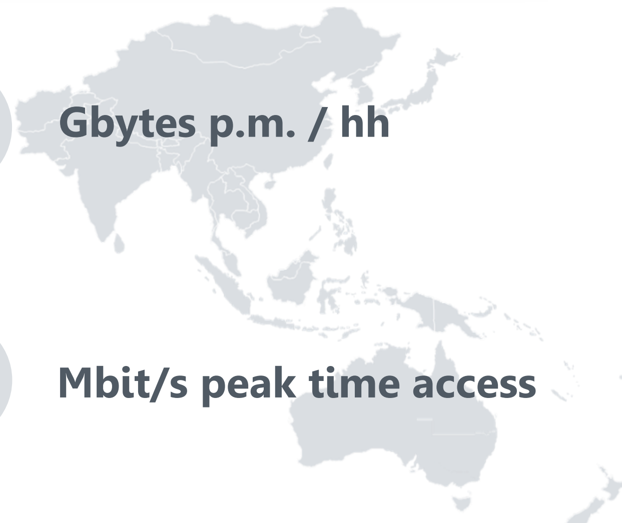
Technologies

Making this new video experience available to all consumers creates several challenges, **the toughest being distribution, both from a cost and reach perspective**

Requirements for an individualized HD-quality full OTT consumption vs **The current situation in Asia**

700 Gbytes p.m. / hh ≠ **24** Gbytes p.m. / hh

20 Mbit/s sustainable peak time access ≠ **4** Mbit/s peak time access



Significant upgrades would be required to go terrestrial only

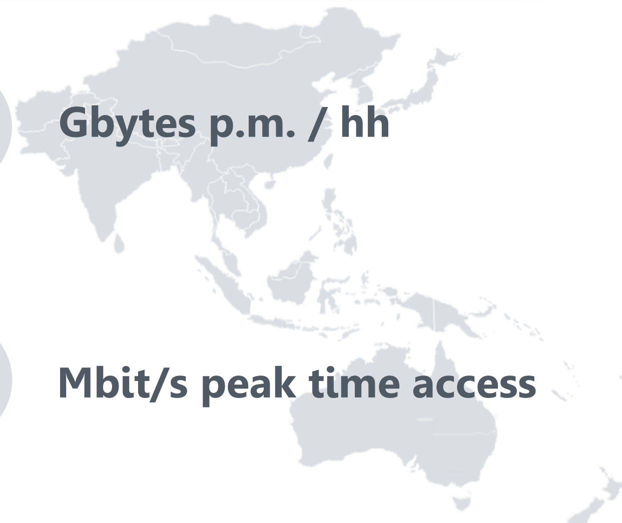
Source: Cisco, 2014; Akamai, 2014

A distribution challenge

Technologies

Making this new video experience available to all consumers creates several challenges,
the toughest being distribution, both from a cost and reach perspective

Requirements for an individualized HD-quality full OTT consumption	vs	The current situation in Asia
700 Gbytes p.m. / hh	**30x**	**24** Gbytes p.m. / hh
20 Mbit/s sustainable peak time access	**5x**	**4** Mbit/s peak time access



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A distribution challenge

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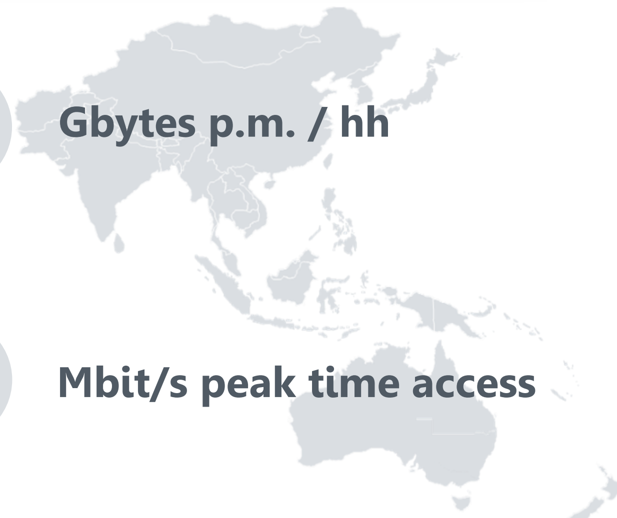
Requirements for an individualized HD-quality full OTT consumption	vs	The current situation in Asia
700 Gbytes p.m. / hh	**100x**	**24** Gbytes p.m. / hh
20 Mbit/s sustainable peak time access	**12x**	**4** Mbit/s peak time access



