

# Q&A

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## DATA CENTRE SOLUTION FOR NEW UK HEADQUARTERS

Interview with Dr.-Ing. Michael Rademacher:

## IT SECURITY IN THE INTERNET OF THINGS

The Q-tainer:

## COMPUTING POWER FOR THE DIGITAL CONSTRUCTION SITE

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# EDITORIAL

## EVERYTHING IN THE CLOUD! Or not?

Dear Readers, Ladies and Gentlemen,

“Everything as a Service” was the slogan of a global IT corporation at the GITEX technology trade fair in Dubai last October. In fact today most companies are in the process of “shifting” all their data to the cloud. One of the many benefits is that the services acquired in this way can be used anywhere and at any time, and on practically any end devices. With the major cloud providers such as Microsoft, AWS and Alibaba the data are “stored safely” – although of course in theory there is always the risk of a third party gaining access.

The rapid development of the Internet of Things and the spread of IoT devices connected with it mean that the flood of data produced is growing exponentially faster than ever. But much of this IoT data occurs directly at the user’s and has to be processed on the spot in real time, for example data from a production system or test facility equipped with sensors and high resolution cameras. These massive amounts of data cannot be sent to a remote cloud. That would take too long (latency) and also cost too much. In the event of a broken connection to the cloud, moreover, production would come to a standstill, incurring enormous consequential costs.

This is where edge computing comes into play: smaller, decentralised data centres and/or gateways which process the critical data directly at the user’s location in real time – fast, secure and cost-effective. Such data centres are also generally connected to the cloud, but these connections are used in considerably smaller amounts for time-uncritical data. In addition to latency and cost, high information confidentiality also speaks in favour of an edge computing approach. Patient data in healthcare, sensitive police, customs or ministerial data can thus be efficiently protected and cost-effectively processed.

At present the risk of cyber attack on our infrastructure is increasing significantly. Here again an edge computing approach can prevent the worst.



In recent years Datwyler IT Infra has become a leading supplier in the edge computing field. In this edition of “Panorama” read where and why organisations throughout the world are employing our intelligent, modularly expandable edge computing solutions.

Kind regards

Johannes Müller  
CEO Dätwyler IT Infra AG

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Sony Music UK, London:

# Modern data centre ALL IN WHITE

Sony Music has future-proofed the data centre at its new British headquarters with a Datwyler solution.

Transparent floor plates – with a clear view of the white cable bundles

Sony Music's UK office recently relocated its headquarters from West London to King's Cross, the capital's fast-growing music, technology and media hub. In the new "Project Star" building on Handyside Street, the music label is now in the immediate vicinity of Universal Music, Facebook and Google.

Sony Music UK has a state-of-the-art data centre at its new headquarters. This has been designed to provide a reliable service for users, making life easier for all labels that Sony Music owns, supports or uses.

Because computing power and data transfer speeds are constantly increasing, it was of crucial importance for Sony Music to specify the latest high-performance network products in the data centre. That's why Sony chose a solution from Datwyler – available exclusively through iDACS in the UK and Ireland – to support its mission-critical IT infrastructure now and in the future.

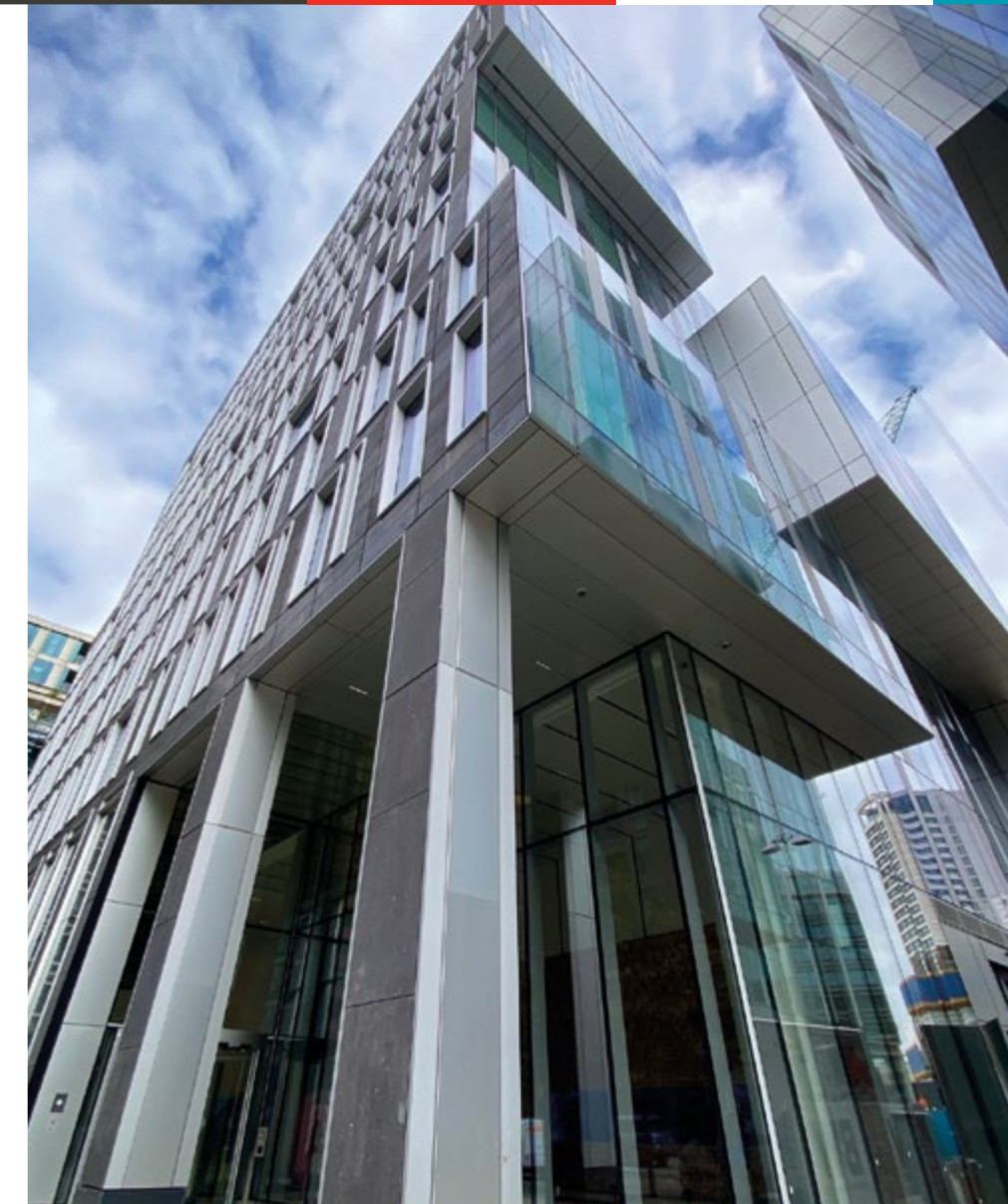
## Future-proof network

The design team attached great importance to the data centre being able to be expanded quickly so that sufficient capacity would still be available 20 years from now. It should be flexible to allow for upgrades at any time and to support both new technologies and the installation of new equipment. It also had to meet all operational requirements and comply with current BS EN standards.

From June 2021 to March 2022, The Cabling Group, a certified Datwyler partner, installed



Patch panels with angled RJ45 modules



Sony Music UK headquarters in King's Cross

copper and fibre optic cabling that offers Sony Music a high level of future security because it is 10 Gigabit capable and flexibly expandable. It includes 1920 links in bundles of Category 6A cables. To connect the racks to each other, the network installers used 24-fiber OM4 cables and 74 copper trunks, which iDACS delivered pre-assembled to the construction site.

## Logistic services by iDACS

Throughout the project, iDACS worked closely with the team at The Cabling Group to ensure that the delivery times were always met. iDACS also made sure that the empty cable drums were taken away to relieve the customer of disposal and to recycle and reuse them.

Last but not least, iDACS took care of Datwyler's 25-Year System Warranty, which Sony Music received as soon as the data centre went into operation.

The total length of the bundled cables was 340 kilometres – all in white. At Sony Music's request, iDACS commissioned Datwyler with a special manufacturing run that included bespoke white cables and components.

This is another reason why the data centre in King's Cross has become a showpiece for Sony Music. Transparent floor panels make it possible to inspect the network infrastructure. The white cable bundles are a special eye-catcher. (pah)

Urumqi Diwopu International Airport:

# NEW CAPACITY

Datwyler supplies the cabling solutions for the most important international air traffic hub in the Xinjiang region.

*Impressions from the construction site, mid-June 2022*

Urumqi, the capital of the Xinjiang Uyghur Autonomous Region, is the largest city in Central Asia with over four million inhabitants and the administrative centre for one-sixth of the territory of the People's Republic of China. Urumqi's international airport is located in the township of Diwopu, just a few kilometres from the city centre. It is one of the most important national and international air traffic hubs in the country.

In 2019, the international airport handled 24 million passengers – eight million more

than expected after the last expansion in 2007. For this reason, another expansion was started in 2022. It is scheduled to be completed by the end of 2023.

## Massive expansion

The latest expansion is designed to handle a maximum of 63 million passengers and 750,000 tons of cargo per year. After the reconstruction, the flight operations area will reach the highest level 4F, which will also allow the Airbus A380 – the world's largest commercial aircraft – to take off and land.

