

North County Transit District and Logicalis Drive to Build the First Mass Transit LEED Green-Certified Interior Data Center in the U.S.



North County Transit District (NCTD) serves 12 million passengers annually by providing public transportation within North San Diego County and, via the Coaster commuter rail service, to downtown San Diego. Its family of transit services includes the Breeze bus system, the Coaster commuter rail service, Lift paratransit and the Sprinter light rail.

As with most regional transit systems, demands on the NCTD data center were increasing dramatically. The space available for the data center, however, was not. Tucked into the basement of a former bank building, the data center was already crammed with systems—including a legacy prime mainframe. Power consumption was going up 10 percent a year, and still, the two relatively new air conditioning systems were unable to keep the temperature within an acceptable range.

Big Problem. Small Room.

Chief Technology and Sustainability Officer Angela K. Miller faced a big problem in a small room; actually, she faced several problems: she had an IT problem, a construction problem, an energy consumption problem, and a space problem, and while she was solving those, she had to ensure that tickets were sold online, security cameras kept an eye on things and trains and busses kept running on schedule. And, of course, she had a tight budget.

Undaunted, Miller took the term “sustainability” in her title very literally and was determined to demonstrate that there was a creative and sustainable “green” solution to all her

problems. She envisioned a new data center that would meet the escalating demands for information technology and be environmentally, as well as financially, sustainable.

“We think of ourselves in public transit as being a greener transportation alternative, so it is important to us to demonstrate that we can live up to that in other ways,” Miller says. “The emphasis in public transit has always been on the vehicles: trains and buses. The industry is just now realizing how big a role IT has to play in its future. It’s important to show that IT can and should play a leadership role in energy efficiency and sustainability as well.”

Miller’s vision helped the NCTD win a Transportation Investment Generating Economic Recovery (TIGER) grant from the Department of Transportation to upgrade its data center. The responses to her subsequent request for a proposal, however, solved only some of her problems. Only the response from Logicalis shared her vision of how to solve them all.

LEED Certification

Logicalis data center infrastructure expert Bob Mobach worked closely with Miller to develop a design from the ground up that would not only meet the service-level demands of the NCTD data center for the next 15 years but would also incorporate the best ideas from a variety of sources that met the full intent of the Leadership in Energy and Environmental Design (LEED) Certification for Commercial Interior Spaces.

“It’s about making an investment that will endure, be supportable and save operating dollars.”

Angela K. Miller, North County Transit District

Developed by the U.S. Green Building Council, LEED certification provides third-party verification that a building is designed and built using strategies that improve performance in terms of energy savings, water efficiency, CO2 emission reduction, improved indoor environmental quality, stewardship of resources and sensitivity to their impacts.

“We adhered to the guidelines and applied for LEED certification,” Miller says, “because we didn’t want to just come out and say, ‘Okay we’re green now,’ and be viewed as green washing. Not only were we the first agency in San Diego County to qualify for LEED certificate for a commercial interior, we are the first green data center in public transit...actually, we’re the only LEED-certified public transit data center in the country. Some have built LEED facilities with a data center in it, but that’s not the same as retrofitting an existing data center.”

Going Green

Going green added an extra dimension to the data center design. Besides the exacting technical specifications to optimize the space, Mobach and Miller closely evaluated every aspect of the design according to its environmental impact, from recycling waste during construction to incorporating materials that met tight environmental standards.

As the design took shape, Mobach reviewed submissions and quotes and pulled together the team of contractors that would be needed to complete the renovation: Roel Construction acted as the general contractor, BASmith Design Associates provided architectural design and LEED administration, and Prime Electric handled the electrical wiring. Following the spirit of sustainability, local products were used as much as possible throughout.

During the construction phase, the Logicalis team took care of space planning, sizing the components, re-cabling and migrating servers to new cabinets.

“We basically had to gut the existing data center and implement a new one in the existing footprint without interrupting service,” recalls Logicalis’ Mobach.

The existing raised floor was eliminated and replaced with electrostatic tiles, and the Prime mainframe was relocated to a separate room and has since been retired. Besides improving

air circulation and making it possible to wire the systems from above, removing the raised floor effectively gave the room a much-appreciated additional eight inches of headroom. The data center remained in full operation throughout the upgrade, except for one very busy weekend when it had to be shut down to complete the transition.

Showcase for Sustainability

The new data center design not only provides for projected service demands for the next 15 years but also serves as a showcase for sustainability. The ceiling panels are made from bamboo, and the insulation in the walls is made from recycled blue jeans. LED lighting and low-VOC paint were used throughout. The design even stipulated low-flow toilets. Because the building is in a Zone-4 earthquake region, the design also called for threaded rods using cross members that directly connected each cabinet to the floor to keep them from being upset in an earthquake.

Energy savings from the new in-row hot-aisle containment air conditioning system, combined with energy production from the solar panel array installed on the roof, contribute to a reduction in the NCTD’s energy demand by more than 30 percent a year—enough to provide a respectable return on investment (ROI) from energy savings alone.

The integration of data center infrastructure design and sustainable green technology is already winning accolades for NCTD and for Miller, who was presented the “Cox Business Exemplary Award” at the San Diego Business Journal’s annual Information Technology Executive of the Year event.

“The Little Train That Could.”

“It’s one thing to do this if you’re Google or Microsoft or Citibank, and I applaud them for getting platinum LEED certifications. But we’re the little train that could,” Miller says.

“Public transit often has really old facilities. We’re a government agency, but we’re not unlike a lot of SMBs. Somebody else may be more glamorous, but we’re on the ground demonstrating the viability of a small company learning from all the innovative things the big guys do and making an economic and socially responsible investment. Building a sustainable data center is not about being part of a political movement or creating a press

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sound bite,” Miller adds. “It’s about making an investment that will endure, be supportable and save operating dollars.

“As public transit increasingly depends more and more on technology services, IT will demand a bigger cut of the cost pie,” Miller says. “Logicalis has helped us prove that it is possible for a relatively small agency to design and retrofit an existing data center in a way that reduces its environmental impact and reduces cost at the same time. That’s good for us. It’s good for the transit industry, and it’s good for the environment.”

About Logicalis

Logicalis is an international provider of integrated information and communications technology (ICT) solutions and services founded on a superior breadth of knowledge and expertise in communications and collaboration, data center, and professional and managed services.

Logicalis Group employs over 1,900 people worldwide, including highly trained service specialists who design, specify, deploy and manage complex ICT infrastructures to meet the needs of over 5,000 corporate and public sector customers. To achieve this, Logicalis maintains strong partnerships with technology leaders such as Cisco, HP, IBM and Microsoft.

The Logicalis Group has annualized revenues of \$1 billion, from operations in the UK, US, Germany, South America and Asia Pacific, and is fast establishing itself as one of the leading IT and Communications solution integrators, specializing in the areas of advanced technologies and services.

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