



# DATA CENTER CLOUD TRENDS IN ASIA

**Bicsi**  
SOUTHEAST ASIA  
CONFERENCE & EXHIBITION  
17 & 18 November 2016

**BROADGROUP**  
Consulting in practice

## Established 2002

### Data Center / Cloud Consulting –

Commercial due diligence - M&A, IPOs, financial analysis

Market entry, competitive analysis, market data, vertical opportunities, positioning and strategy

Emerging markets research and evaluation

Strategic advice for regional governments, telcos

### Publishing –

Market reports and studies

CMQ – Colocation Markets Quarterly

[www.data-economy.com](http://www.data-economy.com)

### Events –

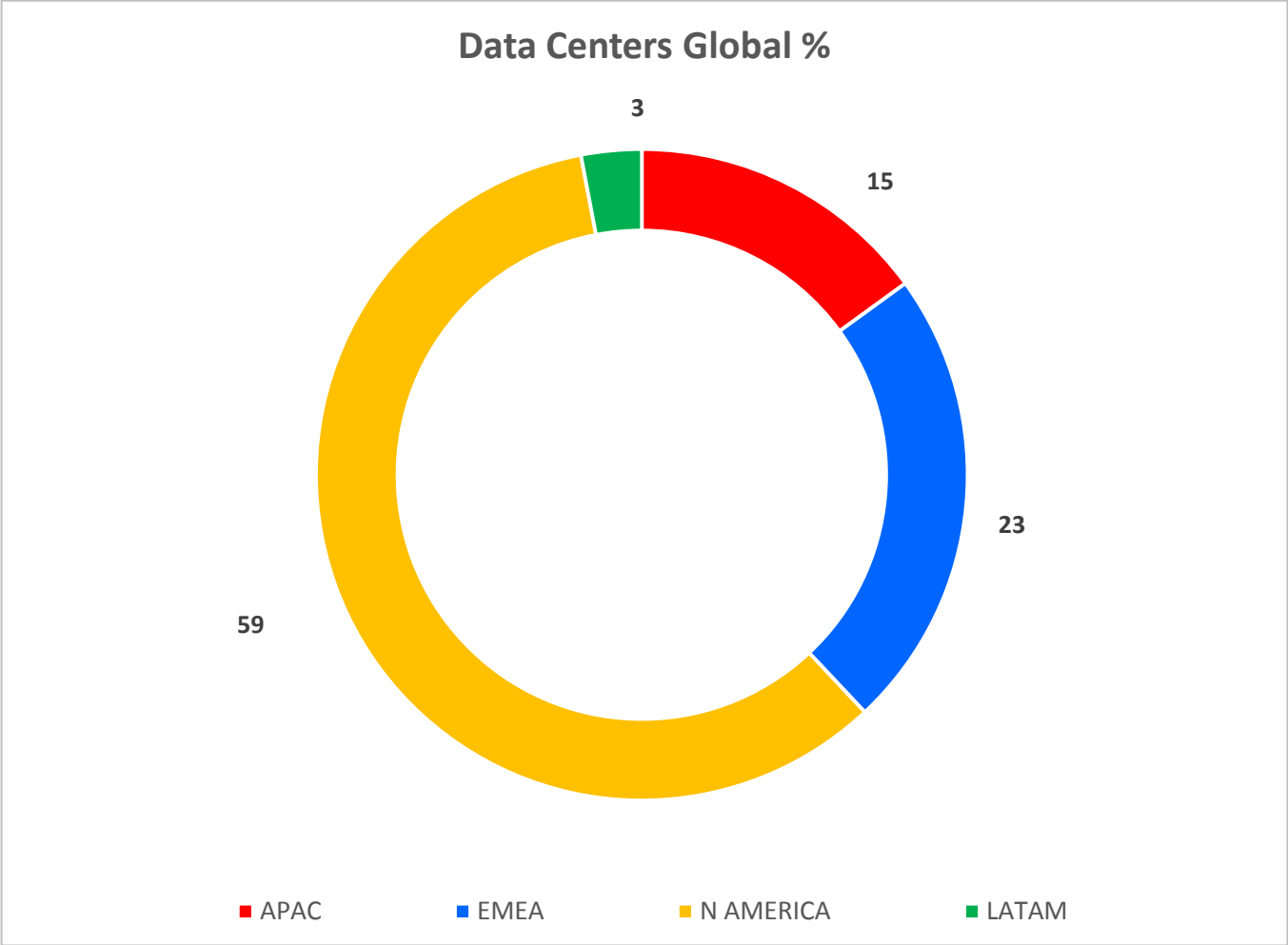
Datacloud conferences – Oslo, Monaco, Dublin, Singapore

Finance & Investment Forum – London, Sydney, Hong Kong

Conferences: Singapore, KL. Johor, Shanghai, Hong Kong & Sydney

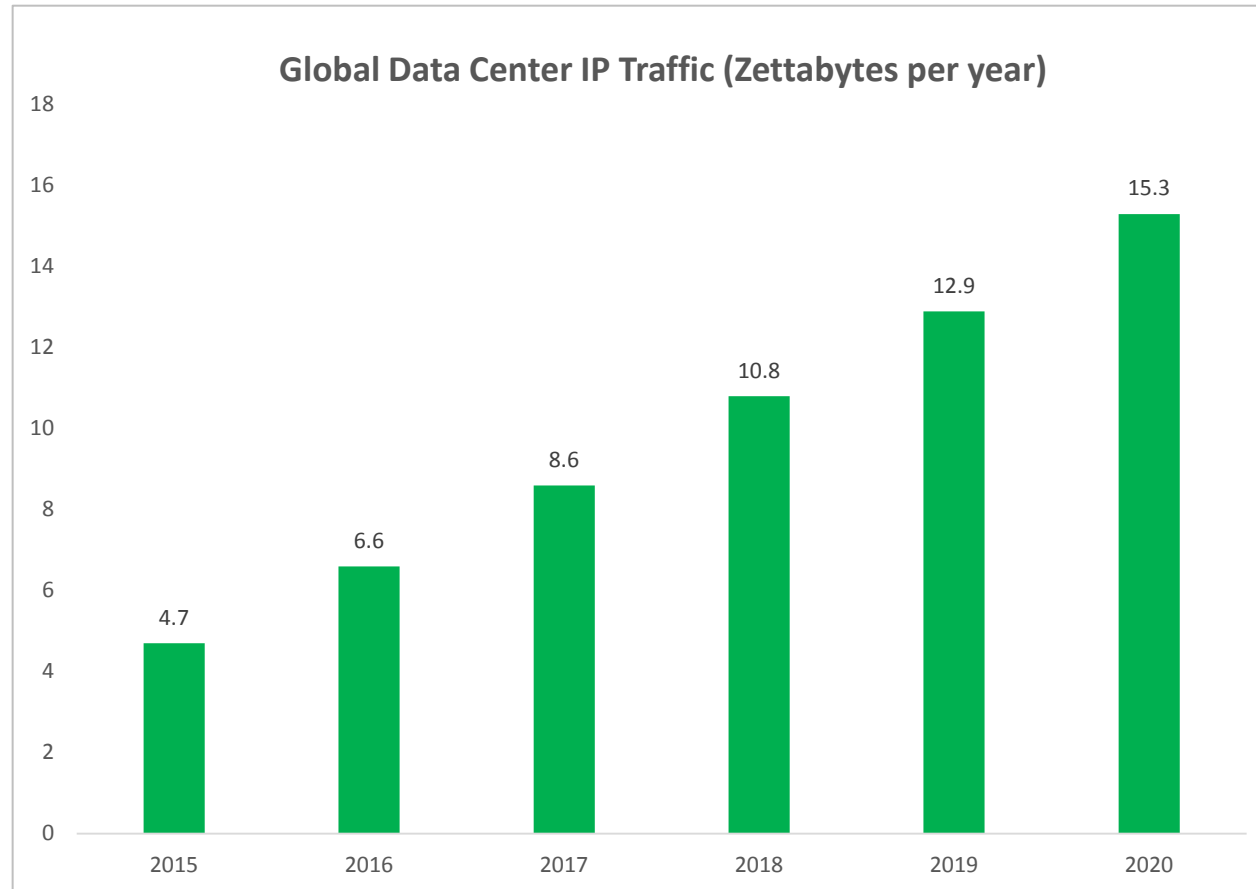
#### Consulting Customers include:

