CoreDC

Low-risk, high value

Full Presentation

ACCELERATING DATA CENTERS' RETURNS SINCE 1991

ALTRON MODULAR

01

About us

USP

- Building on 30 years of experience in DC design, build and operation
- EU-quality product delivered anywhere globally
- Vendor with system-integrator mentality
- Optimized product for Edge Data Centers

References

SKUPINA ČEZ
DISTRIBUCE
SKODA
CETIN ČLEN SKUPINY PPF
vodafone

SEZNAM.CZ
PPF
SOCIETE GENERALE
POLICIE ČESKÉ REPUBLIKY

ooredoo
T · ·
etisalat
MUBADALA
GDH Gulf Data Hub

Microsoft
IBM
DELL


CoreDC

Why now?

Among many factors that drive the demand for data centers following are the highly touted trends

350 % — **Generative AI increase demand for Data Centers by 350% until 2026**

71,5% — **High Performance Computing: 71.5 % CAGR to 2033**

45 % — **Edge computing: 45% CAGR to 2030**

ALTRON MODULAR

Rapid growth in Data Center industry

- **Colo, Cloud, Telco services providers**
- **Mission Critical Data Center Facilities**

They all have same challenge

Supply new capacity at the scale and industry quality for controlled price and yet on time.

This has been challenge of industry for decades and now it has become a global race for quick capacities to accomodate demanding clients.

Altron Modular has portfolio of prefabricated products that has carefully sized parameters meeting the demand and yet recycling the experience in process from project to project.

02

Technology

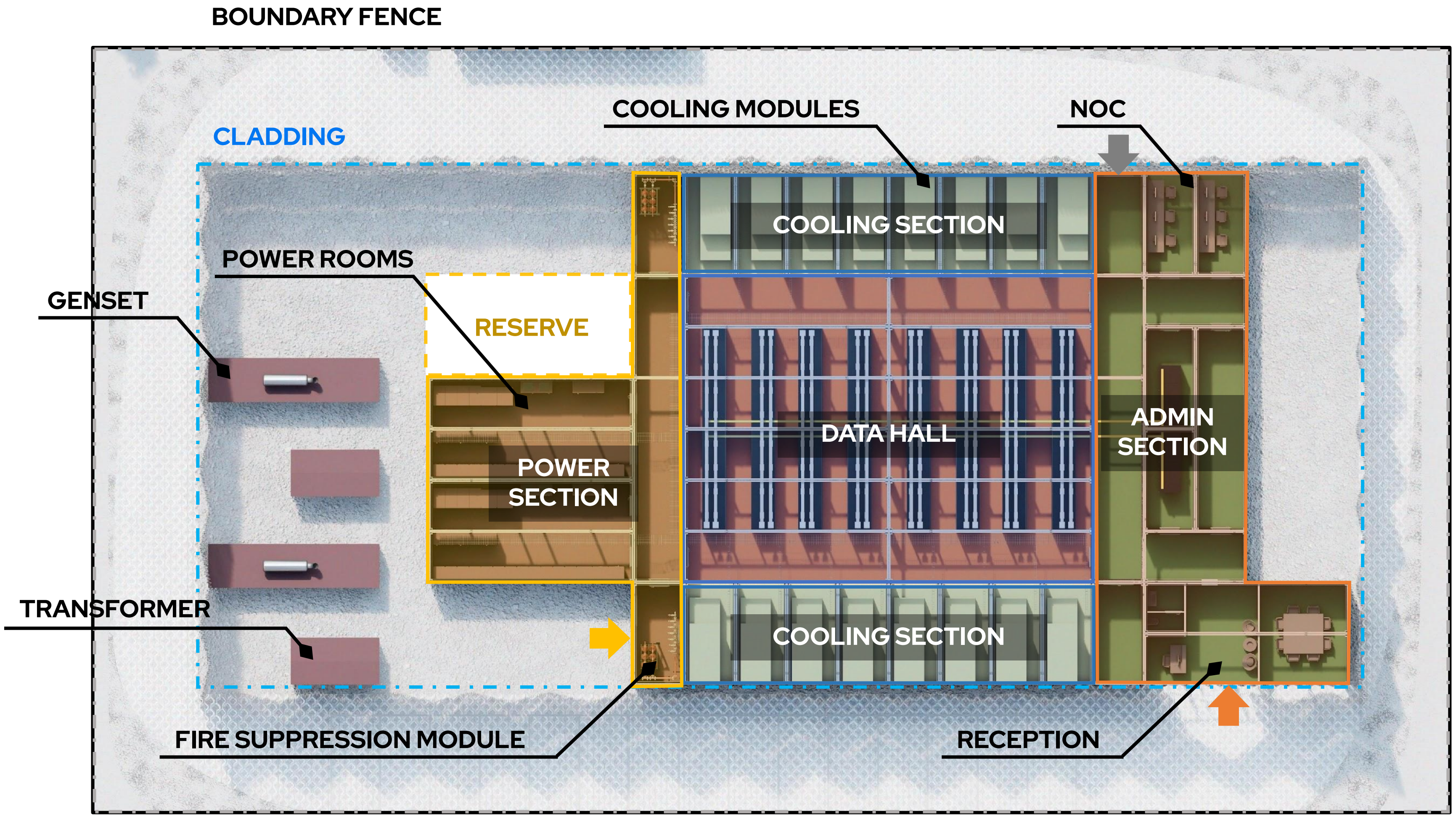
ALTRON MODULAR

CoreDC Drivers

Parameters Summary: CapEx + OpEx

- Purpose – cloud, colocation and hosting DC services
- Capacity – Grow as you need (500kW to 4000kW).
- Availability – MultiTier Redundancy – 2N in power supply
- Power density averaging 4-10kW per rack
  (1kW to 21kW per rack)
- Smart space utilisation, and caging.
- Vendor-neutral approach using best of breed EU certified products
- Record-low PUE @ 1.08* – 90% capacity & above (EU located)
- Unique flexibility to respond to a wide range of client's requirements (scale up and down)
- Altrix an advanced management and control system at DC level to allow unmanned operation and virtual operator features

CoreDC – Layout



AREA

Plot of land:
3 000 m2

Inside cladding:
1 548 m2

Facility:
1183 m2

Whitespace:
206 m2

ALTRON MODULAR

Data Hall

Whitespace area:

69 m2 / 4 rows

Rack capacity:

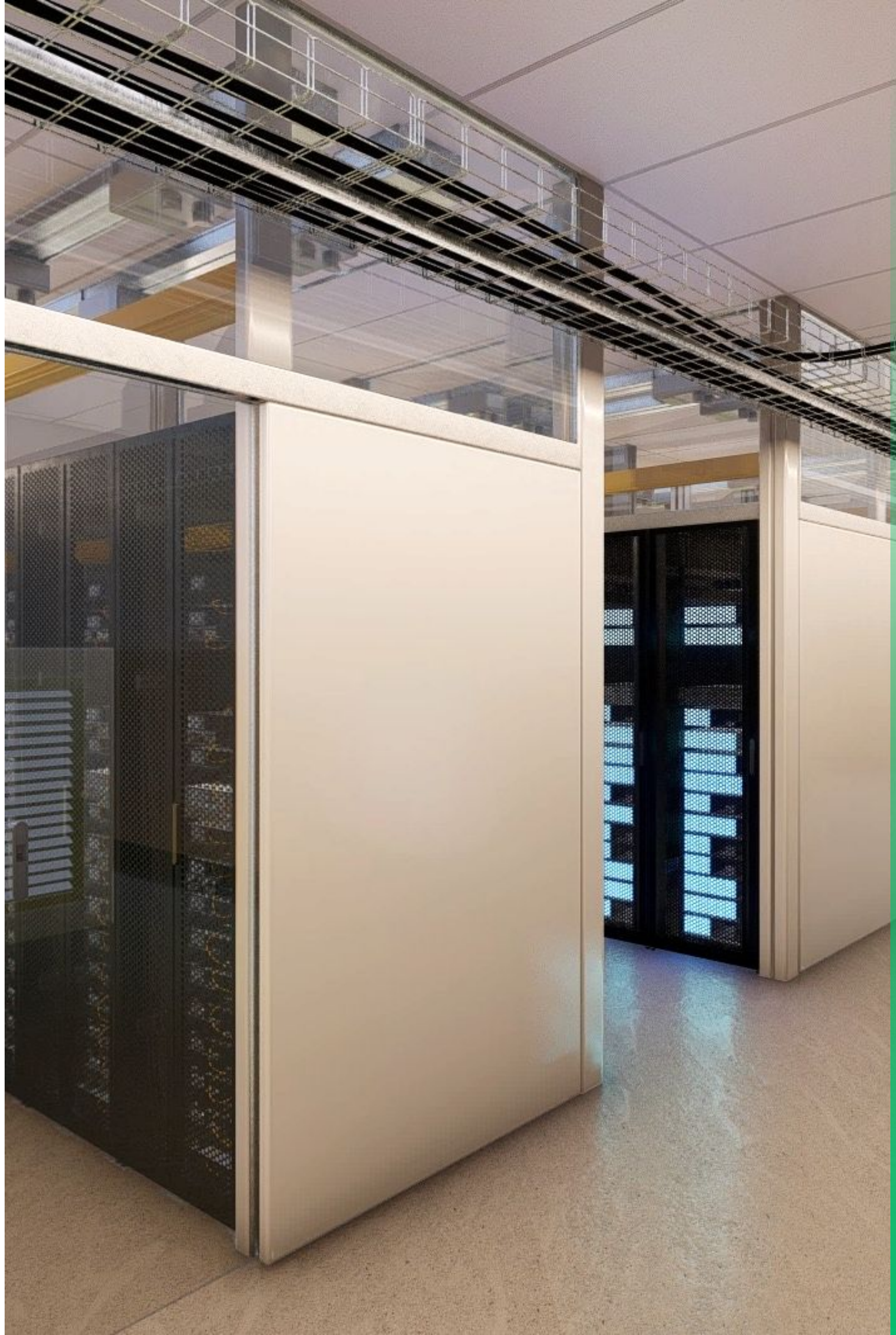
18× 24×

800mm 600mm

- 2 independent busbars per each row
- Flexible caging system

Optional delivery:

