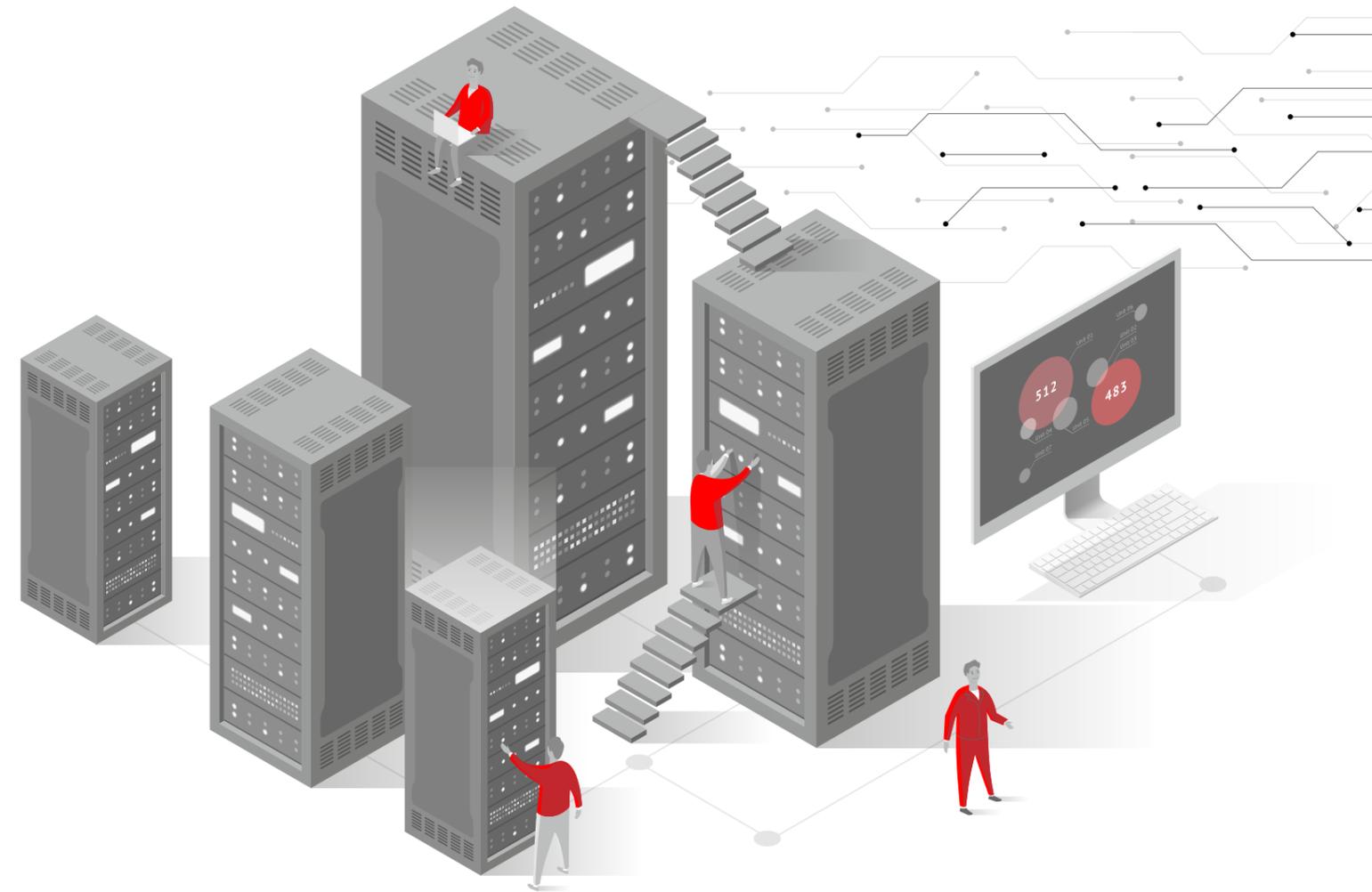


# COMPREHENSIVE SOLUTIONS FOR DATA CENTRES

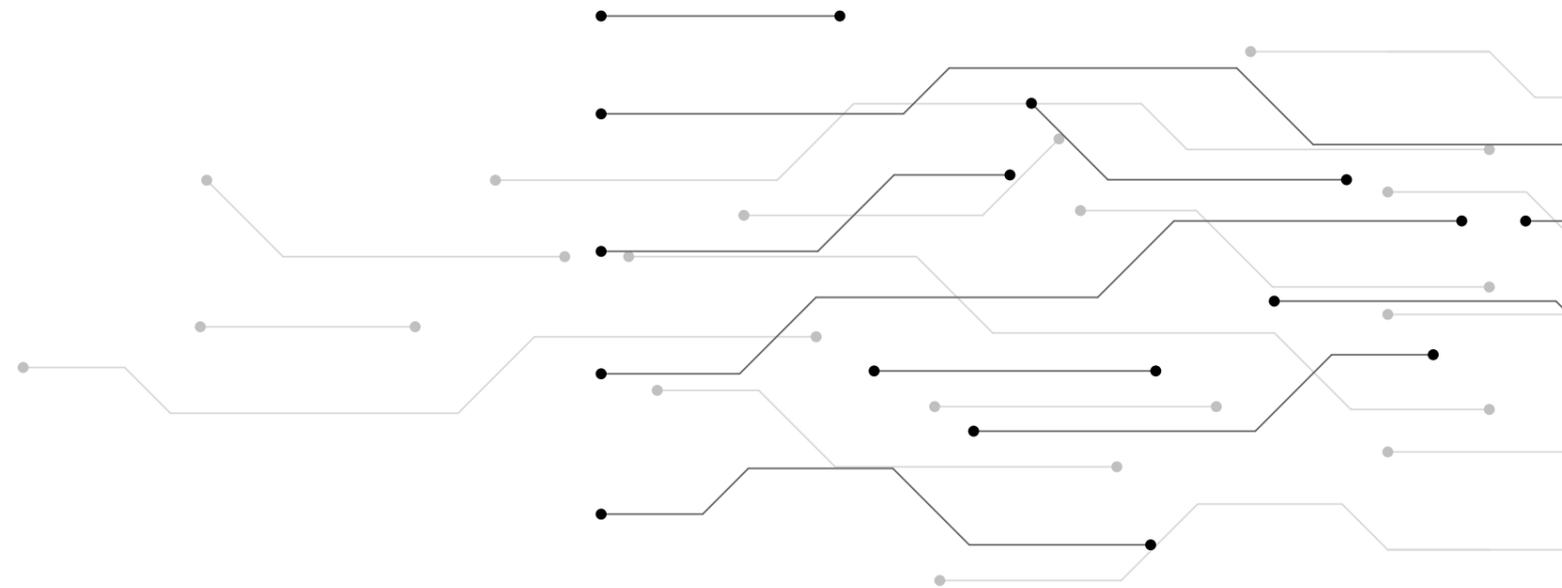
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*„Data centres are to many industries like the banking system for finance”*



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- » The five key aspects of Mitsubishi Electric's data centre solution
- » Sustainable performance in data centres
- » Reduction of operating costs
- » Flexible use of space
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- » Advantages of our solutions
- » Proven solutions for data centres
- » Conclusions



# THE FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTION

Mitsubishi Electric's solutions and offers for data centres were built on the strong foundation of years of experience working with clients from various sectors. For decades, we have supplied industrial automation and robotics, electric motors and their accessories, power distribution systems, as well as their components and equipment.

