Strong Fundamentals Lead to Record-Setting Investment in Data Centers

Contents

Executive Summary

- Investment in data center real estate reached a fever pitch in the first half of 2017.

- Absorption was subdued, as hyperscale cloud users stayed on the sidelines in H1, as they digested last year's enormous leasing volume.

- Proximity and access to cloud services and latency-sensitive interconnection nodes to existing networks are still the strongest drivers of retail/colocation requirements for enterprise users.

- National pricing standardization of rental rates continues to emerge, where variability in pricing is dictated more by the need and type of requirement versus geography or market location.

- There is a higher tolerance for speculative data center development as providers become more comfortable with the strength of their sales pipeline and the transparency of user expansion goals.

Market Fundamentals

Following a substantial run of multi-megawatt (MW) leases that contributed to record-levels of net multi-tenant data center absorption in each of the past two years, hyperscale Cloud Service Providers (CSPs) were largely on the sidelines in the first half of 2017. With the bulk of CSP-related activity occurring as pre-leasing in new data center projects, it's not surprising that hyperscale users are temporarily focused on building out and deploying their cloud infrastructure. However, the robust adoption of rapidly evolving data-intensive technology remains on a nearly unwavering upward trajectory and will drive strong growth of the data center sector going forward.

CBRE measures net absorption in the data center sector as the net change in existing/commissioned wholesale power capacity and the first half of the year saw nearly 88 MW of positive occupancy gains, among the seven major data center markets.[1] The Northern Virginia market in particular remains a strong outperformer, with net absorption totaling nearly 42 MW in H1 2017—on pace to match and potentially eclipse 2016's full-year total of more than 84 MW.

Figure 1: Market Fundamentals

| Market	Inventory (Q4/Q2)	Vacancy (Q4/Q2)	Net Absorption	Rental Rates (kW/mo)*
Northern Virginia	608 MW (↑ 52 MW)	35.2 MW / 5.8% (↑ 120 bps)	41.5 MW	$120-$145
Silicon Valley	169 MW (↑ 14 MW)	9.0 MW / 5.3% (↑ 70 bps)	12.0 MW	$145-$165
Chicago	188 MW (-0 MW)	4.0 MW / 2.1% (↓ 310 bps)	4.2 MW	$130-$145
New Jersey/New York	155 MW (-0 MW)	28.2 MW / 18.2% (↓ 110 bps)	2.9 MW	$130-$150
Dallas/Fort Worth	231 MW (↑ 23 MW)	38.8 MW / 16.8% (↓ 300 bps)	22.0 MW	$120-$145
Phoenix	169 MW (↑ 14 MW)	14.9 MW / 8.8% (↑ 570 bps)	3.8 MW	$120-$135
Atlanta	117 MW (↑ 9 MW)	10.8 MW / 9.2% (↓ 220 bps)	3.0 MW	$120-$135
Southern California	88 MW (-0 MW)	14.0 MW / 16.3% (↓ 170 bps)	1.9 MW	$130-$160
Seattle	107 MW (↑ 2 MW)	19.9 MW / 18.8% (↓ 220 bps)	2.2 MW	$120-$150
Boston	60 MW (-0 MW)	14.7 MW / 24.4% (↓ 170 bps)	1.0 MW	$150-$180

*Rental rates are quoted asking rates for 250+ kW at N+1/Tier III requirements. Arrows indicate changes in H1 2017.
Source: CBRE Research/CBRE Data Center Solutions, H1 2017.

[1]Atlanta, Chicago, Dallas/Fort Worth, New York Tri-State Region, Northern Virginia, Phoenix and Silicon Valley.

With hyperscale users still digesting last year's enormous leasing volume, new leases in H1 2017 were largely by enterprise users with smaller requirements of between 500 kilowatts (kW) to 1 MW. For this reason, there were only a handful of transactions for more than 1MW in H1 2017.

Major markets are still favored by both hyperscale and enterprise users, as well as third-party data center operators—a trend that shows no signs of slowing in the near-term. Proximity and access to cloud services and latency-sensitive interconnection nodes to existing networks is still the strongest driver of retail/colocation requirements.

Figure 2: Primary Markets - Net Absorption & Pre-Leasing
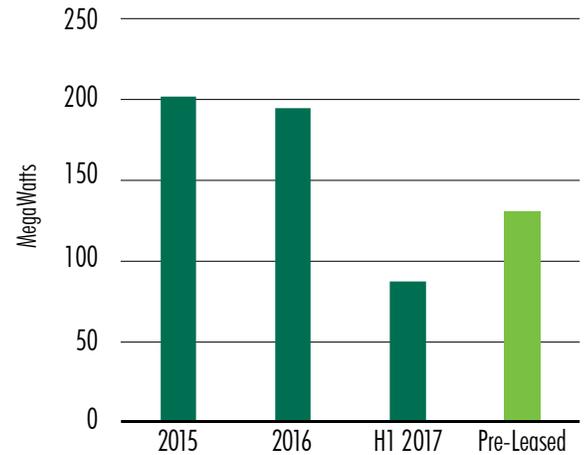
Source: CBRE Research, H1 2017.

Supply & Demand

## SPECULATIVE DEVELOPMENT ON THE UPSWING

The data center supply pipeline continues to accelerate, with nearly 284 MW of wholesale capacity currently under construction in CBRE's primary data center markets. That capacity is already 46% pre-leased (131 MW). Depending on when these projects are completed, this level of pre-leasing implies that annual net absorption could approach totals of the past two years. While pre-leasing levels have consistently been in 45%-to-65% range over the past several years, there has been a subtle shift in the past several quarters to a higher tolerance for speculative development as a result of sustained demand for data center services. In particular, hyperscale CSPs are more openly sharing their expansion goals with data center providers to encourage speculative development, as speed-to-market is often a critical factor driving these deployments.