- Hot aisle containment
- Racks and PDUs



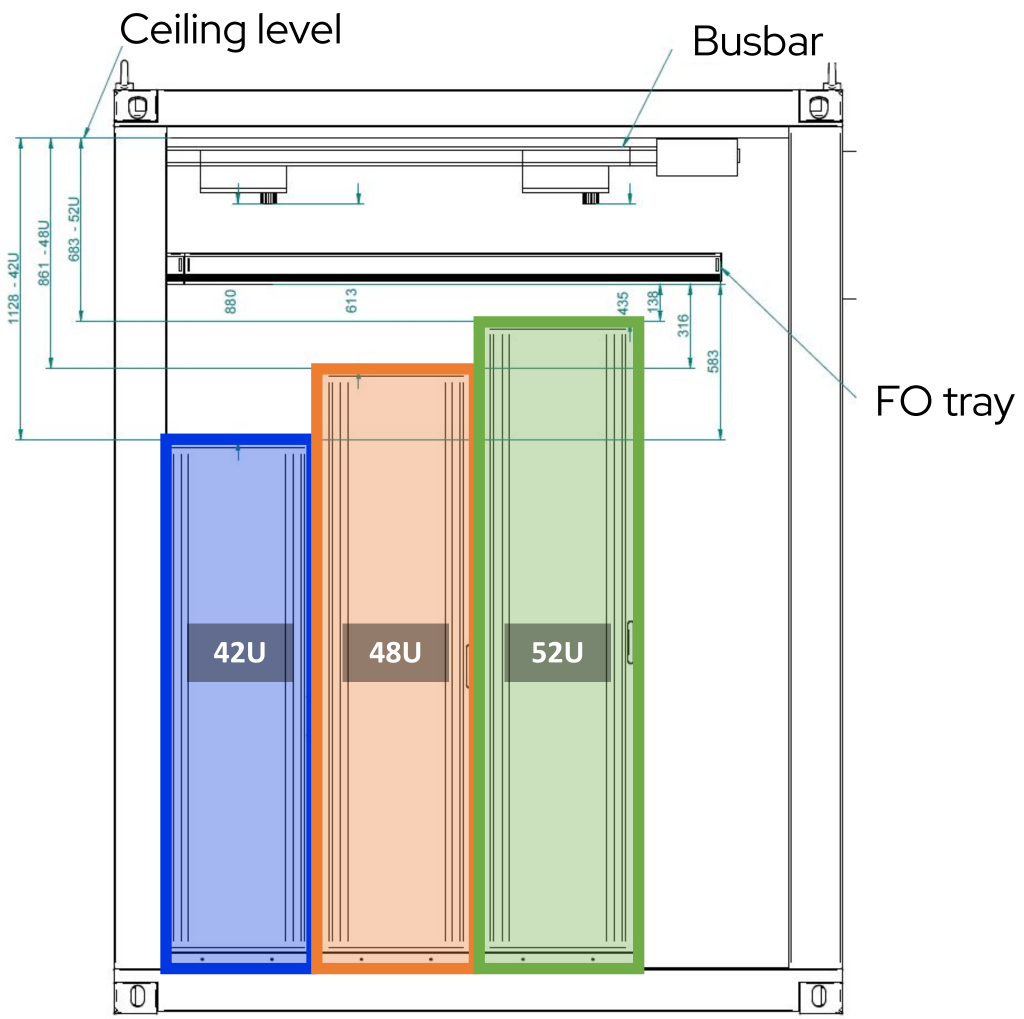
ALTRON MODULAR

Data Hall

Rack height flexibility:

42U - 52U

- Extra high ceiling to accommodate up to 52U
- Sufficient clearance from overhead busbars and cable trays



ICT Load Capacity	Core 500	500 kW	1 000 kW	1 500 kW	2 000 kW
	Core 1 000	1 000 kW	2 000 kW	3 000 kW	4 000 kW

Scalability

	CoreDC 500	CoreDC 1000
ICT load capacity	500 kW	1 000 kW
Rack capacity	96 – 128	96 – 128
Power density/rack	4 – 5 kW	8 – 10 kW
Power supply redundancy (single data hall)	2N	2N
Power supply redundancy (two data halls)	MFR	MFR
Cooling redundancy	N+2	N+2
Cooling methods	DX	DX / Dual / CW

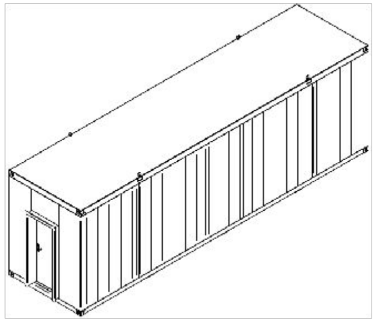
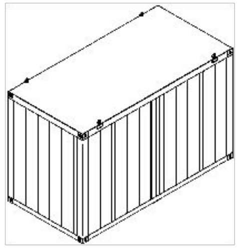
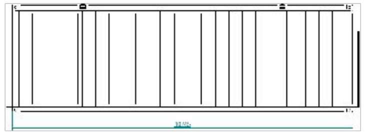
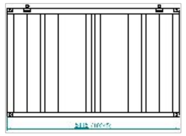
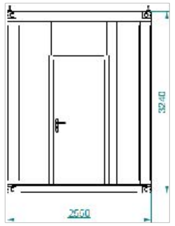
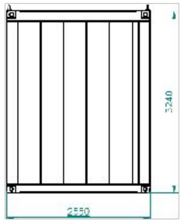
SMART

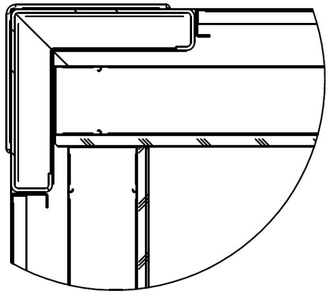
Smart Services

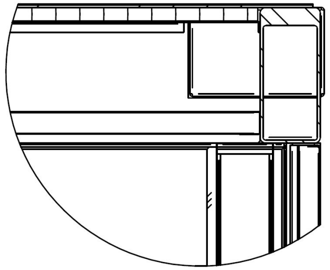
One of the ways to **decrease operating costs and increase efficiency is through converged operations**. The principle of convergence is the transition from the management of individual systems and subsystems to the management of one integrated unit, which allows for assisted and/or autonomous operation. Stemming from our 30-year industry experience we have Altrix monitoring and management system with following modules:

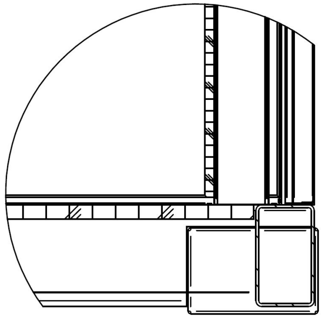
- **Real-time monitoring**
- **Control & automation**
- **Analytic services: predictive maintenance**
- **Operations optimization**

Project Timeline

Module Size	Full	Half
Perspective View		
Side View		
Front/ Back View		
Length (external)	10 245 mm	5 115 mm
Width (external)	2 250 mm	2 250 mm
Height (external)	3 240 mm	3 240 mm
Height (internal)	2 900 mm	2 900 mm
Wall thickness	150 mm	150 mm



