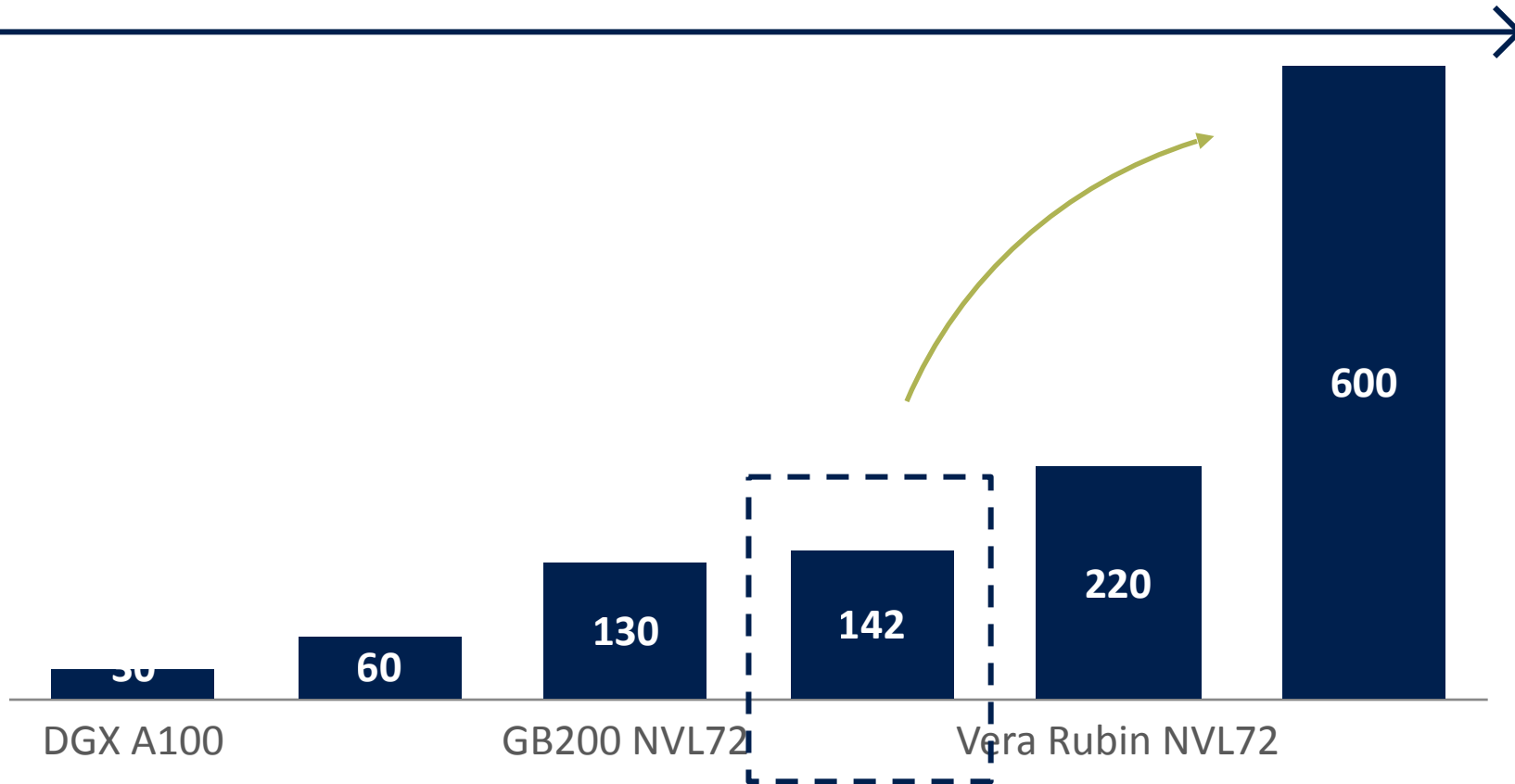




Air Cooling in the Age of AI:
Limits, Options, Reality and Outlook

Datacenter Forum, Copenhagen 2026 | David Schmidt & Christoph Löhner

AI RACK POWER DENSITY RANGE (NVIDIA)



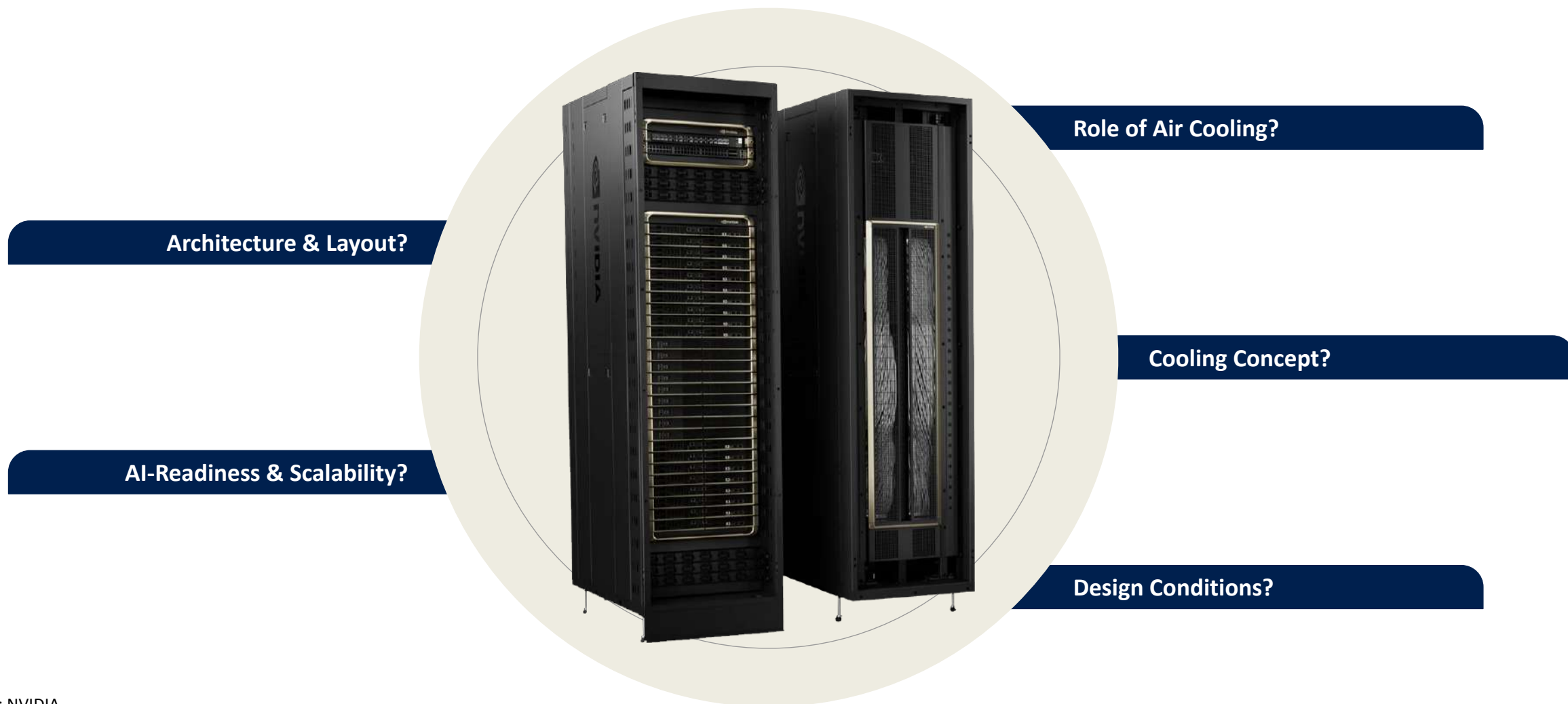
The AI data center market is moving towards **greater rack densities**

