

The Subsea Cold War

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A new Cold War under the oceans

Submarine cables: the US-China cold war threatening the global internet



The Emerging “Cold Tech War” Between the U.S and China

A REUTERS SPECIAL REPORT

U.S. and China wage war beneath the waves – over internet cables

rine internet infrastructure
deployment of China’s cable
e of the submarine cables
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ARNOWSKI - AUGUST 23, 20

FINANCIAL TIMES



Telecoms

How the US is pushing China out of the internet’s plumbing

Experts say the subsea cable market is in danger of dividing into eastern and western blocs amid fears of espionage and geopolitical tensions

The Subsea Cold War battles

- **Regulatory challenges**
 - Chinese delays for laying cables in the South China Sea.
 - U.S. regulatory delays/denials for cables involving entities with Chinese ownership or with landings in China.
- **Government programs offering financial assistance and training to avoid using Chinese suppliers and equipment**
 - U.S. “CABLES” program.
 - U.S., Australia, Japan, & India: “Quad Partnership for Cable Connectivity and Resilience” (including Australia’s “Indo-Pacific Cable Connectivity and Resilience Program”).
 - U.S., Australia, Japan: “Trilateral Partnership for Infrastructure Investment.”

What is the impact on the market so far?

- How close are we to seeing two separate networks (one Chinese-aligned and one U.S.-aligned)?
- Is China becoming less of an interconnection hub?
- Are Chinese capacity prices behaving differently than other countries/routes?

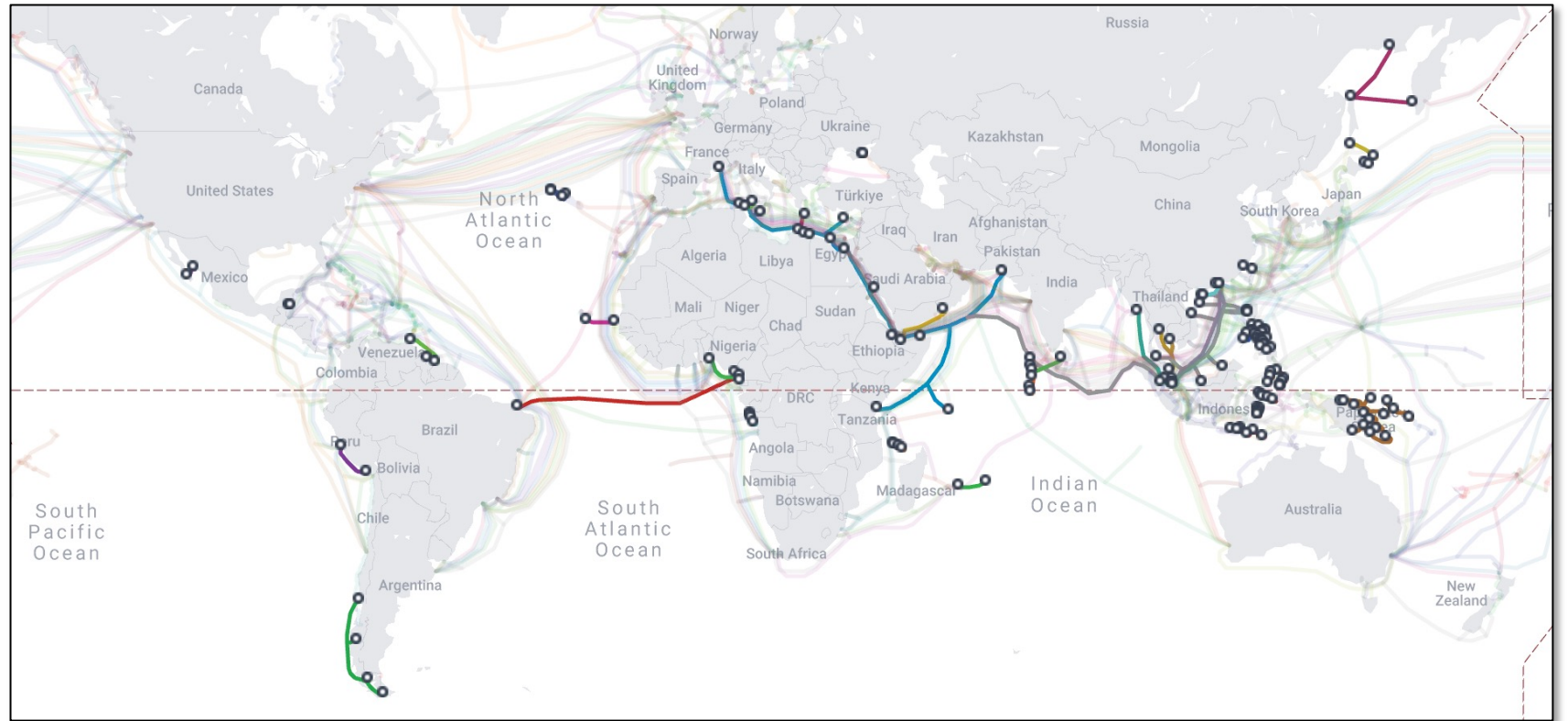
- Note: I will not touch on issues related to national security, espionage, surveying, or cable maintenance.

One World, Two Networks?

Is there a “Chinese network”?

Existing and Planned HMN Tech Cables

- Network operators using HMN Tech-built cables still need to acquire capacity on other cables for diversity and access to many locations.