The total investment is more than 42 billion renminbi. This includes the construction of Terminal 4 – the largest single building in Xinjiang at 500,000 square meters –, the construction of two runways, each 3,000 metres long, a traffic centre with 92,700 and a parking garage with almost 252,000 square metres and facilities for the electricity, heat and gas supply.

After extensive tests and assessments, both the airport operator and the general contractor came to the conclusion that

Datwyler should receive the order for the structured cabling. Datwyler's solutions will be used in the new terminal, the IT centre, the traffic control centre, the freight yard, air traffic management and for the baggage system, among other things.

Urumqi Diwopu is not the first Chinese airport that Datwyler is supplying – on the contrary: the company has already equipped more than 50 airports across the country with structured cabling solutions, including four of the top 5 flight hubs and as many as 16 of the 20 most important international airports in the People's Republic. In addition, Datwyler in China has repeatedly received awards as a top supplier for airport construction – for data centres as well as for structured cabling.

## Higher reliability and transmission capacity

Of all the Chinese airports, Urumqi Diwopu will not only be equipped with the largest, but also with the most advanced Category 6A shielded cabling system to date. The installation includes more than 40,000 Category 6A data connection points. A U/FTP cable is used here, Datwyler's "CU 6502 4P", which, thanks to the shielding of the individual pairs of conductors, is clearly superior to the usual F/UTP cables in this category in terms of interference immunity and performance.

With its AWG 23 conductor diameter, it can also transmit electrical power of up to 100 watts (4PPoE).

In addition, Datwyler is supplying the airport with around 1000 kilometres of fibre optic cable for indoor and outdoor use, as well as a pre-assembled OM4 MTP system for the data centre. The special focus here was on flame-retardant cables according to IEC 60332-3. Some of the fire control system is even equipped with fibre optic cables whose fire resistance meets the high requirements of the GB/T 18380.35 and IEC 60332-3C standards. The overall system meets the requirements of IEC 60331-25.

The Chinese Datwyler team was actively involved in the detailed planning of the structured cabling and also provides professional technical advice. For example, a team of technicians and product specialists was on site to provide training on the proper use and installation of the products.

In order to maximize the performance of the system solutions, Datwyler's experts will conduct further on-site training courses over the coming months and will provide the companies involved and those responsible on site with advice and assistance during installation, acceptance and commissioning. *(fct, jal)*

*The Datwyler experts are on hand to provide those responsible on site with advice and assistance.*



Panoramic view of the new building

National University, Singapore:

# For collaboration AND INNOVATION

In the latest new building at the National University of Singapore, COM3, Comnet has installed an IT infrastructure solution from Datwyler.

For around fifty years the School of Computing (COM) at the National University of Singapore (NUS) has been one of the island state's intellectual centres for computer technology. COM3, a big new building for the School of Computing, will be opened shortly. It was conceived and designed as a symbolic bridge, not only to link the existing buildings COM1 and COM2 to the Smart Nation Cluster of the NUS, but also to strengthen contact between students, university members and visitors and thus promote collective working, research and innovation.

The new five storey block is located in a lush tropical valley. Natural light and plenty of fresh air in the building will promote open-

ness to innovation. Green spaces have been designed as social meeting places, with the idea of facilitating collaboration and mutual inspiration. COM3 is a resource-saving building with a particularly low energy requirement (Super Low Energy). This is why it was awarded the "Green Mark Platinum Award" by the Building Construction Authority of Singapore.

## Close partnership

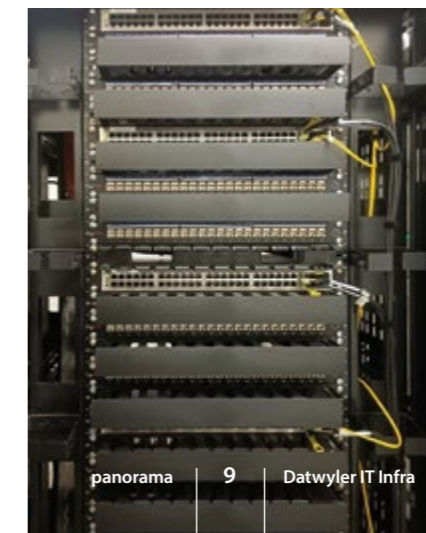
The contract for the IT infrastructure was awarded to Comnet Systems Pte Ltd. Comnet, a system integrator with over 25 years' experience, has already implemented many projects for the university. Once again it was the first choice for the NUS because of its value engineering and geographical proximity.

In the tender Comnet quoted for a future-proof solution from Datwyler which had been developed beforehand by both companies.

Even after the award of contract Comnet and Datwyler continued to work hand in hand in order to find the ideal technical solution for every challenge – and, despite COVID-imposed restrictions, were able to complete the project before the scheduled opening of the campus at the end of 2022.

"We have been collaborating with Datwyler since 2007 and since then have supported each other whenever we could," explained Mark Lee, Managing Director and owner of Comnet. "In a project as important as the NUS one we again opted for Datwyler because of quality and strengths."

## Shielded data cable and connection technology in the rack



Looking into the COM3 server room

## A look at performance

The Comnet contract included design, delivery and installation as well as testing and commissioning the building-wide IT infrastructure. Among other things it is designed to serve as a basis for e-sport, e-menus, the networking of IoT devices such as robots, and for security monitoring (CCTV).

2660 copper connection points were installed in COM3. A solution with Category 6A S/FTP cables from Datwyler was used for the floor cabling. Unlike an "only" foil shielded Cat. 6A solution, this provides an overall sheath of braided copper in addition. The result is high electromagnetic integrity and a better, i.e. more secure transmission performance by the IT infrastructure.

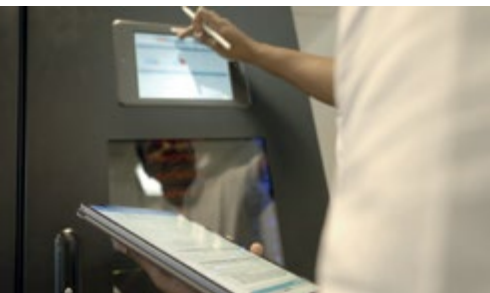
## Two fibre optic backbones

There are also two fibre optic backbones: 8-fibre OM3 universal cables for the security network and 12-fibre reinforced single-mode cables for the IT network. These connect the central plant room with the distributor for the kitchen and the sub-distribution areas on the entire six levels. (jic)

Emirates Driving Company, Al-Ain:

## Basis for DIGITISATION

Since February a Smart Modular Data Centre from Datwyler has been operating at the first driving school in Abu Dhabi.



*The Smart Modular Data Centre started operation in February.*

The Emirates Driving Company (EDC), established in 2002, was the first driving school in Abu Dhabi. Today digitisation and sustainability are integral parts of the EDC company strategy. As an important step in this direction the company decided to upgrade its data centre infrastructure – so as to fully digitise operation and make it possible to use cutting-edge technologies in all departments in all the branches in Abu Dhabi.

In 2021 Datwyler Middle East was given the opportunity of presenting one of its Smart Modular Data Centre solutions (see page 33) to EDC's IT team. After a thorough evaluation and several sessions dealing mainly with technical issues, those responsible for IT were convinced that the Datwyler solution was a perfect match for EDC's requirements and specifications.

### Three-two-one solution

Datwyler's Mini Data Centre was installed in the branch at Al-Ain, an oasis

town on the border with Oman. The solution included three server racks, two slim in-row coolers and a so-called "power rack". This fully enclosed solution has an integral uninterruptible power supply (UPS) with 20 kVA, a cooling system, a fire alarm and firefighting system and an intelligent power distribution unit (iPDU), as well as systems for access control and environmental monitoring.

Because Datwyler has local stockholdings, the data centre solution was delivered and installed on time in conjunction with Computer Care, the solution partner on the spot – despite the tight project schedule. It was successfully commissioned and handed over to EDC in February 2022.

*The Emirates Driving Company offices in Al-Ain*



### Connecting all branches

In the meantime the Datwyler team has been working on completing the second phase of the project at a new branch in Madinat Zayed, the biggest city in the largest region in the west of the Abu Dhabi Emirate. The aim is to interconnect all the company branch offices and to administer all the IT on one platform.

A progressive and intelligent modular IT infrastructure is a crucial precondition for supporting not only EDC's expansion plans, but also the applications currently under development at the company. A wide digital range of training content for pre-licensing and relicensing as well as for specialised tailor-made courses will thus be available in all the branches. (shi)

KL Monorail, Kuala Lumpur:

## ROBUST FIBRE OPTIC SOLUTION for monorail

The operator relies on a future-proof solution from Datwyler when upgrading the fibre optic network.



*Unloading Datwyler cables near the building site*

The Kuala Lumpur (KL) monorail, which came into operation in 2003, is a two-track elevated railway linking the main station of the Malaysian metropolis with Titiwangsa terminus and interchange station. Along its 8.6 kilometre length it serves eleven stops in the city. Among others it runs through the central business and nightlife district in Kuala Lumpur, the so-called "Golden Triangle". At peak times the KL monorail moves up to 60,000 passengers a day. It belongs to the state-owned enterprise Prasarana Malaysia Bhd and is operated by Rapid-Rail, its affiliate.