Tangible and measured benefits have been provided to clients through thorough further analysis. We are aware that every investment needs to have a clear and beneficial outcome which translates as increased efficiency and reliability, improved service quality and lowered operating costs.

**That is why we have developed an effective, state-of-the-art data centre management system (DCIM) together with the equipment and components that go together with it.**



## FIVE TOP PRIORITIES BY WHICH WE WERE GUIDED IN THIS PROCESS:

- a sustainable performance
- operating cost reduction
- flexible usage of space
- a total solution
- achievements and reliability



# THE FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTION



## FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTIONS

# THE FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTION

## A SUSTAINABLE PERFORMANCE

The key priority for us is sustainable performance. Building data centres characterised by low energy consumption which is possible and profitable, further improves energy efficiency in relation to cooling systems, elevators, UPS and other equipment. Our management systems monitor and visualise energy consumption, making it easier to implement environmentally-friendly processes and ensure their effectiveness.

## OPERATING COST REDUCTION

Energy-efficient ventilation and cooling system components reduce costs of electricity use, as well as maintenance and repair. The new solutions are more efficient, reliable and offer longer mean times between failures.



# THE FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTION



## FLEXIBLE USAGE OF SPACE

The third priority is the efficient use of available space and other data centre resources. This can be achieved by using modular design for the critical infrastructure including flexible containerised solutions, including rack cooling. Modular construction means easy expansion of the infrastructure exactly where it is needed.



Do you want to learn more about data centres? Watch our podcast: **Data Centre: Where data lives?**



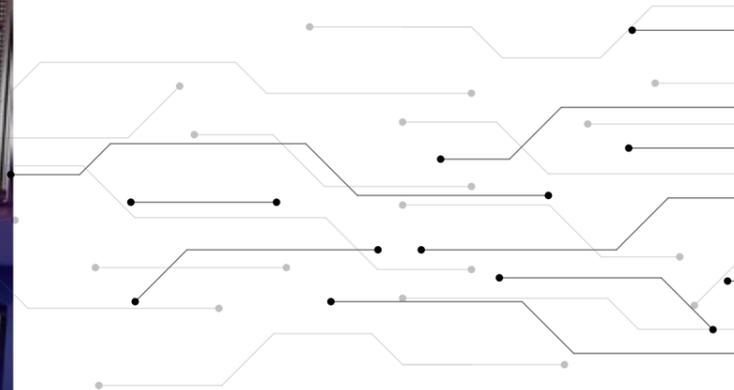
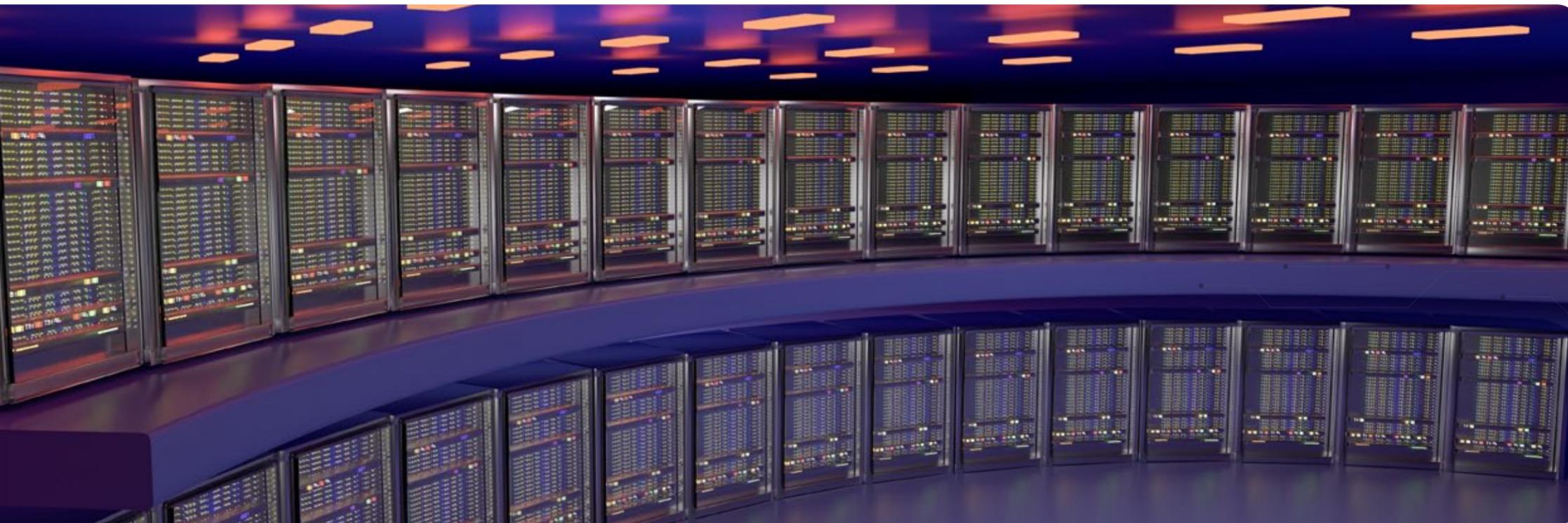
# THE FIVE KEY ASPECTS OF MITSUBISHI ELECTRIC'S DATA CENTRE SOLUTION

## A TOTAL SOLUTION

The fourth priority is to provide comprehensive, end-to-end solutions. We support our clients at every stage of data centre construction and operation – from designing to equipping with energy-efficient equipment and components, all the way to managing and optimising their operation.