6 degrees, ABRY Partners, Accenture, Allen & Overy, Amazon, ANZ National Bank, Apax, Ascendas, Bain, BNP, Booz Allen Hamilton, Brockton Capital, BT, Cannon, Carlyle, Cisco, Commerzbank, Corning, CSF, CTeX, Dataplex, Digiplex, Digital Realty, eBRC, Emerson, Equinix, Ernst & Young, e-shelter, eTeck Trinidad, euNetworks, Fidelity, Fujitsu Siemens, Glebe Asset Management, GMT Partners, Go Daddy, Global Switch, Goldman Sachs, Hewlett Packard, Hitachi, IBM, International Business Wales, Invest in Iceland Agency, IDA Singapore, Injazat, Invest Brisbane, Interxion, Keppel, LDC, Macquarie, McKinsey, Meeza, MDeC, OVH, Peer1, PMBH Investments, Royal Bank of Scotland, Rackspace, RBC, Rothschilds, Revenue Capital Asset Management, Savvis, Scottish Enterprise, Siemens, SilverLake, SingTel, SoftLayer, SPO Partners, STC, Strato, Summit Partners, SunGard, SWERDA, Swisscom, TeleCity, Technical Real Estate, Telehouse, Telstra, T-Systems, Veronis Suhler, Wellcome Trust, Wohl AG