Northern Virginia remains the most active development market, with more than 10 new projects currently underway with an eye-popping 119 MW of wholesale capacity. Northern Virginia is the largest and most active data center market in the world, with its wholesale inventory larger than that of any country in Europe or Asia Pacific. Other markets with significant supply pipelines include Dallas/Fort Worth (47 MW), Chicago (41 MW), Silicon Valley (30 MW) and Phoenix (28 MW).

Vacancy rates for existing/commissioned data center space in primary markets remained relatively unchanged in H1. Silicon Valley (5.3%) and Chicago (2.1%) have the lowest existing vacancy rates in the country, effectively limiting immediate options in these markets. Users with a significant near-term wholesale need are effectively limited to pre-leasing or waiting for the delivery of new capacity. Given the tight market conditions and strong demand, developers are actively competing for strategic land sites in both primary and secondary markets.

Figure 3: Net Absorption Vs. Under Construction By Market
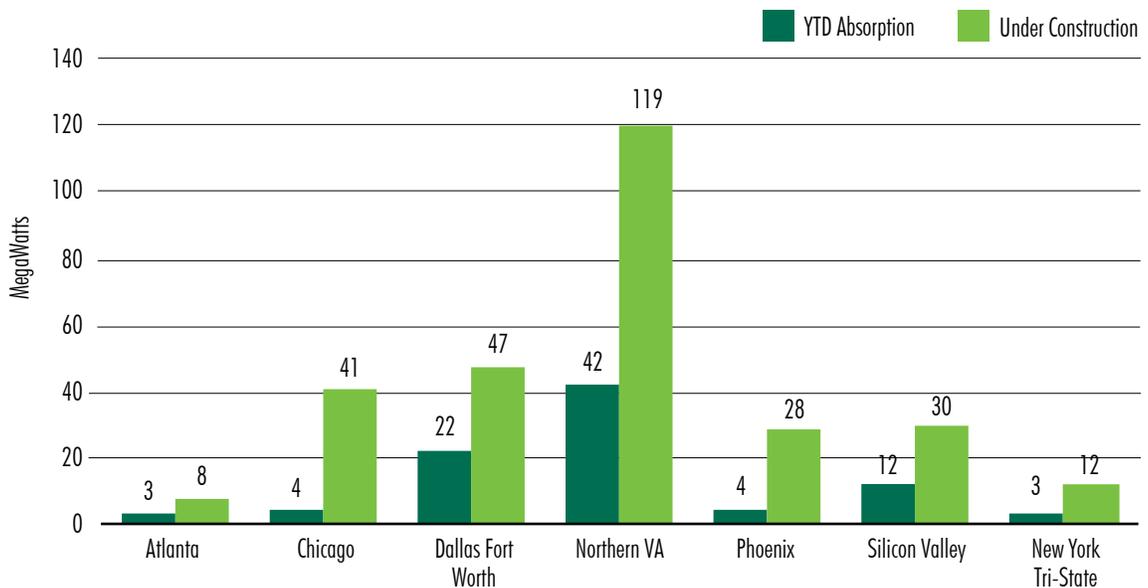
Source: CBRE Research, H1 2017.

As U.S. multi-tenant data center markets continue to mature, the balance between speculatively available supply and established demand is critical. By comparison, core markets in both Europe and Asia Pacific have averaged vacancy rates of between 15% and 20% for the past several years, with availability sometimes averaging up to three years' worth of annual average absorption.

THE EMERGENCE OF NATIONAL PRICING

Since 2015, there has been virtually no change in average wholesale rental rates in the U.S. (as measured on a space and power basis). The largest influence on rate variance is often dictated by term length and credit quality of the tenant. On a direct comparison basis, average rates for a straightforward Tier III/N+1 wholesale deployment in the U.S. still range between $125 and $145 per kW per month (modified gross) across either primary or secondary markets.

This underpins the growing emergence of national pricing standardization, where pricing variability is dictated more by the need and type of requirement than by geography or market location. Specific factors affecting pricing include:

- The specific resiliency needs of the requirement (i.e., N vs. 2N, low density vs. high density).

Figure 4: Construction Pipeline — Available & Pre-Leased Supply Under Construction
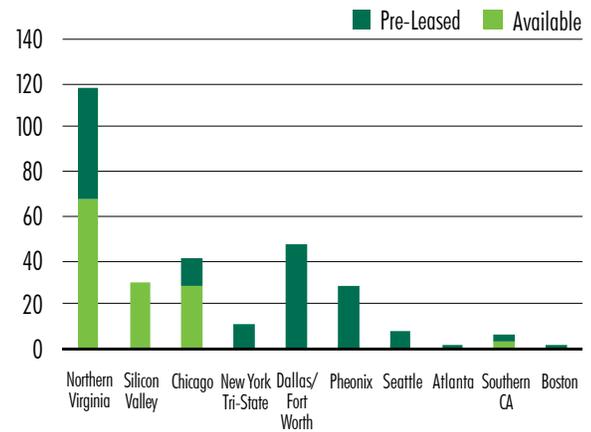
Source: CBRE Research, H1 2017.

- The type of applications being deployed (i.e., disaster recovery vs. high-frequency trading).

- The operating model and market niche of the data center operator (i.e., wholesale vs. services-centric retail).

- The level of services utilized by the tenant.

Total-cost-of-occupancy (TCO) factors that are specifically unique to certain geographic areas—such as utility costs, tax rates and any data center-specific incentive programs—often play a more critical role in market site selection than prevailing rental rates.