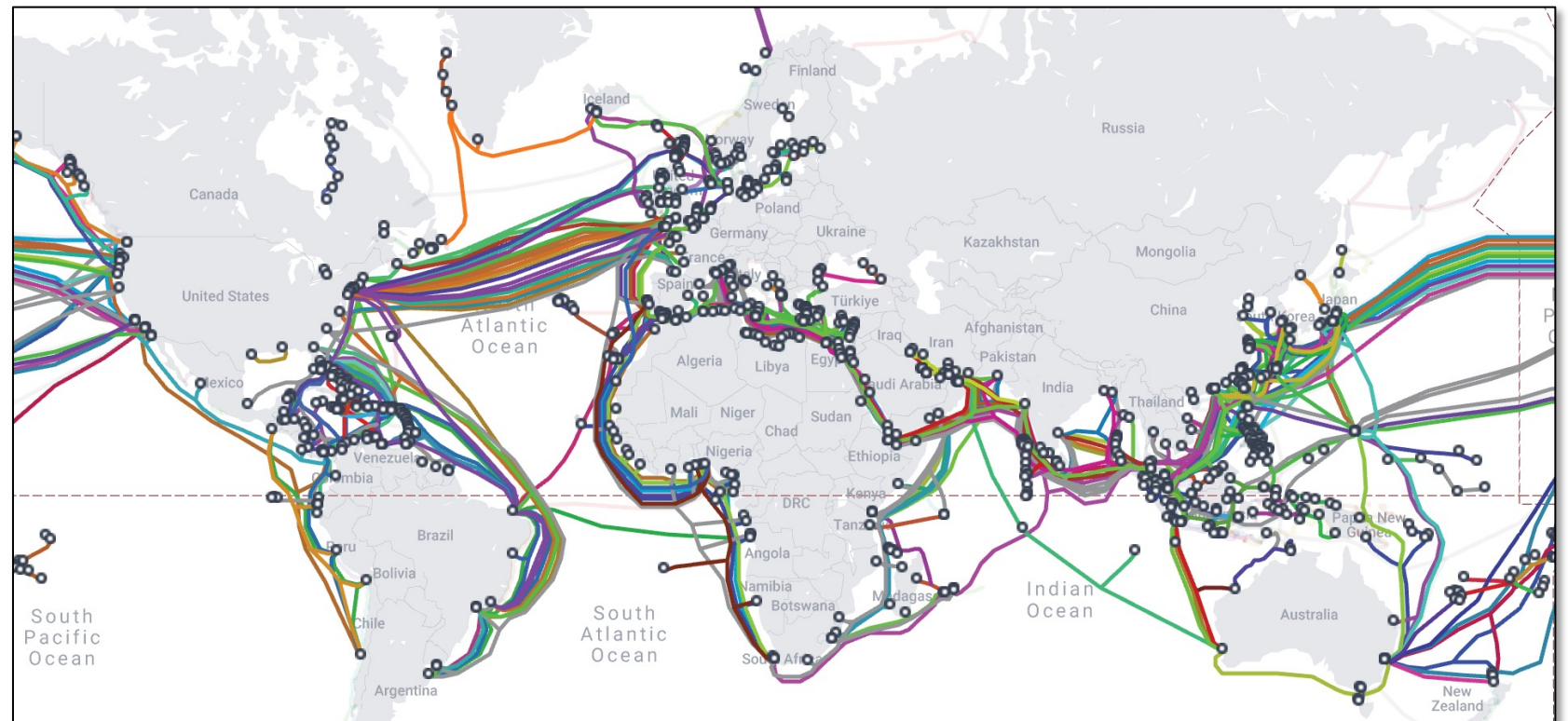


Note: Planned cables shown have announced supply contracts

Avoiding HMN Tech cables is not challenging

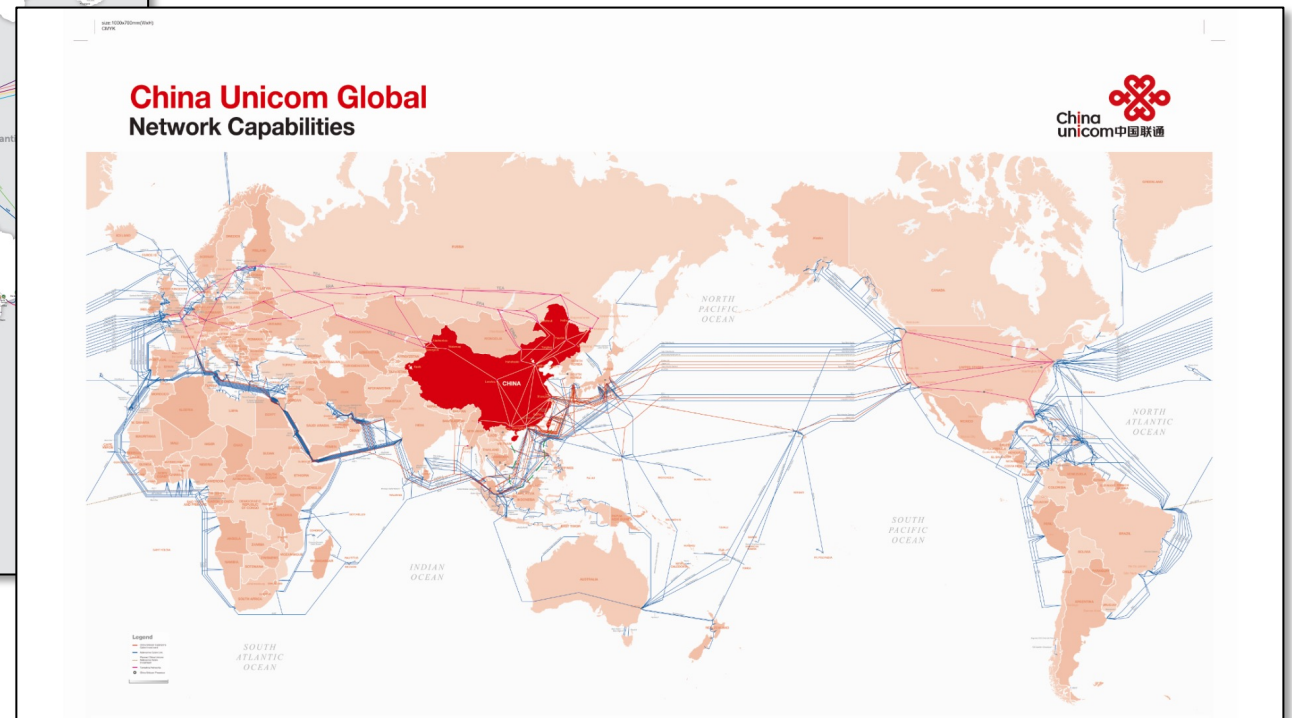
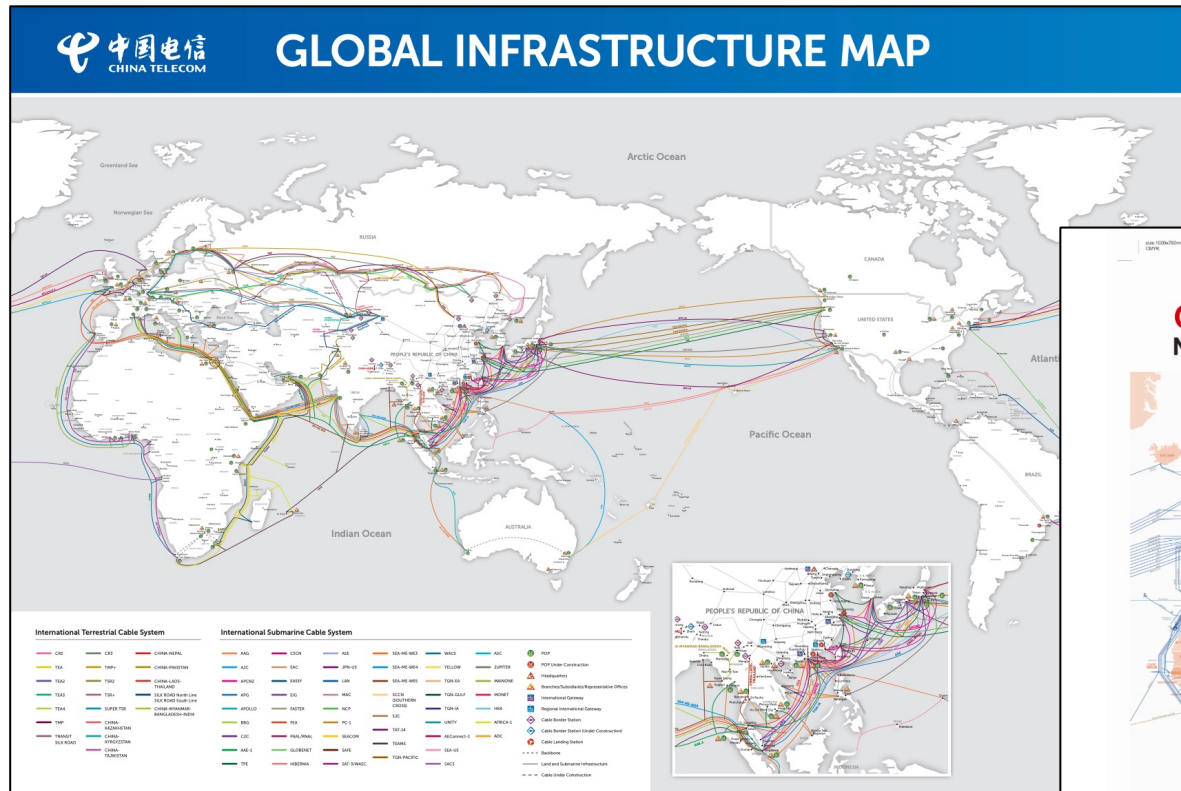
Existing and Planned Cables Built by Any Supplier except HMN Tech

- Network operators opting to not use HMN-built cables have plenty of alternatives for the vast majority of routes.



