EcoStruxure™
Innovation At Every Level

SUSTAINABLE

Boosting resilience, safety, and sustainability

BRIDGESTONE subsidiary BANDAG - Dilsen-Stokkem, Belgium

Leading tire manufacturer Bridgestone, and its subsidiary Bandag, deploy Schneider Electric's prefabricated modular data center to bolster safety and operational resilience while also improving sustainability efforts.

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For faster time to market, improved performance, and expert management of your new edge data center deployment, the EcoStruxure™ Modular Data Center allows you to build what you want, where you want it.

The convergence of IT and industrial automation is impacting the way manufacturers are modernizing their industrial operations. The world's leading tire manufacturer Bridgestone, and its subsidiary Bandag, for instance, modernize not only to remain competitive, but also to address their social responsibility of maintaining high sustainability operations. They are tasked with providing mobility and transport industries with safe, reliable, and durable tire solutions while doing their part to address CO_2 emissions-driven climate change.

Worldwide, over 2.5 billion tires are now sold every year. Bridgestone generates over $27 Billion in annual revenues from tire sales, more than any of its competitors. With approximately 138,000 employees and 180 manufacturing plants and R&D facilities across the globe, Bridgestone's strategic plan is heavily focused on social and environmental accountability as well as technological innovation.

Looking toward 2030 and beyond, Bridgestone has built a sustainable business model that facilitates a circular economy in each of its businesses through resource circulation, reduction of CO_2 emissions, and carbon neutral activities — while also reinvesting those benefits and value sustainably back into its businesses.

The location: Manufacturing plant in Belgium

One of the Bridgestone tire manufacturing plants in Dilsen-Stokkem, Belgium, run by Bridgestone's subsidiary Bandag, is helping to set a new technology standard through the recent deployment of a highly efficient, highly sustainable prefabricated modular data center.

Acquired by Bridgestone in 2006, Bandag is a global leader in retreading solutions for the trucking industry. Bandag retread tires result in fewer raw materials being consumed and lower manufacturing process-generated carbon emissions. The consumers of Bandag products benefit from reduced total tire cost per km/mi, reliability and performance similar to new tires, and from fast, flexible, and high-quality service from the wide network of specialist franchises who sell the products.

Goal

Upgrade existing manufacturing site server room to bolster safety and operational efficiency with a sustainable approach.

Story

The world's leading tire manufacturer looks to Schneider Electric and its IT partner Bechtle to provide a pre-fabricated modular data center solution. This innovative approach improves safety and resilience while accelerating speed of deployment by 50%.

Solution

A Schneider Electric prefabricated modular data center which includes:

- APC NetShelter™ racks
- APC Symmetra™ PX UPS
- Modular precision cooling
- Busbar power distribution

Results

- Since all new systems were set up and configured prior to migration, the cutover process from old to new was seamless with no disruption to manufacturing operations.
- Flexible customization of data center module size enabled the solution to precisely address business needs and specifications.
- System stability and performance were enhanced due to pre-tested, pre-integrated system components.

With over 60 years of experience in manufacturing tires, Bandag leverages its expertise by analyzing mobility-related data to perfect its manufacturing processes to create more value for its customers.

Like many companies, the complex operations of Bandag are increasingly dependent upon round-the-clock functioning of computing and IT systems. Failure of such technical assets can result in the disruption of operations and can damage brand image. For these reasons, investments are being made to safeguard and upgrade IT and computing systems and related data on an ongoing basis. In addition, programs are in place across the company to prevent industrial accidents, particularly fires that could result in occupational injuries.

Challenge 1: Server room in need of upgrade

In the case of Bandag's Dilsen-Stokkem manufacturing site, having a well-maintained and modern server room is key to running fast, efficient operations. Over recent years, converging information technology (IT) and industrial automation operations technology (OT) has emerged as a top business strategy for driving competitiveness.

The Bandag team's original server room was outdated and did not meet contemporary fire safety standards. Since an upgrade was needed, the team decided to invest in a new server room that would be state-of-the-art, resilient, and energy efficient.

Challenge 2: Business continuity and limited space

For the Bandag team, space was also an issue — there was no suitable place to build a new server room near the existing one. Dismantling the existing server room and rebuilding it from scratch would have led to extensive server room downtime, which was not an option. The Bandag stakeholders needed an innovative solution.

Bandag turned to their long-term IT partner, Bechtle, a Schneider Electric Premier Partner. With 80 system houses in Germany, Austria, and Switzerland as well as 24 e-commerce companies across 14 European countries, Bechtle is in a strong position to comprehensively support complex customer projects. The blend of direct IT product sales and extensive systems integration services experience was a perfect match for Bandag's server room requirements. Bechtle specialists across their 96 group-wide Competence Centers were also available to provide expert pre- and post-sales support to manufacturing customers like Bandag.

Bridgestone's subsidiary, Bandag, is helping to set a new technology standard through the recent deployment of a highly efficient, highly sustainable prefabricated modular data center.

