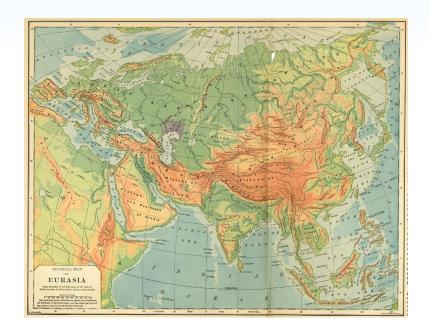


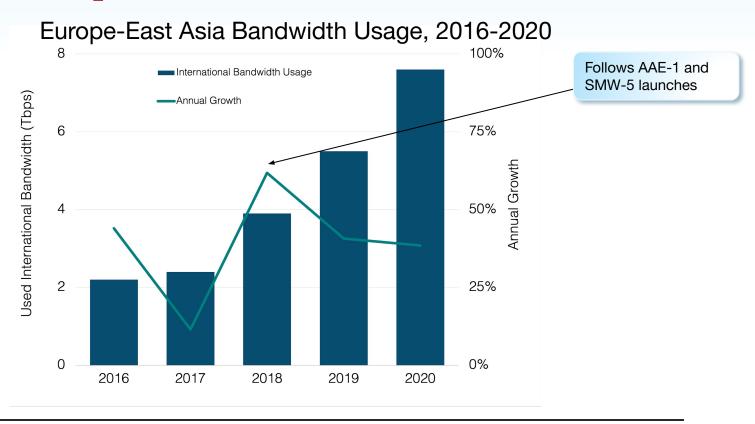
What we'll cover

- Demand growth
- The impact of content providers
- Subsea route capacity development
- Network pricing trends





