STULZ

CLIMATE. CUSTOMISED.

Data Centre Rack &
Containment Solutions
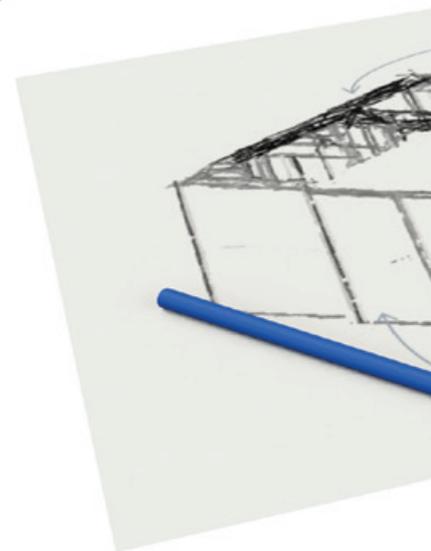
modulan is the very definition of a 'framework'

Designed, developed and made in Germany

The common definition of a framework is an underlying structure on which expansion can be built, with increasing utility.

This concept can be applied to a physical structure; for example a supporting aluminium framework. A set of ideas, the 'framework of our cultural values or intellectual decisions'; or a web framework, a comprehensive guide on how to develop and maintain software and code.
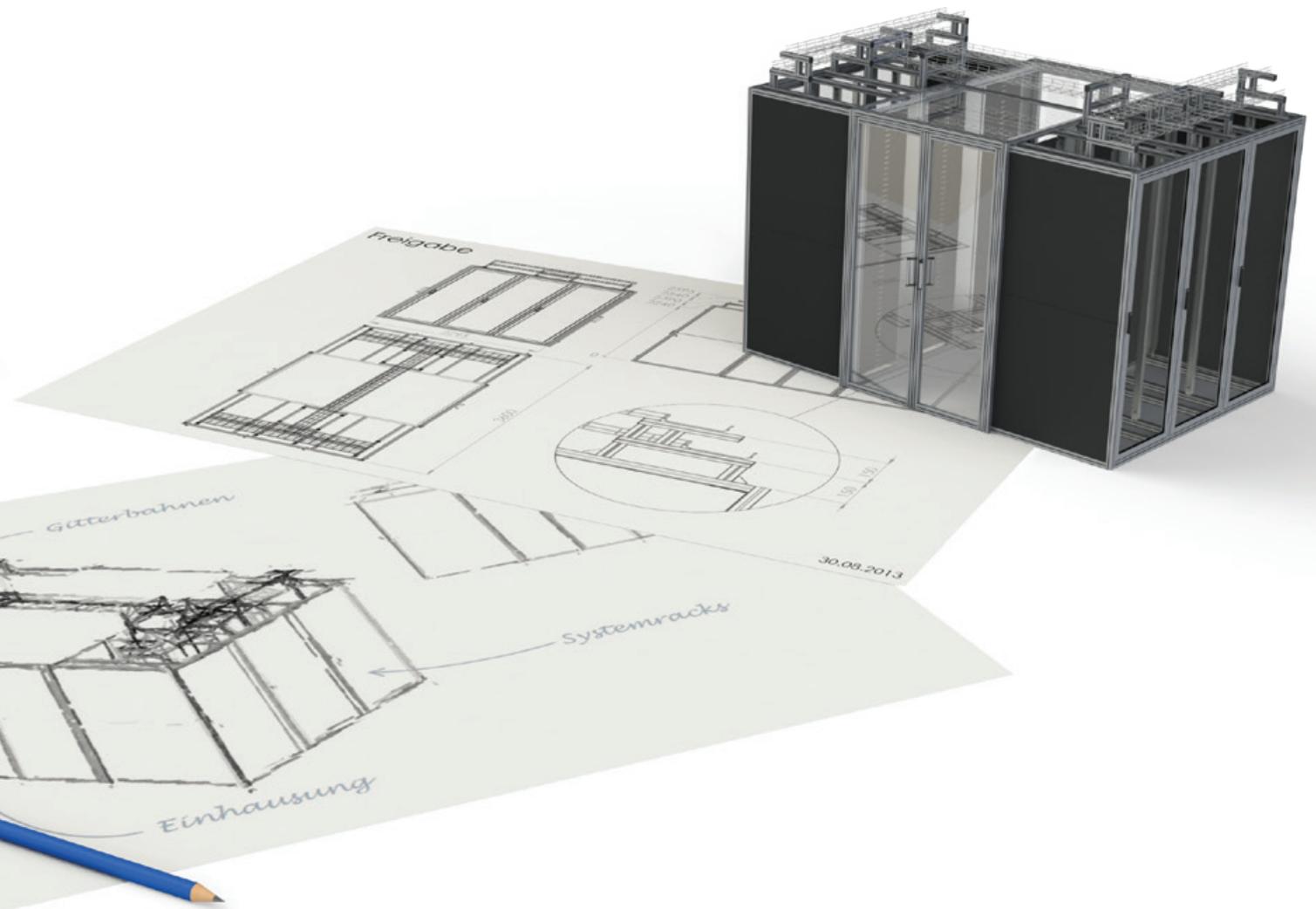
Since 2004, **modulan** has embodied these principles in developing our products for data centres around the world. Our "framework" continues to operate on these three planes.

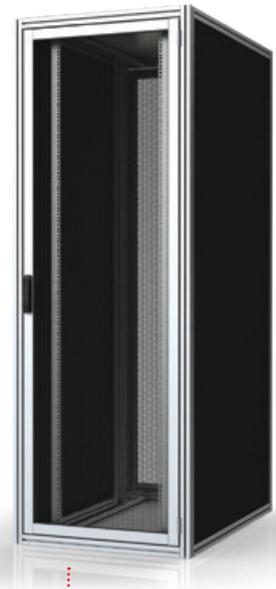# Planning for today with tomorrow in frame

Starting with a blank page

We work with a future focus to plan where you want to be while implementing for your current needs.
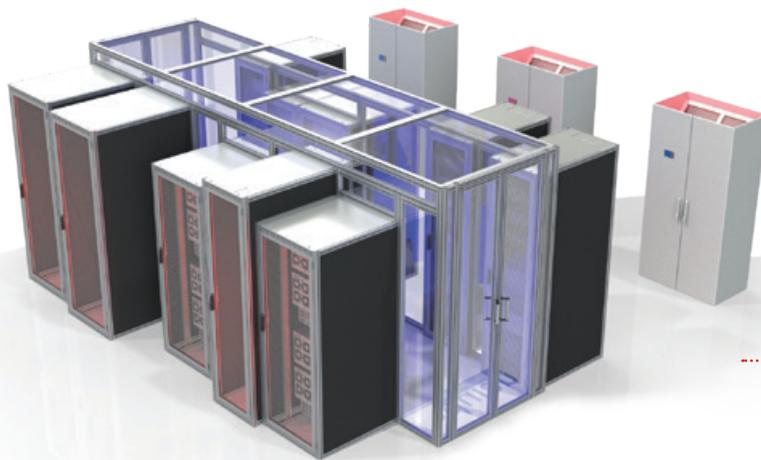
Our Solutions

Our products are made of highly flexible aluminium profiles. Apart from being lightweight, which of course reduces the net weight of the cabinet system itself, the aluminium profiles offer surprising possibilities for mounting accessories. Solid connections allow for professional assembly of cable management, equipment and power supply. On top of that, our products are designed to be compatible with accessories from all renowned suppliers.