Air Cooling in the Age of AI

Limits | Options | Reality and
Outlook

AI IS RESHAPING AIR COOLING

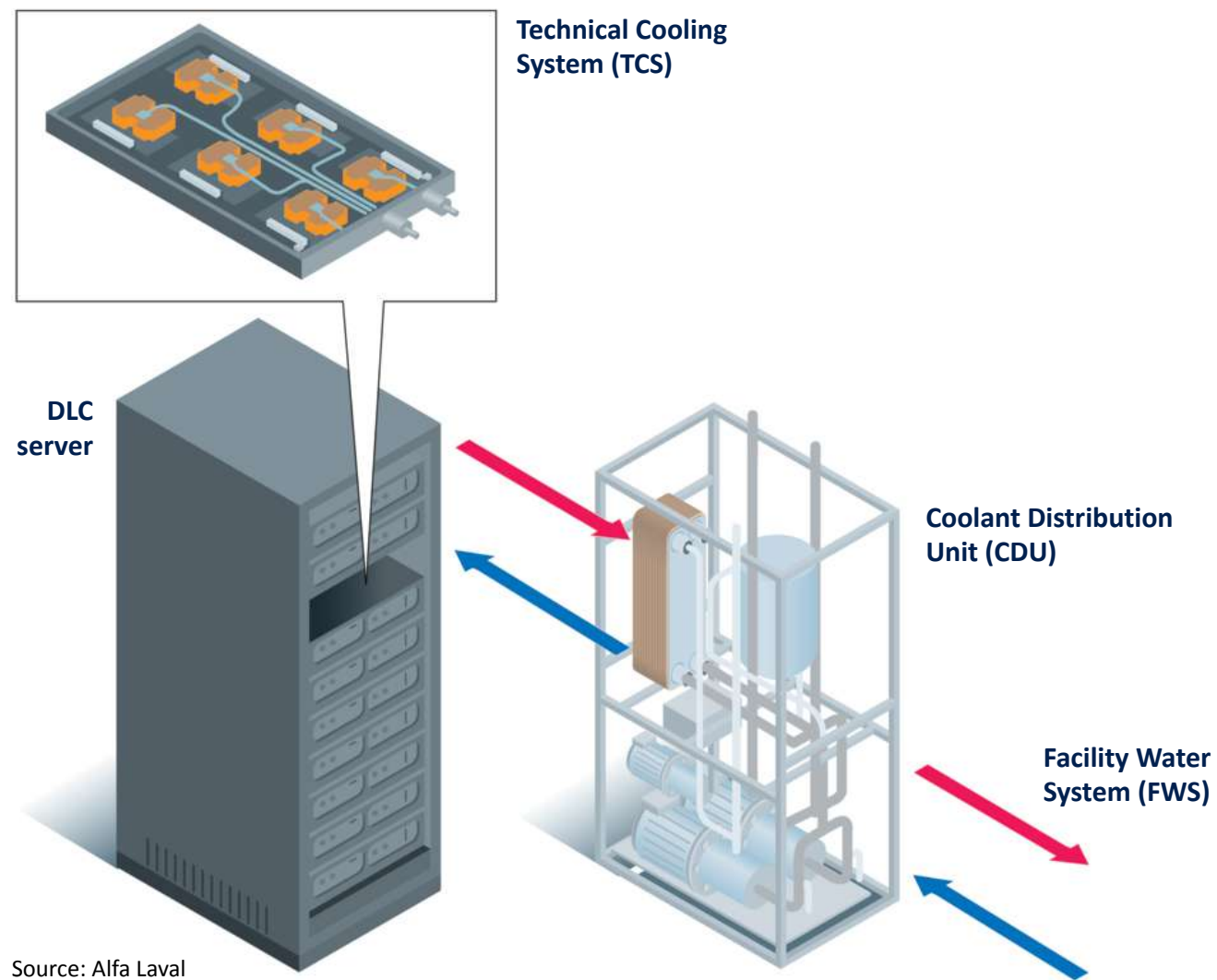
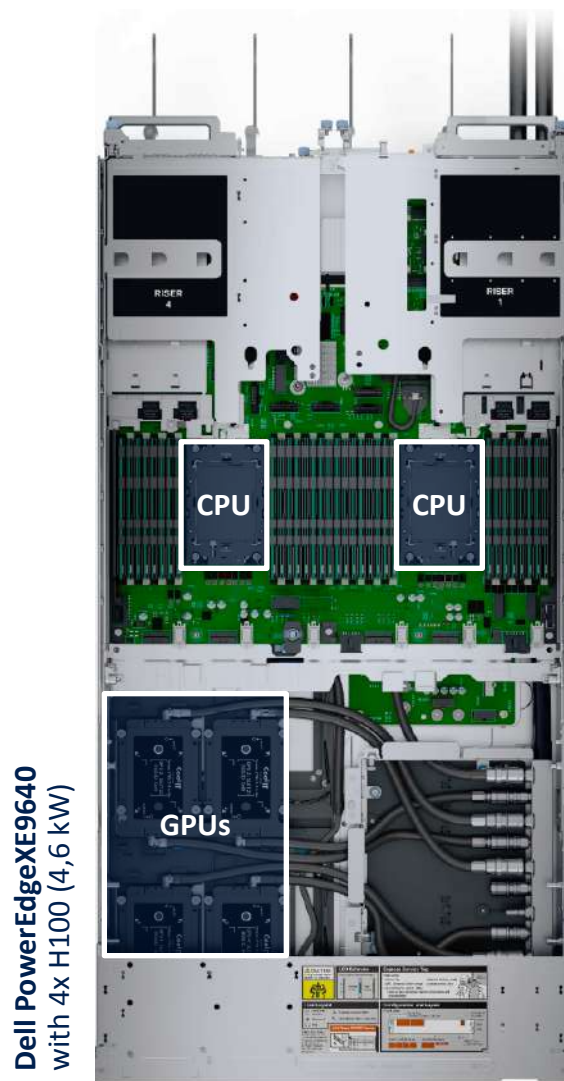
From system role to architecture, everything is under review



Source: NVIDIA

THE ROLE OF AIR COOLING IS SHIFTING

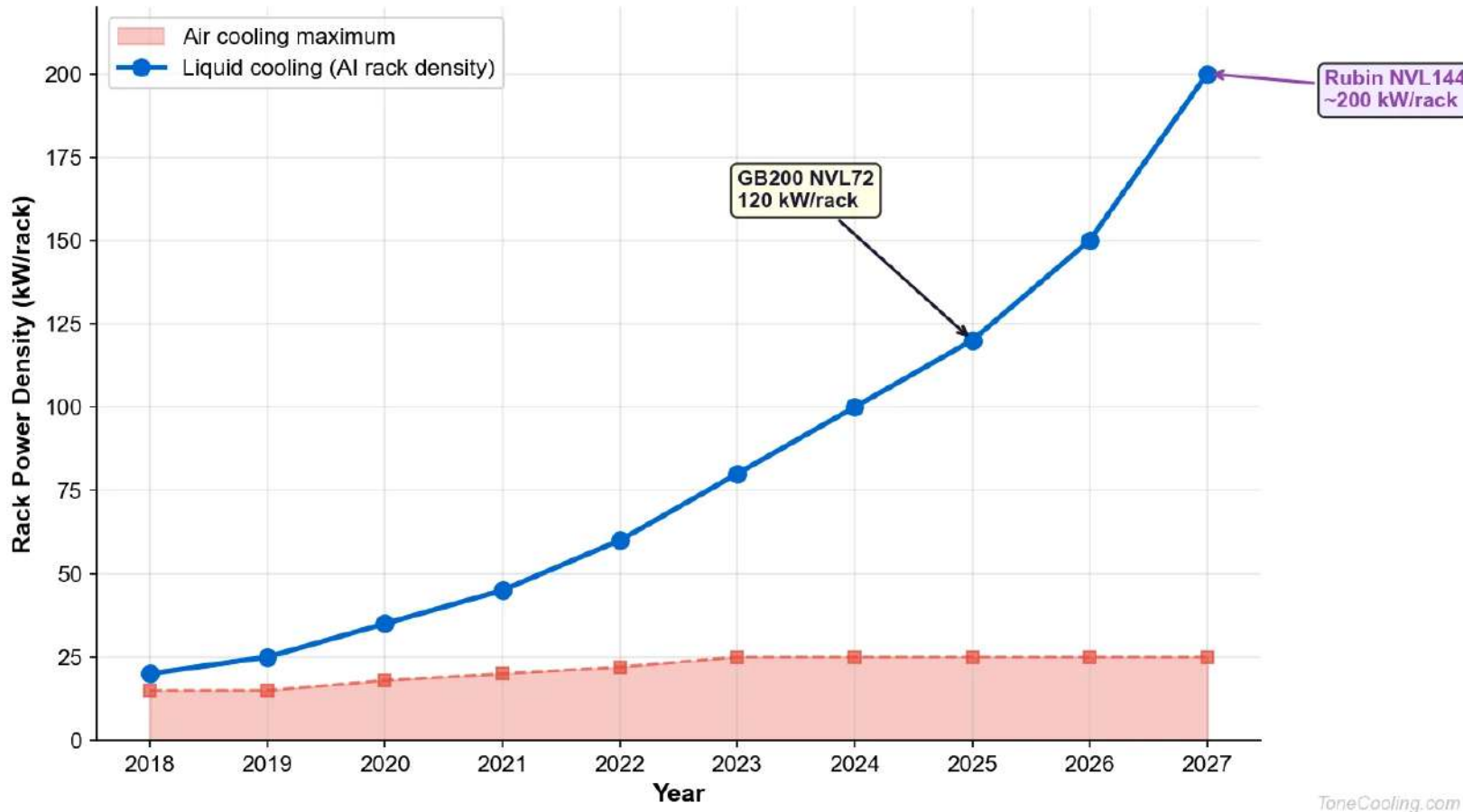
From primary cooling to system stability and thermal control



