

DATA CENTER INSIGHTS

Edition 5

CLOUD TOSCANA

Cloud Toscana transforms Italy's digital landscape

TECHNOSECTOR & MIND PARK

Serbian systems integrator has peace of mind with Legrand

TELEHOUSE

Deployment of a data center in the heart of Paris, operated by Telehouse

E-QUEST

With two modern data centers, e-Quest is a local IT partner for reliable IT environments

ADVANCED POWER MONITORING

Exploring the advantages

TF1

TF1 data center modernization project with Legrand

POWERING SUSTAINABLE DATA CENTERS

Data centers face the pressing challenge of reducing their environmental footprint



COLOPHON

Data Center Insights is a publication of Legrand Data Center Solutions and is published twice a year.

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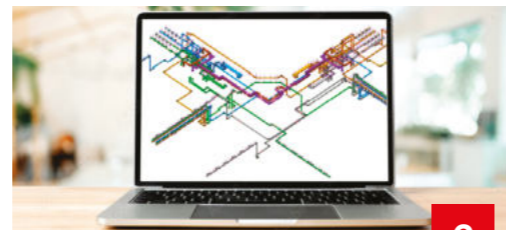
Issue: no. 05
Circulation: 5,000 copies
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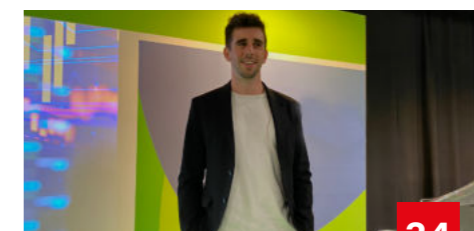
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Pioneering tomorrow's data centers:

Innovation, consultation, and education

Marc Marazzi, the Vice President of Data Center Infrastructure IT Sales for Europe at Legrand Data Center Solutions, shares an insight into how Legrand's commitment to the three cardinal principles of innovation, consultation, and education solidifies its standing as a global leader in the data center sector.

INNOVATION: CRAFTING THE FUTURE, TODAY

An illustration of this relentless drive for innovation is Legrand's acclAIM Fiber technology, which has redefined connectivity. Marc explains: "The solution is 40% faster to install because we have replaced pre-terminated cassettes with direct connections." And while the product sets new standards in speed of installation and adaptability, the environmental impact is also a key focus in its design. According to Marc, "We didn't just look at how we could be faster; we also looked at how we could minimize the packaging to be quicker to unpack and install,

quicker to dispose of, and with less waste. And you don't need any proprietary tools for the installation."

Another example of product innovation is Raritan and Server Technology's intelligent Rack PDU High Density Outlet Technology (HDOT) Cx outlet, which combines a C13 and C19 outlet into one. Marc comments: "The Cx outlet reduces the complexity within the selection process, with the flexibility to adapt to future equipment changes. Our work is all about the future because we realise that our customers don't know what they are going to need when it comes to deploying the IT

equipment into the rack. They might know for the first year, but not beyond that. We want our equipment to be scalable and our customers to have technology that will last."

CONSULTATION: TAILORED SOLUTIONS FOR UNIQUE CHALLENGES

For Marc and his team at Legrand, customer consultation and service are at the forefront of every project. Marc elaborates, "When working on a project, we look much further than the product; we look at the overall requirement and full supply chain to ensure we can deliver to our clients. We will meet with our factories and operations team to let them know that a project might be coming in and how we can provide the best service to the customer based on their forecast."

This comprehensive consultation process was evident when Marc collaborated with the factory on a massive cabinet project. Working closely to understand how they would deliver the solution and consulting on this resulted in the factory finding a more sustainable delivery method by delivering locks and blanking panels separately to the cabinets. Marc explains, "This lowers the time the equipment spends in the factory, and it goes to the customer faster. From a sustainability perspective, we're just sending two or three boxes instead of several boxes, reducing waste."

EDUCATION: ENLIGHTENING THE PATH FORWARD

In the dynamic world of data centers, staying updated is not just beneficial; it's imperative. Marc sees a key role for his Center of Excellence Team to help educate customers on the broad portfolio of solutions available from Legrand Data Center Solutions to deliver the most efficient and sustainable solution that best matches their requirements.

But it doesn't end there. Marc foresees how the advancement of artificial intelligence (AI) as a technology will impact the data center in the future and is passionate about preparing data centers to have the infrastructure they need to support the requirements of running such applications. "The big data centers have to make sure they are AI-ready. We think that, right now, there are a lot of data centers that aren't prepared. They will have a lot of stranded capacity if they don't know how to power or cool it." Marc explains.

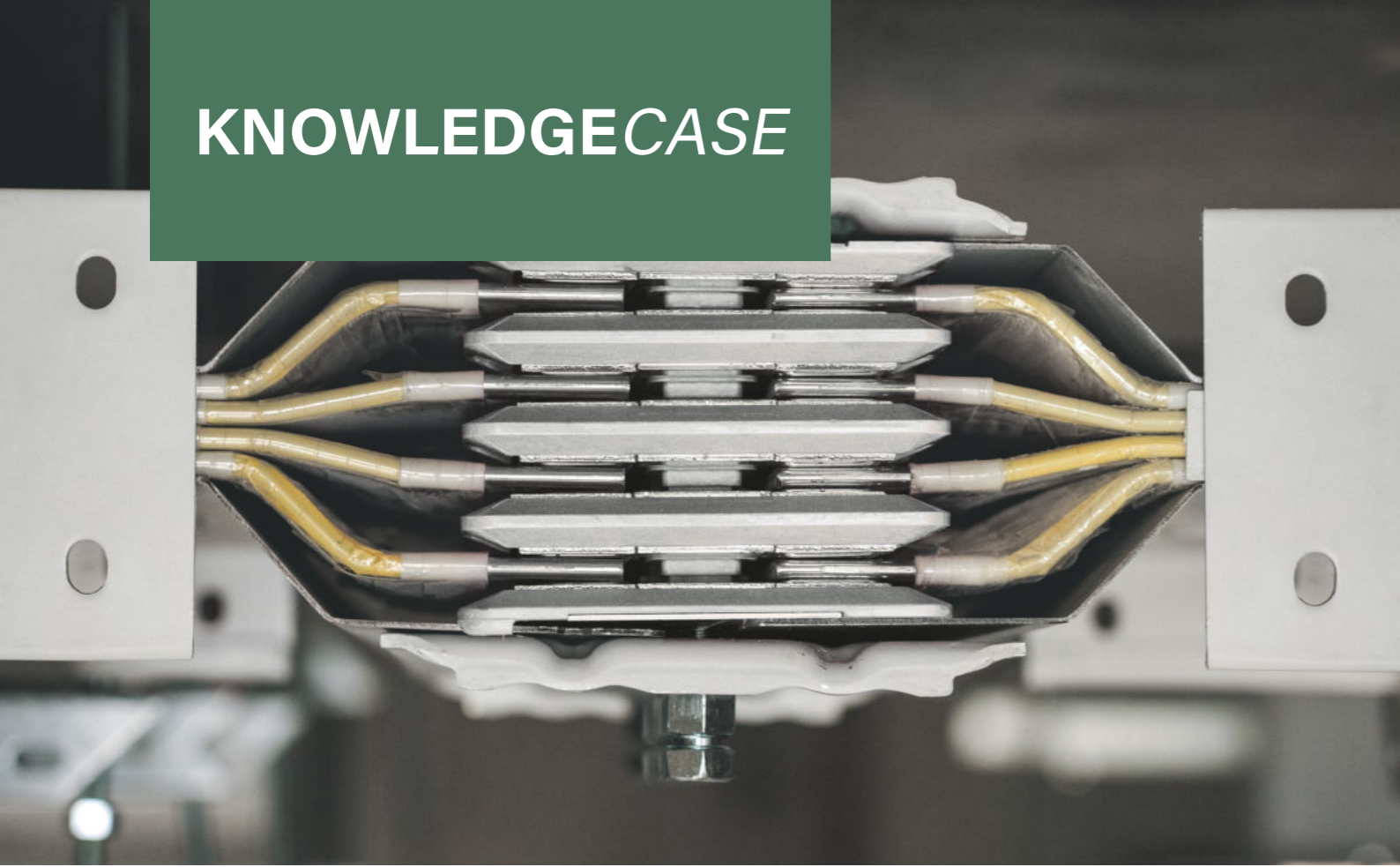
He also underscores the impending EU legislation focusing on power transparency. "How will you divulge all your IT assets and report how much power each is pulling if you haven't got the intelligent PDUs that will give you that information? These data centers need to get granular about monitoring, measuring, and managing their data centers." ■



Marc Marazzi, Vice President of Data Center Infrastructure IT Sales for Europe at Legrand Data Center Solutions

IN CONCLUSION

Marc concludes with some final thoughts: "We encourage data center owners and operators to come to us so that we can help consult and give them a best-in-class solution, working with our fantastic, global partner network to deliver it and the accompanying ongoing service and support. I genuinely believe there is no other company of our size that can provide the depth and breadth of solutions we offer. That's a strong position to be in."



Powering the future: Legrand's acquisition of Voltadis

In July 2022, Legrand acquired Voltadis, a reputable French company specializing in busbar supply and installation for data centers. It was a strategic move to add Voltadis's specialist team to Legrand's extensive data center infrastructure expertise. We take a look at the background and impact of this union.

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ENERGY DISTRIBUTION SPECIALISTS

Situated in Courmon-d'Auvergne, Voltadis, established in 2007 by Fabien Domas, specializes in energy distribution from 25 A to 6300 A. At the core of Voltadis's operations is power distribution in IT rooms, covering connections between transformers, main LV boards, UPS, and generators. The company offers a comprehensive service, managing everything from design and equipment supply to installation and commissioning. This involves collaboration with carefully chosen

subcontracting partners, each receiving in-house training and close supervision at their work sites.

EXPERTISE IN HIGH-POWER DATA CENTER SYSTEMS

Fabien Domas, Founder and Chief Operating Officer of Voltadis, sheds light on their core expertise: "We provide a comprehensive service for our clients; this includes the supply and installation of lighting bars, as well as medium- and high-power busbars. What sets us apart is our end-to-end project control. We manage every aspect, from initial processing to seamless execution. Our proactive approach is supported by thorough upfront studies, enabling us to identify and resolve potential issues early on, allowing us to focus solely on site work and production.

To ensure the highest level of quality in our services, we follow a well-established method that applies to all our projects. It begins with a comprehensive, fixed-price quote that factors in all resources, materials, and scheduling. Detailed studies follow, utilizing BIM models to provide a detailed view of the entire architecture of the installation. In our in-house production, every enclosure is customized and fitted with a QR code for traceability and other details. On-site, our installation process is quick and precise, with a strong emphasis on simplifying transformer and main LV board connections. When working with busbars and enclosures, we collaborate closely with the customer to ensure flawless installation.

The final step is commissioning, during which we thoroughly test all busbars and tap-off boxes, each equipped with a QR code providing compliance information. Customers can easily track project progress and access reports through our VoltaCheck application. In summary, our reputation is built on delivering reliable, durable installations, along with our ability to meet tight deadlines and our specialist technical teams' unwavering commitment to safety."

BENEFITS OF THE ACQUISITION

Before this acquisition, Legrand focused



"With Legrand, we're in a position to meet the challenges of tomorrow."

on providing busbars, but it identified an opportunity to further strengthen its portfolio by introducing a comprehensive turn-key solution, encompassing the entire process from design to installation. With Voltadis in its portfolio, Legrand now offers a comprehensive service, including the installation of premium XCP-HP prefabricated electrical busbars.

Ralf Ploenes, Vice President Legrand Data Center Solutions Europe explains: "The significant increase in large-scale data centers demanding higher power and quicker response times to meet



the escalating demands of AI adoption have pushed traditional deployment models to their limits. The 'Voltadis-style' approach to busbar design, installation, and commissioning proves invaluable. The IT-backed process flow, facilitated by our proprietary collaboration app, is streamlined with fewer interfaces, and enables real-time collaboration between the design center and job site without geographical or language constraints. Additionally, it creates the necessary documentation in real-time, facilitating faster scaling into our frontier countries in Europe. A key advantage of the acquisition is that customers across most parts of Europe can now benefit from the combination of design craftsmanship and Voltadis's advanced digital tools."