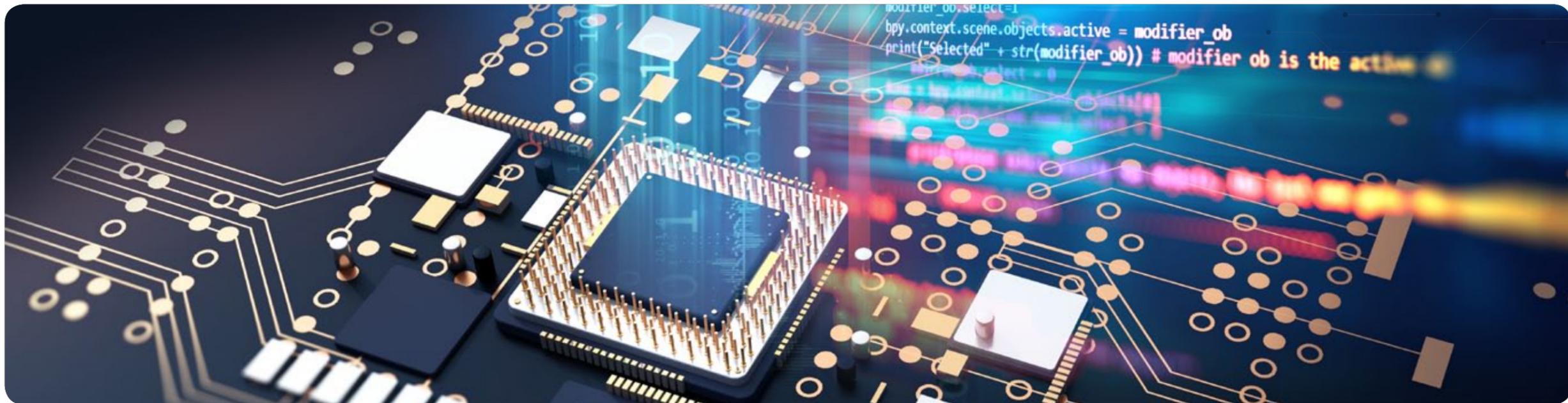
## ACHIEVEMENTS AND RELIABILITY

The final priority is to share our experience and knowledge. We have implemented our solutions in many data centres around the world, and we are constantly gathering and analysing data and experiences from each case and project, regardless of the scale and purpose. They enable us to effectively support our clients with products and services for data centres.



# SUSTAINABLE PERFORMANCE IN DATA CENTRES

All the hardware that constitutes the IT infrastructure of a data centre converts most of the energy it consumes into heat.



## THE NEED FOR EFFICIENT COOLING

Despite numerous attempts, building microprocessors and other chips (GPUs, RAM) that do not require additional cooling during heavy processing has proved to be impossible. What is more, with the increasing demand for computing

power the energy consumption and amount of heat output also grows.

In a typical data centre, there are tens or hundreds of thousands of devices that require heat dissipation, because the prolonged operation of electronic equipment at a too high temperature may lead to premature failure.

Dissipating such a large amount of heat is only possible by forcing the circulation of the cooling medium, usually air or water, using pumps or fans, which are all driven by electric motors that are among some of the most energy-intensive components in data centres.

# SUSTAINABLE PERFORMANCE IN DATA CENTRES

## HOW TO REDUCE THE ENERGY CONSUMPTION OF ELECTRIC MOTORS?

The first step to making these systems more power-efficient is installing modern, energy-efficient motors. **Mitsubishi Electric offers an extensive selection of solutions, developed based on decades of experience and expertise.**

Efficient motors are not the only solution – proper motor controllers can also aid in the pursuit of this goal. Refrigerant circulation does not always have to be uniform. On colder days, heat is more easily dissipated into the ambient air, which means that fans can run at a lower speed.

**Mitsubishi Electric inverters make this possible, as they enable the soft start of the motors under load, as well as setting the optimal speed and torque.**



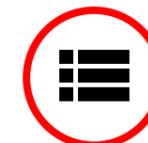
# SUSTAINABLE PERFORMANCE IN DATA CENTRES



Managing cooling systems featuring a large number of components such as pumps and fans working together is made easy with **Mitsubishi Electric's PLCs**. In complex environments, **our industrial computers** can be deployed instead. What is more, all the elements of the system can exchange data via a BACnet® (Building Automation Control Network) – **Mitsubishi Electric provides all the required hardware and software to enable this feature.**

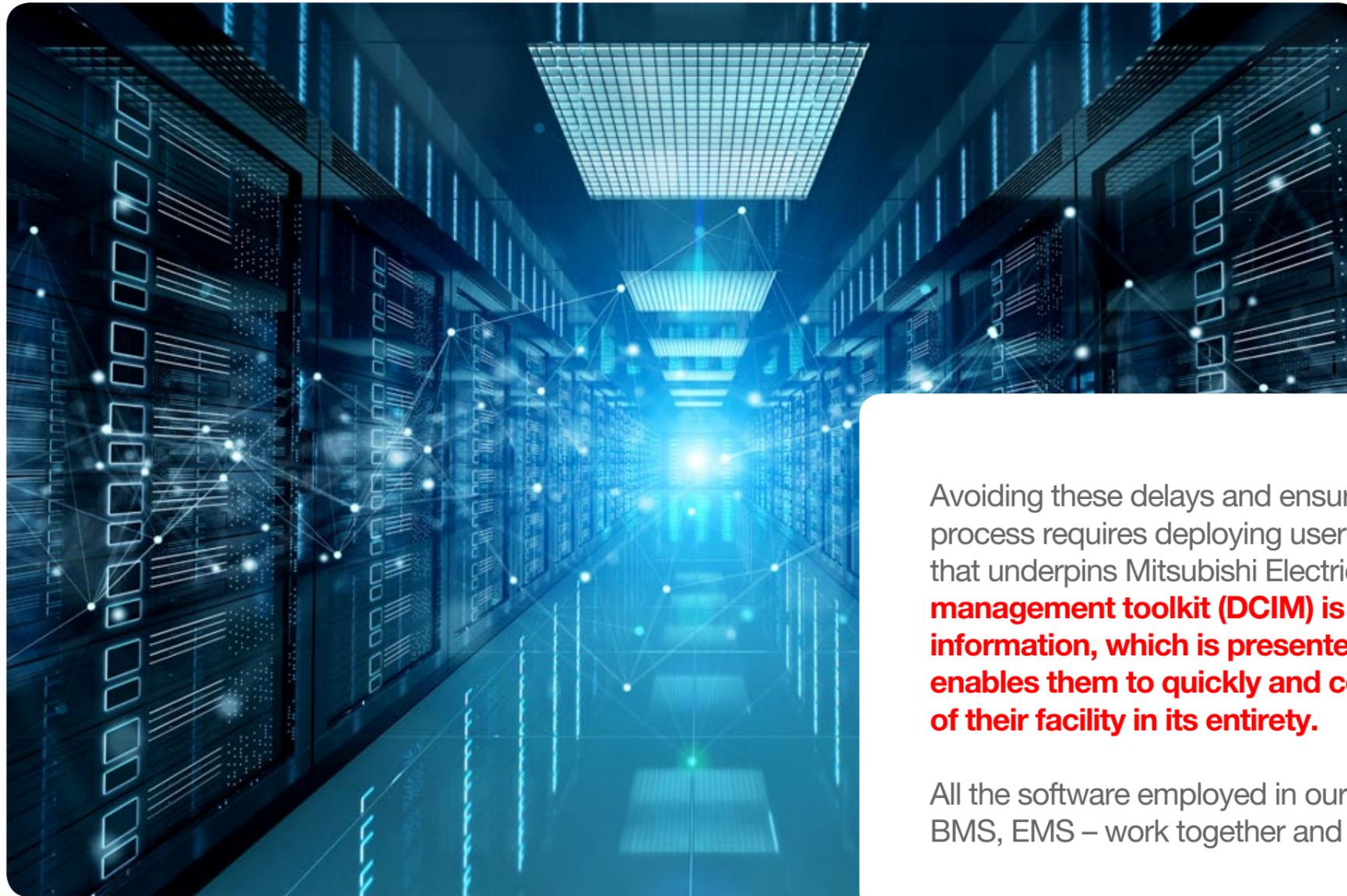


Do you want to learn more about data centres? Watch our podcast: **Data Centre: Where data lives?**



# REDUCTION OF OPERATING COSTS

The sheer size of a typical data centre, the number of devices it contains and the amount of heat that needs to be dissipated make managing the whole ecosystem a complex task, which means that in many cases the response to issues is delayed. This often leads to increased energy consumption, as well as worsening operating conditions of the IT infrastructure.