Source: BroadGroup Consulting

# WHY IS THERE SO MUCH OPTIMISM ABOUT DEMAND?

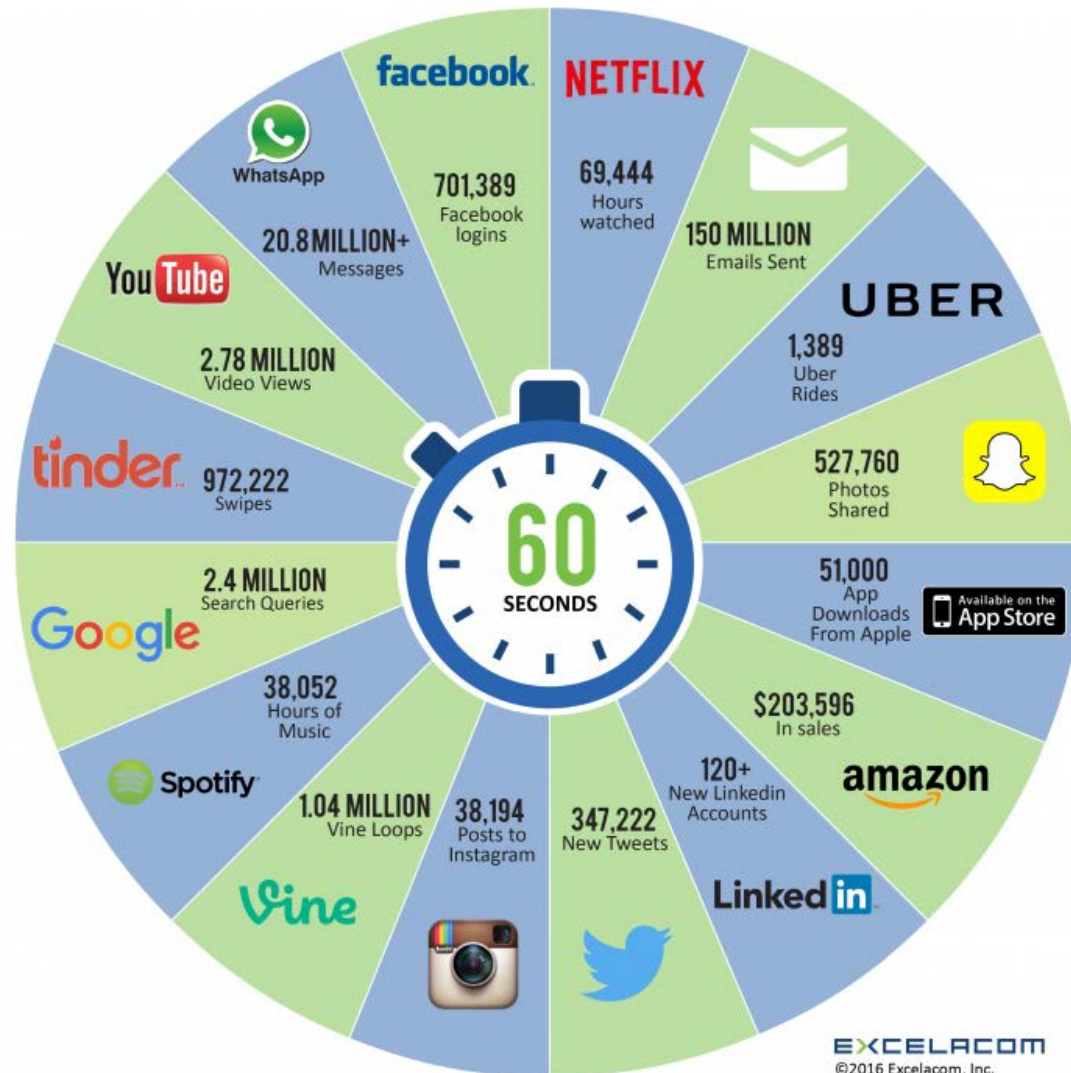


**27% CAGR  
2015-2020**

Source: Cisco Global Cloud Index 2015-2020

Zettabyte also equates to 250 billion DVDs worth of information

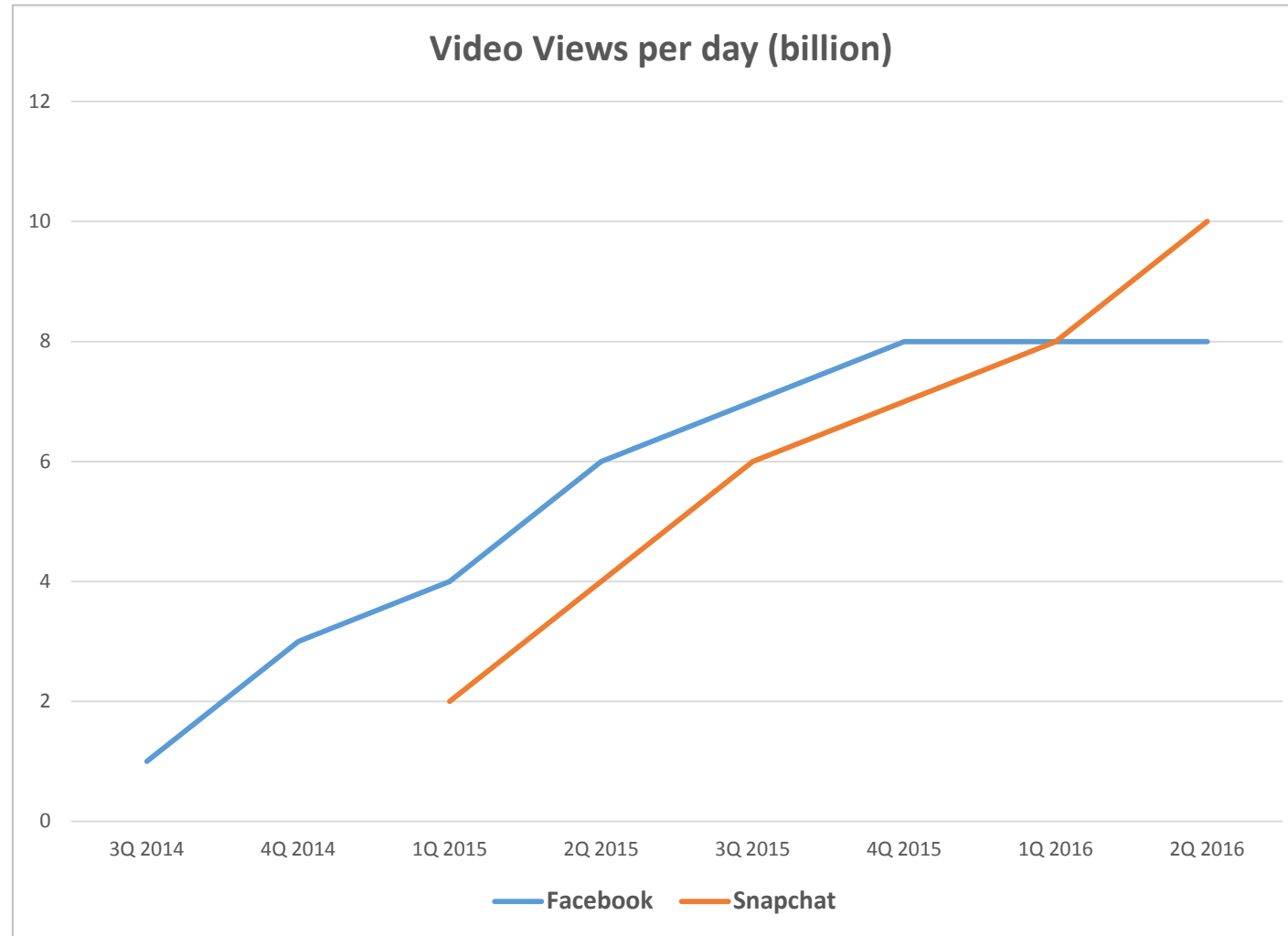
# 2016 What happens in an INTERNET MINUTE?



**77.6 million page views per minute**

Source: Akamai

# NOT JUST THE SCALE, BUT THE DIVERSITY AND GROWTH



**Facebook –  
75% via Mobile**

Source: Facebook/KPCB/Forbes

**Mobile** – 5G, growth of mobile data, 55% of all mobile traffic is video - Source: KPCB

### **Virtual Reality, Artificial Intelligence**

**Enterprise increased use of outsourcing** – does it make sense to build a large, in-house data center? continued outsourcing parts of IT to data centers, re-evaluation of space requirements

**Co-location trend** - moving from 'carrier hotel' to 'cloud hotel'

**Analytics** - "Big Data" new vertical growth market (eg Retailers/mobile ad targets)

**Content/Media** - Eg: Netflix streaming (35% all US internet traffic) and Xfinity (TV) on-demand services

**Cloud** – now representing significant percentages of revenues in some data center businesses

**Social Media** – driving huge storage requirements video/photo/user generated content

**Specific vertical market factors** – eg: life sciences and auto industries

## GROWTH DRIVERS: OUTSOURCING

**Increased complexity** in running in-house Data Center– and recruitment of personnel to manage, sourcing power etc

**Large upfront costs** to construct – especially high spec facilities

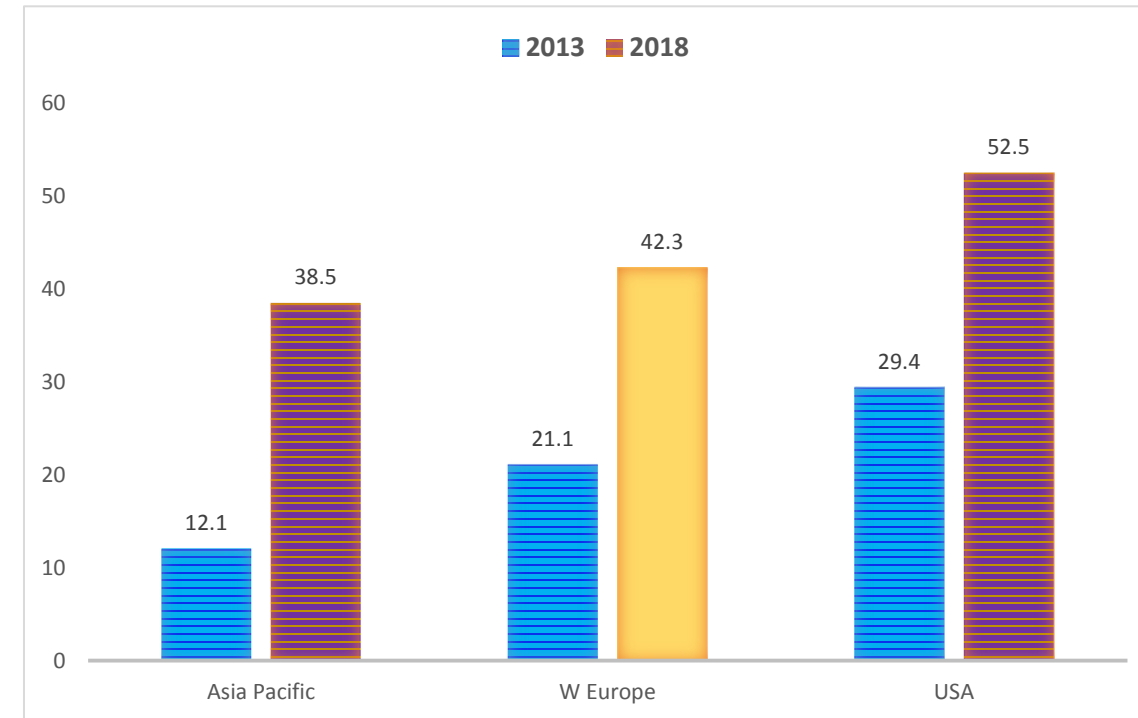
**Not a core competency** - owning and managing data centres are not core competencies for many organisations – need to focus on business

