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DATA CENTRE UPDATE

APAC:
Hong Kong, Singapore, Sydney, Tokyo

DATA CENTER UPDATE
HONG KONG
SPRING 2021

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Key Indicators

Under Construction (1H21-2025)
4.16M sf

Total Stock (End-1Q21)
8.38M sf

Transaction Volume (2021 YTD)
HKD 812.9M

Hong Kong Market Map

SHARE OF TOTAL STOCK (%)

FANLING 3%
TAI PO 5%
TSUEN WAN / KWAI CHUNG / TSING YI 22%
SHA TIN 9%
KOWLOON EAST 2%
CHAI WAN 5%
TSEUNG KWAN O 52%
HONG KONG SOUTH 2%

New Territories (91%)
Kowloon (2%)
Hong Kong Island (7%)
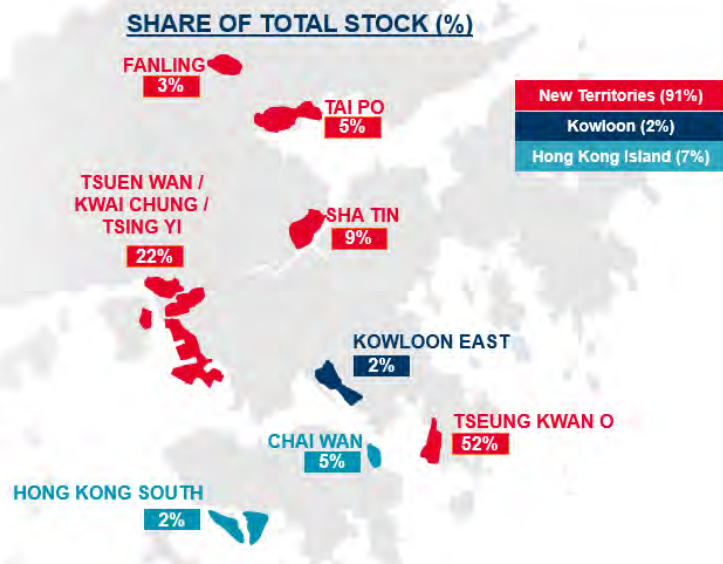
Hong Kong Data Center Market Moves From Strength to Strength

Several global data center markets have defied expectations throughout the pandemic, with neither COVID-19 nor geopolitical tensions pausing local growth throughout Hong Kong. As with other key real estate sectors, newly released sites with data center planning permission are swiftly bid up to impressive pricing as Mapletree's acquisition of a site early in the year proves. The global investment giant has elected to construct their first local project, with first phase completion of this speculative build expected by 2023. Established operators CITIC, Equinix, and SUNeVision are each continuing on new builds, and mainland operator GDS is underway on a previously announced initial phase of their introductory Hong Kong project. Global Switch and AirTrunk both completed large projects in recent months, with AirTrunk continuing market entry across several major cities regionally. Expect continued development in coming months, with absorption and interest both remaining high and plenty of investment chasing available potential clientele.

New Connectivity Options Coming Soon

While recent news reports indicated that Facebook and Google were dropping a previously proposed Hong Kong-Los Angeles undersea cable, further connectivity will soon link Hong Kong to other regional locations. The Asia Direct Cable is scheduled to go live by the end of 2022, with no fewer than eight major telecommunications firms providing capital and know-how for the 9.400-kilometre system. The cable will link Hong Kong to Japan, the Philippines, mainland China, Vietnam, Thailand, and Singapore. Also coming online next year is the similar Southeast Asia-Japan Cable 2, backed by no fewer than ten major corporations and linking Hong Kong to South Korea, Japan, mainland China, Taiwan, Vietnam, and Thailand. More prosaically, the China Mobile-backed Hainan to Hong Kong Express cable will link Hong Kong to Wenchang and Zhuhai, with operations commencing this year.

Hong Kong as a Hub for Regional Data Center Investment

Several data center companies view the local financial power available and the flexibility of a listing on the Hong Kong Exchange (HKEX) as key for locating their official headquarters in Hong Kong. As noted elsewhere in this report, US NASDAQ-listed GDS recently completed a secondary listing on the HKEX, providing sizable capital for future expansion both locally and in new and current markets across mainland China. The listing was the second large capital raise in 2020 for the company, after receiving an earlier HK$4 billion injection from Hillhouse Capital and STT Data Centres. A more recent launch was the formation of Turbidite, a new venture helmed by data center veterans and backed by New World Development, the locally listed insurance, retail, and hotel conglomerate. Turbidite is taking an intriguing initial foray to Guam for their first data center, as the once-overlooked island has gained increased data center importance with the recent announcement of two new cross-Pacific undersea cables that will connect Guam to Asia and North America. Older organizations have also long used Hong Kong as a base for regional expansion; Chayora was founded in 2011 to target international companies requiring China deployments, opening an initial campus in Tianjin and moving ahead in Shanghai. With the large amount of local capital interested in the data center sector, expect further launches of new ventures in coming years.

