

Data center Case Study

Customer: AT TOKYO Corporation

The customer selected Schneider Electric's cooling solution provided by Uniflair™ LE Chilled Water HDCV air conditioning system, with the enhanced performance to maintain the same output with a half of the previous footprint requirement, realizing the highly energy-efficient data center in response to the high-density servers environment.



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AT TOKYO Corporation, a SECOM Group company, is a major provider of mission-critical data center services in Japan for their demanding customers. In response to increasing customer demands for higher-density server environment, 27 units of Uniflair™ LE Chilled Water HDCV has been installed and in full operation in their Central Center (CC1) since July 2018. These Uniflair air conditioners offer twice the cooling performance of the previous type, and they have made a significant contribution to the efficiency and reliability of the services in their 24x7 operating hours with no downtime.

AT TOKYO's Needs

- Introduction of high-performance cooling units that can support operation of high density servers.
- Provision of flexible data center services responding timely to customers' ever-changing business needs.
- Firmly establish a sustainable operation and maintenance framework that responds quickly to above needs.

Selected Solution and Product

- Uniflair™ LE Chilled Water HDCV × 27 units

Impact of the solution

- Doubled the cooling capacity using the existing mechanical corridors.
- Provided cost-effective and energy-efficient service to the customer, using the enhanced cooling performance.
- Maintenance and Support organizations, localized for Japan, was constructed to support 24/7 zero-downtime data center operation.

AT TOKYO's Challenges: The pressing agenda was to evaluate and select an alternative cooling solution to address increasing demand for higher density servers requirements, while maximizing the space utilization.

Since its establishment in 2000, AT TOKYO has been providing data center services through advanced facilities and IT technologies, along with the highest level of infrastructure platform such as highly reliable power supplies, earthquake-resistance facilities, and broadband-network connectivity with optical fiber networks. Prompted by the market drive toward the latest digital services, such as AI, IoT and Cloud, AT TOKYO started to offer infrastructure services with secured connectivity to MEGA cloud, IX, ISP and other IT services. In 2017 the company began their ATBeX (AT TOKYO Business eXchange), the interconnectivity platform within their data centers. This platform supports data center customer's secured connectivity between a range of cloud services, and also readily responds to the constant evolution of such services.

More recently, the demand for high-spec data centers has rapidly increased due to the use of big data, and the data center business environment is rapidly changing with the diversification of its users' needs. The current industry trend is for the high-density server environment that achieves higher performance with smaller footprint. For several years, AT TOKYO had been looking for facility solutions in this area. As a part of this process, AT TOKYO was comparing and studying cooling devices, focusing on their installation space and costs required for high-density server installation sites. Mr. Masao NISHIKIORI, Group Manager, Fit-out Group #2, Facility Fit-out Dept., Engineering & Services Div., recalls that period.

"Back in 2015 when we first started our studies and research for the new data center repowering project, we identified the emerging customer demand for high-density server requirements. Therefore, we decided to further investigate and eventually deployed an air conditioner that offered advanced cooling efficiency."

Initially, AT TOKYO considered domestic vendor products, with the belief that these suppliers would readily respond in the event of support incidents. Unfortunately, local vendors were unable to meet AT TOKYO's high density requirements. Units proposed by Japanese manufacturers were using the conventional technology, and were physically too large to meet their space requirements.

Following these findings, the company began to look at overseas vendor solutions, and eventually chose Schneider Electric's Uniflair. Mr. Takashi YOSHIDA Group Sub-Manager, Fit-out Group #2, Facility Fit-out Dept., Engineering & Services Div., explained;

"Uniflair was one of the few products that could double the cooling capacity without expanding the existing footprint. It was just such a product and solution that we were looking for."

Schneider's InRow™ air conditioners had already been installed at AT TOKYO, and their successful track record further helped make the case for this Uniflair selection.

Another deciding factor was the overcoming of concerns in the post installation phase, particularly for maintenance and spare parts. "We were concerned that overseas vendors manufacture their products outside of Japan, and might not be able to commit to reliable servicing, including supply of parts, even if the initial output meet all of our specifications. But Schneider had already been expanding its business successfully in Japan for many years, and we felt that they would be able to meet the expectations of Japanese companies. Moreover, we decided to go with Schneider because their proposal gave us peace of mind and the sense that they could be trusted, not only during the commissioning phase but also subsequent operation and maintenance periods." (Masao NISHIKIORI)

Performance Test at Uniflair Factory and Lab in Italy.