In the past rail operations were repeatedly disrupted because the automatic signalling systems kept malfunctioning. It transpired that the faults were due to the aging of the fibre optic cables. In addition,

the hardware used for the fibre optic network only supported data transmission of 600 megabits per second – so was in urgent need of upgrading.

### Basis for uninterrupted data traffic

RapidRail recognised the pressing need for action and decided on a STM-64 system, which enables transfer rates of up to 10 gigabits per second.

Cyberlan Integral Sdn Bhd was awarded the contract for installing the new fibre optic network. Cyberlan is an experienced ICT service provider – and a certified Datwyler Solution Partner. The two companies have already worked together for decades, because Datwyler has been able to support the ICT service provider with reliable high-performance IT infrastructure solutions and services for all its projects.

In October 2021, when only a few passengers were using the monorail due to the Corona pandemic, Datwyler supplied Cyberlan with a total of 42 kilometres of 12-fibre single-mode FO Outdoor cable plus the connection technology and accessories for the individual construction phases of the KL monorail. This meant that the old fibre optic network was entirely replaced by a Datwyler fibre optic solution. As per requirements, use was made of robust, easy-to-assemble fibre optic cables with a steel shaft sleeve which can withstand the outdoor environment. (tzip)

*Service train in the KL Monorail depot in Brickfields*



Bank of Nanjing Co., Ltd., Suzhou:

# PERFECTLY MANAGED

The Bank of Nanjing is installing a structured cabling solution and a modular data centre from Datwyler in its branch in Suzhou. The entire infrastructure is monitored and managed with CABNAVI.

Founded in 1996, Bank of Nanjing has been a listed company since 2007, with shares held by the state, Chinese and foreign shareholders and various individuals. Not only is it one of the country's leading banks, it is also listed in the "Top 1000 World Banks" and in the "Banking 500" index of the British financial magazine *The Banker*. Today the Bank of Nanjing has a nationwide presence in China, including Beijing, Hangzhou and Shanghai, with its 17 branches, which are primarily active in SME financing and retail business.

After a visit to the Datwyler factory four years ago, which included thorough product sampling and testing, the bank had Datwyler intelligent structured cabling installed in its Changzhou branch in 2019.

Due to the positive experience, the bank turned to Datwyler again in 2021 for advice on the planning and product selection of an IT infrastructure solution for a new office building in Suzhou.

## Complete IT infrastructure at a glance

In August 2022, Datwyler received the order for the delivery of the required material from the local system integrator. In addition to a modular data centre solution and the complete structured cabling, Datwyler supplied six different types of IoT Intelligent Patch Panels offered in China – including panels for copper and fibre optic technology – for

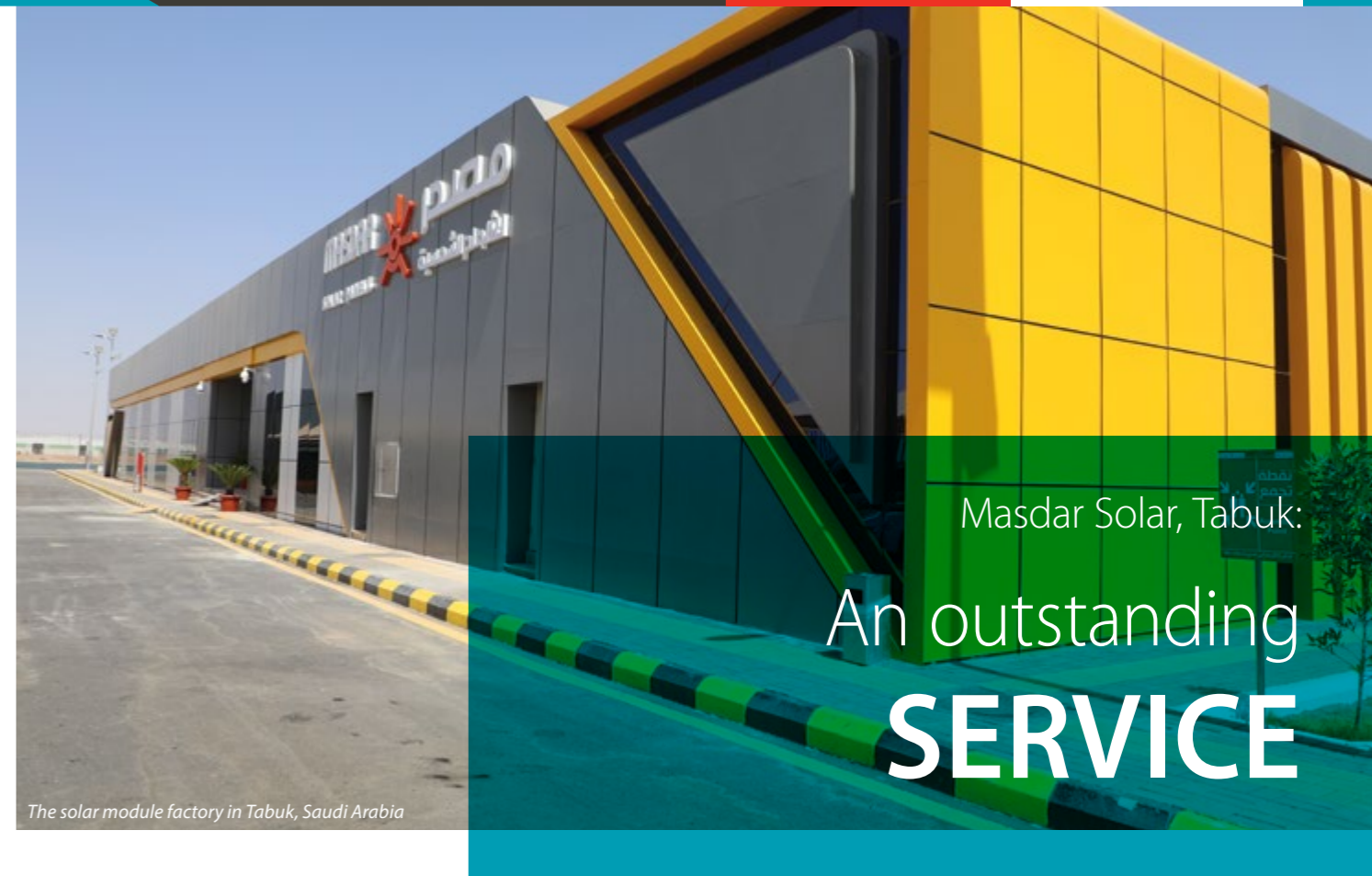
the offices in Suzhou, and the CABNAVI software platform.

The combination of these electronic patch panels with the VCMP solution (Visual Cabling Management Platform) enables the bank to intelligently manage the building-wide cabling infrastructure and all devices connected to it. With this solution the objects in the structured cabling, including all object information, can be displayed and managed in two-dimensional scenes. In addition, there is the management and planning of the installed links, the administration of work orders and the management of the panels themselves. The system also offers a 2D material library and an interface for data exchange – for example with the switches and ports as well as for batch imports and database access.

The modular data centre solution in the central technical room of the branch includes 14 racks with the required PDUs, as well as cold aisle containment and systems for access control and monitoring of the environmental conditions. All changes in the cold aisle can be monitored in real time using cameras and light as well as smoke and water sensors. The solution also includes a real-time display of the operating conditions of the installed equipment and a system that notifies the administrators of any malfunctions in good time through light and SMS alarms.

Installation work began on October 15 of this year and was completed within six weeks. Until the handover at the end of November, Datwyler supported the system integrator's work with its own on-site team. *(mew)*

*The Bank of Nanjing Suzhou Branch*



Masdar Solar, Tabuk:

## An outstanding SERVICE

The photovoltaic module producer Masdar Solar has installed a future-proof IT infrastructure solution from Datwyler in its factory.

Masdar Solar in Tabuk is a production facility of Bin Omairah Renewable, based in Riyadh. The factory is located near Neom City, a planned city implemented by the government and designed to feed its energy requirement exclusively from wind and solar energy. Bin Omairah has created the 27,000 square metre plant in order to supply Saudi Arabia with cutting-edge photovoltaic modules. It is thus an important building block of project "Vision 2030", the government's ambitious plan to reduce the country's dependence on petroleum.

In order to ensure the optimum functionality of the factory as well as of plant and machinery, Bin Omairah decided on a high-performance IT infrastructure solution from Datwyler. The Datwyler Middle East team has supported the company in the design and implementation of its communication network together with Blinks, its distributor, and Solution Partner Banan. As a result it was possible to find and install a suitable solu-

tion for the passive infrastructure which met all the requirements of the production site.

## Integrated end-to-end solution

The core of the IT infrastructure at Masdar Solar is the Smart Modular Data Centre (see page 33). This occupies only two IT racks which Datwyler has supplied "plug and

The communication network itself, which was installed on the factory site in November 2021, is a Datwyler end-to-end solution comprising around 1000 Category 6A data connection points and an OS2 fibre optic backbone.