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Ecosystem Developments

- **Global Switch** completed an enormous 58 MW additional phase to their data center in Tseung Kwan O, with a low 1.3 PUE available across the facility. The data center now offers over 100 MW of power to clients and is situated close to cable landing stations.

- Rumors swirled as the second quarter began that **PCCW** will be selling the data center portion of the company, largely centerd in Hong Kong. Media reports indicated that the platform could sell for HK$7.8 billion, with seven of the nine operating facilities situated locally along with one each in Guangzhou and Malaysia.

- **Equinix** announced that their Network Edge product will be coming to Hong Kong in 2021 alongside three other international locations. Network Edge allows for virtual network services for quick deployment and scalability, with no further hardware needed. Equinix also announced the expansion of Equinix Metal in Hong Kong and seven other cities, offering additional Infrastructure-as-a-Service (IaaS) options, and an additional phase at HK1 is underway.

- **GDS** had an exciting end to 2020, with a secondary listing on the Hong Kong Stock Exchange that provided HK$14 billion in expansion capital in new markets. The company confirmed an anchor tenant at their upcoming HK1 data center, planned for launch in the third quarter of 2022.

Construction Update

OPERATOR	LOCATION	PROJECT	STAGE / EST. DELIVERY
CITIC	Kwai Chung	CTT (Phase III B)	Under Construction / Q2 2021
Equinix	Tsuen Wan	HK1 (Phase 13A)	Under Construction / Q3 2021
GDS	Kwai Chung	HK1	Under Construction / Q3 2022
SUNeVision	Tsuen Wan	TWTL 428	Under Construction / Q4 2022
	Tseung Kwan O	TKOTL	Under Construction / Q4 2022
Mapletree Investments	Fanling	Sheung Shui	Under Construction / Q4 2023

Recent Hong Kong Land Sales

PROPERTY	SALE DATE	LOCATION	PRICE (HKD MILLION)	UNIT PRICE (HKD PSF, GFA)	PURCHASER
On Lok Mun St	Jan-21	Fanling	812.94	3,750	Mapletree Investments

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GLOBAL DATA CENTER ADVISORY GROUP

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Key Indicators

Under Construction

173 MW

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Market Overview

Connectivity and emphasis on the acquisition of renewables have been recent focuses in the Singapore data centre market, with several major cloud services increasingly competing for local and regional deployments. With the lack of current and future capacity available, quality of peering and/or cloud onramp opportunities suggest that new deployments for the time being will be relatively smaller as large-scale development scales in Kuala Lumpur and Jakarta. While previously not under serious consideration as replacements for Singapore, new regional cables coming online particularly in Jakarta are causing this up-and-coming city to gain interest for larger-scale needs. As the unofficial moratorium continues into 2021, just Equinix and STT are working on new phases alongside the major Facebook project, still slated for completion in 2022. AirTrunk and Digital Realty have both recently completed their own (previously approved) large builds, with considerable success in pre-leasing in both buildings. No further sites have transacted for data centre development since the previous update of this report, and the local investment market remains quiet.

Speculation as to the end of the moratorium remains just that, though there are signs that alternative energy uses are being considered. The Energy Market Authority has issued a request for proposal to import 100 MW from Malaysia beginning in 2022, with submissions required by June. As one of the key concerns regarding data centre development involved reducing the national carbon footprint, this plan may lead to other similar regional agreements. As noted elsewhere in this report, a variety of local research is continuing in reducing data centre energy consumption, and large users such as Amazon have pursued their own renewable acquisitions.

Singaporean funds also pursued international investment strategies in both primary and secondary locations alike in recent months. Mapletree Industrial Trust recently closed on a large data centre campus in Richmond, Virginia, for just under S$283 million, suggesting interest in regional areas close to the powerhouse Northern Virginia area. Ascendas also closed on a pan-European data centre portfolio in the first quarter, paying Digital Realty S$905 million for assets in the United Kingdom, France, Netherlands, and Switzerland.

