The Evolving Nature of Data Center Valuation

In today's interconnected world, it is critical that a company have fast and secure access to data to connect reliably to its suppliers, partners, and customers around the globe. This efficient access to data has become even more important as the volume of data has soared in recent years with the explosion in the number of mobile smartphones and tablets in service, the growth of the "Big Data" industry, and the adoption of cloud computing. As the design and construction of data centers has evolved to meet the demands of clients, the current valuation metrics related to building, acquiring, or investing in data center publicly-held companies have also significantly changed.

Data centers generally fall into two categories - public data centers and private data centers. Public data centers that lease large spaces to big corporations or government entities on a long-term basis are typically known as "Wholesale Data Centers." They are cost efficient and provide services that may include data storage, content distribution, hosting, and cloud computing, among others. Those public data centers that lease rack space to smaller tenants under short-term leases are referred to as "Colocation Data Centers."[1]

Certain large corporations seek to retain more control over their data and build their own data centers. These facilities are known as private data centers. In recent years, companies with massive data needs such as Facebook, Google, Amazon, and Apple have constructed their own customized data center facilities in an effort to save costs and have secure, direct control of their proprietary data. However, even these large companies lease space from wholesale providers to spread downtime risk and to locate their data servers near large metropolitan areas to better serve clients and customers.

Data centers, whether owned or leased, serve four essential functions:

1. Central Location - Whether it is simply a closet in an office setting, or a large multi-floor industrial sized facility, companies that rely on computer networks have long recognized the need to set aside a specific area to concentrate their servers, switches, hubs, routers,

[1] "A Primer on Data Centers and their Suitability as Institutional Investments," Quadrant Real Estate Advisors.

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patch panels, and other equipment. The central location provides an optimized environment in which servers and other equipment can be organized and installed in the most efficient configuration possible. In addition, maintenance requirements can be carried out more efficiently.

Data centers typically provide access to multiple fiber providers for switchable, redundant network communications. These providers run their fiber into different access points within the data center facility in order to protect against any potential line interruptions. The fiber is usually concentrated into a central area which each tenant can access by running their own fiber to connect to the network.

2. Secure Environment - It has often been said that time is money. These days, data is money. And the equipment that stores and distributes that data needs to be secured against numerous potential threats.

   The first, and most obvious threat, is from theft. Servers and other related equipment can be extremely valuable. Perhaps even more valuable, a company's reputation can be destroyed if it is unable to protect customer data – including personal information, user names, passwords, and bank account and credit card numbers. A well-constructed data center maintains multiple levels of physical security. This often includes 24/7 human security. However, many modern data centers are built to be "dark" or unstaffed, so these facilities can also include complex security access control systems, remotely monitored alarm systems, video cameras, and motion sensors.

   The second threat comes from physical dangers such as fire, flood, earthquakes, or other disasters. Ideally, data center facilities will be located outside of flood or earthquake zones. Although convenient from a transportation perspective, data centers also run certain risks being located too close to highways, airports, and railways in the event of major environmental accidents.

   In the case of fire, data centers typically rely on fire suppression systems that on a "total flooding" method of application. In total flooding, an enclosed area is pumped full of an inert chemical or gas, which deprives a fire of the oxygen that it needs to grow. While Halon 1301 has traditionally been a primary chemical used for fire suppression systems in data centers, it is being removed from service due to its negative health effects at moderate exposure levels. Halon

1301 is being replaced by other gasses and chemicals such as carbon dioxide, argon, PFC-410, NAF S-III, and others. The type of fire suppression system used will primarily depend on the type of facility being protected and the frequency of human exposure in the subject facility.

3. Reliable Power Source – Data centers require significant amounts of power. For example, the power requirements of a 100,000 sq. ft. building may be as much as 15-20 megawatts.[2] Even in the most reliable environment, the occasional loss of power is inevitable. Unfortunately, when power losses occur, data access to internal users and external customers is lost; meaning lost sales, decreased productivity and, in some cases increased liability associated with sensitive or classified data.

   In order to mitigate these potential problems, data centers have a number of means at their disposal.

   - Data centers locate in close proximity to power utility generation plants. This minimizes the opportunity for breakdown of the power grid, as it shortens the distance between the power source and power user. Many large data center facilities build in redundant power directly from another substation.

   - Data centers provide primary or backup power by maintaining their own generation plants. Traditionally, this has been done through the use of large fossil-fuel powered generators. More recently, relatively inexpensive renewable power generation sources, such as solar or wind power generation, have become increasingly popular.