For Voltadis, being a part of Legrand brings financial stability and instills customer confidence, especially on major projects. "The backing from Legrand opens doors to significant investment opportunities, promising future growth. Voltadis's unwavering commitment to customer service, investment in cutting-edge tools, and creating an exceptional customer experience can continue to expand under the Legrand umbrella," says Fabien.

MEETING SUSTAINABILITY GOALS

The data center industry faces substantial sustainability challenges, compelling Voltadis to explore superior project solutions. Their rich experience and partnership with busbars give them the flexibility and confidence to innovate and adapt their approach to meet unique client requirements. Fabien Domas adds: "Legrand's XCP-HP prefabricated High Power Busbars are engineered for exceptional energy efficiency. They can withstand high temperatures, consuming fewer watts compared to competing products. Prioritizing the use of these high-performance products, Voltadis fulfills its commitment to performance and sustainability."

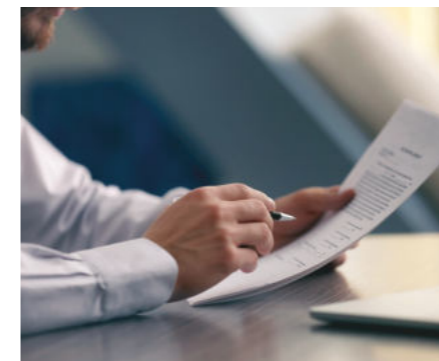
Ralf Ploenes further elaborates: "Sustainability is no longer a mere buzzword but a strategic imperative that cannot be ignored. Minimizing errors, eliminating redundant activities, reducing waste, and deploying data faster all decrease the environmental impact of constructing and operating data centers. An illustrative example of effective end-to-end planning is in the busbar installation process, where components are carefully organized, packed on reusable metal pallet systems, and delivered at the right time to the right place on site."

STRENGTHENING POSITION IN THE CEP MARKET

Looking forward, Voltadis and Legrand aim to enhance their position as key players in the data center and CEP (Critical Electrical Power) market. Fabien adds: "We aim to achieve shorter lead times, especially in the research phase, by implementing new software. Our objective is to improve CEP manufacturing times by 30%."

Ralf Ploenes concludes: "To drive this expansion, we must leverage the full capacity of the Legrand Datacenter Solutions team in Europe. Key to this effort is the recruitment and training of our Legrand staff and deployment partners. To scale faster, we are establishing a 'Busbar Academy' dedicated to training, this will help foster strong customer relationships and ensure the continuation of exceptional customer support."

This partnership promises to deliver innovative solutions, efficient energy distribution, and exceptional customer service, paving the way for the data centers of the future. ■



NEW website

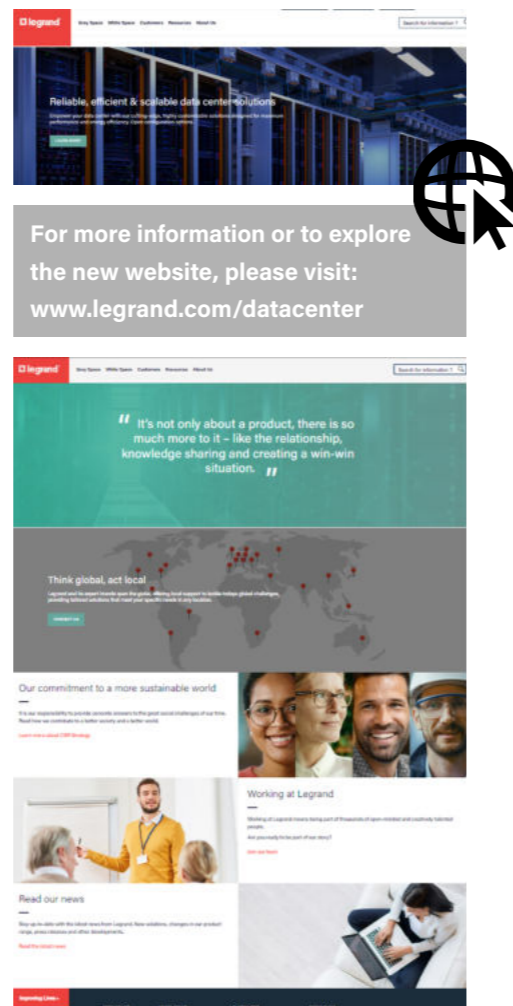
Introducing Legrand Data Center Solutions revolutionary new website **One platform for data center solutions**

Legrand Data Center Solutions is excited to announce the launch of its highly anticipated new website. The new website aims to be the single platform that simplifies how you experience our comprehensive portfolio of specialist data center brands and solutions. The website provides visitors with an easy-to-navigate platform that simplifies how visitors view and interact with our comprehensive portfolio of specialist data center brands and solutions.

STREAMLINED ACCESS TO THE COMPLETE LEGRAND DATA CENTER SOLUTIONS PORTFOLIO OFFERING

The cornerstone of Legrand Data Center Solutions's new website lies in its commitment to improving the customer journey by offering complete access to Legrand's diverse and comprehensive product portfolio in one central location. The user-friendly interface ensures visitors can easily navigate a wide range of offerings, including cutting-edge critical power systems, efficient cable management solutions, and state-of-the-art IT infrastructure products. This streamlined access empowers customers to find what they need quickly and effortlessly.

This new website reinforces Legrand's commitment to innovation, customer satisfaction, and international collaboration. Whether you're a data center professional or an organization seeking cutting-edge solutions, Legrand's new website is the gateway to all your data center solution needs. Explore, experience, and elevate your data center journey with the platform shop from Legrand. ■



Unveiling the opening of our latest Customer experience center

Experience the future today!

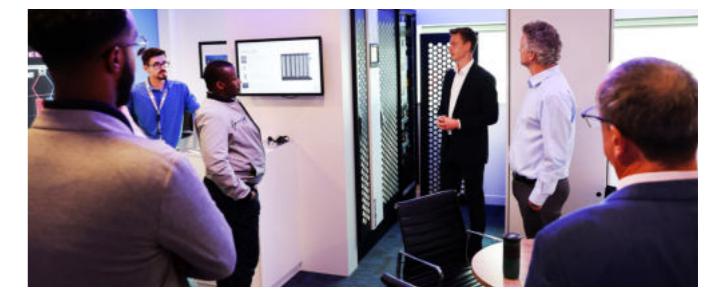
Exciting news! Legrand has opened its brand-new Customer Experience Center in Reading, the first of its kind in the UK! We're delighted to announce this latest addition to the existing portfolio of showrooms across Europe, already present in the Netherlands, France, Belgium, and Germany.

The Legrand Data Center Solutions team celebrated the grand opening of this state-of-the-art facility on July 18th, inviting over 100 esteemed customers, partners, and press to explore and interact with the portfolio of solutions and to receive technical demonstrations.

Legrand, Borri, Cablofil, Compose, Geiger, Minkels, Modulan, PowerControl, Raritan, Server Technology, Starline, USystems and Zucchini.

The Experience Center features two dedicated spaces designed to showcase the white and grey space products in one central location, featuring our network of specialist brands, including

Visitors will find informative and interactive displays within this cutting-edge facility, allowing them to discover the latest advancements in critical power, cable management, and IT infrastructure solutions with expert guidance and support from the local specialist teams. ■



If you're eager to experience this new facility firsthand, don't hesitate to contact your local Legrand Data Center Solutions specialist.



Cloud Toscana transforms Italy's digital landscape



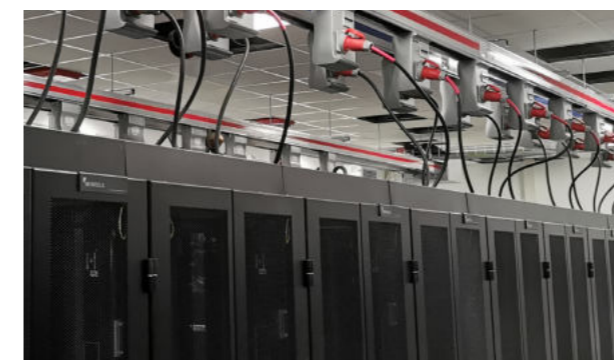
Cloud Toscana, or the Tuscany Cloud, is a regional data center designed to provide advanced digital infrastructure and cloud services to benefit both the Tuscan Public Administration, as well as the region's businesses and citizens. Legrand has supplied key data center infrastructure for the project.

CUSTOMERCASE

The Tuscany Cloud System is the result of a series of initiatives started by the Tuscany administrative region at the start of the 21st century, to develop a regional data center as the foundation for digital service provision. Initially begun as the Tuscany Internet Exchange, the project evolved into the Tuscany Cloud System tender, with the objective of providing the Tuscan Public Administration with three high-speed, interconnected nodes. These are designed to deliver high levels of business continuity, disaster recovery, resilience, and reliability. Such characteristics enable the Tuscan Public Administration

to benefit from advanced cloud services and allow Tuscan businesses and citizens to benefit from advanced digital and public services.

The Tuscany Cloud System falls within the framework of Italy's National Cloud Strategy. As such, the system has been designed to follow the guidelines coming from the National Cyber Security Agency, the Agency for Digital Italy (agID), the Digital Transformation Department in terms of implementing digital infrastructure for the public administration in Tuscany, for both every day and critical data and services.

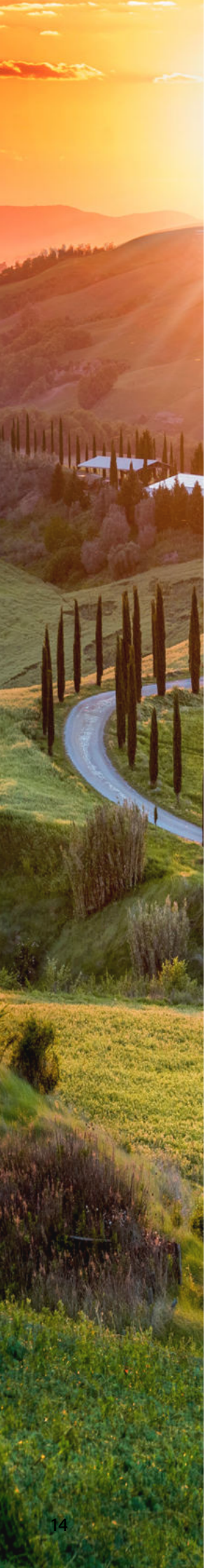


The Tuscany Cloud System has been providing many digital services for the region for several years now. These include the interconnection to national platforms, such as Spid, pagoPA (payment interface for the Italian Public

Administration), IO (Public Services App), the "Sportello Unico per le attività produttive system" (one-stop business advisory center), and the platform for online tenders. Many digital services are also provided in the healthcare sector (see box out item).

The design of the Tuscany Cloud System meets three main infrastructure requirements. The first one is **availability** – a high speed network interconnecting the nodes, enabling high data and service transmission capacities. The second one is **resilience** – extreme redundancy of the nodes, infrastructure, and facilities that underpin the system. The third one is **scalability**, providing the possibility of both horizontal and vertical scalability.

To date, there are over 300 organizations using the Tuscany Cloud System, 80 of which have already joined the new cloud mode, accessing a range of new services, with more than two petabytes of data generated so far. >



MEETING THE CHALLENGES OF A DIGITAL DATA CENTER

Legrand has supplied a range of data center infrastructure solutions for the Tuscany Cloud System, meeting various requirements. These include high availability, resilience and reliability, scalability and flexibility, energy efficiency and monitoring security and safety.

AVAILABILITY

Several of the Legrand solutions have the high availability threshold demanded by the Tuscany Cloud System. For example, the 4 Green T.H.E Resin transformers feature high efficiency and reliability, guaranteeing service continuity at all times. They also provide simplified installation, operating flexibility, as well as a reduced environmental impact.

Similarly, the Legrand circuit breakers installed in the data center meet both the



electrical protection and continuity of service demands, as well as providing precision regulation. This is thanks to the use of cutting-edge electronic protection units and optimized facility supervision communications.

The same criterion of high service availability was behind the choice of nine Legrand Eco cooling units, configured for 2N redundancy, each with a double power supply source upstream.