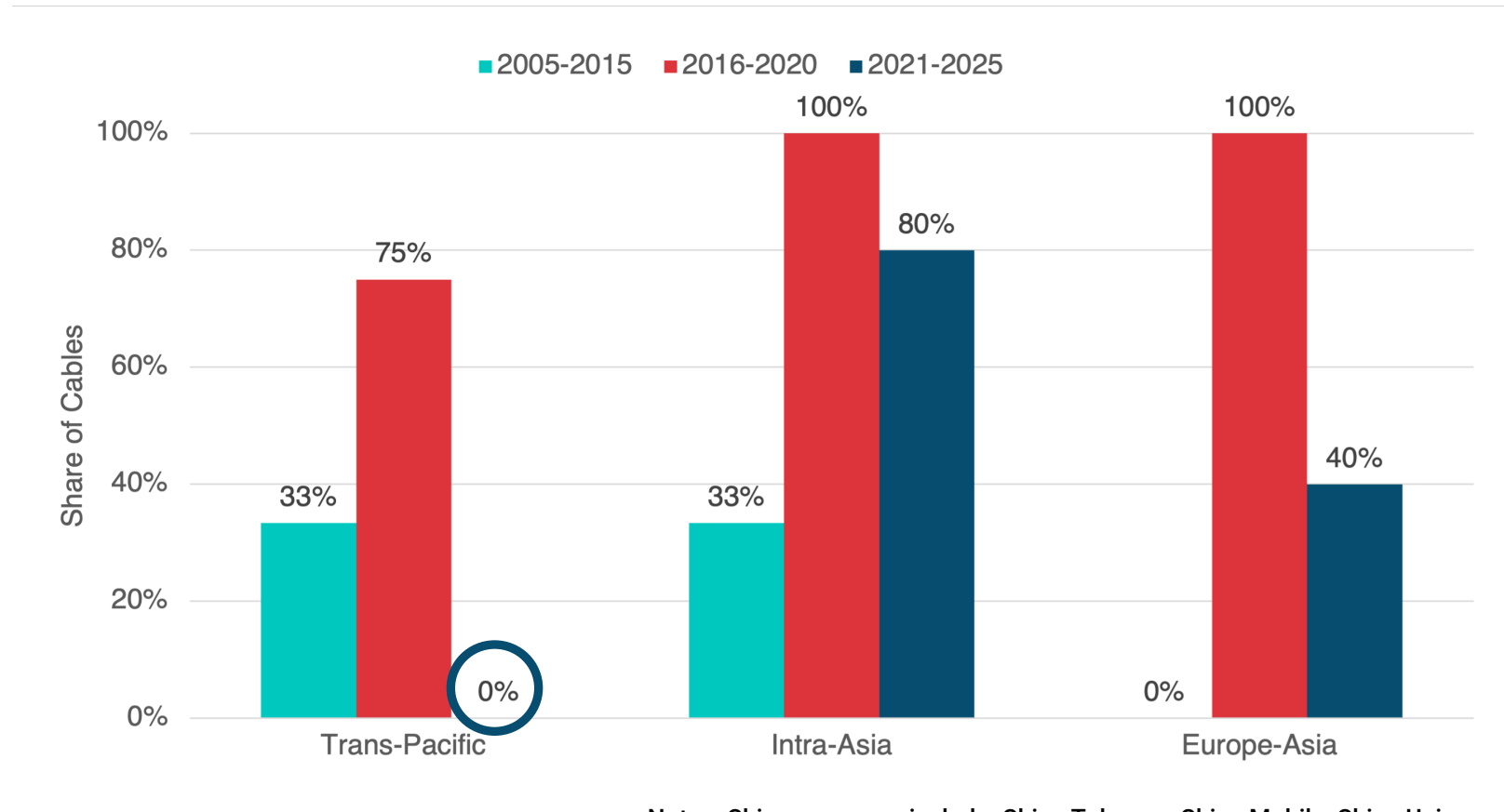
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Chinese operators use many non-HMN Tech cables (as owners or IRU/lease holders)



Chinese cable investment containment

Share of Cables Entering Service with at Least 1 Chinese Owner

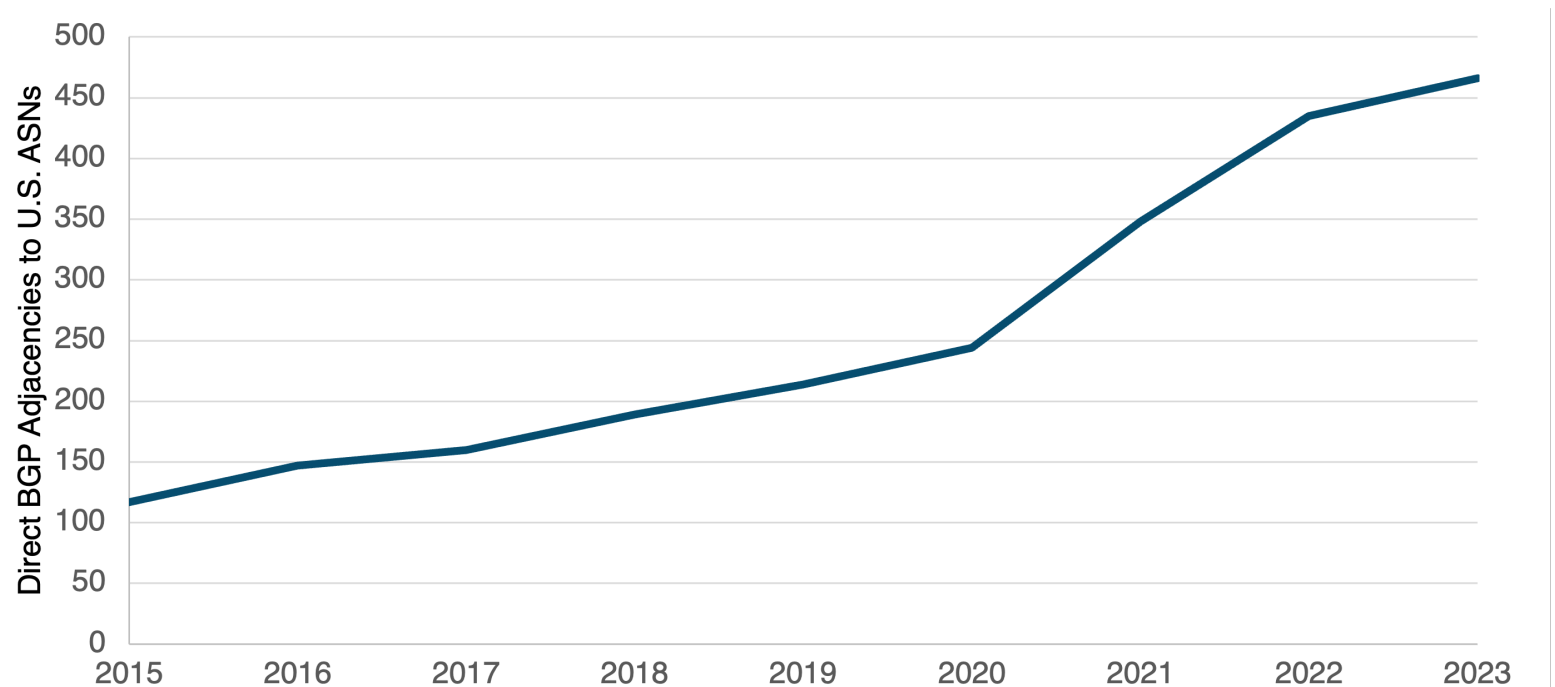


Notes: Chinese owners include: China Telecom, China Mobile, China Unicom, China Mobile, PCCW, PEACE Cable. Cable year based on RFS.