   - Data centers provide temporary power backup through uninterruptible power supplies ("UPS") to enable a safe and systematic shutdown of data center equipment in the event of a power loss. UPS redundancy is usually designed into the infrastructure to cover power failure and filter out energy spikes. While this does not prevent the loss of immediate access to critical data, it does minimize the potential for complete loss of data or damage to sensitive equipment by helping to regulate the flow of power to the equipment.

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[2] "The ABCs of Data Center Leasing," Law360, May 1, 2013.

Power availability to data centers is so important that the Uptime Institute, an independent organization that provides education and consulting services for data center users, has developed a four tier system for ranking the performance reliability of the data centers:[3]

- Tier 1: Typically used for small businesses. Power availability is rated at 99.671% uptime, or 28.8 hours of downtime per year. There is no power redundancy.

- Tier 2: Typically used for medium-size businesses. Power availability is rated at 99.749% uptime, or 22 hours of downtime per year. There is partial power and cooling redundancy.

- Tier 3: Typically used for large businesses. Power availability is rated at 99.982% uptime, or 1.6 hours of downtime per year. There is a minimum of 72 hours of power outage protection.

- Tier 4: Typically used for "enterprise corporations". Power availability is rated at 99.995%, or 2.4 minutes of downtime per year. There is a minimum of 96 hours of power outage protection.

4. Optimal Climate - Data centers provide a controlled climate to ensure optimal operating temperature and humidity for the equipment. There are generally three types of cooling systems found at data centers. These systems include the Condenser and Computer Room Air Conditioner, the air cooled chiller and Computer Room Air Handler, and the centrifugal chiller and Computer Room air handler.[4]

   In general, a cooler climate or subterranean facility provides a better environment from a temperature and humidity standpoint, while also being more efficient from an energy perspective.

The large volume of data being created each day and changing server and storage technologies have required IT managers and data center designers to change their thinking about the design and layout of data center facilities. In the past, data centers were more customized with not as much emphasis placed on the standardization of design. The cost of a custom design is much

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3 The Uptime Institute's Tier Performance Standards.

4 "A Primer on Data Centers and their Suitability as Institutional Investments," Quadrant Real Estate Advisors.

more expensive and the flexibility of expansion space with the growing volume of data is more limited.

Data center designers and builders are beginning to focus on constructing modular data centers that includes thinking how best to make use of certain prefabricated components. These designs have the benefit of being more cost efficient to build and more easily scalable as the number of clients and their data needs expand. In addition, with the volume of data rapidly increasing, clients are requiring contractors to build data centers quicker than they have been in the past. With modular deployment, equipment such as power supplies, racks, and cooling systems are contained in units similar to industrial shipping containers. Modular data center vendors indicate that the prefabricated containers can be brought online within three months in the event a client requires more capacity.[5] New data centers are making better use of prefabricated and containerized components that can be plugged in or relocated to various spaces as needed. Although the interest and growth in modular data centers is growing, the overall adoption rate is still a relatively small percentage (8%) of the overall market.[6]

Economics

Data centers are one of the most expensive types of commercial buildings to construct. Depending upon the location, amount of heat generated from the equipment, and quantity and type of redundant power, UPS units, and network communication links, the average cost to construct a data center ranges from $275-$305 per sq. ft. and can rise significantly higher.

Data Center lessors enter into both short-term and long-term leases depending upon the type of data center and the needs of the client. In general, lease terms of three to five years are common for tenants who lease space from a colocation facility. Tenants leasing from a colocation facility may only lease a few racks of equipment or several floors containing hundreds of racks. Longer term leases of ten years or more are often negotiated in the case of wholesale operators that lease space to large companies or government agencies.

Rent varies greatly depending on the location and Tier rating of the data center. Rent is generally negotiated either on a sq. ft. basis or is based upon

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5 Joch, Alan, "Modular Data Centers: Weighing the Pros and Cons," FCW, April 8, 2013.