DEMAND: A TALE OF TWO SEGMENTS

Figure 5: Data Center Market Cycle*

Source: CBRE Research, H1 2017.
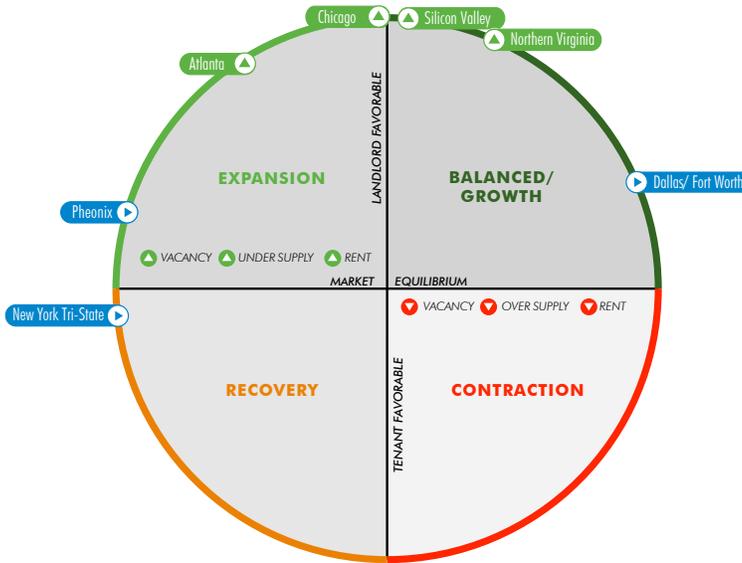
*The Data Center Market Cycle Graph reflects the current wholesale market conditions, taking into consideration the following variables:

- Demand (leasing, absorption, requirements in the market)
- Supply (existing vacancy, future availabilities, construction pipeline)
- Rental rate trend

Distance from the horizontal market equilibrium line generally implies the relative strength and/or weakness of a market relative to each other and their historical trends. Arrows indicate most recent trend.

Categories typically represent the following conditions:

Expansion: landlord/provider-favorable conditions; under-supplied market, strong demand, declining vacancy and upward pressure on pricing

Balanced/Growth: landlord/provider-favorable conditions; new supply more evenly balanced, stable or slightly increasing vacancy, rent growth slowing or flat

Contraction: tenant-favorable conditions; over-supplied market, increasing vacancy, weak demand, downward pressure on pricing

Recovery: tenant-favorable conditions; stable or slightly declining vacancy, moderate but improved demand, rent growth flat or increasing

Figure 6: Data Center Market Maturity
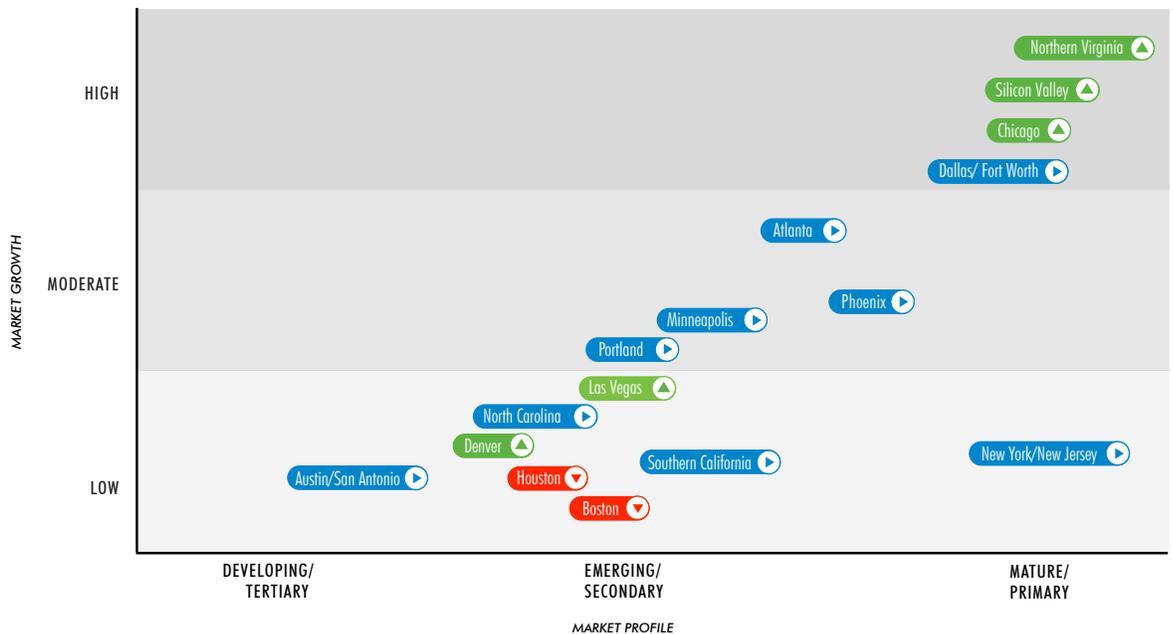
Source: CBRE Research, H1 2017.

CBRE's 2017 U.S. Outlook noted the diverging needs of the two largest users of third-party data centers—hyperscale CSP users and traditional enterprise users—and how they could potentially transform development and provider trends in years ahead. Demand from enterprise users will continue this year, as they execute their slow-and-steady migration of IT workloads to the cloud and third-party facilities. Meanwhile, all indicators are that requirements from hyperscale CSP users will substantially return, with several sizeable deals rumored to be in the market.

What do hyperscale users want?

Hyperscale users—broadly defined as a multi-megawatt user, typically 5+ MW and larger—are focused on three primary areas:

1) Geographic expansion into multiple new markets or regions.

2) Business and revenue expansion, and growth to anticipate and meet customer demand, through either cloud services or other platforms.

