The Flat Earth Theory: Convergence of Prices Around the World

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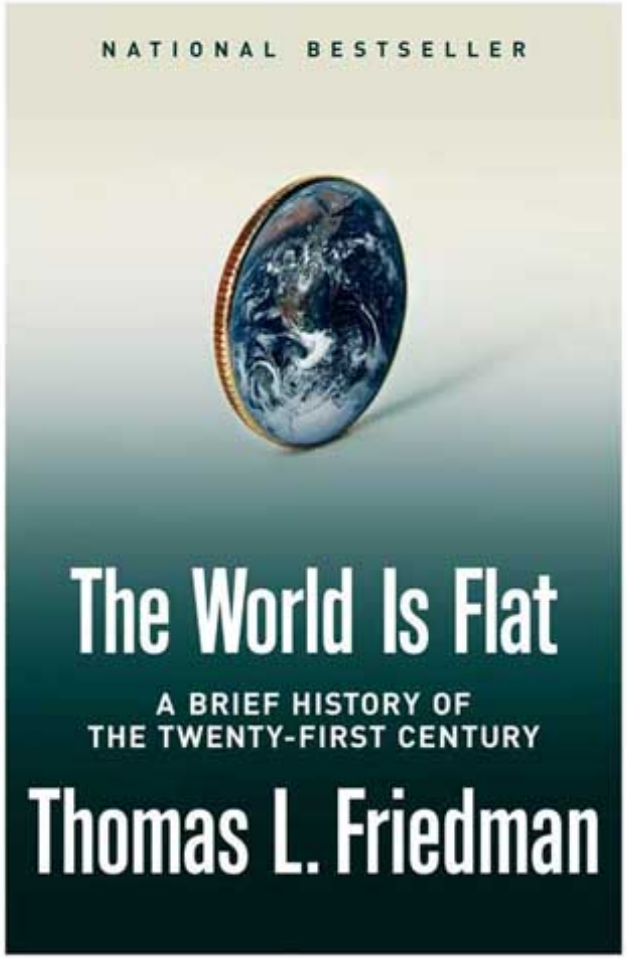
The Original Flat Earth Theory

The New Flat Earth Theory



The Flat Earth Theory and Global Prices

- Prices of transport and IP transit are constantly declining.
- Have prices become “flat” (similar) across major world regions and routes?
- If so, why may this be happening?
- What are the prospects for more “flattening”?

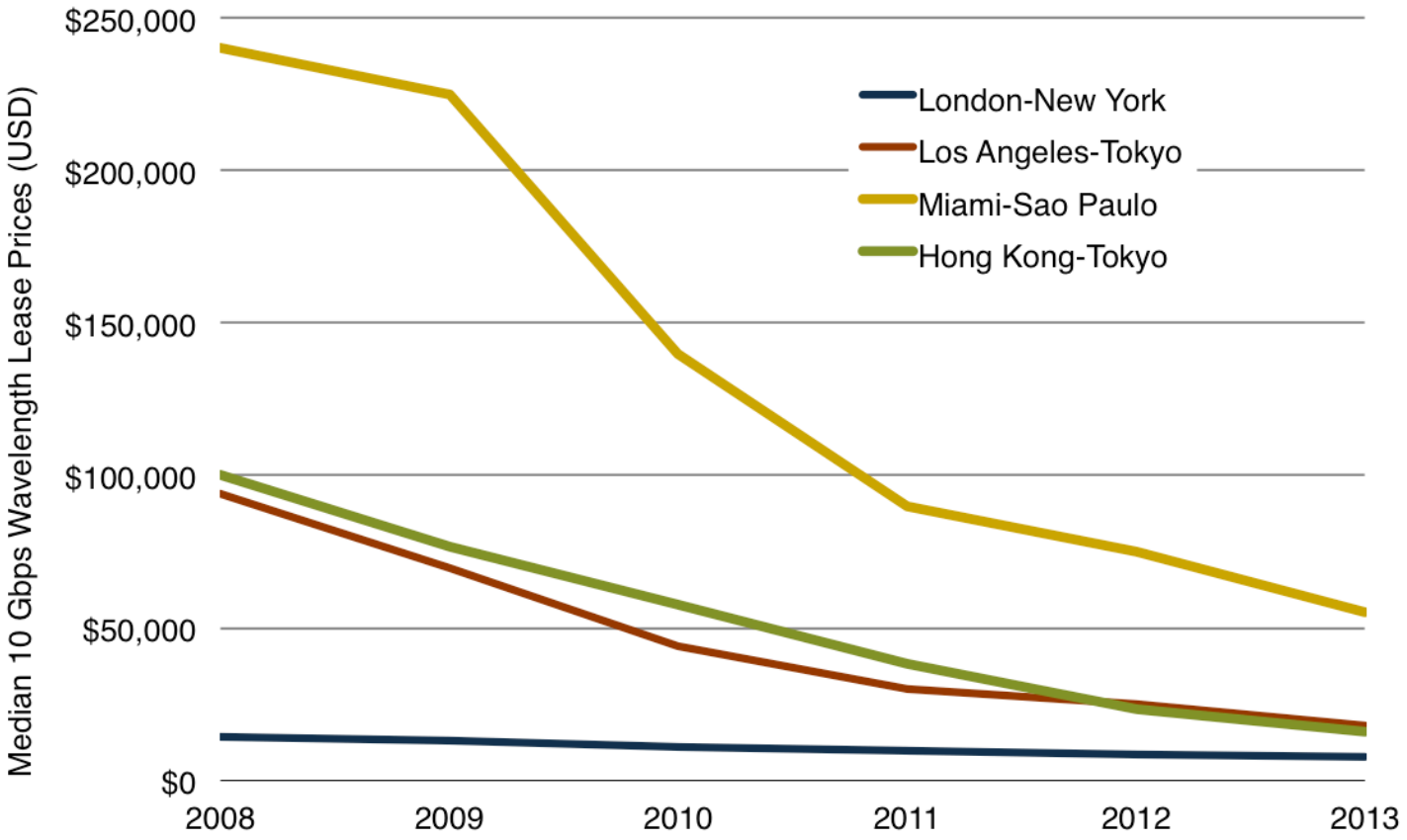
Words Of Caution

- TeleGeography has collected pricing data anonymously from operators around the world since 2002.
- Prices shown here are *median* prices for a *single* unit for a *one*-year term.
  - A broad range of prices exists in the market.
  - Substantial discounts exist for higher volumes and longer terms.
  - Discounts also exist depending on *who* you are (what is the broader commercial relationship and value of the customer).