Is a China and U.S. network decoupling underway?

- BGP routing tables govern network interconnectivity at the IP layer (layer 3).
- No signs yet of a reduction in connections to Chinese carriers.

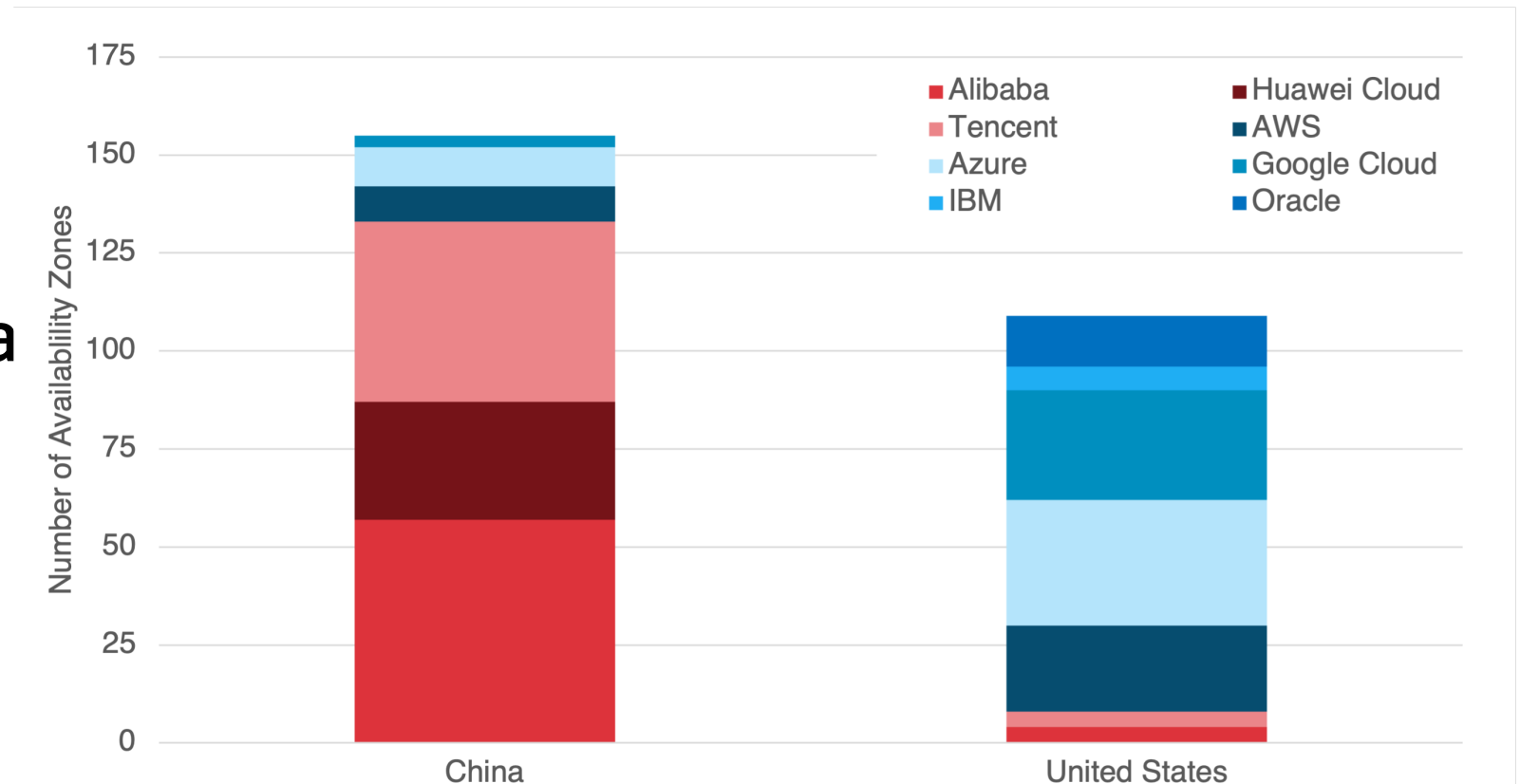
U.S. direct BGP adjacencies to China Telecom, China Unicom and China Mobile



Chinese and U.S. cloud availability zones

- U.S. and Chinese cloud providers still have presence in both countries.
- Linking these availability zones via subsea cables still happens with direct and indirect routes (e.g. via Japan).

Number of Availability Zones for Major Cloud Providers Located in China and the U.S.