3) The ability to scale and add capacity quickly and efficiently, with speed-to-market being a priority; strategy is focused on power, space and cooling in the most cost-effective manner to keep pricing low.

What do enterprise users want?

Due to the rapid adoption of hybrid IT solutions—a variable mix of cloud services, third-party colocation and owned, on-premise infrastructure—the initial third-party IT requirements by enterprise users are generally shrinking. This contrasts with several years ago, when users would often over-commit and under-utilize their leased capacity. Larger requirements are usually for high-performance computing needs (HPC) and are often deployed at cost-efficient N or basic N+1 redundancies.

Enterprise users are generally focused on three things regarding leased space:

1) Contract flexibility, which includes the ability to easily increase or decrease their leased capacity, the ability to layer in managed services such as cloud, cybersecurity, etc. into their spend, or to re-distribute leased capacity to other locations/needs within a provider's portfolio.

2) Proximity and access to cloud services, including designated "on ramps" or cloud nodes where latency to service critical applications is critical.

3) Reliability, as the growing number of high-profile data center outages that have been profiled in the news over the past year continue to underscore the bottom-line risk for enterprise users owning and operating their own data centers.

Investment / M&A

Investment in the data center sector reached a fever pitch in the first half of 2017, totaling a staggering $18.2 billion when including all single-asset, portfolio and entity-level/M&A transactions. This total is already more than double that for all of 2016 and is on track for this year's annual total to eclipse that of the past three years combined. Over the past five years, more than $45 billion of investment capital has flowed into the data center sector, with more than 50% of that total occurring since Q4 2015.

Figure 7a: Data Center Asset Sales - YTD 2017

Buyer	Location	Market	Sales Price ($ millions)	Type
Equinix	Verizon portfolio (24 assets in U.S.)	Multiple (15 markets)	$3,600	Occupier/Operator
GI Partners	KOMO Plaza	Seattle	$276	Investment
Carter Validus	250 Williams Street	Atlanta	$166	Investment
CentralColo	Tysons Technology Center	Northern Virginia	$96	Occupier/Operator
Carter Validus	6 Norden Place (Norwalk)	New York Tri-State	$59	Investment
QTS	14100 Park Vista Boulevard (Fort Worth)	Dallas/Fort Worth	$50	Occupier/Operator
Carter Validus	400 Minuteman Road (Andover)	Boston	$37	Investment
H5 Data Centers	Cleveland Technology Center	Cleveland	$31	Occupier/Operator
Ascent	4905 North Point Parkway (Alpharetta)	Atlanta	$30	Occupier/Operator
Lincoln Rackhouse	40 Perimeter Center East	Atlanta	$19	Investment
Carter Validus	1400 Cross Beam Drive	Charlotte	$16	Investment
Carter Validus	2601 West Broadway (Tempe)	Phoenix	$16	Investment
DataBank	Stream Data Centers	Dallas/Fort Worth	undisclosed	Occupier/Operator
Total			**$4,396**	

Source: CBRE Research, H1 2017.

Figure 7b: Entity-Level Data Center Transactions - YTD 2017

| Buyer	Acquisition	Sales Price ($ millions)	Number of Data Centers
Digital Realty	DuPont Fabros	$7,600	12
BC Partners / Medina Capital (now Cyxtera Technologies)	CenturyLink (data center portfolio)	$2,800	57
Peak 10	ViaWest	$1,675	24
Digital Bridge (consortium)	Vantage Data Centers	$1,200	7
CyrusOne	Sentinel	$500	3
Stonepeak Infrastructure Partners	Cologix	undisclosed	24
DataBank	C7 Data Centers	undisclosed	4
Chirisa Investors / Lumerity Capital / Longboat Advisors	365 Data Centers	undisclosed	8
Total		**$13,775**	**139**

Source: CBRE Research, H1 2017.

Three large deals pushed investment totals over the top, including two large acquisitions that were announced in late 2016 but officially closed by midyear 2017:

• Equinix acquired a 29 data center asset portfolio from Verizon for $3.6 billion. The portfolio spans 15 markets and includes 24 assets in the U.S., including the strategically significant Network Access Point (NAP) of the Capital Region in Culpepper, VA and the NAP of the Americas in Miami.

• A partnership of BC Partners and Medina Capital acquired CenturyLink's data center business for $2.8 billion, a portfolio of 57 data centers. The buyers immediately launched a new operating entity, now known as Cyxtera Technologies, with initial plans hinting at adding new cybersecurity services into their service offering.

• Digital Realty Trust acquired DuPont Fabros for an estimated $7.6 billion, bolstering Digital's already sizeable footprint in key core markets, including Northern Virginia, Chicago and Silicon Valley. The deal was signed right after DuPont announced more than 29 MW in new leasing from a prominent hyperscale CSP.

Other notable transactions included retail/colocation provider Peak10 acquiring ViaWest for $1.7 billion from Shaw Communications. The portfolio of 24 data centers gives Peak10 a national footprint and potentially positions it for more wholesale-like offerings. After acquiring DataBank in 2016, a consortium led by Digital Bridge acquired Vantage Data Centers for $1.2 billion, one of the few providers with the current ability to bring new wholesale capacity online later this year in the severely supply-constrained Silicon Valley market.