At the heart of the data center, the Keor MOD UPS system guarantees continuous cooling, thanks to its three-phase power modules and the series of hot-swap batteries. The Keor MOD power module is the smallest 25kW three-phase module on the market. Thanks to its high density and modular design, it allows for up to 250kW configurations in less than a meter of floor space and can scale as required to meet increasing IT infrastructure requirements.

The Keor MOD power module is equipped with control technology based on a System on

Chip (SoC) design, which, in a single component, contains a high performance dual-core processor, as well as a set of advanced peripherals. All of which adds up to an impressive set of advantages in terms of processing power, speed, and versatility.

SCALABILITY AND FLEXIBILITY

At the core of the Tuscany Cloud System data center is the 'White Room,' where Legrand solutions provide the scalability and flexibility that are essential requirements for such a challenging project. Starline, Legrand's maintenance-free busway system, allows the installation of a simplified power supply system, with no wiring in the room. The tap-offs can be easily installed along the entire



channel without the need to employ specialist electrical staff. And the solution allows for an easy upgrade path of the entire system by adding, replacing, or moving the tap-offs with no service interruption.

ENERGY EFFICIENCY

Energy optimisation is now an indispensable requirement for all aspects of data center construction, operation and maintenance. To achieve the goal of creating a truly energy efficient data center, the Legrand Data Center Solutions team adopted a collaborative approach with the data center designers and owners, in order to create the best possible, customised solution for the facility.

The White Room project meets this energy efficiency imperative thanks to a design based on Minkels' Nexpand platform, with the implementation of a cold aisle solution and cabinets complete with the innovative airflow management capability. The use of this infrastructure enables airflow optimisation while also maximizing operational efficiency levels. The Nexpand-based design is also adaptable for different cooling configurations and provides the flexibility required to respond to future, evolving IT demands.

High efficiency is also achieved thanks to the free air cooling system, which allows the White Room to be cooled by using outside air as and when environmental conditions allow. Such operation avoids the use of mechanical compressors.



MONITORING, SAFETY, AND SECURITY

For the distribution of power within the White Room, Raritan Smart PDUs have been specified and the most reliable on the market. The most important component of a smart PDU is the controller. The Raritan PDUs are equipped with the ix7 advanced controller, which features high efficiency processors and high compute power, as well as a series of additional ports, including the gigabit ethernet port which allows multiple PDUs to be connected in cascade. The Legrand/Raritan solution thus allows easy backups and checks on critical parameters such as absorbed power and

environmental data.

Reliability is a major feature of the PDUs – the ix7 advanced controller with power sharing is designed to maintain full network connectivity in the event of an issue, providing redundant power to each controller.

Additionally, the PDU control interface can be accessed from both mobile and desktop devices. The interface provides asset management, access control at the rack level, environmental monitoring, and overall capacity management. For the Tuscany Cloud System, the PDU data management is provided by the Power IQ DCIM monitoring software.

While Tuscany, and Florence in particular, might best be remembered as the birthplace of the Italian Renaissance, there is little doubt that this region of tradition, culture, and art has always been one of innovation as well. The Tuscany Cloud System, enabled by key technology partners such as Legrand, is, in its own way, a piece of 'digital artistry' every bit as innovative as the works of the region's painters, sculptures, and architects of the past.

LIFE FLOWS INSIDE THE DATA CENTER

Based at the Ospedale degli Innocenti (Hospital of the Innocents), built in 1419 in Florence by Filippo Brunelleschi, the mission of the Tuscany Regional Health System is people's welfare. The hospital is believed to be the first in the world for abandoned children, and this same spirit of willingness to welcome and heal remains the guiding principle of the regional health authority.

The Tuscany regional data center is an important aspect of the people-centered care approach as it allows the health authority to safely and centrally manage patient and citizen health records, as well as the work of all of the doctors, nurses, and health workers working in the region. Some 65,000 workers provide daily healthcare services for Tuscany's more than three and a half million inhabitants.

The authority likes to say that 'life flows inside our data center', as it enables the day-to-day work of its staff. This includes such things as the electronic medical records of the region's 52 hospitals, as well as the electronic health records, which provide a complete medical history of all of Tuscany's citizens.

When a citizen makes a "patient journey" – the path within the region's health facilities and hospitals – all real-time contact is logged and subsequently made available in the personal electronic health record of each citizen. This data can be accessed via mobile devices, through the Tuscany Health App, or through the relevant website(s) and multimedia content.

In addition to the front-facing digital services, there's much 'invisible' data, which helps to enable the smooth running of the healthcare service – the administration, the economic and budgetary data required to ensure the end-to-end, efficient, and professional performance of this public service.

The Tuscany Regional Health System sees an additional major benefit to centralise in a single, publicly owned Region of Tuscany data center as this means that all its data is guaranteed (stored and protected) by the Region of Tuscany's public administration. This data represents a major asset, the so-called 'oil of the future'. Thanks to the data the health authority can store in this way, it can carry out extensive research and development activities for the formulation of new drugs, new cures, and precision medicines. Additionally, it can provide technology transfer opportunities to the network of industries and research bodies based in Tuscany. ■



Ivan Mandic
Head of IT at MIND Park



Resilient IT infrastructure and an on-site data center are key components of a major engineering and logistics project being developed in South Eastern Europe. Legrand Data Center Solutions technology has been specified by Technosector, a key partner for the site's owner, MIND Park.

Serbian systems integrator has peace of mind with Legrand

MIND Park is an integrated production, technology and logistics hub for the rail, high-tech, and aerospace industry. Situated in Kragujevac in Central Serbia, the site covers 160 hectares. 60,000m² of office and production space has already been developed. The airport and the terminal are in the design phase (900m² airport runway is open), with a further 5.5 hectares logistics center under construction.

Technosector has been a key MIND Park partner since the original plan to develop the greenfield site into a technology park and logistics hub. Slavisa Miletic, Technosector's CEO, explains: "We are an integrator company, carrying out the complete fire safety, security, and IT infrastructure at the MIND Park complex. Our relationship started with the first construction design, awarded to us by MIND Park's Head of IT, Ivan Mandic, and has carried through to the subsequent installation of the

equipment, and we provide ongoing maintenance as well."

Slavisa continues the story: "The initial project design included a few server rooms, but the customer quickly understood that, in order to meet the demands of the businesses being attracted to the site, it was important to construct a dedicated data center in the main building, which has now become the core of the overall complex." >



CUSTOMERCASE



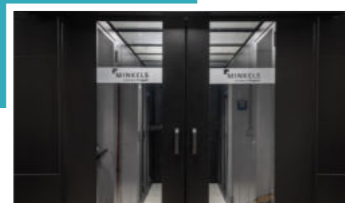
Ivan Mandic
Head of IT at MIND Park

Slavisa Miletic,
CEO at Technosector

Technosector has been a Legrand partner ever since the Serbian systems integrator was founded back in 2010. As Slavisa explains: "We recognised that the successful development of our company would be much more likely if we worked with a big manufacturer like Legrand. So, we started working with them, receiving extensive training that enabled us to better sell, install and maintain their portfolio. From that time onwards, we started to cover the complete market with Legrand."

At the MIND Park site, Technosector supplied Legrand equipment for the initial server rooms – the racks, the cables, the connectors and the like. So, it was a natural extension of this work for the systems integrator to put forward Legrand technology for the data center as well.

There were other competitive bids for the project, but once Technosector had taken the MIND Park team to the Legrand factory in Holland, the decision was taken to go with the suggested Minkels-based solution. Slavisa comments: "We had to organize not just the contract offer but, let's say, a complete roadshow for the investor. We went to the factory in Holland, so that they could see the quality of the proposed solution. This was an important part of the process."



MIND Park data center included Minkels racks, Archimod UPS systems in the racks, DX cooling, cable ducting, and PDUs. The customer wanted a 'pay as you grow' modular solution. That's why, for example, for the cooling, chilled water with two small coolers were chosen (as part of a cold aisle containment system), with the ability to extend as MIND Park expands the data center to meet the demands of the rapidly expanding site. Technosector also supplied the fire prevention system and the fiber optic cabling.

Slavisa believes that the Legrand technology was a key reason for Technosector's success at the MIND Park site – both in terms of building out the first server rooms and winning the data center contract. He says: "Legrand is not only a sales company, but they are a company involved in developing new ideas and solutions. And they cover the complete data infrastructure field, from the socket right up to the UPS system – everything you need. And that's the most important aspect. If you want to offer customers a complete solution, then you must find a company that can offer that."

"For example, some of Legrand's competitors don't offer structured cabling, which means using somebody else for this. But, with Legrand, you have everything – low and high voltage cabling and systems. And, their Serbian representatives are very friendly and very open to discussing new ideas and opportunities. Usually, they can offer not just the right price and delivery date, but many other things, such as demos, training, and the like. And then there is the option of taking customers to the factory, to organize meetings with the people who develop and manufacture the equipment that will be supplied to their data center."

Thanks to its relationship with Legrand, Technosector has an opportunity to expand its work in the Serbian data center market. Slavisa sees possibilities both in the public and private sectors, not least with the rapid expansion of the cloud, underpinned by a requirement for new data centers. Such work will add to the company's smaller scale project portfolio, with computer rooms, cabling systems, and fire prevention technology as the major focus.

And, of course, there's more work to be done at the MIND Park site. Further buildings are in the design stage, with Technosector heavily involved, as it will be with the subsequent construction and installation work.

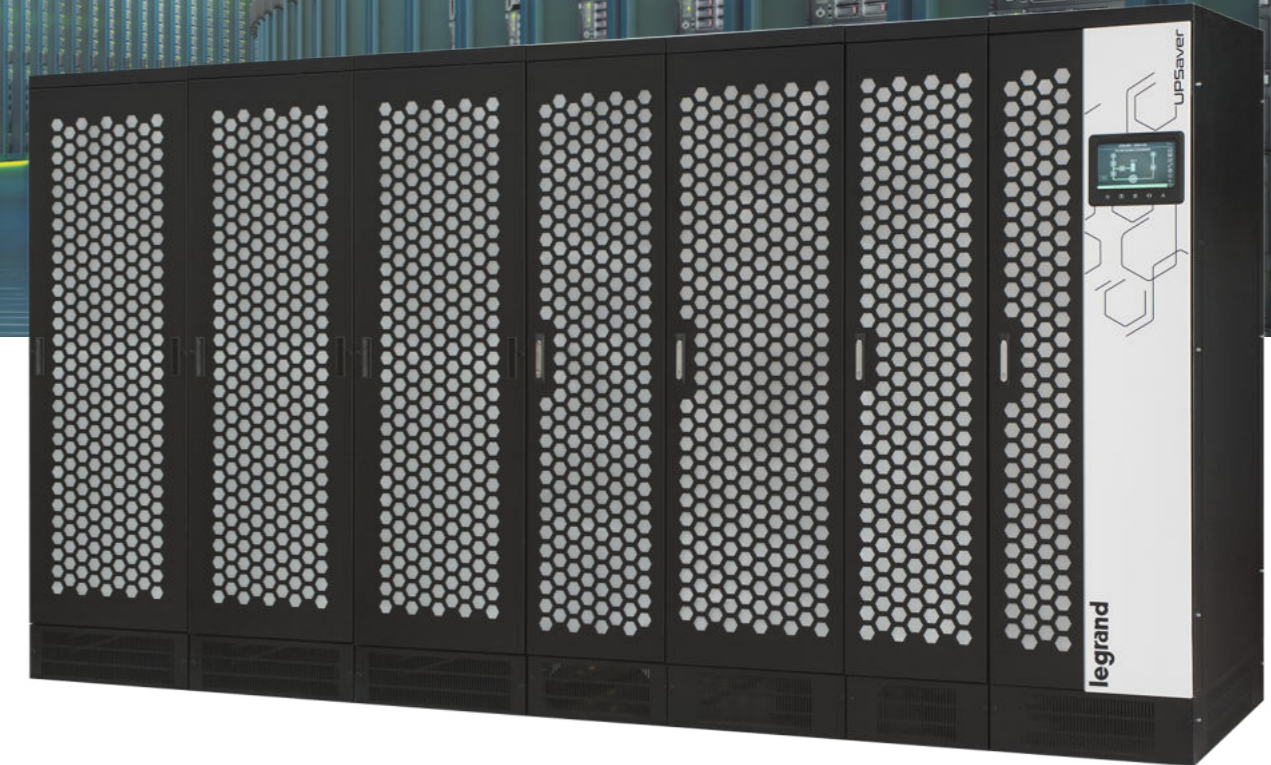
Legrand technology is sure to be a key part of any of this IT or data center infrastructure expansion work, with Slavisa a major enthusiast. As he outlines: "Legrand really has the best PDUs that you can get, that's my opinion and also the feedback from our MIND Park customer. And they don't just sell the same solutions, they develop – they are a growing company with new technology. It's really nice to work with them and to benefit from their knowledge." ■

« Slavisa believes that the Legrand technology was a key reason for Technosector's success at the MIND Park site »





Legrand strengthens UPS portfolio with **POWER CONTROL** acquisition



Legrand's acquisition of Power Control Limited marks a continuation of the company's highly successful growth strategy – focused on increasing market share both in key technology sectors and geographical regions. As Pascal Stutz, CEO of Legrand UK & Ireland, puts it: "The UK and vertical UPS markets are where we want to develop Legrand's presence, and Power Control, with its long and successful history, is key for us in terms of opening the door to the UK's grey space or technology room market."

