



DATA CENTER

Frontier Special Report

Denver Data Center Market

Written by Rich Miller



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Introduction

This report was prepared by Data Center Frontier, in conjunction with datacenterHawk.

ABOUT DATA CENTER FRONTIER



<http://datacenterfrontier.com>

Data Center Frontier charts the future of data centers and cloud computing. We write about what’s next for the Internet, and the innovations that will take us there. The data center is our prism. We tell the story of the digital economy through the facilities that power the cloud and the people who build them. In writing about data centers and thought leaders, we explain the importance of how and where these facilities are built, how they are powered, and their impact on the Internet and the communities around them.

Data Center Frontier is edited by Rich Miller, the data center industry’s most experienced journalist. For more than 15 years, Rich has profiled the key role played by data centers in the Internet revolution.

ABOUT DATACENTERHAWK



<http://www.datacenterhawk.com>

datacenterHawk is a technology company firm located in Dallas, TX. We strive to create industry leading products that enable customers to make confident decisions in the data center market.

The Hawk Product Suite is designed to help customers locate, evaluate, and analyze data center solutions quickly. Hawk Search, Compare, Zoom, Financials, Swap and Insight are available through subscription only.

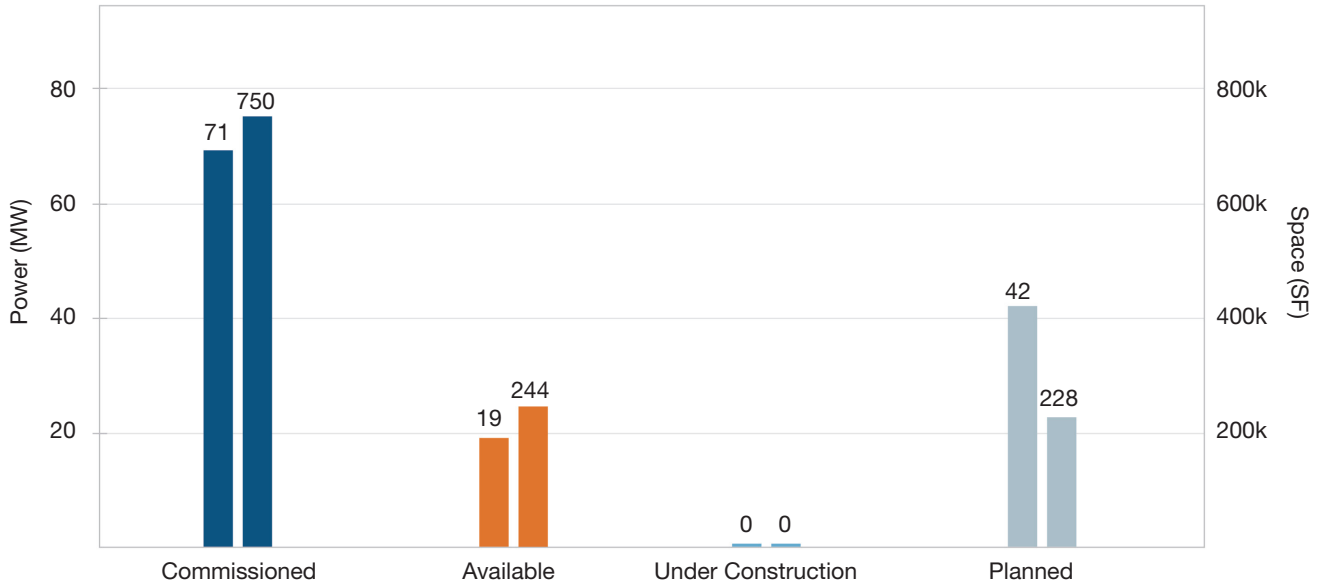
For non-subscribers, datacenterHawk delivers hard to find information on the top Internet exchanges, cloud computing providers, carrier hotels, and colocation facilities in North America on a per-report basis. With a credit card number, IT professionals can use datacenterHawk to reduce the time it takes to find data center market information down from hours to seconds.

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Market Overview & Analysis

Denver Market Overview (By MW/SF)



Digital transformation is boosting the importance of IT infrastructure for businesses of all sizes, in all markets. Denver is a prime example of a “second tier” digital hub driven by demand from local businesses with growing requirements for data center space. The Mile High City has one of the fastest-growing technology ecosystems in the United States and is home to numerous colocation providers, carriers, technology companies, IT services providers, and regional/IHQ in-house data centers.