"We are grateful to Datwyler and Banan for their outstanding service," says Eng. Fahad Bin Omairah, owner of Masdar Solar. "We are really impressed by the prompt support we experienced. This helped us a



**“We are really impressed by the prompt support we experienced.”**

*Eng. Fahad Bin Omairah, owner of Masdar Solar*

play", including power supply and cooling, fire alarm and fire suppression, physical security, an environmental monitoring system and a preassembled cabling solution in copper and fibre optic technology.

great deal in completing our project on time. We are also happy that the high quality standards have been complied with – and are very confident that this will remain the case in future." *(soa)*

Obhur City, Jeddah:

# INTELLIGENT

## campus network

Residential building project in Saudi Arabia uses Datwyler IT infrastructure solutions.

The residential district of Obhur City, taking shape on an area of over 2.5 square kilometres in the north of the port of Jeddah, is one of the largest urban residential building projects in Saudi Arabia. It includes thousands of apartments and villas in addition to areas for trade and retail and leisure facilities. The complex was developed by Raza, the Property Investment and Management Company of the Saudi Public Pension Agency, and is designed for mixed use with the intention of raising the communal life of the residents to a new level.

Together with its local solution partner CounterPoint for Telecom and IT (CPTIT), Datwyler was awarded the contract to provide a reliable high-performance network infrastructure.

This was to enable the residents to access trouble-free triple play – the transmission of speech, video and data. In order to host these services the neighbourhood needed its own data centre to house not only the servers, switches and routers, but also provide the requisite cyber security.

### Comprehensive IT infrastructure solution

Both companies worked closely with Raza's technical team and assisted it in designing the IT infrastructure required for the project.

They also ensured that both the budget and the specified schedules were adhered to.

Datwyler and CPTIT jointly set up and implemented the project. This resulted in a customised, cost-effective turnkey solution. Its core is a Smart Modular Data Centre comprising eight IT racks and containing all the subsystems – from cabling through UPS, power module and cooling to access control, fire suppression and monitoring software. Added to this there is the outdoor (OSP) and indoor (ISP) fibre optic cabling, including the construction and installation work, the procurement of a generator and establishment of the necessary power supply.

CPTIT has once again proved itself to be one of the most trusted partners in Datwyler's "ecosystem" in Saudi Arabia. Thanks to the solution partner's exceptionally good work, the turnkey project was successfully completed and handed over in September 2021. (soa)



The Smart Modular Data Centre supplied by Datwyler



This is how the Obhur City residential area in Jeddah will look.

PCS Security Pte Ltd, Singapore:

# STRONG BACKBONE

## for colocation data centre

PCS Security puts its money on reliability and support in the data centre.

which is used by many different customers. The backbone cabling at PCS Security will be 10 gigabit-compatible, with Category 6A copper data cables

very happy with Datwyler's IT infrastructure, particularly as regards its reliability and the product support – both important factors in a challenging environment like this one. (jic)



Cable trays from Datwyler

PCS Security is a multi-award winning company with many years of experience in the provision of dependable high-tech security solutions. Depending on its customer's specific needs, PCS Security supplies turnkey end-to-end solutions which include design, integration and commissioning as well as maintenance and support.

In February 2022 EQCOMS was awarded a contract for the installation of the cabling infrastructure in PCS Security's new colocation data centre. EQCOMS Technology Pte Ltd is an installation company based in Singapore, which for over 20 years has been setting up data centre infrastructures, maintaining data centres and other critical environments, and has expertise in the fields of network and cyber security.

### Copper indoors, fibre optic outdoors

Naturally a high-performance backbone is essential in a colocation data centre,

indoors and armoured fibre optic cables outdoors.

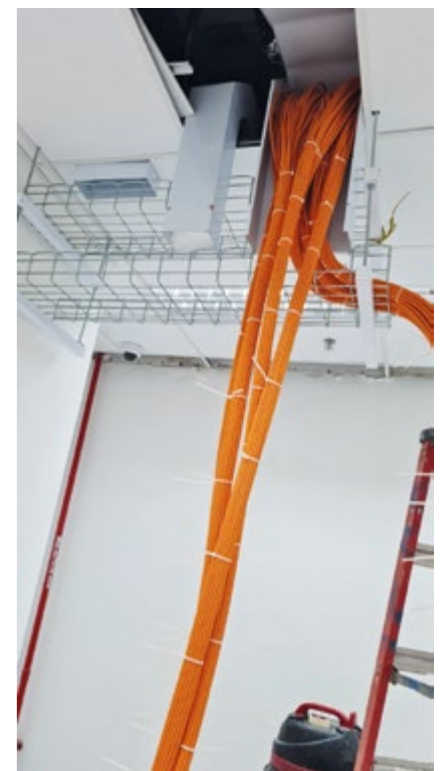
Datwyler was chosen because the company has a lot of good references for similar projects.

EQCOMS is a Datwyler-certified Solution Partner. The two companies have already collaborated previously in meeting the stringent technical demands of their customers.

As in this project as well: With the Cat. 6A cables, the 48-fibre FO Outdoor single-mode cables and the requisite cable trays supplied by Datwyler, in the data centre EQCOMS has implemented 400 data connection points on one level.

### To be continued

But this does not mean that the collaborative work is finished for PCS Security. It will continue with the planned expansion of the data centre, as the users are



Cable bundles during the installation phase in the data centre

Lidl GB, London:

# DATWYLER SOLUTION for the new “Lidl House”

iDACS has been supplying Lidl premises across the United Kingdom and Ireland with Datwyler cabling systems for over a decade. The latest project is the global food retailer's new UK headquarters.



Security systems are also supported by the high-performance IT infrastructure.

Datwyler's cabling solutions have been specified for Lidl offices and regional distribution centres throughout Europe for many years. As the exclusive supplier of Datwyler's infrastructure products and

solutions in the UK and Ireland, iDACS has always worked closely with Lidl itself and its approved network installers Piggott & Whitfield. Being involved early on in the process ensures that not only the respective products are available on time, but also the logistics and technical services “fit” so that every project runs smoothly.

A good example of this is the new Lidl GB headquarters on Kingston Road in Tolworth, Surbiton, just a few miles from their previous Wimbledon HQ.

## State of the art sustainable building

“Lidl House” in Tolworth is a five-storey, ultra-modern building with an area of 23,000 square metres. It's the new home to around 800 employees – teams from across the company – who have been united under one roof here since January 2022. In addition to existing employees, the building also has scope for future expansion, as

space has been provided for increased occupancy. The new UK headquarters supports over 900 branches, 13 regional distribution centres and more than 26,000 employees. By the end of 2025, there will be 1100 stores across the UK.

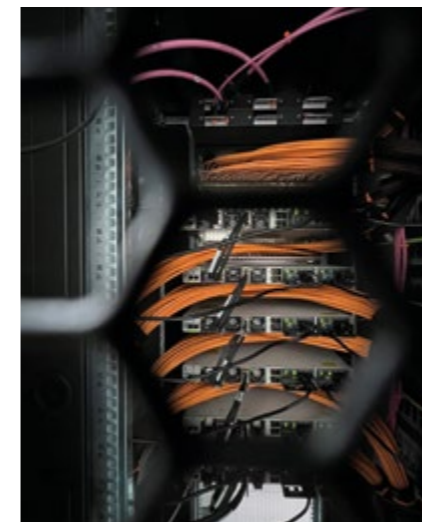
Lidl GB has taken a number of measures to make the new building sustainable and “smart”. This includes numerous charging points for electric cars – currently the largest number in one place in the UK – as well as solar panels in the car park, which provide 300 kilowatts of energy per hour. In addition, the toilets in the headquarters are flushed with rainwater and the building is equipped with automatic LED lighting.

## High-speed data network

The Datwyler communication network installed at “Lidl House” is an important resource for improving collaboration be-

tween Lidl employees and promoting more flexible working methods. For the network, iDACS alone supplied 250 kilometres of data cable, which provided more than 7100 copper and almost 1700 fibre optic links in the building.

The new IT infrastructure extends over the basement, the ground floor and four other floors. There are two comms rooms

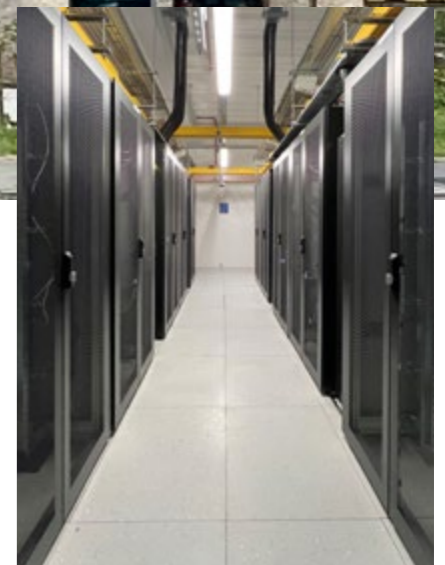


Lidl's new “smart” HQ in Tolworth, London

on each floor, plus one in the parking lot. They are all networked with each other with an MTP fibre optic solution. The door opening systems, the WLAN access points in the building and in the parking lot, and the external surveillance cameras are also integrated into the network. High-performance data connections are available to employees at their workplaces via Consolidation Point boxes and patch cords.

The installation started in February 2020, but was interrupted by Covid restrictions, with the majority of the project running from September 2020 to the end of 2021. Testing and acceptance took place in time for the opening of the new UK HQ in January 2022. iDACS has been involved throughout the project including the Dat-

*Cabling systems from Datwyler are used throughout the building.*



wyler 25-year warranty certification process, which was issued earlier this year.