6 Uptime Institute 2012 Data Center Industry Survey.

the tenant's power needs. Within the last few years, despite increasing demand, there has been downward pressure on leasing rates due to the number of new data centers coming on line and the lingering effects of the economic recession. The two areas with the largest concentration of data centers, northern Virginia and the San Francisco area, have recently begun to see lease rates and absorption rates firm up. According to a Cushman & Wakefield survey, national data center lease rates are down 5% in 2013 and "range between $140-$170 per kilowatt per month gross" with average colocation rates approximately 1.7 times to 2.5 times wholesale rates.[7]

Transactions

The mergers and acquisitions market has been active in the data center segment within the last year. Data centers have become attractive asset targets within the commercial real estate realm. REITs and private equity funds have allocated more of their capital to the acquisition of data centers as a way to provide balance within overall commercial real estate holdings.

According to Five 9s Digital, the volume of data center transactions in 2012 exceeded $2 billion.[8] Typically, data center growth has been driven by acquisitions and expansion in the top 10 metropolitan markets. However, there has now been more development and expansion into second and third tier cities with the benefits of tax incentives and lower costs for labor, land, and energy.[9] The data center transactions listed below represent a sample of acquisitions during Q1 2013:[10]

Date	Property Address/Name/Location	Value ($000s)	Sq. Ft. (000s)	$/Sq. Ft.
13-Feb	Corporate Research Center, Hayward, CA	$65,000	299.4	$217
13-Jan	NJR2 Data Center, Clinton, NJ	29,000	80.0	363
13-Feb	4800 Longhorn Drive, Irving, TX (Conversion)	12,000	700.0	17
13-Feb	Secaucus Data Center, Secaucus, NJ	18,400	283.2	65

7 Brady, Sean and West, Jeff, "Real Estate Fundamentals in the Global Multi-Tenant Data Center Sector Continue Their Strong Performance," The Data Center Journal, June 1, 2013.

8 "Data Centers, Real Estate Acquisitions Report," First Quarter 2013, Five 9s Digital.

9 "Colocation Data Centers: Overview, Trends & M&A," Harbor Ridge Capital Q1 2012.

10 "Data Centers, Real Estate Acquisitions Report," First Quarter 2013, Five 9s Digital.

Date	Property Address/Name/Location	Value ($000s)	Sq. Ft. (000s)	$/Sq. Ft.
13-Feb	Chandler Project Data Center, Chandler, CA	$24,000	241.0	$100
13-Mar	McCrimmon Parkway Data Center, Raleigh, NC	19,500	143.8	136
13-Mar	Delta Airlines Data Center, Eagan, MN	37,000	329.0	112
13-Mar	Operating Data Center, Dallas, TX	8,500	61.8	138
13-Mar	3 Building Acquisition, Phoenix, AZ	24,000	227.0	106
13-Mar	15 Shattuck Road, Andover, MA	12,000	92.7	129
	Average			$138
	Median			$121

Likewise, there has been significant investor interest in publicly traded data center companies and REITs that specialize in data centers. Current valuation multiples for companies in this segment are shown below:

Company	Ticker	Enterprise Value ($mil)[11]	2012 Revenues ($mil)	2012 EBITDA ($mil)	EV/Rev. Multiple (x)	EV/EBITDA Multiple (x)
Equinix	EQIX	$5,353.7	$1,895.7	$842.2	2.8	6.4
InterNAP	INAP	347.8	273.6	50.1	1.3	6.9
Coresite	COR	766.1	206.9	87.7	3.7	8.7
Rackspace	RAX	6,368.3	1,309.2	422.6	4.9	15.1
Digital Realty Trust	DLR	4,654.8	1,279.1	681.8	3.6	6.8
Dupont Fabros Technology	DFT	1,187.6	332.4	190.5	3.6	6.2

Data centers have entered into a new phase of development in recent years as cloud computing and mobile devices have propelled data volume and usage to record levels. Both large and small firms are investing more money into acquiring, accessing, securing, and protecting data in an expanding digital business environment. The facilities are complex, expensive to build, and expensive to lease. Publicly-traded data center companies and REITs have attracted the attention of investors in this fast-growing niche. These complex physical assets are getting more attention, and it is critical that owners, investors, and tenants understand the underlying value of the data center facilities.

The valuation of data centers is often required for accounting, tax, litigation, acquisition, and economic planning purposes. A well-prepared cost

[11] Enterprise value calculated using stock prices as of 7/24/13 and Q1 2013 SEC financial data.

segregation analysis of a data center can result in substantial tax savings. Bond & Pecaro professionals have over 25 years of experience in the valuation of specialized media and technology assets and businesses and have the expertise to assess and advise clients in the valuation of complex assets such as data centers.

For more information on the valuation of data centers, please feel free to contact any of the principals of Bond & Pecaro at 202-775-8870.