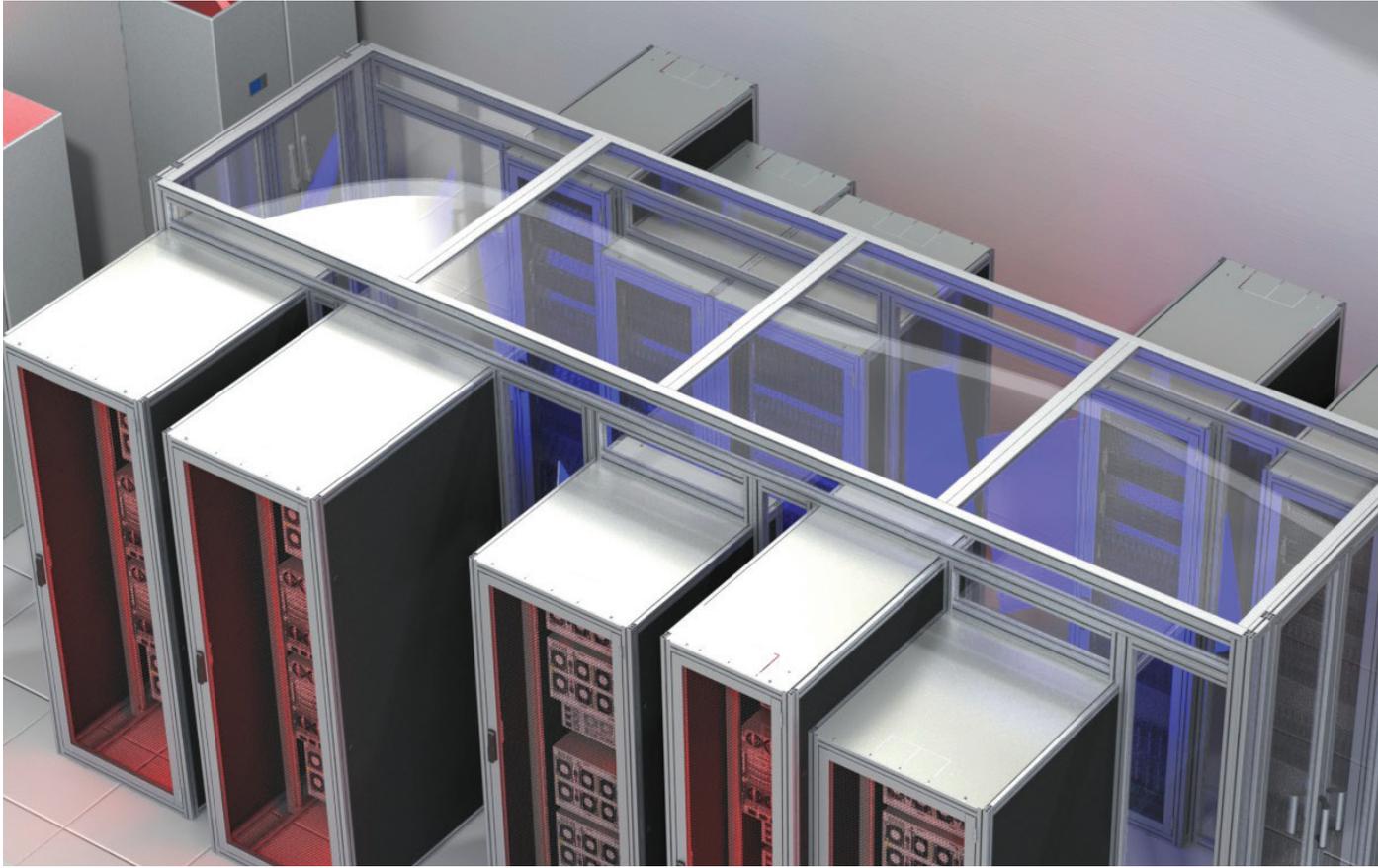Easy processing allows us to design custom-made solutions which meet your individual needs.
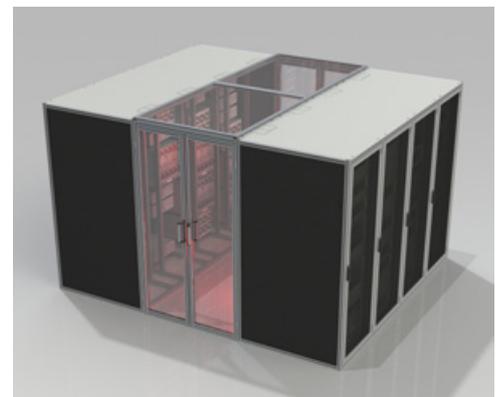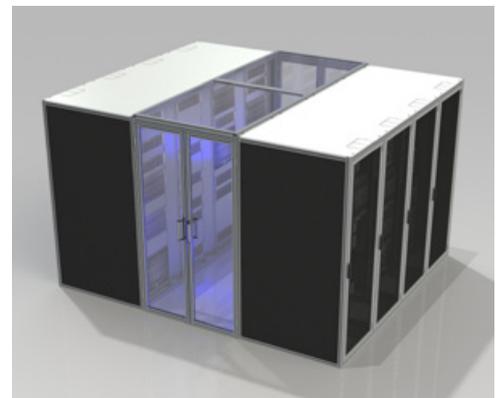
Racks

Containment

IT Pods

Containment of brownfield data centres

Individual aluminium elements ensure secure containment of hot and cold aisles

If you operate a brownfield data centre which contains cabinets from various suppliers, our system allows you to contain the enclosures without buying new ones.

You can even freely define the height in which we will place the top cover on the robust, custom-made aluminium frame that will be mounted to the different cabinets.

Raise your data centre to a higher efficiency level and reduce your air conditioning costs by up to 40% with the following four factors!

1. Higher supply air temperatures

As it is no longer possible for the warm exhaust air to warm the cold fresh air by mixing with it, the supply air temperature can be increased to the cooling units. The optimum temperature is still present in the cold aisle.

2. Better utilisation of the cooling units

Thanks to the clean separation of warm and cold air, air-conditioning bypasses in the topmost rack units in the cabinets can be excluded, even under top loads. Without containment, this was one of the main reasons why additional cooling units had to be activated, although the nominal capacity of the running devices was only exploited up to 70%.
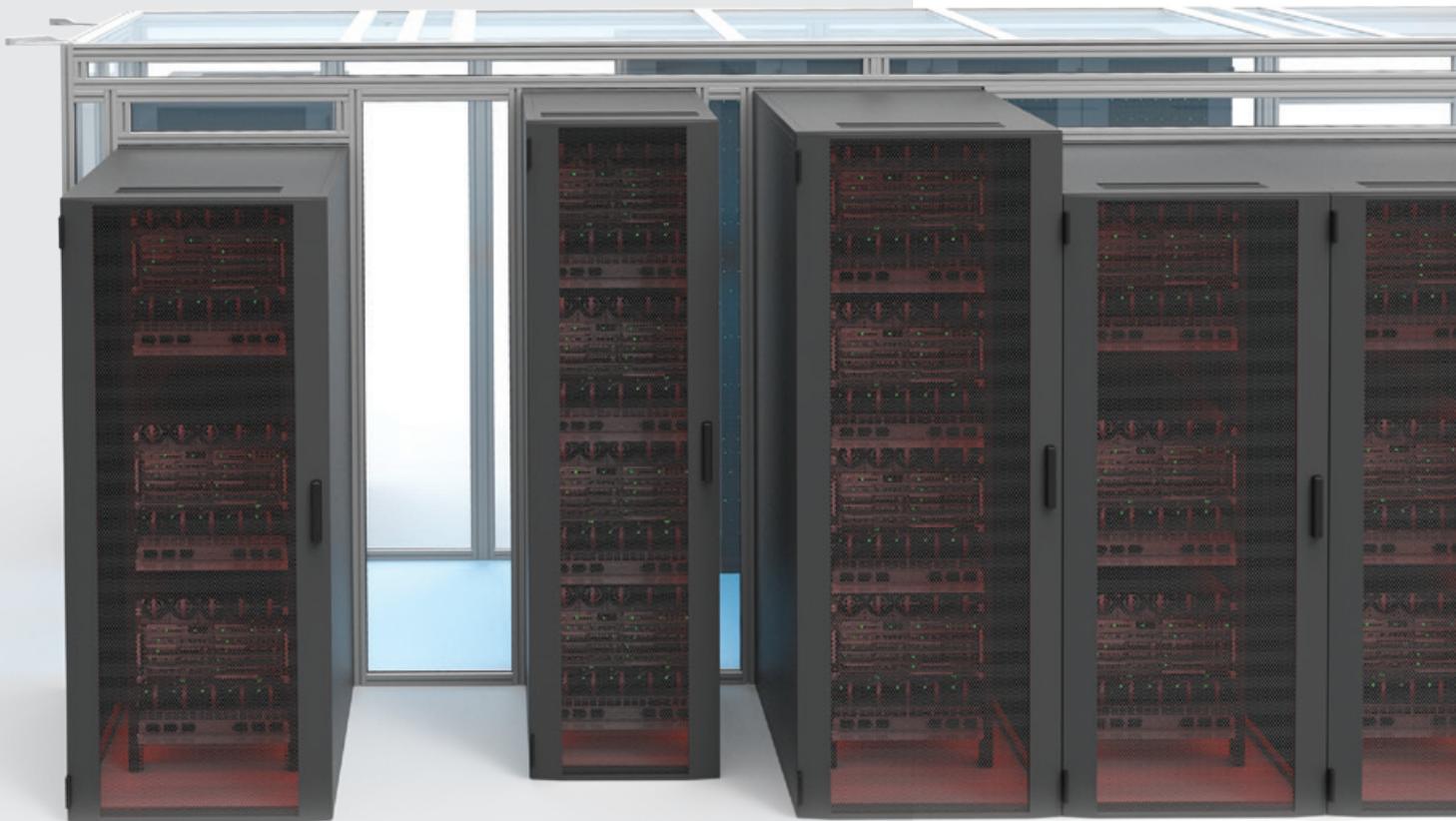
3. Reduced air volume