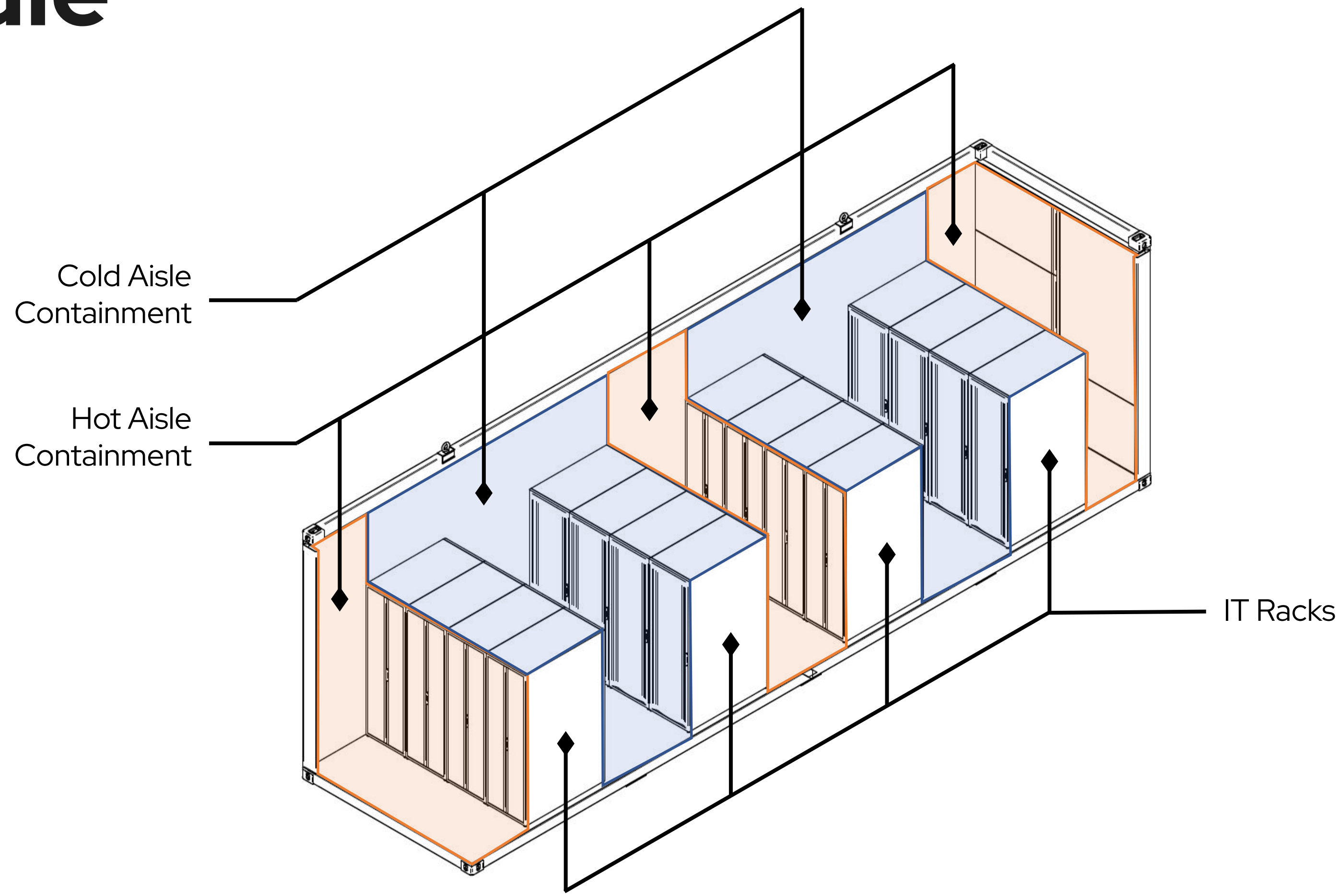




ALTRON MODULAR

Data Hall Module

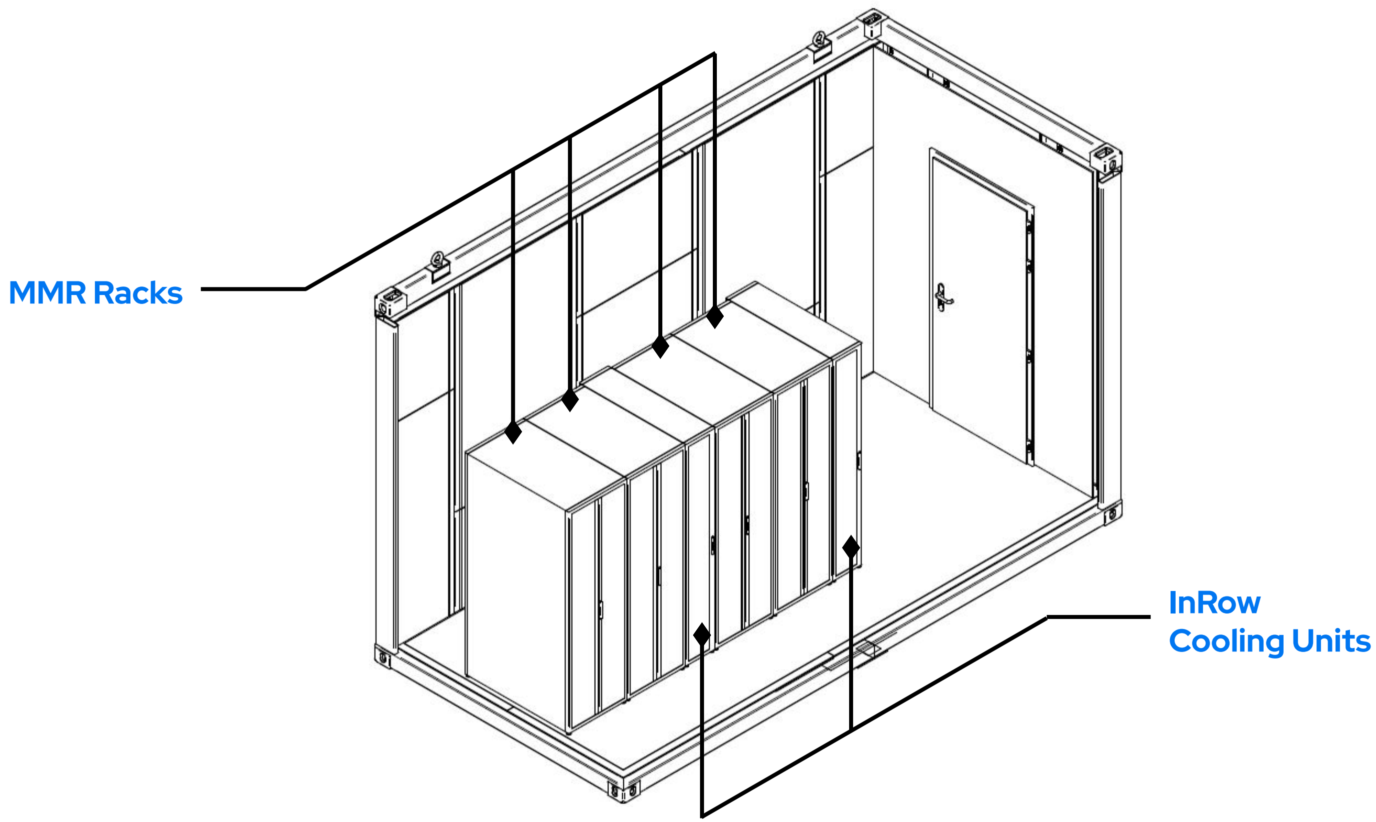
- 16 racks (42U×600×1200mm)
- 12 racks (42U×800×1200mm)
- Combination possible