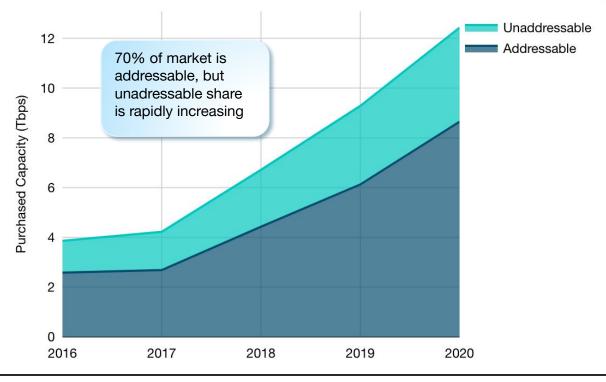
Demand growth peaks in 2018



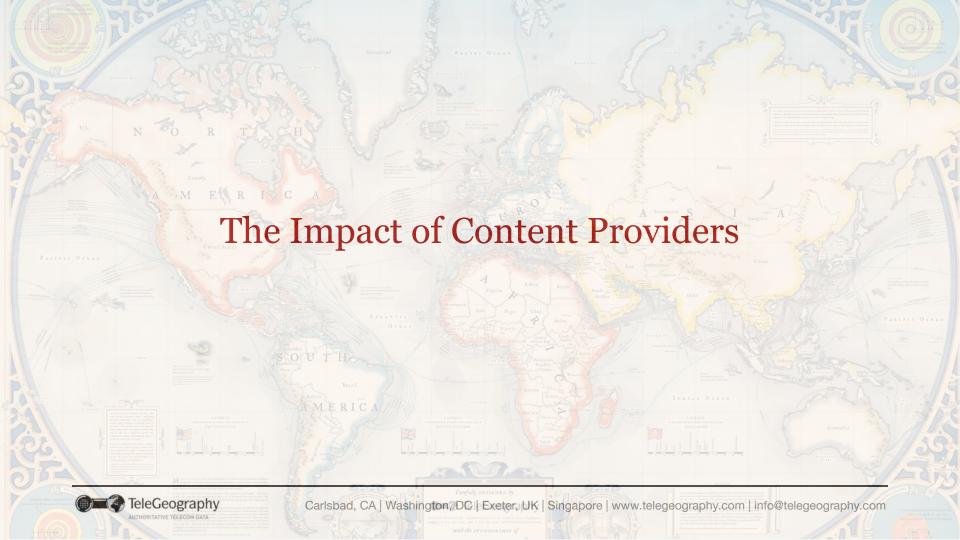


Demand is largely in addressable market but shifting

Addressable Europe-East Asia Capacity, 2020

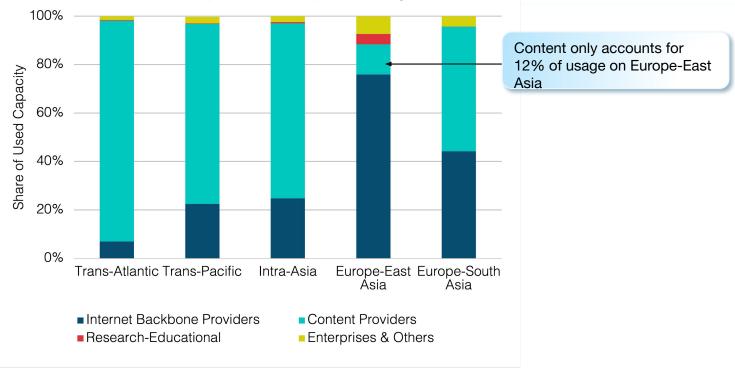






Content dominates across *most* routes

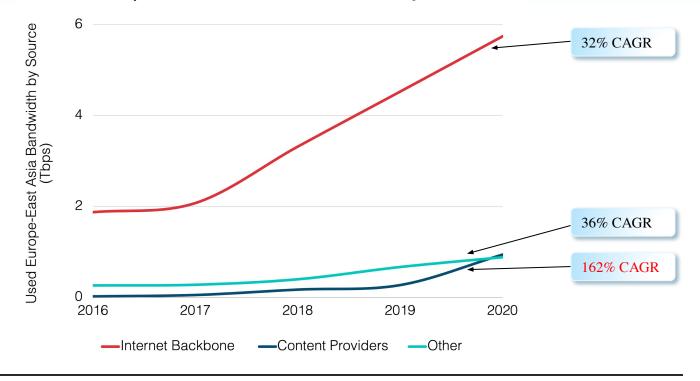
Share of Used Bandwidth by Category for Major Routes, 2020





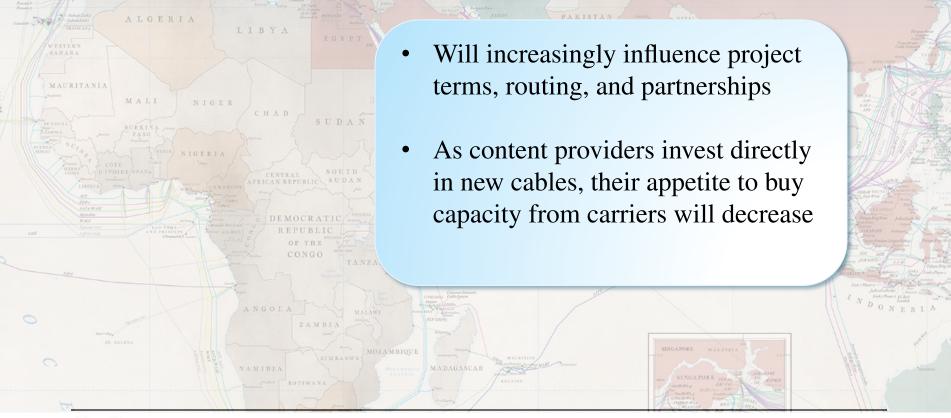
...but they're quickly increasing capacity on the route

Growth of Used Europe-East Asia Bandwidth by Source, CAGR 2016-20

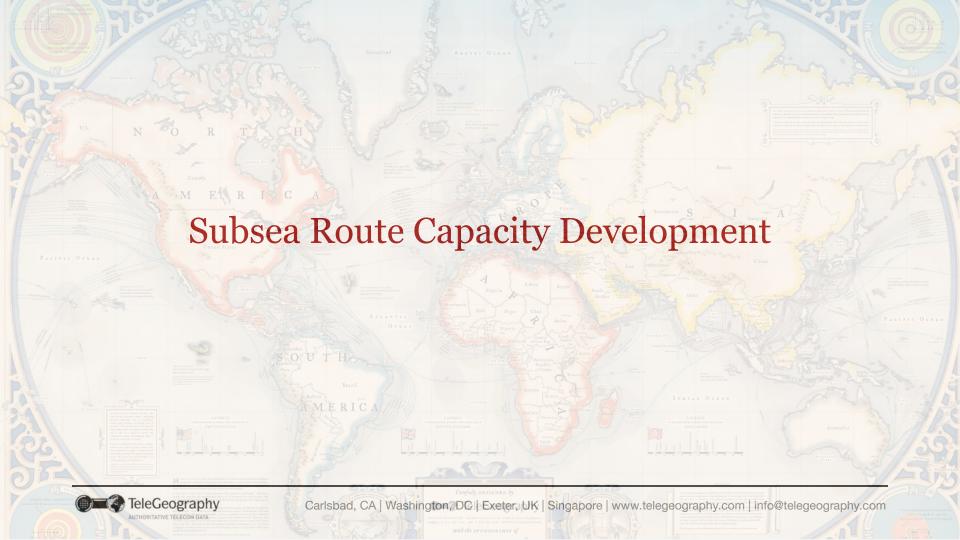




How will content players affect the route?