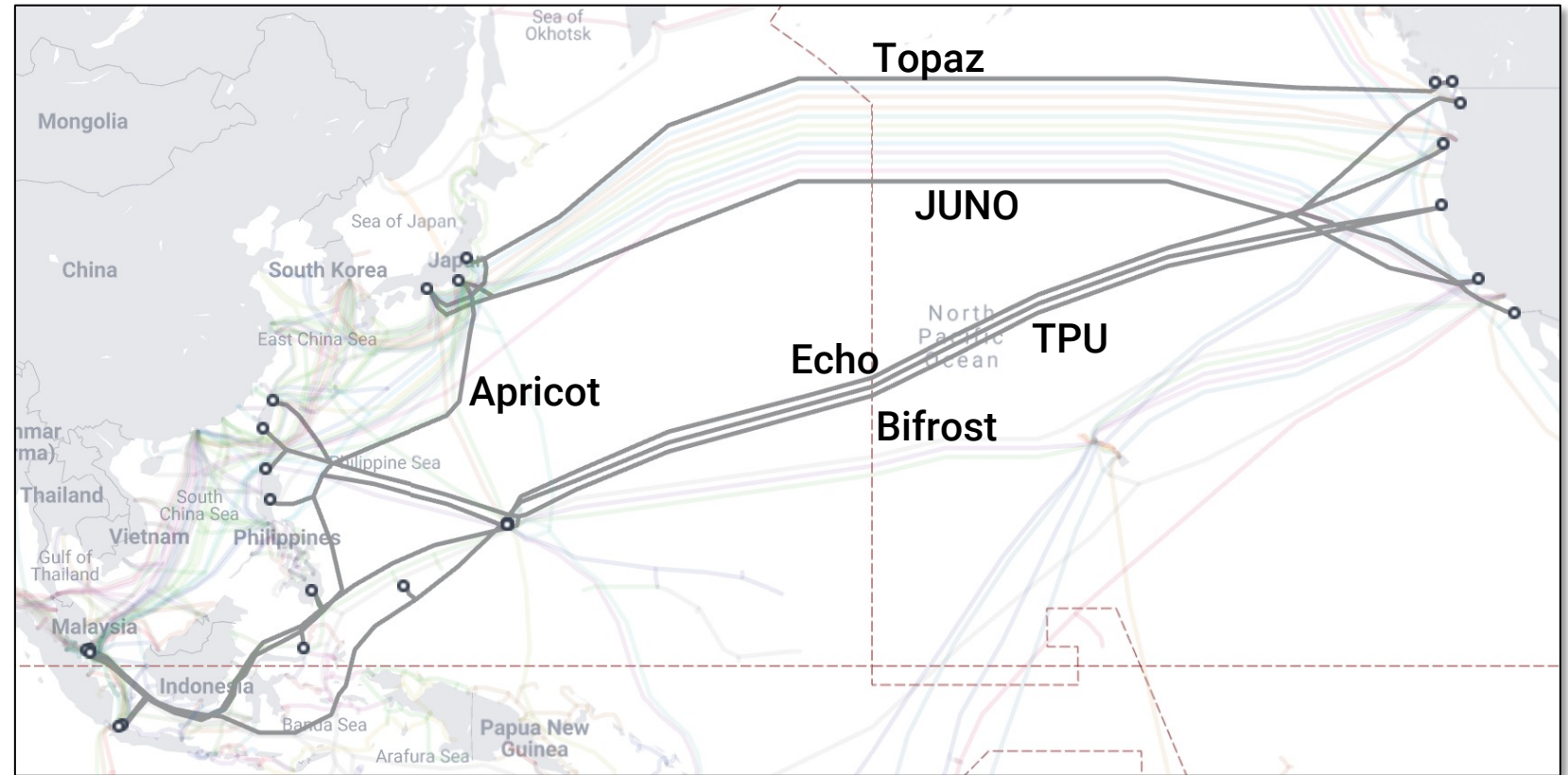


China as a Hub

Many new cables avoiding China and the South China Sea

Planned Intra-Asia and Trans-Pacific Cables Not Connected to China

- Unsurprisingly, none use HMN Tech as a supplier.
- No Chinese carriers involved.

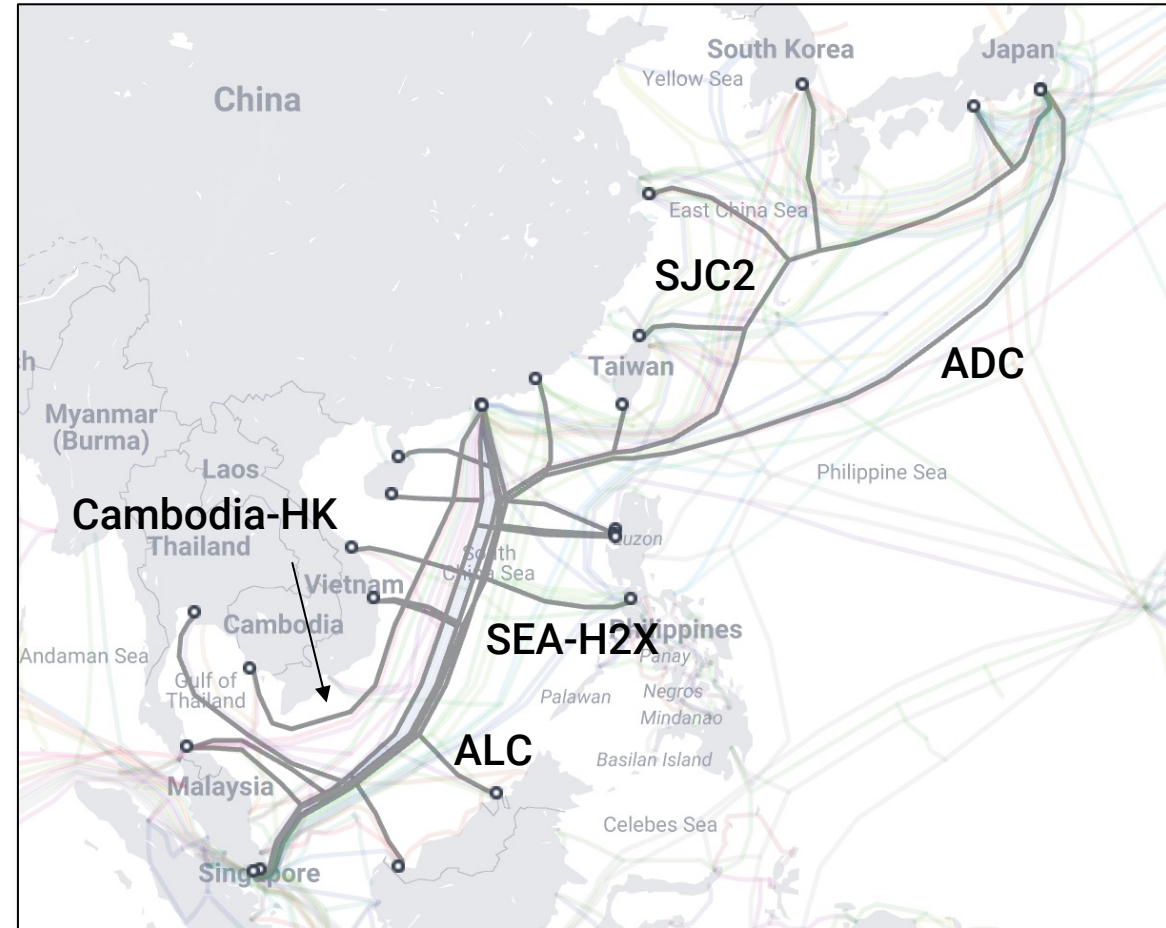


Note: Planned cables shown have announced supply contracts

..but China continues to land new cables

- Besides NEC's SJC2 and ADC, only HMN Tech cables planned for China.
- New HMN Tech cables are focused on linking China to SE Asian countries.
 - SEA-H2X, Asia Link Cable, Cambodia-Hong Kong