**Organisation needs can change and grow quickly** - and third party providers are able to provide flexible, on-demand, agile infrastructure at scale

**Growing data centre compliance** - and regulatory requirements especially data privacy, environmental legislation

+ Potential in-country growth following EU decision on Safe Harbor

Projected Increase in Outsourcing (%)



Source: BroadGroup Consulting





### **7-year process of transition from a data center-based infrastructure model to one cloud**

Netflix today has 8x more customers using its video streaming service than in 2008, when started using AWS

Now in more than 130 countries – use AWS

Operating costs found to be less – mainly because of flexibility to adjust capacity used

# CAR INDUSTRY CREATING MASSIVE IT INFRASTRUCTURE



DATA  
COMMUNICATION  
MODULE

Toyota - installed in framework of all new models  
USA 2017; global 2019

Eg: provide an emergency notification when an  
airbag is deployed during a traffic accident.



25Gb  
per hour

CLOUD  
DATA CENTER

Toyota – building Big Data Center (TBDC): Toyota Smart Center

Hyundai – building big data hub in Guian New Area [Guizhou Province] linked to its domestic Big Data Center in Uiwang, South Korea.

## **A lot of hype - many industry predictions :**

50 billion “devices” connected by 2020 – about 10 billion of them in Asia

IoT generated data – cars, homes, security, wearables, city installations..... etc

IoT US\$10-20 trillion market by 2020 (Source: KPCB)


## **Main point here – how will IoT impact the data center?**

- Increased workloads
- Security, capacity, analytics challenges
- Any centralization of IT use in the enterprise will need to be processed by the data center
- In turn will impact bandwidth
- Data will be bursty or “chatty”

Trends like augmented reality, the Internet of Things and with more organisations shifting to hybrid cloud models are driving the demand for reliable and robust data center infrastructure