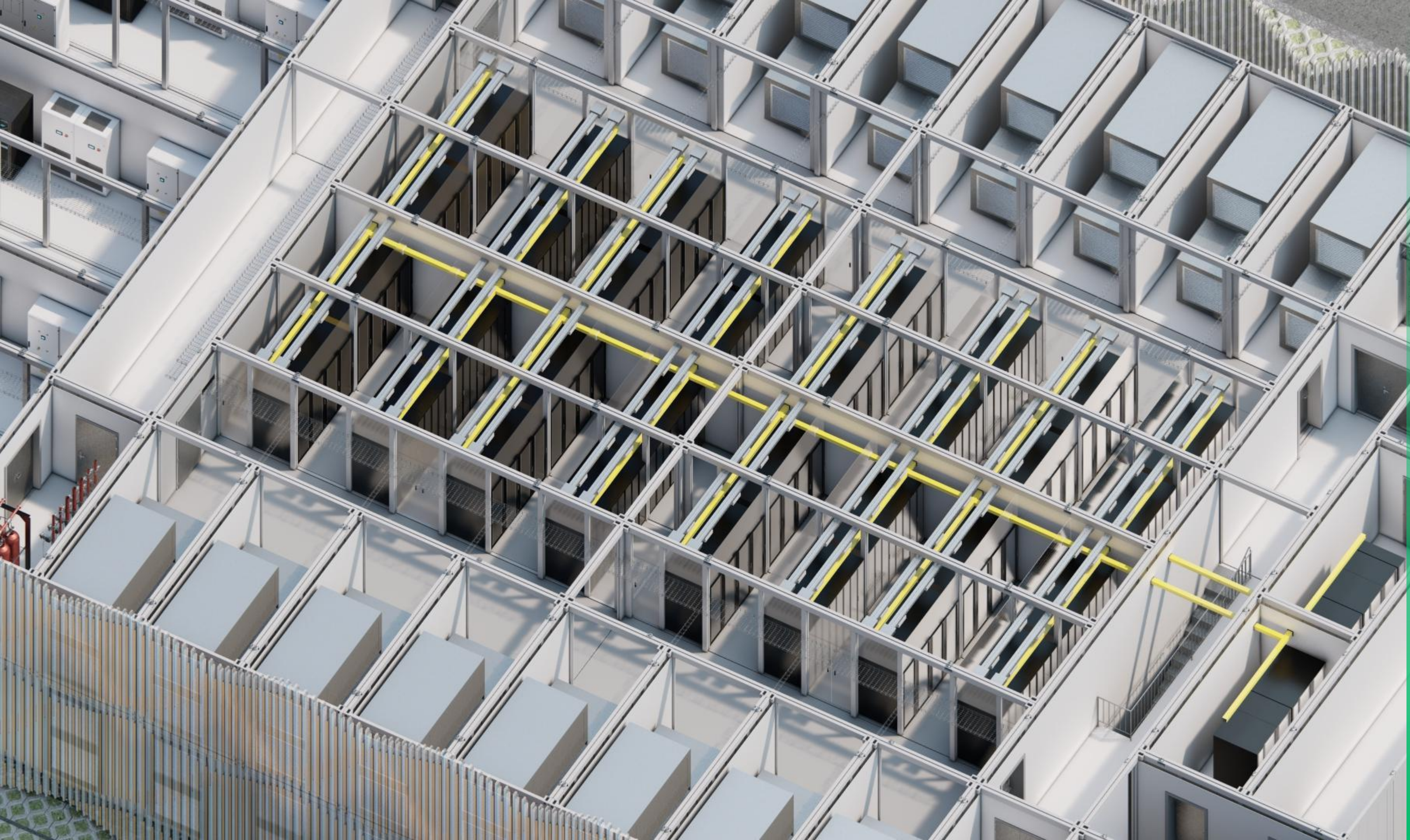


ALTRON MODULAR

MMR Module

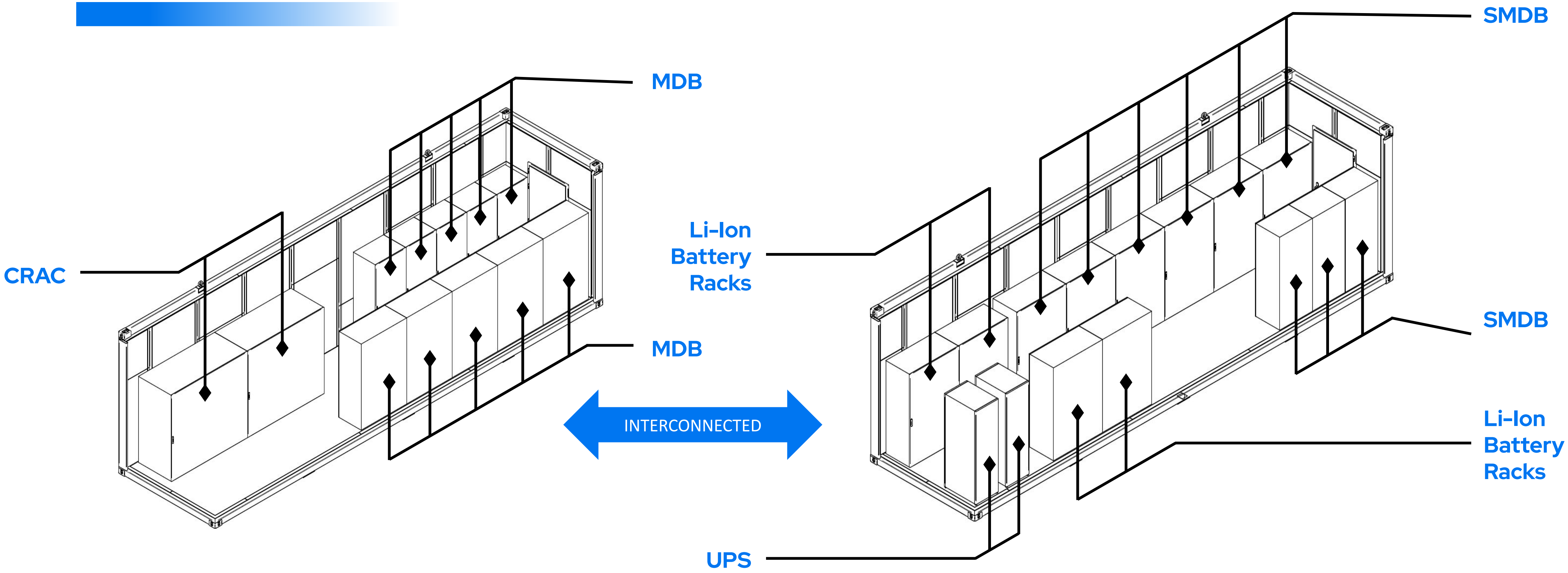
- 4 racks each MMR (42U×600×1200mm)
- Redundant InRow cooling