Denver is a major U.S. fiber hub, acting as a central relay point that connects West Coast backbones and end users to major Midwest and East Coast markets. After establishing an early reputation as a prime location for data backup, Denver has emerged as a regional market for retail colocation, supporting both enterprise and service provider customers. In recent years, data center companies have begun building larger data centers in the Denver region, and offering wholesale space.

The Denver market is home to 750,000 square feet (SF) of commissioned data center space, representing 71 megawatts (MW) of commissioned power, according to market research from datacenterHawk.

With the proliferation of IoT comes increased demand for increased density in communications infrastructure, specifically in regional business markets like Denver.

Even though Denver is not one of the largest data center markets, it benefits from a strategic location, and is likely to gain a higher profile as America’s IT infrastructure becomes more distributed. Data center development has traditionally been focused on six to eight markets: Northern Virginia, Silicon Valley, New York/New Jersey, Chicago, Dallas, Atlanta, Phoenix and Los Angeles.

That is changing as the U.S. economy feeds off the momentum created by digital transformation, artificial intelligence and the Internet of Things. IoT device performance is dependent on limiting network latency. With the proliferation of IoT comes increased demand for increased density in communications infrastructure, specifically in regional business markets like Denver, that are already important destinations for data backhaul. Denver and similar markets will play a big role in the next stage of digital transformation as aggregation points for IoT data and analytics.

Also, as edge computing and 5G wireless gain broader adoption, markets like Denver will be positioned to store and transfer increasingly large data sets. This could translate into moderate gains in demand for data center and colocation services. A key factor for the Denver market will be how providers manage supply and demand. Maintaining a healthy balance of inventory is important in every market, but looms larger in regional cities with a strong competitive landscape. This is magnified as the industry adds more wholesale capacity to markets like Denver without a large base of enterprise organizations to support it compared to top tier US population centers.

Strategic Location, Strong Growth

Denver is one of the fastest-growing cities in the US, growing by more than 17% since 2010 to 704,000 residents. It's also the second largest city in the Mountain region of the US, only behind Phoenix. The 10-county Denver region is home to nearly 2.9 million people.

Several factors contribute to Denver's data center growth, including:

1. Geographic location

Denver is centrally located between some of the largest metropolitan areas west of the Mississippi such as Chicago, Dallas, Minneapolis, Phoenix, Los Angeles, Northern California, and Seattle.

2. Low risk of natural disasters

Aside from recent flooding near Boulder and a mild earthquake risk, Denver is one of the lowest-risk U.S. metros for natural disasters and intense storms such as hurricanes and tornadoes.

3. Edge data center market

Denver functions as an attractive edge location, due to the area's growing colocation environment, fiber presence, large population, and distance from a comparable economic center.

Although Denver has a strong economy, the area only boasts 10 Fortune 500 companies, none within the top 100. This may be due to taxes. Denver's sales tax (8%), income tax (4.8%), and property tax (7.7%) are all higher than the national average.

Today, users are looking for highly connected data centers able to provide low-latency services to a wide area, making Denver an ideal location for data center development and network PoPs (points of presence).

Despite higher costs of living and doing business in Denver, the area's economy continues to grow, with the labor force increasing by nearly 12.5% in the last five years according to the Bureau of Labor Statistics. During that same span, Denver's IT workforce grew by roughly 13%. Additionally, Denver has a low unemployment rate of 3%, besting the 3.5% national average.

The Denver region's largest industries are healthcare, IT/software, and telecommunications according to research on industry clusters from the Metro Denver Economic Development Corporation. An emerging growth driver is aviation and aerospace, which saw the strongest percentage growth in the Denver area from 2016-18. As a central hub for the western United States, transportation is one of Denver's largest industries and acts as stopping-point for all goods and services transported throughout the area.

In the same vein, Denver can function as a hub for all telecommunication in the western United States. This is a primary factor drawing data center development to Denver. Today, users are looking for highly connected data centers able to provide low-latency services to a wide area, making Denver an ideal location for data center development and network PoPs (points of presence).

This has been reflected in local infrastructure development. AT&T invested \$325 million from 2014-17 to enhance Denver's wireless coverage, and Sprint has also beefed up its local network. In 2017, Verizon named Denver as one of 11 cities around the country to serve as testbeds for its commercial 5G offerings.