TRANSPORT

Prices Perpetually Decline

Median Monthly 10 Gbps Wavelength Lease Price, 2008-2013



Factors that Explain (Submarine) Transport Price Variance

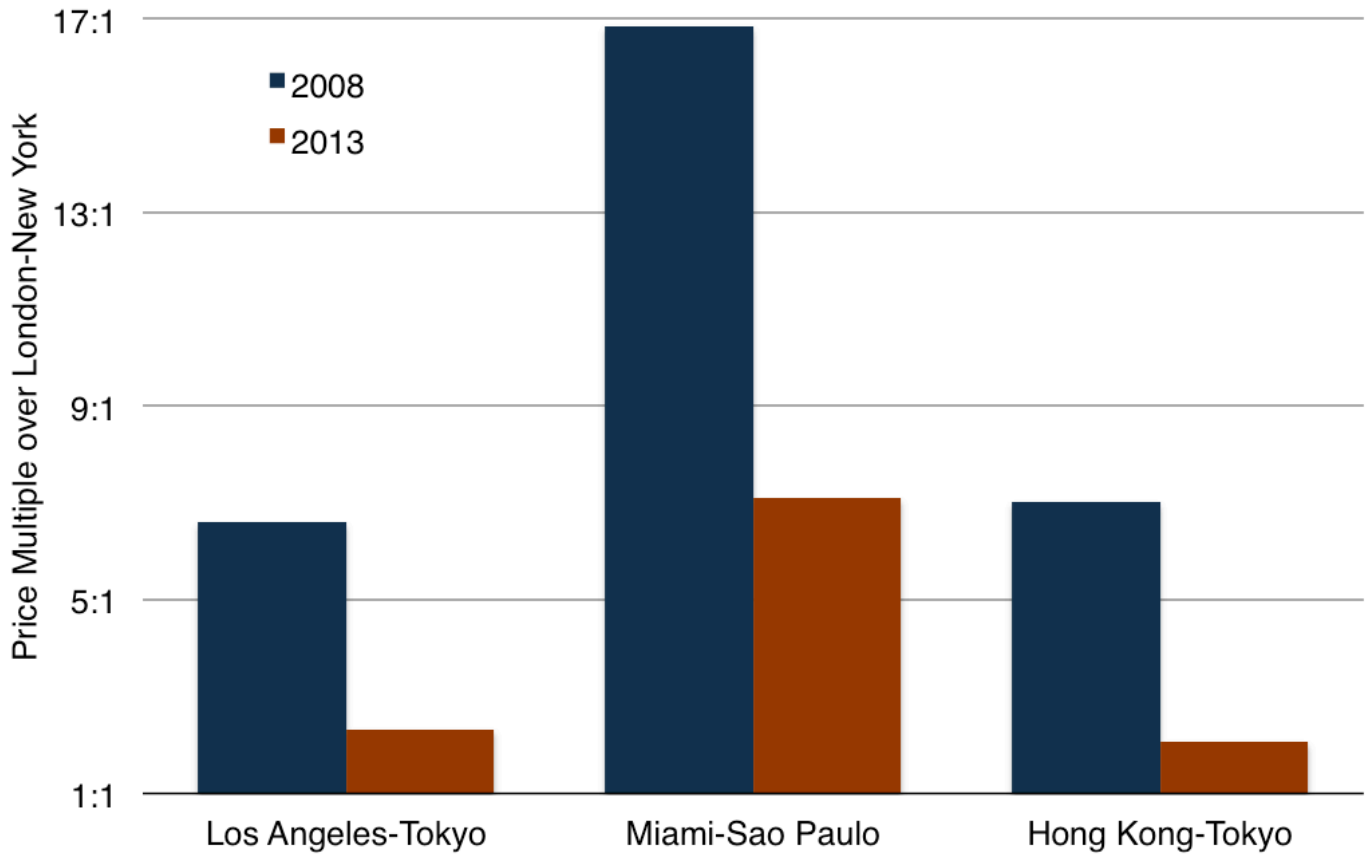
- Length
  - Longer cables require more fiber and repeaters, use more power, and have higher maintenance costs.
- Competition
  - More cables on a route should lead to lower prices.
- Demand
  - Higher capacity cables have lower unit costs for O&M and capacity upgrades, can charge lower prices.

Factors that Explain (Submarine) Transport Price Variance

- Network Configuration
  - Direct subsea paths exist for London-New York and Los Angeles-Tokyo route, so no substantial difference in terminal equipment requirements.
  - For Miami-Sao Paulo, multiple submarine segments are used to create this route (e.g. Miami-St. Croix-Fortaleza-Sao Paulo) which makes it inherently more expensive.
  - Not all cables serving a route are the same – e.g. different landings, availability of express fiber pairs.