not evening mentioning full OTT consumption in Ultra HD…

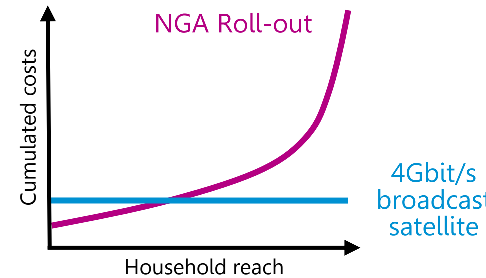
Source: Cisco, 2014; Akamai, 2014

A distribution solution

Hybrid satellite-terrestrial

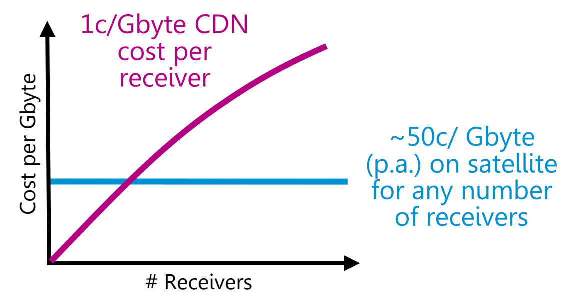
Reach

Exponential growth of NextGen access deployment costs vs unchanged incremental satellite user costs



Distribution Cost

Satellite to stream & push most popular content to a "home-CDN"
Terrestrial for interactivity, long tail & time-critical access



Joining forces to deliver a sustainable state-of-the-art experience

SES

03 Data

Enterprise & Mobility

Mobile Backhaul

Sizing the opportunity

Cellular Networks

SES

Mobile subs over the next 3 years

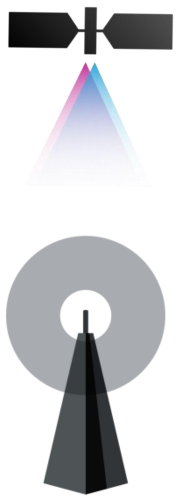
+300 million, reaching a total of **2bn**

However, today's wireless broadband penetration

=

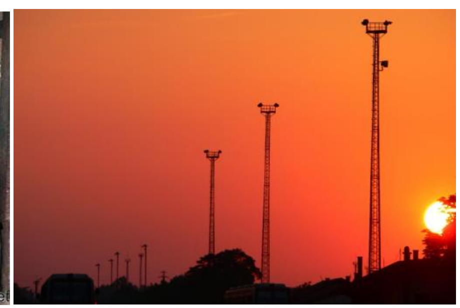
9%

Cellular Backhaul via Satellite



Drivers / Opportunities

- Increasing mobile penetration
- Take-up of 3G/4G services
- MNOs deploy 2G and 3G to rural areas to maximize coverage and comply with USO mandates
- Regulatory opening in certain markets boosting market growth in Asia

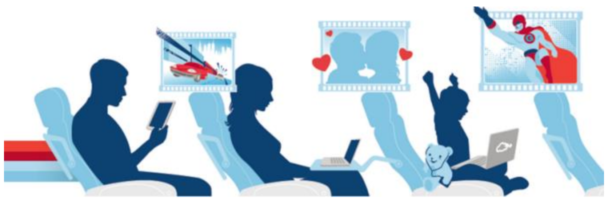


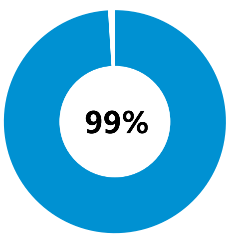
Mobility

Mobility services on the rise

Aeronautical: “Frontier Application”

Over 80% of airline passengers carry a smart device





of those passengers turn it on during the flight

Drivers / Opportunities

- Massive increase in smartphones & tablets
- Increased air-passenger travel
- Mobile apps & online video
- Advanced Antenna technology
- Optimized satellite design