THE ROLE OF AIR COOLING IS SHIFTING

From primary cooling to system stability and thermal control

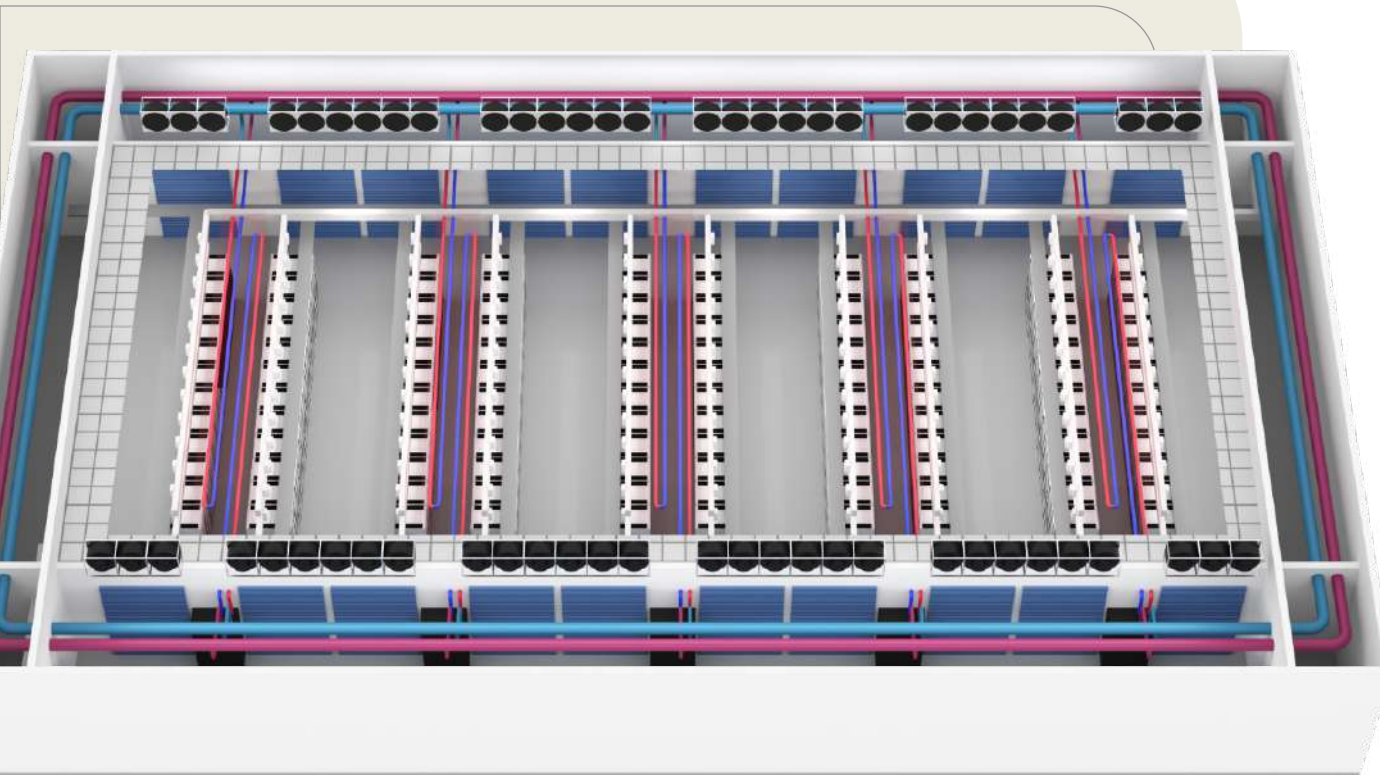
Data Center Rack Density: Air Cooling Ceiling vs Liquid Cooling Growth



Liquid cooling gains share as rack densities increase.



Air Cooling



Consequences

Loss of Thermal Control

Without airflow control, conditions drift
→ defined operating limits are exceeded.

Airflow & Pressure Instability

Pressure loss disrupts rack cooling
→ local hot spots develop rapidly.

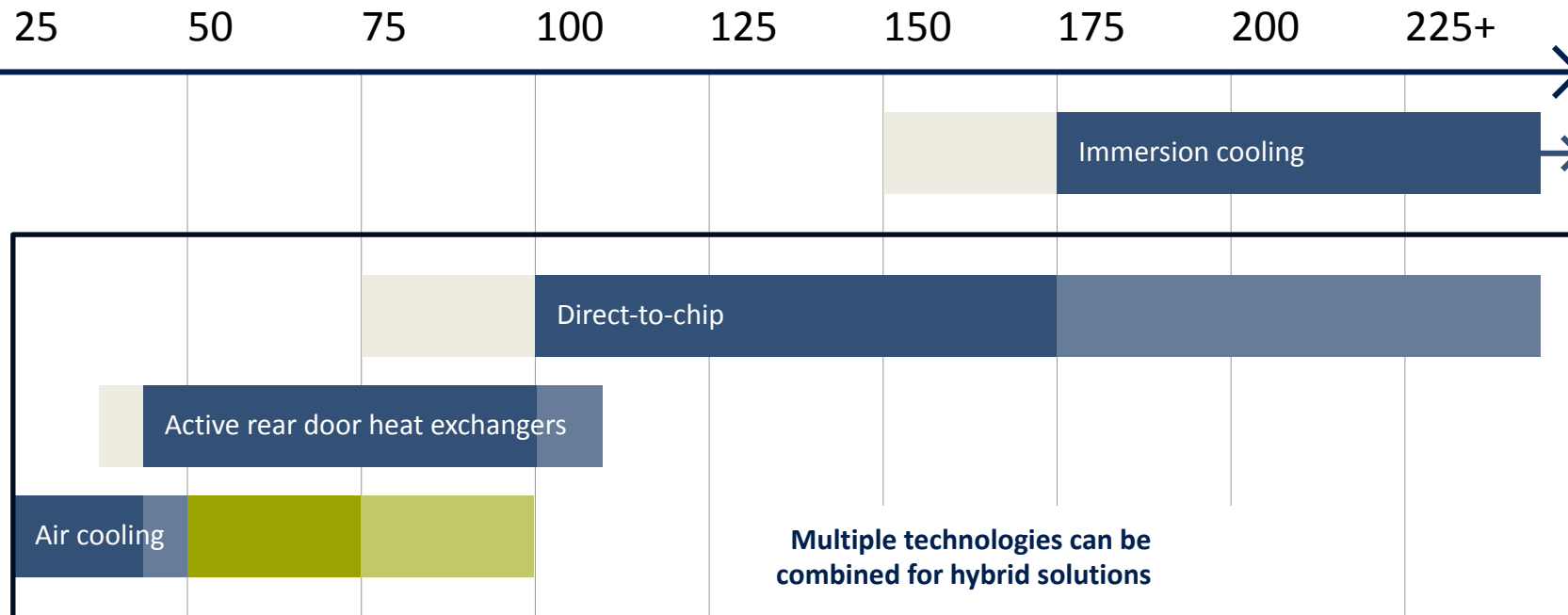
Reduced AI Reliability

Shrinking thermal margins impact IT systems
→ throttling, alarms, potential shutdown.

