

Global Bandwidth & IP Pricing Trends

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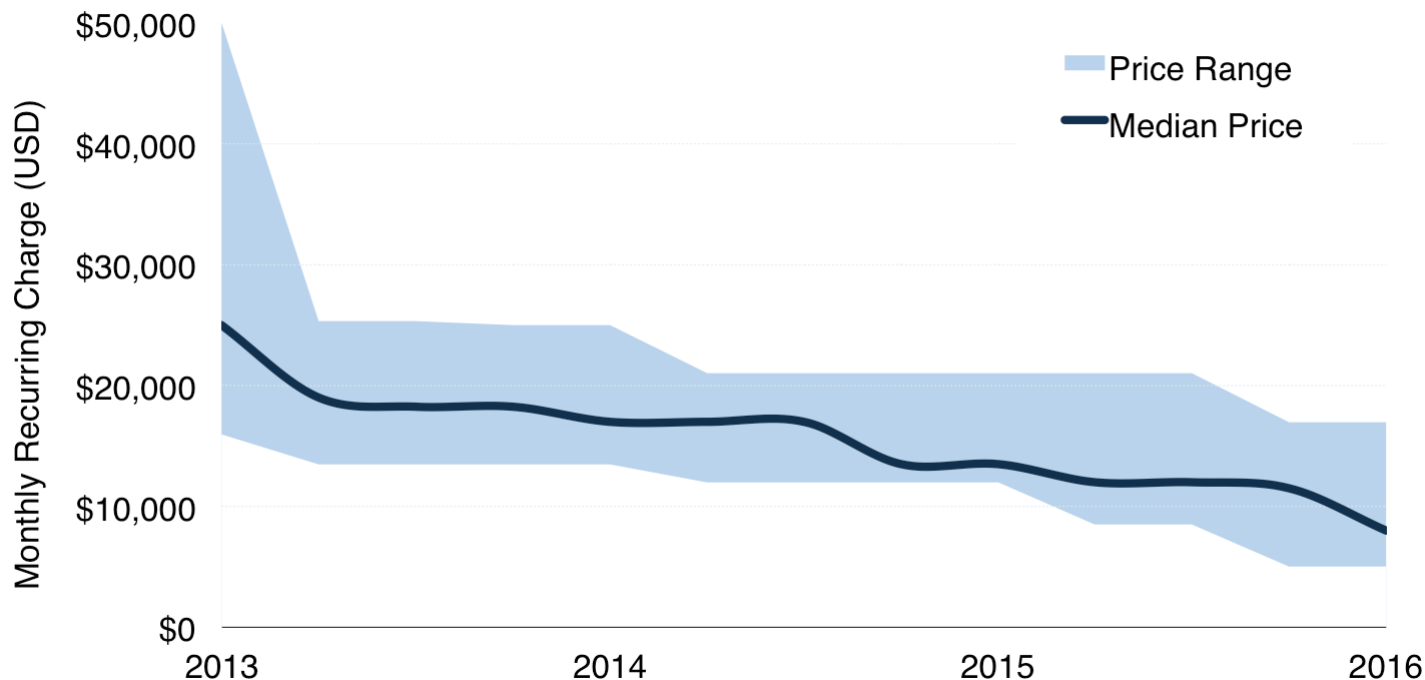
Top Pricing Trends of 2016

- What you pay, depends on how you buy
- Global bandwidth prices are converging
- Subsea capacity isn't always your largest cost
- 100G is the new 10G
- As transport goes, transit follows