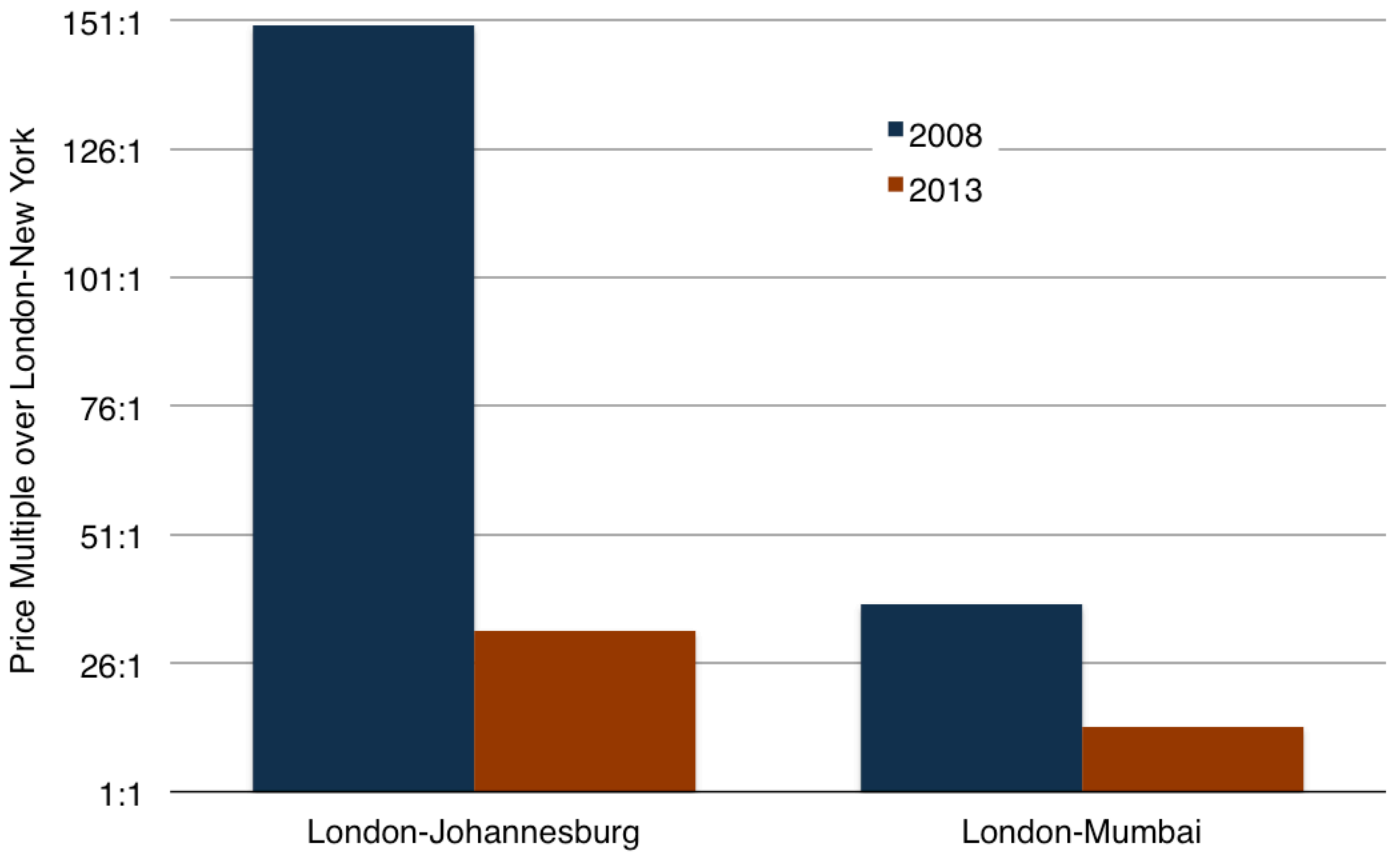
Price Differences Are Narrowing

10 Gbps Wavelength Lease Price Multiples over London-New York



What About Elsewhere?

10 Gbps Wavelength Lease Price Multiples over London-New York

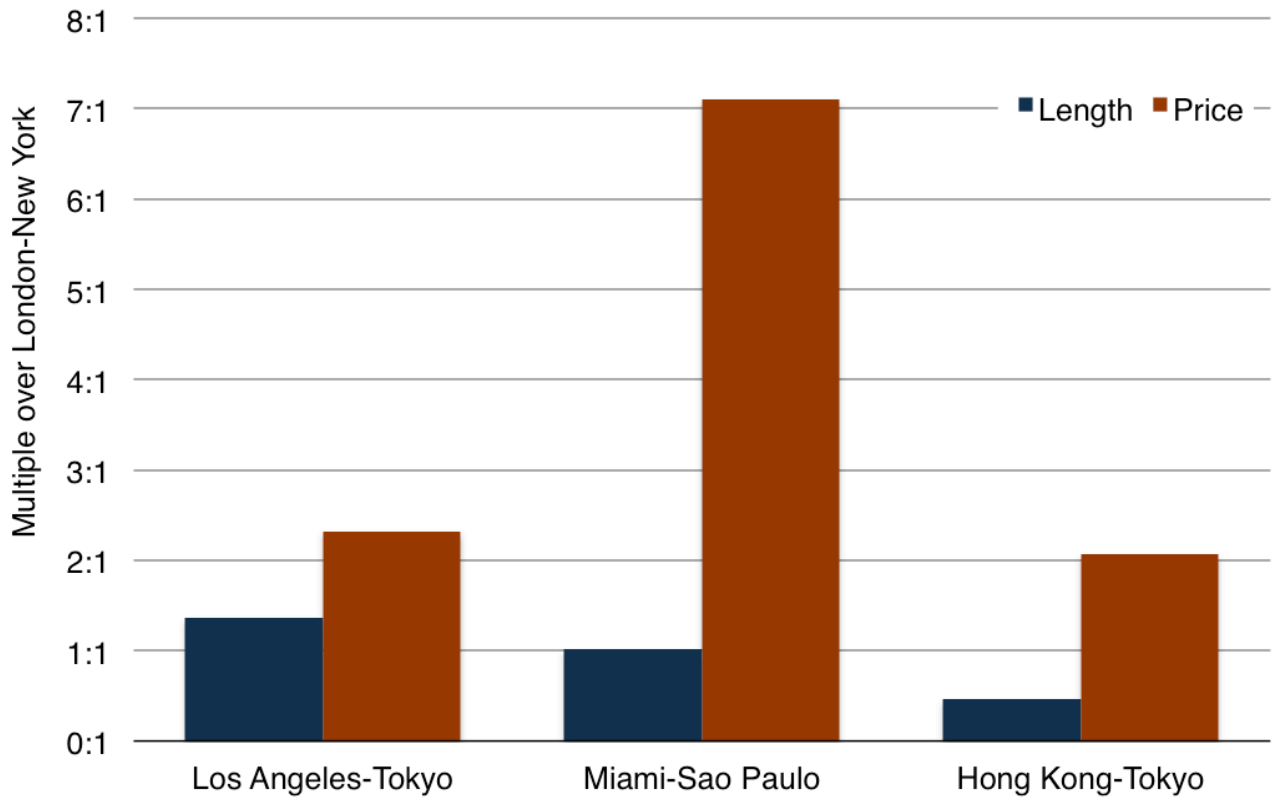


Why Are Prices Converging?