A few additions to the installed network are currently taking place, with iDACS continuing to deliver products to the site, which are installed by Piggott & Whitfield, a solution partner certified by Datwyler. (pah)



Egypt:

Visitors to the  
Datwyler Middle East  
and SKY Services  
exhibition stand

# AT CABLEXX 2022

At the end of March Datwyler was again represented at Cablexx, an exhibition and conference held in the Hotel Hilton Cairo Heliopolis.

Datwyler participated in the event in the Egyptian capital together with SKY Services, the regional distributor. Datwyler Middle East works closely with SKY to provide customers in Egypt with high-performance IT infrastructure solutions as well as the appropriate software and services.

Numerous representatives of various organisations – users, consultants and system integrators – had come to the event organised by ROOT Technologies because of their interest in new and future technologies which aid them in speeding up digital transformation.

## End-to-end solutions for multisite and campus networks

Soubhi Al-Aliwi, Sales and Business Development Manager of Datwyler Middle East, was one of the speakers at the accompanying conference. He introduced the participants to the IT infrastructure provider's end-to-end solutions suitable for multisite and campus network architectures.

The event also featured a demonstration of Datwyler's Smart Modular Data Centres (see page 33). Many of the visitors to Cablexx 2022 expressed a great interest in the unique characteristics of these Edge data centre solutions. (neg)



Soubhi Al-Aliwi, Sales and Business Development Manager of Datwyler Middle East, at the Cablexx conference



The topics discussed by Soubhi Al-Aliwi and Ahmed Abdelaleem of Datwyler Middle East were Edge Computing and Smart Modular Data Centres.

Egypt:

## WELL ATTENDED CONSULTANT FORUM IN CAIRO

Together with its Egyptian distributor SKY Services, Datwyler Middle East attended the Cairo Consultants Forum as a Diamond Sponsor.

The Cairo Consultants Forum was held in the Dusit Thani Lakeview Hotel at the beginning of July, the fourth year in which it was organised by IT Events. This Forum brings major Egyptian consultancies together with technology leaders, opens opportunities for discussion, and provides information on the latest technological trends and international standards.

This time Datwyler IT Infra was there with a stand and presentation. Asem Shadid, Managing Director of Datwyler Middle East, explained how Datwyler can support companies on the road to digital transformation by increasing growth and profitability with new business models. In the Forum, Soubhi Al-Aliwi, Sales and Business Development Manager, and Technical Manager Ahmed Abdelaleem updated their audience on current technology trends such as edge computing and smart modular data centres. Many of the company representatives also took part in the panel discussion. Here Al-Aliwi discussed the key factors for successful digital transformation.

At the altogether well attended event numerous visitors to the Datwyler stand showed great interest not only in the company's IT infrastructure solutions but also in its software and service offerings. This once again demonstrates the importance of such regional meetings, where both new and tried and tested solution offerings can be presented and explained to customers, partners and other interested parties. (neg)

## Africa, Middle East: PARTNERSHIP WITH GIZA SYSTEMS

Datwyler Middle East has signed a Memorandum of Understanding with Giza Systems.

In view of booming market in Egypt, in March Datwyler Middle East and system integrator Giza Systems, headquartered in Cairo, signed a Memorandum of Understanding to develop their strategic partnership and to provide innovative IT infrastructure solutions and services in other African countries as well as in Saudi Arabia.

Giza Systems is a leading system integrator designing and implementing specific technology solutions for companies in the fields of telecommunications, oil and gas, water and power supply, hospitality and property. Established in Cairo in 1974, today Giza Systems is represented by numerous branches in Africa and the Middle East region.

The intention is that the customers of both companies will benefit from an optimised range of services. Thus, as well as geographical expansion and sales promotion, the Memorandum of Understanding signed by Osama Sorour, CEO of Giza Systems, and Asem Shadid, Managing Director of Datwyler Middle East, also includes product development and close collaboration in the services field. The Understanding has the full backing of SKY Services, Datwyler's Egyptian distributor. (soa)



Osama Sorour, CEO of Giza Systems (right), with Asem Shadid, Managing Director of Datwyler Middle East

Singapore:

# ON COURSE FOR GROWTH

As the Datwyler team in Singapore has grown in size, it has moved into new office premises in the Vision Exchange Building.

Meeting room with a view on the 19th floor of Vision Exchange



On 12th May 2022 Datwyler IT Infra in Singapore joined customers in celebrating the opening of new offices in the Vision Exchange Building on Venture Drive. The building is situated in a premium location in the Jurong Gateway commercial district, designated "District of the Future" to drive the growth of businesses in the New Economy. The larger office premises, with a floor space of around 300 square metres, are due to the successful development of Datwyler IT Infra and the growing number of employees, particularly in the software and services departments.

## Far-sighted investment

While the previous company building in Toh Guan Road will in future be used as a warehouse and local logistics hub, the new premises on the 19th floor of the Vision Ex-

change enjoy a panoramic view of the lush natural surroundings of Lake Jurong, the coast, Bukit Timah Hill and Singapore's unmistakable skyline. "The new offices reinforce our image as a far-sighted company investing in the development of innovative customer-specific software and service provision," explained Adrian Bolliger, Managing Director Europe and interim Managing Director of Datwyler IT Infra in Singapore.

## Site gains in importance

As a supplier of travelling cable and wire rope, the Datwyler branch office in Singapore has been one of the most important players in the elevator industry in the Asia-Pacific area since it was established in 1996. For 22 years the company has also made its mark in the region with premium-quality products and solutions for advanced IT infrastructures.

In order to be able to offer IT/OT end-to-end solutions and stand out from its competitors, Datwyler IT Infra has recently also included in its portfolio software and services which until now have only been supplied intermittently or not at all in this sector. The Singapore site plays an important role in software development. "The company's customers as well as Datwyler profit from the large pool of highly qualified high-tech talent in the Asia-Pacific area," says Adrian Bolliger. Datwyler currently employs a workforce of 30 in Singapore. According to Bolliger this number will quickly increase. (jo)



Opening ceremony for the new offices

Belgium, Luxembourg:

# CONGRESS AND TRADE FAIR IN THREE TOWNS

In October, together with its distributor Microtron NV, Datwyler participated in three events on data centre infrastructure.

With over 500 participants the "IT Infrastructure Data Center Congress 2022", this year held in Bourglinster, Luxembourg, as well as in Ophain and Affligem, Belgium, was again well attended. In all three towns the Datwyler team used the opportunity to socialise with the visitors.

The main focus was on data centres, micro and mini data centres, edge computing, efficient cooling and sustainability, data security and cloud computing. In this context Datwyler's presentation on "Sustainability in the EDGE" met with great interest. The talk explained when it is better to process data in conventional data centres and when in the Cloud or in the Edge.



The audience learnt when decentralised data processing makes sense and why the growing volumes of data can be processed more quickly, more securely and with lower latencies and power consumption in the Edge. The talk was rounded off by a presentation on Datwyler's Micro and Mini Data Centres, services and partner programs.

On the joint exhibition stand with Microtron NV those interested also had the opportunity of looking at a smart IT rack with Datwyler's fibre optic technology, including the DCS and HD-DCS high-density cabling solutions.

From Datwyler's perspective the congress was a success, as the three regional events provided the chance to make valuable new contacts because of their closeness to the users. (syb)



Datwyler RJ45 modules in the environmentally friendly cardboard box

# Sustainability: NO MORE PLASTIC WASTE

Since July this year Datwyler has been focussing on sustainable packaging for RJ45 modules.

Since July anyone ordering RJ45 modules from Datwyler has no longer been receiving them in plastic bags, but in space-saving and environmentally friendly cardboard boxes. This produces less plastic waste on the construction site and saves time when separating refuse.

The globally standardized cardboard boxes also make the contents easier to check: the modules, wire managers, cable ties and dust shutters each have their own small compartments and so are clearly separated from one another.

The new module packaging is one example of how Datwyler is breaking the global sustainability strategy down to individual product level. Based on the volume of orders in previous years the new boxes are saving almost 3.5 tonnes of plastic waste. Transported on pallets, moreover, they occupy only half the space of the old packaging. This saves around one tonne of CO<sub>2</sub> annually. (ivc)

IoT devices and systems:

# WHAT IS HAPPENING TO IT SECURITY?

Interview with Dr.-Ing. Michael Rademacher, Fraunhofer Institute for Communication, Information Processing and Ergonomics

**The smart networking of systems, processes and machinery by Internet of Things (IoT) technology brings many benefits to both company buildings and smart homes. Not only is it a major step towards sustainable digitisation and lower operating costs, it also increases productivity and yields better operating results due to new markets. IoT devices are less well protected against cyber attack, however, and call for new safety concepts. Dr.-Ing. Michael Rademacher of Fraunhofer FKIE explains what to watch out for.**

## **Dr. Rademacher, why do IoT devices and systems pose a security risk?**

They are popular targets because they have an Internet connection and are often inadequately protected. This is mainly because such devices have long life cycles and their owners cannot or are unwilling to provide automatic security updates. Their Internet connection makes possible attacks such as Distributed Denial-of-Service attacks or the infiltration of ransomware. Once a networked IoT device is hacked, other parts of environment are open to attack. This can, for example, result in the total breakdown of production facilities or the power supply, leading to data loss and severe financial damage.