Planned Cables Connected to China

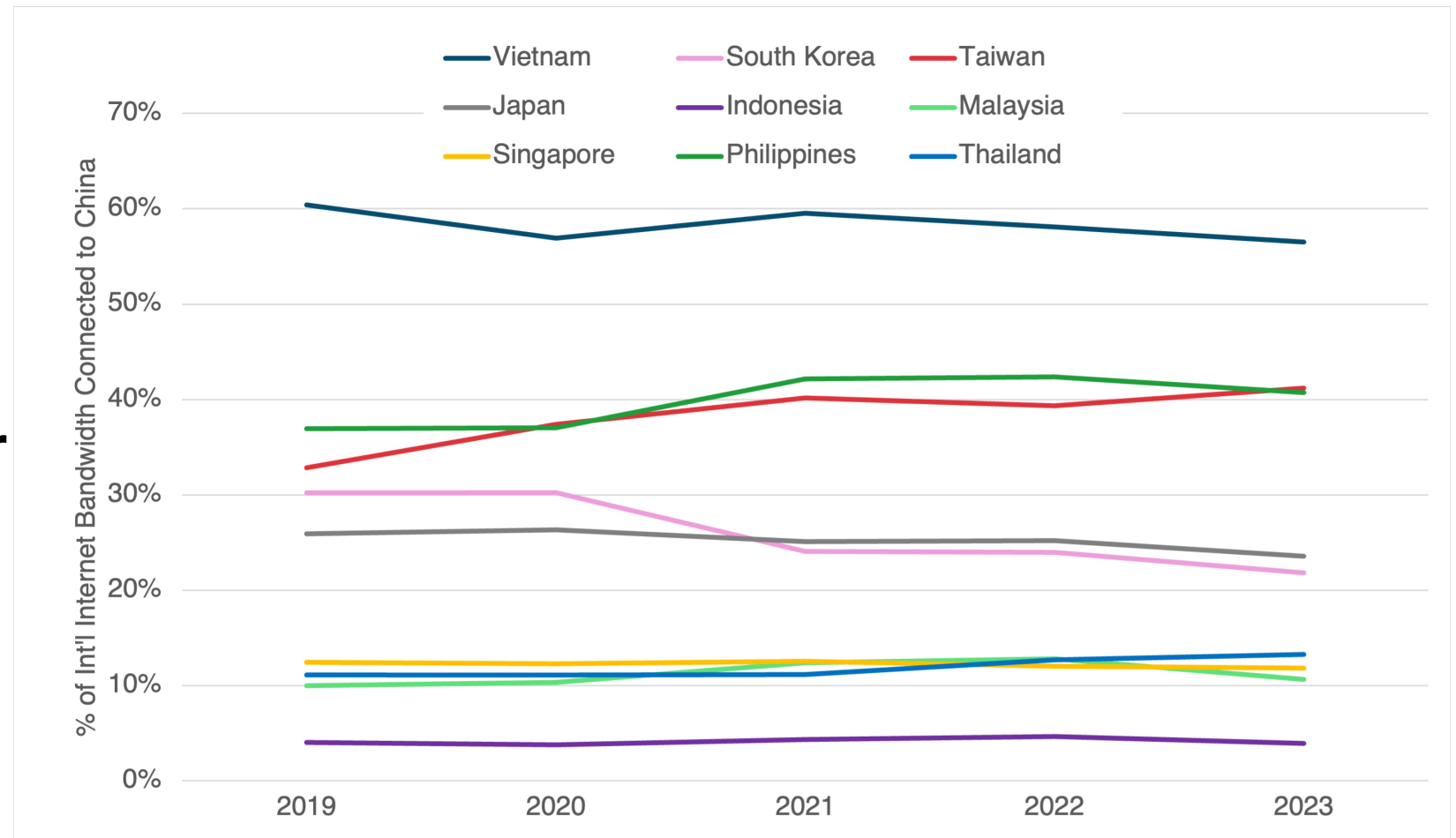


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What about China as an internet hub?

- Relative stability in the % of int'l internet linked to China for most Asian countries (including Taiwan).
- However, in our survey this summer a few operators did reduce or eliminate capacity into China over the last year.

