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How Regional Data Centers Are Driving Digital Transformation

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Digital infrastructure will continue to be a key ingredient for today's enterprises. As enterprises look at multi-cloud and hybrid cloud for their digital transformation solutions, they continue to seek out options that are more efficient and optimized. This brings regional data centers into the conversation. What were formerly considered Tier 2 locations (regional markets such as the Midwest) are now emerging as the new Tier 1. Increased demand for distributed hybrid networks with cloud and edge offerings and growing Tier 2 populations have positioned regional data centers in an important role as enablers in digital transformation.



Drivers of data center demand

Cloud services are the most significant driver for data center providers. To address this, enterprises need to manage their assets across colocation, infrastructure, on-premises data centers, and edge deployments. This cloud demand has increased data centers across the country for several reason explained below.

Growing need for hybrid cloud. Telcos and large organizations are seeking additional servers and low-latency connectivity options as people spend more time online. Data centers are the answer to their growing need as services are distributed, deployed, and operated across numerous public and private networks and cloud services. The hybrid cloud plays a necessary role for many enterprises because they can leverage the private cloud as it provides greater control and security, and public clouds for massive capacity.

Increased cloud migration. Cloud adoption is old news but in smaller communities, it is picking up. Why the delay? Lack of infrastructure. Regional data centers are providing the necessary infrastructure to enterprises in smaller communities to get to the cloud and are removing this barrier for mid-sized organizations.

Edge computing. Bringing resources close to end users and markets of connectivity, edge computing enables (for example) IoT and 5G applications. Edge data centers are ideal for this as they can support high-bandwidth and low-latency applications such as content streaming, gaming, and navigation.

Other reasons why edge data centers are utilized and important include telecom infrastructure, peering, and colocation. Edge data centers support cell towers and fiber optic lines for last-mile access to end users. Towers with good access to bandwidth and electricity provide excellent locations for modular data centers. Data centers provide access to controllers, switching equipment, service gateways, and aggregation hubs. Additionally, cloud and enterprise data centers are prime locations for edge computing. As data centers are customized to fit clients' needs and future demands, edge data centers are being deployed as a midstream point between data centers and end users.

Market constraints for the bigger markets are contributing to regional data center demand as well. Since the pandemic, data centers have been expanding quickly across the US and the globe. There are a few things enterprises need to consider, especially with larger data center companies: data center capacity is running low, they can be costly, Tier 1 markets are becoming saturated with land grabs (and thus getting more competitive), and supply chain constraints are slowing and increasing costs on new data center builds. As a result, Tier 2 markets are emerging as an important strategy for enterprises and are reshaping the commercial environment. These former secondary markets are leading the "edge" expansion as it becomes more imperative to move technology closer to consumers, providing available and affordable power, offering robust fiber, and a strong infrastructure with minimal disaster risks.

The popularity of Tier 2 markets

The saturation of Tier 1 cities over the last few years is driving operators into Tier 2 markets to meet current and future demand. What were once considered secondary markets have the power and fiber capacity with solid connectivity to Tier 1 markets—and are now on the table.

Additionally, residents have moved out of Tier 1 markets in favor of more suburban locations to improve their quality of life and cost of living. The impact of this migration to Tier 2 markets by businesses and individuals has increased cloud adoption, edge computing, and 5G wireless, driving more data center providers into Tier 2 markets to support the escalating need for data and low latency connectivity. Demand in Tier 2 cities is growing faster than in Tier 1. Markets like the Midwest that were once ignored are today considered key strategic locations. What started this was the COVID-19 shift in demand beyond the Tier 1 cities, especially as employees started working from home and companies relocated their operations to the suburbs. Data center network and infrastructure services have seen a remarkable surge in demand across a wide range

of industries. Driving the need (especially for smaller-scale data centers) are 5G, IoT, and other emerging technologies like augmented and virtual reality (AR/VR).

5G: data centers bring in large amounts of data that 5G networks must process, store, and distribute. The increase in demand is for computing capacity and associated infrastructures including storage, connectivity, and edge computing support.