Avoiding these delays and ensuring more efficient decision-making process requires deploying user-friendly tools. This is also the rule that underpins Mitsubishi Electric's philosophy – **our data centre management toolkit (DCIM) is a one-stop shop for all the key information, which is presented to the operator in a way that enables them to quickly and conveniently see the current status of their facility in its entirety.**

All the software employed in our solutions – [iCONICS DCIM](#), [SCADA](#), BMS, EMS – work together and exchange data.

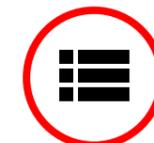
# REDUCTION OF OPERATING COSTS

## FLEXIBILITY AND OPEN PROTOCOLS

The software that ensures the communication of DCIM tools with individual meters and actuators is universal and robust. We recommend using Mitsubishi Electric solutions, but our software also supports heterogeneous environments and various other vendors, which means that it will work with PLCs and system components developed by other manufacturers, as long as they support one of the many data transmission protocols enabled in Mitsubishi Electric's software, such as OPC, BACnet, Modbus and SNMP.



Do you want to learn more about data centres? Watch our podcast:  
**Data Centre:  
Where data lives?**



# REDUCTION OF OPERATING COSTS

## NECESSARY MINIMUM EQUIPMENT

Data centres are large facilities with areas in the thousands of square metres. Large distances mean running many kilometres of cables to connect cooling system devices, temperature sensors, PLCs and modules measuring energy consumption. More cables mean higher costs, additional points of failure and more labour-intensive installation. They also occupy valuable space that could otherwise be used to further develop IT network infrastructure.

Mitsubishi Electric's data centre solutions reduce the number of additional connections to an absolute minimum, which is the most cost-efficient option.

## THE USER-FRIENDLY INTERFACE TO THE TOOLS FROM MITSUBISHI ELECTRIC ALLOWS TO

**examine** the status of systems and individual devices more closely

effectively **control** electricity receivers

**check** the level of current electricity consumption

# REDUCTION OF OPERATING COSTS

## EFFECTS OF INEFFICIENT COOLING OF DATA CENTRES



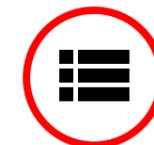
**reduced computing speed**



**irreversible damage to components**



**faster wear and tear of equipment**



# FLEXIBLE USE OF SPACE

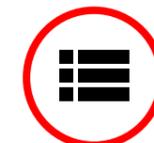
The aim of the data centre is to provide IT services. In each case, the operator faces the need to adapt its resources to ever-changing business needs, which usually requires using additional areas.

These changing needs might result in an increase or decrease in the space occupied by the data centre.

Any upscaling usually requires the installation of new rack cabinets, loading them up with equipment and cabling, as well as connecting them to cooling and power supply systems. In the case of downscaling, the opposite has to happen – after emptying the area, some of the systems that previously supported the hardware have to be disabled or turned off.

In a perfect situation, this newly-emptied space should not generate any additional costs in terms of thermal management and HVAC systems; however, this is only possible if the design of the data centre enables the separation of the rooms and installations into zones that can be used or isolated at will.

**This is what is called a modular data centre concept.**



# FLEXIBLE USE OF SPACE

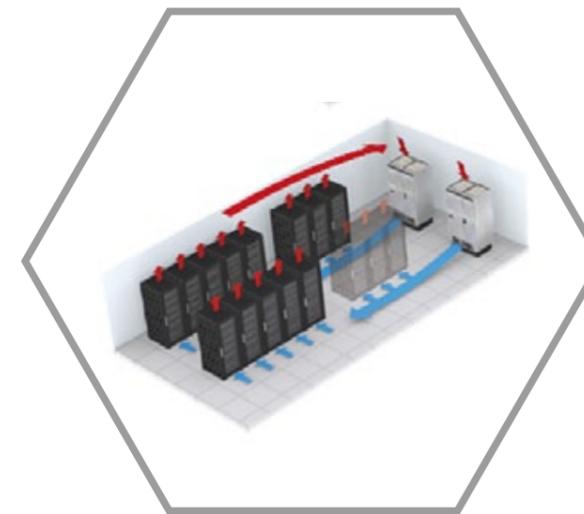
## MITSUBISHI ELECTRIC'S SOLUTIONS – SPACE FLEXIBILITY



**HVAC modular design  
enables flexible  
installation depending  
on room layout**



**high-performance  
reduces initial  
occupation space**



**overall compact  
footprint enables  
modularity  
and expansions**

# FLEXIBLE USE OF SPACE

The modules, which constitute complete and functional units, can be freely moved between zones. If energy and cooling demand increases in any zone, it can be met by installing more modules.

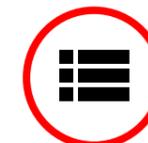
**Mitsubishi Electric offers many solutions of this kind, with modular design ensuring their flexibility and catering to the expectations of clients.**

The fact that individual modules take up the smallest amount of space in the data centre is hardly insignificant. In fact, it is very important because from the point of view of cost efficiency, the space earmarked for the additional equipment is one of the major cost drivers.



Do you want to learn more about data centres? Watch our podcast:  
**Data Centre:  
Where data lives?**

**The DCIM software offered by Mitsubishi Electric is also tailored to support these modular systems, with tools enabling the dynamic addition or deactivating of energy use meters, as well as carrying out a quick, automated inventory of devices, ensuring full visibility into the operations of a data centre. This means that the operator has constant access to up-to-date information, which is essential for making the right business decisions.**



# ACHIEVEMENTS AND RELIABILITY

Undetected and unmitigated failures, faults and non-compliance are something that have no place in a data centre, since every single overlooked anomaly can quickly snowball out of proportion into a long downtime.

Even if a fault does not lead to permanent damage, disrupting the availability of systems covered by a stringent service level agreement (SLA) requirements could be very costly, with the major loss being that of customer confidence.