It is also notable that the Mile High City is a hub for headquarters for leading telecom and data center operators, including CenturyLink/Level 3 (Broomfield), Zayo (Boulder), EdgeCore (Denver) and CoreSite (Denver).

Trends in Demand

Demand in Denver typically comes from within the region or from West Coast centers looking for DR locations as businesses shift from enterprise or on-premise infrastructure to third-party data centers. Denver's current primary industries (transportation, technology, telecommunications, aerospace, farming, and financial services) create consistent retail demand, keeping the area's vacancy rate healthy.

Due to the higher costs of doing business, companies outside Denver typically choose to house their data center infrastructure in the area more on the basis of need rather than desire.

Data center demand in Denver traditionally is focused on retail colocation, with few transactions exceeding 500 kW, although some recent deals are starting to push into wholesale territory as more capacity comes online.

Much of Denver's capacity currently under construction is tied to demand from local tech startups thanks to the regions numerous technology incubator programs.

Several providers in Denver are positioning themselves to bring wholesale data center space to the area. Some examples:

- ▶ Iron Mountain's Denver data center, acquired through its purchase of FORTRUST, is a 179,000 square foot / 16-megawatt colocation facility that accommodates retail, wholesale, and modular data center demand.
- ▶ Flexential's Compark facility features a single 148,000 SF data hall, reflecting recent trends toward larger data halls.
- ▶ EdgeConneX has built a 115,000 SF powered shell at its Englewood campus, continuing a pattern of building larger second data centers at its edge network locations.
- ▶ H5 can support wholesale and retail requirements at its Greenwood Village campus, where it has invested about \$20 million in improvements.

Between these facilities, Denver can deploy and absorb over 50 MW of wholesale power.

So, with Denver's largest industries creating consistent-but-modest data center demand, who will pickup this wholesale capacity? Much of Denver's capacity currently under construction is tied to demand from local tech startups thanks to the regions numerous technology incubator programs. Also, as one of the 20 largest U.S. metropolitan areas in terms of population, Denver generates a large amount of data, which requires storage and processing.

Denver's important role in edge computing, putting data centers in areas with high populations in order to reduce latency and load on long-haul fiber lines, will help ensure short and long-term future demand for colocation services. As one of the largest and most connected cities in the region, Denver is a good candidate for handling the region's traffic. For most of the mountain states, the closest major markets besides Denver would be Phoenix, Dallas, or Northern California, which are all too far away to provide a true low latency connection.

In terms of notable deals, Flexential recently added a new tenant to its Denver data center, with AsTech selecting the company for data center services in Dallas and Denver. AsTech initiated their relationship with Flexential in Dallas, where they have hybrid colocation and cloud infrastructure. In an expansion of the relationship, the company chose to duplicate their infrastructure in Flexential's Denver data center to serve as a disaster recovery location. Since capacity is often absorbed from existing users renewing and expanding their contracts, developing long-term relationship with their users is key for data center providers.

Iron Mountain, who rarely announces customer wins due to privacy concerns, added it has seen demand from the healthcare and financial services industries as well as sustained demand from the cloud and IT services space.

H5 announced in mid-2018 that it has leased a dedicated 5,000 square foot suite at its Denver Tech Center campus to an existing Fortune 500 customer.

Trends in Supply

Geographically, data center development in Denver is relatively spread out, with a slightly higher density of data centers in the Centennial and Englewood areas southeast of downtown. Like most markets, apart from Iron Mountain's purpose-built facility, Denver's downtown data centers are located primarily in retrofit buildings with dense fiber infrastructure, while most of the purpose-built data centers are located in the surrounding suburbs.

Wholesale Denver supply is limited to four providers: Flexential, Iron Mountain, EdgeConnex, and H5 Data Centers.

FLEXENTIAL

Flexential is Denver's largest data center provider, with 26 MW of commissioned power across five data centers, and the ability to add another 9 MW in the future. Most of the company's capacity is concentrated in its Compark data center, a wholesale facility capable of offering 17 MW of commissioned power at full delivery. Flexential has been the Denver market share leader since its tenure as ViaWest. The Denver-based regional provider focused mainly on second-tier markets before being acquired by Peak 10 in 2017, rebranding as Flexential, and evolving to more of a national footprint. Although Flexential is the largest player, newer providers to the Denver market are creating a more competitive environment.