Often IoT devices also do not have much processing power, which creates special challenges for encryption. Added to this there are insufficient firmware security measures. At the same time IoT and IT security are still completely new territory for many companies. They let application security slide.

## **What special requirements are there as regards security when using IoT devices?**

The requirements depend on the application in question. But the following applies to everything: Security and privacy are important criteria. No external individual may read or in any way manipulate data during transmission.

The manufacturers of IoT devices must therefore take the issue of security into ac-

count at the product development stage. Unfortunately this is not always the case.

## **Bluetooth Low Energy is one of the most important and widespread radio transmission protocols for networking in the Internet of Things. How important is Bluetooth LE security?**

Bluetooth LE is often used for direct wireless communication between a smartphone and an IoT device, for example in smart door locks, medical products or in the automotive field. Also IoT devices generally exchange information via the Bluetooth wireless transmission protocol, for instance in order to transmit sensitive data or perform security-relevant actions.

There are far-reaching consequences if cyber criminals are able to listen in or actively manipulate such radio communication. To do this hackers use vulnerabilities in the protocol or in the relevant implementation. But the development of a secure Bluetooth LE product is no small matter. The secure key exchange at the start of a connection is crucial.

## **How can companies better protect communication between wireless IoT devices?**

Companies should refrain from developing their radio-based communication in-house. It is typically easy to get round the protective measures of such implementations. This means that companies should

**Cyber security expert**  
Dr.-Ing. Michael Rademacher carries out research on topics such as secure radio communication, software-defined networking, sensor communication, radio-based wide-area networks and blockchain technologies. He works as a lecturer in the Cyber Security Learning Laboratory, where technicians and managers in industry and public administration can specialise in and update their IT security skills. The focus is on IoT security for companies.

preferably rely on standardised procedures and protocols together with a good IT infrastructure. But even here there are pitfalls. Many technologies provide good mechanisms which are not used properly or not used at all. This is where experts can help to understand the most important possibilities.

## **What general advice can you give companies on providing better protection for IoT devices?**

They must develop viable security concepts for the use of IoT devices and applications. In the past few years an increasing number of researchers have specialised in IoT security requirements. More and more tests are being carried out, resulting in insecure devices being identified and publicised. This is an incentive for companies to do more to improve the security of their IoT devices.

One interesting aspect to do with security is how a company has reacted to a vulnerability. Has it quickly identified the defect and issued an update? These then are the key criteria for use.

The basic prerequisite, however, is that there is indeed the possibility of updating the devices. This is sometimes still not the case in the industrial sphere, where devices often keep going for twenty years.

**Many thanks for an interesting conversation. (miz)**



Use case: Robotic Process Automation

# OPTIMISING BUSINESS PROCESSES



Robotic Process Automation technologies enable companies to automate many repetitive tasks. This application example shows which possibilities and advantages result from RPA.

Robotic Process Automation (RPA) systems are now becoming part of many areas in day-to-day business. They are used to support repetitive tasks that are always the same with adequate software or to replace them completely.

In purchasing, for example, RPA can compare data on purchase orders, order confirmations and delivery notes, detect deviations in delivery quantities, prices or delivery dates and inform the responsible employees independently. This relieves the professionals from often monotonous, repetitive comparison and filing activities. This is because only a small proportion of deliveries deviate from the placed orders and therefore require special attention. This example shows that RPA has the potential to improve processes not only within but also between departments, to close gaps in the flow of data and, in the process, to significantly increase not only productivity but also job satisfaction.

There are numerous other possible applications for such "digital colleagues", because a lot of processes in companies today are standardised, have to be run through more and more quickly and do not require any extraordinary special knowledge in many places.

The automation and AI solutions provider Boydak Automation estimates that at least 50 per cent of large to medium-sized companies and organisations in Germany, Austria and Switzerland already have RPA systems in use. As a rule, however, these are not yet used for all process flows, but only for individual processes with particularly high resource input.

## Benefits of low-code programming

Dealing with process automation therefore pays off – even for small and medium-sized enterprises. Especially since creating RPA so-



lutions does not usually require programming skills. "Low-code programming environments" provide a platform on which the data pools available in the company can be interconnected and the processes can be mapped intuitively with little effort. This eliminates the need for internal IT support or external consulting and configuration services completely, or at least reduces them significantly.

Applied to our example, this means that if the data on the order and the delivery note match, the invoice run can also be initiated without having to purchase a new software package and integrate it into the IT environment. Instead, professionals can use the existing low-code platform to extend the already implemented process and integrate additional data pools or interfaces.

Every extension, including the setting up of new processes, therefore takes place in the same programming environment. The tedious search, selection and implementation of new IT systems for new areas of application is no longer necessary. This has a positive effect on the implementation time and the associated costs. New maintenance contracts, licences and expenses for integration into the company's basic systems can be saved.

## Combine with Edge Computing and Cloud

RPA systems are always particularly efficient when they are used on the basis of a low-code programming environment and combined with decentralised Edge Computing and a connection to the Cloud. On

the one hand, this guarantees the required computing power and secure availability of the programmes directly at the specialist department on site, and on the other hand, the use of existing software-as-a-service from the Cloud.

If you implement such a solution, the IT infrastructure should first be adapted to your requirements and optimised with the help of a micro or mini data centre. Whether you choose an Edge, on-premise, Cloud or hybrid solution: Datwyler not only advises you on dimensioning, but also implements the required IT infrastructure solutions worldwide and also supports you after commissioning with a comprehensive range of services. On request, Datwyler can also provide you with operational management for the IT infrastructure and, in collaboration with technology partner Ventus AG, can also ensure a low-code programming environment.

## Lower costs, more satisfaction

The value of this low-code programming environment and IT infrastructure grows with each additional application. Once this basis has been created, investments for new use cases are lower. Moreover, if the working time of a routine activity is reduced by just half an hour per day through robot-assisted process automation, the RPA module can pay for itself in less than a year, according to calculations by Boydak Automation.

Companies that automate repetitive tasks not only reduce process runtimes, but also increase data quality and are able to offer better customer service. Last but not least, they free their employees from tedious routine work and thus release a lot of motivation – for exciting and creative activities, further training or even for the implementation of further RPA. (kal) ■

In-house cabling:

# SINGLE PAIR ETHERNET

## The current situation

SPE cables for structured in-house cabling and building automation have been available from Datwyler since September. Why have SPE at all? And what's next?

Space-saving Datwyler SPE  
Solid and Flex cable

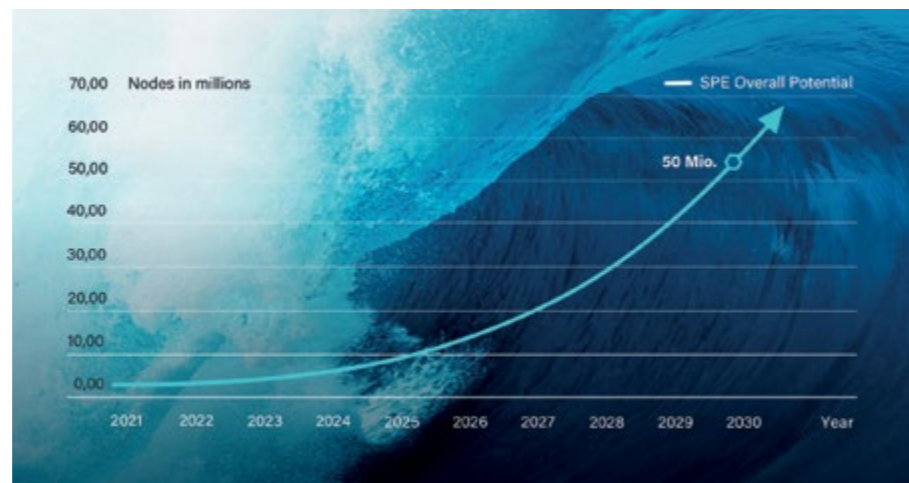
Single Pair Ethernet (SPE) is an exciting new standard for intelligent network communication. This technology allows the seamless transfer of data via Ethernet by only one pair of conductors – at up to 1 gigabit per second and with ranges of up to 1000 metres.

The development of SPE originated in the automotive industry, where it is clear to see the trend towards ever smaller and more sophisticated devices and connection techniques, for example in future technologies such as autonomous driving. In cars SPE can reduce the complexity of the cabling and significantly increase the reliability of communication by comparison with bus systems.

But SPE is also suitable for applications in machine and plant engineering, in process technology and for building infrastructure. For with SPE field devices, sensors and actuators can simply be integrated into the existing Ethernet environment at company level, i.e. into a consistent IP Infrastructure, without the need for additional gateways and interfaces to other protocols and proprietary bus systems.

### Advantages of SPE

The biggest advantage of SPE are the space-saving cables and connectors. By compari-



Potential development of SPE nodes by 2030 (Source: Single Pair Ethernet System Alliance)

son with traditional cabling systems they not only allow time-saving installation but also permit higher packing densities and the connection of more end devices in a very confined space.

With PoDL (Power over Data Line) end devices such as cameras, sensors and actuators in the field can be supplied with electric power (50 watts) via two-wire technology – even over relatively long distances.