The warm air extracted from the cooling units is now no longer mixed with fresh air and is thus warmer than before. Less air must therefore be drawn through the air conditioning unit to extract the same energy from the room. Less air volume means reduced fan speeds in the cooling units.
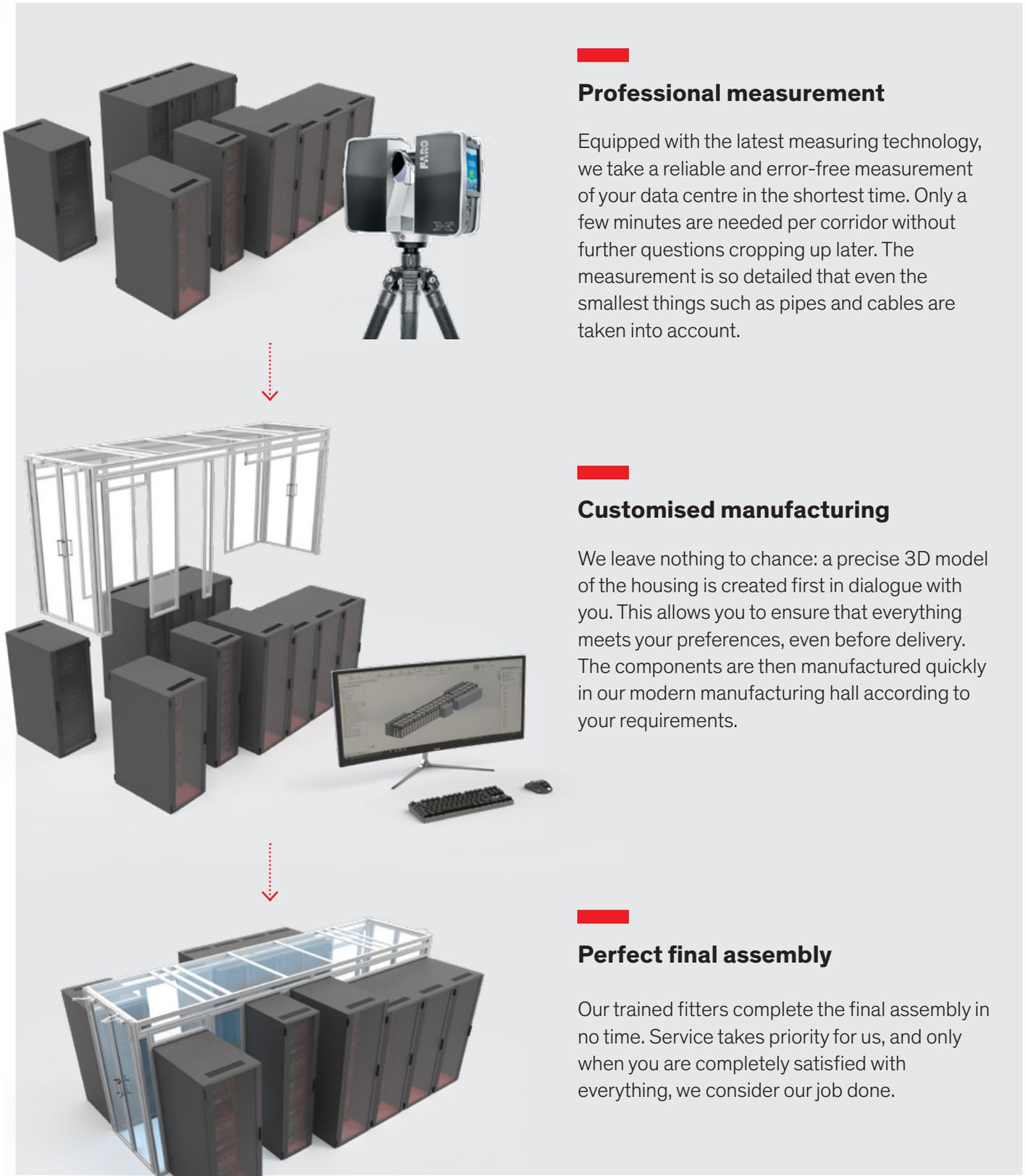
4. Lower fan speeds

Due to the partitioning of the cold aisles from the rest of the room, all servers - even those in the upper-most rack units - can be provided with cold air conditions at the optimum temperature. Thanks to the now increased cooling performance of the air conditions, the fans inside the computers need lower revolution speeds to extract the heat.

Gaps within a row

We also use our custom-made aluminium frames in case of gaps within a row or in case of rows of different lengths. The frames are mounted between the cabinets and provide a high-quality climate barrier. This means, cold aisles are consistently separated from surrounding warm areas, and vice versa.

Brownfield Site – Three step process
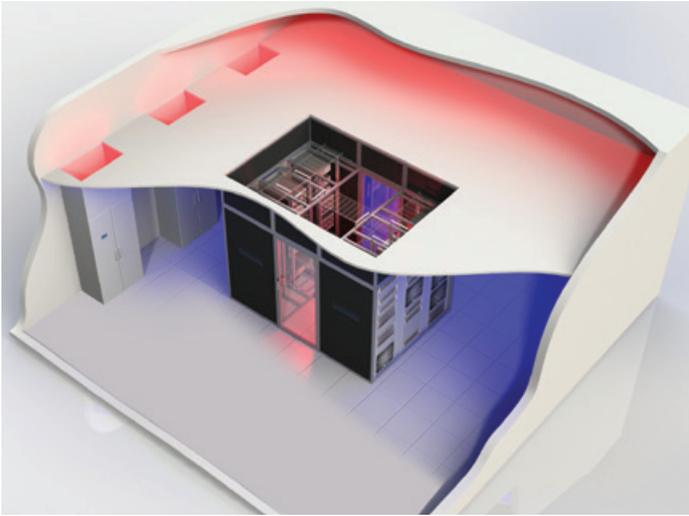

Professional measurement

Equipped with the latest measuring technology, we take a reliable and error-free measurement of your data centre in the shortest time. Only a few minutes are needed per corridor without further questions cropping up later. The measurement is so detailed that even the smallest things such as pipes and cables are taken into account.

Customised manufacturing

We leave nothing to chance: a precise 3D model of the housing is created first in dialogue with you. This allows you to ensure that everything meets your preferences, even before delivery. The components are then manufactured quickly in our modern manufacturing hall according to your requirements.
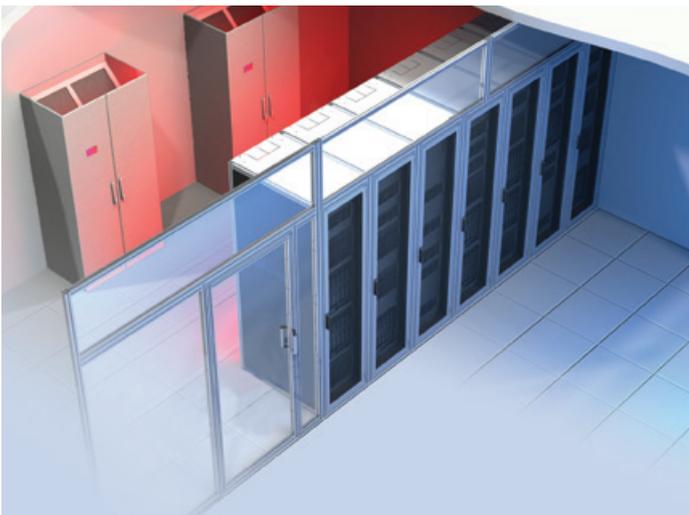
Perfect final assembly

Our trained fitters complete the final assembly in no time. Service takes priority for us, and only when you are completely satisfied with everything, we consider our job done.
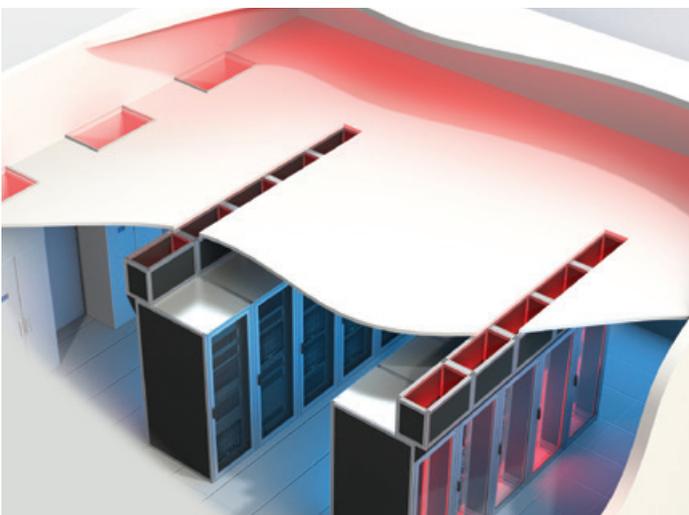
Vertical containment

Vertically attached partition elements enable containment up to the ceiling. With warm aisle containment, this makes it possible to create a recirculation plenum for the cooling units with a hung ceiling. The air-conditioning circuit in the data centre is thus closed without enabling the warm and cold air to mix.

Vertical containment used for partition

This solution is frequently used for computer rooms with only one row of cabinets. The vertical containment functions as a partition between the warm-air-area behind the cabinets and the cold-air-area in front of them. Independent of the type of air conditioning (raised-floor or in-row air-conditioning) the cooling system cools the air and leads it from the warm-air-area of the room to the cold-air-area in the front.