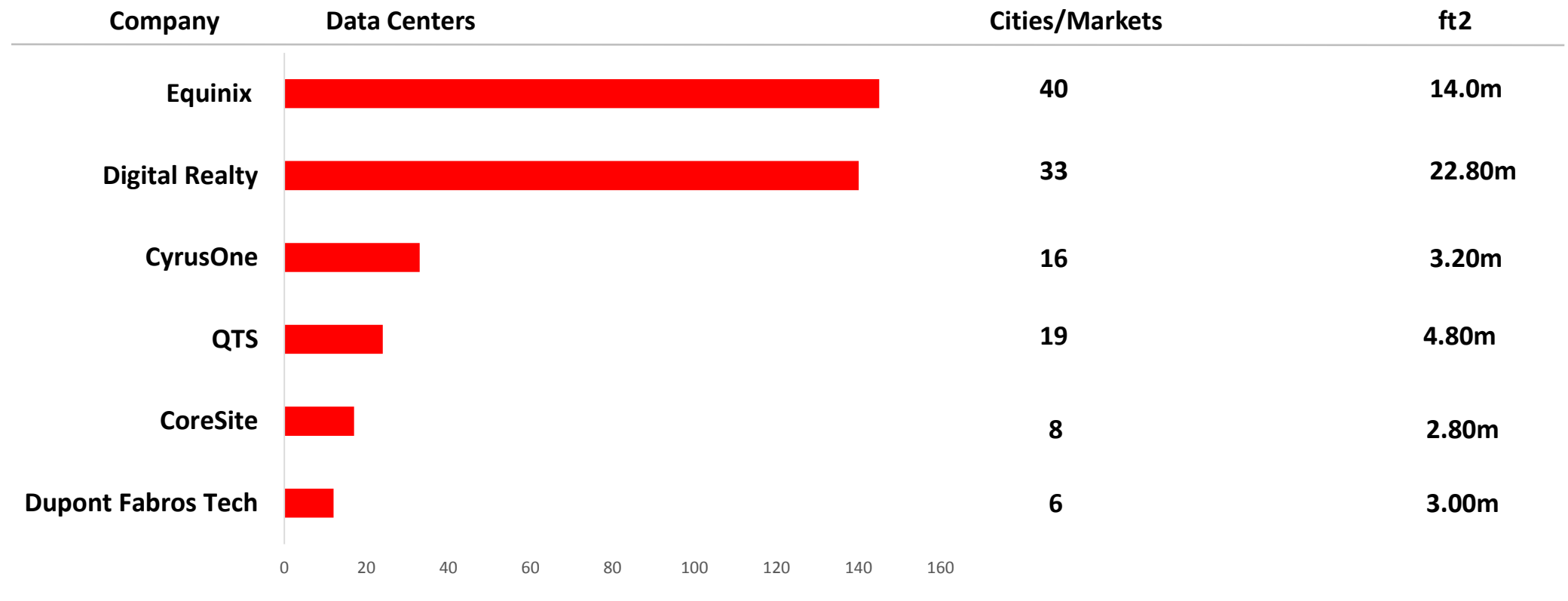
# GLOBAL CONTEXT – DIFFERENT BUSINESS MODELS

## Number of 3<sup>rd</sup> party Data Centers

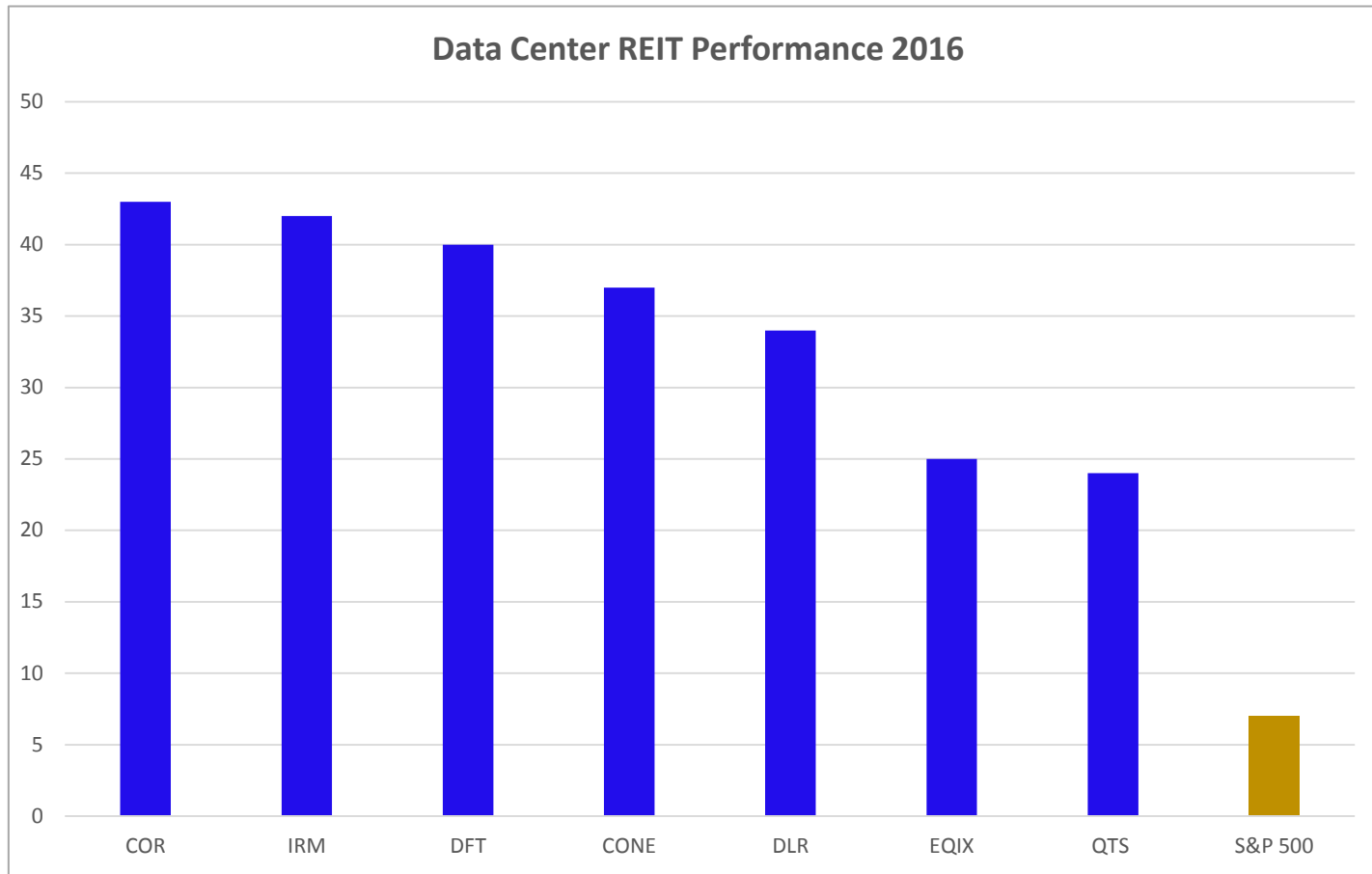
<b>Hyperscales</b>	<b>297</b>	
<b>REITs</b>	<b>&gt;300</b>	
<b>Colocation</b>	<b>&gt;2k</b>	
<b>Telcos</b>	<b>&gt;3k</b>	

**Wholesale  
Retail**

## Both Equinix and Digital Realty in the S&amp;P500 Index

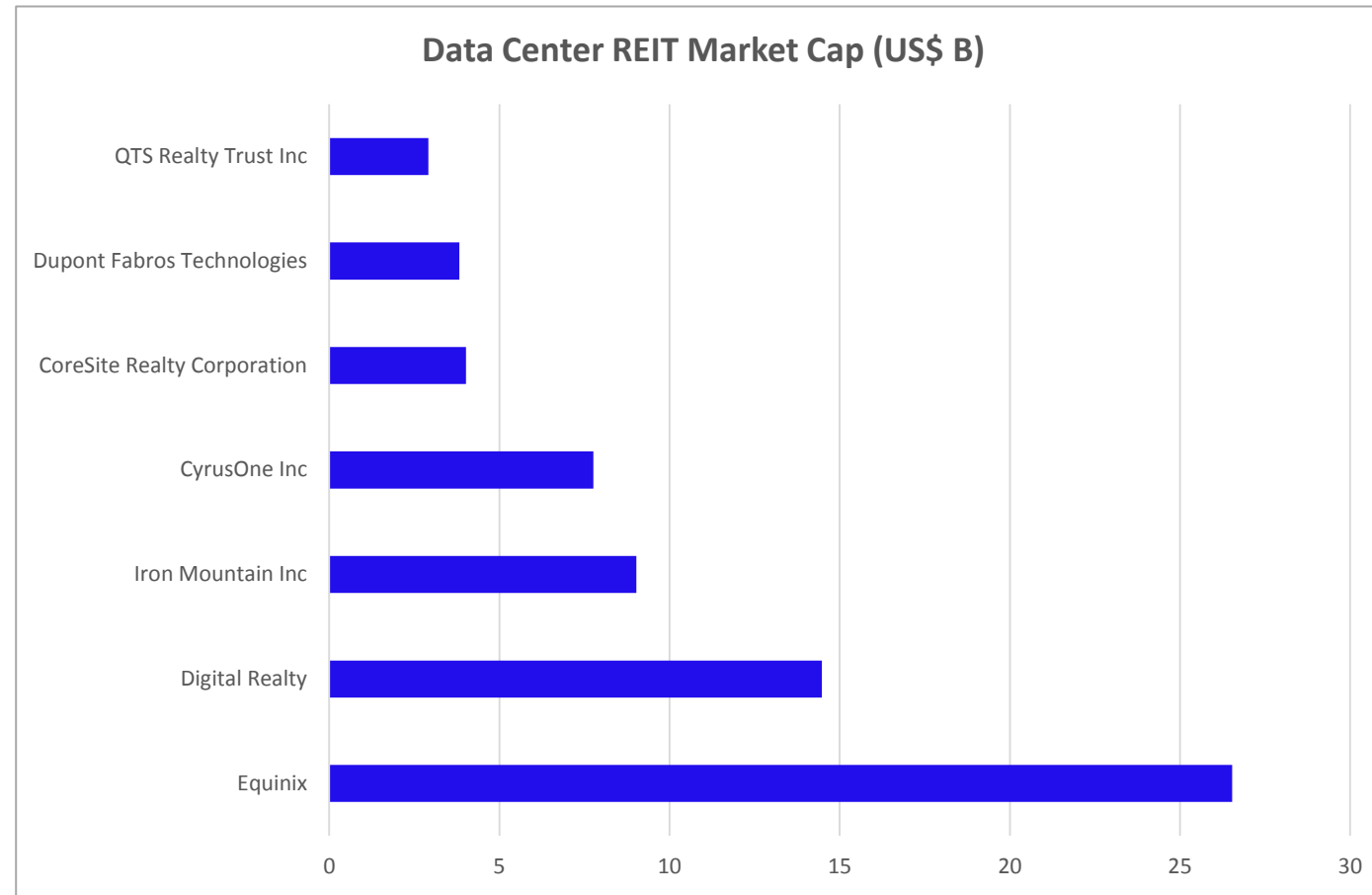


**REITs that own and operate data centers have risen more than the S&P Index this year**



Percentage change to Sept 7 2016 – Source: Bloomberg  
CoreSite Realty Corporation, Iron Mountain Inc, Dupont Fabros Technologies, CyrusOne Inc, Digital Realty, Equinix, QTS Realty Trust Inc