Power Control and Legrand are no strangers, as the UK company's UPS portfolio already includes Legrand's own UPS solutions, those of the Legrand-owned, Italian UPS manufacturer Borri – alongside its own CertaUPS

brand, among others. The acquisition would, therefore, seem to be the logical conclusion of the strong existing relationship the two companies have established over the past few years.

Tom Nicholson, Power Control's Managing Director, comments: "We already worked with Borri, a Legrand company, and have established a strong partnership as we've grown together in the UK. Now, as part of the Legrand Group, we see a major opportunity to leverage their considerable, globally gained expertise to work on a whole new size and scale of projects across, not just the data center industry, but also the many other sectors, such as healthcare and building management, where mission critical power solutions are so crucial. Being part

of a large-scale, international group will undoubtedly help us to continue to meet the demands of our customers and gives them added peace of mind – covering everything from sales, installation, and commissioning through to after-sales support and service."

For Legrand, the Power Control acquisition is the latest in a series of UPS market moves executed over the past ten or so years. The company now owns UPS manufacturing and sales organizations in most European countries, Turkey, the Middle East, Brazil, India and the UK. A

key part of Legrand's acquisition strategy is to respect the brand names and culture of the organizations it buys.

Pascal explains: "Power Control has been well known in the UK for 30 years, and we want to respect its culture, workforce, and brand. We think we will create a fantastic cocktail of our two cultures and achieve great things together through collaboration, but in buying local companies, the emphasis is on respecting and reinforcing their knowledge of the local market to help deliver the growth we anticipate."

In terms of where that growth will come from, the current focus on global energy stability provides a significant opportunity for Power Control and Legrand to help customers to ensure that they have the right UPS and other mission critical power solutions in place to meet potential supply volatility over the coming months.

At the same time, as energy efficiency and sustainability continue to grow in importance, many end users are looking not just for technology solutions, but technical guidance as well. That's to say, vendors who can advise on energy >

optimization technologies and strategies, as well as supplying the necessary solutions, are becoming valuable partners for many power-hungry industries.

Tom Nicholson details how Power Control is already helping its customers address this energy challenge: "In terms of the current volatility in the global energy market, customers want to ensure that their UPS is in good condition and those that don't have a backup solution are maybe thinking that it is the right time to invest, although I am sure everyone hopes that they don't have to deal with the consequences of a prolonged (unplanned) power outage.

"There is also an ever-increasing focus on energy-efficient UPS solutions. Customers are asking us if today's UPS technology can help them manage their energy usage and their power grid interaction. We listen to these customer requirements, and I'm glad to say we meet these growing expectations and will continue to do so.

"Add in the not-unrelated interest in different technologies, such as Lithium-Ion batteries – with their reduced footprint – and local, renewable energy supplies, and it's fair to say that Power Control is helping customers with a range of power and energy challenges. For example, we've recently integrated a UPS with hydrogen fuel cells, and we see the demand for this type of solution only increasing."

Pascal confirms: "Power Control's innovative track record speaks for itself. In terms of the UPS/hydrogen fuel cell solution, we think there's great potential to explore ways in which we can expand this technology, both in the UK and across other geographies."

Pascal is similarly upbeat about Legrand's ability to not just bring new ideas to market, but also to ensure that the company's global supply chain is better equipped to deal with the current challenges than some competitors.

He comments: "There's no doubt that the supply chain has become a more challenging environment over the past few years, but we make sure we keep customers informed of what is going on. Additionally, Legrand's strategy of manufacturing as close as possible to our customers provides a high level of confidence both in terms of product supply and after-sales service and maintenance – our customers tell us that we are best in class."

Pascal believes that best in class also applies to Legrand's approach to sustainability. He says: "Right now, two-thirds of the customer queries we receive are not about our technical capabilities but how we can help them reach their Net Zero targets. And we not only provide answers to these questions – as with the UPS/hydrogen fuel cell solution, for example – but also demonstrate our own very real commitment to Net Zero. We have an ambitious three-year plan focusing on ESG initiatives like energy efficiency, sustainability, and diversity within Legrand with an allocated budget to match."

In summary, both Pascal and Tom are confident that, no matter what the external pressures on UPS manufacturers or their core markets – such as the data center industry – the Power Control and Legrand partnership is ideally placed to thrive in such challenging times. ■

"The synergy between the two companies promises to grow their UK mission critical power market share across multiple industry sectors."

Tom Nicholson, Power Control's Managing Director



White paper



Reducing data center costs and environmental impact by deploying six effective cabinet airflow management measures



The scrutiny surrounding data center energy efficiency is intensifying with evolving regulations and the industry's drive towards Net Zero targets, meaning it's never been more important to focus on creating eco-friendly data center designs for a sustainable future. And airflow management and optimization are vital to any such energy efficiency improvement project.

Investing in quality cabinet airflow packages can save data centers a staggering €2,000 per year (based on a data center with two rows of 10 cabinets), with an expected return on investment in under just two years, making it a wise, long-term investment.

Discover the six effective measures every data center owner should consider when deploying IT cabinets for first-rate energy efficiency. This white paper details how to:

1. Optimize airflow management
2. Ensure airtight sealing between hot and cold zones
3. Invest in cabinet airflow packages
4. Monitor and control cold aisle temperatures
5. Comply with energy efficiency standards
6. Continuously explore innovative solutions

Would you like to learn more?

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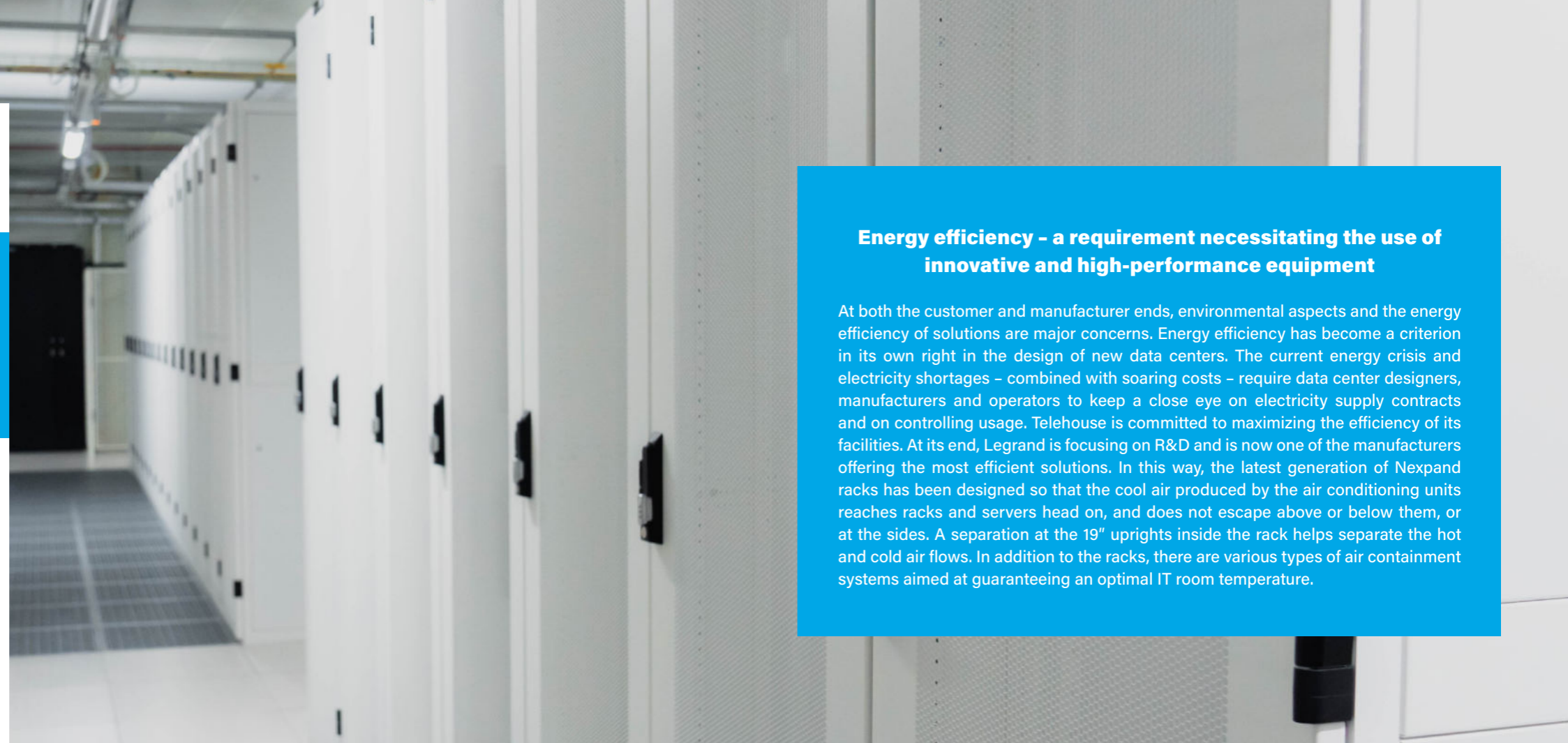
CUSTOMERCASE

Deployment of a data center in the heart of Paris, operated by Telehouse

EFFECTIVE LATEST-GENERATION DATA CENTER PARTNERSHIP

When the leading European provider of colocation data centers creates a new high-tech facility, selecting the best manufacturers of dedicated solutions is a must. By choosing Legrand products and support, Telehouse has opted for performance, reliability, and security.

The colocation and network-neutral secure data center provider Telehouse has operated in France since 1996. It oversees three data center facilities in Greater Paris, and one in Marseille. The company's flagship facilities are TH2 in Paris and TH3 located in the Yvelines department. Telehouse provides hosting services in ultra-secure rooms with racks, half-racks and quarter-racks aimed at a wide range of customers (service providers, broadcasters, cloud providers, businesses, etc.).



Energy efficiency - a requirement necessitating the use of innovative and high-performance equipment

At both the customer and manufacturer ends, environmental aspects and the energy efficiency of solutions are major concerns. Energy efficiency has become a criterion in its own right in the design of new data centers. The current energy crisis and electricity shortages - combined with soaring costs - require data center designers, manufacturers and operators to keep a close eye on electricity supply contracts and on controlling usage. Telehouse is committed to maximizing the efficiency of its facilities. At its end, Legrand is focusing on R&D and is now one of the manufacturers offering the most efficient solutions. In this way, the latest generation of Nexpan racks has been designed so that the cool air produced by the air conditioning units reaches racks and servers head on, and does not escape above or below them, or at the sides. A separation at the 19" uprights inside the rack helps separate the hot and cold air flows. In addition to the racks, there are various types of air containment systems aimed at guaranteeing an optimal IT room temperature.