Air Cooling in the Age of AI

Limits | Options | Reality and
Outlook

Rack density [in kW]



Air cooling systems are coming to **its limits.**

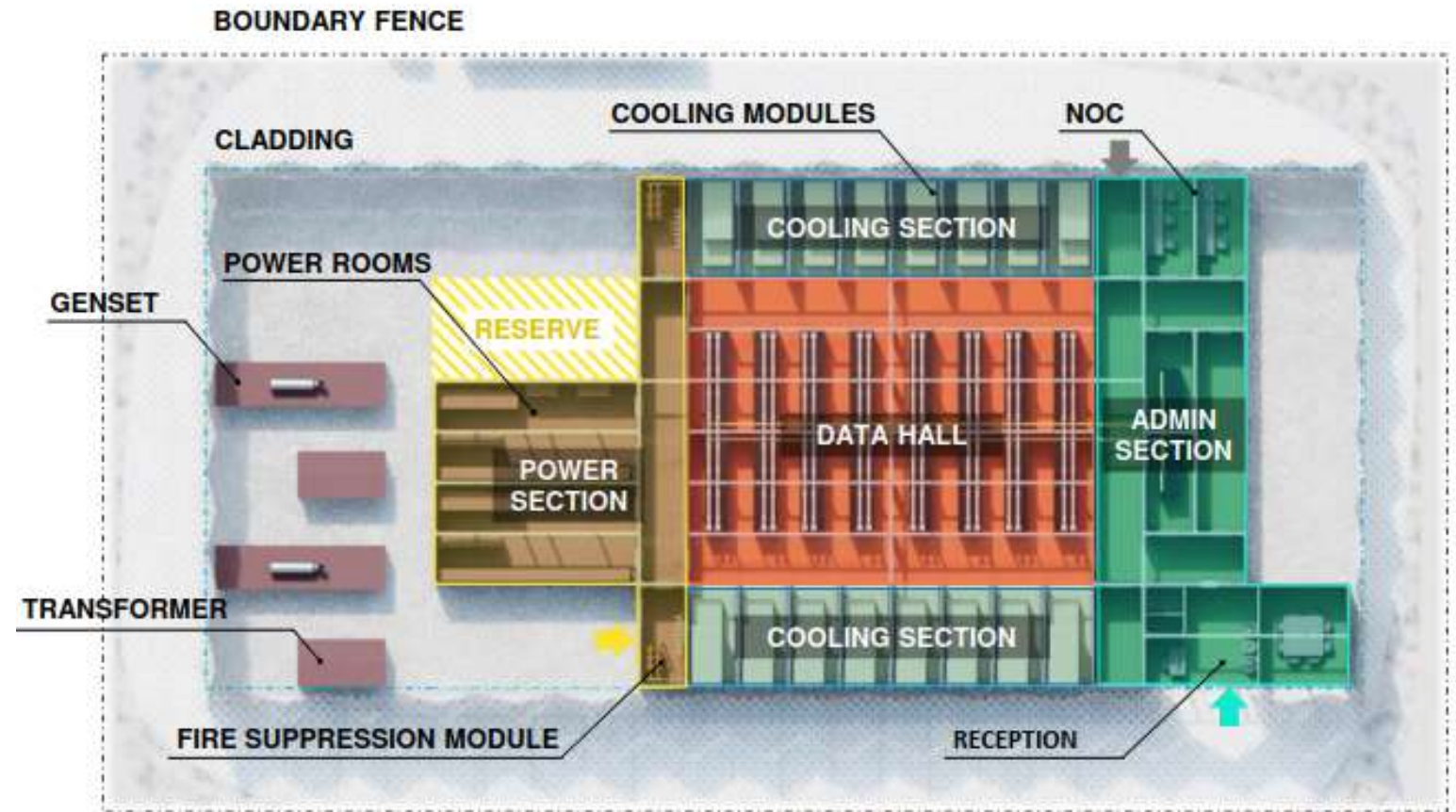
ARCHITECTURAL LIMITS

Ceiling Height & Air Volume

Technical Corridor & Service Access

Layout & Air Containment

Modularity & Scalability



Source: ALTRON

Air Cooling in the Age of AI

Limits | **Options** | Reality and
Outlook

AIR COOLING OPTIONS FOR AI DATA CENTERS

Each system shapes space, cost and performance differently



Criteria

RDHx

CRAH

FanWall

CoolWall

Footprint

Very Low

Medium–High

High

Low

Technical corridor

No

No/Yes

Yes

Yes

Flexibility

Very High

Limited

Low

High

Failure Impact

High

High

High

Low

Service Effort

High

Medium–High

Medium

Low

EER

Low

Medium

High

Very High

CAPEX

€€€€

€€

€€€

€€€

OPEX

€€€€

€€€

€€

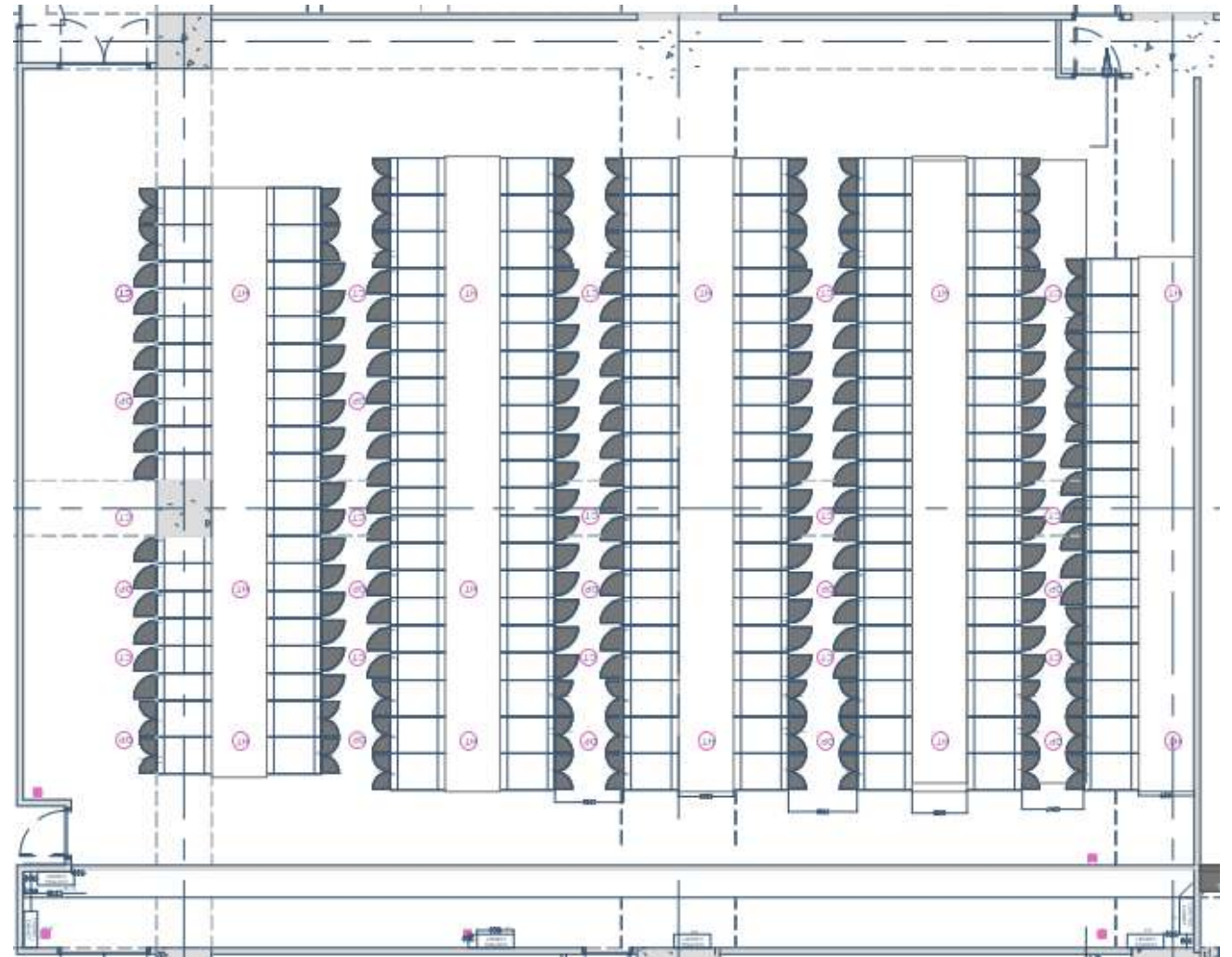
€€

Air Cooling in the Age of AI

Limits | Options | **Reality and
Outlook**

Technical requirements

Redundancy	N+1
Supply air temperature	25 °C
Return air temperature	36 °C
Water supply	20 °C
Water return	33 °C