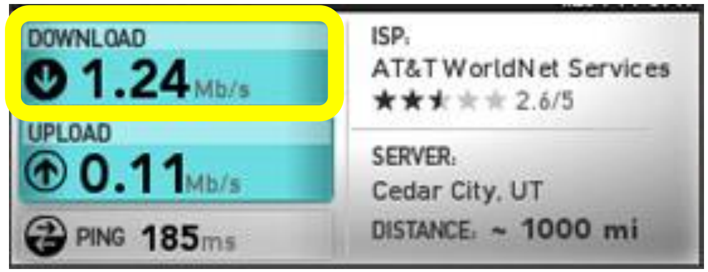
Gogo WiFi’s maiden flight

2009

Gogo's WiFi service

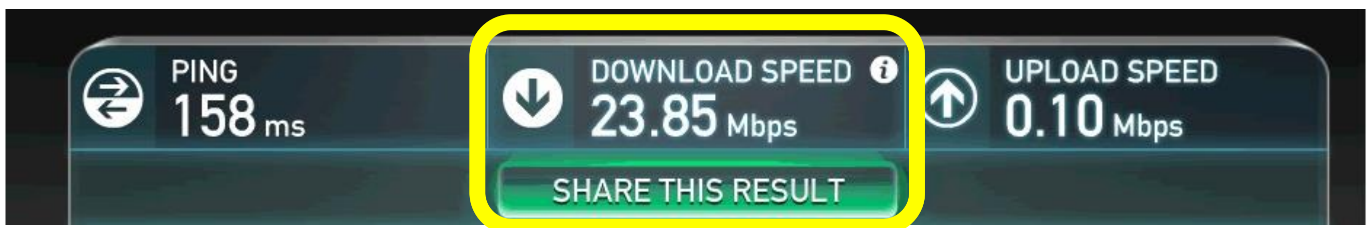
2009 vs 2015

2009



2015

x20

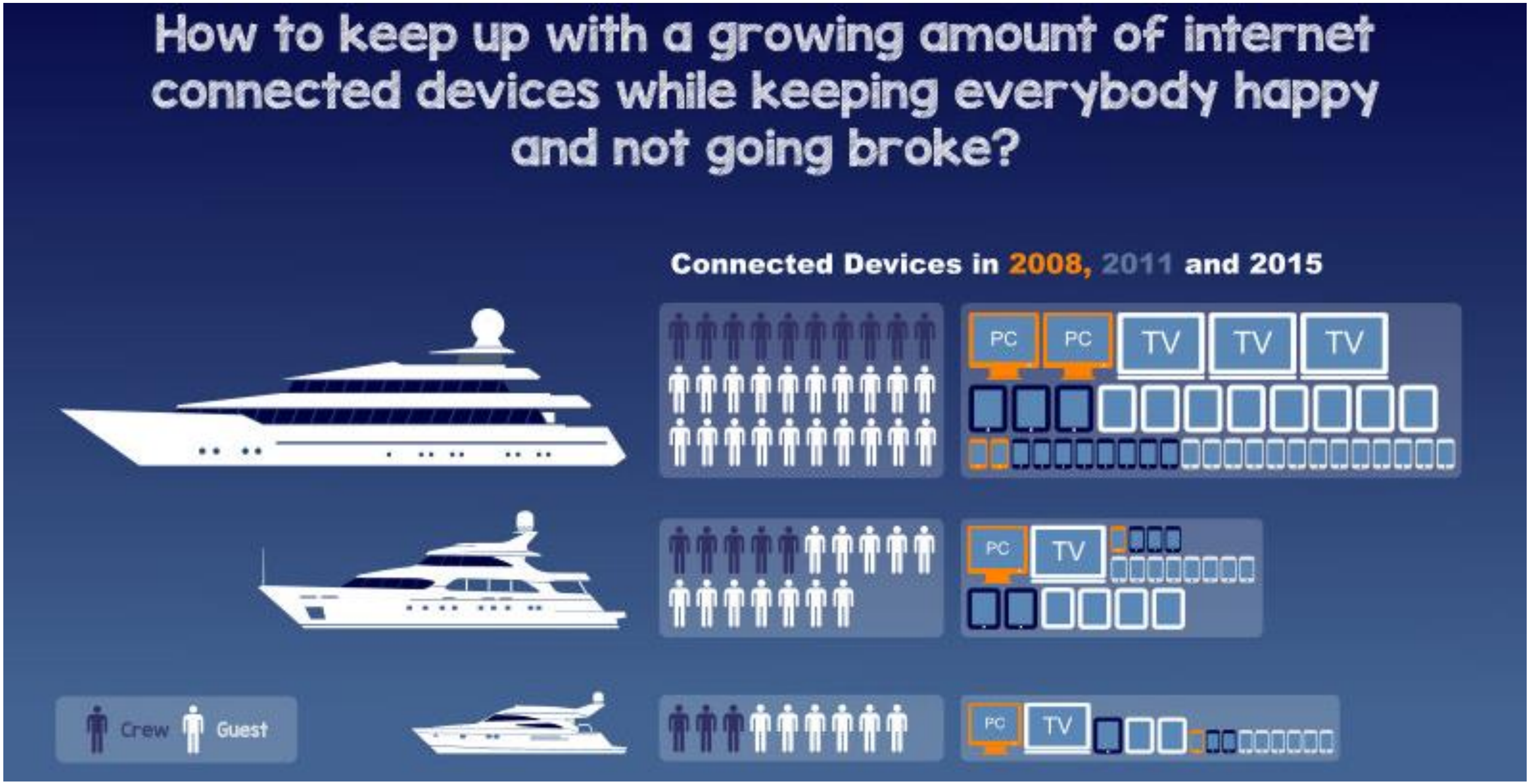


2021

x???