## Market Cap



Market Cap at 26 October 2016 – Source: Yahoo! Finance

## How important are Hyperscales:

### By end 2016:

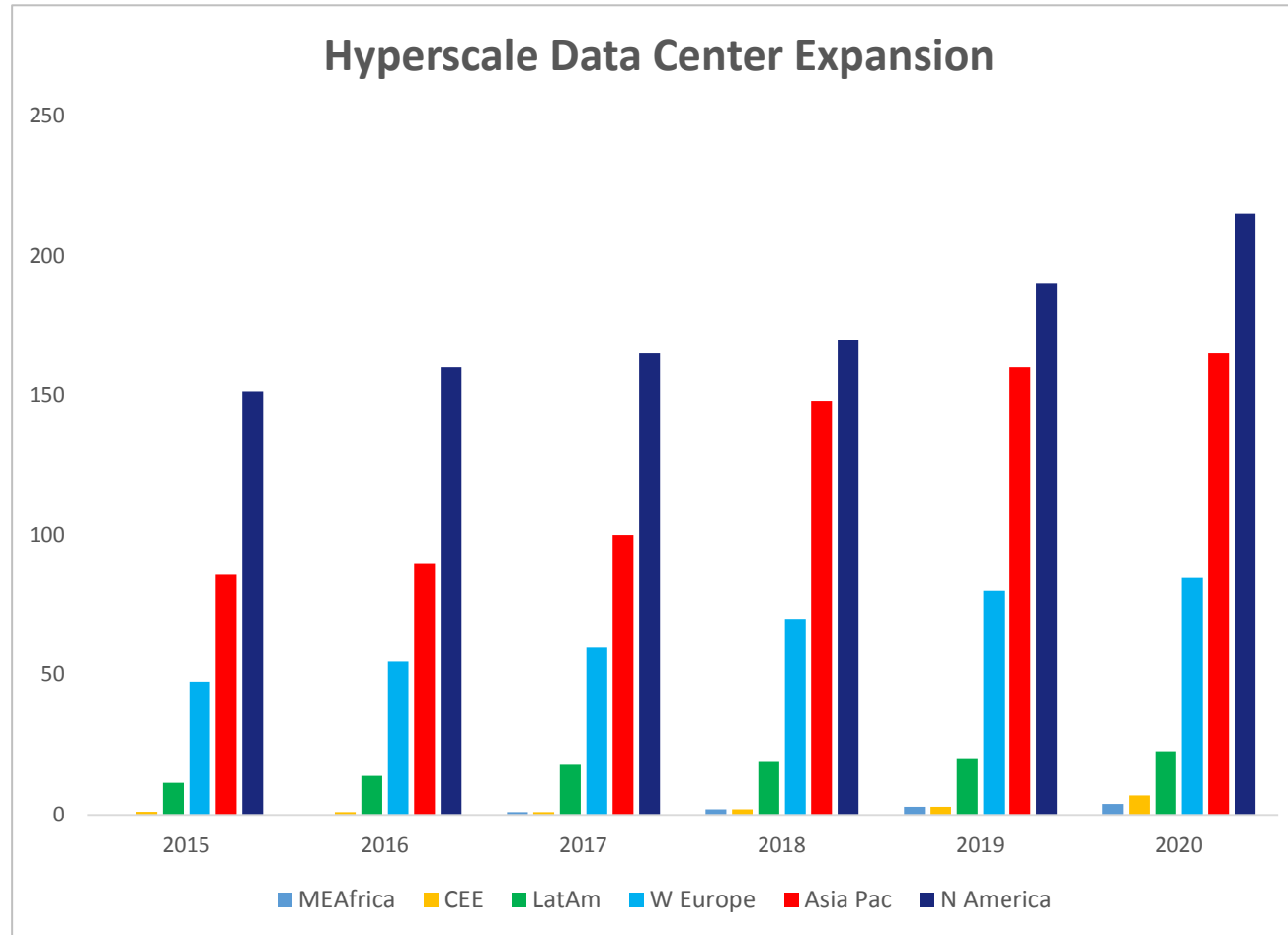
- **24 hyperscale operators**
- **297 data centers**
- **North America 51%**
- **Asia Pacific 29%**
- **Western Europe 17%**
- **Latin America 3%**

## Criteria for a Hyperscale could include:

- More than US\$1 billion in annual revenue from infrastructure as a service (IaaS), platform as a service (PaaS), or infrastructure hosting services (for example, Amazon/AWS, Rackspace, Google)
- More than US\$2 billion in annual revenue from software as a service (SaaS) (for example, Salesforce, ADP, Google)
- More than US\$4 billion in annual revenue from Internet, search, and social networking (for example, Facebook, Yahoo!, Apple)
- More than US\$8 billion in annual revenue from e-commerce/payment processing (for example, Amazon, Alibaba, eBay)



**After North America, Asia gains lion's share of hyperscale data center build: around 70 data centers from now to 2020**



Source: Cisco Global Cloud Index 2015-2020

## How good and for how long?

Pricing

Flexibility

Terms

Move to edge/Tier 2 locations

Move to emerging markets

Move to control spend

Move to in-house?



- **Customer**
- **Partner**
- **Competitor**

## Players across the region establishing their own international data center portfolios

Company	Home base	Data Center expansion 2016
Keppel Data Centers Holding S\$69.9 m profit (Oct 2016) for dc division	Singapore	Frankfurt: 40% of 20k sqm, 4.8 MW dc
Keppel DC REIT (public) 70.9k sq m across 10 data centers* 92.3% occupancy	Singapore	Milan: 15.3k m2 for €37.3m**
PCCW and KDCH/Keppel T&T	HK/Singapore	JV: International Carrier Exchange (HK) Colocated with POP new Asia-Africa-Europe-1 (AAE-1) submarine cable (25k metre cable Asia-MEA-Europe due 4Q16)
Keppel DC REIT (public)	Singapore	Acquired Intellicentre 2 in Sydney from Macquarie (2/2016) A\$45.2m
Keppel T&T	Singapore	DC4 – 18.3k m2 under construction Singapore; 25% dc space committed

\*excluding maincubes Data Center which is under construction by the vendor in Germany and slated for completion in 2018

\*\*Italy CAGR 15% from 2016 to 2020; demand growth outstrip supply growth (source BroadGroup Consulting)

## Alibaba deploying IT assets globally

Company	Home base	Data Center expansion 2016
Alibaba/Alicloud	PR of China	Has data centers in Hong Kong, Singapore and USA
Alibaba/Alicloud	PR of China	Plans data centers in Japan, Europe, Australia, Middle East by year end
Alibaba	PR of China	Assessed Ireland for new build (€5m per MW of capacity to build data center)
Alibaba	PR of China	Plans to open a data center in India this year
Alibaba	PR of China	Launched 2 self build/self designed data centers in Zhangbei County in Zhangjiakou – Hebei Province (part of going north strategy)

Looking for 1.2b more customers outside of China.  
 August - 20% stake in Thailand's Ascend Money, an e-payment firm  
 Expansion of its data center footprint is critical for its globalization plans