## DCIM SYSTEMS FOR DATA CENTRES

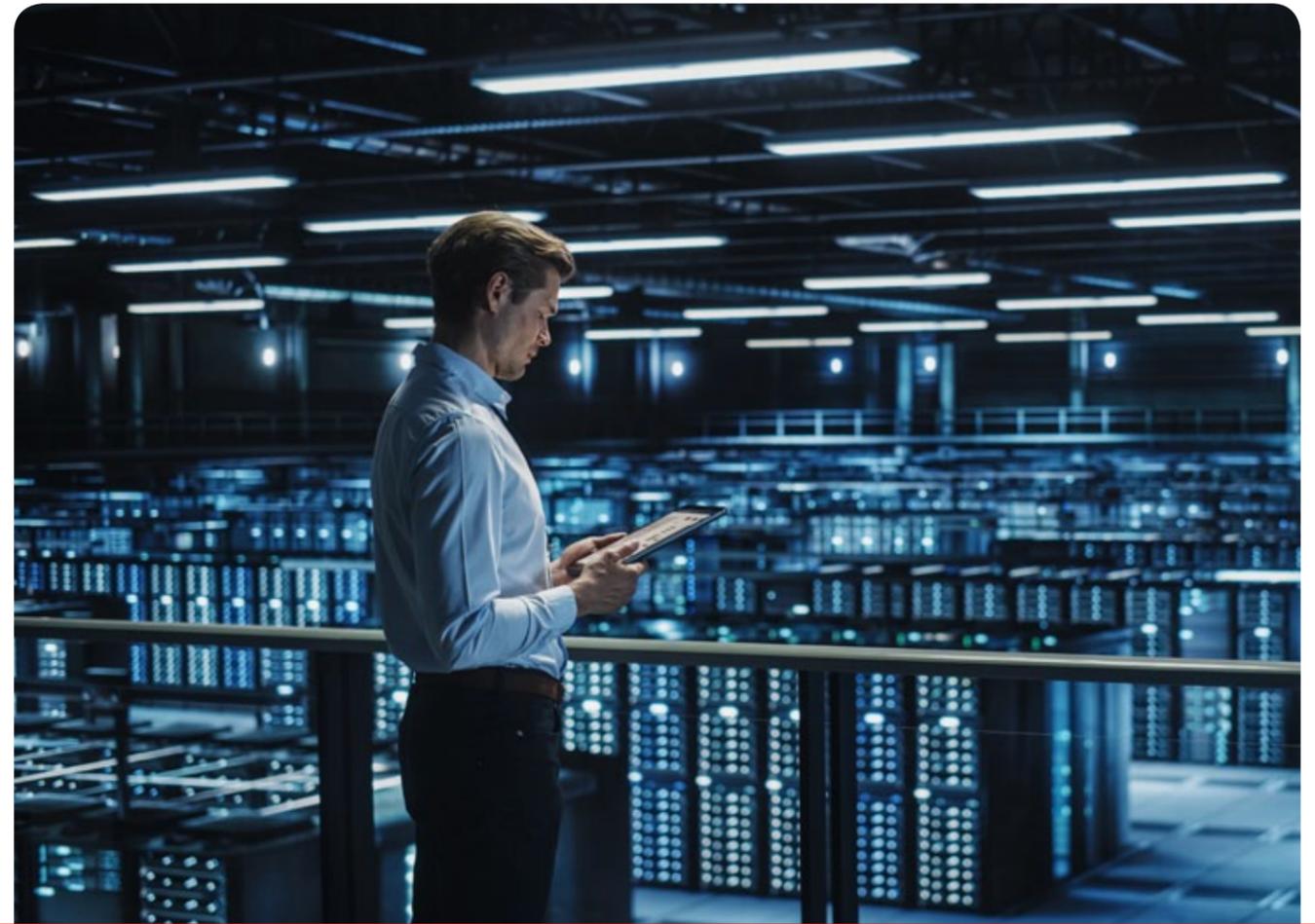
To ensure that this situation does not happen, we focus on the reliability of our solutions. The DCIM systems made by Mitsubishi Electric are based on a redundant infrastructure. The safety of the data centre is ensured by DCIM servers operating in production mode and back-up servers that take over management of the system in the event of a failure of the main ones.



# ACHIEVEMENTS AND RELIABILITY

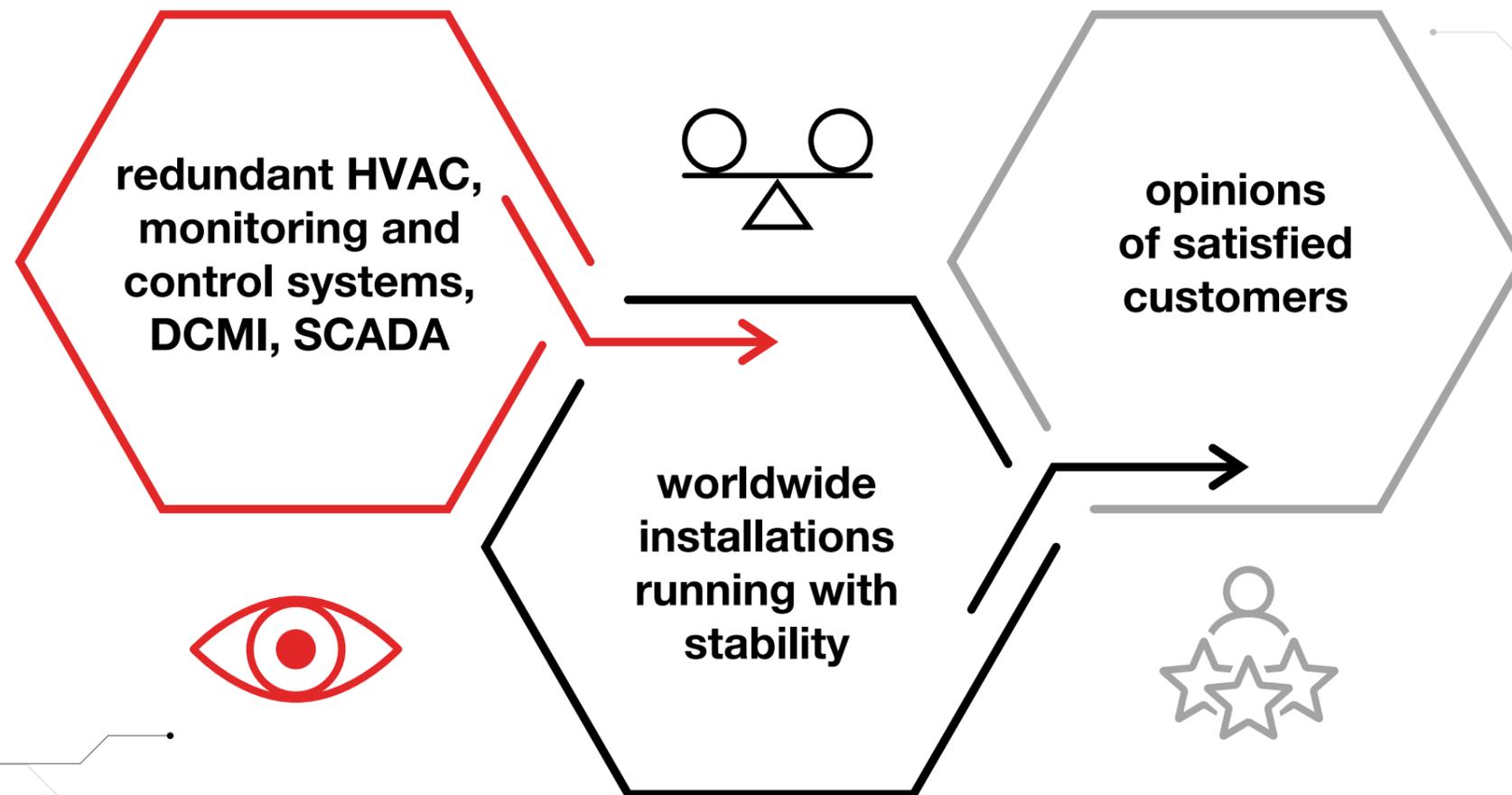
**The GENESIS64 SCADA software, which is the backbone of Mitsubishi Electric's DCIM solution, has a long-standing history of reliability and effectiveness in a variety of industries.**

In addition to redundant servers, redundant network infrastructure can also be deployed. The built-in monitoring mechanisms enable SCADA system failures to be identified and pinpointed in an instant.