1. Length? No.
   - New cables are not significantly shorter than existing systems.
   - Pricing on some routes tends to be based on the incremental *upgrade* costs (which does not account for distance), instead of *construction* costs.

Distance versus Price

Length and Price Multiple over London-New York, 2013

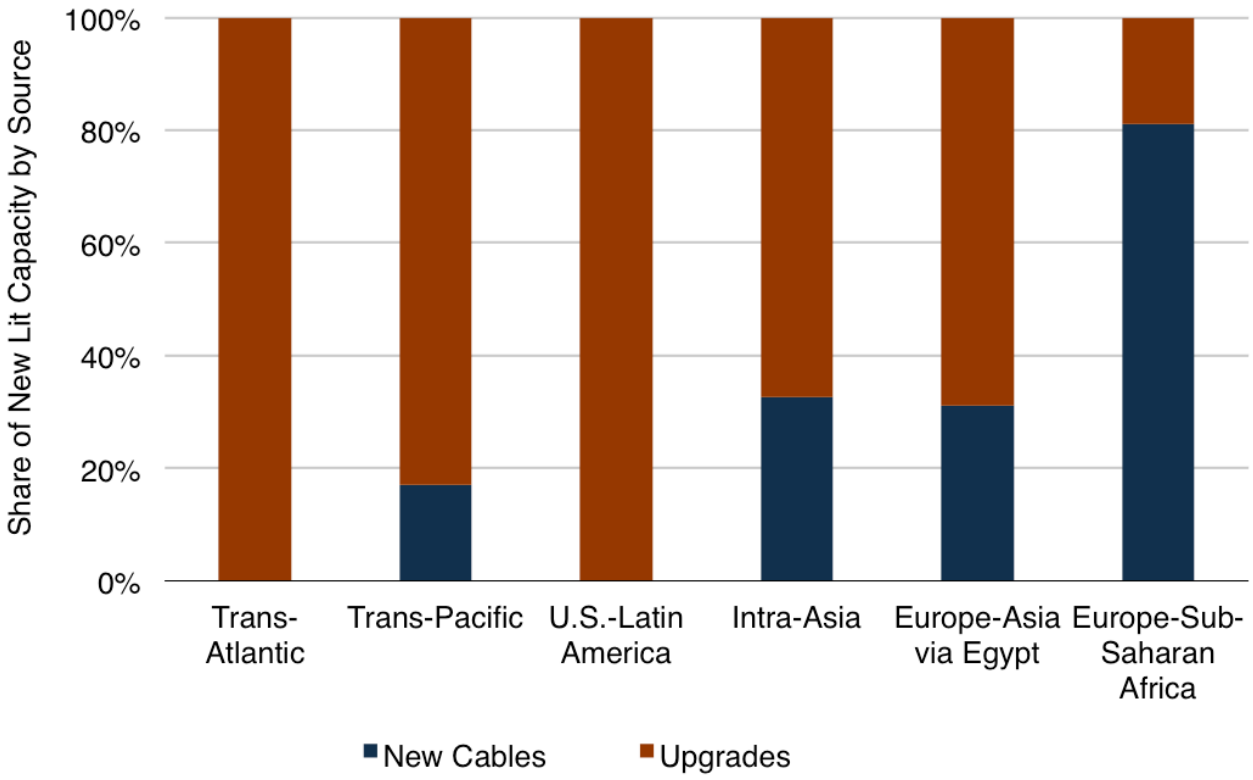


Why Are Prices Converging?

1. Length? No
2. Competition? Yes.
   - Competition increased on some routes, many new cables in Africa and Asia since 2008.
   - No US-Brazil cables since 2008, but prices have moved lower in anticipation of 3 new cables by 2016.