Another interesting aspect of SPE is the use of Multi-Drop. With this technology bidi-

rectional point-to-point links to end devices are created – at a data rate of up to 10 megabits per second. For example, Multi-Drop can be used to integrate controls into the IP network or add extra functions to existing systems without the cabling requirement getting out of hand.

### Major potential

Many experts conclude that SPE has the potential to become accepted in other industries as well as the automotive industry. In 2030 50 million SPE nodes are already anticipated in plant automation

Size comparison of RJ45 and SPE jack

alone. Another important field of application will certainly be building automation. For, as has been said, SPE makes it possible to transfer the existing very differing interfaces and transmission protocols into a uniform IP-based communication.

Energy consumption must be monitored and traffic flows optimised in order to make our cities more sustainable and environmentally friendly. Here flow sensors (air, gas, water) as well as cameras and presence sensors are utilised. A reliable, robust, and high-performance infrastructure is needed to network these systems. And in wind farms and solar parks various sensors, devices and controls also have to be connected over sizeable distances.

The number of communication participants using Single Pair Ethernet will therefore significantly increase in tomorrow's "smart cities".

### Datwyler's contribution

As a member of the SPE System Alliance, Datwyler IT Infra shares its know-how, contributes to the development of new products and sees itself as a "driver" of SPE standardisation. Here Datwyler's focus is on solutions and services in the field of intelligent buildings. One core competence is the development and manufacture of high-quality Ethernet data cables, so the first SPE products for structured in-house cabling and building automation are available from Datwyler.

To start off with there are a solid cable and two flex cables with AWG 22 to AWG 26 cross-sections. Halogen-free and flame-retardant LSZH materials are used, as is appropriate for use in buildings. Datwyler can, however, also process other materials such as polyvinyl chloride (PVC) or oil-resistant polyurethane (TPU).

Processing tests with Datwyler SPE cables at Komax in Grafenau, Germany

### Successful line test

In order to be able to offer an SPE portfolio for plant automation as well, Datwyler has had two of the new cables tested for their mechanical processing by Komax in Grafenau (Germany) in the summer of 2022. At Komax the cables were processed on the "semiautomatic" Lambda 416 H-MTD – a machine well known on the market and commonly used in cable manufacture (see images above). The SPE flex cables are mechanically stripped, the shielding raised and put to one side, the foil cut and removed, the cores spread out and the latter both crimped and placed in an insulation displacement connector. The cables are then ready for encapsulation with the SPE connector.

Conclusion: "The cables could easily be mechanically stripped and reprocessed – without much in the way of sheath residues or breaks. Although Datwyler has not used filler materials, the cables remain round during processing," said Maximilian Lentner, Product Manager at Komax.

UL Certification of the Datwyler plant in Altdorf will follow shortly, cable variants with a PUR sheath likewise.

### The aim is all-in-one solutions

At Datwyler modules and connectors are in preparation for the provision of all-in-one solutions for in-house cabling and building automation, ranging from patch panels to terminal boxes. Here the focus is on the connector systems conforming to IEC 63171-1 (LC-Cu) and IEC 63171-2.

Jacks and connectors are still in the development phase. They will be combinable with Datwyler's data outlets and 19 inch patch panels.

Such an all-in-one solution – when available – will complement today's four pair Ethernet cabling in buildings. Starting from the floor distributors or from service hubs in the individual rooms, the SPE cabling can be extended into the ceilings, for example ("digital ceiling"). Additional digital end devices can be linked up to SPE, including smart LED lights, remote-controlled monitors and display panels, temperature, light and climate sensors, heating and ventilation controls, and electronic tills and self-service terminals. (ivc)

Maximilian Lentner (left),  
Product Manager, Komax,  
with Christian Fischer (centre),  
Machine Operator at Komax,  
and Ivan Corsini, Product  
Manager, Datwyler IT Infra



Data centre cabling:

# EQUIPPED FOR THE HIGH-SPEED FUTURE

New transceivers and connectors will soon be finding their way into data centres. How operators can prepare for migration or integration in good time.



A few years ago new very compact connectors for fibre optic cabling appeared on the market. These Very Small Form Factor (VSFF) connectors are marketed by the manufacturers under the names CS® and SN® (Senko) as well as MDC® (US Conec). All three are duplex connectors with two ceramic ferrules. All three allow an increase in packing density, both in patch panels and in active devices – thus saving rack space.

Compared with the LC, the CS gives the smallest gain in packing density at approximately 50 percent. MDC and SN both even permit a gain of 100 percent, i.e. double that of the LC connector, for example.

But does further increasing port density make any sense? And is the patch panel really the right place to use this huge gain in additional sockets and connectors?

## Connectors for applications beyond 100G

To answer these questions it should first be established for what the new connectors were actually developed: for future high transmission speeds of 100G applications and more in data centres, and for the native port-breakout function di-

rectly at the transceiver without multi-fibre connectors and without the corresponding fanout cable.

Within this statement there are already various bits of information of importance for the future: Other high-speed applications are being developed, some of which are already available in the data centre environment. In future the port breakout will be realised without multi-fibre connectors; and the packing density at the switch will potentially be higher than today.

A whole series of new applications are conceived – all beyond 100 gigabits per channel – particularly for use with single-mode fibres. This applies equally to the relevant transceiver types – QSFP-DD and OSFP. The IEEE roadmap also envisages an application for 100GBASE-SR2 for OM4 multi-mode fibres, and an appropriate transceiver with the CS connector is already obtainable on the market.

For data rates beyond 100 gigabits per second either the MDC or SN connector can be expected because of the density necessary at the transceiver. Today it is still unclear wheth-

er both or only one of them will make the running. At the IEC there is a standardisation project for both connectors which is likely to be finalised in 2023.

## The real question

However, anyone wanting to prepare in good time for the migration or integration of the new high-speed applications into their data centre operation should not rack their brains today over whether it is better to fit the patch panels with CS, SN or MDC. The main question should rather be whether the existing infrastructure – by which is meant cabling based on LC and MPO/MTP – is suitable for the higher transmission speeds and bandwidths.

The key factor here is the quality of the end faces, i.e. the fibre ends in the connectors, because these exert a considerable influence on the attenuation. The precision of the materials used in fibres, ferrules and guide sleeves is also important.

At data rates of up to 400 gigabits per second the insertion loss (IL) as well as the return loss (RL) also play an increasingly important role in ensuring stable transmission. Maximum

precision at all the connection points – and connection components of the channel is paramount.

## Integration in the existing infrastructure

In this respect the components in Datwyler's DCS and HD-DCS families provide an excellent basis for future applications. Datwyler also recently added to its portfolio patch cables assembled with CS, SN and MDC connectors at one end, in order to reflect the increasing transmission speeds at the densely packed switches. These adapter cables make it possible to integrate the new applications with minimal effort. Many people using a DCS and HD-DCS solution should manage this integration without even interfering with the existing cabling – while retaining the easy handling of the DCS components.

Anyone thinking of using VSFF connectors at the patch panel as well, however, should remember that the packing density would increase immensely. Despite good push-pull mechanisms the individual connectors would still be very difficult to reach and unlock – quite apart from the huge number of cables which would first have to be disentangled to gain access. (kaw)

Q-tainer:

# Computing power for THE DIGITAL CONSTRUCTION SITE

The Rhomberg Sersa Rail Group and Datwyler IT Infra optimise construction site management.

A classic container as a source of 5G and WLAN and hence as a foundation for a digital network on construction sites: this is the idea underlying the “Q-tainer”. The developers of this solution – Datwyler IT Infra and the Rhomberg Sersa Rail Group (RSRG) – are currently trialling an initial specimen of the AI construction site container. To do this they are using the Rheintal Resource Centre (RCR) of the Rhomberg Group, which owns 50 percent of the RSRG.

Resources for the Rhomberg Group’s building sites and railway construction sites are extracted, recycled and reprocessed in the quarry and on-site recycling centre. Every year hundreds of thousands of tonnes of material are moved there, providing an ideal environment for investigating everything the Q-tainer is capable of and how high-tech via plug-and-play would operate on a conventional construction site in future.

The objective of the Q-tainer testing phase is a system which among other things automatically identifies which routes are mostly taken by construction vehicles, where there is a risk of collision with pedestrians, or even whether the people on site are complying with safety regulations and, for instance, are wearing helmets and high-visibility vests.

Another benefit are AI-based procedures for automatic inventory management. Thus, for instance, the amount of sand and gravel currently in stock can be recorded. The system can also monitor consumption, taking into account the scheduling of construction progress for the following days.

Whoever continually collects and interlinks these and other data can close security gaps, reduce injury and downtime, manage resources and divide these optimally between the various firms on site. In the best case expensive machinery will only be supplied once and the firms involved will settle up in accordance with its use, as in car sharing. Digital construction site management automatically detects which individual from which company is using the excavator and for how long, and independently bills this period of use to the relevant firm.

## Computing power needed

The implementation of such use cases calls for a great deal of computing power, fast

response times and large bandwidths in data transmission. This is the only way to ensure rapid and reliable availability of data and the information derived therefrom.

With a cloud approach and an internet connection all these requirements cannot be met without a substantial outlay. Many construction sites do not enjoy perfect connectivity.

The idea is therefore to bring a data centre to where the action is, right on the construction site. This is known as “edge computing”, because data processing takes place decentrally, at the edge of the network.