Selma Kamel: Head of Design, Engineering & Customer Experience

"This project was such a success that our relationship is now even stronger"

Selma Kamel: Head of Design, Engineering & Customer Experience

"Customers come to us for our resilient infrastructure and our rich ecosystem, explains Selma Kamel, Head of Design, Engineering & Customer Experience. We also offer high electrical and climatic availability, along with services such as racking, deracking, and rebooting, as well as connectivity services. In short, all the services needed for colocation hosting and IT room layout"

A LARGE-SCALE PROJECT
The latest Telehouse data center officially opened in 2022. It is situated in the heart of a fully-refurbished office building, in which the IT rooms occupy a surface area of 4,500 m². Boasting 5 MW of power, it hosts 1000 racks and 2000 PDUs. This latest-generation data center offers exceptionally high performances, reflected in its Tier 3 classification, providing maximum availability. Its target PUE is 1.35

(the average data center PUE is around 1.60), giving an indication of its highly-efficient energy usage. Given that energy efficiency is a key concern (see boxed text), an efficient cooling system has been installed. In this way, the free cooling system allows the cooling units to take a break in the winter season, and an adiabatic system helps optimise their output in the summer. The heat released by the servers is reinjected into the urban grid

In the midst of the COVID crisis, Telehouse and Legrand rise to the challenge

The deployment of the Léon Frot facility took place in the midst of the recent health crisis. Multiple equipment production, logistic and installation challenges had to be dealt with in order to deliver the data center on time. Marc Daoud and Selma Kamel talk about this unprecedented experience.

Selma Kamel, Head of Design, Engineering & Customer Experience, Telehouse

"Building and fitting out the facility right in the middle of the COVID crisis was a major challenge. We had to factor in factory shutdowns, raw material shortages, etc. We encountered many high and low points and had to manage with a great deal of setbacks. Marc Daoud and Myself were in constant communication, and we pre-empted any problems. We were very proactive. I can remember one particular example of this. We were expecting a large delivery of PDUs that needed to be installed before the data center was switched on and which were delayed on account of a factory shutdown. Marc offered to assemble them in another production facility to meet the deadline. In the end, we came up with the solutions we needed and there was no delay. This project was such a success that our relationship is now even stronger."

to heat surrounding residential and commercial properties. On this site, Telehouse has also opted for rooms with raised flooring and a hot corridor/cold corridor layout. The choice of a cold corridor primarily addressed an essential need for containment in order to prevent hot and cold air flows from mixing. Ultimately, this option helps optimizing the data center's energy efficiency and improve working customer conditions.

DEDICATED COLOCATION SOLUTIONS

Telehouse selected Legrand products to fit the Léon Frot facility out with racks, cold corridors and PDUs. For Selma

Kamel, this was the obvious choice. "We were already well acquainted with Legrand as we had been using their solutions for years. Following a tender process involving five competing manufacturers, we selected them based on technical, financial, CSR, and logistical criteria. We were also keen to use a European group - it is important for Telehouse to support digital sovereignty in France. We specifically opted for Minkels racks, as we were looking for heavy-duty racks that were infinitely configurable according to customer profiles. For example, 52 U racks, which can be split into quarter- or half-racks. The compartments are also very secure with dedicated cabling compartments.

These racks are very well suited to colocation and are popular with our customers. Our facility was also faced with a design constraint, which led us to choose a water mist fire extinguishing system. With their FM Global-certified Drop Away roof panels, Minkels cold corridors are perfectly suited for our extinguishing system." Finally, in terms of security, Legrand offers all types of security systems: badge reader, biometrics, key or code lock, etc., meeting the most stringent standards stipulated by Telehouse and its customers.

"With Telehouse, we come up with solutions together"

Marc Daoud: Sales Manager, Legrand Data Center Solutions



Marc Daoud, Sales Manager at Legrand Data Center Solutions, was tasked with following up the Léon Frot project. He talks about the challenges in this project and the solutions that Legrand came up with.

How did the Minkels solution deployment process go, given the need to account for the facility's inherent constraints and customer requirements?



Marc Daoud: We received a large order from Telehouse to deploy approximately 400 racks and a sizable number of PDUs. They made one-off containment requests, as their customers did not all have the same requirements. Some wanted to combine two rows of five racks placed in a cage, and others asked for the containment of two rows of fifteen racks with a large corridor, etc. As the deployments progressed, we received 2D drawings giving us indications of containment lengths, and the position of the posts located in the room. Each time, we had to come up with a cold corridor design and a precise quotation. We then progressively delivered as the customers moved in. Given the specific constraints and requests, we systematically worked on custom solutions and operated in project mode.



What type of organization did you set up at Legrand to carry out this project?

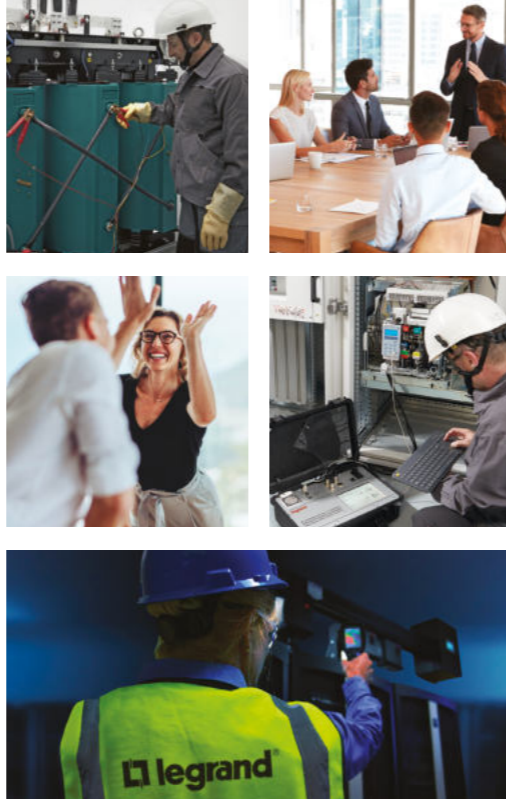
Marc Daoud: In-house, we worked in a team of three. Besides myself, one person was in charge of incoming calls, orders, planning deliveries, managing any delays, as well as scheduling access to the site for our teams. We also had a project manager tasked with handling orders, acting as an interface with the factory when we needed custom solutions, and managing subcontractor teams assigned to assembling the racks. His duties also included supervising and installation. We also communicated with the various project managers working in our factories.

Why would you describe this project with Telehouse as a collaboration?

Marc Daoud: Our collaboration is not new, Legrand has actually been working with Telehouse for over ten years. In terms of this particular deployment, our collaboration was underlined with constant communication in difficult circumstances and great transparency between us. When either party encountered a problem, we discussed it and came up with the right solution together to handle the situation. We also helped each other out at critical points with equipment supplies. Throughout the project, we worked hard at both ends to keep our relationship strong; that is why we have been working together for so long. ■



Moving in sync:



Powering sustainable data centers

With the increasing demand for digital services, data centers face the pressing challenge of reducing their environmental footprint. Data centers already contribute to 2% of global CO2 emissions, and experts predict their impact will quadruple by 2050. To tackle this urgent issue, enhancing energy efficiency and cost control are paramount.

At Legrand, we have concrete solutions to address today's and tomorrow's challenges. Our comprehensive product package is designed to boost the efficiency and sustainability of data centers. By leveraging these solutions, you can fully equip your data center while reducing operating costs over time. We provide detailed

Product Environmental Profile (PEP) sheets outlining the environmental impact of our solutions throughout their life cycle. Beyond supplying products, Legrand offers a range of services that support investors at every stage of their data center's lifecycle. Our expertise spans from the initial study and design phases to ongoing operations, including extended maintenance plans. The Legrand Data Service Solutions team is always available to guide customers in upgrading their existing infrastructures, ensuring optimal performance and sustainability.

Join us in the pursuit of sustainable data centers. Together, we can drive energy efficiency, reduce costs, and create a greener future. ■

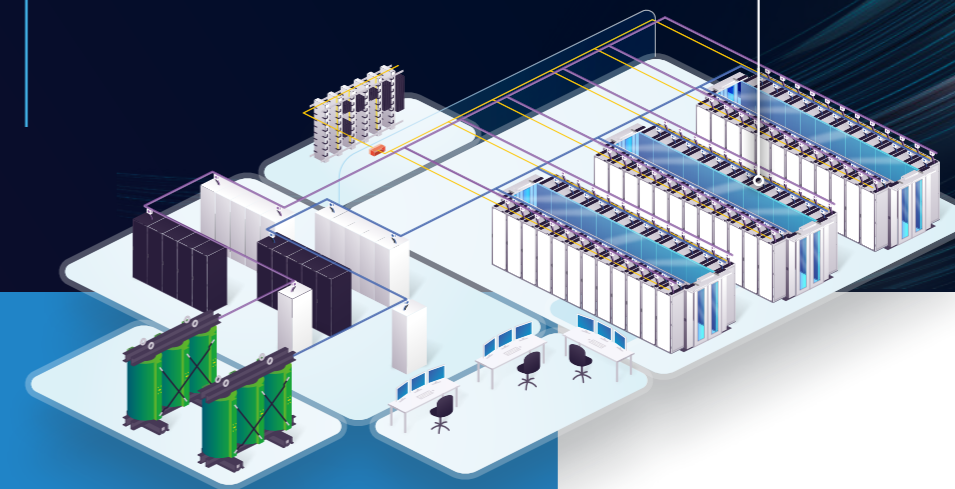
LEGRAND, SUPPLIER OF EQUIPMENT AND SERVICES FOR SUSTAINABLE DATA CENTERS.

➤ Explore the full range of Legrand services inside the brochure and let us empower your data center's sustainability journey.

Within this brochure, you will discover our comprehensive range of services, providing the answers you seek regarding the sustainability of data centers. From efficient power distribution to eco-friendly solutions, we have the tools to help you power your data center while minimizing environmental impact.



White paper



Redefining plug & play mobility for fiber cabling

Discover how phasing out cassette-based cabling solutions is the key to better optical performance, increased scalability & lower costs

As data volumes increase globally and data gravity shifts to the edge, IT and network infrastructure is no longer limited to any one facility. Consequently, today's critical infrastructure operators need a new generation of tools to help them simplify and streamline their operations. This white paper explains how the Infinium acCLAIM fiber solution solves challenges such as polarity, optical loss, delivery, design/deployment headaches, and the high costs of cassette use when upgrading fiber systems.

DISCOVER HOW:

- Fiber cabling is being redefined by Infinium acCLAIM
- How Infinium acCLAIM works
- Infinium acCLAIM transformed Cisco Live
- How it is disrupting an industry

Would you like to learn more?

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With two modern data centers, e-Quest is a local IT partner for reliable IT environments



With its head office in Helmond and branch offices in Veghel and Venlo, e-Quest is a dynamic IT company with over 90 employees. They meet all of their customers' IT needs, from data centers and optical fibre to cloud solutions. By combining these three areas, e-Quest has positioned itself as a uniquely powerful IT service provider. Martijn de Koning, Commercial Director at e-Quest, and Berry Smits, Business Unit Manager for IT Services at e-Quest, explain how their twin data center solution, including server cabinets, PDUs, and switch and control gear from Legrand is an essential part of an efficient and reliable IT environment for their customers.



Martijn de Koning,
Commercial Director
at e-Quest

Berry Smits,
IT Services Business Unit
Manager at e-Quest

TWIN DATA CENTER SERVICES

Martijn: "In 2012, we built a new facility in Helmond with a brand-new data center using Legrand products. We continued to see steady growth, and decided to expand our services to new regions while maintaining a strong regional focus. So we expanded our IT services to Venlo, and our second modern data center in Veghel has been operating since 2022."

With two full data centers and its own optical fibre connections, e-Quest has the capacity to serve all of the Netherlands. "One of the big advantages of our second data center is that we can offer twin data center services. Many larger companies need a complete backup scenario, which we can provide because we manage

everything from A to Z. Our clientele ranges from big corporations and hospitals to manufacturers and government agencies, and they know that their infrastructure is in safe hands at our data center."

WORKING WITH LEGRAND AGAIN

When designing the second data center, e-Quest took a critical look at what they already had and what they were satisfied with. Berry: "Quality and value were important considerations in this process. It's essential to have a good end product, but the price also has to be right. After all, data center customers all have one key expectation: that our service will never go offline. And so far, we haven't had a single minute of downtime at either Veghel or Helmond."