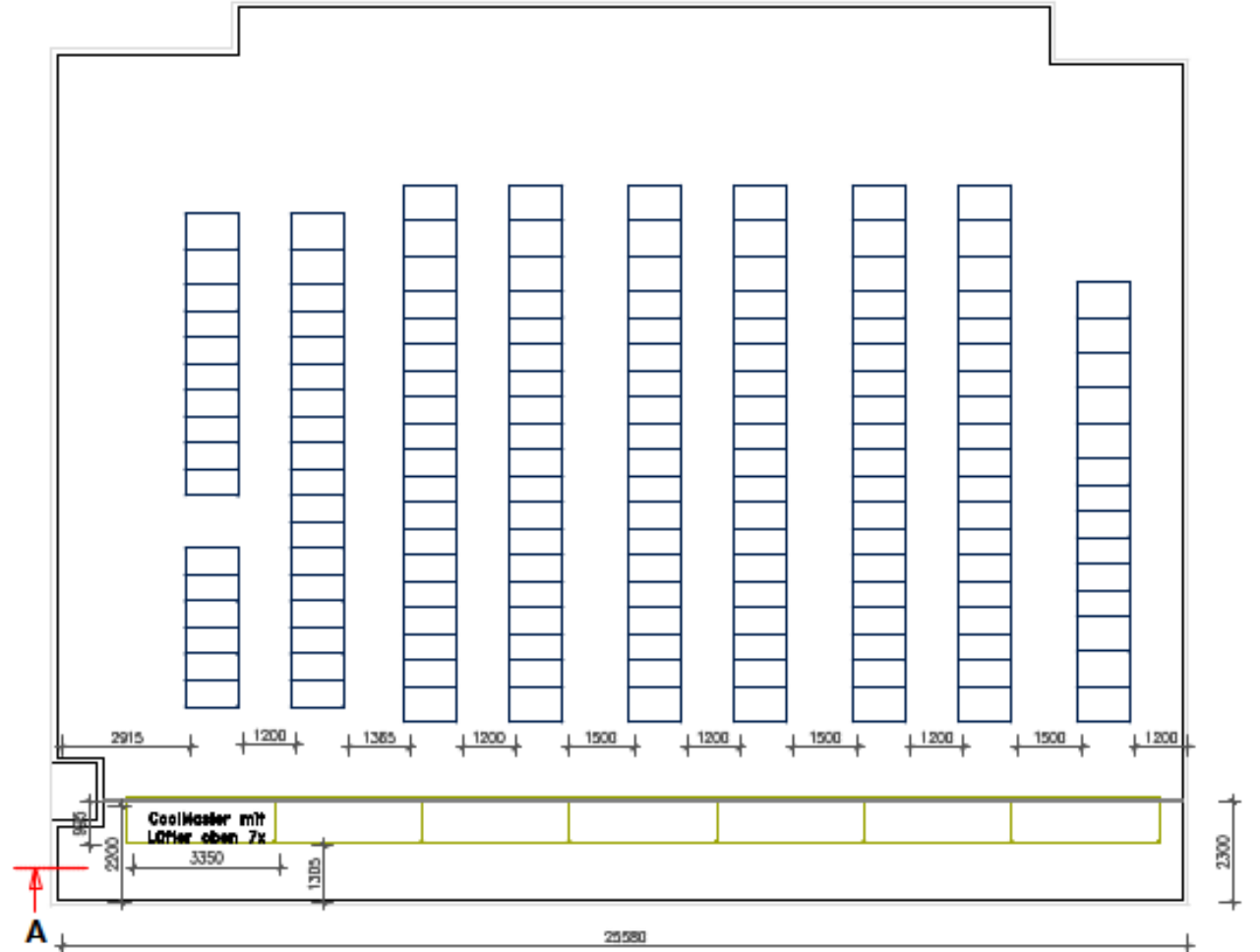
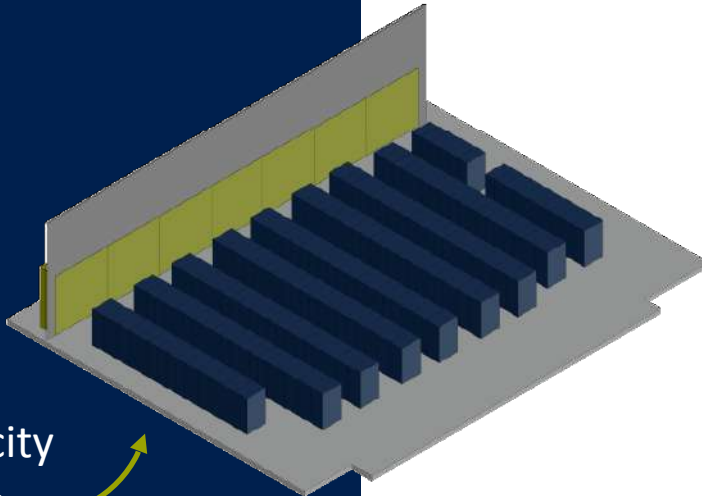
Proposed solution (CRAH)