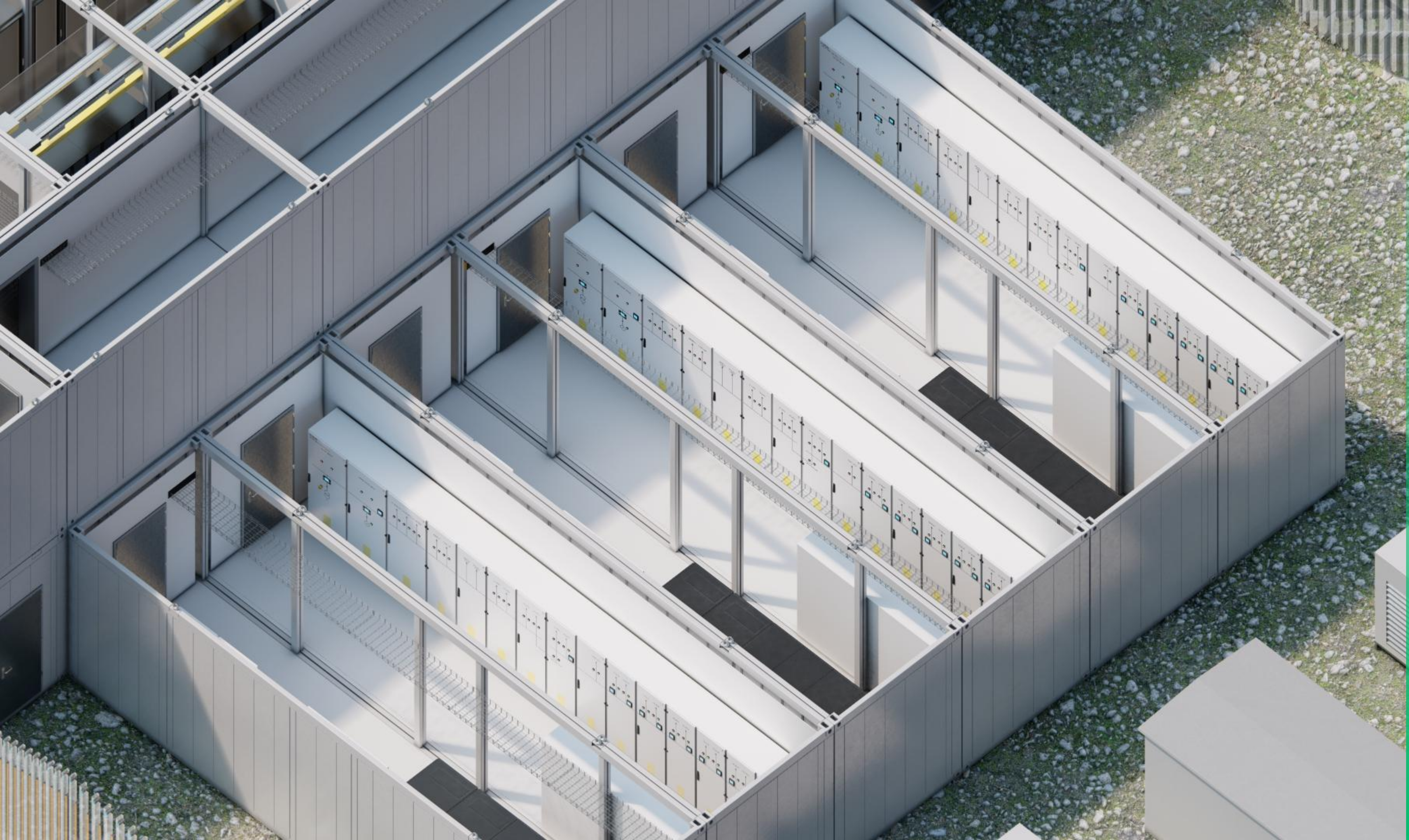




ALTRON MODULAR

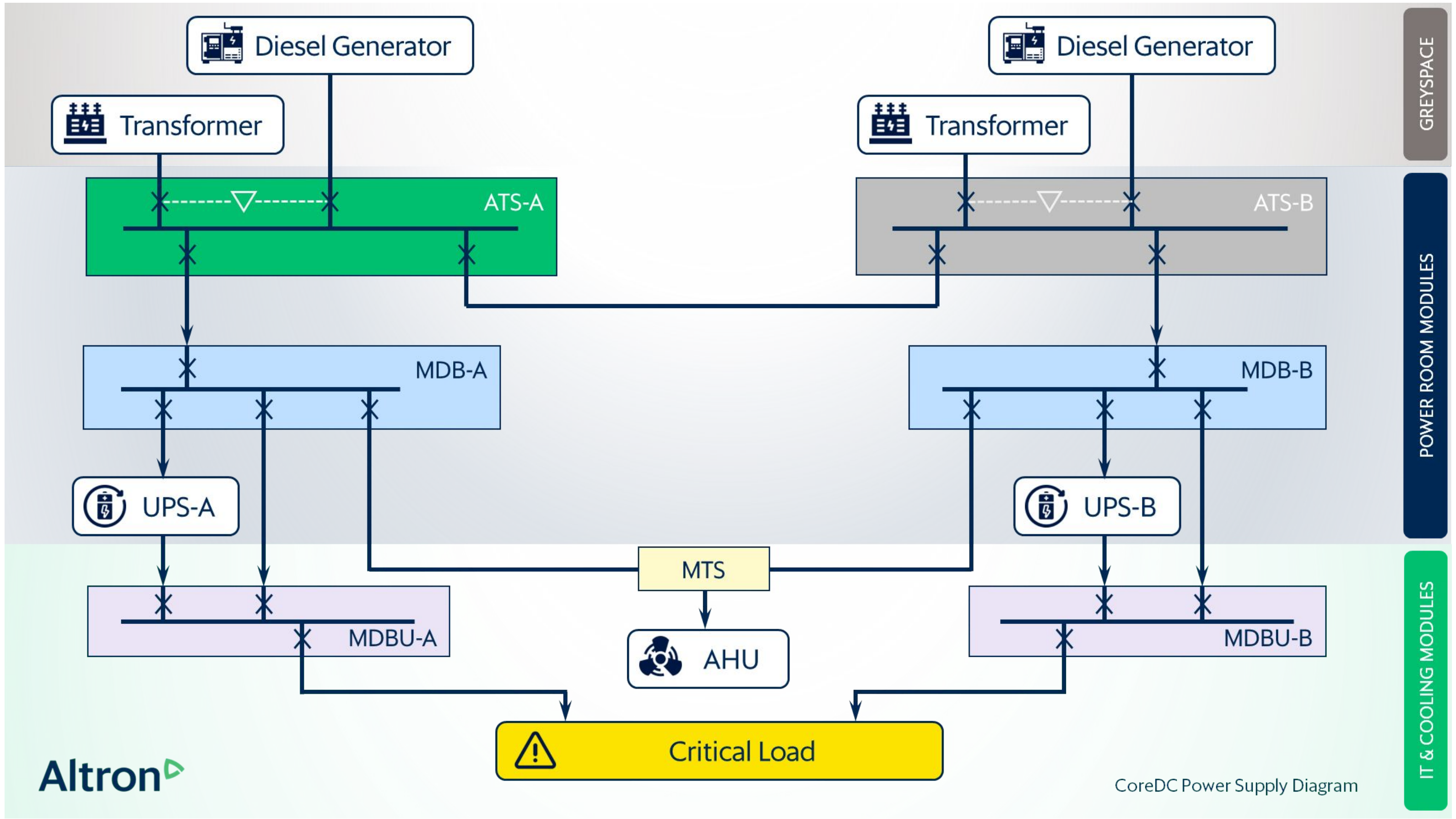
Power Modules





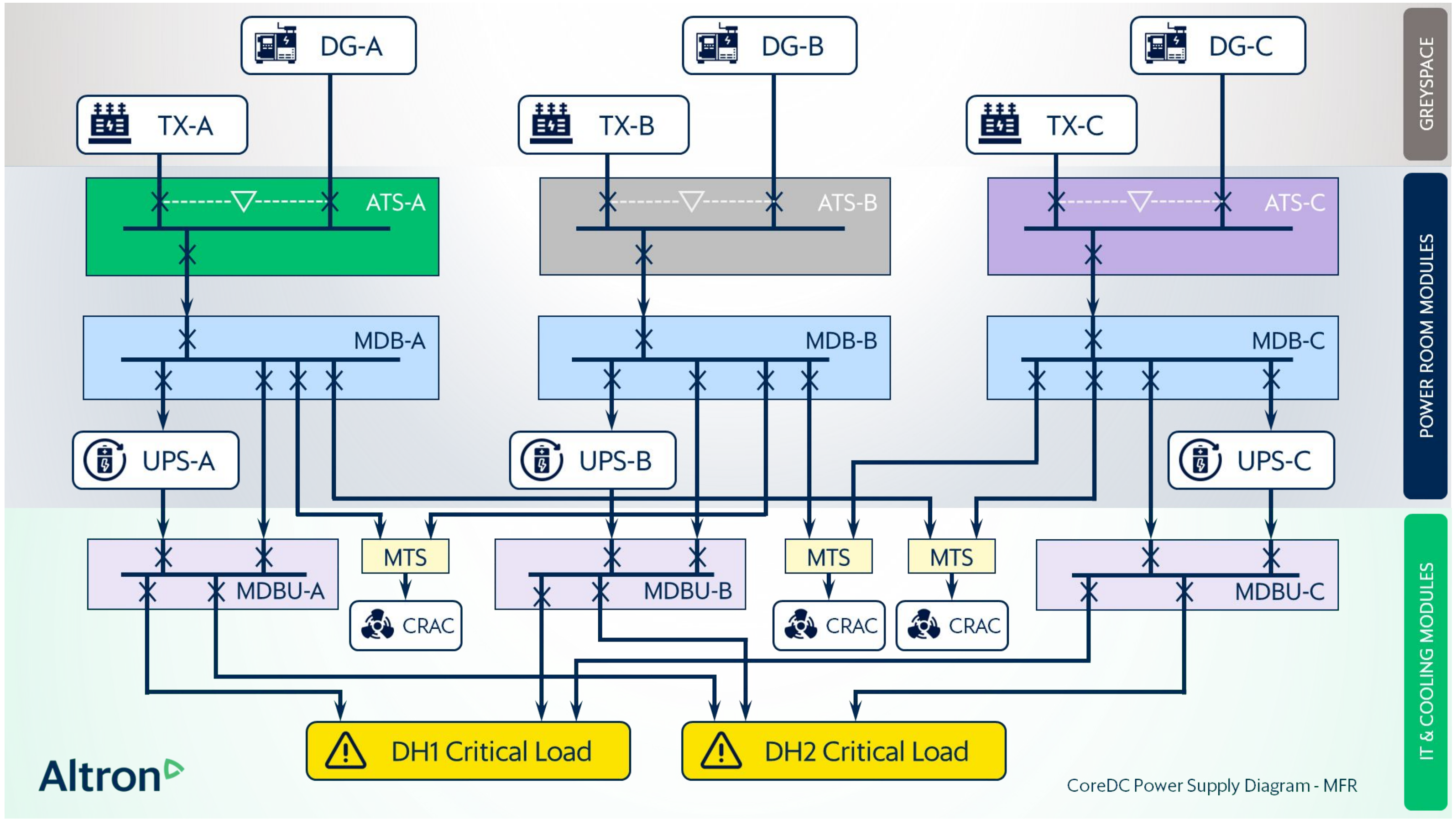
Power Redundancy

2N / **DPR Dual Path Redundancy, Ground floor deployed**



Power Redundancy

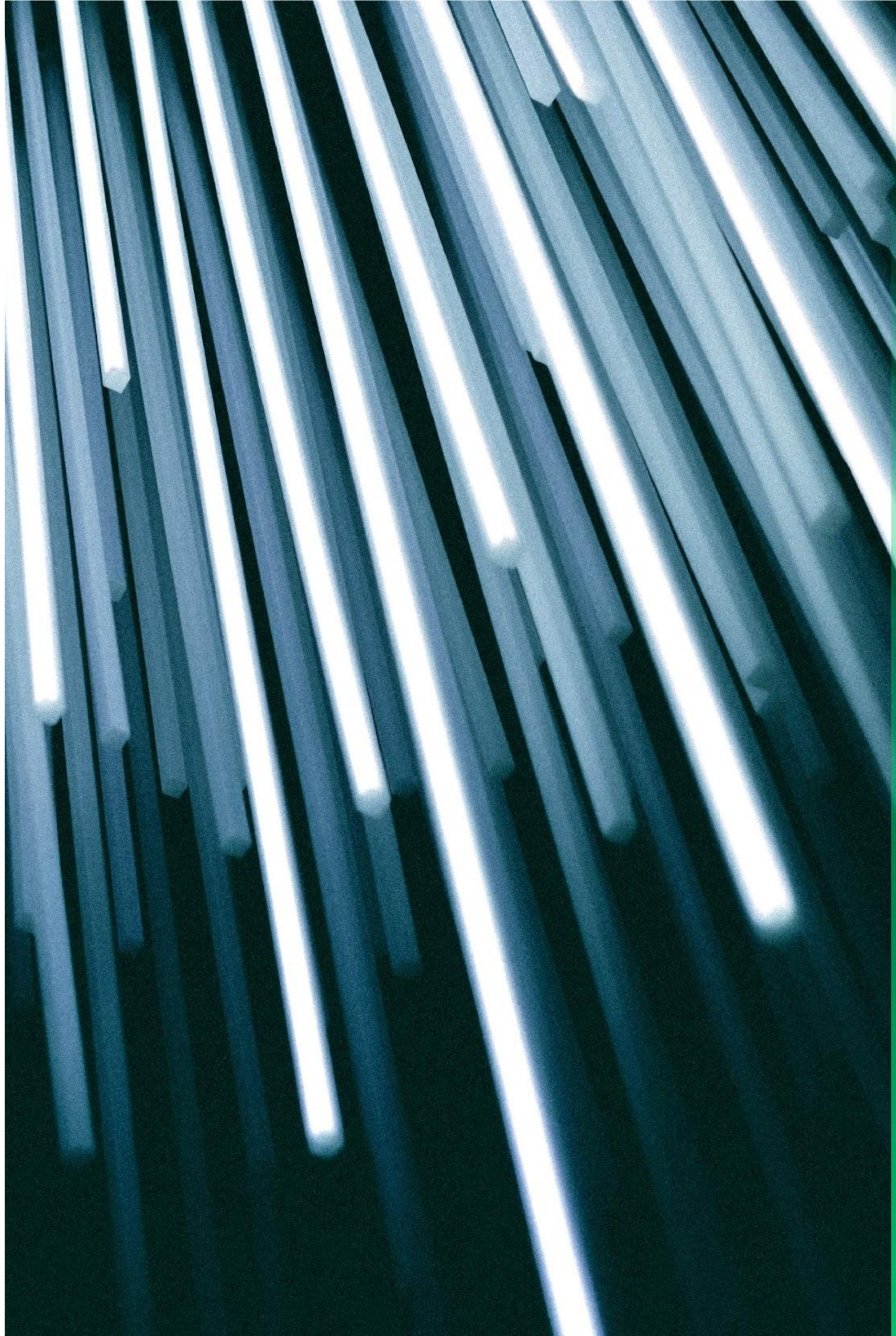
MFR Multiple Feed Redundancy, Upper floor deployed