Chimney systems

Each rack has its own chimney, which leads the exhaust air into the hung ceiling. The air conditioning, which is also connected to the hung ceiling, cools the exhaust air and recirculates it either into the raised floor or directly into the room.
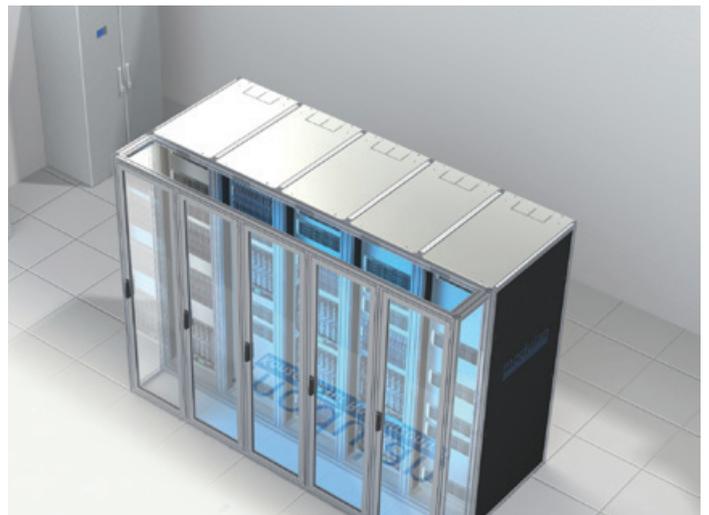
Flexible partition walls

Our flexible partition walls are an especially fast and flexible solution to roughly separate cold and warm air zones. Due to their low weight, these walls can be positioned freely in the data centre and, where required, set to the desired width with just a few hand movements. A rigid version without width adjustment is also available. All partition walls are naturally offered with the usual individuality in their external dimensions and range of materials.
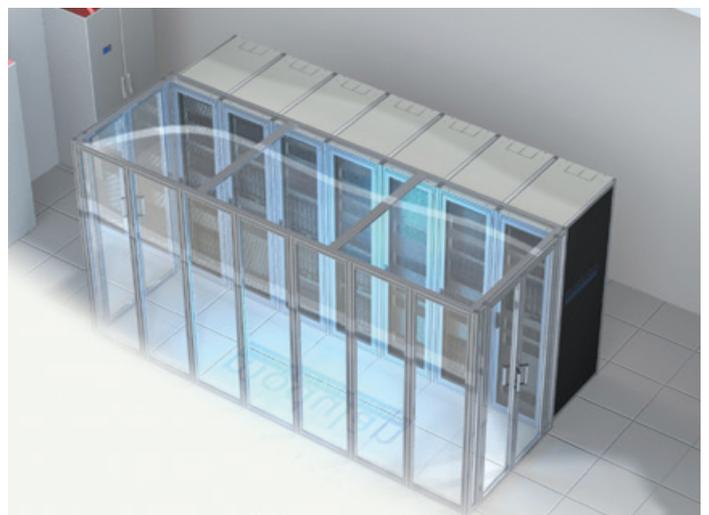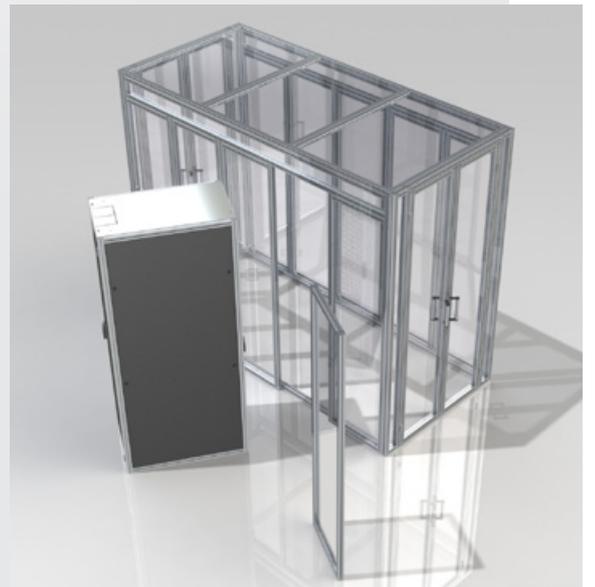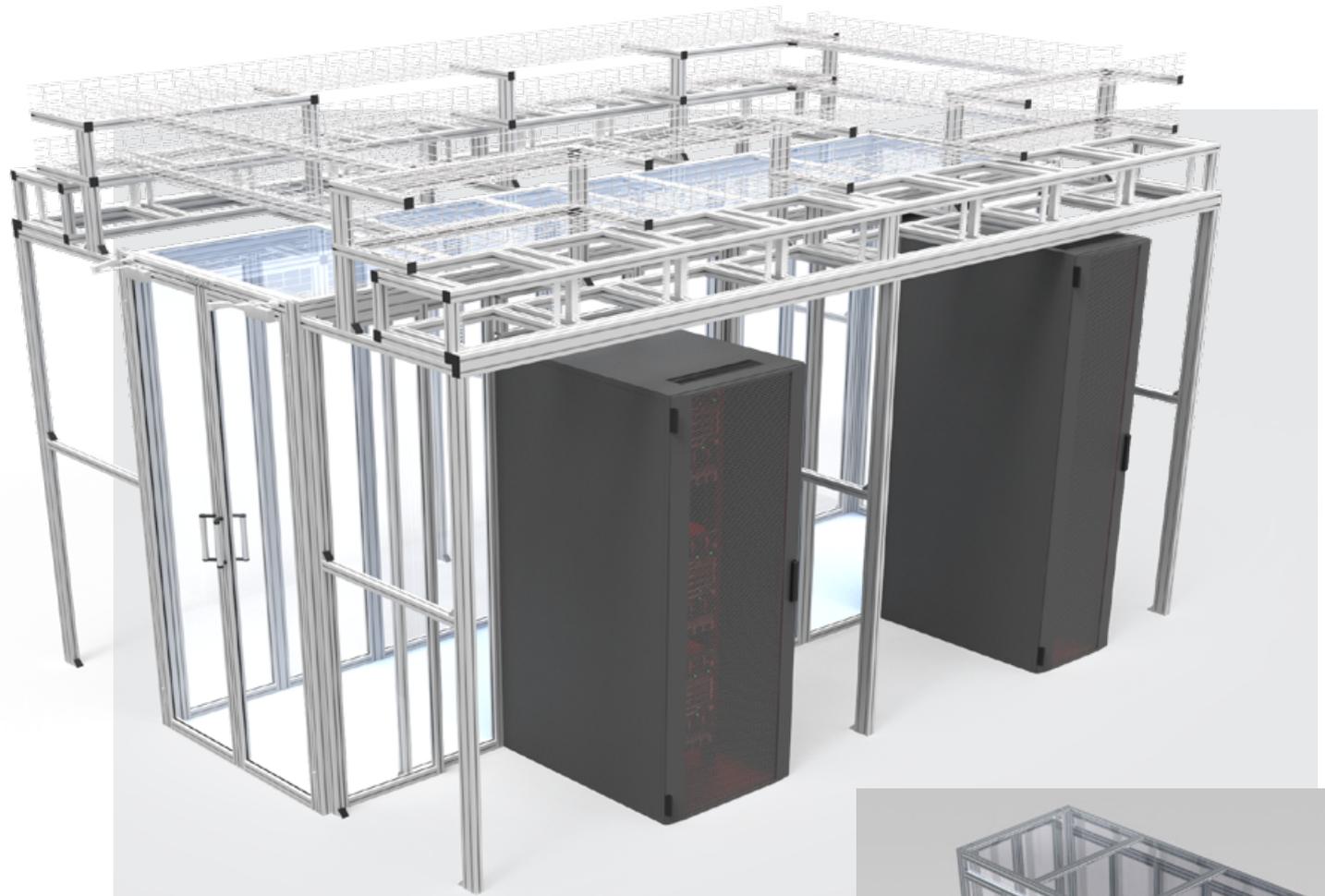
Integrated containment

If there is little space available, integrated containment with containers fitted directly to the racks offers the ideal solution. Besides the low surface area, there is an additional advantage in that the cold air zones do not need to be accessed during maintenance work. Employees are thus exposed to fewer temperature fluctuations when working in the data centre.