Type:
CoolMaster 600 CW

Quantity (N+1):
6+1

Cooling capacity:
185 kW

Max. cooling capacity
(room) = **1,110 kW**



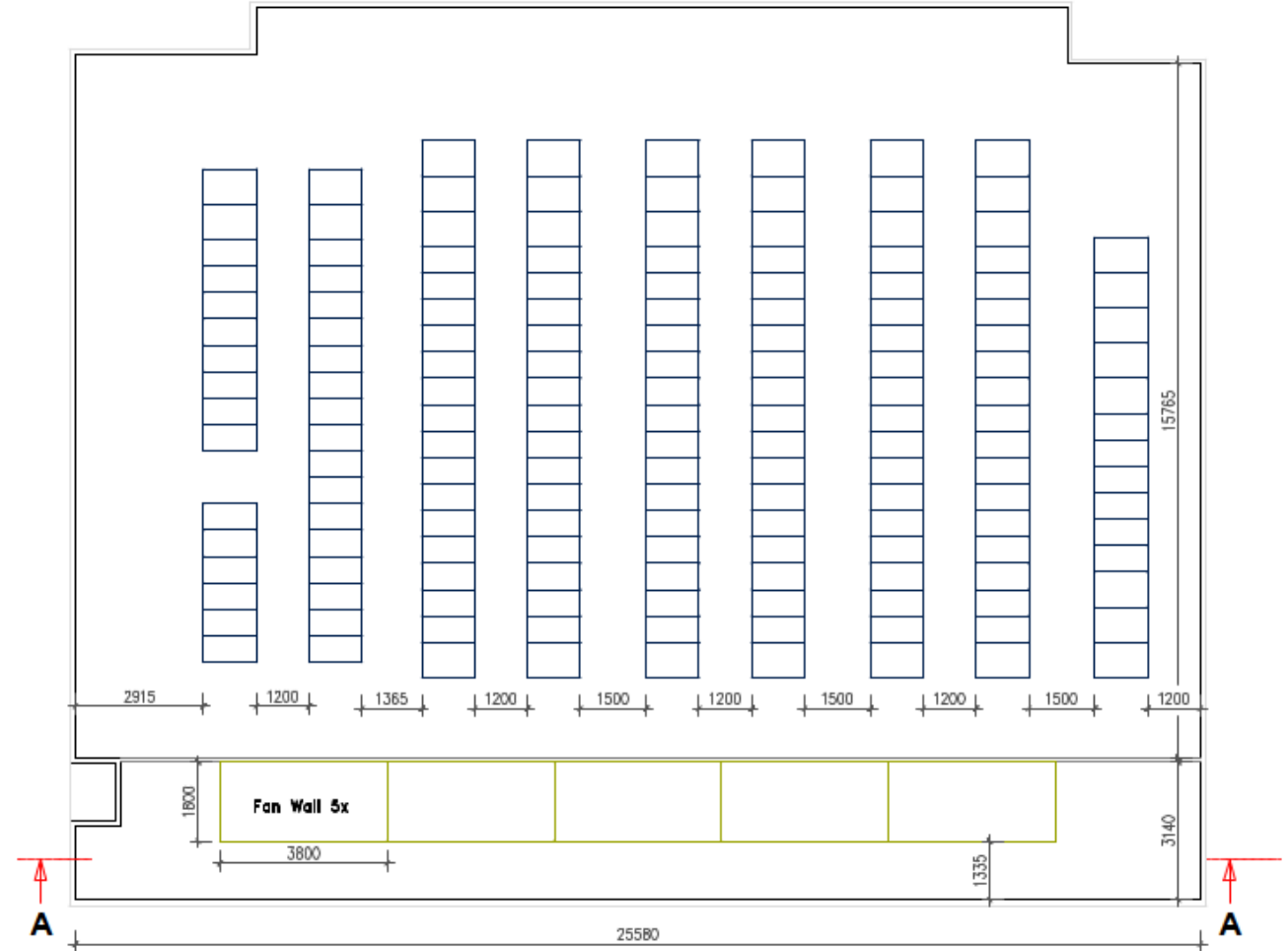
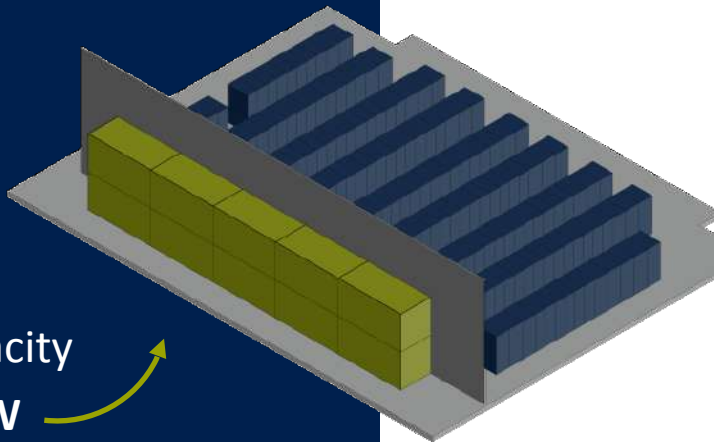
Proposed solution (FWU)

Type:
CoolCube 1,100 CW

Quantity (N+1):
4+1

Cooling capacity:
406 kW

Max. cooling capacity
(room) = **1,624 kW**



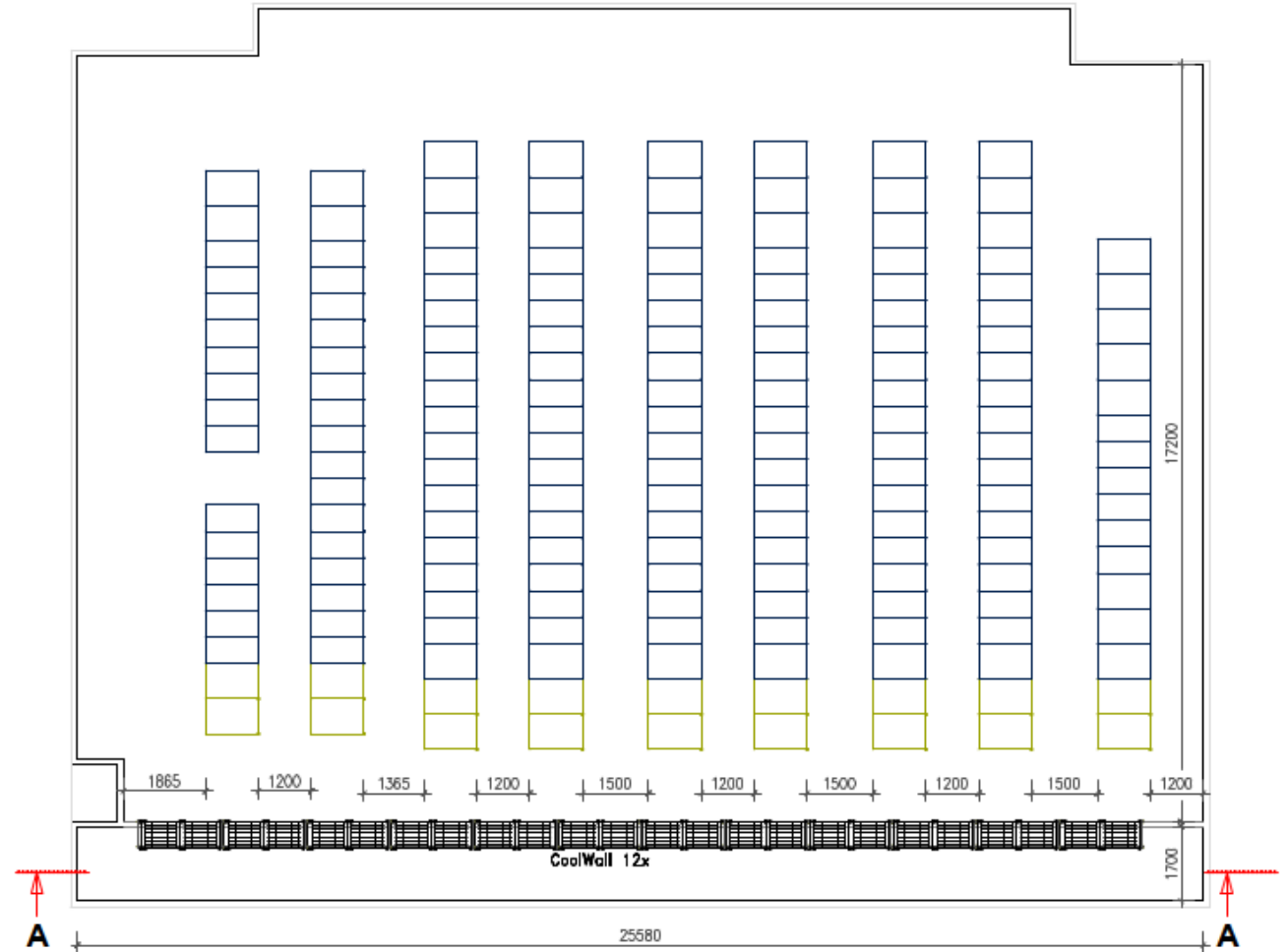
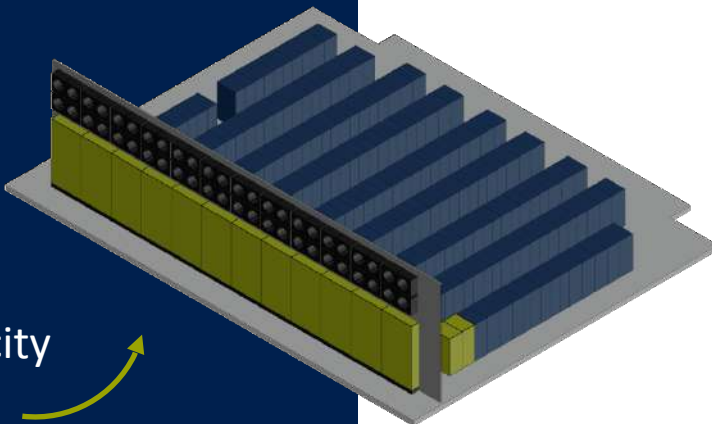
Proposed solution (CoolWall)

