

National Real Estate Advisors, LLC

Investing in data centers during the 'digitization of the human experience'

Jonathan A. Schein, senior vice president and managing director of global business development for Institutional Real Estate, Inc., recently spoke with **Jeffrey Kanne**, president and CEO of National Real Estate Advisors, LLC. Following is an excerpt of that conversation.

Tell me what National Real Estate Advisors is doing in the data center industry. Can you describe your current investment in the sector?

We are invested in only one company. It is an entity-level investment in a company with multiple campuses around the United States. The entity brings these underlying assets together with an operating company, which is a critical component of the data center business. The expectation is that the data centers will be running all of the time. The measure in the industry for a top-notch operator is called the five 9s standard. The five 9s standard means that your data center, over a given year, is fully powered 99.999 percent of the time — which means not being down for more than a couple of seconds a year. In our particular case, I believe our company is the only five-time winner of the Uptime Institute's most prestigious award for reliable management and operations. It is a critical reason why we want to be invested at the entity level, because tenants look at operating and reliability characteristics of the operator as a threshold question in determining who they will accept as a landlord. They require that their facilities will be up and running around the clock, day in and day out, and our company does that very well.

What are some other operational nuances that separate data centers from other real estate asset classes?

A data center needs power or it cannot operate. It gets power in two ways. First, it gets power from the grid, but the grid is not within the control of the data center developer — there must be a back-up power source to be sure that, if the grid goes down for some reason, there is a power source on the site that will run the data center for a period of time until the grid is back up and running. That secondary power source usually consists of a bevy of generators and sometimes flywheels and sometimes battery back-ups, all of which are designed to kick in immediately when there is a power outage, so that there is absolutely no loss of power, even for a millisecond, to the computers. That is a fundamental and critical element of a successful data center.

Secondly, the humidity in a data center must be very carefully regulated. All agreements with tenants provide detailed standards for the humidity, as well as other operating parameters.

Another important operational distinction is that data centers consume a tremendous amount of energy, both to run the computers and to remove the heat that is generated by the computers. The goal is to get to a Power Utilization Effectiveness, or PUE, ratio of 1:1, meaning that all the power that goes into the computers is being used for computations rather than, for example, to remove heat. Our tenants will compare our PUE ratio to a



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Jeff Kanne is the founder, president and CEO of National Real Estate Advisors, LLC. National manages approximately \$5.6 billion in gross assets for approximately

60 pension fund investors and employs a single real estate investment strategy: a build-to-core investment strategy whereby National invests at the beginning of the development process, primarily in urban core, high-rise and mixed-use projects across the United States, and also in data centers, ultimately transitioning the assets to core real estate holdings. Jeff's various experiences include being a former Peace Corps volunteer in rural West Africa, a lumber trader, a lawyer in a major Washington, D.C., law firm and many years at the helm of a law firm he founded. He has broad and diverse experience in the real estate investment and development process, with particular insight into legal, finance and construction aspects.

competitor's PUE ratio because a higher PUE ratio means greater use of electricity, which the tenant pays, and a higher total cost of operation. As far as I know, no operator has reached a 1:1 PUE ratio. Part of our strategy is to locate our centers where the climate allows us to get "free cooling days" and that also are near a source of low-cost, renewable energy. The design and quality of air conditioning and ventilating systems also greatly affect PUE. Over time, we have developed a prototypical building and system design that is very efficient. We seek to improve the designs in every new building we develop.

It makes it sound like computers are more finicky tenants than people.

Anyone who owns commercial real estate has experienced finicky tenants. In general, I think people are a lot more finicky than the technology required for a successful data center. People can complain about almost anything. The problems of a data center are more predictable. Nonetheless, a significant failure in a data center can have far greater consequences than an HVAC system not working in an office building. Too much heat or humidity may slow down an office worker, but in a data center, too much heat and humidity could actually cause computers to cease functioning and a tenant's online operation might fail.

You must have to be very thoughtful about the site selection for these properties.

Yes, very much so. In the data center business, you need access to *reliable* power, which is more complicated than it might seem; you need access to *affordable* power; and then you also need access to telecommunications connections, whose robustness will

affect the kind of tenant which will occupy your space; and then, lastly, you want to have a safe location that is not subject to earthquakes, hurricanes, tornadoes, windstorms or floods.