Single-row concepts

No matter whether small server rooms only consist of one row, a closure should be created for an uneven number of rows, or simply an island solution is required: we have the right solution ready with the one-row concept.
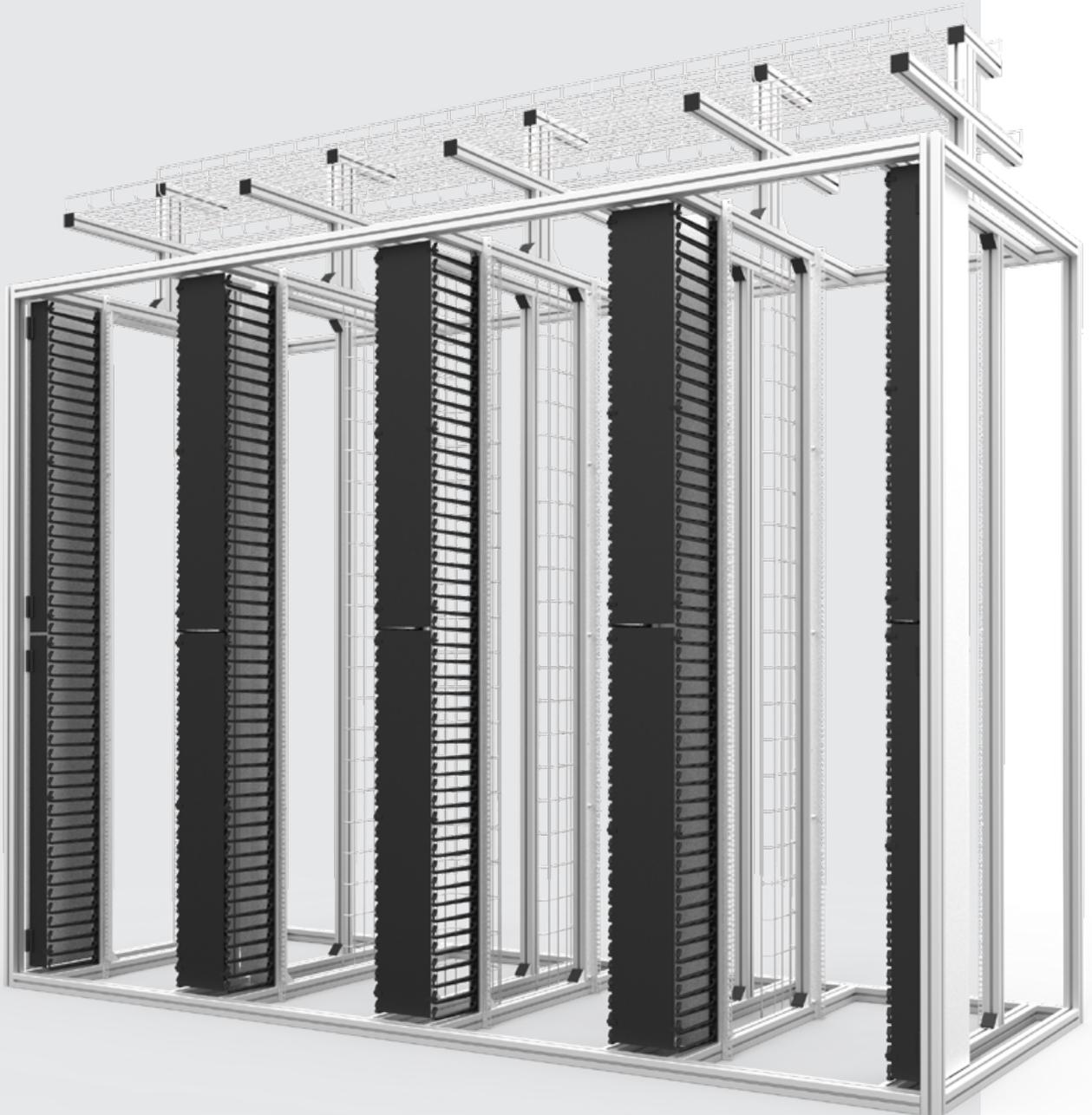
Infrastructure in advance

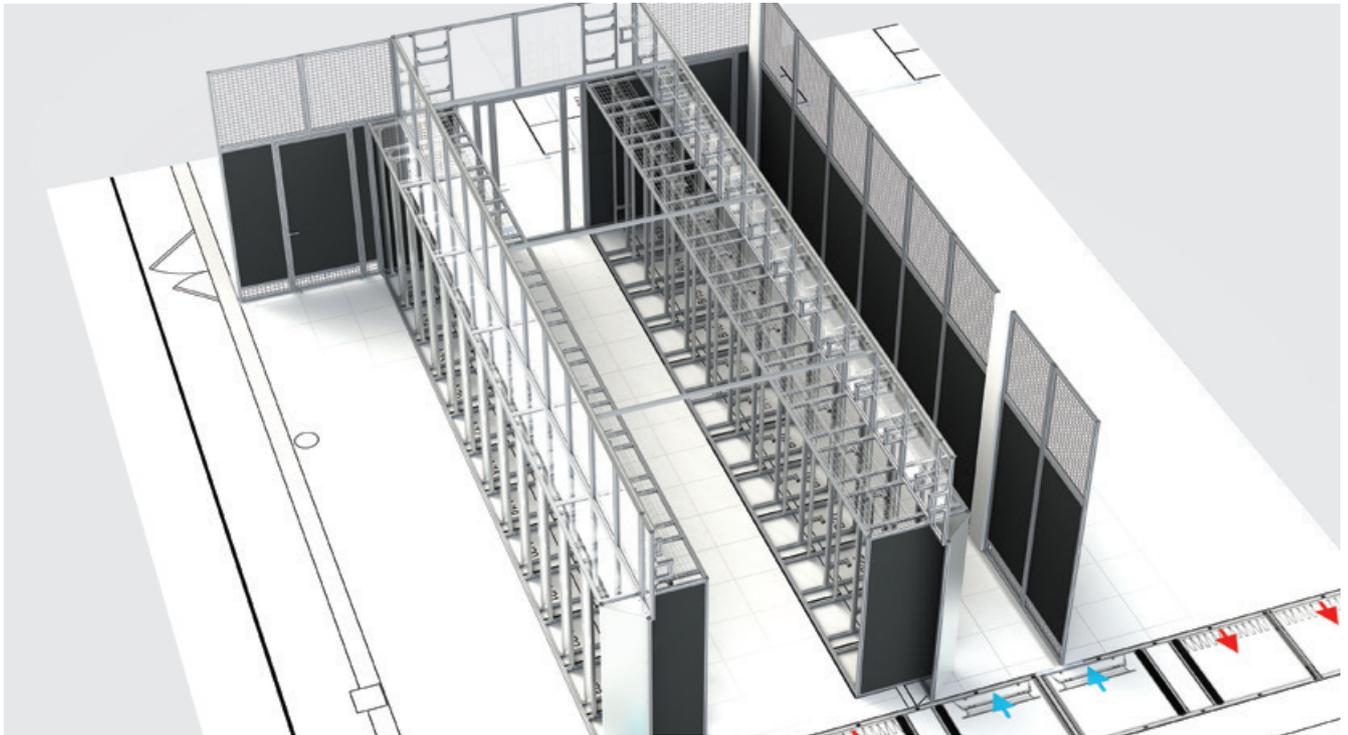Would you like to implement cable management and cold air routing before the racks are placed in position?

modulan solutions offer the ideal platform for this. This allows the row layouts to be planned conveniently later on without causing disadvantages in terms of structure and efficiency.

Rack solutions

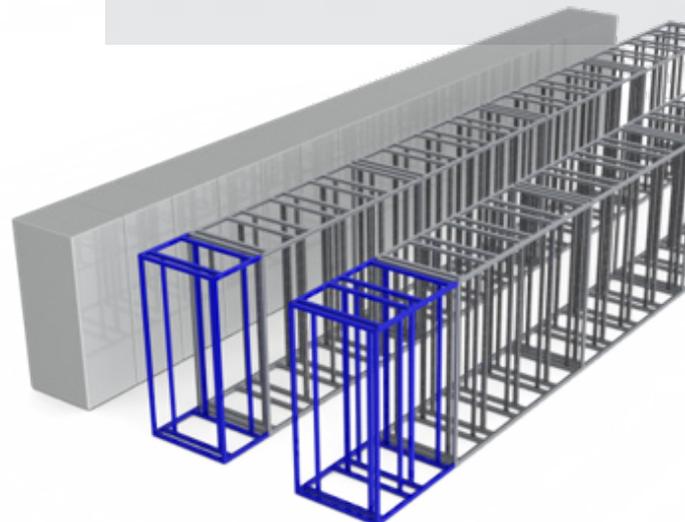**Custom-made racks for the whole of your data centre**

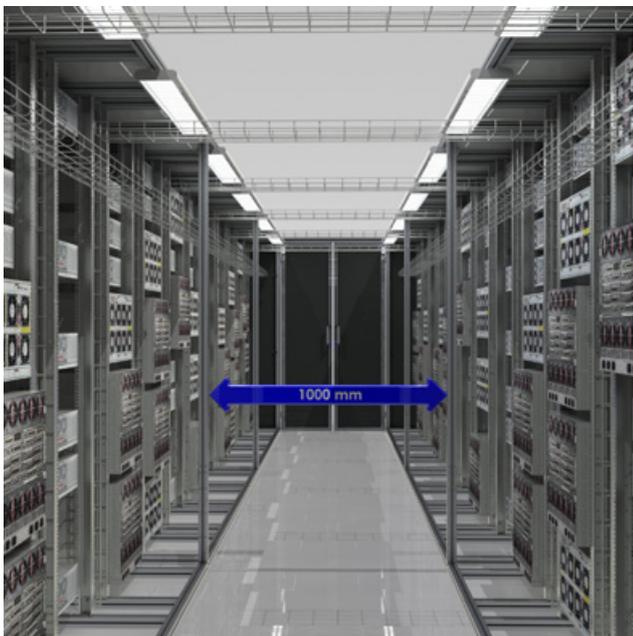# Maximise your available real estate

More Cabinets per row

- The longer the row, the larger potential to gain space

- 17 modulan racks = 16 traditional cabinets*

- If your available total row length is fixed, you define how many racks are to be included in this row

- You can even accommodate 18 units instead of 16 traditional cabinets

The open design of the modulan racks provide more space than traditional cabinets.

