

GNA-G Current State and Outlook

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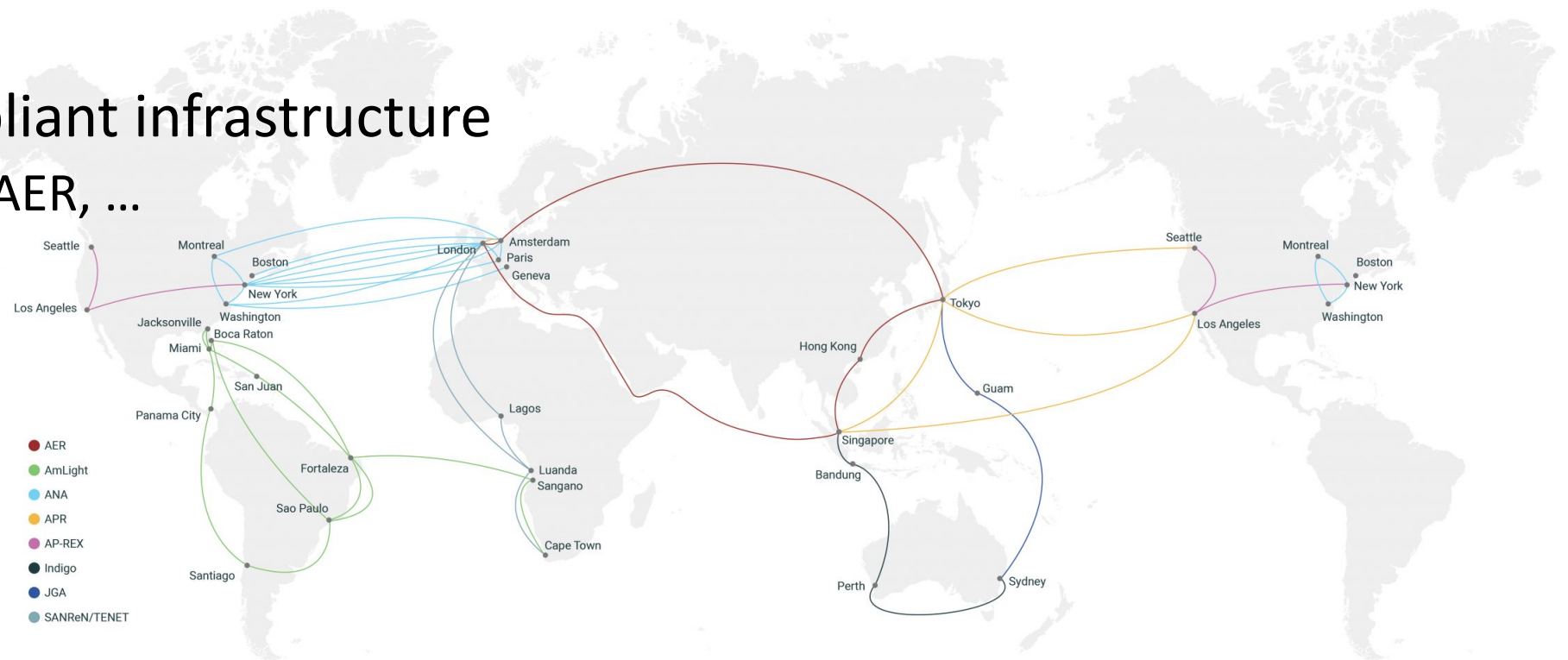


GREN (Global Research & Education Network)

- essential and common network Infrastructure supporting global science, research and education

- GNA-G compliant infrastructure

- ANA, APR, AER, ...



ANA Update

- The traffic on the set of ANA links has not been significantly impacted by COVID-19.
 - Research continues.
- ANA group is looking to the next iteration of ANA.
 - Several options are being considered
 - Short term circuits
 - Longer term IRU contracts
 - Spectrum
- ANA will continue to explore ways to implement trans-oceanic connectivity in efficient cost effective ways.

GXP Updates

- AP-REX work continues
 - MAD DASH at:
 - <https://pas.net.internet2.edu/maddash-webui/index.cgi?dashboard=ap-rex-mesh>
 - AP-REX is an effort by Pacific Wave and Internet2 to create a model for GXP Cooperation.
 - Expectation is to expand to others as it develops.
- Updates from other GXP's.