Share of Int'l Internet Bandwidth Connected to China



Many kinds of non-Chinese networks still exchange traffic in China

Sample Members of Various Hong Kong-based Internet Exchanges

Foreign carriers



Gaming



Content/Cloud/CDN

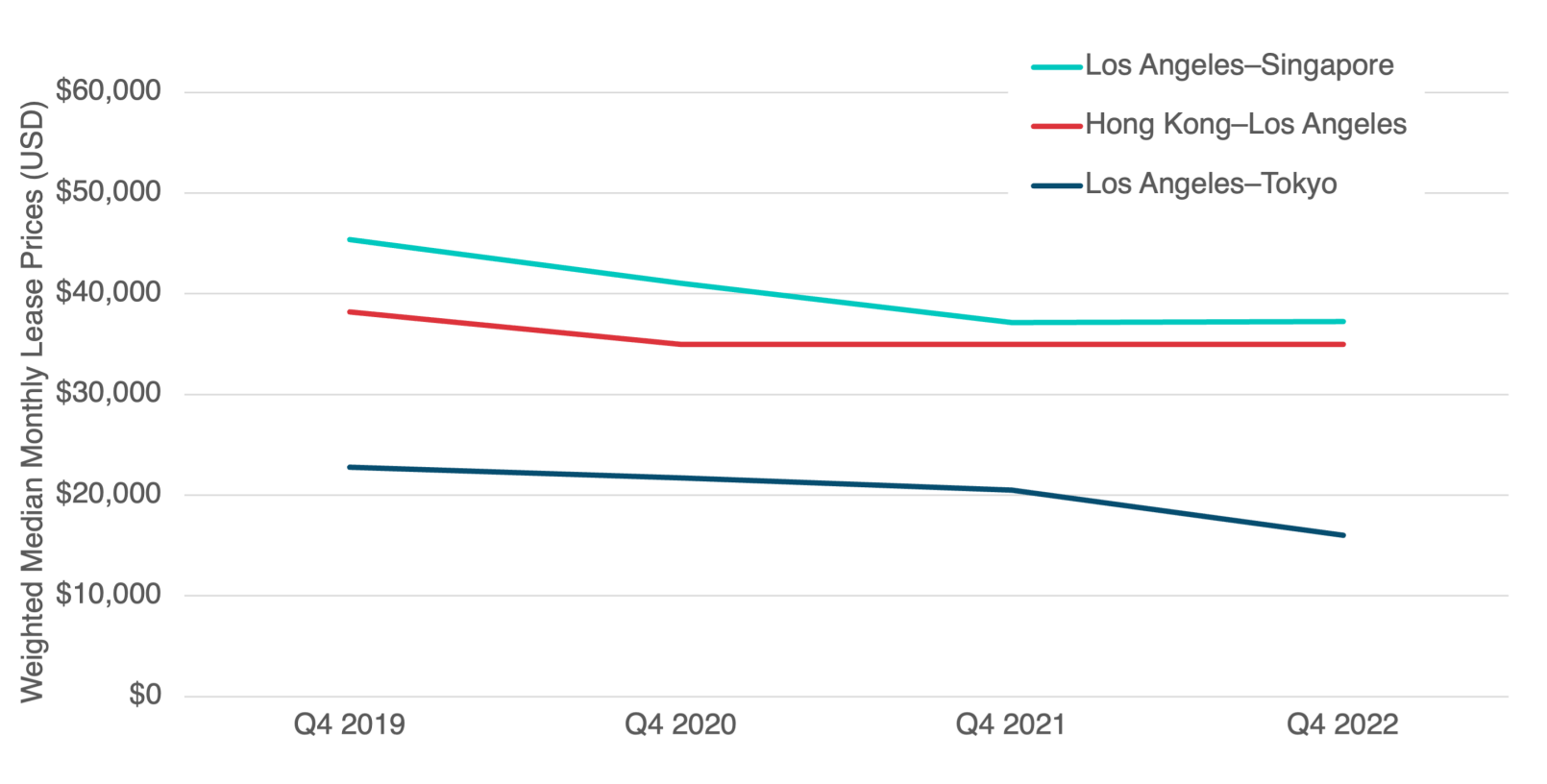


Source: PeeringDB

Chinese Capacity Price Trends

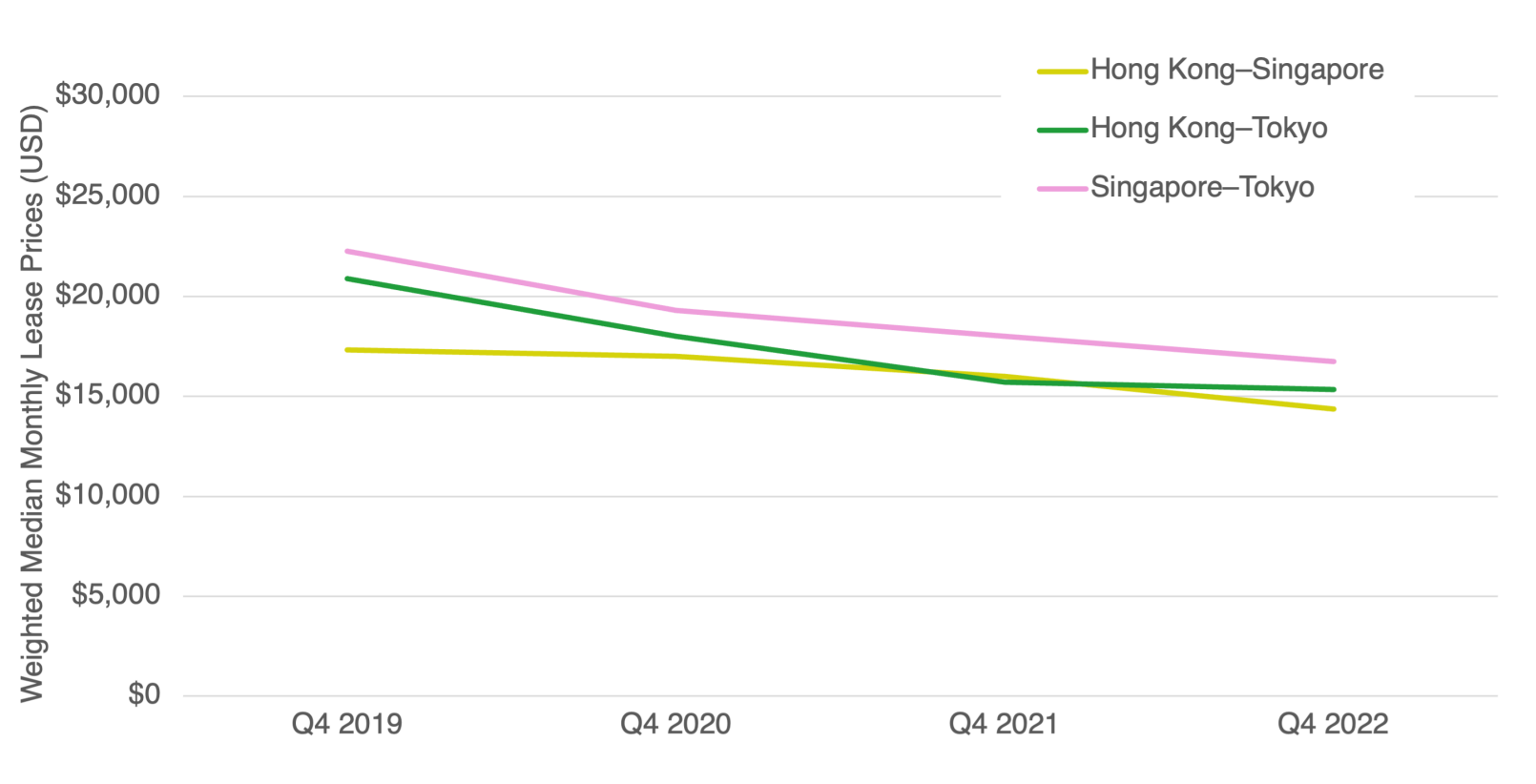
Trans-Pacific prices to Hong Kong still competitive