* Conventional 800mm single cabinet comparison.

Save floor space due to reduced aisle width

Our designs reduce required space

- A frameless approach eliminates the restriction imposed by traditional cabinets.

- Allowing for aisle width to be reduced

- A traditional 1200mm aisle can be physically reduced to 1000mm

- Maintaining a comfortable 1200mm working environment within the aisle

Guarantees long life optimal protection

Greater Stability

The rails gain an enormous torsional stiffness and can withstand much greater loads than conventional rails made from pure sheet steel. In this way, the requirements placed on a heavy-load rack are also fulfilled with ease.

Load Capacity

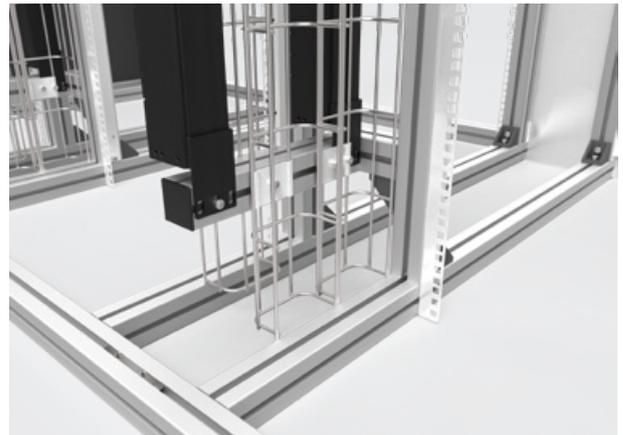1500kg + 200kg (direct mount cable/bus bar systems)

Proven functionality, new concept

The SLP rack perfectly combines the merits of individual cabinets and system racks: Simple scalability and uncomplicated design of the row layout combined with a superior, open construction. There is thus no need to make any fundamental decisions in advance regarding the design of the computer centre.
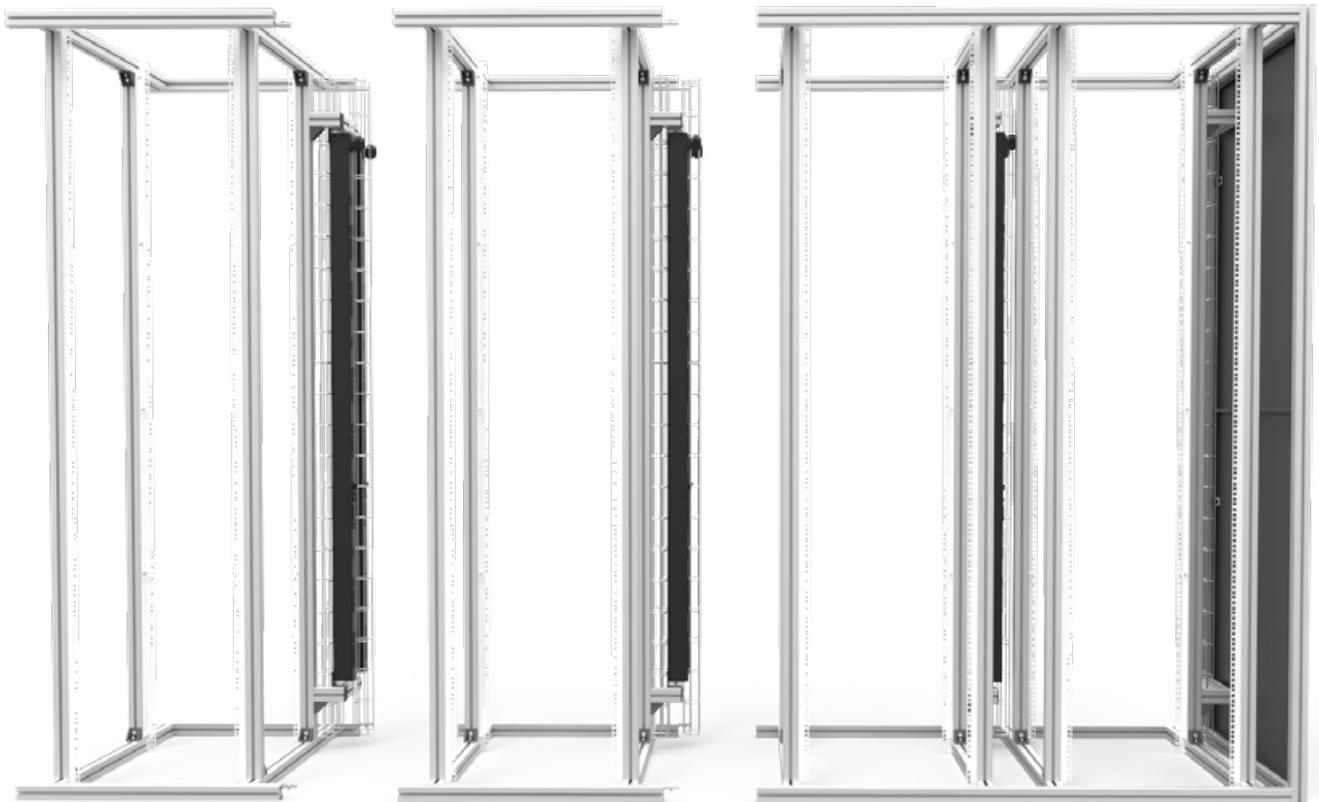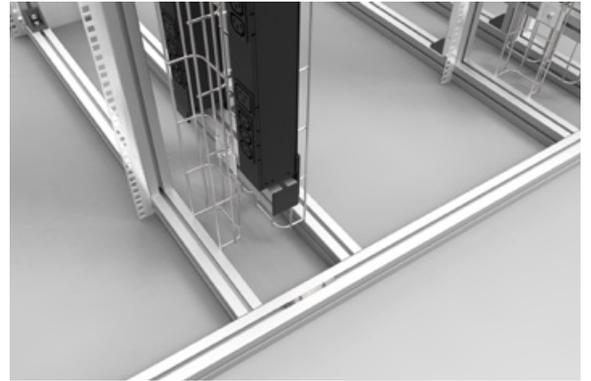
More possibilities

The fixing of the accessory parts, such as cable management or PDUs, directly to the 19" rails is a thing of the past for the SLP racks. The additional aluminium profile enables placement with millimetre precision and unsurpassed stability in fixation. The accessibility of the frame is not impaired by this.

All four 19" rails now feature aluminium profiles that offer a first-class basis for further fixation elements.