"Setting up a data center is a significant investment," Martijn adds. "So we compared several different vendors. The price and quality met our expectations, and we'd had a good experience with Legrand for our data center in Helmond. The supplier's availability is also important to us, in terms of being able to adjust course quickly. Together, all these factors led us to choose Legrand as our partner once again for our brand-new data center in Veghel." [➤](#)



Berry Smits,
IT Services Business Unit
Manager at e-Quest

Martijn de Koning,
Commercial Director at e-Quest

ROOM TO GROW AT THE VEGHEL DATA CENTER

The data center in Veghel has over 400 m² of space, and is designed for growth. "Right now, there are 60 Minkels server cabinets in room 1, about half of which will be occupied by the end of the year," Martijn explains. "We have another room just like it available, where we can set up an exact copy of room 1. Each of the rooms can host up to 120 server cabinets. Preparations for the design of the data center are already underway here: the required electrical components are in place, and the only things we still need are the cables, flooring and server cabinets."

ENERGY EFFICIENCY FOR AN EXCEPTIONALLY LOW PUE FACTOR

Berry: "Our customers want to use the server rooms as efficiently as possible. Ten years ago, you had to leave space between the servers in order to cool them properly. Nowadays, servers are equipped with powerful fans that effectively draw cold air through the equipment, even when the servers are placed right up against each other. That enables us to put more equipment in each rack so customers can use their server cabinets more efficiently." "We used Minkels aisle containment in the

server room," Berry continues. "That offers us a number of technical advantages, particularly in terms of energy efficiency. The system works on the principle of separate warm and cold corridors, something we already had experience with in Helmond. In Veghel, we opted for a closed cold corridor. The cooling system is located under the raised floor, and only blows cold air into the cold corridor. A glass ceiling is placed over the corridor, and it's lit by a nice-looking LED solution. This approach guarantees both quality and energy efficiency for our data center."

In addition, e-Quest's data center in Helmond is cooled adiabatically. For the data center in Veghel, e-Quest opted for conventional cooling. Berry: "Our Power Usage Effectiveness (PUE) factor is about 1.07 in Helmond, and 1.10 in Veghel. That's exceptionally low compared to the average data center, which is around 1.30 PUE. We cool to 24 degrees, while some data centers cool to 18 degrees. That's not really necessary, so it's a waste of valuable energy. In Helmond, we also have a sizeable solar panel array that lowers the PUE factor even further, to about 1.03. Our choice of this cooling technology and a green approach to energy production

are an important part of our sustainability DNA. It also allows us to offer data center services at very competitive prices. So e-Quest's customers benefit from sustainably produced energy as well."

INSIGHT INTO POWER CONSUMPTION

Power consumption is an important cost factor for a data center. "Legrand's products, including its PDUs, are designed to easily provide live insight into power consumption through intelligent measurement systems," says Martijn. "Totally transparent. With that insight, our customers can adjust their power consumption by downscaling at night to save energy, for example, and then scaling their usage up again during the day when their staff are at work. That allows them to efficiently save energy while also meeting their operational requirements."

NEW CONSTRUCTION IN A TIME OF COVID

"There were a few challenges during the construction and set-up of the data center," Martijn notes. "For example, some components took a little longer to arrive during the Covid crisis. However we were able to adjust our planning thanks

to timely notifications from Legrand. Good communication is really essential when collaborating on such a big project, and we had a very positive experience with Legrand in that regard."

"Another important factor in a successful collaboration was that Legrand really worked with us to figure out the set-up," Berry adds. "For example, at the Veghel data center, there was a support beam in the way, but with Legrand's advice, we were able to use another type of server cabinet to build nice, clean server corridors that fit the space perfectly. They helped us to solve problems and make well-informed choices. So working with them was really a pleasant experience for us."

LOOKING FORWARD

"The past few years have brought plenty of changes," Martijn concludes. "We now have a second location in Helmond, a new office with a data center in Veghel, and a new branch office in Venlo. For the longer term, we're not ruling out the possibility that we might build another data center. At that point, Legrand will most definitely be on our short list of preferred vendors!" ■



*Mario Contador,
Legrand Data Center
Solutions Europe
Marketing Manager*

An interview with Mario Contador, Legrand Data Center Solutions Europe Marketing Manager, about the importance of power quality in the data center - what are the potential problems and how they can be identified (and rectified) with the help of the latest PDU technology solutions available from Legrand.

Exploring the advantages of advanced POWER MONITORING

Power quality is an estimate of how stable an electrical system is and how healthy the power is. This matters in the data center environment as any power quality and reliability issues can lead to undesired, unplanned downtime. And downtime comes at a major cost. Most obviously, there is the direct financial expense of the subsequent business disruption. There is also the less easily measured potential consequence of reputational damage.

The good news is that according to a recent Uptime Institute survey, data center outage rates are gradually reducing in frequency and severity. This positive trend suggests that data center infrastructure is becoming more reliable, the technology is improving. However, the Uptime Institute also noted in another survey that the cost associated with downtime is increasing significantly. In about 15% of cases, the downtime cost was over \$1 million. So, it's very important that data center power is healthy.

And that's quite some challenge, as every item in the power supply chain has the potential to impact power quality all the way to the IT equipment sitting inside the racks and cabinets. Mario explains: "Several problems within the system or at a specific device, such as short circuits, can cause voltage dips and swells. Voltage dips and swells (especially dips) are typically the most significant power quality issues reducing uptime today. Common symptoms of dips include computer lockup, reset or shutdown of sensitive electronic equipment, and data (memory) loss. These voltage variations can destroy the power supply, even damage the IT equipment itself, or create current or voltage harmonics."

This brings us on to the topic of harmonics. If the power (the current and the voltage) are working fine, then they produce the optimum sinusoidal waveform. However, if there is any deviation from this shape, then problems will occur.



“You can have this ideal sine wave for current or voltage, and then this shape can be affected by all the devices being used to run your data center. If there is an error in any of them, the more the waveform deviates from the ideal shape, the more the equipment will run in adverse conditions. These adverse conditions can include overheating of equipment or cables, equipment malfunctions, vibration or buzzing, false tripping of protection devices, and increased energy losses and overheating causing component failure,” according to Mario.

He continues: “What this will generate is excessive heat that you don’t want. And, if you are generating heat unnecessarily, you are basically paying for nothing. In the data center, you want to use energy to power devices and make them run, not to generate heat you don’t want to have.”

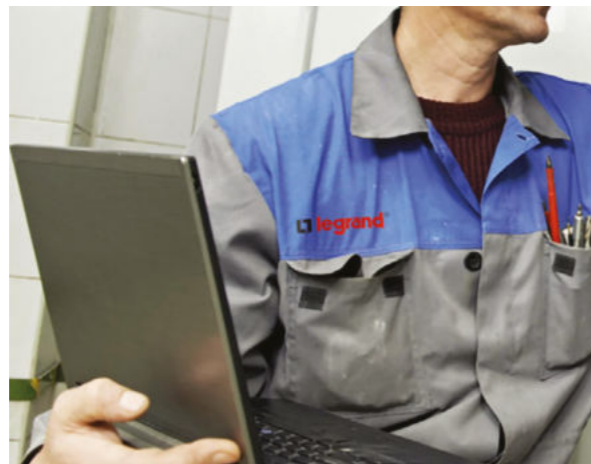
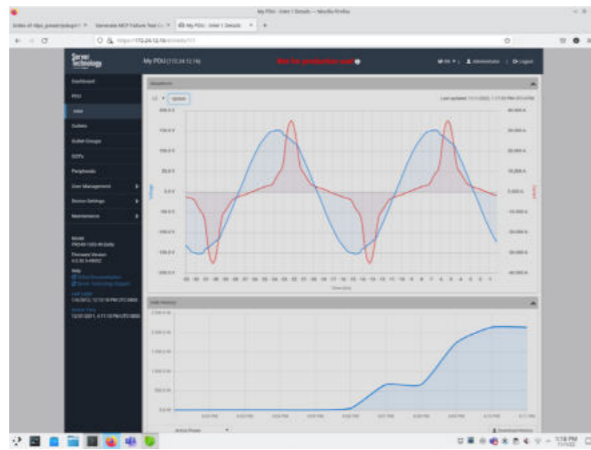
Additionally, excess heat can lead to a shortening of the data center infrastructure lifespan. So, harmonics pollution needs to be avoided for several reasons.

ADDRESSING THE POWER QUALITY PROBLEM

In terms of ensuring power quality, the major challenge is identifying if you have a problem and, if so, where that problem might be within the relevant data center infrastructure. As Mario says: “First of all, you must know you have a problem; otherwise, you are running with no direction. Once you gather the data and find out that you have a problem, you can fix it. The more data you gather, the better the visibility you will have on what could be the issue and where the issue could be.”

He adds: “There are multiple metrics that you need to look at. Then, depending on what’s failing or giving you an issue, there are different actions to take. In other words, you run down the power supply chain, see

what’s causing the problem, and identify the equipment that’s causing the problem. And then you may need to fix some of the settings in this equipment, or you may need to replace it.”



The more data points that can be gathered, the shorter the gaps in intelligence will be as to how your data center infrastructure is performing. If you only have, say, one monitor in place, then if there’s a problem, you’ve got

an awful lot of potential infrastructure to understand the cause. Whereas, if you have many monitoring points, you can isolate the problem between any two monitoring points.

Different devices in the power supply chain can provide this crucial data, but measuring power quality at the rack level is the most critical monitoring point – as the closest point to the IT hardware. And this is the job performed by rack PDUs. These units can measure voltage dips and swells, what’s happening with the neutral, and the harmonic distortion, for example. Obtaining multiple metrics via the PDUs provides a wealth of information about the data center power quality and, importantly, highlights where problems might lie.

Mario explains: “If you are measuring the voltage dips and swells and you have something that’s not within the permitted values, this is telling you that you have high current draws affecting the power source’s ability to give you stable voltage. If you are measuring the voltage of the neutral and there is a problem, this tells you that a branch circuit wiring length is too long or that maybe there is a problem with the neutral wire or the connections to it.

“Then again, harmonic distortion is a critical element. Here, we measure it in voltage and in current for different reasons. So, if it’s in the voltage, it will tell you if there is a problem with the power source. And if you are measuring it in the current, it can tell you that you may have a problem with the server power supply.”

Finally, measuring the current in-rush will tell you how much current is drawn when the power is first turned on. When you initiate multiple applications and fire up a lot of servers, if one of them suddenly draws a large amount of current, it can trip a circuit breaker – a far from ideal scenario! A PDU



will help identify which server caused the problem.

LEGRAND PDU EXPERTISE

Legrand has two separate but closely linked rack PDU solution ranges within its data center infrastructure portfolio – from brands Server Technology and Raritan. Server Technology has a history of developing multiple patents, delivering innovation, maximum flexibility, and power density in the PDUs – this last attribute allows customers to stack more equipment in a single cabinet. Additionally, Server Technology PDUs are

designed to be futureproof to the extent that they can adapt to multiple IT equipment changes. In many cases, end users will have to change the PDU because its lifespan is no longer than that of the IT equipment being monitored. The Server Technology PDU design avoids the need for so many changes.

Raritan has developed a reputation over many years for delivering the most advanced PDU platforms in terms of technology. Significant, ongoing research and development work, with the necessary accompanying financial investment, has led to the creation of Raritan’s own PDU platform, which runs all of Raritan’s power devices.



Now, Legrand has combined these two brands in such a way as to deliver a new PDU technology platform – so that Server Technology benefits from Raritan, Raritan benefits from Server Technology, and Legrand brings the best products to market. Most recently, this has led to the introduction of two new advanced PDU solutions – the Raritan PX4 and the Server Technology PRO4X rack PDUs.

Mario takes up the story: “With the new platform, we have focused

on leveraging the core patent and design expertise of Server Technology alongside the Raritan technology. In the first case, this has provided the flexibility to deliver a product that can adapt to the customers’ needs for both today and the future. So, that’s why you have an element like the Cx outlets in a PDU. This hybrid outlet acts as a C13 and C19 combined, allowing you to connect a C14 or C20 plug into the outlet and have multiple PDU configurations in one product. So, before our design innovation, you had to choose a certain PDU that had so many C13 outlets and another one that had so many C19 outlets, for example. Now, with the Cx outlet, you have two outlets in one. So, if the IT equipment changes and you need a different connection, you can use the same PDU because you can change the outlet.”