Figure 8: Cumulative Investment
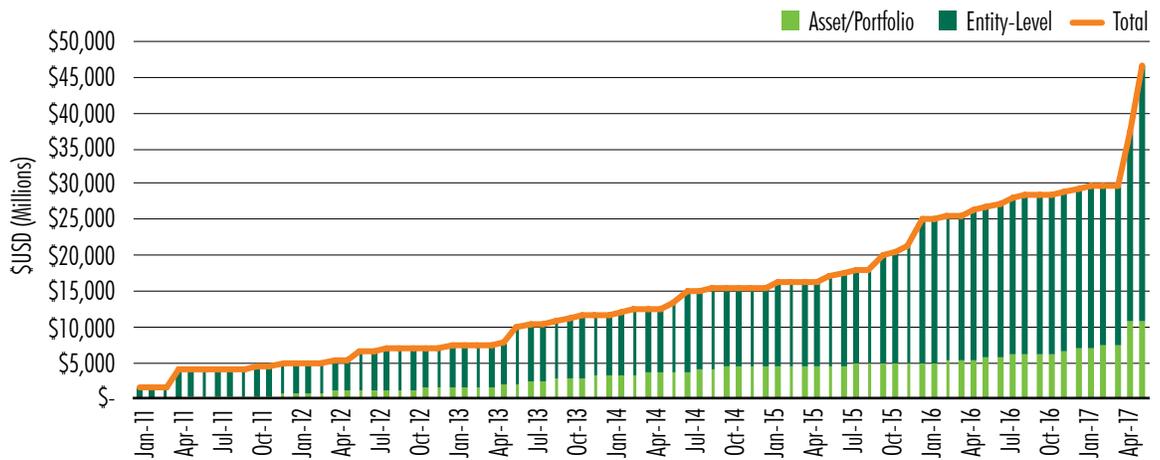
Source: CBRE Research, H1 2017.

The volume of individual asset sales continued to gain traction as well, with transactions evenly divided between investors and owner/occupiers. This number is expected to increase this year, as there are several legacy corporate data center assets being marketed and receiving strong investor interest. Demand and pricing levels for these types of corporate assets have historically been sporadic depending on location and buyer intent. Generally, dispositions with varying levels of vacancy are viewed more favorably in primary markets with strong end-user demand and favorable market fundamentals. Vacant capacity in secondary or tertiary markets, however, is oftentimes less desirable. For assets with a mixture of leased and vacant capacity, market pricing varies dramatically based on the strength of local market demand. For these partially leased assets in secondary or tertiary markets, striking the right balance between maximizing the sales price and minimizing the rental exposure can be a difficult balancing act (see CBRE's *Q4 2016 U.S. Data Center Trends* report).

Things to Watch

Cloud vs. Colocation

Will the rapid increase of enterprise cloud adoption help or hurt the colocation market? Are footprints shrinking or just settling into a pattern of more measured, strategic growth as data-related compute and storage needs will only continue to expand exponentially?

Infrastructure vs. The Edge

Connectivity and latency needs are keeping data center demand centered on primary markets and at the "edge" of existing, in-place networks; however, the necessary growth of secondary and tertiary markets will likely depend on significant infrastructure being built (fiber, power, etc.). Can gains keep pace with the demands of future network-dependent applications?

The Big Getting Bigger

U.S. providers have had successful international expansion, but will international operators come to the U.S. and will their models work? Can niche cloud providers emerge and succeed versus hyperscale giants?
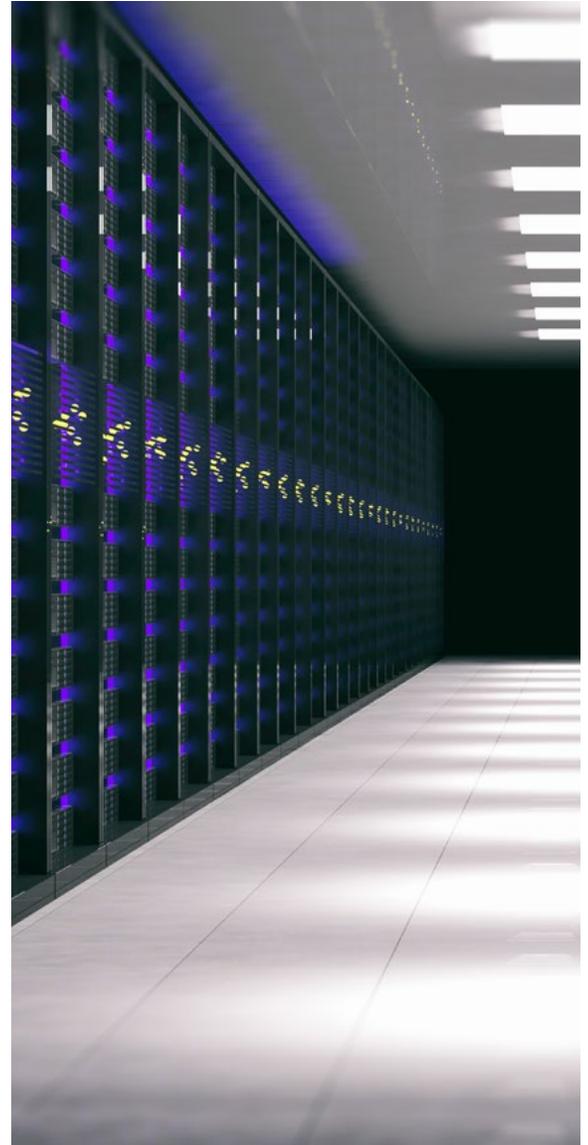
Primary Market Insights

Atlanta

Picking up momentum from 2016, Atlanta emerged as one of the most active markets in the country in the first half of 2017. A handful of new providers announced their entry into the market, which over the course of the next several quarters could add significant new wholesale capacity to the metro area. The largest project comes from Switch, which announced it would invest $2.5 billion in Douglas County to create a Southeast campus dubbed "The Keep." Other new entrants include: DataBank via a facility anchored by Georgia Tech's HPC research center (the facility will be designed for 45 kW per rack and be part of the larger mixed-use CODA development in downtown Atlanta) and Ascent, which acquired a sale-leaseback opportunity in Alpharetta with the ability to eventually add 8 MW of capacity over time.