Easy to arrange

The SLP racks are just as simple and easy to arrange as the individual racks. Once the cross profiles are connected, the look of the entire row resembles that of the system racks: an open, perfectly accessible construction.
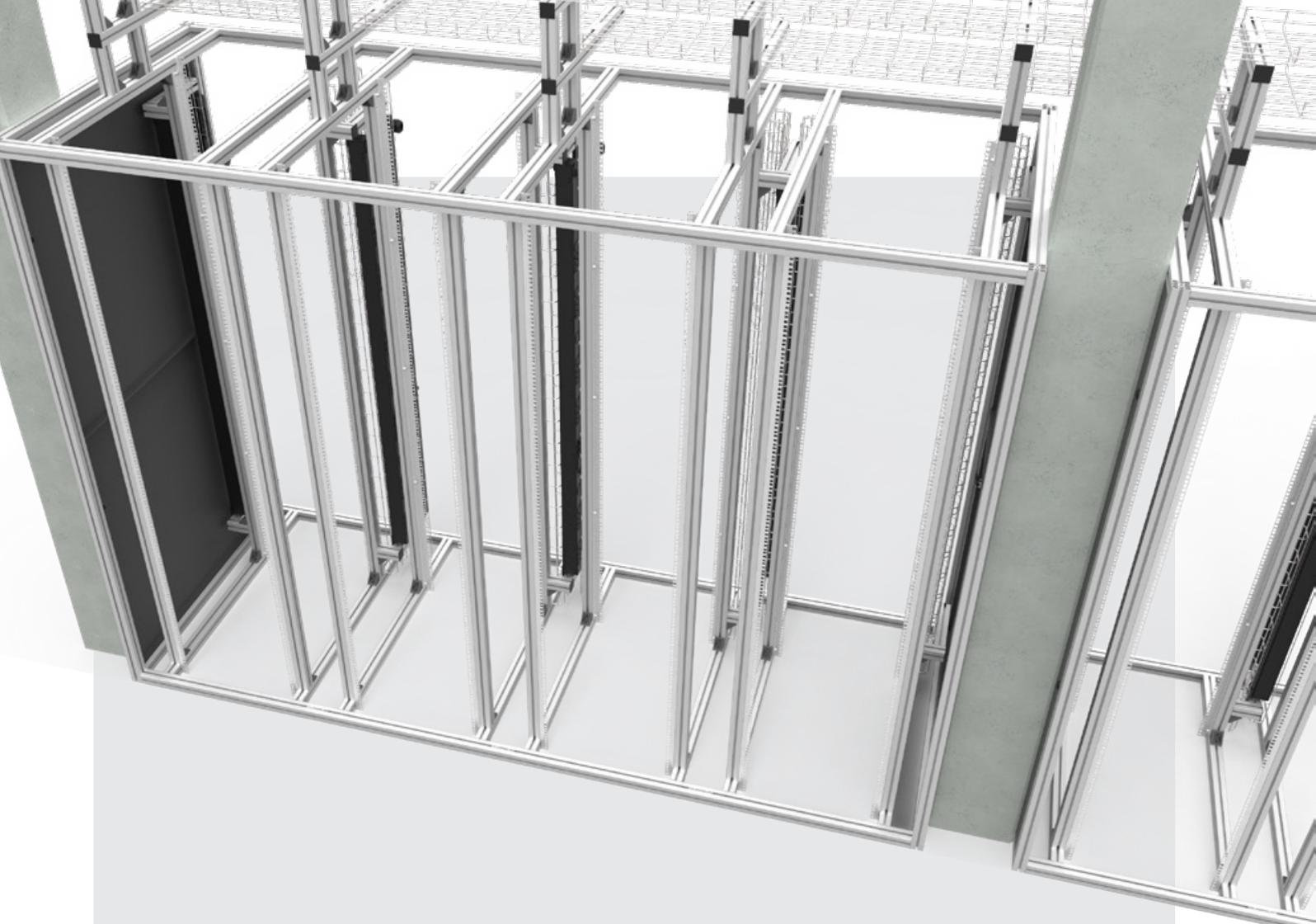
The right height for all

Make a choice based on your spatial conditions or your personal requirements: The system units are available to you in three standard sizes:

modulan Racks		
42U+2U	2000mm	128kg
48U+2U	2240mm	139kg
54U+2U	2505mm	157kg

Standard Racks		
42U	1991mm	161kg
45U	2124mm	169kg
48U	2258mm	185kg

Custom-made solution for the whole of your data centre

▬

- The unique construction of the aluminium frame makes it easy and inexpensive to implement your requirements. It is not even necessary to order large quantities.

- Instead of letting space go to waste, it is simply integrated into the cabinet system and used wisely.

Use every precious millimetre of your data centre space. Even the layout of your computer room does not matter, modulan system racks are designed to adapt. This eliminates dead space beside the cabinets and you will optimise the surface area available.

Mounting accessories

modulan racks allow you to easily mount accessories anywhere inside and outside the rack. The flexible aluminium profiles are fully compatible with the accessories of all renowned suppliers. Furthermore, mounting those accessories is easy and convenient.

Revised door concept

The newly developed profile hinge now makes it possible to attach doors anywhere you like on the frame without a frame brace needing to be available. This improves the look and facilitates subsequent fitting.

1, 2, open

A further strength of the profile hinge is the simple, tool-free hanging of the doors. For instance, the complete row can be quickly and easily opened if required during cabling work.

Real 180°

The pivot point for the profile hinge was placed further in front of the racks. This enables the doors to be opened a full 180° without hitting the handle of the neighbouring door.
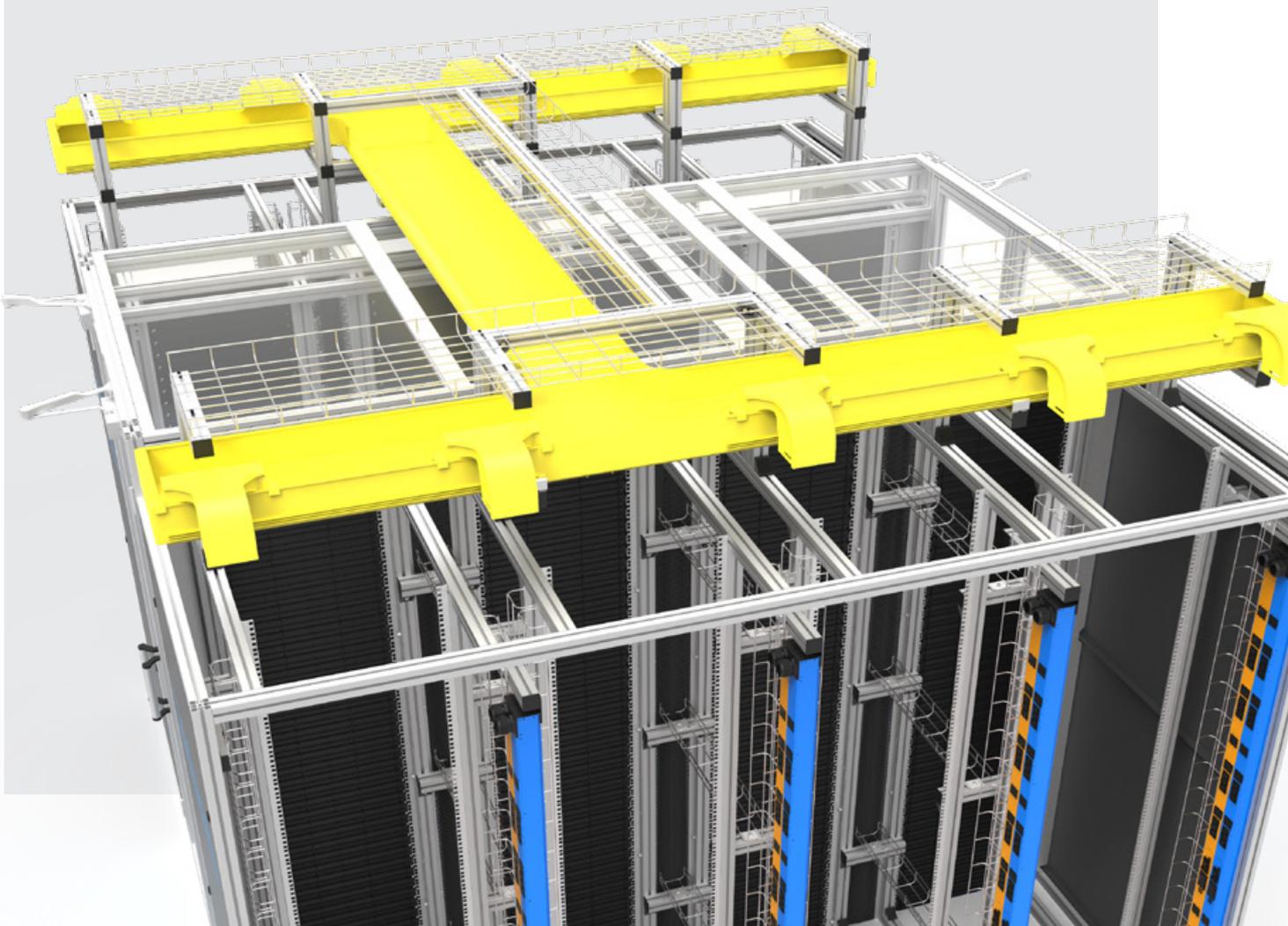