# INTER-ASIA AND INTERNATIONAL EXPANSION TREND

## ST Telemedia



Company	Home base	Data Center expansion 2016
ST Telemedia	Singapore	Acquired 40% stake in GDS China (now IPO)
ST Telemedia	Singapore	Acquired 49% Virtus Data Centres UK (price not disclosed)
ST Telemedia	Singapore	Acquired 74% of Tata Telecoms (44 data centers) ? USD675m
ST Telemedia	Singapore	JV with StarHub Singapore - USD28m for 70% stake in Shine Systems Assets (SSAPL), which holds the MediaHub data center

### **NTT acquisition stake in e-Shelter GmbH**

Transaction value US\$830m (86.7% of company)



### **CenturyLink disposal of data centers**

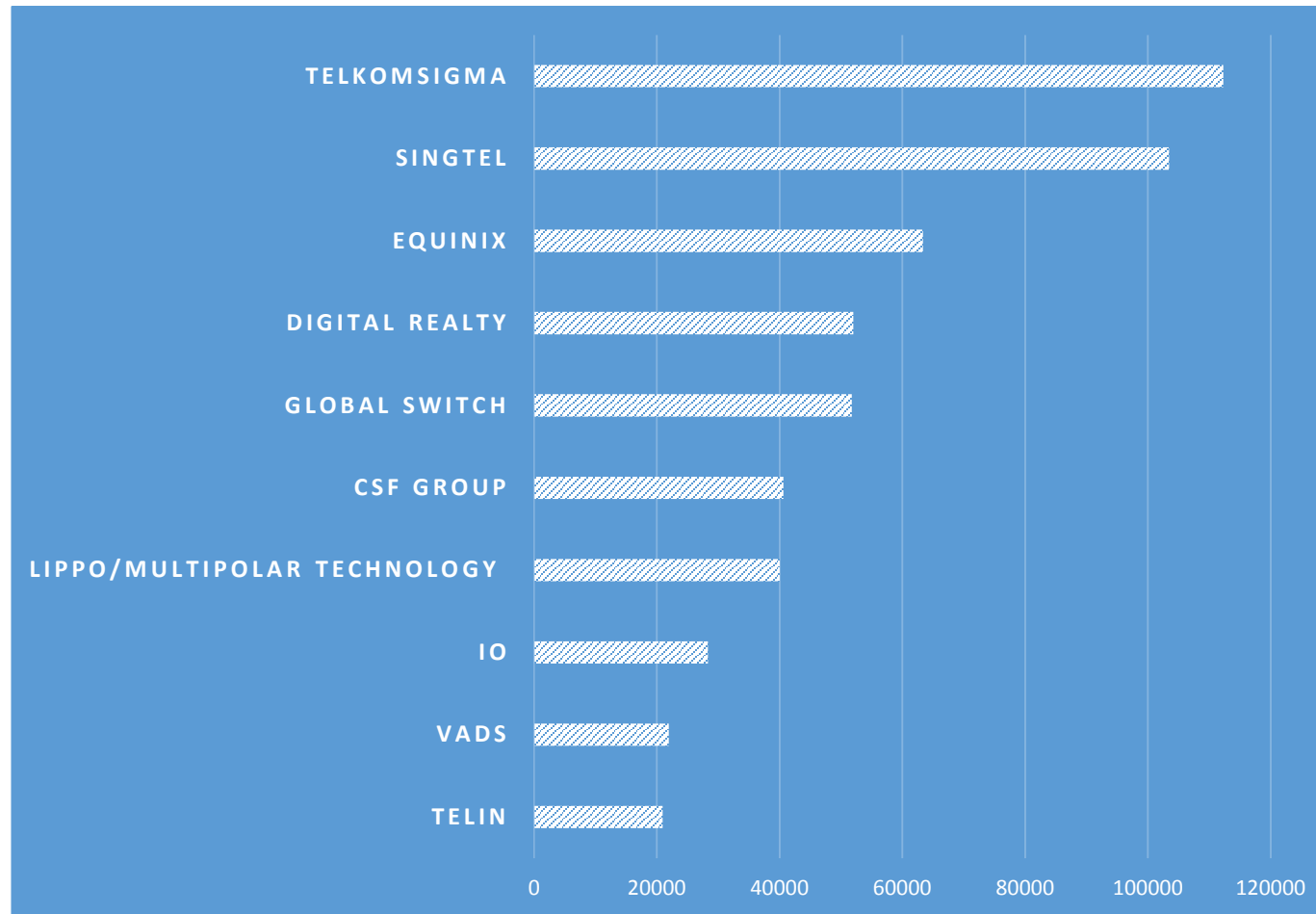
Sells to consortium BC Partners and Medina Capital Advisors,  
Longview Asset Management (1Q17)