Net absorption in H1 2017 totaled roughly 3 MW, helping push the city's data center vacancy rate down to 9.2% at midyear from 11.4% in Q4 2016. The current construction pipeline remains relatively low for now, with only 7.5 MW currently under construction. Notably, DataSite announced the expansion of its Atlanta facility by 10,000 sq. ft. and 1 MW of capacity, with potential for an additional 2 MW of capacity.

The downtown core's interconnection market was equally busy in H1: Carter Validus Mission Critical REIT acquired 250 Williams Street (also known as the American Cancer Society Center) for $166 million in Q2. The building has significant data center capacity and Digital Realty subsequently announced it was leasing 18,000 sq. ft. of raised floor in the building with a fiber connection back to its near fully-leased space at carrier hotel 56 Marietta (just over a half mile away).

Chicago

The extremely limited amount of available existing supply in the Chicago wholesale data center market continues to influence market dynamics, as the first half of 2017 saw only 4.2 MW of net absorption. With virtually no new supply being delivered since year-end 2016, the vacancy rate declined to a scant 2.1%—the lowest in the U.S. among primary markets and representing less than 4 MW of available existing capacity.

However, this doesn't paint a complete picture of activity in Chicago. Several data center operators have anecdotally shared they have lost out on transactions simply because they could not deliver capacity fast enough. Consequently, the largest data center landlords in the market—Digital Realty, DuPont Fabros and CyrusOne—have been quickly ramping up new construction to meet future requirements. There are currently 40.8 MW under construction in Chicago among those three large providers, 28.6 MW of which is already pre-leased to various tenants.

The largest new facility underway is DuPont Fabros' CH3 facility in Elk Grove Village. Just prior to its announced merger with Digital Realty, the provider revealed a 14.4 MW lease to a hyperscale user, effectively pre-leasing all of phase I of CH3. Current plans are to deliver the 12.6 MW phase II simultaneously, with a target completion date of 2018.

Dallas/Fort Worth

The Dallas/Fort Worth market totaled a healthy 22 MW of net absorption in H1 2017, as much of the new product being delivered was met with a pent-up demand. As a result, the vacancy rate declined 3 percentage points to 16.8% at midyear. Much of the previous wholesale availability was located in either aging legacy assets or small megawatt-sized pockets throughout the Metroplex and simply did not match the demand profile requirements in the market. It's for this reason that Dallas/Fort Worth had likely not seen an abundance of hyperscale CSP leasing similar to other primary markets of its size; however, there is evidence of that trend changing.

With CyrusOne and Digital Realty—the two largest data center landlords in the market—nearing full capacity at their existing campuses, the supply pipeline and the near-term opportunities for other providers remains a prevailing story in the Metroplex. There are currently 10 active multi-tenant projects under construction, totaling 46.7 MW. The first phases of all projects are being delivered on a speculative basis, indicative of the strength of the Dallas/Fort Worth demand pipeline. Both RagingWire and TierPoint delivered capacity in the first half of the year, and T5 Data Centers is poised to have 1.5 MW commissioned in the third quarter at their new facility in Plano with more than 70 acres of expansion potential at the site.

Two notable acquisitions in H1 2017 will also quickly add capacity in the short-term. DataBank acquired a 145,000-sq. ft. powered shell from Stream Data Centers in the Legacy business park in Plano. The facility will be Stream Data Centers' third in Dallas/Fort Worth and its first phase will add 72,000 sq. ft. of raised floor in early 2018. QTS also acquired a 260,000-sq. ft. data center shell from Health Care Service Corporation (HCSC), with leasing of an existing 40,000 sq. ft. of data center space already underway to end users. Notably, the facility is situated in the AllianceTexas master-planned area north of Fort Worth, which is positioning itself as a future destination hub with more than 85 acres identified for future data center development.

Phoenix

The Phoenix data center market registered roughly 3.8 MW of positive net absorption in the first half of 2017, although this total doesn't reflect the nearly 13 MW of leasing activity over the same period. A number of new vacancies at IO Data Centers and Digital Realty Trust contributed to negative net absorption in the 8-to-9-MW range in the first quarter, dragging down net occupancy gains. As a result, the overall vacancy rate increased to 8.8% at midyear, up from the almost unsustainably low 3.1% in Q4 2016.

While Phoenix has not been immune from the sluggish pace of hyperscale CSP leasing affecting other primary markets in H1 2017, providers adding new capacity to the Phoenix market are seeing traction. Most notably, CyrusOne delivered 9 MW of fully-leased capacity at its Chandler campus, and has additional pre-leasing of new capacity that is slated to deliver later this year. Aligned Data Centers has also leased nearly 3 MW (60%) of its first 5 MW phase, with the ability to phase in additional capacity as needed.

Arizona's potential as a destination market remains strong. Several providers and large-scale users continue to explore expansion and market entry options in various locales throughout the Phoenix metro area. An influx of new competitors and diversity of wholesale supply is generally viewed as a positive. Arizona's data center incentives program will likely also continue to be an attractive draw for future demand.

Northern Virginia

The Northern Virginia data center market continued its robust outperformance of other primary markets in the U.S. (and globally), tallying 41.5 MW of occupancy gains in the first half of 2017. The bulk of this net absorption was from pre-leasing that occurred last year, as providers barely keep ahead of demand with new deliveries that are consistently either substantially or fully pre-leased. The largest net gains in H1 2017 absorption were by Digital Realty (+16.2 MW in Ashburn Buildings J and H), DuPont Fabros (+10.1 MW) and CyrusOne (+6 MW).