Options

To meet all the requirements placed on a rack door, the individual approach to the system racks was also continued here: Whether one or two-wing, or without the use of a mounting frame for PDUs or extinguishing systems - the options are limitless.
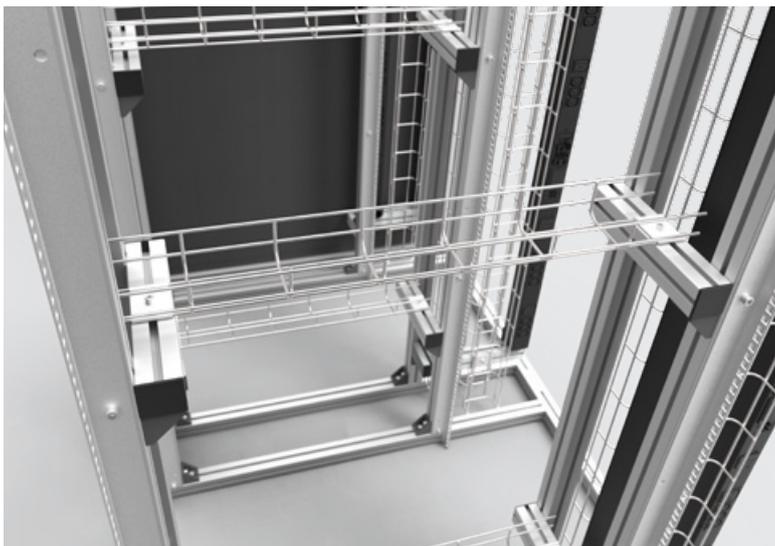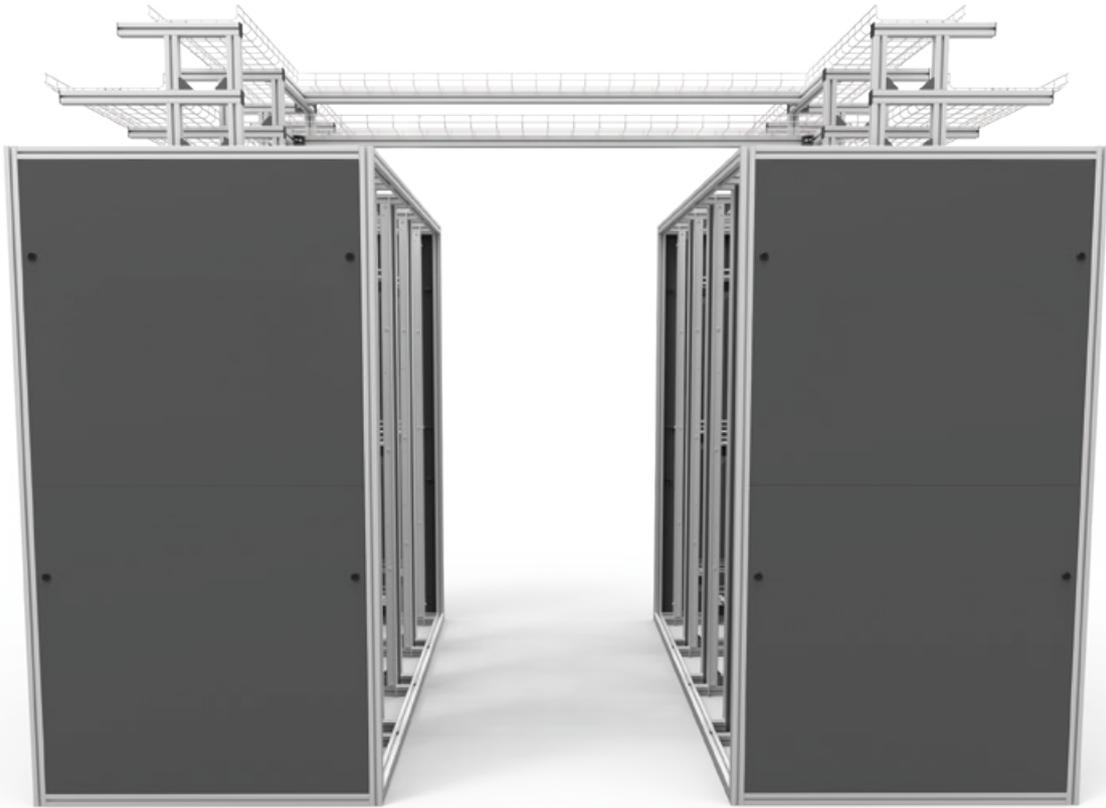
Cable management

Improved access

There are also new developments above the racks. For instance, the newly designed cable management offers more possibilities for positioning while also featuring improved access to the cable lines. Thanks to a consistent construction, as many levels can be created as you like, with none of them restricting access to any other.

From front to back and from left to right

Due to stable aluminium struts, cable trays and cable lines can be fixed anywhere within and above the racks. Clean and clearly arranged cable management at any point within the racks is thus possible without any restrictions.
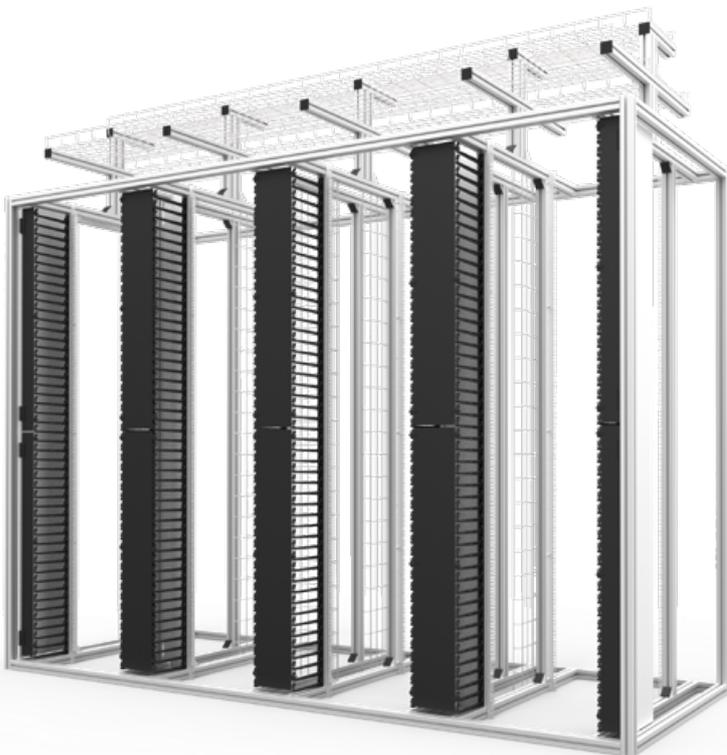
Simple installation of cable fingers

■ Thanks to predetermined breaking points, the cable fingers can be broken down into the desired quantity.

■ Simple clipping into the profile slot at any point in the frame or the 19" rail.

■ If required, the cable fingers can be fixed in place with a screw. However, this is not necessary in the case of full-surface application.
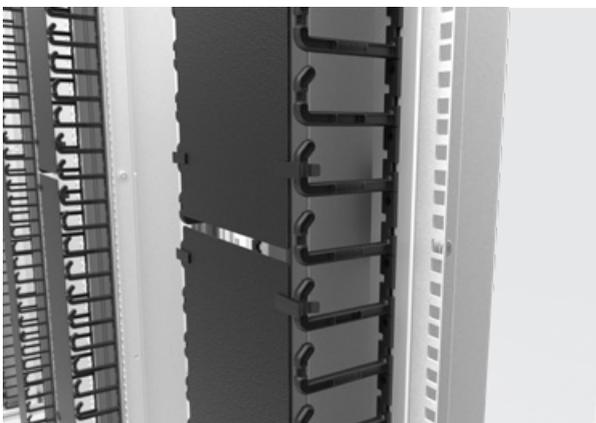
When you want a little more

Our new, 200mm-long cable fingers allow us to create an unparalleled cabling landscape within the racks. The possible combinations with wire cable trays or channels offer almost unlimited flexibility. And all up to 65 RU.
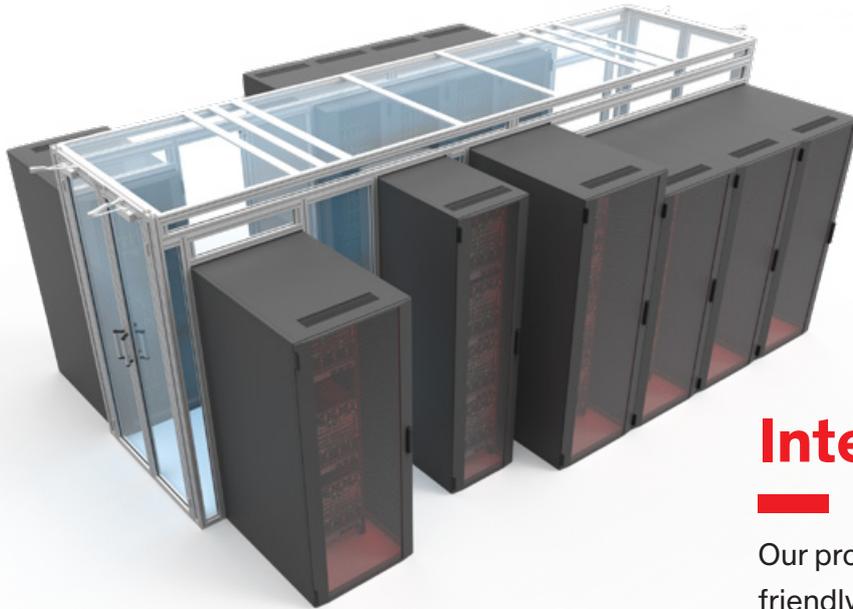

■ Tool-free

Vertical cable management in the racks

100% flexible, 100% individual

Thanks to the versatile fixing options of the system frame and the open construction of the racks, complete cabling systems from third-party providers can be housed easily and conveniently.

![STULZ logo]

CLIMATE. CUSTOMISED.

Interested?

Our professional and
friendly team will be only
too happy to help you.

Call now to arrange
an appointment.

Ask us about our complete
infrastructure solutions.

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