



**OPERATING
THROUGH THE
PANDEMIC**

**ON THE
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OPERATING THROUGH THE PANDEMIC – ON THE RESILIENCE OF DATA CENTERS

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COVID-19 caught the world off-guard. As our scientists, healthcare workers, and governments work to understand and contain the outbreak, investors and investment managers are seeking to understand the impact COVID-19 is having on their portfolios. This includes investors and managers trying to understand what, if any assets, have withstood the ravages of this pandemic and if there are any investments that can still achieve pre-COVID-19 projections. Resilient product types that immediately come to mind are those providing essential services like grocery stores and pharmacies, as well as certain healthcare facilities and medical research labs. Investors may also think of infrastructure as essential, but some infrastructure properties are proving to be less or more essential than others. Water treatment plants remain essential, while toll roads and airports are suddenly empty. Even power plants have seen reduced demand.¹ One infrastructure property type that has positively stood out during the pandemic is the internet and the infrastructure that powers it. COVID-19's impact still needs to be fully understood but the initial massive increase of internet traffic and the sector's resilience under pressure suggest that data centers are poised to prosper during the crisis.

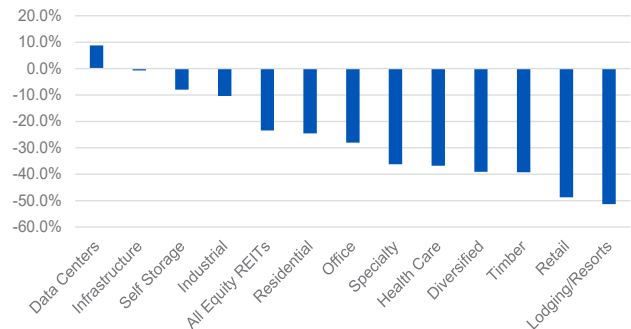
THE WORLD IS UNDERGOING A COMPREHENSIVE STRESS TEST

COVID-19 has managed to stress-test global governments, healthcare systems, and financial markets. In a matter of months, cases of COVID-19 grew from a few dozen in China to millions spread in nearly every country around the world. As the virus spreads out of control, governments around the world ordered the shutdown of nearly all activity, forcing the majority of the world's population to shelter at home and forgo all but essential outings.² These shelter-in-place orders have led to massive economic dislocation, and the real estate and infrastructure sectors have not escaped unscathed. Since mid-March across the U.S., nearly all retailers, restaurants, bars, hotels, casinos, theme parks, stadiums and other consumer businesses have either closed or are nearly empty. While these businesses remain closed in the near term, their ability to survive let alone pay rent is in question. And going forward, even as restrictions on operating businesses are lifted, it seems unlikely customers will flock back until they feel truly safe.

Other real estate assets such as office and apartment properties seem to have fared better so far. Operations have had to be adjusted at largely empty office projects, and apartments are now buzzing with activity 24-7. In the first five weeks of the crisis, an average of over 5.0 million people per week filed for unemployment,³ many office and apartment tenants are struggling to pay rent and will surely have more trouble as the recession continues.

As activity has moved away from malls, theme parks, offices and hotels, it has shifted online. The suddenness of the reaction to the pandemic has caused cascading spikes in internet traffic around the world. First in China, then in Europe and North America internet usage increased 20% to 30% in just a couple of days. According to several network operators,

Figure 1 - 1st Quarter 2020 REIT Returns



At the end of 1Q20, reflecting the public market's initial impression of the lockdown, data center REITs were the only sector with positive returns with the sectors hardest hit by the lockdown losing approximately 50% of their value. Source: <https://www.reit.com/data-research/reit-indexes/historical-reit-returns/performance-property-sector-subsector>

this increase accounted for all of the growth they were expecting in 2020.⁴ This growth resulted primarily from additional streaming video as more people stayed home and watched Netflix and YouTube, attended classes online and met in virtual conference rooms. According to Nielsen, streaming TV was up 34% in the second half of March⁵ while daily usage of video conference platforms like Zoom and Microsoft Teams increased by several multiples in regions where lockdown orders were issued.⁶ This growth was recognized by investors based on the fact that at the end of the first quarter, data center REITs were the only real estate sector with positive returns.⁷ What is particularly remarkable about these streaming figures is how well the infrastructure of the internet has performed. Internet usage has not only spiked but shifted geographically—away from central business districts and towards suburbs and neighborhoods.⁸ During this time, there has been some effort by large bandwidth users like Netflix and YouTube to reduce traffic and speed reductions, but there have not been any widespread disruptions to service.⁹ The resilience of the internet comes both from its fundamental decentralized design as well as the planning and operational performance of the organizations that operate it. Data centers are no exception to this trend.