What You Pay, Depends on How You Buy

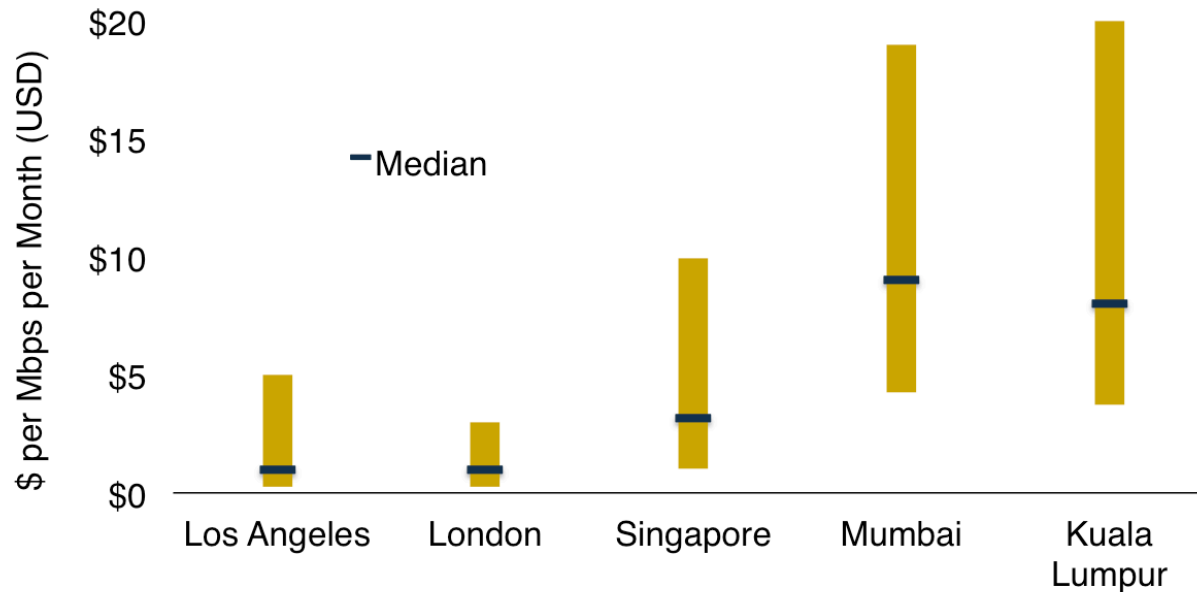
Prices Vary in the Sales Channel

Median & Price Range for 10 Gbps Wavelength MRC on Los Angeles-Tokyo, 2013-16



For Transit Too

Median & Price Range for 10 GigE IP Transit in Key Cities, 2016