GNA-G Architecture documents

- Several documents and white papers were produced in the original GNA.
 - These described architectural considerations for connections between NREN's, structure of Exchange points and other activities.
- These are now several years old and while still relevant are due for updating.
 - The leadership team is looking for individuals to join in this process.
 - Over the summer draft documents will be forthcoming.
 - Anyone willing and able to work on them should contact the leadership team.

(Updating and Redefining) GNA-G Architecture

- GNA-G Reference Architecture
- GNA-G Exchange Point
- GNA-G Multi-Layer Network Service
- GNA-G Operation and Management
- GNA-G Information Architecture
- GNA-G Programmable Architecture ?
- GNA-G Experimental Testbed ?

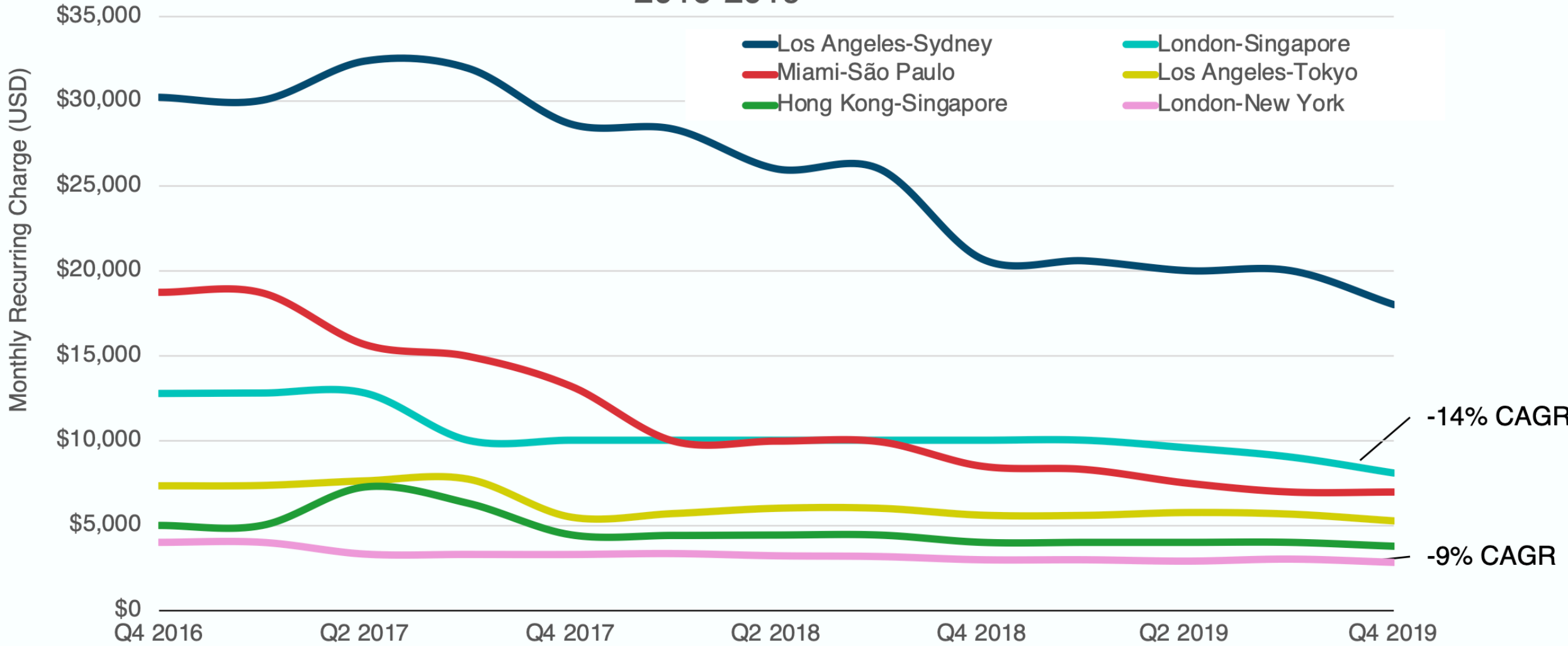
VPN connectivity to China (and possibly India and other countries) using the GREN

- David Wilde

Additional Slides

10 Gbps wavelength prices steadily decline

Weighted Median 10 Gbps Monthly Lease Prices on Select Routes, 2016-2019



Compressing price multiples

Weighted Median 10 Gbps & 100 Gbps Lease Prices & Price Multiples, Q4 2019