Ecosystem Developments

- **HGC Global Communications** has added another Point-of-Presence (PoP) in Singapore, signing on at the BDx data centre in Paya Lebar. HGC is now offering their bandwidth on demand services locally, offering further connectivity options for local enterprises.

- **Cogent Communications** signed their own agreement with BDx, with the global carrier now offering colocation, dedicated access, and a variety of other services from this new location.

- As noted in our previous update, **Keppel Data Centres** continues to spearhead research into new data centre platforms, signing an agreement with Keppel-owned City Gas to pursue the use of liquefied natural gas and hydrogen in the proposed floating data centre environment. Keppel is working with a variety of partners to drive efficiency for data centres locally, winning two local Building and Construction Authority awards at the end of 2020. Additionally, Keppel Telecommunications and Transportation secured their licensing to operate telecoms infrastructure in springtime, coinciding with the launch of the Bifrost undersea cable in partnership with Facebook and Telin. The cable will connect Singapore to Indonesia, the Philippines, Guam, and the mainland United States, with plans to begin operations in 2024.

- **G-Core Labs** followed their recent PoP announcement with the launch of their public cloud in Singapore, their first location in Asia to offer the full product suite. G-Core offers a variety of services tied to their cloud offering, including an artificial intelligence platform and testing options.

- **Amazon** announced their initial renewable energy agreement locally, agreeing to purchase 62 MW of solar power from Sunseap. The modular solar project allows for flexibility and scalability, along with physical repositioning depending on land use needs. The cloud compute giant is now also offering AWS Direct Connect 100 Gbps connectivity for those with large data sets, with Singapore joining six other global locations in the United States and across Asia with this service.

SINGAPORE MARKET MAP
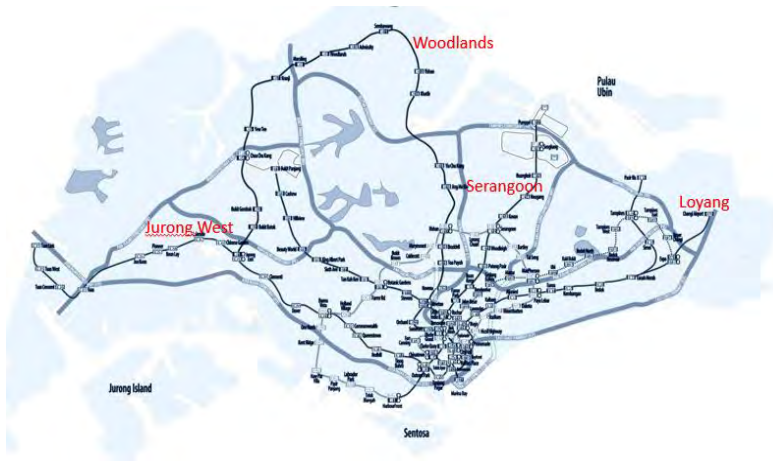
ECOSYSTEM DEVELOPMENTS

- **OVHcloud** doubled their capacity locally early in 2021, with Singapore joining Sydney and Mumbai as recent focal points for the cloud services provider. Singapore serves as regional corporate headquarters for the French multinational, offering a variety of dedicated server and connectivity options.

- **Oracle Cloud** will be coming to Singapore in 2021, slightly later then announced in our last report. Oracle is already operating in Japan, South Korea, Australia, and India, with Singapore becoming the first location across Southeast Asia.

- **Iron Mountain** announced a new partnership with Telia Carrier, with Singapore joining six other international locations offering Telia IP transit services. Telia Carrier offers 67,000 kilometres of fibre across 35 countries.

- **Google** is teaming up with Facebook and XL Axiata for the upcoming Echo cable, due to launch operations in 2023. Echo will connect Singapore to Indonesia, Guam, and the small town of Eureka in California, joining the Bifrost cable along a similar route that was referenced earlier in this report.

- **FEPL** is launching Project Koete, a new data centre and cable project based in Australia that will connect several rural areas on the northern and western coasts of the country to Jakarta, Singapore, and Kuantan in Malaysia. Expected for completion in 2023, the cable will stretch 8,000 kilometres across the region.

New cloud and connectivity options abound in Singapore, as development remains postponed for all but a small number of new projects.