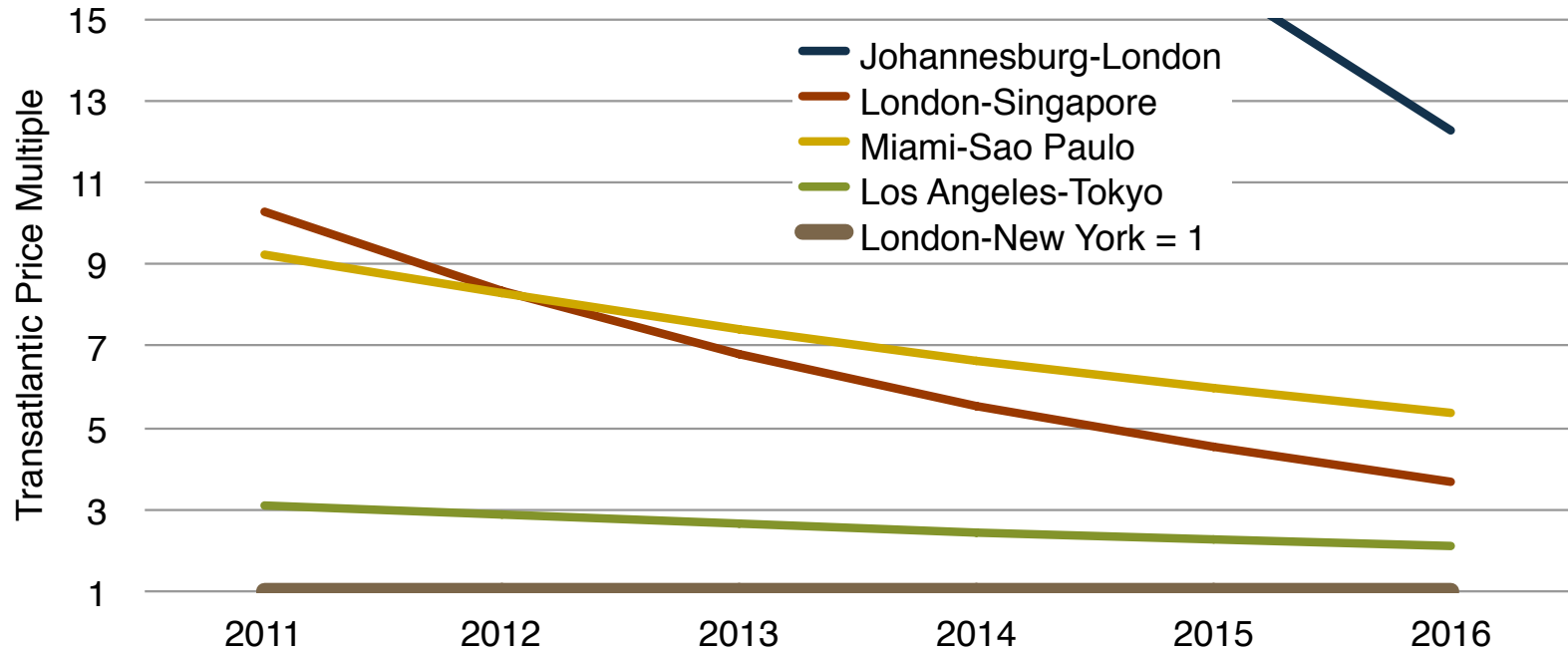
Global Bandwidth Prices are Converging

Geographic Differences Do Persist....



But Global Prices Are Converging

Price Relative to London–New York, 2011–2016



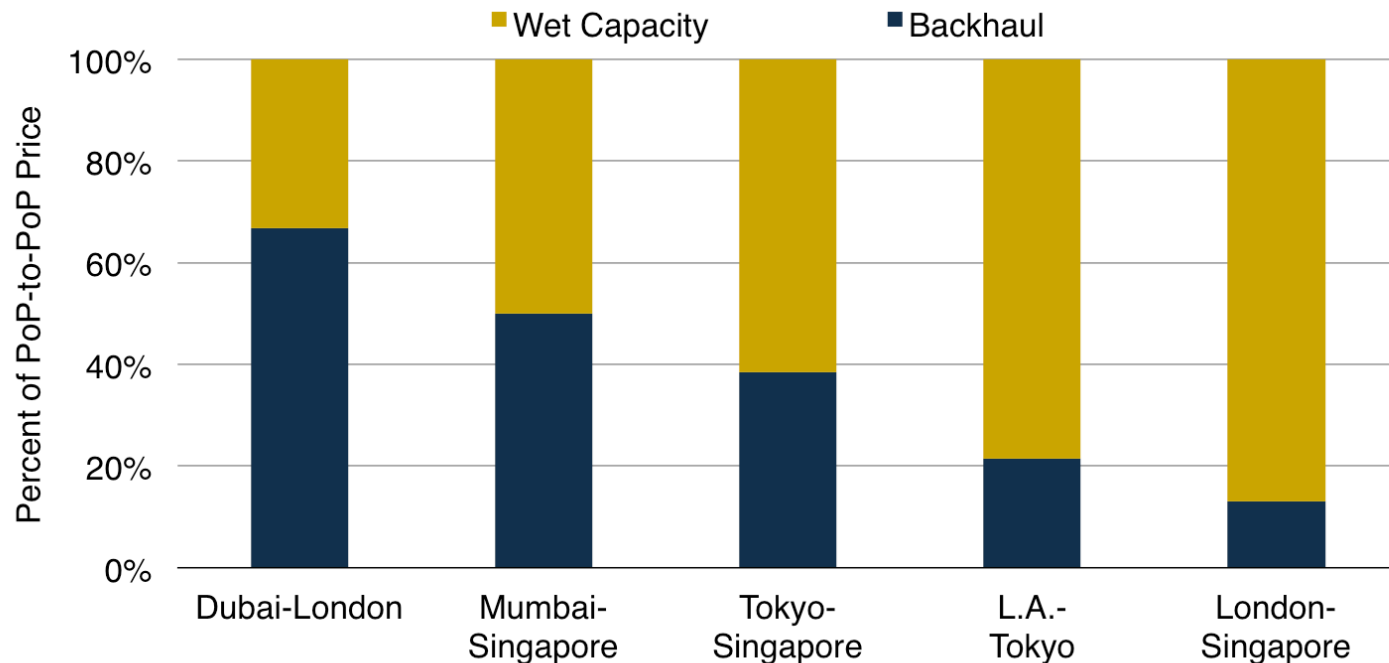
Why Have Prices Converged?