Mobility services on the rise

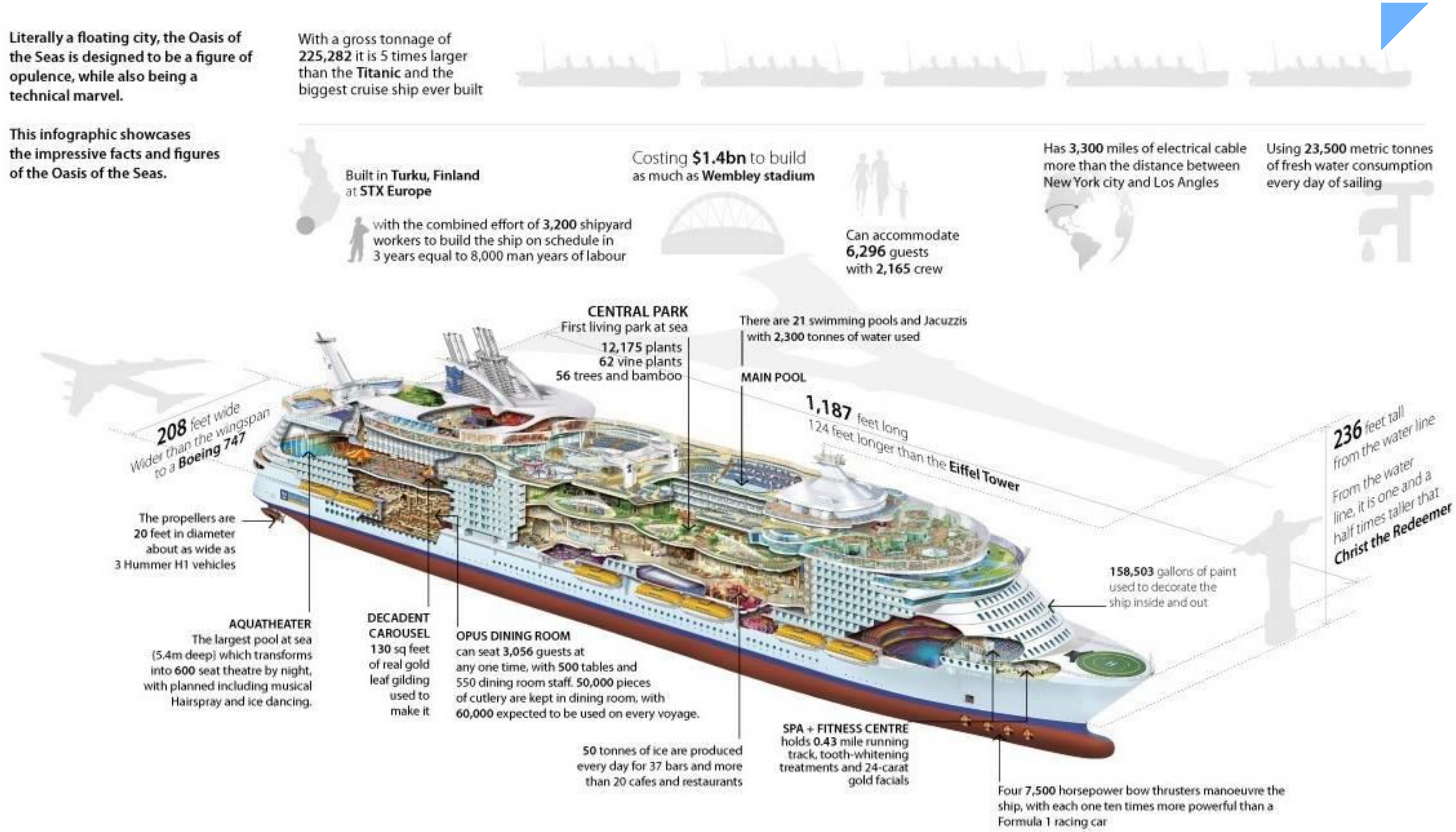
Maritime



Mobility services on the rise

Maritime: Cruise ships

2010 | 10 Mbps | 40 Mbps | up to 1.3Gbps | 2015



What enables growth?