With the new PDUs, there is also the option to deliver different phases of the power supply by outlet. Traditionally, you have phase one in a branch of a PDU, then phase two in another branch, and so on. This means six outlets for phase one, six outlets for phase two, and six outlets for phase three. Instead of doing this, we have outlet one, phase one, outlet two, phase two, outlet three, phase three, and then the next outlet again, phase one. This helps to reduce the cable length in terms of load balancing across the different phases in the data center. If you have the branches, you have cables running from the top of the



cabinet all the way down to the different items of IT equipment. This complicates the installation and deployment of a data center. With a long cord length, there is the possibility of human error as long cables run up and down, and it is hard to track them and see what you are doing.

However, if you change the phase by outlet, then you basically go, 'This outlet connects to this power supply, and that outlet connects to that power supply.' And installation is very easy – the cable is short and right next to the server, avoiding human error.

You also achieve better airflow management as the cables are not obstructing the airflow path that goes from the front of the cabinet

to the rear, where you expel the heat.

The second aspect of the new PDUs' design focuses on what customers were asking for in terms of power quality and diagnostic information. Mario expands: "We have improved the metering accuracy by 50%, so we have gone from 1% metering accuracy to 0.5%. This is unseen in the market at the moment; we are the only ones doing it today. And this is very important for some of the power quality metrics.

"One of the power quality metrics that I didn't mention earlier is the distortion power factor – this lets you know how much power goes to waste because of harmonic distortion. If the power factor we give you is 0.95, this means that five percent of power

is going to waste due to harmonics, and the other 95% is being used properly."

Circuitry forensics is another significant addition to the latest Legrand PDUs' capabilities. In the past, if there was an overcurrent in the data center, you'd blow up one of the circuit breakers on a PDU. You would then have to go to the location, unplug everything under the breaker, reset the breaker, plug everything back in – all the equipment to the PDU and then, because it's one of the servers that is causing the problem, the breaker will blow again and only then do you know where the problem lies. Legrand's PDU technology allows end users to directly pinpoint which outlet caused the issue, avoiding the long-winded 'traditional' fault-finding approach.

Mario explains: "We will tell you via the web interface and also physically with LED lights this was the outlet, this was the cause of the problem, and this is the IT equipment you have to fix."

He continues: "Last but not least, there is the waveform capture. We've mentioned harmonic distortion previously, that the current and the voltage follow a particular sine wave. The Legrand PDUs track the shape of the wave when there is an event. We automatically take a snapshot of both current and voltage when there is a problem, and an alert is sent. Or the user can take the



snapshot independently if they are looking to track down a particular issue. This makes it much easier to identify the root cause of a problem."

The backbone of the new Raritan and Server Technology PDUs is the Xerus Technology Platform (developed by Raritan). Mario outlines: "The Xerus platform is a stack of technologies that range from the user interface design, its applications, its network security features, and its operating system; it's the whole PDU hardware and the controllers. And it can be easily integrated with any DCIM software solution.

"It is also worth emphasising the importance of having our own platform and a dedicated team focused on continuous improvement and addressing any possible security issues. That's the reason we are chosen by so many government and military institutions, as well as by banks and other high-security environments. We have a high level of encryption certificates. And if our

customers report a security issue, we can release a new firmware version. That's the benefit of having our own platform; we can react quickly to whatever happens."

One final benefit of the cross-collaboration between Raritan and Server Technology PDU development comes in the form of Raritan's strong portfolio of sensors to measure and monitor many aspects of data center performance. Not just the metrics of the IT equipment, but also temperature, airflow, vibration, and water leakage. These sensors are all connected to the PDUs. And now, Server Technology customers benefit from these same monitoring opportunities.

Of course, it is one thing to launch new advanced PDU solutions; it's another to receive positive feedback from highly demanding data center customers. Mario is confident that the end-user response so far has been universally positive. "Our customers are very impressed with the improvement in accuracy – the 50%

increase, alongside the flexibility, so that you have a PDU that can adapt to multiple types of IT equipment. And they are also happy about the mechanical lock we have added in the PDU, so you can simply put in your plug, and it will lock the PDU and the cable together. And, of course, the power quality metrics – we can now do things at a PDU level which previously had to be done by other equipment.

"Ultimately, they are impressed because this is a big step forward for PDU technology – we are giving them full visibility of the entire power supply chain. We are saving them both time and money."

Finally, in terms of bringing PDUs to a new level of functionality and intelligence, the Legrand solutions meet and exceed the international and European standards that cover basic power monitoring. IEC 61557-12 Power Metering and Monitoring Devices Functional Classifications specifies requirements for power metering and monitoring devices (PMD) that measure and monitor the electrical quantities within electrical distribution systems, and optionally other external signals – with PMD I, II, and III levels specified. EN 50600-2-2 Data center facilities and infrastructure – power supply and distribution – requires PMD-II and recommends PMD-III conformance.

Mario concludes: "Thanks to our technology innovations, we have put PDUs in a new category. PMD-III compliance may not be mandatory but is recommended by the European regulation so that end users can really understand how their data center is running. This is called advanced power monitoring, and, where our competitors do only what is mandatory, Legrand is the only company on the market delivering a rack PDU that provides this advanced power monitoring capability." ■

An evolving ecosystem Key to expanding data center focus

Richard King, Channel Development Director, Legrand Data Center Solutions EMEA, explains how the company's channel partnerships continue to evolve to help drive and support its ever-growing data center business.

This year celebrates the 75th anniversary of market-leading cabinet and containment company Minkels. This milestone holds significance because Minkels was Legrand's first acquisition as it embarked on its journey to establish a presence within the growing data center market.

Raritan was then acquired in 2016, shortly followed by Server Technology in 2018. Acquiring the number one and two intelligent rack PDU manufacturers by global market share gave a strong signal to the market of Legrand's intent to become a global market leader in the data center space.

The acquisition of Starline, a global leader in customizable power distribution systems, further developed the group's position in the critical power market, complementing the prior joint venture and subsequent acquisition of high-end UPS provider Borri. Other market-leading organizations such as USystems, Power Control (see page 16), and Voltadis have since joined the group. We are therefore justifiably proud of the best-in-class portfolio we can offer to our partners and customers. Will these acquisitions be the last - watch this space!

BRAND EQUITY

Underpinning all the above is Legrand's approach to brand equity, which recognizes the reputation and trust customers and partners associate with them and the people who represent them. Never more important than when your business-critical IT infrastructure demands the most reliable and future-proof solutions available. Legrand's approach to brand retention was further validated during a recent series of interviews with customers and partners as part of its Customer Experience initiative.

PARTNER ECOSYSTEM

Historically distribution-led, the Legrand Data Center Solutions ecosystem continues to evolve, recognizing across both critical power and IT infrastructure the significant and growing importance of consultants, contractors, co-location providers,



design and build organizations, and systems integrators to influence and drive a Legrand specification with their end customers. These organizations, typically indirect (non-contractual) partners, are critical to helping Legrand Data Center Solutions scale its business. These types of organizations typically engage early in the project lifecycle and have trusted advisor status with their clients. This, coupled with their deep technical and domain knowledge, are examples of the valuable attributes these organizations bring to our partnership.

Today, the Legrand Data Center Solutions partner ecosystem continues to evolve from fulfilment and specification partners to also embracing technology and software partnerships. Legrand Data Center Solutions maintains a rigorous selection process for its partnerships, committing to long-term partnerships grounded in a shared vision, trust, and mutual accountability. These elements form the foundation for both parties' aspirations to become integral parts of each other's businesses.

Technology partnerships allow both parties to enter new market categories and complement their portfolios. An example would be our collaboration with Comeca in low voltage switchgear, where Legrand protection devices are assembled within Comeca switchboards.

Legrand Data Center Solutions is also working to develop select software relationships on a reciprocal lead-share basis. In doing so, we recognize the continued value of software in our dialogue with our customers and partners. Examples are market leading DCIM provider Sunbird and Square Mile Systems, a global specialist in the documentation and planning of complex infrastructures.

LOCAL SPECIALIST TEAMS

Another founding principle of Legrand Data Center Solutions is the formation of local specialist teams that operate near our customers and partners recognizing the importance of timezone, language, and culture. Today, Legrand Data Center Solutions has over 120 customer-facing staff focused on the data center market, further testament to Legrand's commitment to realizing its vision for the segment. While channel policy, program management, and

x-border coordination sit at the regional level, it is our local specialist teams working with our customers and partners that are crucial to developing and driving mutual accountability and success.

DATA CENTER TRAINING ACADEMY

In addition to our local teams, Legrand Data Center Solutions continues to invest in the partner ecosystem through its Data Center Academy, recognizing its responsibility to train partners to be the best marketeers of our solutions as an extension to our own sales force. Through the academy, partners can gain accreditation in various product categories, further enabling differentiation in their local market. Another example is the PRM partner portal, which provides partners with a functionally rich tool that supports key business processes such as project registration, lead referral, real-time pipeline management, training, and much more. This portal is now deployed across 27 countries with a 600-strong user community.

CUSTOMER EXPERIENCE INITIATIVES

Legrand Data Center Solutions is also investing heavily in developing Customer Experience Centers as part of the company's experiential marketing approach aimed at both partners and end customers. We actively invite our customers and partners to visit these centers as they offer a unique opportunity to see and interact with our solutions and meet our subject matter

experts (see page 7). Another essential component of Legrand's strategy has been to develop a "voice of the customer" approach via a Customer Experience initiative working with Forrester Consulting. To nurture loyalty and advocacy, we actively listen to our customer's and partner's feedback to further improve the experience we provide. One of the conclusions from customer interviews undertaken by Forrester Consulting was that our customers and partners appreciate many aspects of the group's approach to brand retention and the formation of local specialist teams. They also challenged us to ensure proactive communication of new solutions across a fast-evolving portfolio. Several initiatives have already been delivered, and others will follow over the coming months to address these findings, enabling us to better serve our partners and customers moving forward.

In conclusion, as Legrand Data Center Solutions continues to evolve, it remains committed to a partnering approach. Our partners provide a natural extension to our sales force to create demand, provide value-adding services and fulfil Legrand solutions. This approach allows us to scale our businesses and add value to the end customer by working hand in hand to develop and successfully close projects and, importantly, be there for the longer term. ■

EDITORIAL NOTE:

Richard is retiring from Legrand Data Center Solutions at the end of the year closing a career spanning some 45 years with organizations including Midland Bank, Midland Montagu, HSBC, Unisys and Nokia before joining Legrand via the acquisition of Raritan in 2016. Richard adds, "I am extremely fortunate to have been involved in the exciting journey of Legrand Data Center Solutions thus far. There are many things I am proud of; among them I would highlight:

- The strong partner ecosystem we have in place and witnessing the growth path of many partners from single-category sales to multi-million full solution sales
- A partner program built upon the highest standards of integrity and accountability
- The excellent solutions portfolio and tools we can offer our partners and customers
- The highly talented and highly committed people who comprise our local and regional teams

"It is now time for me to hand over the baton of ecosystem development to my colleague Franck Wolff. Franck joined Legrand Data Center Solutions in September 2023 and will transition into the role during the fourth quarter. Franck brings a wealth of experience with him. He has worked for the Legrand Group since 1992, working in the French subsidiary sales team for 10 years, including four years as regional sales manager, followed by 16 years managing foreign subsidiaries (including production) in Iran, China, Egypt, and Poland. He also established partnerships in the Middle East and North Africa within the critical power space. All the Legrand Data Center Solutions team and I naturally wish Franck every success in his new role."

TF1 data center modernization project with Legrand: A sustainable transformation



In the journey to modernize its data center infrastructure, TF1 partnered with Legrand, a trusted partner in equipping and upgrading its computer rooms. David Sarfati, Systems Service Owner in the Cloud Infrastructures and Engineering Division of the TF1 Group, reflects on the successful completion of this pivotal and sustainable data center infrastructure transformation project.