Partnering for success

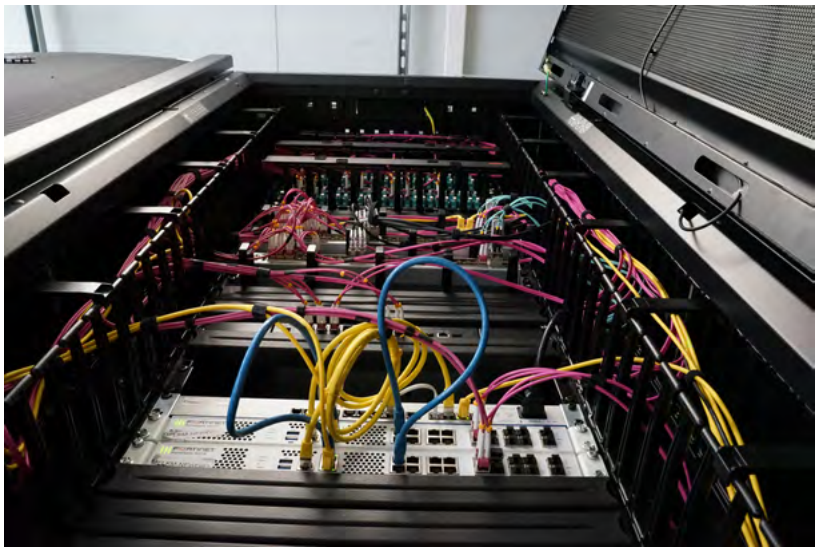
As Bechtle reviewed Bandag's business requirements, it became evident that a unique design/build approach would be required, and that a company like Schneider Electric – with experience in designing and building prefab, containerized modular data centers – should be involved.

Bechtle and Schneider Electric have a long history of collaboration and evolved their relationship as markets became more mature, with customers pushing for more complex, integrated solutions. The Bechtle team expanded its technical training and collaborated with Schneider Electric solution architects to develop high-end solutions and services. The emphasis shifted beyond the classic upgrading of server and storage components to the deployment of agile infrastructure platforms that help customers use standardization to break down business silos.

Collaboration is key for addressing business requirements

During joint planning discussions, Bandag shared their requirements for building a new server room environment. Bandag needed to migrate their server facility from the inside of the building to the outside. Stakeholders also wanted to ensure a smooth crossover from the old server room to the new, with minimal disruption to manufacturing operations. They planned to reach their goals of consolidation, simplified administration, and improved efficiency of infrastructure by modernizing the server room.

Schneider Electric already produces most of the core physical infrastructure used inside a data center and, therefore, was uniquely qualified to design, fabricate, and support the new data center having successfully implemented hundreds of such projects over recent years.



Modular data center benefits

Modular data centers, built in a factory setting, are pre-engineered, pre-tested, and self-enclosed assemblies of IT, power, rack, and cooling subsystems. The self-contained module is designed to be installed outside of a building (in an adjacent parking lot, for example). The solution provides an alternative approach to building a traditional data center and can provide unique advantages that complement edge computing environments.

One big advantage of the prefab modular data center approach is rapid deployment. As pre-engineered solutions, their cost is more predictable. This expedites the process to secure budgets. Instead of having to solicit proposals from multiple parties such as contractors and technology vendors, stakeholders only have to focus on one firm that is furnishing the prefab modular data center.

In addition, various phases of the data center project can be implemented in parallel. For example, while the rows of racks, power distribution units (PDUs), uninterruptible power supplies (UPSs), power distribution, and security that populate the module are being built in the factory, the cement pad for the module can be poured at the future delivery site, ready for when the module arrives. In addition, from a regulatory compliance perspective, codes and standards are maintained within the module as it's being built. For example, modules are inspected for standards compliance prior to leaving the factory. This means that end users don't spend a lot of time chasing down local authorities for approvals. When compared to a traditional data center build, the modular data center approach can reduce project timelines by up to 6 months.

Flexibility and quality emerge as critical success factors

As a result of Schneider Electric's and Bechtle's collaboration with Bandag to understand needs and requirements regarding the number of racks, current load, and future loads, their modular data center solution was deemed the most competitive. The experts collaborated with both Bandag facilities and IT staff to propose an initial design.

The factory visit allowed Bandag staff to witness first hand the quality of both the module and the components that were to be configured into the solution, as well as the level of detail and expertise that goes into the design of the ultimate solution.

In addition, the Bandag stakeholders were invited to visit the dedicated Schneider Electric modular solutions manufacturing facility in Barcelona, Spain (one of four global facilities, the other sites include China, India, and the US). This factory visit allowed Bandag staff to witness first hand the quality of both the modules and the components that were to be configured into the solution, as well as the level of detail and expertise that goes into the design of the ultimate solution. Finally, the Bechtle and Schneider team was also able to accommodate Bandag's request for a custom-size container (building a module with a 25-foot length instead of the standard 20 or 40-foot length).

As the data center module was being built in the Barcelona factory, a support team consisting of engineering, tendering, execution, and project coordination collaborated to make sure that aggressive construction deadlines were met. Once built in Barcelona, the module was then delivered by truck to the Bandag manufacturing site in Belgium. Bechtle then performed the integration of the IT components of the modular data center into the Schneider Electric racks. Lead time for the project was 16 weeks, compared to 40 weeks for a traditional building (including the time it takes to pass local regulatory standards).

Lower CO_2 emissions are an important sustainability benefit

The new five-rack system includes servers, storage, UPS, busbar power distribution, rack power distribution, precision air cooling units, security, fire prevention and management software — all integrated into the self-contained module.

Because the server room module was constructed at the Schneider Electric factory site where the experts were located, this avoided the CO_2 emissions of having to dispatch various experts to and from a remote construction site during the design and build phase. The team only had to concern themselves with the delivery of the actual container to the site of end use (in this case, from Spain to Belgium). Transporting one packaged good (the module) instead of a wide variety of disparate parts and materials also helped to limit CO_2 emissions.

From an operational perspective, the pre-engineered design of the modules allows for better integration of power and cooling system controls thereby generating higher energy efficiency and greater cost savings.

By collaborating with Bechtle and Schneider Electric, Bandag achieved their goal of server room modernization while increasing safety and improving operational resilience. Their containerized server room now serves as an example of a sustainable approach to IT and OT systems integration.

To learn more about how Schneider Electric's modular data center can support your digital transformation and edge computing build out, please visit our modular data center solutions page.

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