ALTRON MODULAR

Benefits of MFR

- **Lower CapEx** of expansion, **better efficiency** of capacity components
- The MFR topology appears on the schemes to be more complex and more costly than DPR. However, **the complexity and cost at the floor level are approximately the same.**
- **DPR requires significantly more powerful buses and protection compared to MFR.**
- The bypass switch and bypass power supply must be sized for full power, while **MFR makes do with sizing to the nominal UPS power.**



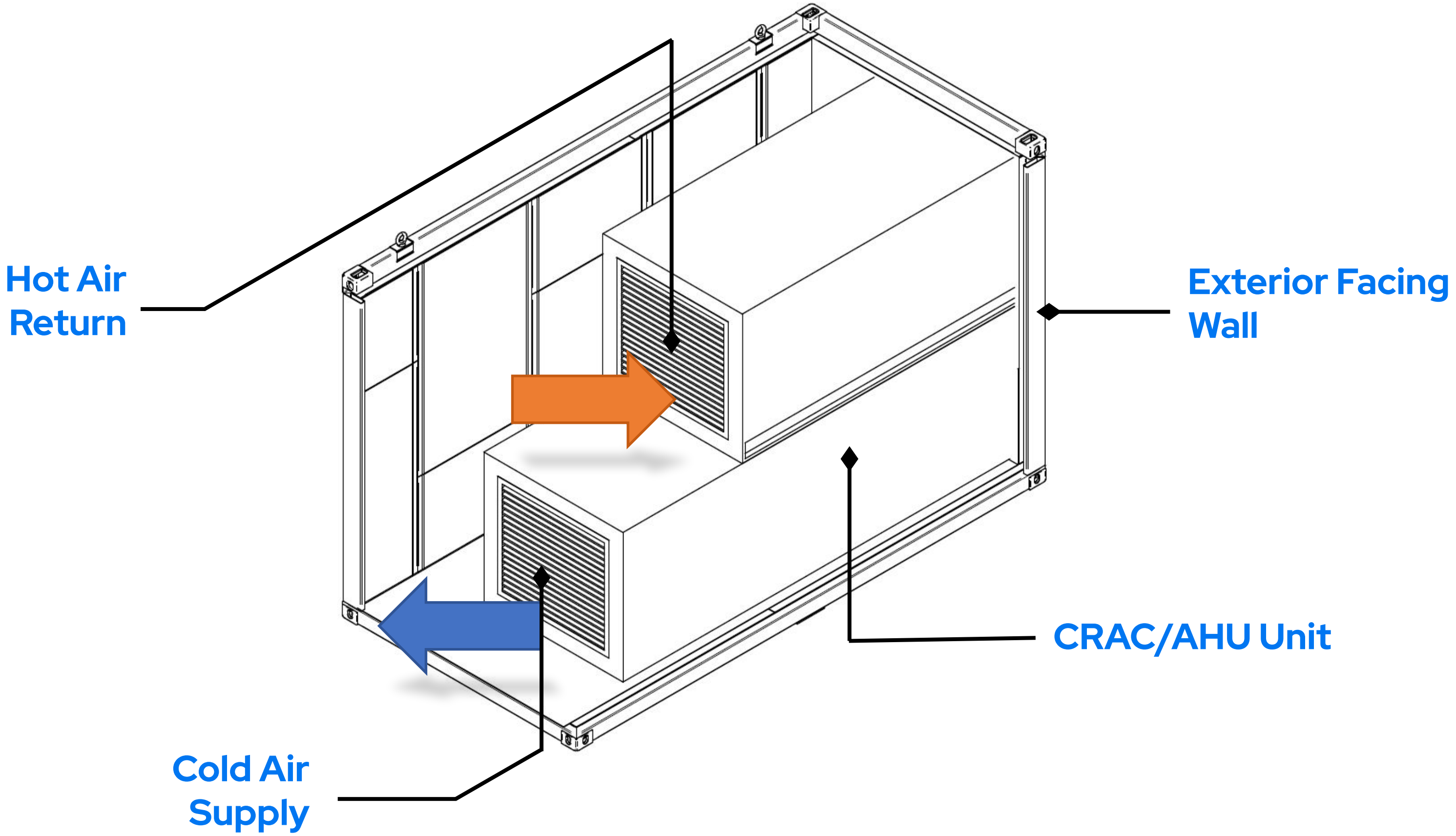
ALTRON MODULAR

Cooling methods

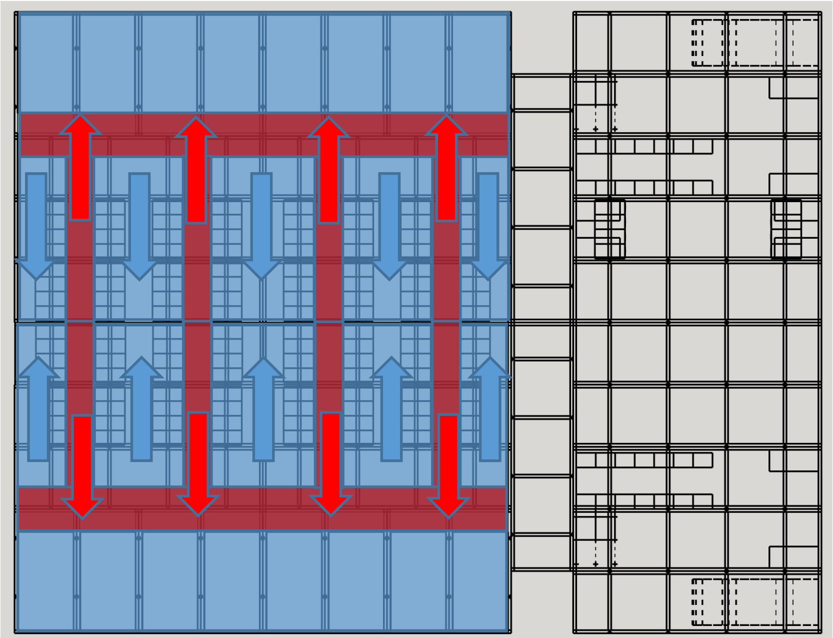
- **DX with Direct free-cooling** – feasible only in areas with favorable temperatures, saves on operating costs when in free-cooling mode
- **Pure DX** – the easiest to deploy, but potential environmental impact (green house gases, flammability)
- **Chilled water** – great option in areas with district chilled water supply (ME), more complicated design to enable concurrent maintainability
- **Dual fluid** cooling units combining both DX+CW

Cooling Modules

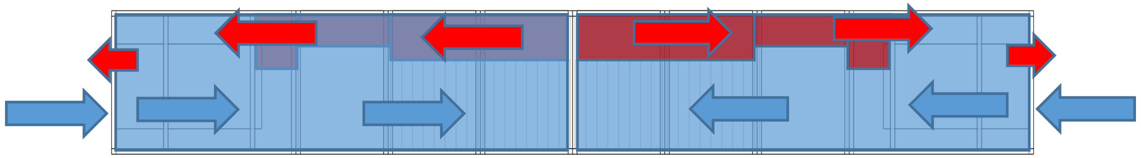
- No raised floor design
- Standard: DX CRAC units
- Option: DX/DFC AHUs (better PUE)