That is where Datwyler comes in. Datwyler has installed the requisite solutions in the Q-tainer, the standardised all-in-one system for data collection and analysis on construction sites. It includes computing power and storage capacity, pre-installed by Datwyler in a mini data centre in the 20 foot standard container – together with cooling, power supply and a monitoring system which continuously monitors the functioning of the equipment.

Datwyler assembles the Q-tainer including all the equipment, takes on the on-site installation, connection to the data network and operation as a whole. All that is needed for a connection on-site is a 3-phase power



Using drone images among other things the system records movement profiles and load sizes of the construction machinery in the RCR.

supply and an Internet link via cable or mobile radio.

## Other use cases required

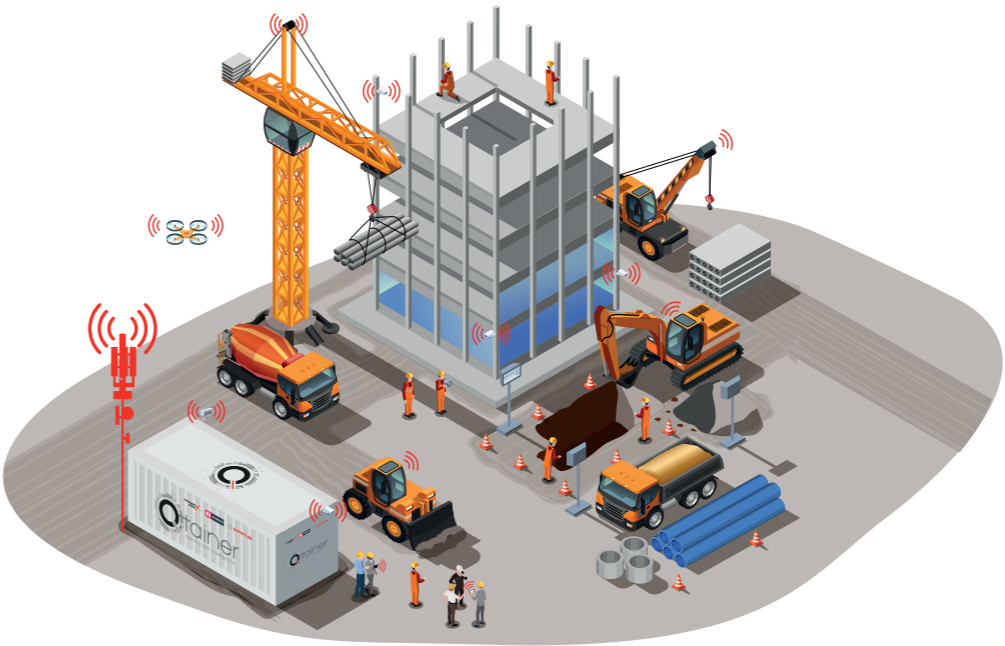
At the moment there is constant coming and going on the “test site” in the Rhomberg Group Resource Centre. Initial use cases are being defined and implemented at the hardware and software end by both companies. Data are generated and AI-based systems trained, either directly on site or remotely

from RSRG head office. By the end of the year extensive experience will have been gained from the quarry. This will then enable Rhomberg to make a larger roll-out, including on third party construction sites.

A second Q-tainer is already being developed in parallel for a tunnel construction site. The experience gained from the RCR will be augmented there by other use cases, as the system is designed to grow continuously and raise the potential for as many efficiency gains as possible on construction sites.

Rhomberg Sersa and Datwyler IT Infra would like to invite interested companies to collaborate with them. The Q-tainer is of modular construction and can always be adapted to new circumstances and requirements. It is designed so that not only can data be exchanged with other firms, but also so that computing capacity can be made available in a separate protected environment – in other words in the Q-tainer – so that in-house use cases can be displayed.

The data from various use cases and construction sites are anonymised and combined, and train the system as a whole. This means that the Q-tainer is constantly learning and thus accelerating the digital transformation of the construction industry. (kal/stv)



The Q-tainer: on the outside a standard construction site container, on the inside an all-in-one system for data collection and analysis on construction sites.

# Industrial Ethernet cables: FOR HARSH INDUSTRIAL ENVIRONMENTS

With DatProfi, Datwyler is offering a new cable portfolio for industrial automation in China.

Ethernet technology is becoming increasingly important in manufacturing and other industrial environments. Companies have recognised that this technology not only leads to cost savings, but that it also improves transmission performance and enables more efficient operations. This recognition has led to a growing demand for Industrial Ethernet cables – also in China.

With the new DatProfi cables, Datwyler in China has recently been offering very reliable and high-performance cables for data transmission in harsh industrial environ-

ments. These are extremely robust Profinet cables for industrial automation, which also guarantee maximum reliability, quality and performance.

## Convincing features

The new data cables are available in six different designs that cover the different requirements of the users. They offer excellent shielding and stable star-quad stranding – and meet all the requirements for interference-free transmission over distances of up to 100 metres. Of course, all DatProfi cables are oil and UV resistant. Op-

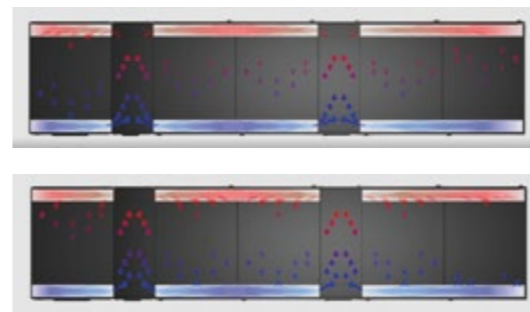
tionally, they are available in low-smoke, zero-halogen versions that meet all environmental standards.

Datwyler will soon launch other cabling products for industrial applications in China, including communication and control cables, sensor cables, connectors and more. The declared goal is to develop high-quality and at the same time competitive products that meet the needs of users – be it in mechanical engineering, automotive production, logistics, the oil and gas industry or paper production, for example. (jow)

Data centre solution:

# MODULAR AND INTELLIGENT

Ideal for edge computing architectures: a “Smart Modular Data Centre” solution from Datwyler Middle East.



Hot aisle and cold aisle containment: warm and cold airflows in a row of racks with two slim side coolers

The new data centre solution from Datwyler Middle East includes power supply, cooling, fire detection and fire fighting, physical equipment, physical security, the monitoring of environmental conditions, and a pre-assembled data centre cabling system – and is fully compliant with international standards.

The installation of a “Smart Modular Data Centre” takes no more than a couple of days, including testing and commissioning. Thanks to its modularity and redundancy functions it is possible to configure single-rack, multi-rack or even multi-module data centre solutions. The system can be expanded by plug-and-play, i.e. without incurring downtime.

## Optimum energy efficiency

In each of these solutions the cooling air supplied at the front and the warm air dis-

charged at the back are clearly separated. Hot aisle containment (HAC) and cold aisle containment (CAC) are therefore contained in a completely closed system. This technology results in a PUE value (Power Usage Effectiveness) of only 1.3 – and significantly reduces the CO<sub>2</sub> footprint. By comparison, traditional data centres have a PUE value of 2.5 and over as a rule. This solution is also “smart” inasmuch as it can be fully monitored and controlled locally or remotely from a single switching point – irrespective of whether it is installed at one or more locations.

The “Smart Modular Data Centre” solution was developed specially for Edge Computing architectures. It forms part of Datwyler’s comprehensive portfolio, which supports the digital transformation of companies worldwide. A modular data centre solution like this one is suitable not only for small companies, but also for large ones with branches at various locations.

Datwyler’s intelligent service platform helps users simplify their IT management by networking sites and reducing administrative complexity. (ihg)



The Datwyler solution makes it possible to configure even multi-module data centres.

DatSentinel DC 3000:

# A DIGITAL EXPERIENCE

With its modular data centre solutions, Datwyler in China addresses the small and medium-sized data centre market.



With the entry into an intelligent age and with advanced technologies such as Industry 4.0, AI, 5G and “digital twin”, people’s daily life and work have changed in an almost disruptive way. Smart devices are everywhere and they generate vast amounts of data. Autonomous driving and the “Internet of Everything” have made the data grow geometrically.

The IT service infrastructures are faced with higher requirements – in terms of performance, functionality and digital manage-

ment. More and more companies are willing to invest in intelligent service and in digital transformation, which in turn is driving the rapid development of data centres and edge computing.

Based on many years of understanding the market, Datwyler is providing its customers in China with the DatSentinel DC 3000, a modular data centre solution that is specially tailored to the small and medium-sized data centre market. It meets the growing needs of enterprises and the Edge Computing indus-

try for solutions that can be deployed faster than a traditional data centre, and are far less complex to operate and maintain.

## Prefabricated complete solutions

The overall architecture of these data centres is modular and standardised. Datwyler provides users with a customer-specific, prefabricated IT infrastructure solution that includes, among other things, intelligent power supply and distribution and energy-efficient cooling, and that meets all common data centre security requirements.

## DCIM system

In addition, it comprises the software for data centre infrastructure management (DCIM), which makes operation and maintenance of the overall solution a “quality digital experience”.

The DCIM system enables centralised monitoring and intelligent management with 3D visualization of all relevant data and information – be it for a data centre on site or in the cloud for a multi-site data centre. *(mew)*

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