For IoT: data center capacity needs to be scalable to meet the staggering amount of data that is generated. With lower latency also becoming a need, users expect 24/7, everywhere access to data and services.

AR/VR: technology depends on ultra-low network latency and must be hosted close to users and devices. Edge data centers are needed for AR/VR technologies to host distributed workloads and optimized for distributed applications and data for the best performance.

While they were once dispersed, regional data centers are expanding at a rapid pace. Submarkets around existing data center corridors especially in the Midwest are emerging: Quad Cities, IA; Springfield, MO; Davenport, IL; Peoria, IL; Champaign, IL; Springfield, IL; and St. Louis, MO, to name a few. Overall, the Midwest boasts a wealth of carriers and low-latency connectivity options to both the East and West coasts. With cutting-edge colocation facilities throughout the region, most are capable of more than 100Gbps connections, so it is possible to effectively host various applications away from core business operations with guaranteed content and service delivery where and when it's needed. Lastly, this region provides customers with significant cost savings (compared to Tier 1 markets) especially when coupled with various tax incentives.

Sustainability: a data center 'need to have'

The data centers of yesteryear were not environmentally friendly. They were not made for water-constrained environments, do not cool efficiently, and were not built with renewable energy in mind. As emissions from data centers reach more critical levels, companies have made pledges to reach net zero emissions and utilize renewable energy sources, all to focus more on developing green data centers.

Today, data centers have done a 360 on their construction, building, and operations in light of climate change. From the equipment and energy that is consumed to the cooling needed to operate, customers are demanding that the data centers they work with also meet their own environmental, social, and corporate governance (ESG) goals. This means having a sustainability roadmap with the steps a data center will take and a goal date of when the operator will be carbon neutral. Here are a few elements that can be considered on this journey.

The carbon footprint. For data centers, this can be determined from its build, purchased equipment, and daily operations, to its end-of-life disposal of equipment. Hardware and infrastructure equipment make up most of a data center's carbon output.

Offsetting its energy usage with renewable energy sources. Data centers were once seen as the largest consumers of energy. Today, they are slashing use by utilizing renewable energy sources like solar and wind—but these can only offset so much. A popular trend in data center energy management is implementing energy load-matching strategies as an approach for long-term decarbonization. It is ideal for regional data center operators to localize renewable energy purchases. Localized energy matching means purchasing renewable energy where and when low-carbon sources are more abundant because there are limitations to solar and wind energy, which can be unevenly distributed based on geographic location.

Water usage. Data center operators also have the ability to limit their water usage (necessary for cooling equipment within a facility) by leveraging closed-loop water systems. When a closed-loop system isn't achievable, there are ways of partnering with local organizations to reuse the facility's water without dumping it down the sewer.

Heat output. Data centers are finding ways to utilize the heat output of their facilities in creative ways. The simplest approach is to funnel the heat into other rooms or buildings on the campus.

Data centers that adopt a holistic sustainability approach are ideal as they address enterprise customers' environmental, financial, compliance, and efficiency considerations. This 360-degree approach can safeguard the environment while lowering long-term operating costs for emerging and technology-driven markets. With major tech players leading the way, data center sustainability is not going away. As Internet traffic volume continues to increase, data center operators will need to continue learning how to mitigate their energy consumption and carbon emissions.

DT and the data center

As an enterprise customer going through a digital transformation, it is good to look around you for a data center provider. Understand your needs today and tomorrow to find one that can handle your data consumption, hybrid cloud, cloud migration, or even edge data center needs. Believe it or not, your data center provider could be in your own backyard, considering the surge in Tier 2 markets. Considering everything that points to current and future growth for your business, be sure your data center partner meets your company's ESG goals or even surpasses them. Because everything points to growth, know that the data center you partner with is moving to net zero, and is creating a clean energy infrastructure that is both environmentally friendly and resilient enough to serve you in the next generation of the digital economy.