Construction Update

OPERATOR	LOCATION	GFA SIZE (SQM)	TOTAL POWER (MW)	STAGE / EST. DELIVERY
Equinix	SG5 (Phase 1)	1,710	3 (est)	Under Construction / Q2 2021
	SG1 (Phase 15)	879	1 (est)	Under Construction / Q3 2021
	SG5 (Phase 2)	2,000	4 (est)	Under Construction / Q4 2021
Facebook	Tanjong Kling	170,000	150	Under Construction / Q2 2022
STT	Defu 3	14,500	15	Under Construction / Q3 2022

DATA CENTRE UPDATE

SYDNEY

FIRST HALF 2021

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Key Indicators

Under Construction

79 MW

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Market Overview

Sydney continues to maintain impressive pace of late, with several government agencies joining major cloud services as top-level tenants for local operators. As referenced throughout this update, local clients continue to demand ever-greater sophistication in their IT strategies, with several pursuing true hybrid frameworks encompassing multiple major cloud services. Large space remains in demand, with seven additional projects currently under construction, including a 36 MW new build by DCI due by the end of 2022. AirTrunk recently completed the first phase of their SYD2 campus, with plans for 110 MW at full buildout. The additional regional Microsoft capacity referenced in our last report will have at least a partially self-performed aspect, with the cloud giant acquiring three sites of late in the suburbs of Seven Hills, Blacktown, and Lane Cove for data centre development. Major cloud services remain bullish on Sydney, with Amazon adding further services and OVH adding a second location. The investment market showed life at the end of the year, with Charter Hall acquiring a Sydney office and data centre tower in a sale-and-leaseback deal with Telstra. Priced at A$281.5 million, the building will remain home to Telstra through 2030 and is an enticing development site thereafter.

Land remains available for data centre development, particularly throughout the Greater Western Sydney suburbs where much of the current action is transpiring. While many other regional destinations have struggled of late with power availability or geopolitical concerns, the ability to simply secure considerable land and power places Sydney in good stead for continued growth. Secondary and tertiary markets across the country have continued their own positive notes of late, which will in turn increase regional connectivity. The recently announced Project Koete will create three data centres in Perth, Darwin, and Dampier, along with an 8,000-kilometre undersea cable linking these areas to Indonesia, Singapore, and Malaysia. Long underserved, the additional capacity will provide these areas with a new level of high-speed access. A continued positive outlook for the remainder of 2021 and throughout the next year for Sydney.

Ecosystem Developments

- The **Australian Securities and Investments Commission (ASIC)** has signed a four-year deal with Canberra Data Centres (CDC), with the secondary data centre for the regulator moving to Eastern Creek. ASIC is planning for the move to be complete by mid-2022. The Department of Home Affairs followed on with a similar five-year deal with CDC, with plans to join ASIC at roughly the same time.

- After considering a move to another provider, the **Department of Defence** has elected to stay at Global Switch in Ultimo, extending their lease through 2025. After evaluating possible cost and effort involved in the move, the Department found the benefits of remaining exceeded those of a relocation.

- **Vocus** added its twelfth fibre cable across Sydney Harbour in March, responding to the need for greater bandwidth from a mix of enterprise and government clientele. The new addition connects Rozelle to Pyrmont, and onward to the national network that ultimately links 144 data centres.

- The **New South Wales Police** have elected to move to the cloud, signing a deal with Microsoft Azure as the force migrates from its current on-premises solution. While NSW Police plans to use hybrid IT as needed (a vendor-based AWS Outpost solution may also be utilized for some applications), most core solutions will be Azure-based.

- **Macquarie Data Centres** signed a 10 MW pre-lease for their IntelliCentre 3 East facility, leaving just 1 MW available for future tenants. Another 7 MW is possible for IC3E, as is a prospective second building to form a campus.

- An as-yet-unnamed new undersea cable has been proposed, linking Sydney and Melbourne to the small city of Invercargill in New Zealand. The project is part of the new **Datagrid** project, with plans for a 60 MW data centre in the adjoining New Zealand town of Makarewa. The cable and associated data centre have planned operations beginning in 2023.

Ecosystem Developments

- **Hostopia** announced a major consolidation of their five data centres in both Melbourne and Sydney, choosing to move into Equinix SY5 and ME2 as they improve efficiency and service delivery.

- **OVHcloud** has added a second data centre locally in Sydney, joining Singapore and Mumbai as recent expansion markets for the cloud services provider. The company is now offering a variety of dedicated server and connectivity options across the greater APAC region.

- **Amazon Web Services (AWS)** rolled out AWS Direct Connect 100Gbps, explicitly targeting those users in need of higher bandwidth for large-scale data sets. The new service is available locally at Equinix at data centres SY1 through SY4 and at Global Switch.