New Cables' Impact Varies by Route

Source of New Lit Capacity by Route, 2008-2013

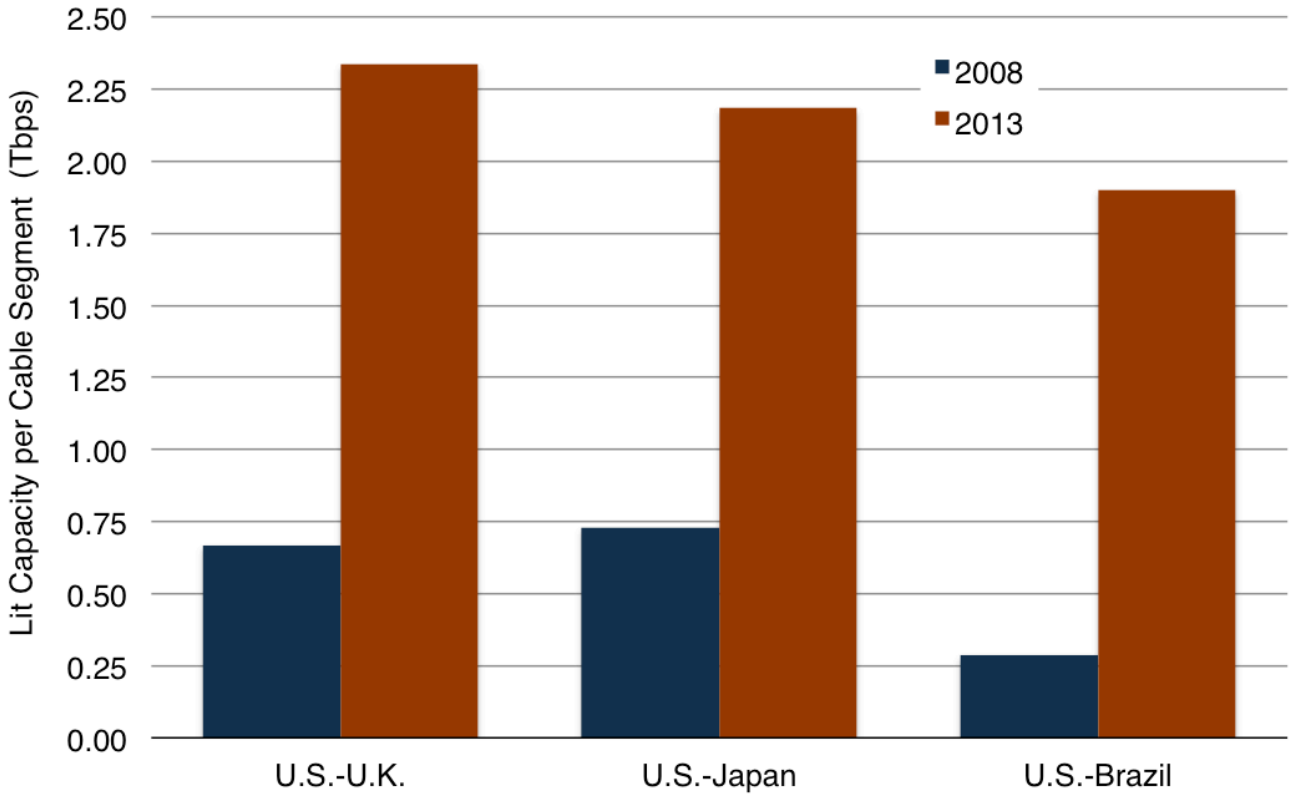


Why Are Prices Converging?

1. Length? No
2. Competition? Yes
3. Demand? Yes
   - Demand growth has varied substantially across routes (Demand CAGRs 2008-2013):
     - Trans-Atlantic: 28%
     - Trans-Pacific: 36%
     - U.S.-Latin America: 50%
     - Intra-Asia: 36%
   - Similar volumes of lit capacity on cables lead to similar unit costs for upgrades and O&M costs.

Capacity per Cable Becoming Similar

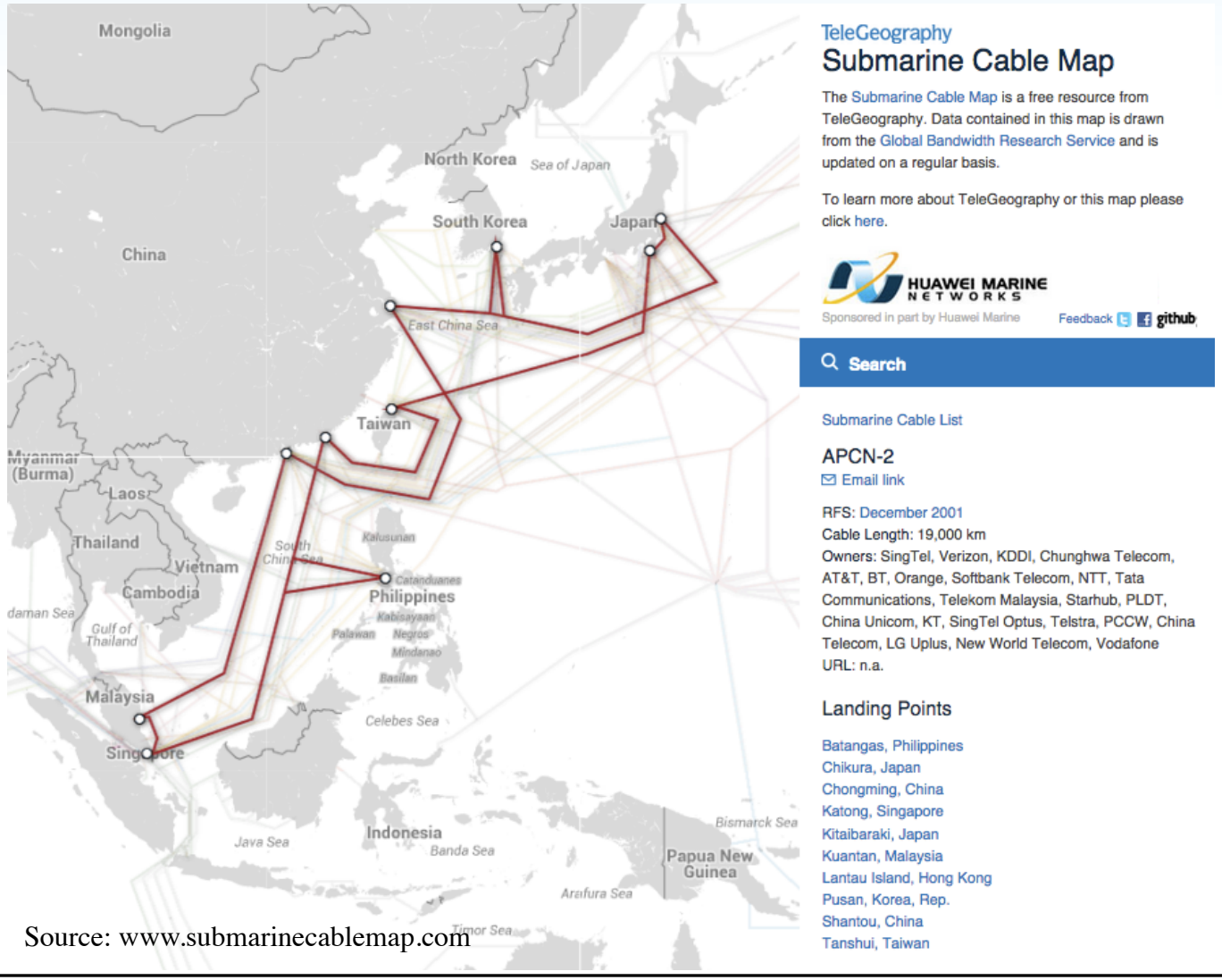
Average Lit Capacity per Cable Segment, 2008 vs. 2013



Why Are Prices Converging?