**The deployment of DCIM in existing data centres is made easier thanks to its support for multiple network types and data transfer protocols, including the CC-Link IE, which enables the controlling of components manufactured by Mitsubishi Electric, including PLC controllers. If needed, Modbus or BACnet networks can also be used.**

# ACHIEVEMENTS AND RELIABILITY



## QUALITY AND RELIABILITY

At Mitsubishi Electric we are committed to quality and reliability at every layer of our solutions.

Our components are equipped with cable mounting clamps enabling quick deployment with little experience and without specialised tools. This translates into reducing the time required to deploy the solution, eliminating errors and simplifying the maintenance process.

One of the unique features of the **GENESIS64** system is its ability to work with any device displaying graphical data: computer displays and dashboards (such as **GOT2000**), as well as wearables.

# ADVANTAGES OF OUR SOLUTIONS



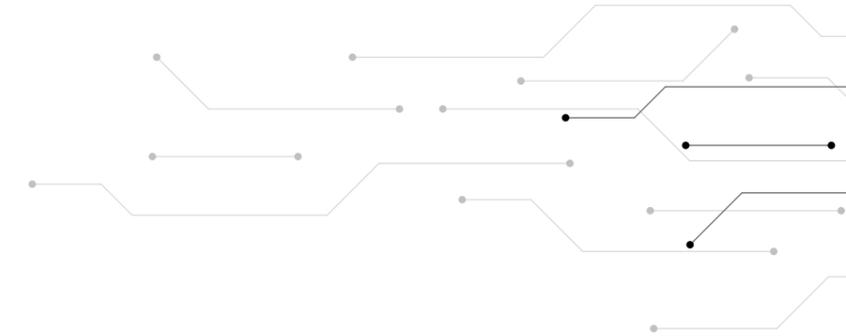
Mitsubishi Electric is one of the most experienced providers of solutions for data centres. **DCIM (Data Centre Infrastructure Management)** solutions are based on years of insights, research and consultation with clients. The advantages of these state-of-the-art solutions include safety, advanced technology, innovation, versatility and reliability.

## SECURITY

Mitsubishi Electric's software and equipment, such as PLC controllers, undergo safety audits on a regular basis. Any vulnerabilities and issues reported by users are immediately addressed and resolved.

## STATE-OF-THE-ART SOLUTIONS

We keep a close eye on the market and constantly analyse the needs and wants of our clients so as to meet them by offering technologies and solutions that are in line with current industry requirements. Producing high-quality products and continuous improvement continues to yield excellent results.



## ADVANCED TECHNOLOGIES

Our DCIM software suite and the supported hardware use technologies that deliver the best results – AI, open data protocols, high-quality electronic components and advanced security systems.



# ADVANTAGES OF OUR SOLUTIONS

## INNOVATION

Our DCIM suite features custom-made solutions developed by top-of-the-line developers, as well as our IT partners. Our engineers continue to look for answers to long-standing questions. So far, this has resulted in boosting processing without the need to deploy more powerful computing platforms, which allows our AI-enabled software to be run on relatively simple devices, such as laptops and GOT2000 panels.

## VERSATILITY

The philosophy behind our DCIM solution envisages that a single tool should be able to solve multiple problems. Mitsubishi Electric's engineers have succeeded in building a single user interface for system monitoring, equipment control and historical data analysis. Eliminating the need to switch between different systems improves the efficiency, comfort and security of supervised data centres.



## FLEXIBILITY

Our software can be effectively deployed in any data centre environment, including collocation facilities, cloud environments and other kinds of facilities.