The vacancy rate increased slightly at midyear to 5.8%, but this is simply a result of the pace of new supply being added, which totaled 52.2 MW in H1. The prevailing vacancy rate represents just over 35 MW of existing available capacity, essentially less than two quarters worth of absorption when compared to the most recent three-year historical average in this market.

The amount of new supply under construction in Northern Virginia continues to be eye-popping,

effectively dwarfing the totals of even the closest primary market (currently Dallas/Fort Worth). There are currently 119 MW spread across 10 different projects actively under development. More than 67 MW of that capacity is already pre-leased, likely putting the Northern Virginia market on pace to reach or exceed the record-setting absorption totals of each of the past two years.

Nearly 76 MW of the existing construction pipeline will likely be delivered in the second half of 2017. The largest of these projects is CloudHQ's MCC1 data center in Manassas, anchored by a 35 MW tenant and with 8 MW of speculative capacity. Other deliveries expected later this year include the first phase of Iron Mountain's new data center in Manassas, the first phase CoreSite's VA3 in Sterling, the first phase of Digital Realty's Building L and second phase of DuPont Fabros' ACC9 in Ashburn. The announced merger of Digital Realty and DuPont Fabros has the potential for a combined Northern VA footprint among the two providers that is fast approaching 400 MW.

Silicon Valley

Market activity in Silicon Valley remains relatively handcuffed by a limited number of available wholesale options and scant opportunities for the addition of new supply. The vacancy rate remained near its historical low at midyear, inching up to 5.3% from 4.5% in Q4 2016 and representing only 9 MW of existing available wholesale capacity. More than 50% of this vacant capacity is available in second-generation facilities that are more than five years old and often viewed as technologically obsolescent.

Net absorption totaled 12 MW in H1, nearly all attributable to the delivery of CoreSite's SV7 facility in Santa Clara. The facility was anchored by two substantial pre-leases and the provider has formerly said it planned to reserve an additional 2 MW of capacity to operate under its retail/colocation model. A similar pre-lease scenario holds true for the remaining pipeline in Silicon Valley: There are

currently 29.5 MW underway; however, that capacity is already 100% committed to customers. The next available speculatively built new capacity is being delivered by Vantage Data Centers in 2018. Vantage is strategically positioned as one of the few operators to add new wholesale capacity in the near-term. In the meantime, tenants looking for wholesale space in the market may be resigned to future sublet/re-let opportunities that may be available in late 2017 and into 2019.

The big headline in H1 was the acquisition of Vantage Data Centers by a consortium led by Digital Bridge for an estimated $1.2 billion. The acquisition includes Vantage's existing 18-acre campus and nine-acre expansion in Santa Clara, as well as a 68-acre campus (with an existing 6 MW facility) in Quincy, WA.

New York Tri-State Region

The New York Tri-State data center market continues to exhibit positive, albeit slow, momentum in its transition and recovery from a series of sluggish years in the aftermath of Superstorm Sandy in 2012. There was roughly 2.9 MW of positive net absorption in H1, lowering wholesale vacancy to 18.2% at midyear.

Post-Superstorm Sandy, market dynamics have shifted to smaller retail/colocation-centric deployments that have been largely driven by risk mitigation concerns focused on diverse facility deployments and geographic diversity within the region. The most significant recent market activity has been heavily centered on a handful of M&As that underscore the shifting dynamics of the Tri-State market:

- QTS Realty Trust acquired DuPont Fabros' New Jersey data center campus in Piscataway, N.J. last year. The operator announced a strategic plan to target smaller colocation deals and offer managed services to local companies

looking for smaller points-of-presence in the Tri-State region. This is in sharp contrast to DuPont's strategy of focusing on larger-scale, multi-megawatt deals.

- Early this year, traditional wholesale provider CyrusOne acquired Sentinel Data Centers, whose Somerset, N.J. facility has 140,000 sq. ft. of raised floor space with the capacity to add an additional 15-to-20 MW of wholesale capacity. CyrusOne entered the Tri-State region in 2015 with its acquisition of colocation provider Cervalis, with four facilities totaling 125,000 sq. ft. of heavily retail-centric operating space.

Market growth is beginning to occur north of Manhattan, particularly in Connecticut and Orangeburg, N.Y. Interest in these new submarkets is being driven by increasing demand for business continuity and disaster recovery in areas that offer both geographic and utility provider diversity to New York and New Jersey.

Secondary & Emerging Market Highlights

Minneapolis

The Minneapolis/St. Paul market for multi-tenant data centers continued its rapid growth in 2017. Market demand for third-party data center space has been at unprecedented levels since mid-2015, when a number of new providers and facilities entered the market. Demand has remained strong, with 3.2 MW of net absorption in the first half of 2017—on pace to meet or exceed recent annual totals of 6 MW.

While the existing supply of available wholesale and colocation space remains relatively high despite the significant absorption levels of the past several years, this is largely due to the completion of additional new pods/phases within existing buildings. Nearly all of the providers that delivered new development projects to the market in 2015-16 are expanding capacity to keep up with the steady demand. There are currently 5.4 MW actively under construction in the metro area, with an additional 16.7 MW planned.

However, Minneapolis will remain a tenant favorable market in the near-term and end users leasing data center space will continue to have significant leverage through 2018 until absorption further catches up with supply. Until then, downward pressure on pricing and increased concessions from third-party providers will continue to be the norm in this market.

The market for third-party data center space in Minneapolis/St. Paul continues to evolve, with many companies now choosing to lease as opposed to build, even for single-tenant solutions. Minnesota's data center tax incentive program has helped drive third-party demand, providing companies with an abatement or rebate of sales tax on software, hardware and power over a 20-year period. An estimated $100 million has been rebated to date.