IRON MOUNTAIN

One of the fastest-growing colocation providers in the world is Iron Mountain with its more than \$2 billion in data center investment since 2017. FORTRUST and its 16-megawatt data center (now named DEN-1) in downtown Denver was the first of a string of Iron Mountain acquisitions that included IO Data Centers, EvoSwitch, and two Credit Suisse facilities in London and Singapore respectively. Iron Mountain DEN-1 has the largest customer count of any individual data center in the front range, is powered by 100% renewable energy, and boasts one of the longest continuous uptime streaks in the world at more than 17 years. At 210,000 square feet, Iron Mountain DEN-1 has private suite wholesale customers as well as wholesale customers taking

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down dedicated MOD's. Additionally, DEN-1 was the first colocation facility in Denver to receive an on-premises MegaPort exchange to help streamline hybrid IT and multi-cloud management for its diverse customer base.

EDGECONNEX

EdgeConneX expanded its Denver campus in 3Q 2018, completing the construction of a new powered shell. EdgeConneX built the 115,000 SF shell in roughly six months, and will offer colocation at a density of up to 30 kW per rack. Additionally, Iron Mountain and EdgeConneX will offer Megaport services at the data center, giving users a direct, private, and secure connection between their colocation and cloud environments. EdgeConneX is in talks with several potential tenants, but doesn't anticipate building out the space for two years due to their remaining capacity at their existing data center adjacent to the shell.

H5 DATA CENTERS

H5 completed a multi-million dollar upgrade to its campus in the Denver Tech Center, bringing on new private suites ready for wholesale consumption. The facility was originally a production data center for a prominent airline and now houses production and backup infrastructure for a wide-range of customers.

Business Environment

Here's a look at Denver from a site selection and economic development perspective.

CONNECTIVITY

As stated earlier, Denver is a fiber-dense market due to its role as a network relay point connecting West Coast population centers to major Midwest and East Coast markets. In addition to the city's dense metro fiber grid, Denver has long haul lines looping it to Chicago, Minneapolis, Kansas City, Dallas, Phoenix, Salt Lake City, Seattle, Portland, San Francisco, Los Angeles, San Diego, and other large metros. Additionally, the city boasts lines running from Canada to Mexico directly through Denver.

POWER

Denver's primary power provider is Xcel Energy, which offers power to data centers at a range of \$.06-.08/kWh. Although the power rate is lower than some larger markets, such as Northern California or New York/New Jersey, some data center users with

Due to the elevation and overall climate, providers in Denver can utilize free cooling almost year-round, offering the ability to operate data centers with less power.

large deployments find the current rate unattractive compared to markets like Phoenix, Quincy, or Dallas. New legislation is expected in 2019 to reduce power costs for large consumers, potentially creating opportunities for new hyperscale demand. Additionally, Xcel provides incentive programs to data centers build with energy-efficient systems.

Over half of Colorado's fuel mix comes from coal with wind and natural gas taking up another 40 percent. Governor Jared Polis campaigned to run Colorado on 100 percent clean energy by 2040, which could lead to a shift in the state's fuel mix. It is expected solar and wind will likely become the state's primary energy source.

Due to the elevation and overall climate, providers in Denver can utilize free cooling almost year-round, offering the ability to operate data centers with less power.

Denver's eastern plains lie on the far western edge of tornado alley, giving that specific area a higher than average tornado risk. However, no tornadoes above EF2 have come within 40 miles of Denver.

DISASTER RISK

Denver is a low-risk metro area in terms of natural disasters. There is a slight risk of earthquake, and sustained precipitation led to recent flooding in Boulder, but the mountainous region is well-protected against hurricanes and tornadoes.

The eastern plains lie on the far western edge of tornado alley, giving that specific area a higher than average tornado risk. However, no tornadoes above EF2 have come within 40 miles of Denver. Seismic activity is not unheard-of in Denver, as well, although most earthquakes in Denver occur in the 3.5 to 4.5 magnitude range. Although the risks are higher in Denver, they are lower than other tornadic prone central markets or West Coast markets with higher earthquake risks.

ECONOMIC DEVELOPMENT & INCENTIVES

Colorado currently offers no formal data center tax incentives, although some projects have received tax breaks on a case-to-case basis. Although several attempts have been made to introduce a state data center tax break, all bills have been voted down.