(57 data centers) US\$2.5 billion cash + US\$150m minority

Stake in consortium global infrastructure company

BC Partners

## Top 10 Players in South East Asia – m2 space at end of 2017

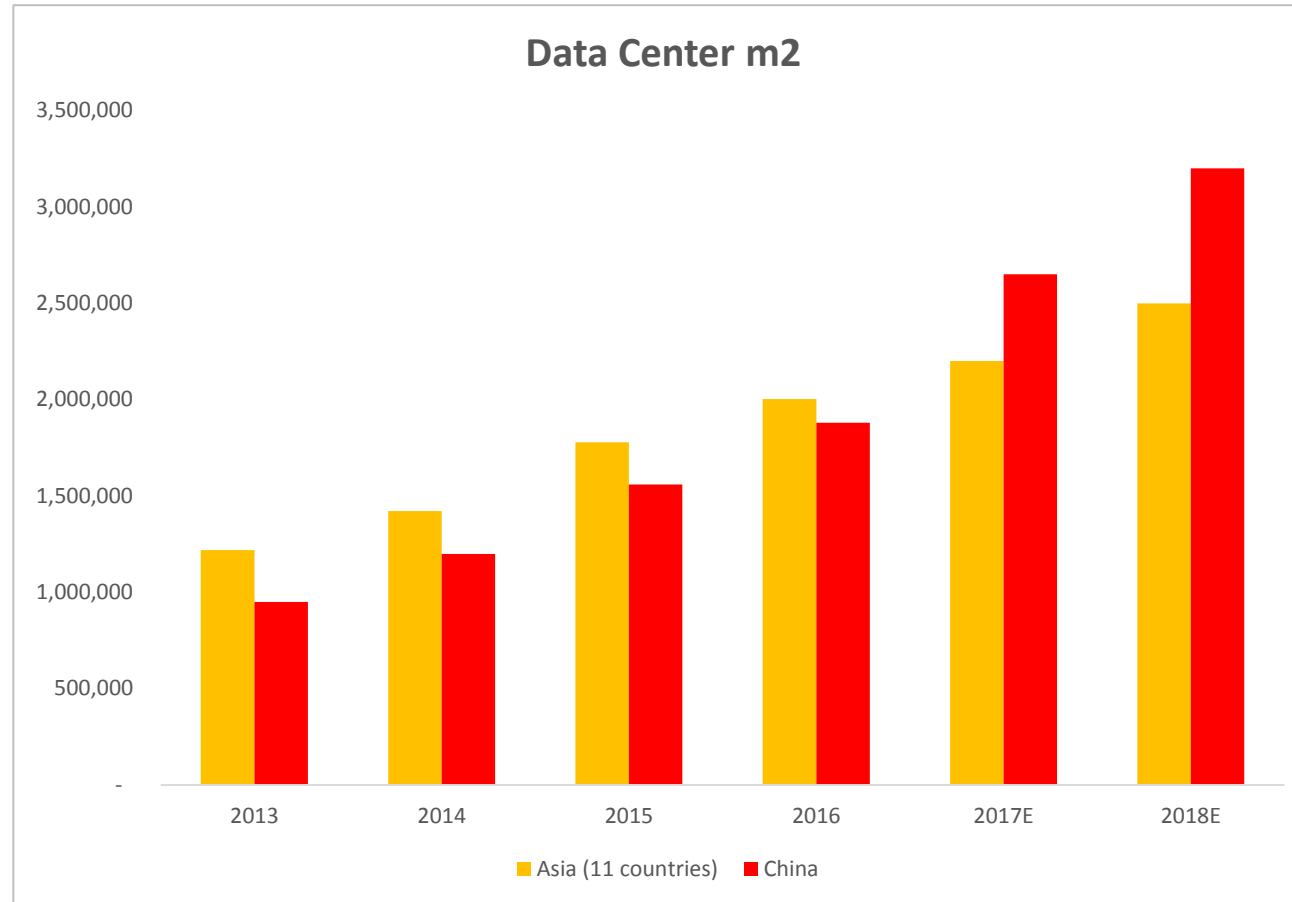


Source: South East Asia Data Centers 6: BroadGroup



# HOW BIG IS THE ASIA DATA CENTER MARKET?

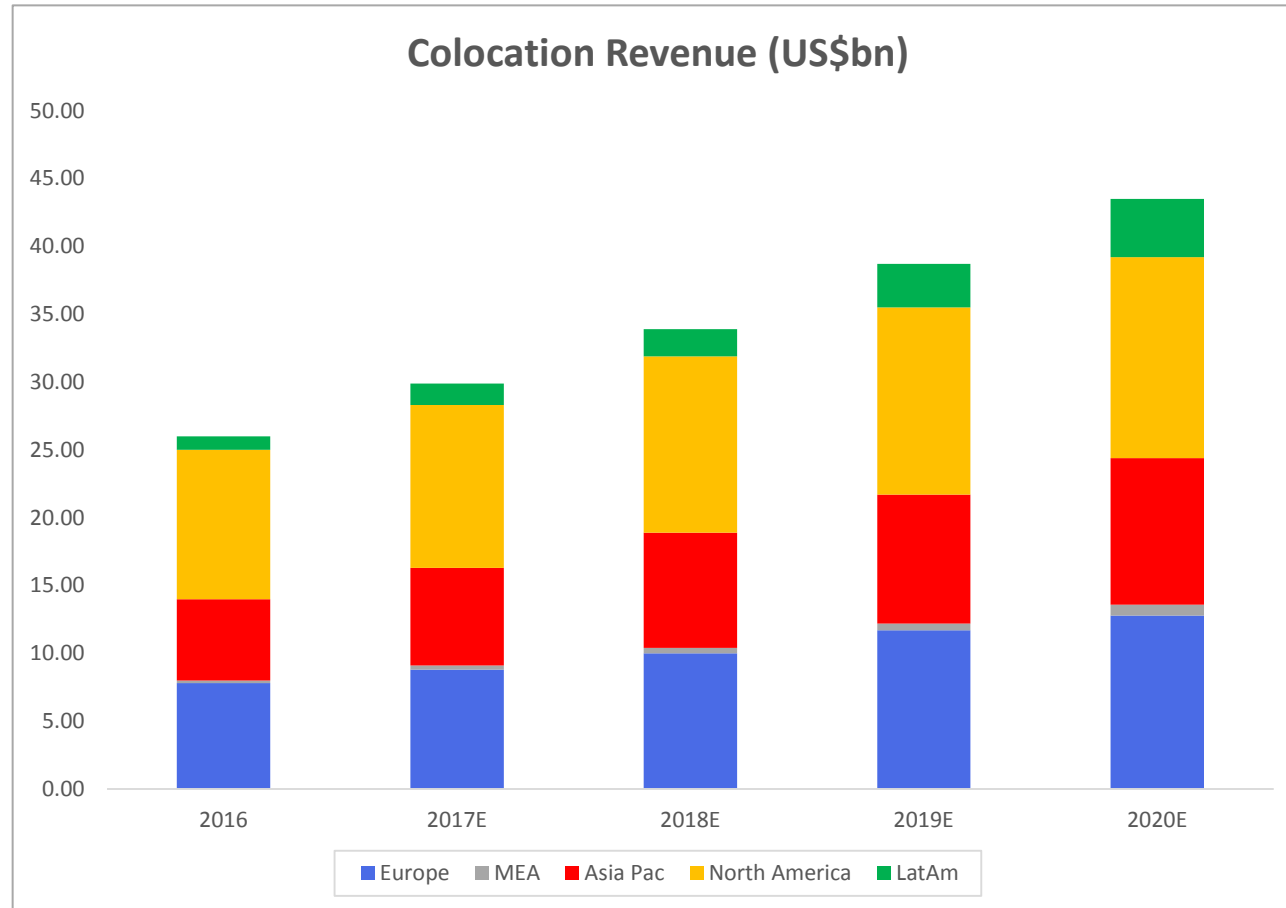
**ASIA m2 capacity increases from 1.2m to >2m across forecast period**



Source: BroadGroup Consulting  
11 countries – Australia, New Zealand, Indonesia, Singapore, Thailand, Malaysia, Hong Kong, Philippines, Japan, Taiwan, South Korea

# HOW BIG IS THE ASIA DATA CENTER MARKET?

**ASIA colocation market value increases from ~US\$6bn to ~US\$10.8bn by 2020**



Source: BroadGroup Consulting

## SUMMARY

**Key drivers mobile, video, IoT present in Asia**

**Government investment agencies, and local demand**

**Telco data centers still dominant**

**Hyperscale investment in region will bring possibly another 70 large scale facilities**

**Investment being sustained in expansion and growth with Keppel, ST Telemedia in particular**

**Singapore maintains lead (size) but expect Indonesia to evidence further growth**

**China - GDS listing, 21Vianet partnership with Warburg, Chayora – demonstrates changing structures underway**

**Cloud service expansion will bring regional competition (Alibaba, AWS, Microsoft....)**

**Expect some consolidation but M&A may not be as large as thought**

**Future prospects for each data center operator relates to business models selected**

**Data center providers need to be aware of the impact and opportunities around**

- 5G
- Virtual Reality
- Artificial Intelligence
- Niche verticals

**Adapt and incorporate to expand your market**

For Cloud fundamentally changes not just technology but business models, channels and procurement

# THANK YOU AND KEEP IN TOUCH WITH US



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26 JANUARY 2017

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