- Prices on high growth routes have declined more than established routes.
- More cables coming into service on underdeveloped routes fuel price erosion.
- Technology advancements lower unit costs.

Subsea Capacity isn't Always Your
Biggest Cost

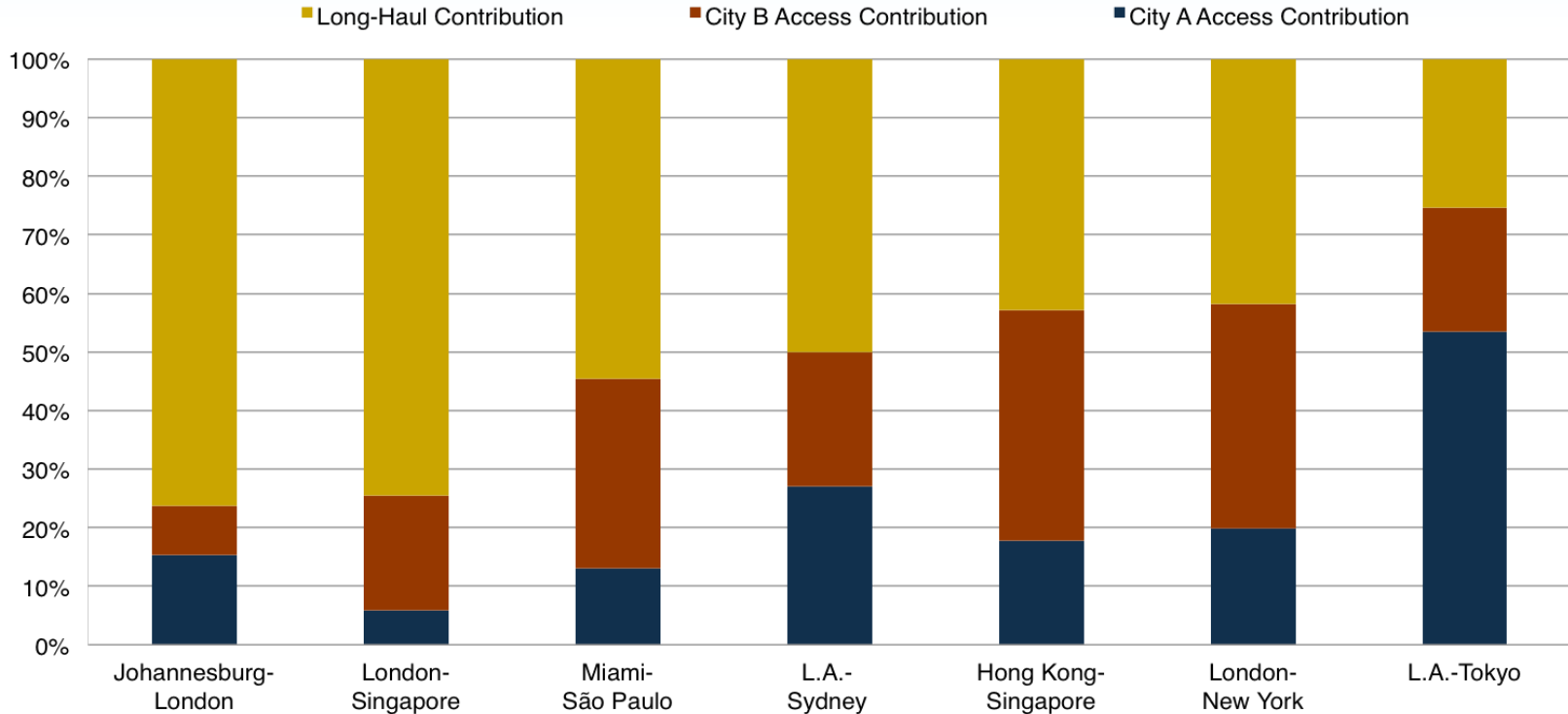
Backhaul Contributes to Cost

PoP-to-PoP 10 Gbps Price Components, 2016

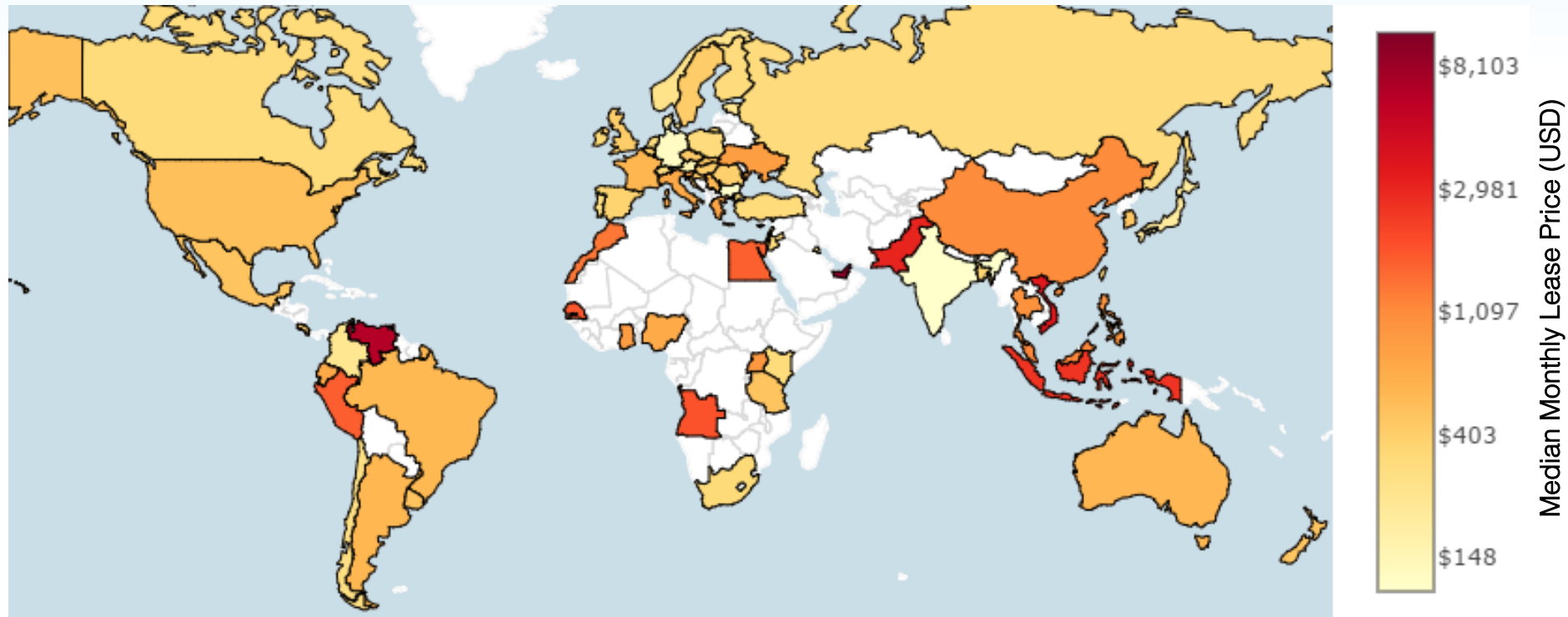