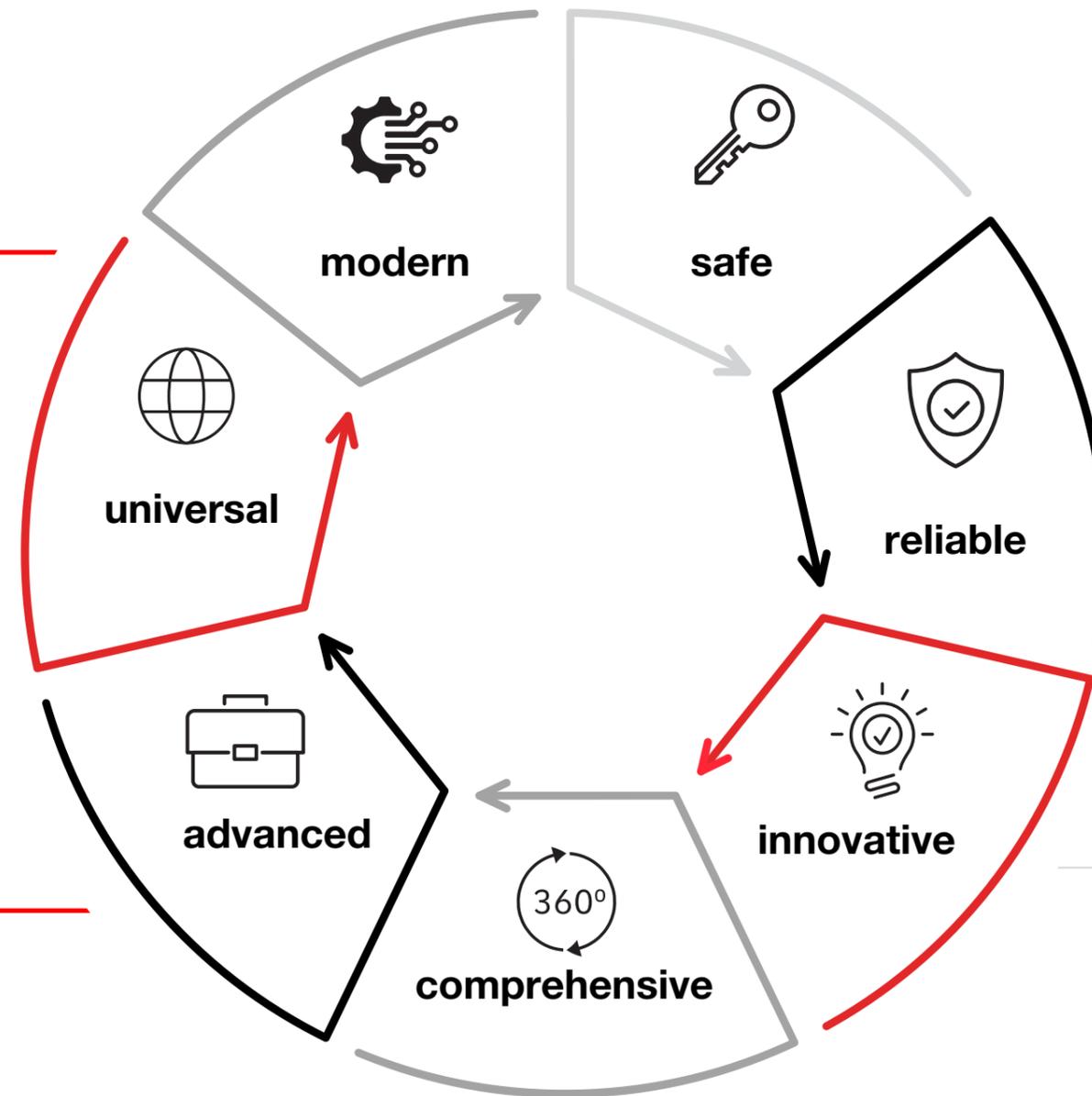
## RELIABILITY

Redundant servers, as well as support for multiple data transmission protocols and network standards, guarantee constant control even in the event of a fault. Easy access to spare parts and the well thought-out design of the equipment and software facilitate a quick service response.



# ADVANTAGES OF OUR SOLUTIONS

## ADVANTAGES OF OUR SOLUTIONS FOR DATA CENTRES



# PROVEN SOLUTIONS FOR DATA CENTRES



Mitsubishi Electric's comprehensive solutions for data centres enable the monitoring, control and analysis of the operation of all major systems.

Our solutions are able to show these complex relationships between various systems using a shared, consistent interface. The full range includes software tools and hardware drivers for:

- managing the diesel engines of backup generators;
- low- and medium-voltage switchgear;
- **modular and scalable UPS systems;**
- components for control, monitoring and measurement systems;
- DCIM, SCADA, EMS, BMS software;
- **IT infrastructure cooling;**
- **visualisation and control systems.**



**We employ universal standards (such as SCADA) and expand them to ensure the most benefit in the specific data centre environment.**



Do you want to learn more about data centres? Watch our podcast: **Data Centre: Where data lives?**



# PROVEN SOLUTIONS FOR DATA CENTRES

## MITSUBISHI ELECTRIC SOLUTIONS FOR DATA CENTRES



**IT cooling  
solutions**



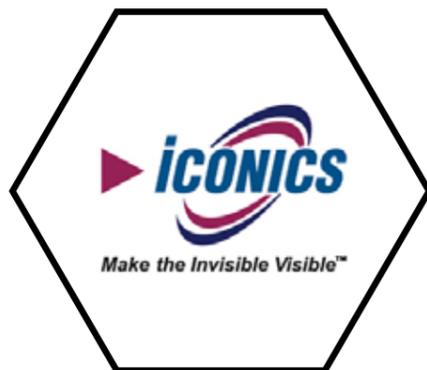
**generators**



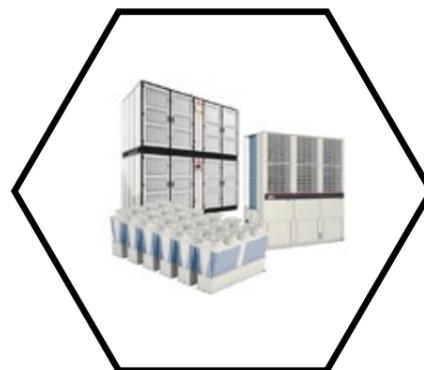
**monitoring & control  
equipment**



**medium voltage  
switchgear**



**DCIM, SCADA,  
EMS, BMS  
Software**



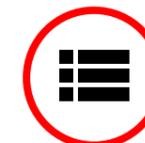
**containerised  
solutions**



**low voltage  
switchgear**



**modular, scalable  
UPS solutions**

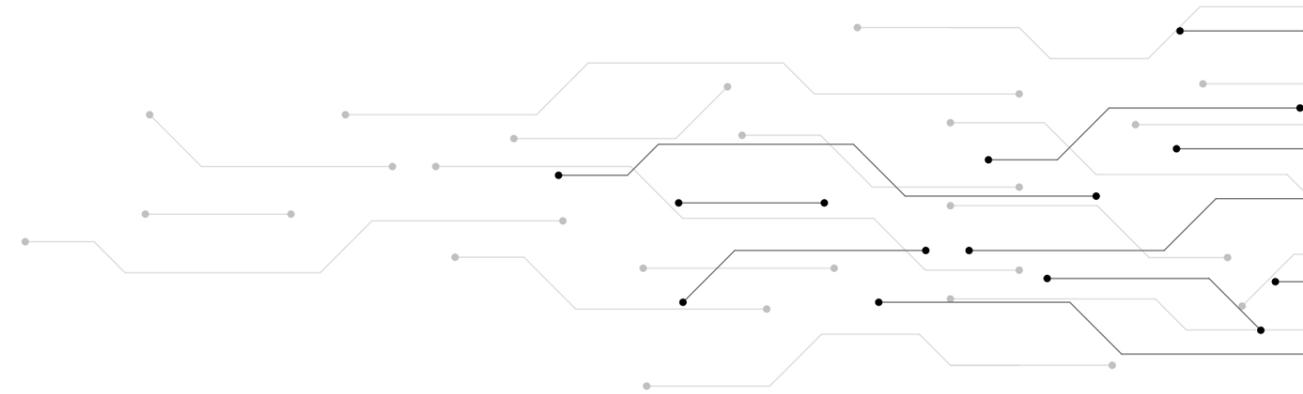


# PROVEN SOLUTIONS FOR DATA CENTRES



## PREDICTIVE MAINTENANCE

Mitsubishi Electric has long-standing experience in deploying predictive maintenance tools that enable the analysis of equipment performance and detection of early signs of wear and tear on machines and their components. A consistent use of this approach enables the scheduling maintenance at convenient times, before a failure strikes.



## REAL-TIME ANALYSIS

Real-time monitoring and control of all systems yields numerous benefits in an emergency situation. Dealing with the effects of a natural disaster, fire or attack is easier with proper insight into the ongoing situation. With our tools, engineers always have a complete and up-to-date picture of the entire data centre – they are even able to take a quick inventory of available assets and their status.

**Mitsubishi Electric's systems are flexible and scalable.** They make it possible to optimise resource utilisation and energy consumption while ensuring the safe operation of the IT infrastructure.