Overview of Major Providers

SPONSOR: IRON MOUNTAIN DATA CENTERS

Iron Mountain (NYSE: IRM) is the global leader in storage and information management.

- ▶ The company serves more than 225,000 customers including 95% of the Fortune 1000 from nearly 90 million square feet of secure real estate at 1400+ facilities in 54 countries across the globe.
- ▶ The company was founded in 1951 and serves some of the most regulated organizations in the world.

The company launched its data center business unit more than thirty years ago at its underground campus in Western Pennsylvania. Today, Iron Mountain owns and operates more than 3.5 million square feet of data center space from 15 locations on three continents in five countries. Markets include Amsterdam, Boston, Denver, Frankfurt, Kansas City, London, New Jersey, Northern Virginia, Ohio, Pennsylvania, Phoenix, Scottsdale, Singapore, and Western Pennsylvania. Iron Mountain has more than 1,200 data center customers in all.

Iron Mountain acquired its Denver data center in 2017, purchasing the FORTRUST data center in downtown Denver at 4300 Brighton Boulevard. The data center currently has 10 MW of commissioned power, with another 6.2 MW planned. The data center is capable of operating at a PUE as low as 1.2, and has the Tier III Gold Operations award.

CORESITE

CoreSite (NYSE: COR) is a publicly-traded real estate investment trust (REIT) and colocation provider headquartered in Denver. With a location in eight different markets, CoreSite provides colocation and connectivity through 20 data centers in its portfolio.

CoreSite operates two data centers in the Denver market, both located downtown. Their largest data center, DE1 is located on the seventh floor at 910 15th Street, and can deliver up to 1.5 MW of

commissioned power. The company also operates roughly 5,000 SF of data center space at 639 E 18th Avenue. Both facilities feature access to CoreSite's Any2Exchange for peering and Open Cloud Exchange.

CYXTERA

When private equity firms BC Partners and Medina Capital acquired CenturyLink's colocation portfolio in 2017, they combined the assets gained to create a brand-new company called Cyxtera Technologies. Cyxtera is a global colocation business with 57 data centers in more than 30 markets. The company offers highly secure solutions to meet strict requirements such as those expected in financial and government entities. Cyxtera Technologies is headquartered out of Coral Gables, Florida and is comprised of Cryptzone, Catbird, Easy Solutions, and Brainspace to offer a reliable and cloud-ready infrastructure platform for more than 3,500 customers.

Cyxtera has two campuses in Denver, DEN1 and DEN2. DEN1 in Highland Ranch is comprised of two data center facilities with a combined 6.6 MW of commissioned power and 2N redundant UPS redundancy. Both also have been awarded Energy Star certification. DEN2 is located in Englewood and offers 4.7 MW of commissioned power. All three of Cyxtera's Denver data centers have the Uptime Institutes M&O Stamp of Approval.

DIGITAL REALTY

Digital Realty (NYSE: DLR) is a publicly-traded REIT and the largest wholesale data center provider in the world. The company has grown to over 205 locations across five continents after going public in 2004; leveraging economies of scale to measurably benefit customers. Digital Realty delivers colocation, powered shell, private suite, and custom data center solutions.

Digital Realty operates two data centers in Denver, both of which are fully leased. The first is 8534 Concord Center Drive in Englewood, an 85,660 SF retrofit data center. They also own 11900 East Cornell in Aurora, a 286,000 office and data center complex made up of three buildings. Digital Realty purchased the complex in 2012 to be a fully leased income property. Two tenants lease 94% of the building's capacity.

EDGECONNEX

EdgeConneX is a colocation and network services company headquartered in Herndon, VA. The company created a network of more than 25 “edge-of-network” data centers throughout the United States designed to lower latency and increase application performance. The company’s Edge Data Centers (EDC) enable distribution of content at the edge of the Internet. All EdgeConneX EDCs are designed to support extremely high power densities.

EdgeConneX’s Denver campus is located in Englewood, where it has one operational facility and an additional 115,000 SF powered shell delivered in 2Q 2018. Their data center at 8535 Highfield Parkway is approximately 50% delivered with 2 MW of commissioned power. EdgeConneX is able to offer high-density deployments at the facility, with 20+ kW per cabinet and 600+ watts/SF.

In 2Q 2018, EdgeConneX expanded its presence in Denver, completing a 115,000 powered shell next to its current Denver data center. With the addition of the shell, EdgeConneX established their Denver EDC Campus, which will also feature Megaport services.