Local Access Can Contribute More

End-to-End T1/E-1 Leased Line Connection Cost Components, 2016



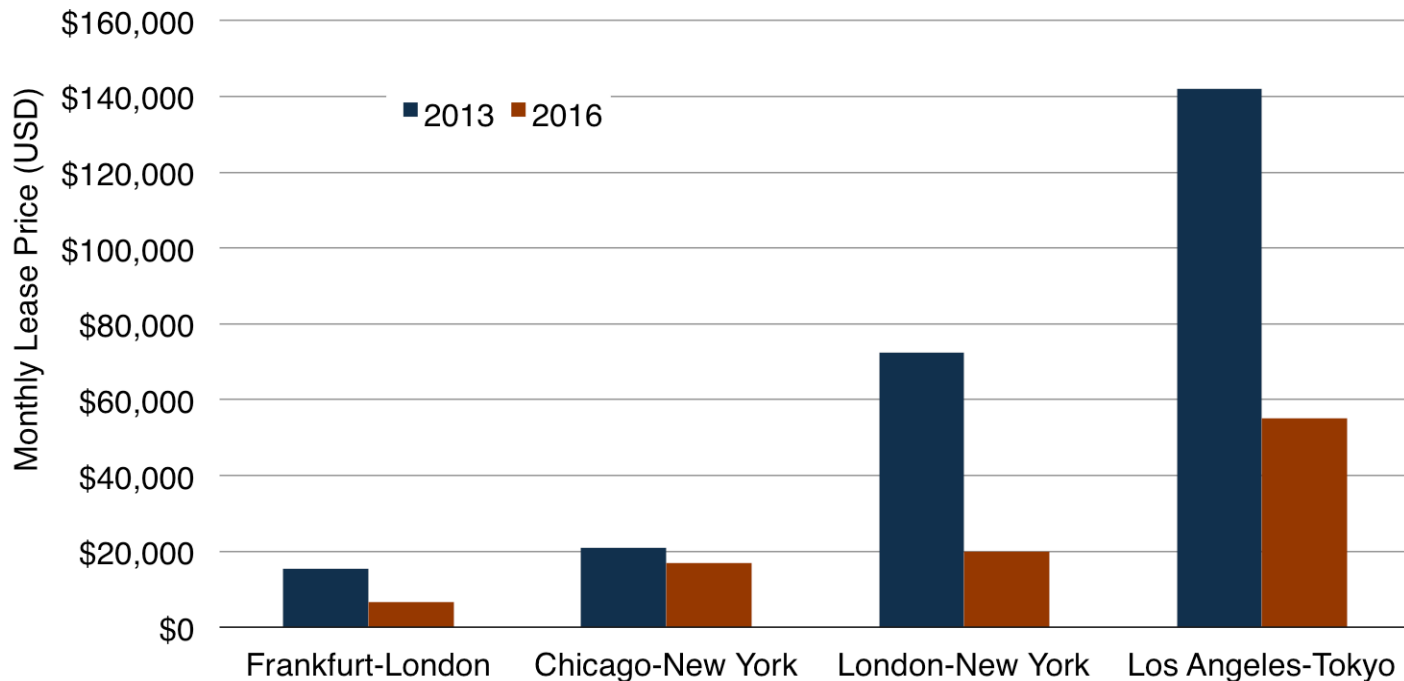
10 Mbps Local Access, 0-5 Km, Country Median Price, H2 2015