Over three decades, TF1 Group's audiovisual and IT infrastructure at its Boulogne-Billancourt headquarters has continually adapted to evolving technology and digital advancements. Recognizing the need



David Sarfati,
Systems Service Owner,
Technology Department

for modernization in 2019, TF1's Technology Division and General Affairs office embarked on a project to revamp their computer rooms. The transformation involved consolidating audiovisual and IT equipment by embracing denser technologies (e.g., 1U video servers replacing 6U VCRs) and leveraging virtualization and cloud solutions. This transition also necessitated abandoning the outdated 800-mm racks and reducing the use of coaxial and copper cables in favor of fiber, which aligned with TF1 Group's commitment to reduce electricity consumption by 30% by 2030 using more efficient air conditioning and equipment that consumes less energy.

The project started in 2020 for The Bouygues Energies & Services teams in partnership with Legrand to create two new state-of-the-art technical rooms under the supervision of TF1. The aim was to create two large new technical rooms so that around ten other rooms could be eliminated, reducing the number of racks by 30%. The use of advanced audiovisual and IT

devices that were denser, heavier, and deeper made this consolidation achievable.

This extensive overhaul met TF1 Group's corporate social responsibility (CSR) goals and aimed to modernize infrastructures, enhance system efficiency, and address cooling and energy redundancy concerns. The project was exceptionally challenging, as described by David Sarfati, "The Bouygues Energies & Services and Legrand teams handled the complexity of creating two new data centers in a building where production was ongoing and in an occupied area. One of them replaced an upstairs office area, and the other was on the parking level. The whole operation took place quietly and without interrupting production."

LEGRAND PLAYED A PIVOTAL ROLE

Legrand provided critical support in selecting and equipping the racks. They offered guidance during the pre-sale phase and during installation with integration plans and ensured that tailor-made racks were designed to accommodate

the building's unique constraints, including low ceilings, false floors, and cold aisles for efficient air conditioning. The careful separation and isolation of fluids, high-voltage and hydraulic lines under the floor, and low-voltage lines in the ceiling enabled the installation of a reliable double-induction cooling system.

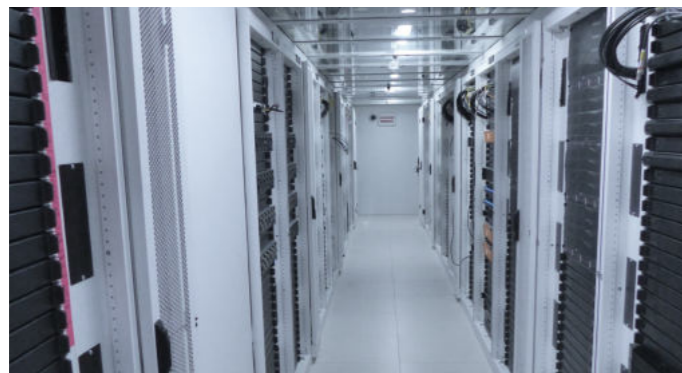
TF1's order of 150 42U Minkels racks, chosen for their height compatibility, featured low-voltage cable routing above and were factory built, and installed in less than two weeks. These racks included network racks with brushes and wider cable trays on the front panel, secure racks for critical devices, and standard racks, with Raritan covers and KVMs. David Sarfati explains, "We chose white Minkels racks so that they would be bright, to optimize the lighting, and for their warmth. The 42U racks satisfy our height constraints, and they provide two cable trays: one for copper cables, because we still have some, as well as network and video cables, and the other for single-mode fiber. Legrand also helped integrate the In Row racks and the sealing adjustments for the cold aisle air conditioning."

MODELLING, MEASUREMENT, DCIM, AND SMART PDUS

Recognizing the importance of meticulous data center management, David Sarfati emphasized implementing a Data Centre Infrastructure Management system (DCIM) to monitor energy consumption over time. "The solution we chose, which Legrand also recommended, was DCTrack from Sunbird. It provides a view of the data center modelled in three dimensions, right down to the components, which are identified and codified, which is very helpful to the technicians."

The choice to implement Raritan smart PDUs complemented the DCIM by measuring electricity consumption, temperature, and humidity in each rack. This data was integrated into the DCIM for comprehensive tracking.

Notably, fire protection was a significant consideration as due to the building's high occupancy, it was impossible to deploy a gas-based solution. A water mist fire extinguishing system was chosen as a safe alternative.



Fabrice Barbero, Business Manager
Legrand Data Center Solutions

VALUABLE ADVICE FROM DAVID SARFATI

David Sarfati offered valuable advice to peers considering a similar project: "Fitting out new rooms and populating them according to our rules has simplified maintenance. The rooms are clean now, and they will remain clean. That is why we have published a set of rules, which everyone must obey in the data center, governing the location and numbering of the machines and cables. You also need to have the right people to manage the modelling and use of the DCIM. The data center also contributes to company CSR performance, with a new electrical system and new, more efficient air conditioning. Above all, I advise planning ahead because these facilities will have a longer lifetime, and the equipment will evolve. Don't underestimate the amount of work and the rigor required for modelling in a DCIM."

Legrand's continuous support, from rack selection to integration, has been instrumental in ensuring the project's success and ongoing efficiency. ■

MINKELS marks its anniversary with Global Expansion 75th

This year marked the 75th anniversary of Minkels, a brand of Legrand. Over more than seven decades, Minkels has undergone significant growth and transformation since its inception in the 1940s.



Initially founded by Jan Minkels as a small local business specializing in manufacturing sheet metal products, primarily for the food industry, the company has evolved into a globally renowned manufacturer of server cabinets, aisle containment solutions, and cooling systems for the data center. In a remarkable journey that began in 1948 with a humble loan of 2,500 guilders from his mother, Jan Minkels of Veghel started Minkels under the trade name Fa. Jan Minkels. Fast forward 75 years, and Minkels remains true to its origins in sheet steel, but now, this expertise extends to creating server cabinets for data center clients globally. Although the Minkels family divested from the business in the 1990s, it continued to thrive and establish itself throughout Europe and beyond as a strong and valuable brand in the data center market, with a growing reputation for innovation and service.

In 2012, Legrand acquired Minkels strategically to broaden their portfolio of energy efficient IT infrastructure solutions

specifically tailored for mission critical data center operations. Chief Operating Officer of Minkels, Laurent Delcher, explains, "Minkels was already a specialist in data center equipment, but as a part of the specialist division Legrand Data Center Solutions, we are able to better support our customers and partners by offering them a complete portfolio of integrated solutions for the white and grey space by leading data center brands."

Minkels headquarters, R&D department, and assembly lines are in Veghel in the Netherlands and employ over 200 people. Delcher continues, "This is our 'center of competence,' a hub for research and development excellence. The products designed here are manufactured worldwide, with a significant focus on production at the Veghel factory, which mainly serves the European market. We are also committed to further international expansion, and leveraging Legrand's manufacturing footprint in countries like India, Malaysia, and



Australia enables us to produce products and provide a service near local markets. As the data center market constantly evolves, so does our drive for new concepts and innovative solutions to respond to the market's rapidly changing needs. As a result of our efforts, we have become the world leader in server cabinets and containment."

Innovation, flexibility, and energy efficiency are at the core of all Minkels products, with modular solutions designed to meet evolving and customer-specific business requirements. Delcher elaborates, "We focus on the following product categories: server cabinets, aisle containment, and cooling solutions for the IT equipment, along with components that effectively seal spaces to prevent air recirculation and the mixing of hot and cold airflows. With Minkels, you receive data center solutions tailored to your specific requirements, whether opting for a standard solution or a customized product."

Over the past 75 years, Minkels has witnessed many technological advancements and today incorporates intelligent automation technologies to help keep pace with growing demand for their products. Delcher explains, "Our Veghel facility currently manufactures 12,000 to 14,000 server cabinets yearly, and we are investing in expanding our production capacity. To achieve this, we are committed to investing approximately 1.5 to 2 million euros annually in our factory, primarily focused on automation."

To mark this significant 75th-year milestone in Minkels history, the company celebrated its anniversary with a special event weekend at their site in Veghel attended by over 700 customers, suppliers, partners, employees, relatives, and friends. Delcher proudly concludes, "This occasion allowed us to reflect on the company's accomplishments and valuable contributions to the data center industry over the past 75 years. Collaboration with our customers and partners has played a vital role in our journey, and we acknowledge that while we cannot predict the future, by working closely together, we can actively prepare for it. This collaborative approach ensures the design of our products will evolve and meet the dynamic needs of the future, driven by the valuable insights and perspectives of our customers and partners. Here's to the next 75 years of innovation, excellence, and serving data center needs!"

A PIECE OF HISTORY...

1948 - 1957 For more than one reason, September 23, 1948, was a joyful day for Jan Minkels. Not only did he turn 29 on that day, but he also established himself as an independent business owner. He bought a small business in Veghel, and Minkels started under the trade name Fa. Jan Minkels and the business was a "Repair Company for Refrigeration and Dairy Equipment".

1958 - 1962 The period of experimentation, the search for a new path, and finding the destination. There was an increased need for products to be assembled from sheet metal.

1963 - 1981 This period starts with the name change to Minkels Sheet Metal. More and more products for different industries are made from sheet metal. Jan Minkels even built his own die-cutting machine for this purpose. This period is known as the consolidation and expansion period.

1982 - 1991 The conversion from a primarily product-oriented to a more market-oriented company. The period ends with the establishment of Minkels Holding.

1992 - 2012 Minkels established itself throughout Europe and beyond as a strong and valuable brand in the data center market, with a growing reputation for innovation and service.

2012 - 2023 In 2012 the Legrand Group acquired Minkels. Legrand is already very active in the data center market worldwide through its various product lines and brands. With the acquisition of Minkels Legrand strengthens its position in the data center market. Minkels data center product range is highly complementary to Legrand's other product offerings for the data center, such as PDU's, cable management, modular UPS's etc. Today Minkels is an established manufacturer of server cabinets, aisle containment, and cooling for data center customers worldwide. Our parent company, Legrand, has played a pivotal role in our journey, not only as only as a partner but also as the backbone of our organization. ■



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COMPOSE
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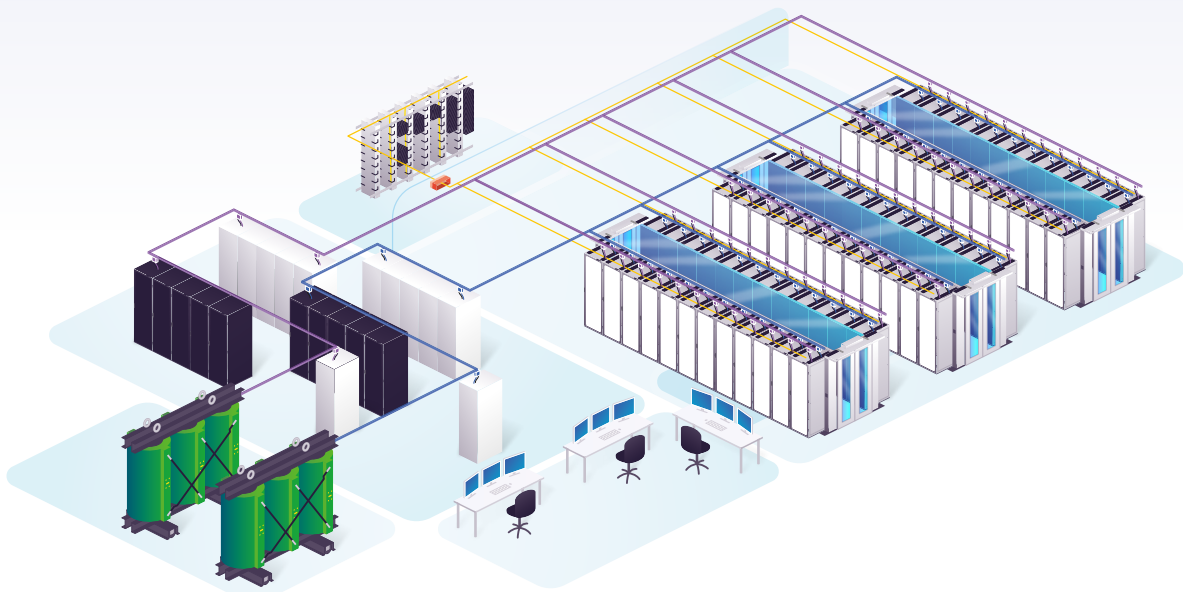
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