Nearly 80 MW remains under construction throughout Sydney, with major cloud services such as Microsoft increasing their local commitment.

Recent Land Sales

PROPERTY	SIZE (SQM)	SALE DATE	SALE PRICE (A$)	BUYER
57 Station Rd, Seven Hills	25,700	Apr-21	$18,920,000	Microsoft
6 Honeman Close, Blacktown	50,000	Dec-20	$70,400,000	Microsoft
706 Mowbray Rd, Lane Cove	17,000	Dec-20	$63,000,000	Microsoft
327 Burley Rd, Horsley Park	86,000	Oct-20	$84,300,000	Digital Realty

Recent Property Sales

PROPERTY	SIZE (SQM)	SALE DATE	SALE PRICE (A$)	BUYER	SELLER
78 Pitt St, Sydney	23,472	Dec-20	$281,500,000	Charter Hall Long WALE REIT	Telstra

Construction Update

OPERATOR	PROJECT	SIZE (SQM)	POWER (MW)	STAGE / EST. DELIVERY
Macquarie	Intellicentre 3 East	13,400	11	Under Construction / Q2 2021
Alpha DC Fund	KDC Sydney 1	5,300	7 (est)	Under Construction / Q2 2021
Equinix	SY5 Phase 2	2,894	6 (est)	Under Construction / Q3 2021
Digital Realty	Erskine Park III	6,279	7.2	Under Construction / Q4 2021
NextDC	S3	20,000	12	Under Construction / Q2 2022
DCI	SYD02	35,000	36	Under Construction / Q4 2022
AirTrunk	SYD1 (Phase 2)	12,000 (est)	40	In Planning

DATA CENTRE UPDATE

TOKYO

SPRING 2021

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Under Construction
76 MW

Large-scale development continues in Inzai with robust interest in local expansion.

MORE INFORMATION

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Market Overview

As noted in the last edition of this report, Tokyo is rapidly growing into a hyperscale hub throughout East Asia. As Colt and Equinix each completed construction on new campuses late in 2020, Equinix immediately began work on their second phase thanks to strong leasing and advance commitments from local clientele. Many clients both local and international are looking to the expanding neighborhood in Inzai to serve as their national or regional entry point, with secondary deployments following thereafter in Osaka. The investment market also enjoyed a rare large transaction at the end of the year, with AXA Investment Managers acquiring a SoftBank data centre for ¥22 billion. This strong pricing indicates the desire for operational assets in Tokyo with top level tenancy, and could drive further investment in the coming year as large funds form data centre investment strategies. With the established REITs adding new connectivity options and the upcoming AirTrunk campus launching its first phase before year-end, Tokyo continued to move from strength to strength over the past several months and looks set for continued growth over the next year.

Ecosystem Developments

- **Mitsubishi Corporation** and **Digital Realty** recently signed an agreement with ARTERIA Networks that provides for increased connectivity at the upcoming NRT10 campus. ARTERIA is upgrading their fibre network across Inzai, with a dedicated connection at NRT10 linking to regional cable landing stations. The first phase of NRT10 is planned to go live in August.

- **Equinix** announced that their Network Edge product will be coming to Tokyo in 2021 alongside three other international locations. Network Edge allows for virtual network services for quick deployment and scalability, with no further hardware needed. Equinix also announced the expansion of Equinix Metal in Tokyo and seven other cities, offering additional Infrastructure-as-a-Service (IaaS) options. The global REIT and partner GIC Real Estate are additionally constructing another phase at TY12x, coming online early in 2022.

- **Amazon Web Services (AWS)** rolled out AWS Direct Connect 100Gbps, explicitly targeting those users in need of higher bandwidth for large-scale data sets. Tokyo is one of the first markets to launch this service, available at @Tokyo CC1 and Equinix TY2, TY6, TY7, and TY8.

Recent Property Sales

PROPERTY	SIZE (SQM)	SALE DATE	SALE PRICE (¥)	BUYER	SELLER
3-4-4 Shinsuna (Koto Ward)	20,000	Dec-20	¥22,000,000,000	AXA Investment Managers	SoftBank

Major Construction Update

OPERATOR	SITE	SIZE (SQM)	POWER (MW)	STAGE / EST. DELIVERY
MC Digital Realty	NRT10	37,850	6	Under Construction / Q3 2021
AirTrunk	TOK1	56,000	60	Under Construction / Q4 2021
Equinix	TY12x (Phase II)	8,000 (est)	10	Under Construction / Q1 2022