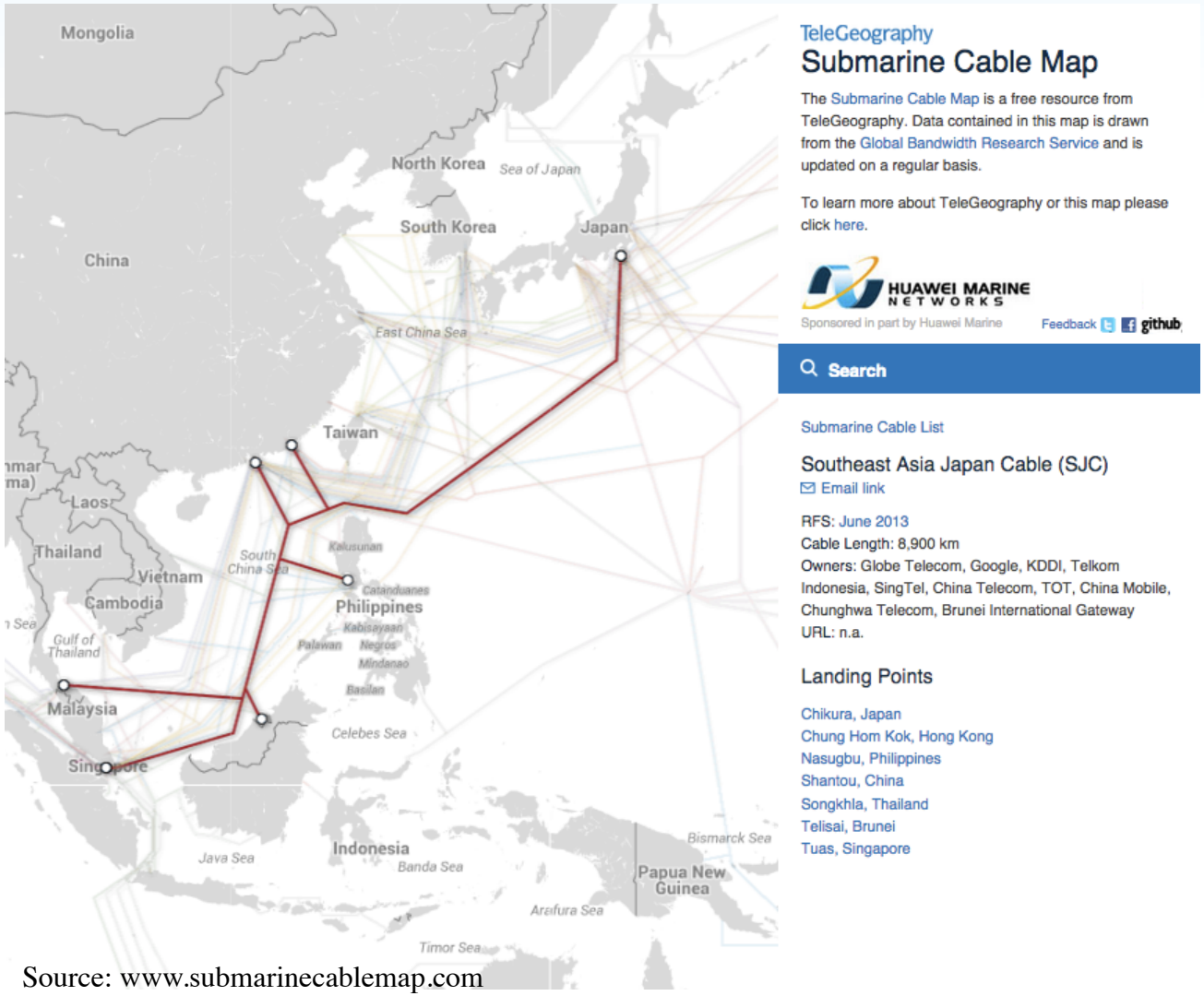
1. Length? No
2. Competition? Yes
3. Demand Growth? Yes
4. Network design changes? Yes
   - Less equipment required with express routes.
   - Better integration of backhaul reduces city-to-city prices.