EQUINIX

Equinix (NYSE: EQIX) is a global data center company providing colocation, interconnection, and connectivity services to users. The California-based company has over 180 data centers in 44 markets throughout the world, and gives access to over 450+ cloud providers in their portfolio.

Equinix pricing is typically higher due to the ecosystems created in Equinix facilities and access to cloud and connectivity services.

Equinix has two data centers in Denver. The first facility is in Englewood at 9706 East Easter Avenue, where it offers roughly 1.2 MW of commissioned power. The facility was retrofit in 2000, and is currently fully leased. Equinix’s second and largest data center in Denver was part of its acquisition of a Verizon portfolio in 2017. Built in 2001, the 335 Inverness Drive data center holds approximately 7 MW of commissioned power. Equinix can add another 2.5 MW of commissioned power based on demand.

In 2Q 2018, Equinix completed an expansion at its DE2 data center, adding 1.4 MW and 475 sellable cabinets.

Founded in 2000, Flexential concentrates on managed cloud services such as infrastructure as a service (IaaS) and disaster recovery with compliance.

FLEXENTIAL

Flexential provides cloud computing, data center, and managed services, primarily for mid-market businesses. The company is headquartered in Charlotte, NC and has a growing data center footprint in the southeastern corner of the United States. Founded in 2000, Flexential concentrates on managed cloud services such as infrastructure as a service (IaaS) and disaster recovery with compliance.

In 2017, Peak 10 completed their acquisition of Denver-based ViaWest, giving the company a portfolio spanning 40 data centers across 20 different markets. In 2018, the combined companies rebranded as Flexential.

Flexential is Denver’s largest data center provider, with five data centers around the city. Flexential has three fully leased retail data centers: two downtown, 501 Wazee and 1500 Champa, and one in Centennial at 12500 E Arapahoe. They also have two wholesale data centers in the area. Their first is inside Digital Realty’s facility at 11900 E Cornell in Aurora and offers 13.5 MW of commissioned power. Their flagship and largest Denver data center is located at 8636 S Peoria in Englewood, which they call their Compark data center and opened in 2014. At full build, Flexential can offer 17 MW of commissioned power. The data center can accommodate densities up to 1,500 watt/SF, features a PUE rating of 1.3, and 2(N+1) UPS redundancy.

H5 DATA CENTERS

H5 Data Centers is a colocation and wholesale data center provider with 13 facilities in the United States. The privately-owned company designs data center and interconnection solutions for carriers, colocation, enterprise, and government customers.

H5 operates a 300,000 SF data center complex in the Denver Tech Center in Greenwood Village. The facility was originally built by United Airlines, but was purchased by H5. The data center is fed by two separate Xcel Energy substations, and can offer up to 15 MW of commissioned power at full build. Since purchasing the building, H5 has invested over \$20 million in improvements, including a rooftop photovoltaic solar power array that generates 478kW of renewable power.

Founded in 2000, Flexential concentrates on managed cloud services such as infrastructure as a service (IaaS) and disaster recovery with compliance.

ONENECK IT SOLUTIONS

OneNeck IT Solutions is a colocation, cloud hosting and managed services company based in Phoenix, AZ. The company has multiple data centers throughout the United States, with locations in Oregon, Iowa, Colorado, Wisconsin, Minnesota, Arizona, and New Jersey. OneNeck is focused on serving mid-market and enterprise companies, delivering a full suite of IT solutions to end users.

OneNeck's Denver data center is located in Englewood. The building is currently 35,000 SF, but can be expanded to a final 160,000 SF. At full build, the data center will offer 8 MW of commissioned power. OneNeck purpose-built the data center in 2015, and designed it with 2N UPS redundancy. It has also been awarded Uptime Institute's M&O Site Award.

zColo offers their Metro Interconnect Service in eleven major U.S. markets, providing connections to multiple data centers across their network.