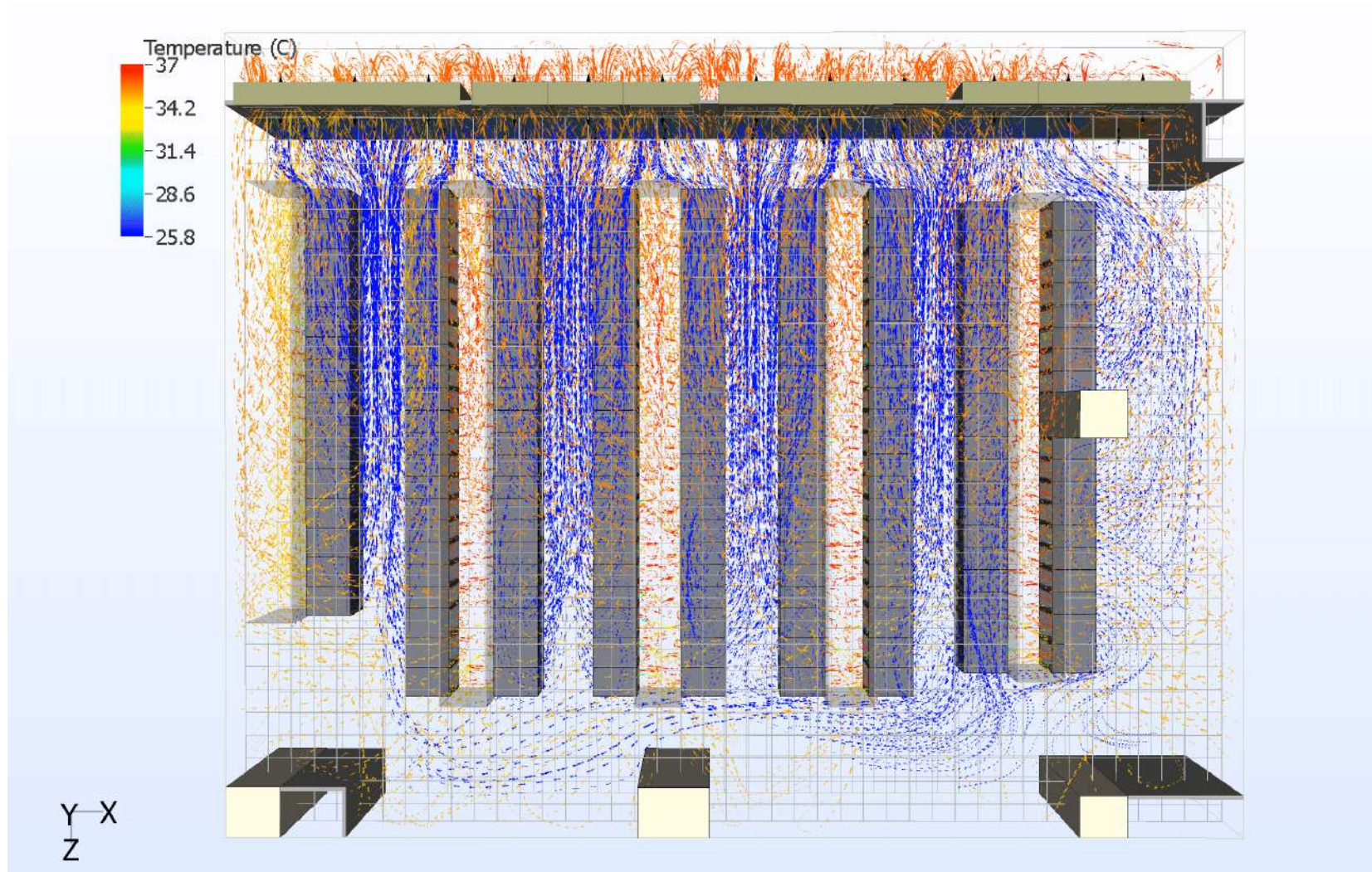
Type:
CoolWall 380 CW

Quantity (N+1):
11+1

Cooling capacity:
182 kW

Max. cooling capacity
(room) = **2,002 kW**

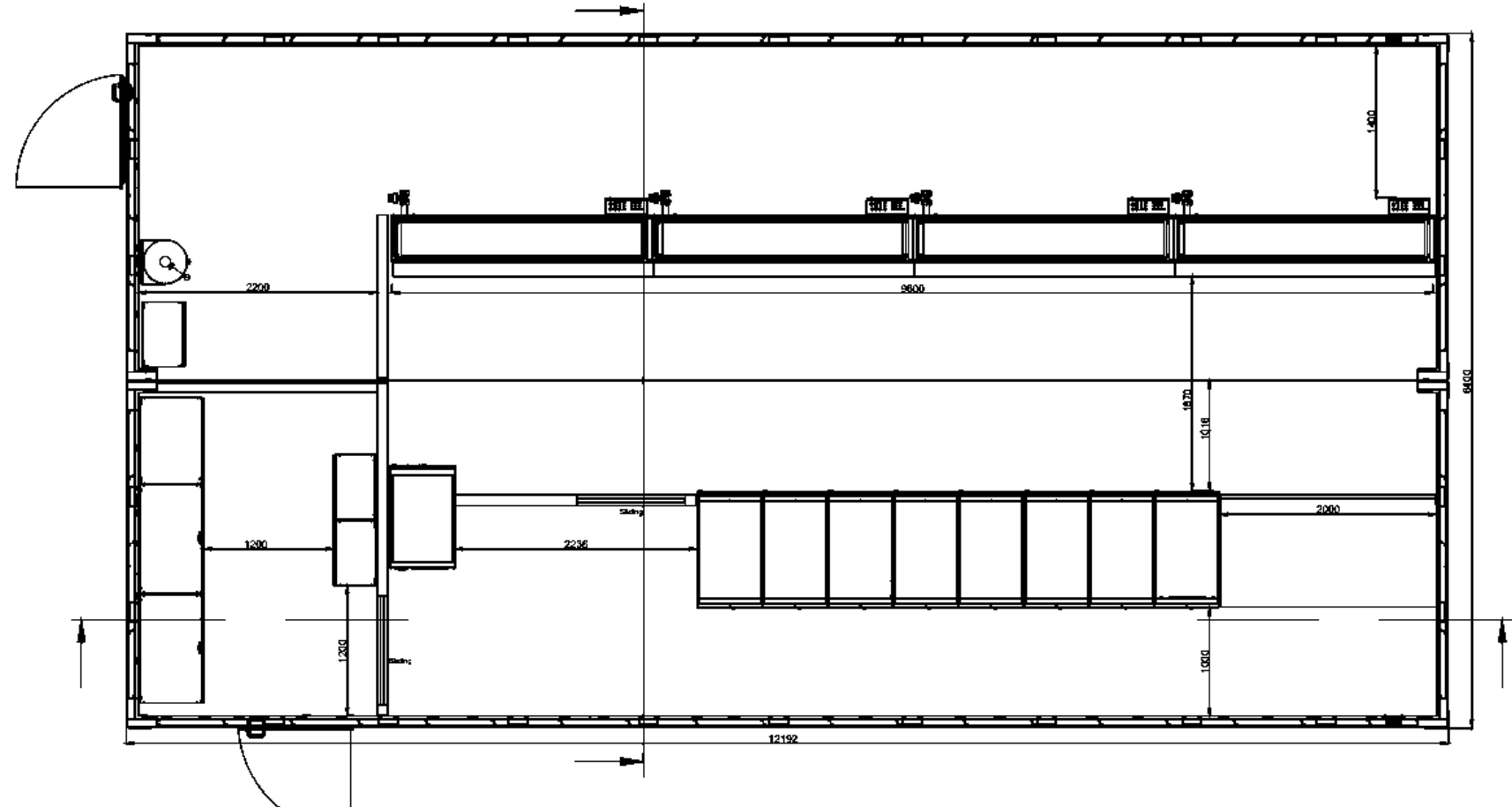




Highest capacity
per footprint with
**minimal power
consumption!**

Technical requirements

Redundancy	N+1
Supply air temperature	25 °C
Return air temperature	35 °C
Water supply	18 °C
Water return	24 °C