“Old” Ring Systems



Source: www.submarinecablemap.com

Modern Trunk-Branch Systems



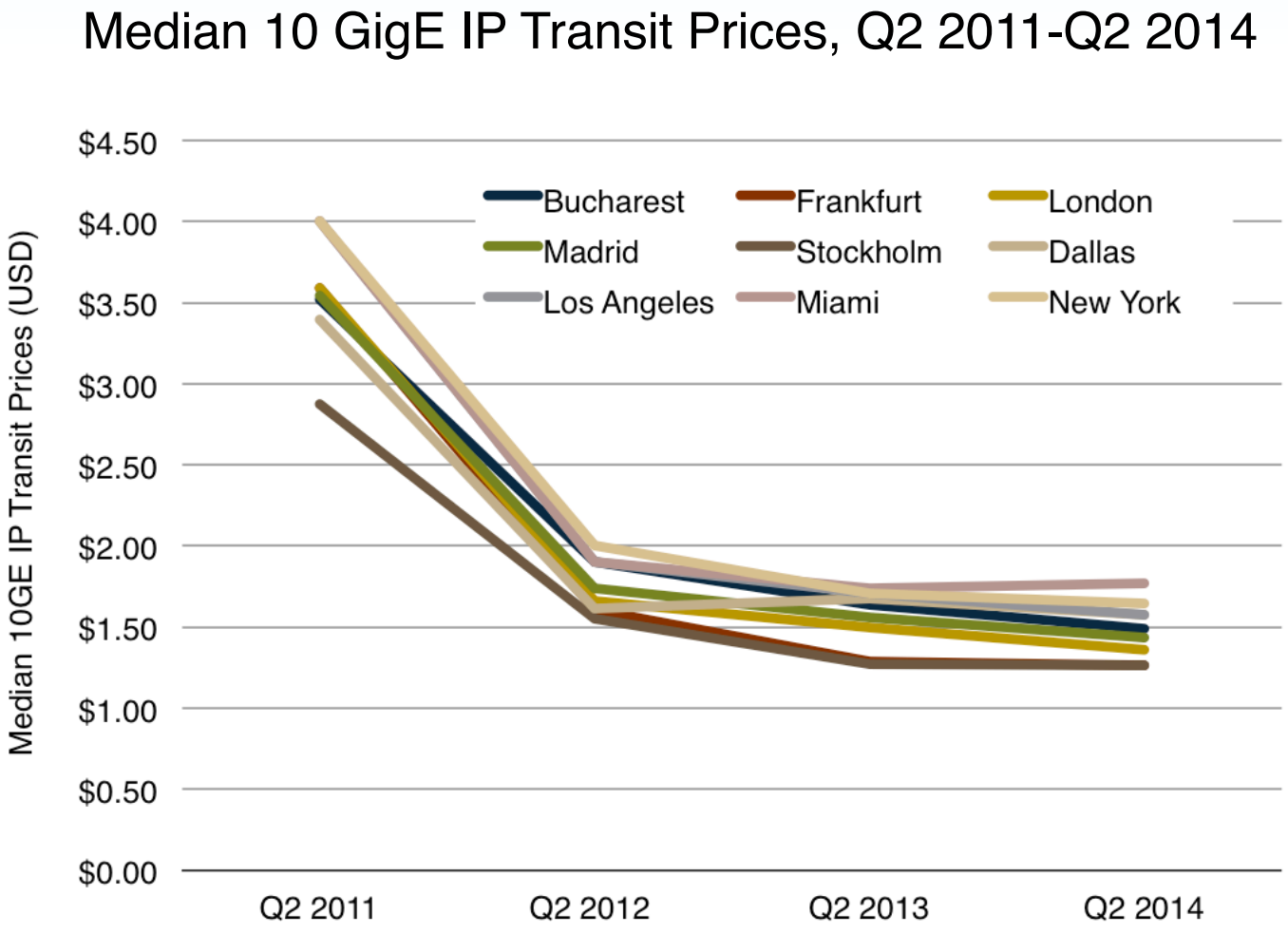
Source: www.submarinecablemap.com

Prospects for Further Transport Convergence

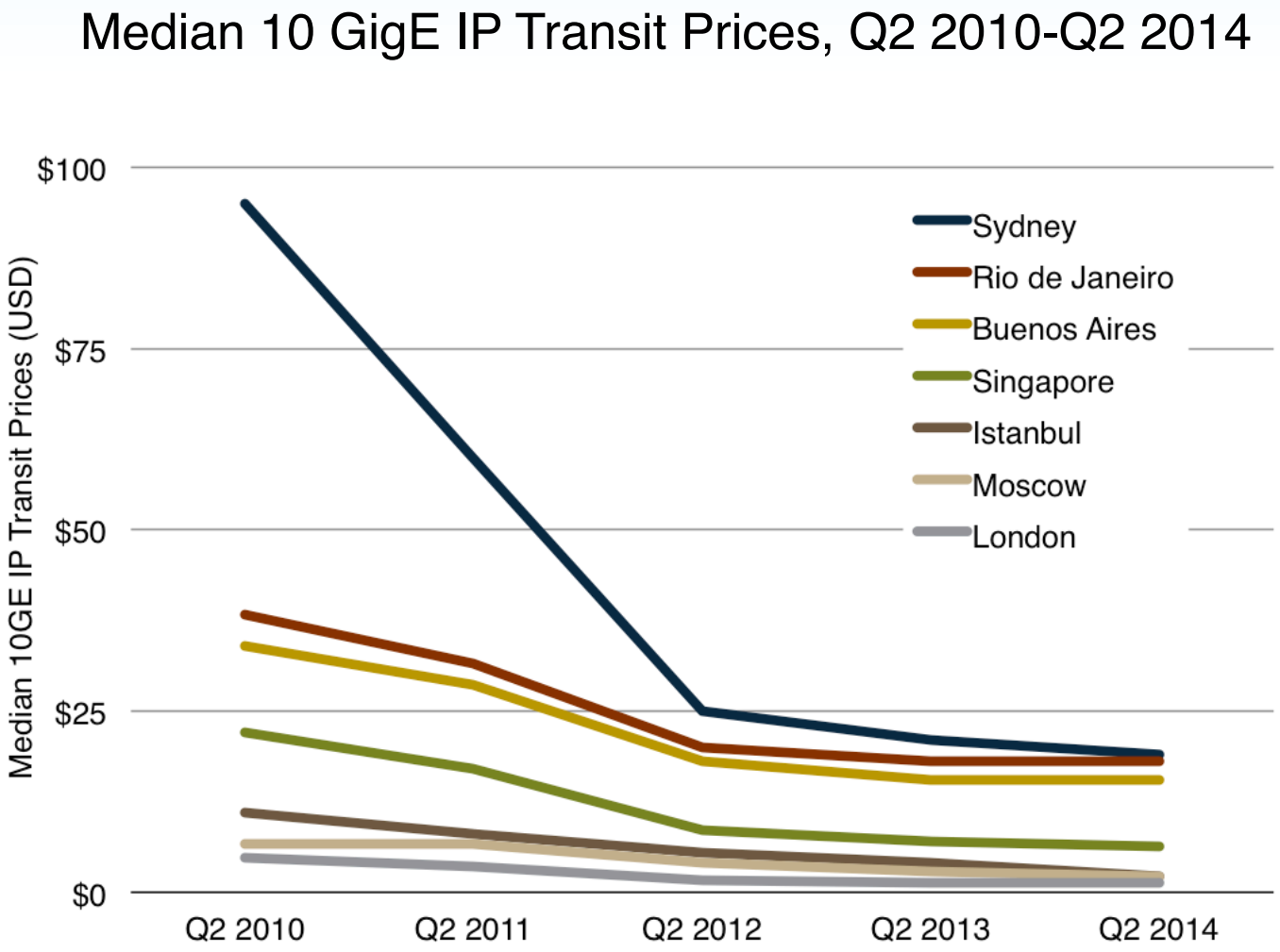
- Some of the most rapid demand growth is occurring in more expensive markets which should narrow price differences.
- More new cables are coming into service:
  - Increased competition drives price erosion.
  - Enhanced network design with express fiber pairs and landings directly in colo sites will reduce upgrade costs.
- Variations in unit costs basis on different routes will prevent global parity.