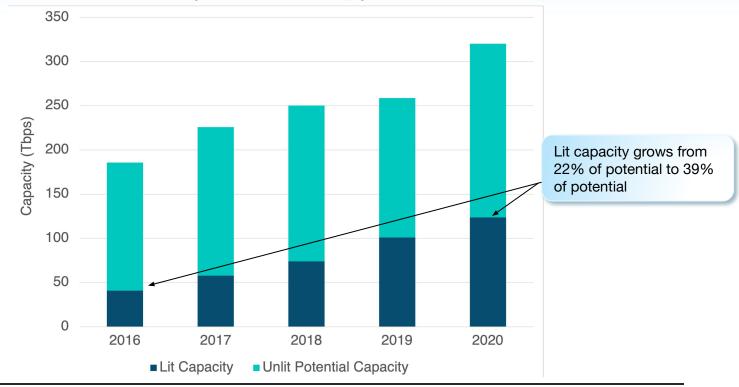






Lit capacity growing rapidly

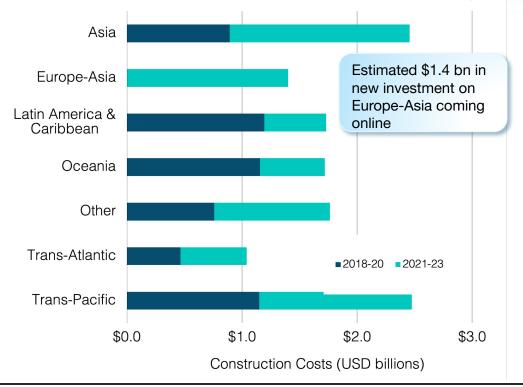
Lit and Potential Europe-Asia via Egypt Bandwidth, 2020





New investment in the pipeline

Construction Cost of New Submarine Cables Entering Service by Region, 2018-23





What comes next on Europe-Asia routes?

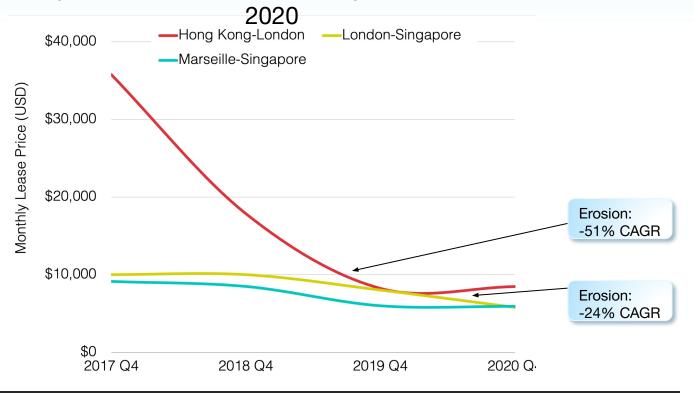
- PEACE Cable and Africa-1
 - Both will span Marseille to Pakistan with branches to east Africa
- · Blue Raman
 - Will ultimately span Italy-India, bypassing Egypt
- IEX
 - Marseille to India...then on to Singapore with IAX
- SMW6?
 - Still in talks
- Arctic Connect surveys underway
 - Norway-Russia-Japan
- Trans-Caspian Fiber Optic Cables
 - Trying to spur development of a diverse route skirting south of Russia





Route pricing gaining competitiveness

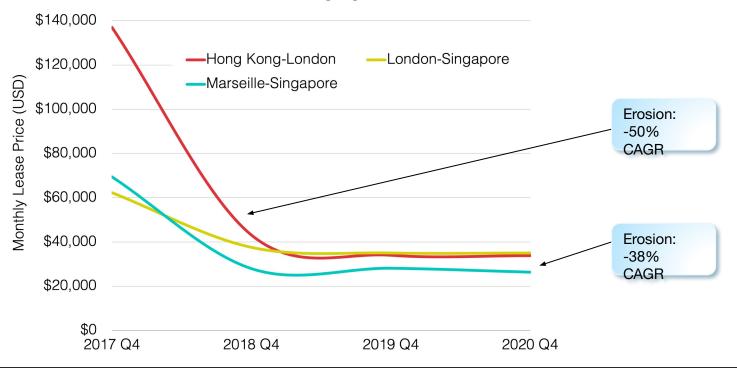
Weighted Median Europe-East Asia Subsea 10 Gbps Wavelength Prices, Q4 2017-Q4





Route pricing gaining competitiveness

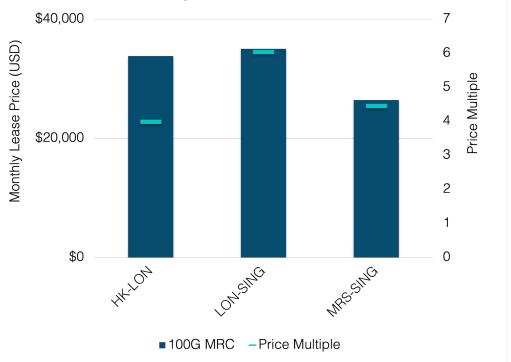
Weighted Median Europe-East Asia Subsea 100 Gbps Wavelength Prices, Q4 2017-Q4 2020





100G pricing stagnates as 10G continues to fall

Weighted Median Subsea 100 Gbps Wavelength Prices and Price Multiples





A few concluding thoughts

- Steady demand for more lit capacity on the Europe-Asia route
- Carriers continue to dominate demand

Route development is becoming increasingly diverse