Drivers & Enablers

A LOT More Devices

Demand-Side

Everything to the Cloud

Supply-Side

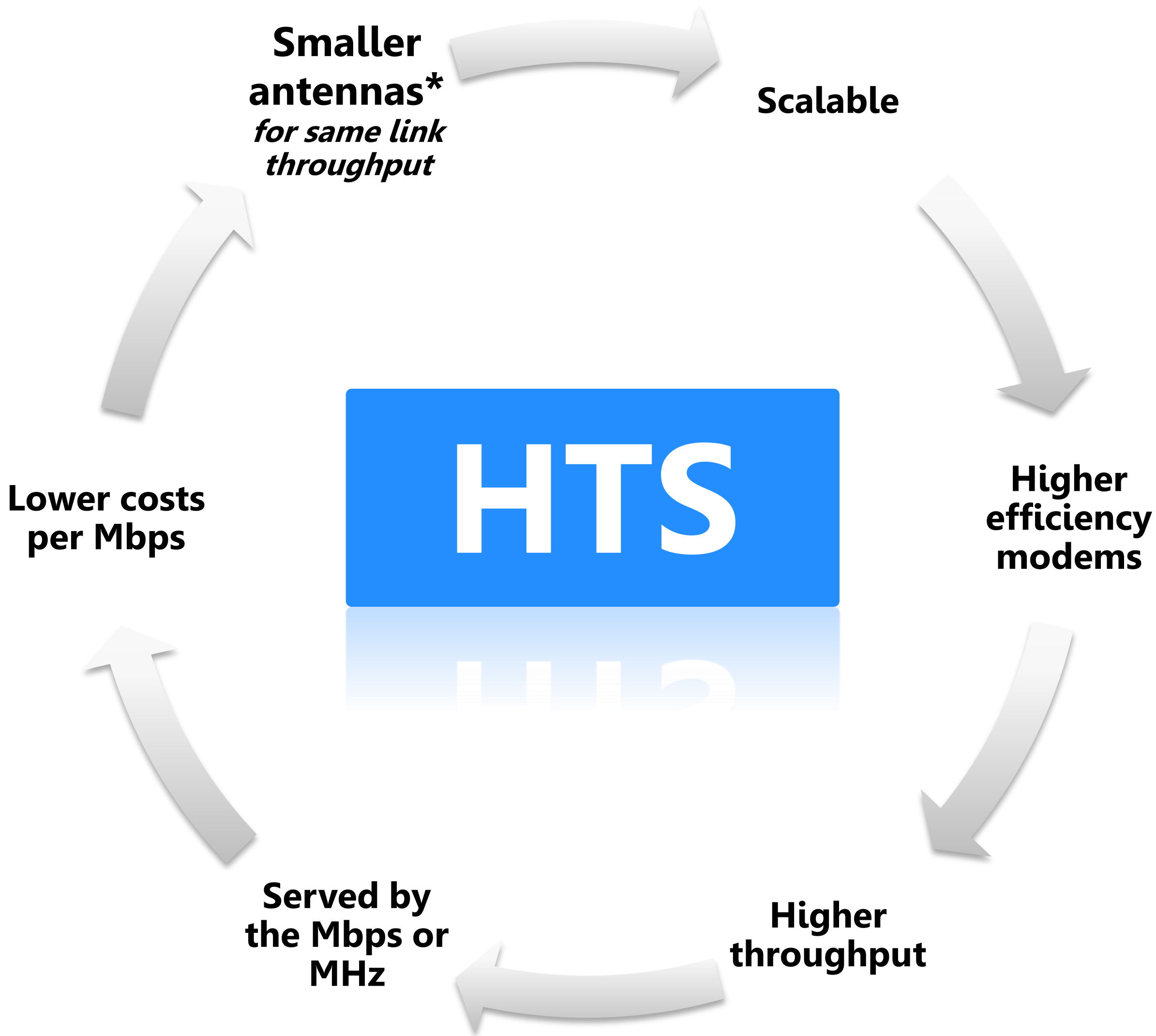
Better Ground Technology

Better Satellite Technology

Hybrid Networks

Shaped Beams	GEO HTS	MEO HTS

The Critical Role of HTS as an Enabler



But most importantly….

Hybrid Networks

UNLOCK NEW BUSINESS MODELS

Thank you