Hot Aisle Containment



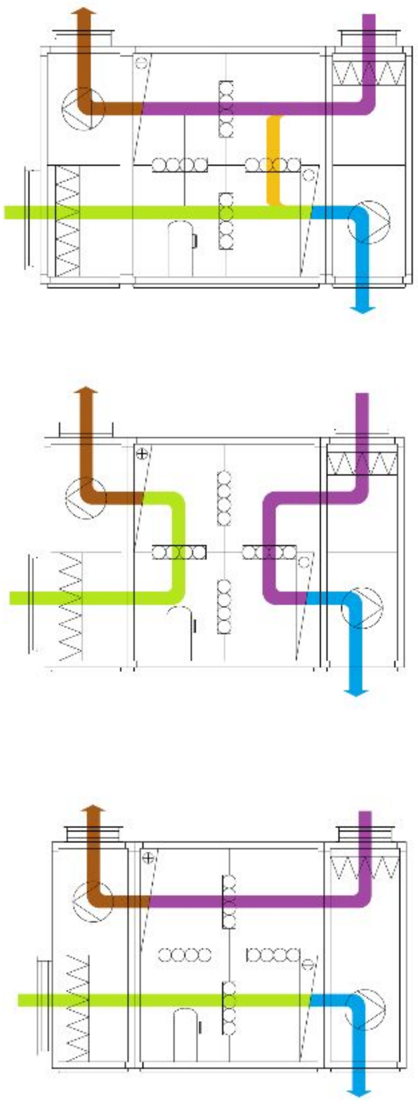
- Cold air supplied from CRAC units into whitespace
- Hot air return via ceiling-mount air duct system



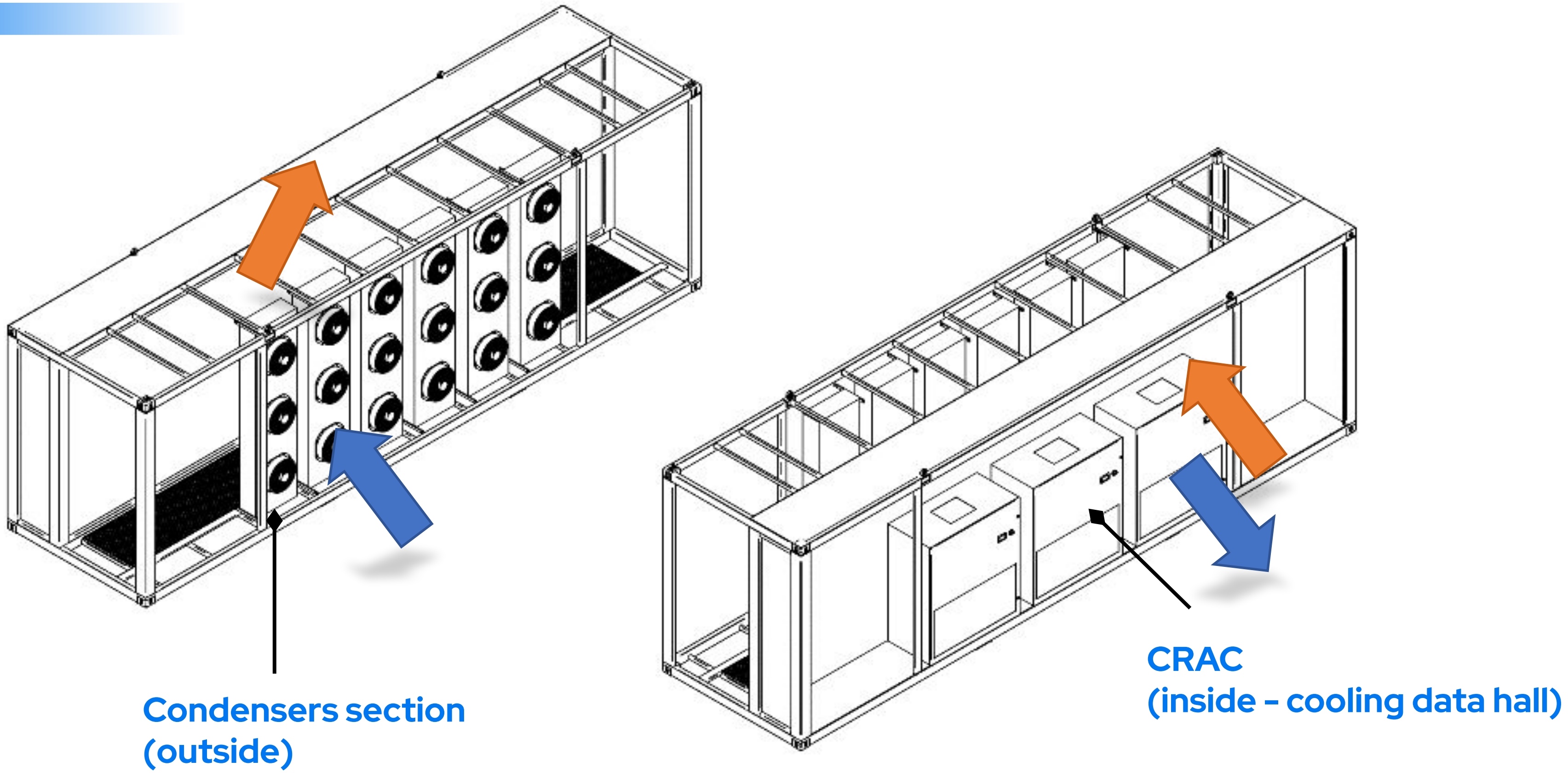
ALTRON MODULAR

DX/DFC Cooling

- Free-cooling with air mixing
- Compressor cooling and outdoor air operation
- Compressor cooling of circulation air



Pure DX Cooling



03

Features

Low risk – high value

Fast

Accelerated returns due
to prefabrication method.

Green

Sustainable product delivering instant IT
capacities.

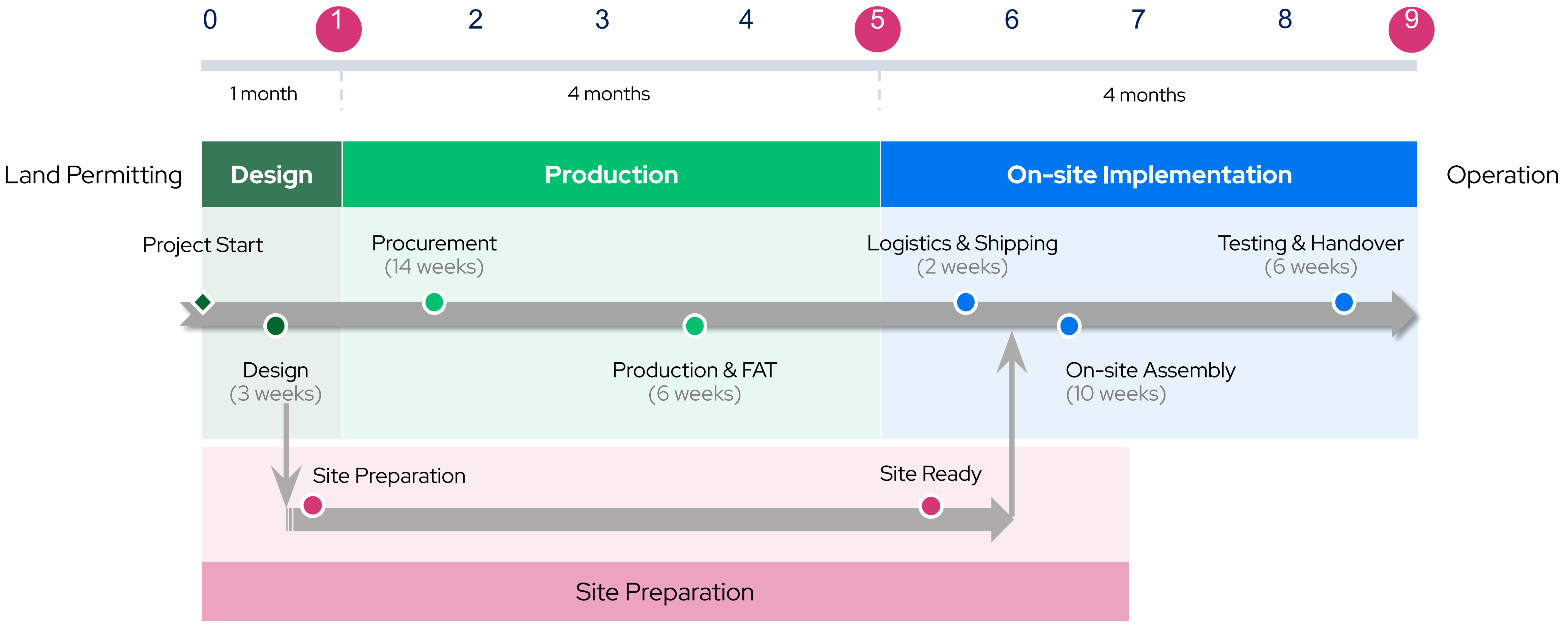
Reliable

Complex integration activities
completed at the factory level.