Following the selection of Uniflair, AT TOKYO and Schneider jointly conducted various tests in Uniflair Factory and Lab in Italy, by creating site conditions, including temperature and humidity. Actual production units were used in these testings, and various operational loads were applied for assuring the operational capacity. In addition, specific load factors requested by AT TOKYO were incorporated, and the units performance was all satisfactory.

"Our services to the customers are offered with the key principle of 24x7 no-downtime operation. Under our design concept of redundant configuration, we wanted to make sure that if one of the dual cooling systems went down, the other system could quickly maintain the same output, as per agreed specifications. It gave us peace of mind that we could monitor the system in real time for the operational sustainability and preventative measures. Schneider's Uniflair Factory members responded to these customized requests very professionally with an up-front and flexible manner. In addition, we were able to take a look around the entire manufacturing facility, which gave us general confidence in Uniflair's quality control programs." (Takashi YOSHIDA)

After completing the site installation of Uniflair units, Integrated System Test (IST), with the application of operational loads thereby closely simulating the actual operational environment, was carried out, and cooling performance was verified. For further verification, IST



also included the total shut down and re-start of air conditioner units, to recreate the power system failure and their recovery to the normal operation level. After successfully completing these field verifications, the system began its full-scale operations in the Summer of 2018.

"Schneider's local members in Japan made sure that our technical and performance specifications were fully met. They were in constant contact with us, and also collaborating with Uniflair Lab and manufacturing facility in Italy. Even though business practices are substantially different between Japan and Europe, we were able to proceed with the commissioning and testing with peace of mind, knowing that Schneider's project members were there in the middle, acting as intermediaries to fully represent us." (Masao NISHIKIORI)

Requirement for high-quality and dependable maintenance services to sustain long-term stable operation.

For this particular project, AT TOKYO installed 27 Uniflair units, and they are also looking into the long-term use of these units for maximizing the investment. Mr. Toshio MITSUI, Group Sub-Manager, Facility Operations Group, Facility Operations Dept., Engineering & Services Div., spoke as follows.

"As the volume of servers increases, the number of operating air conditioners will increase proportionally. In such a situation, we anticipate that true value and performance excellence of Uniflair will become more prominent by reducing the required number of units, contributing to the reduction of operational management and its cost. For future planning and investment purposes, we are also undertaking the field experiment of how this particular cooling solution responds to such increases and their operational fluctuations."

Mr. Kazumi SHIRASE, Manager, Maintenance Group #2, Facility Maintenance Dept., Engineering & Services Div., added, "Schneider air conditioners have their own unit control functions, which has the advantage of consolidating maintenance of both cooling units and their controls at the same time. I think this function is expected to reduce our maintenance workload."

For the additional installation beyond the Chuo Center (CC1), AT TOKYO is also evaluating on Uniflair's higher operating temperatures technology, enabling servers to operate at room temperature.

"Schneider Japan project members undertook frequent and numerous collaborations and negotiations with Uniflair Factory and Lab in Italy so as to finalize specifications and other technical requirements at our total satisfaction."

— Masao NISHIKIORI
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Product Catalog
<http://catalog.clubapc.jp/>



Case Studies
<http://catalog.clubapc.jp/#09>



Schneider Electric Japan Group Profile
http://catalog.clubapc.jp/company_profile.pdf



Schneider Electric Website Site Navigator
<http://www.ups-navi.jp/navi/>

Setting up a customized maintenance program in support of 24x7 no-downtime operation

While continuing with the current operation, AT TOKYO seeks to further improve the maintainability of the system by additional engineering measures in consultation with Schneider's Italian laboratory. AT TOKYO is also going to sign a contract with a maintenance company to set up an operating and maintenance program that will assure its 24x7 no-downtime operation.

"In the event of unexpected future incidents, I expect that Schneider will be able to speedily cope with such situations for resolution.

Until this Unflair experience, we used to choose Japanese-made products, but this project gave us sufficient confidence to consider other Schneider solutions beyond cooling offers. We would like to continue and develop our collaborations with Schneider's engineers so that we can better meet the changing needs of our customers." (Takashi YOSHIDA)

Schneider's solution products and maintenance services fully support AT TOKYO's mission critical data center operations and services.

AT TOKYO Corporate Profile

- Business Summary: Owns and manages robust and scalable data centers at multiple locations in Tokyo metropolitan area. Through several types of data center colocation offers, namely, colocation services, caged colocation services, caged and housing/rack services and premium rack colocation services. AT TOKYO provides highly reliable, ultra-low latency, broadband network connectivity on a carrier-neutral and vendor-neutral basis. Also offers IT infrastructure management services to readily respond to a wide range and dynamic needs of its customers.
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