Boston

Activity in the Boston data center market remains subdued, as the high cost of power, elevated tax rates and lack of data center incentives continued to limit demand. The market registered approximately 1 MW of net absorption in H1, primarily by users from the financial services, e-commerce and technology industries. Leases in the first half of the year averaged approximately 150 kW. Vacancy stands at 24.4% for wholesale product.

Development in the Boston metro is evenly split between CoreSite and Markley. CoreSite will deliver 1.2 MW over 12,000 sq. ft. of raised floor in Q4 2017 at its Somerville site. Markley will also deliver 1.2 MW over 12,000 sq. ft. of raised floor in Lowell. Neither of these projects has recorded any pre-leasing.

North Carolina

The Charlotte and Raleigh-Durham area is a significant emerging data center market. Overall existing capacity in North Carolina has increased nearly 19% since 2016 and currently stands at 50.9 MW. Positive net absorption of nearly 10.5 MW since then (6.4 MW in Raleigh and 4.1 MW in Charlotte) represents a nearly 40% increase in total occupied data center space. While the current vacancy rate seems elevated on the surface (29.5%), it represents only 15 MW of existing available capacity.

Previously bifurcated into two distinct segments—single tenant/owner-occupied data center hubs and small retail/colocation facilities driven by local health care and financial services requirements—the market is transitioning into a viable national multi-tenant leasing destination center.

Recent acquisition activity underscores the changing nature of the market. Charlotte-based Peak10—the largest retail/colocation provider in North Carolina—announced in June that it was acquiring national retail operator ViaWest from Shaw Communications for $1.68 billion. The acquisition is significant in that it expands Peak10's footprint from regional to national, adding locations in Minneapolis, Dallas, Denver, Salt Lake City, Las Vegas, Phoenix and Portland. National wholesale operator CyrusOne also entered the North Carolina market this year with its acquisition of Sentinel Data Centers for $490 million. Its NC-1 facility in the Research Triangle Park in Raleigh-Durham has a potential build out of 200,000 operational sq. ft. and roughly 23 MW of critical IT load.

Aside from the Charlotte area's central East Coast location and abundance of low-cost land available for development, several other contributing factors—low-cost power, attractive data center incentives and Duke Energy's investment in renewable energy—will likely make North Carolina an attractive destination for both national and regional enterprise data center requirements.

Houston

The Houston data center market remains relatively stalled, with only minimal activity and no deals of significant size occurring in the first half of 2017. Vacancy among wholesale product stands at 21.4% and retail/colocation inventory remains an estimated 30+% vacant. Current demand in the market is comprised of users from the transportation and health care sectors, reflective of the local pullback in the energy, financial services and technology sectors.

Development in Houston is currently limited, with TRG's 3 MW, 10,000-sq.-ft. facility in Spring, TX currently the only project actively under construction. The project is expected to be completed later this year. Pending projects include Stream Data Centers' additional 4.8 MW in planned critical load for its third and final 10,000-sq.-ft. pod and CyrusOne's 209,000-sq. ft. powered shell at its West III facility, where it has already built approximately 5 MW over 52,932 sq. ft. of raised floor.

Austin/San Antonio

The Austin and San Antonio markets remain relatively sluggish, with no significant leasing deals occurring in the first half of 2017. There are currently 15 MW of existing data center capacity available along the Interstate 35 corridor, representing a vacancy rate of 15.3%. These two markets are bifurcated along demand segments, with San Antonio driven by large wholesale and enterprise deployments and Austin's demand derived from smaller, localized retail/colocation requirements. Austin, in particular, is one of the strongest and fastest-growing tech sector markets in the country, with a number of Silicon Valley firms migrating to the metro area to escape the high cost of the Bay Area.

Despite the overall lack of activity, the development pipeline is active. In San Antonio, CyrusOne completed its fully pre-leased, 24-MW San Antonio III facility earlier this year, and is currently constructing its 60,000-sq.-ft., 12-MW San Antonio IV data center. In Austin, CyrusOne plans to build out its Austin III facility, which is currently a single-story, retrofit facility offering 9 MW of critical load over 67,000 sq. ft. of raised floor and is currently 19% occupied. At full build out, Austin III will house 18 MW of critical load and 128,838 sq. ft. of raised floor. Following the success of its existing Austin facility, Data Foundry is planning a second facility with 165,000 sq. ft. of raised floor and 16.5 MW of critical power.

Market to Watch: Columbus

Columbus is an emerging data center market with significant momentum. In the past 10 years, the market has evolved from a location of choice for many corporate enterprise data centers to one of the world's top locations for Internet cloud operations. Columbus has now gained the attention of national colocation data center operators. Its reliable power and robust data fiber network, its geographic proximity to about half of the U.S. population and the resulting lower latency, and its pro-business environment with a favorable tax climate is bolstering Columbus' standing as one of the hottest data center markets in the country.

Columbus is strategically located in one of the highest concentration areas of data transmission and storage in the U.S., effectively serving as an on-ramp to long-haul transmission networks.

Hyperscale CSPs and content providers are moving to the "Edge" to provide faster downloads of large amounts of content and the Columbus region has become a significant focal point.

The colocation data center market in Columbus is still evolving. Cologix and Expedient recently developed Tier III-type facilities that are concurrently maintainable. Cologix acquired the colocation data center business and the real estate of Datacenter BZ in 2014, and will soon deliver a 160,000-sq. ft., 12 MW colocation data center to its campus. Expedient constructed Phase I of a 60,000-sq. ft. colocation data center in 2015. This new development activity represents a positive direction, but there is still a growing need for wholesale data center options in Columbus.

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