FIGURE 2

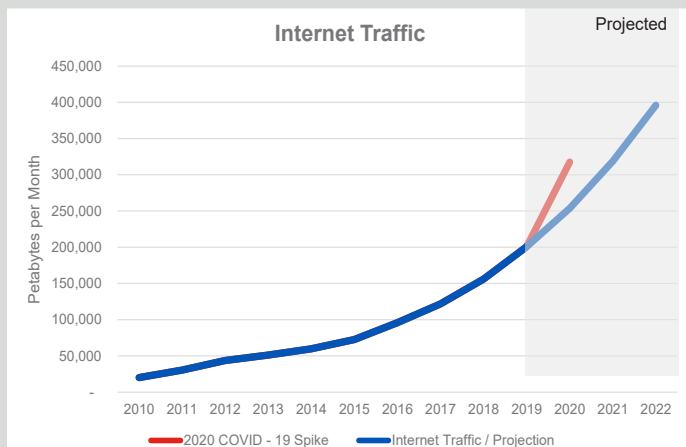
SABEY DATA CENTER'S INFECTIOUS DISEASE BUSINESS CONTINUITY PLAN LEVELS

- Response Level 1 – Heightened Awareness
- Response Level 2 – Reduced Operations / Maintenance – Minimizing operations and maintenance like a black-out period.
- Response Level 3 – Skeleton Staff / Shelter-in-Place – Maintaining 24/7 presence with extended shifts. Limiting access to the building by any non-essential staff.
- Response Level 4 – Lights out – No longer maintaining 24/7. Focusing on on-call response/remote monitoring/controls.
- Response Level 5 – Quarantine – Access to the facility restricted by government action or by self-imposed quarantine while the team disinfects a facility which is believed to have been contaminated with the virus.

DATA CENTER OPERATORS PERFORM UNDER PRESSURE

Data centers are designed with resilience in mind. Fundamentally, a data center needs to have a secure location with power and internet connectivity. A state-of-the-art, investment-grade data center needs to be what's called a Tier III data center. This designation essentially means that they have fully redundant power and connectivity systems, ultimately meeting the test of remaining functional nearly 100% of the time.¹⁰ Seasoned data center operators typically strive to have records of downtime limited to just a few minutes over the course of years. Major tenants will not lease space in a data center that does not meet this hurdle. Data center operators therefore go to great lengths in order to prepare for rare but severe events that could interrupt their operations. For example, a Tier III data center will typically receive power from the grid but also have generator and battery backups that allow for a seamless power delivery for their tenants even when the grid goes down. In addition, they will have redundant components and pathways, so that maintenance can be done without service disruption. They will also have fuel on-site to operate generators in case of power grid failure and fuel contracts in place to operate for months on-end without interrupting service. If possible, data centers are located where natural disasters are rare or are prepared to weather adverse events in more sensitive locations. Additionally, data center tenants—like content providers and cloud operators—also build redundancy into their networks allowing for continuous service even if parts of their network or data center locations are not operational.

When it came time to respond to the COVID-19 pandemic, data center operators were prepared. Operators typically have business continuity plans in place for many different types of potential disruptions. As COVID-19 emerged, many began implementing these plans.¹¹ For example, as of May 2020, Sabey Data Centers was operating under response level 2 of its Infectious Disease Business Continuity Plan which includes taking actions such as adjusting cleaning procedures, screening personnel for symptoms, limiting the number of personnel on-site, conducting virtual leasing tours and deferring non-essential maintenance (see fig. 2).¹² If the situation deteriorates further, Sabey personnel, like other data center operators, are prepared to shelter in place in data centers as well as further reduce contact in order to continue operating the centers.



A 30% increase in internet traffic due to COVID-19 is depicted along with the past growth over the last several years. As you can see, the growth represents an acceleration over previous years but is also part of a trend of long-term exponential growth. Source: "Cisco Annual Internet Report - Cisco Annual Internet Report (2018-2023) White Paper." Cisco, Cisco, 10 Mar. 2020, www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html.

One factor that has allowed data centers to be resilient during the pandemic and remain relatively resilient generally is that, despite a facility's need for 24/7 monitoring, much of the work can be done remotely or with relatively few people. A typical location will likely be staffed with the operator's and/or tenant's IT and facility technicians as well as security personnel 24 hours a day. Yet, since the systems are designed to operate automatically, it is possible for a data center to operate with one person or even no people on site for some period of time. As technology improves, and things like AI become more widespread, the ability to operate with limited staffing for longer periods of time may further improve data centers' resilience to similar crises.

WHAT DOES THE FUTURE HOLD FOR DATA CENTERS?

Over the next few months or years, as COVID-19 remains a threat and a global recession or depression takes hold, data center leasing could face headwinds as corporations go bankrupt or cut back spending. IT spending, however, will be hard to cut as more companies rely on working remotely and technology companies grow to meet consumer demand. Additionally, potential tenants may shift further towards colocation or multitenant data centers as they try to save on upfront capital costs. As a result, it's possible operators catering to multitenant centers will benefit more than others in the near-term.

Over the long term, as the danger of COVID-19 subsides, it seems quite possible that many of the social and working practices learned during the pandemic will remain to some degree. Not everyone who is currently working from home will continue to do so, but it is likely that once employees are used to the new lifestyle, they may not easily relinquish it. Some college students or universities may also realize that distance learning offers a far more cost-effective way of getting a decent education. Both of these activities would contribute to increased video which is already the largest source of internet traffic.¹³ Additionally, consumers may have gotten used to connecting long distance with friends over video calls in addition to meeting in person. Ultimately, if any of these behaviors stick, they will add to the continued exponential growth of internet traffic and therefore demand for data centers worldwide.

CONCLUSION

Data centers have shown themselves to be both critical infrastructure and resilient under pressure so far during the COVID-19 pandemic. Moreover, we believe data centers present themselves as one of the few asset classes that may be able to benefit from potentially permanent changes in social behavior as well as the ongoing digitization of our everyday lives.

MANAGER PROFILE

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