ZCOLO (ZAYO)

Boulder, CO-based zColo is a carrier-neutral data center provider whose parent company, Zayo (NYSE: ZAYO), is a publicly-traded global provider of bandwidth infrastructure services. zColo's data center footprint of 51 facilities extends to nearly 30 markets worldwide. They also offer their Metro Interconnect Service in eleven major U.S. markets, providing connections to multiple data centers across their network. In 2015, the company purchased Latisys, a provider of hybrid Infrastructure-as-a-Service (IaaS) solutions for cloud and colocation customers, for \$675 million.

zColo has four data centers in Denver: one north of Denver in Westminster, one downtown, and two to the Southeast suburbs in Centennial and Englewood. zColo first came to Denver through purchase of Latisys, which included the 393 Inverness and 6900 S Peoria properties. The 393 Inverness data center, DEN1, is their largest in Denver, able to offer 6 MW of commissioned power at full build. The 4 MW 6900 S Peoria data center is fully leased.

Also in 2015, zColo delivered its third Denver data center, a 19,000 SF facility downtown. The data center is its most fiber-dense facility in Denver, with connections to CoreSite's 910 15th St data center. zColo's newest facility data center, 7579 W 103rd Ave in Westminster, was purchased from Stream Data Centers in 3Q 2017. Delivered in 2010, the facility can offer up to 1.5 MW of commissioned power at full build. The data center can accommodate high density deployments, up to 450 kW per cabinet. All of zColo's Denver data centers feature 2N redundant UPS systems.

About Our Sponsor Iron Mountain



Iron Mountain's data center in Manassas, Virginia

IRON MOUNTAIN DATA CENTERS

Iron Mountain Data Centers, a division of Iron Mountain incorporated, is a leading provider of data center and colocation services. Our global portfolio consists of hyperscale-ready, strategic edge, and underground data centers comprising over 3.5 million square feet across fifteen locations in five countries.

More than 1,200 customers including cloud providers, global enterprises, and local market organizations choose Iron Mountain Data Centers for our thirty-year proven track record, risk mitigation, and operational efficiency. Iron Mountain colocation facilities are sustainable and provide the most logical venue for hybrid IT with easy access to the carriers, cloud providers, exchanges, and IT services necessary for digital transformation.

Comprehensive compliance support ensures highly regulated enterprise and public sector customers are protected as they change their organizations to thrive in a multi-cloud world.

We are guardians of changemakers. For more, visit
www.ironmountain.com/data-centers

Methodology

DatacenterHawk continuously monitors data center activity for 35 regional markets in North America. Regional markets are placed into one of two categories:

1. **Primary** – Large markets with multiple colocation and cloud data center facilities.
2. **Secondary** – Mid-to-small markets with data centers

We define our market sizes based on the total amount of **power** and **space** in the market. The total amount of power and space in each market is calculated by datacenterHawk’s team of analysts based on four key attributes:

- ▶ The amount of **commissioned** power and space
- ▶ The amount of **available** power and space
- ▶ The amount of **under construction** power and space
- ▶ The amount of **planned** power and space

As an example, Data Center Provider A builds a 75,000 gross square foot (SF) data center facility, with 3 separate data halls of 1,200 kilowatts (kW) and 10,000 raised floor square feet (RFSF) each. Data Center Provider A leases one of the data halls (1,200 kW/10,000 RFSF) to a user, and makes the

second data hall (1,200 kW/10,000 RFSF) available by completing construction to be ready to lease the next opportunity. The third data hall is in shell condition and therefore considered planned space. The resulting datacenterHawk analysis of the above scenario is shown below.

In addition, the datacenterHawk analysis considers that many colocation and cloud providers lease infrastructure from larger data center providers. In our analysis, we count power and space leased from one data center provider to another only once.

As an example, if the lease completed by Data Center Provider A in the scenario above was completed with Data Center Provider B with the intent to sublease that 1,200 kW/10,000 RFSF to users, the analysis would only include the 1,200 kW and 10,000 RFSF of space one time.

At datacenterHawk, we track these attributes in each market throughout the year and frequently refresh them. By continuously monitoring these attributes, we can calculate a baseline for each market, rate how a market grows relative to their baseline score, and deliver the most current and valuable information needed by our customers.

DATA CENTER PROVIDER A – CAPACITY OVERVIEW

| | | | | |
|--------------|-----------------------|--------------------------|----------------------|---------------------|
| Power | Available 1200 kW | Commissioned 2400 kW | Under Const. 0 SF | Planned 1200 kW |
| Space | Available 10000 SF | Commissioned 20000 SF | Under Const. 0 SF | Planned 10000 SF |

datacenterHawk has made every attempt to ensure the accuracy and reliability of the information provided. However, the information is provided “as is” without warranty of any kind. datacenterHawk does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information provided.