Secure

Physical and logical separation increase
investment protection

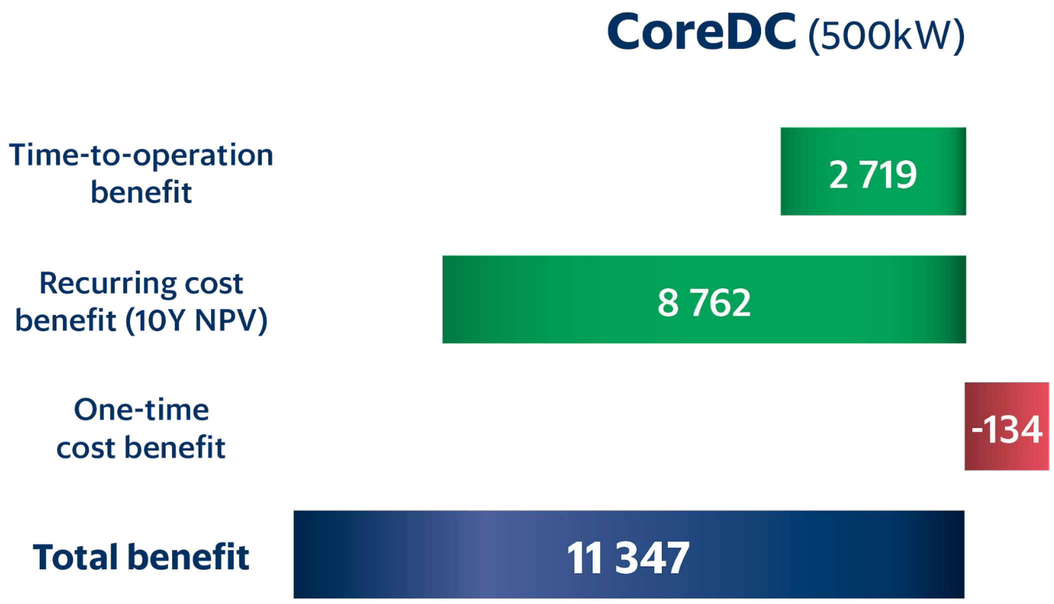
Project Timeline



*Timeline demonstrates a scenario applicable in Central Europe region

Total Cost of Ownership

Customers TCO benefit is EUR 11 mil for Core



Up to EUR 11 MIL TCO savings

Up to 22.2% lower OPEX

- high energy efficiency (low PUE)
- low maintentance costs
- Compared to stick-built alternatives **time to operation saved is 15 months** for Core (9 vs 24)
- **Significant OpEx savings** vs market standard stick-built (cheaper monitoring, operations, and maintenance) are the largest benefit

ALTRON MODULAR

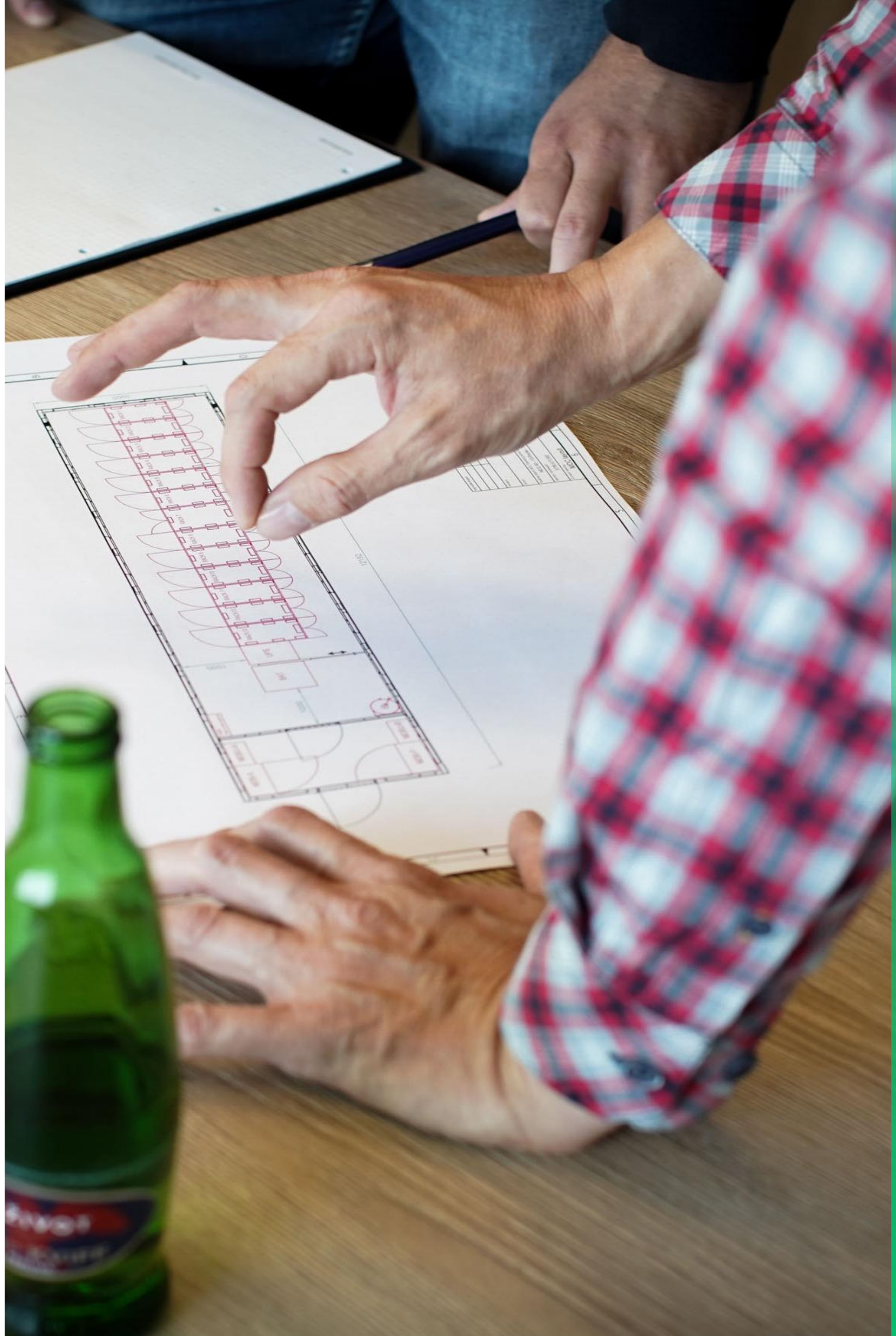
Sustainability

is at the core of Altron Modular DNA.

Our goal is to provide our customers with eco-friendly, efficient, and cost-effective data center solutions. Additionally, our research and development team is constantly innovating to develop new technologies that will help future-proof your data center while minimizing your environmental impact.

Our approach

- **Green Power Sources**
  ready for connection of all renewable power sources.
- **Waste Heat Reuse**
  recuperation of heat produced by data center can be used, not wasted.
- **Converge Operation**
  real-time optimization of data center operation.



ALTRON MODULAR

Engineering Services

Plan, design, build, support, and manage a modular data centre that meets your challenges.

Listening to our clients, understanding their specific needs, and matching these needs with our best practices and the applicable international standards.

Benefits

- Local support services availability, delivered by global support team
- Our services support only Altron Modular products.
- Expertise at large, with 30 years of experience in the industry.

Project Delivery

Client

- Land acquisition
- Funding
- Assign internal Resources
- Utility and Connectivity

Contractor

- Contractual liability
- Local site works
- Design localization
- Grey Space

Vendor

- Project technical liability
- Design & Standards
- Production
- White Space

CoreDC

04

Case studies

ALTRON MODULAR

Kokura DC1

TCO-driven product

Seznam, a.s. is a service provider, search engine, cloud, and e-commerce giant that grew in scale a require to house in their ICT infrastructure in fully owned DC facility. Upon decision, they target to be up and running in 12 months from business decision.

Investor requirements:

- Return on Investment
- Scalable, and rapid deployment
- Minimize operation costs

Solution highlights:

- Turn-key solution that meets strict parameters for efficient operation and capex targets.
- Indirect air free-cooling technology with adiabatic pre-cooling.
- System Modular Multifeed power supply architecture using low-loss transformers.
- Unmanned operation with zero DC facility operators on site.

Product:	**1 x CoreDC 1000**
Location:	**Prague, CZ**
Delivery:	**12 months**
ICT Load:	**1 MW**
Number of racks:	**200**
PUE:	**1.20**
Availability:	**TIER III**

ALTRON MODULAR

SEZNAM.CZ

Nagoja DC

Sustainability as the key factor for optimized TCO

Seznam, a.s. is a leading local service provider and teams up with leading DC integrator. Business objective = provide new capacity for 3MW ICT load due to phasing out of hosting capacities at Telco & DC service provider.

Investor requirements:

- Parallel operation with Telefonica O2 phasing out DC site.
- Zero DC facility operators at Nagoja DC site.
- 9 months to go LIVE with zero room to delay the project.

Solution highlights:

- Majority of technology blocks construction in off-site facility.
- Direct air free-cooling technology only. **Zero compressors** installed.
- **Mutual R&D** team to develop Air to Chip cooling technology.
- Real-time monitoring as a foundation to deployed umbrella control system supporting integration of all technology components **(OT+ICT)**

Product:	**1 x CoreDC 1000**
Location:	**Prague, CZ**
Delivery:	**9 months**
ICT Load:	**3 MW (1 MW in phase I.)**
Number of racks:	**300**
PUE:	**1.08**
Availability:	**TIER III**

Thank you!

ALTRON, a.s.
Novodvorská 994/138
142 21 Prague 4

altron@altron.net
+420 261 309 111
Modular.altron.net

ACCELERATING YOUR DC RETURN SINCE 1991

ALTRON
MODULAR