# CONCLUSIONS

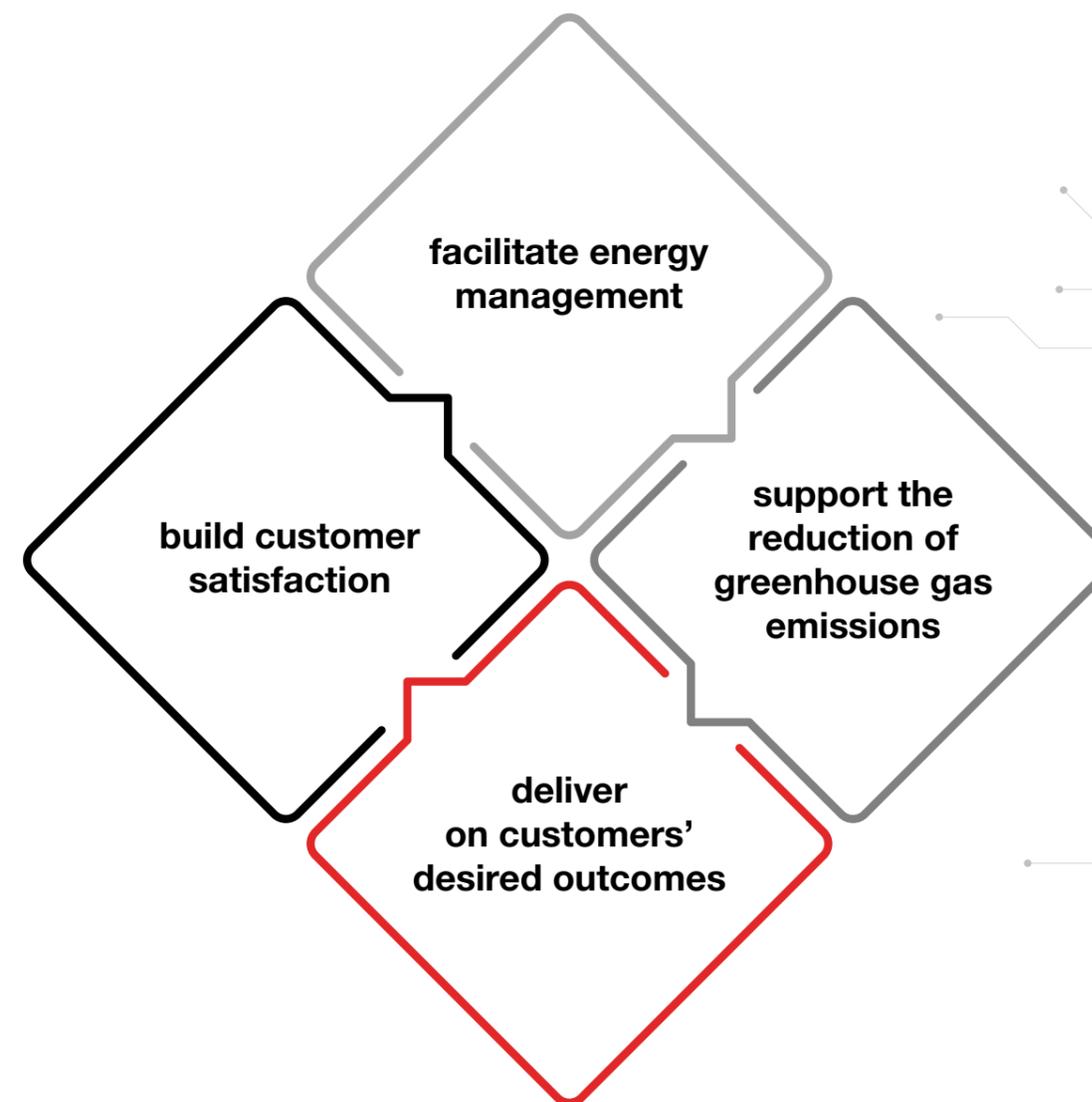
Mitsubishi Electric has been supplying high-quality equipment to industry and end users since the early 20th century. One of our main areas of focus is manufacturing industrial automation components, low- and medium-voltage power and cooling systems, as well as industrial robotics.

Data centres are a relatively new market, in which traditional technologies are being used in new and original ways. This fits perfectly with our perspective on the world of technology and industry.

We build new equipment and solutions on a solid foundation. We have a holistic view of the data centre and see that many issues that are connected with providing optimal conditions for IT infrastructure have many things in common with other areas and fields.

Using our experience in overseeing and ensuring the continuous operation of complex, distributed industrial automation systems, we also design **DCIM (Data Centre Infrastructure Management)** solutions.

## MITSUBISHI ELECTRIC SOLUTIONS FOR DATA CENTRES



# CONCLUSIONS

At Mitsubishi Electric we believe that one-stop shops that enable the controlling of multiple systems from one place are the optimal solution, since they increase comfort for the engineers responsible for the proper operation of the data centre, speeding up the retrieval of critical information and eliminating the risk of losing valuable data.

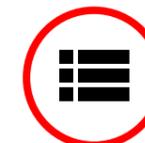
**Our philosophy** of easy access to information makes it possible to read important alerts and take immediate action, no matter the circumstances. These tools greatly enhance the efficiency of engineers, who are always on hand to advise and assist our clients.

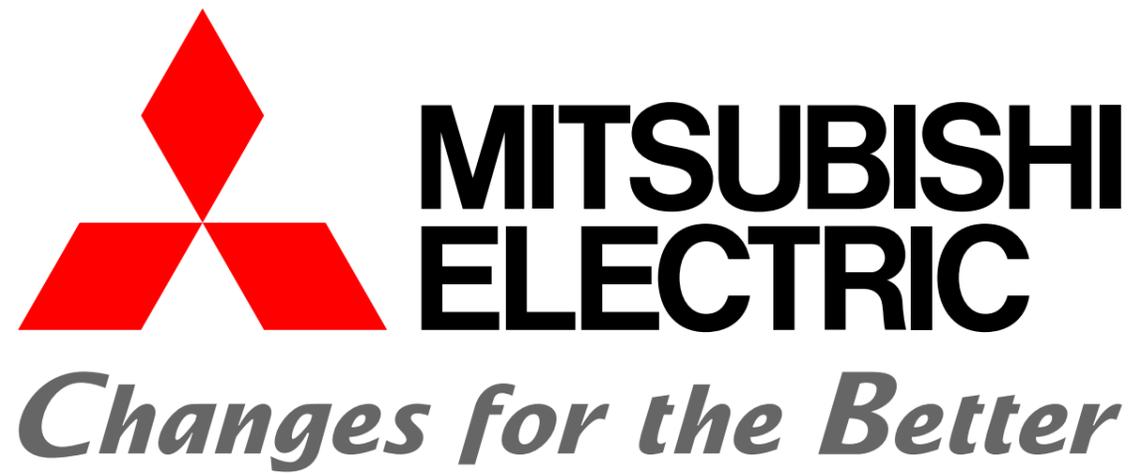
**Our solutions** are versatile, scalable and open. Mitsubishi Electric products are used in many server rooms and data centres around the world.

To learn more about Mitsubishi Electric's solutions for data centres and use cases, visit:  
<https://emea.mitsubishielectric.com/en/data-center/>



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<https://emea.mitsubishielectric.com/en/>