IP TRANSIT

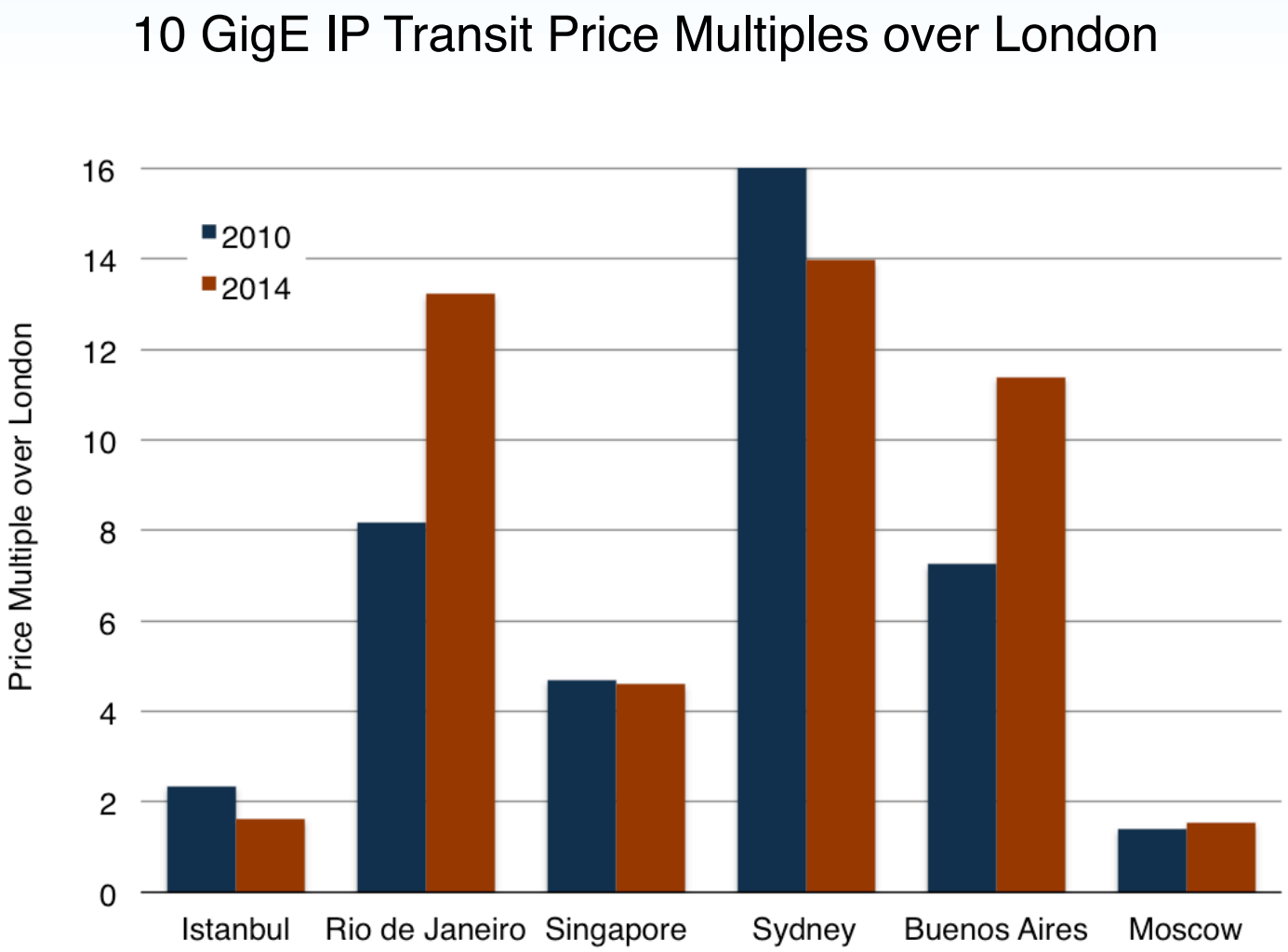
Relative "Flatness" Already Exists in Europe and North America



IPT Price Erosion Around the Globe



Convergence?... Not Exactly



What Factors Prevent IPT Price Convergence?

- Transport prices – outside of major U.S. and European cities, IPT prices often reflect the cost of transport to a hub city.
  - Higher transport prices -> Higher IPT prices.
- Lack of competition.
  - IPT providers offering low-price service do not exist all over the world.
- Unfavorable regulatory environments.
- Expensive backhaul/cross-connects.

Conclusion

- The differences in transport prices are narrowing across many routes, but price parity among major routes may never occur given differences in cost basis.

- IP transit prices continue to decline worldwide, but outside of major European and North American cities, parity of prices across the world remains elusive.

Public Service Announcement for RIPE Attendees

- The Flat Earth Society is accepting new members! (http://theflatearthsociety.org/)
- Great t-shirts are available!

Thank You

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