Weighted Median 100 Gbps Monthly Lease Prices



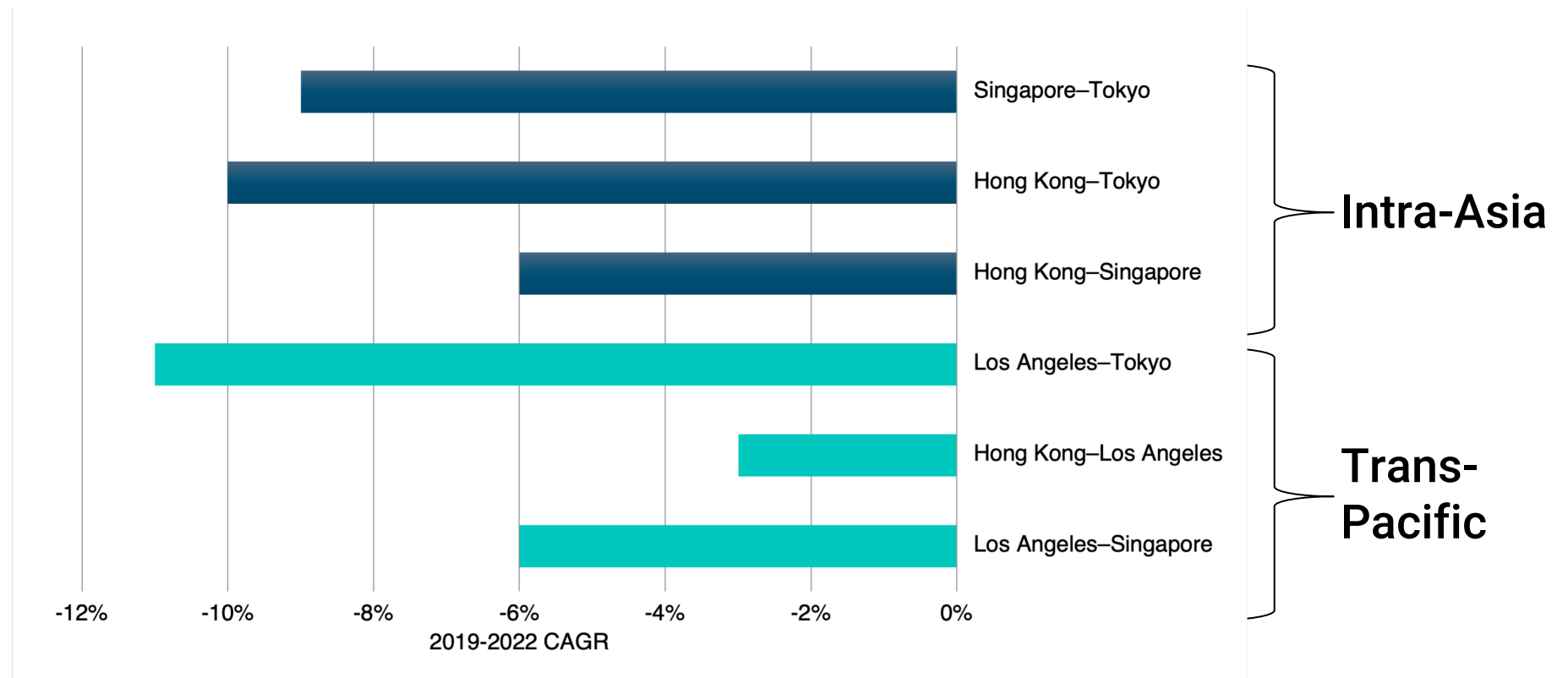
Same for intra-Asian prices

Weighted Median 100 Gbps Monthly Lease Prices



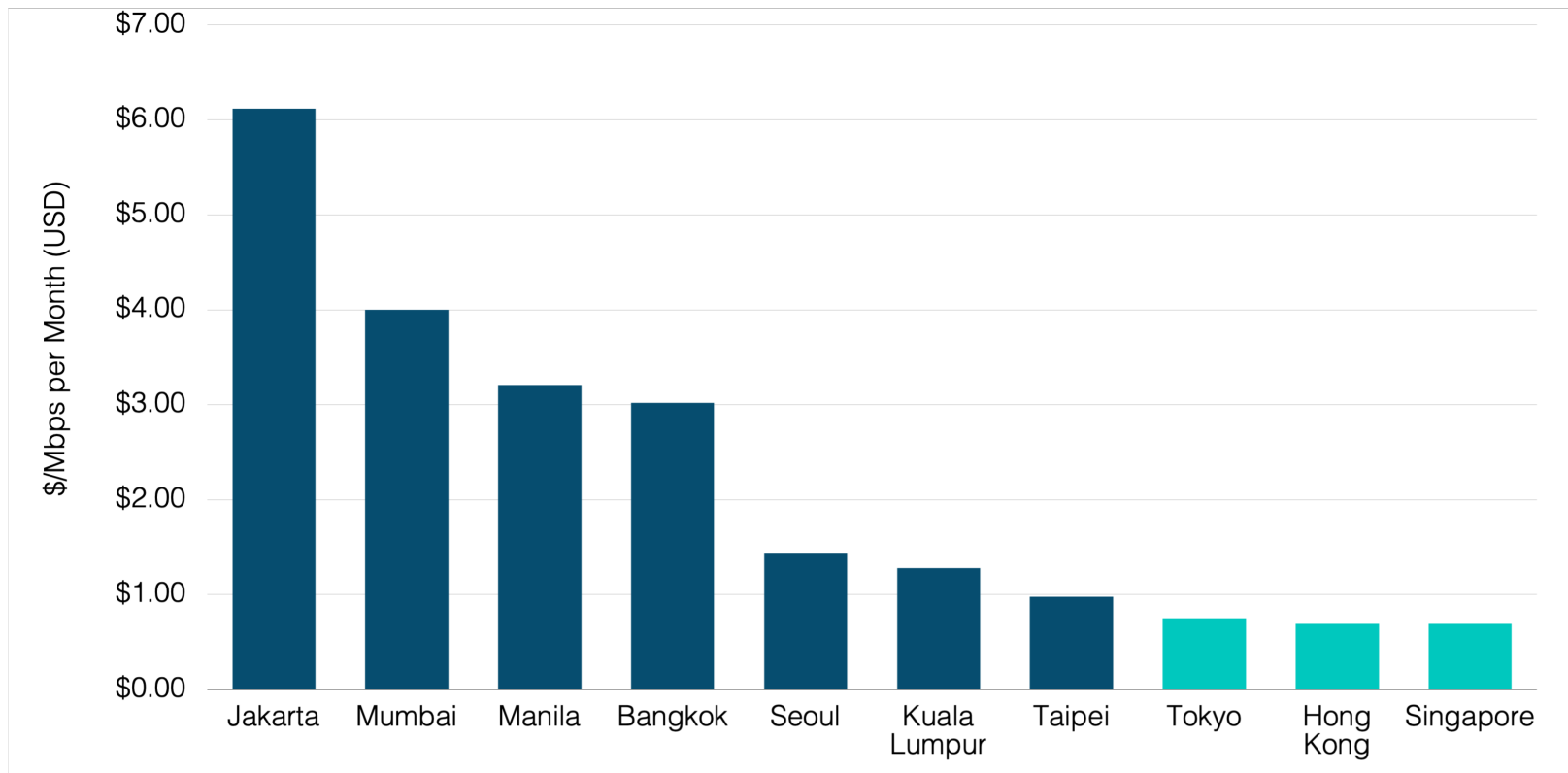
Sluggish Hong Kong transport price erosion, but this is not a unique trend

Weighted Median 100 Gbps Monthly Lease Prices, 2019-22 CAGR



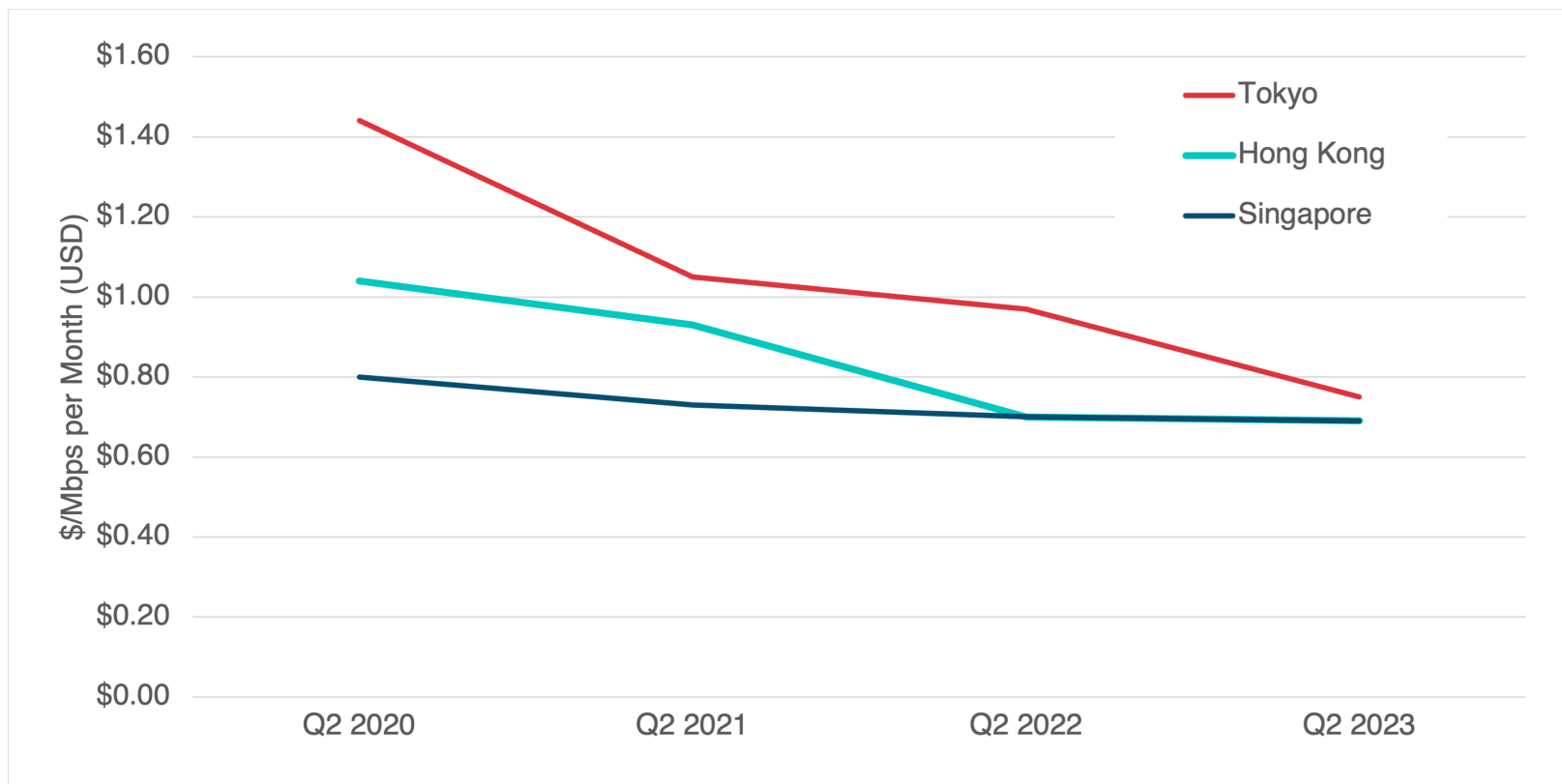
Hong Kong IP transit prices still among the cheapest in Asia

Weighted Median 10 Gbps IP Transit Prices in Asian Metros, Q2 2023



Hong Kong IP transit price erosion does not vary from other major hubs

Weighted Median 10 Gbps IP Transit Prices in Major Asian Hubs



Subsea Cold War impact assessment: Physical (subsea) layer

- **Cable suppliers:** Many cable builders not using HMN Tech, and many network operators not acquiring capacity (fiber pairs or wavelengths) on HMN Tech cables.
- **Cable ownership:** No Chinese investment planned in new trans-Pacific cables. Chinese operators still using many non-HMN Tech cables.
- **New routes:** many new planned cables seeking to avoid the South China Sea.

Subsea Cold War impact assessment: Network layer

- **Interconnection: Data is still flowing between China and the U.S.**
 - Does not depend on existing or new direct cables or which supplier built the cable.
 - Chinese and U.S. network operators use the same cables in many cases.
- **Hub status: No clear signs yet that China's role as a regional interconnection hub may be waning.**
- **Pricing: So far capacity prices in/to China are still competitive compared to other regional hubs.**

Thank You

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