100G is the New 10G

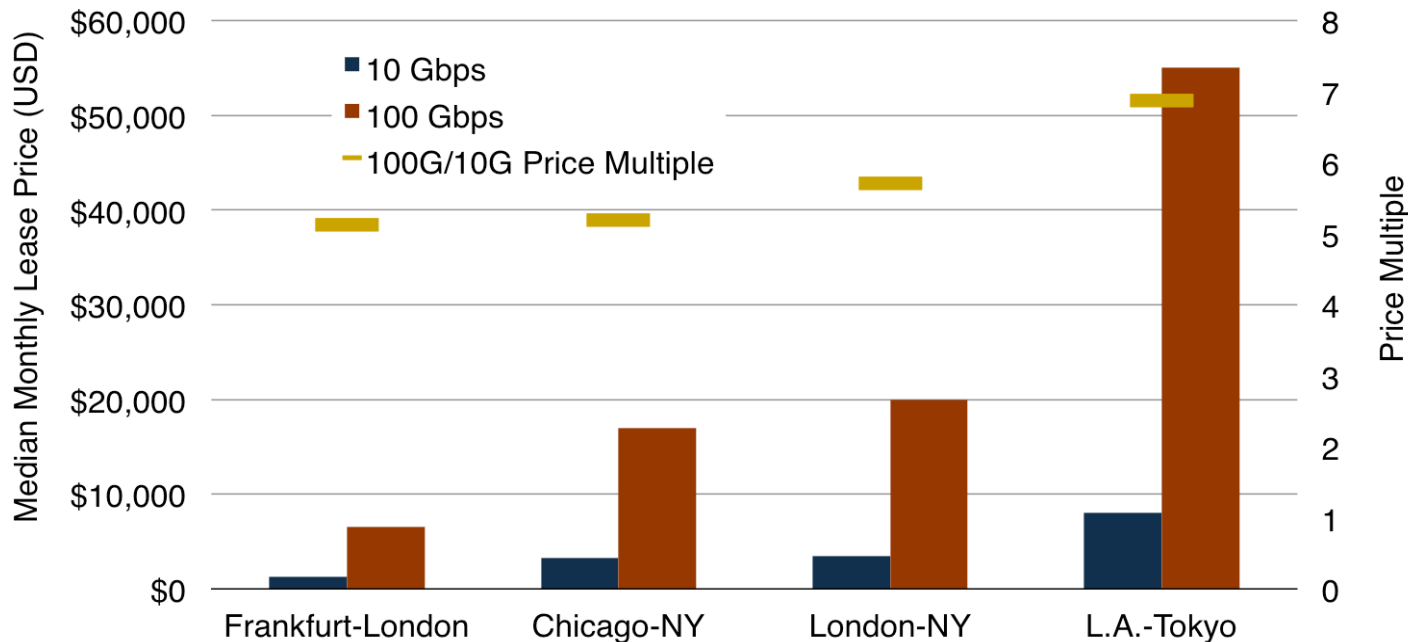
100G Prices are Falling

Median 100 Gbps Prices on Key International Routes, 2013-16



Providing More Value per Unit Cost

Median 10 Gbps and 100 Gbps Prices, 2016



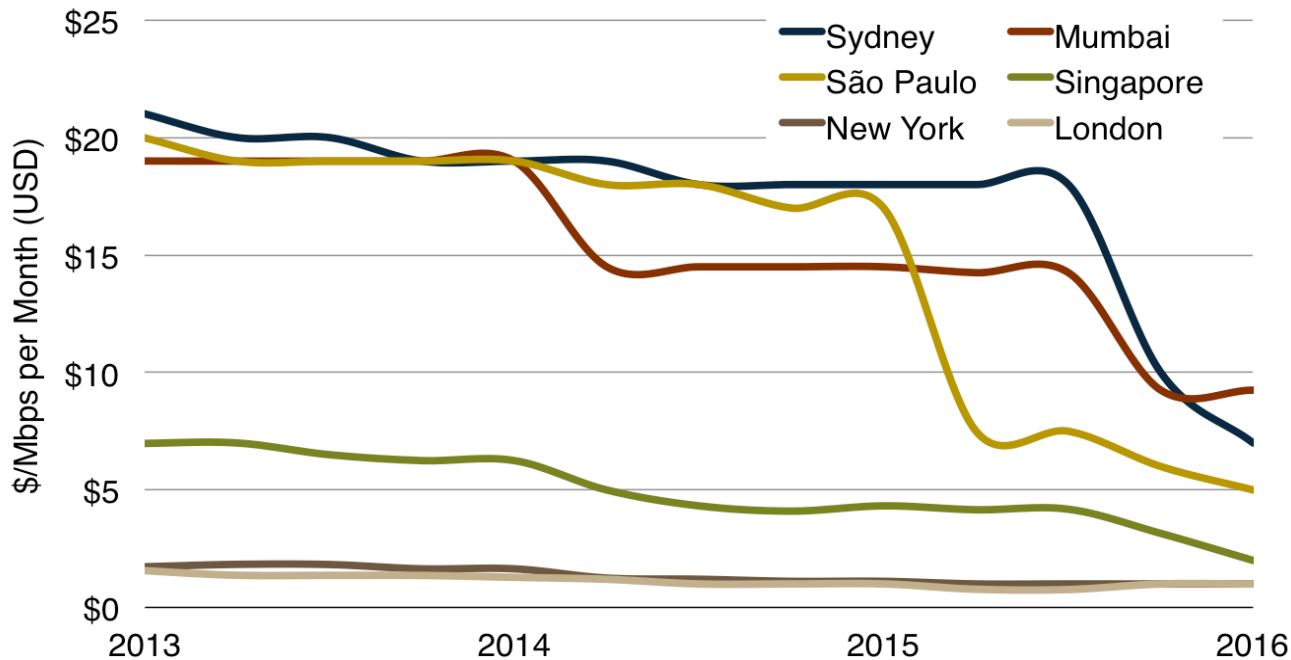
As Transport Goes, Transit Follows

10 GigE Global IP Transit Prices Vary



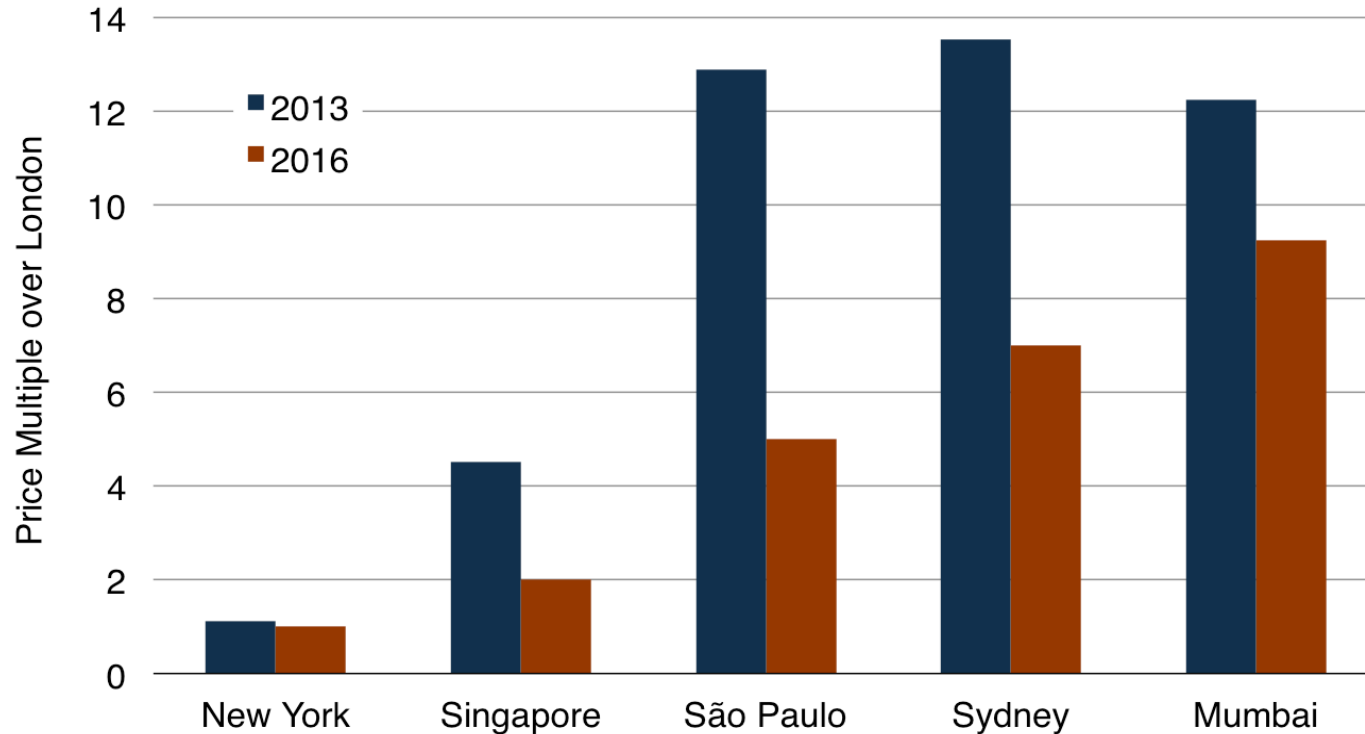
IP Transit Prices Are Still Falling

Median 10 GigE IP Transit Prices in Key Cities, 2013-16



Some Convergence Amongst Hubs

10 GigE IP Transit Prices Relative to London, 2013-16



Outlook: Bandwidth Market Anxiety

- Content buyers adamantly not reselling
 - But how do their investments affect the market?
- Incentive to buy big and buy early
 - Helps secure lowest price, but can lead to excess capacity
 - Risk of distressed selling “below cost”
- How to sustain abundant, cheap capacity *and* ROI?

Outlook: Bandwidth Market Optimism

- Demand growth is as reliable as price erosion
 - More content & new applications consuming more bandwidth
 - Growing penetration and bandwidth per user
 - Emerging markets opportunity for content and carrier
 - Lowest layers of the network benefit
- New technology, such as SDN, will enable more agile commercial models