Executive Summary

The worldwide colocation data center market continues to grow at a steady rate in 2015. While key Asian markets and some secondary markets have outpaced global average growth rates in colocation capacity, core European and North American hubs exhibit low to moderate expansion. Colocation operators are supporting the infrastructural needs of cloud computing with increasingly high-density provisioning, and a number now offer cloud services of their own.

TeleGeography’s Colocation Database is an online directory containing profiles of over 3,600 colocation sites around the world, coupled with analysis of market capacity and provider presence based on survey data from more than 1,400 sites and internal company estimates.

Metro Capacity

Large individual data center deployments can have an inflating effect on short-term colocation growth statistics, but long-term growth is more modest. Among the 50 metro areas featured in the 2015 Colocation Database update, the median five-year compound annual growth rate for colocation capacity is 11 percent. European cities have grown at a slightly slower rate than North American cities, at 9 percent CAGR compared to 13 percent CAGR. Metro areas with the fastest growth rates, such as Perth and Helsinki, often start from relatively small base levels of capacity. Major hubs that are currently outpacing the median growth rate include Stockholm, Phoenix, Washington, Hong Kong, and Sydney.
Colocation operators can either expand fitted floor space at existing facilities or build or lease new space to stay ahead of anticipated demand. Given the long lead times required to build new colocation facilities, operators must begin developing new sites well before their existing facilities are full. As of 2015, a sampling of operators in key global markets indicate moderate to high expectations for further expansion. Operators in Sydney, in particular, expect the continuance of an unrelenting growth phase capacity of 24 percent CAGR over the past five years, as nearly 60 percent of respondents anticipate further near-term growth (see Figure: Percentage of Respondents Planning to Increase Presence by Metro Area). A majority of operators in Seoul, Atlanta, and Amsterdam have also expressed intentions to build out further capacity in those metro areas over the next two years. While Charlotte is emerging as a southeastern hub in the U.S., growth expectations are low for the near term, consistent with the high levels of existing inventory there currently.
Providers

With a vast footprint in its home market of Japan and an increasing appetite for global acquisition, the NTT Group is the world’s largest colocation provider. As of 2015, the group owns more than 12.5 million square feet of gross data center space (see Figure: Largest Retail Operators by Gross Floor Space, 2015). Unlike other large operators, NTT’s capacity is distributed among six companies. A vast majority of this capacity—8.1 million square feet or 64 percent—is concentrated in Japan. Nonetheless, NTT has a sizable international footprint of nearly 4.5 million square feet of data center space—nearly double the amount of international space it had in 2014.

Among single-company operations, which represent the vast majority of operators in the database, Equinix remains the largest global retail provider. The company boasts nearly 10.3 million square feet of gross retail colocation space, an increase of about 4.5 percent over the previous year. Level 3 registers a massive global footprint of more than 300 data centers and nearly 8 million square feet of colocation space. CenturyLink, Verizon Terremark, and TELEHOUSE/KDDI round out the list of the largest operators, with sizable operations in multiple global regions.
FIGURE 3
Largest Retail Operators by Gross Floor Space, 2015

Notes: Based on data collected by TeleGeography in 2015 from survey responses and public information. Companies that requested data confidentiality are not shown. NTT data represents the combined capacity of six group companies worldwide. 64 percent of the NTT Group’s gross colocation capacity is located in Japan.

Source: TeleGeography © 2015 PriMetrica, Inc.

Tremendous capacity has come online in North America over the past two years, with Equinix, EdgeConneX, and Quality Technology Services (QTS) alone each adding more than 800,000 square feet of new data center space (see Figure: Retail Operators with Largest Amount of New Colocation Site Capacity, 2013–2015 (million sq ft)). While Equinix and CenturyLink have both added capacity across multiple regions, most major operator investments have been focused on one continent. In the case of EdgeConneX, this relative newcomer had only one data center in Houston as of August 2013 and then expanded rapidly across the U.S.
Power and Cooling

Colocation operators increasingly push boundaries in the installation of new high-density rack space (defined as space using more than 10 kilowatts of power/cooling per rack). This approach is a product of both increasingly power-hungry servers and the configuration of more servers per rack to conserve space. Racks consisting of blade servers for cloud computing are particularly indicative of this trend, often requiring power/cooling density levels exceeding 20 kilowatts per rack.

Operators surveyed in 2015 report something of a shift from previous years in terms of the rack density levels that they can support. While a majority of site responses continue to indicate the ability to support densities only reaching as high as 10 kilowatts per rack (kW/rack), that percentage has diminished compared to previous years (see Figure: Change in Colocation Rack Density, 2014-2015). Conversely, the percentage of sites that can support high density levels of 11 kW/rack or more has increased markedly from 28 percent in 2014 to 42 percent in 2015.
FIGURE 5
Change in Colocation Rack Density, 2014-2015

Notes: Based on data collected by TeleGeography in 2014 and 2015 from survey responses and public information.

Source: TeleGeography

Connectivity

One of the core purposes of a colocation site is to serve as a point of network interconnection for international service providers. In 2015, survey respondents indicated that Level 3 and Verizon were the most commonly present carriers in their facilities, with extensive site presence both in North America and Europe (see Figure: Top Bandwidth Providers to Colocation Sites). AT&T and Zayo were also among the most ubiquitous carriers in North American facilities, while Colt and BT were heavily represented in European data centers.
Internet Exchange

Many types of network interconnectivity take place in colocation facilities. IP traffic exchanges are particularly common. IP network interconnections can be facilitated either through a private transaction between a few operators or through public arrangements via an Internet exchange (IX). TeleGeography offers a free interactive Internet Exchange Map that depicts nearly 380 active Internet exchanges and more than 700 buildings in which those exchanges reside. Search by country, metro area, IX, or building to view exchanges and locations. Or, select an IX from the list provided to view the buildings in which that exchange is present.

Cloud Computing

Cloud computing has shaken up the traditional market for remote computing and storage. Although cloud services, themselves, are generally delivered out of colocation data centers, they can also serve as an alternative to traditional colocation or hosting for many customers.

A number of colocation providers address the demand for cloud computing by offering such services of their own. In 2015, approximately 57 percent of respondents indicated that their sites offer Infrastructure as a Service (IaaS), a level fairly commiserate with that seen in the previous two years.
The availability of cloud services varies widely by geography (see Figure: Percentage of Sites Offering IaaS by Metro, 2015). When specifically looking at the largest hub colocation markets, a regional pattern has emerged. The top European metros of London, Frankfurt, and Paris have some of the highest instances of colocation operators offering their own IaaS—each with at least a 65 percent positive response rate. Conversely, the major U.S. markets of New York, San Francisco, Washington, D.C., and Dallas, report the lowest percentage of sites offering IaaS, at less than 45 percent.

FIGURE 7
Percentage of Sites Offering IaaS by Metro, 2015

Notes: Based on data collected by TeleGeography in 2015 from survey responses.

Source: TeleGeography © 2015 PriMetrica, Inc.