Our locations fit all those criteria. Part of our strategy has always been to have low-cost, renewable power — almost 85 percent of our power comes from renewable sources, and a fair number of our campuses are located in central Washington, where, historically, there have not been natural disasters. And we also have many free-cooling days there. These really are the same kinds of operational considerations that owners of all kinds of buildings should be paying attention to, but they are more important to a data center tenant because of the amount of energy used. Also, in some ways, because data travels at the speed of light, data center locations can be more flexible than more traditional real estate products.

What is the competitive landscape for data centers now?

The industry is quite new. Our company's roots trace back to the building of what we used to call "computer rooms," essentially a room in a building whose prime purpose was data processing, used to house a tenant's energy-hungry, heat-generating computers. Typically, the floor would be raised and used as a plenum for wiring and perhaps as a vent for the huge air conditioners used to cool the room. The industry really took off in the late '90s as the Internet expanded and became accessible to everyone, collapsed briefly in the early 2000s, and then has been on a tear ever since. The competitive landscape is interesting. There are only about five publicly traded data center companies. In the private sector, there has been some consolidation, and some of the public ones have been buying some of the smaller operators, so the actual number of data center owners is declining. One of the reasons for that is the very capital-intensive nature of the business, and the need to have an expansive and blemish-free operational reputation.

Can you elaborate?

It costs about \$1,000 per square foot to build a data center before the tenant comes in and customizes the space and installs its equipment — and it could be much more expensive than that depending on location. We have a data center in Manhattan, where it costs at least \$1,500 per square foot to build out space, and then the tenant comes in and puts another \$1,000 per square foot, or more. So, it's very difficult to keep up with the capital needed to construct a portfolio of data centers. Secondly, there are enormous operational and reputational barriers to entry. To illustrate, a new entrant into the field who approached a prospective tenant with the promise, "I can beat the competitor's rent by 25 percent," would be greeted with a request to "show me your operations record." The tenant is likely to answer, "I'm sorry, I'm not looking for bargains. I am looking for certainty of operations, because this is a critical function of my company." These high barriers to entry are one of the reasons we like the space. They play to our favor because we have capital and enjoy an excellent reputation.

What are the current and future demand drivers in the space?

When we invested in this space almost 10 years ago, it wasn't as well defined as it is today. But still, it was very clear to me then that we were beginning to witness the digitization of the human experience — meaning that virtually everything we touch and

feel and do and see intersects with the Internet in some way, and that means it is also touching a data center — and that, that broad digitization and the expansion of the Internet was going to have an impact on traditional real estate property types. I wasn't sure what all that would look like, but in 2007, when the iPhone came out, it was clear things were going to change dramatically. The demands put on the Internet, which works through data centers, just skyrocketed and have continued to skyrocket ever since. Every time someone pokes the screen of a smart phone — which is really a powerful, handheld computer connected to the Internet — data is being processed in a data center somewhere. Fifteen years ago, people used their phones to send 140-letter text messages; now people are watching movies on their phones while they are answering emails on their iPads — and all those transactions go through data centers. Another thing that is really driving demand is the Internet of Things — people are putting sensors everywhere. Those sensors produce data, that data gets processed and stored in data centers, and it never really goes away — it just keeps piling up. Cloud computing has been a huge driver of demand. What that really means is that companies like Microsoft, Google and Salesforce are putting software services into data centers, so that your computer is linked to and interacts with software that is working in a remote data center and not on the computer. The imminent rolling out of 5G networks is certain to be create another large boost to data center demand.

What makes your company different from the competition?

What differentiates us is our goal of using as much renewable power as we possibly can in our portfolios. In the long run, we think renewable power is going to be much, much more valuable than it is today because, ultimately, the world will have to address climate change. When it does, the cost of electricity generated by fossil fuels will increase, and a tenant's cost to be in a fossil fuels-related data center will be much higher than the cost in our renewable-energy data centers. We also have technical construction expertise. The ability to have a construction team with a proven track record of constructing a building on time and on budget is a huge advantage for us. And, finally, we have a stellar reputation for performance.

CORPORATE OVERVIEW

Led by a management team working collaboratively since 2000, **National Real Estate Advisors, LLC** (National) has honed a specialized build-to-core strategy and established a unique open-end real estate fund to invest in modern assets, located in major U.S. urban markets. The company takes a patient, long-term investment view, developing and redeveloping properties at appropriate points in the real estate cycle, always seeking to create modern, technologically advanced assets for its portfolios, to outperform older properties competing for tenants.

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