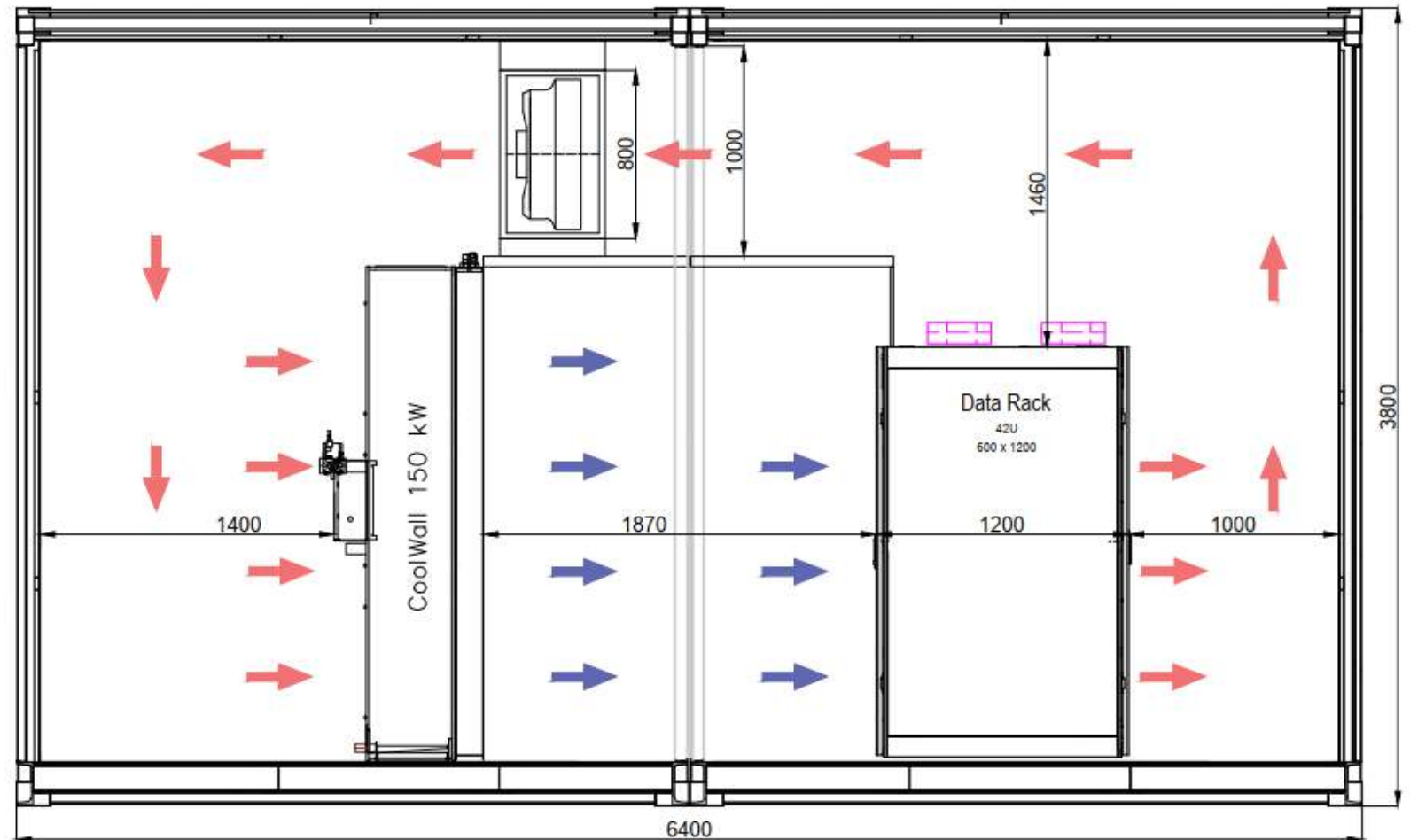


Proposed solution (CoolWall)

Type:
CoolWall 300 CW

Quantity (N+1):
3+1

Cooling capacity:
160 kW



HPC COOLING FOR A DATA CENTER IN NORWAY

Current significance of air cooling

The challenge

- Air-condition state-of-the-art data halls Kristiansand
- Manage heat loads of 32 kW per rack in a **limited space**

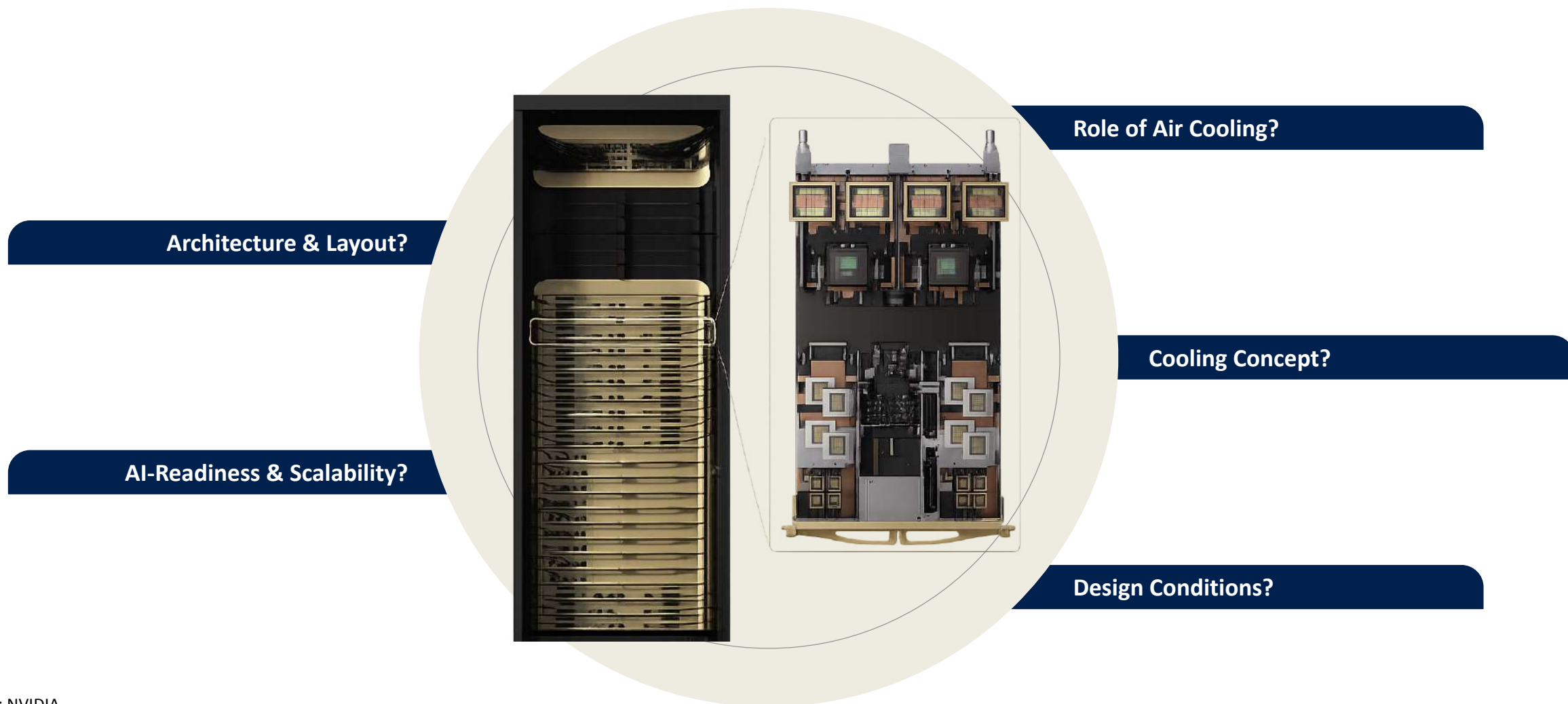
The solution

- CTS Nordics selected Weiss Technik's CoolWall technology
- 48 CoolWall kits were implemented and have been successfully operating since 2023

150 MW deployed across Europe

THE ROLE OF AIR COOLING IN AI DATA CENTERS

New AI generations raise new questions — cooling remains hybrid



Source: NVIDIA



Key Figures

26

Countries

64

Locations worldwide

10,400+

Employees

1.8 B. €

Sales in 2024

162 Mio. €

Investments in 2024

69%

Equity Ratio

We're attending Datacenter Forum Copenhagen



DATACENTER
FORUM

Copenhagen
24 September 2026

Radisson Blu Scandinavia Hotel



Disclaimer

This document is copyright protected. It was created exclusively for information, training and further education purposes and is intended for your personal use only. Any other use of the presentation, be it in whole or in part, in particular the duplication and distribution of the presentation to third parties, requires our prior written consent. Violations of the copyright law have legal consequences under civil and criminal law.

Weiss Klimatechnik GmbH

Greizer Straße 41 - 49

35447 Reiskirchen – Germany

Phone +49 6408 84-6500

info@weiss-technik.com

weiss-technik.com