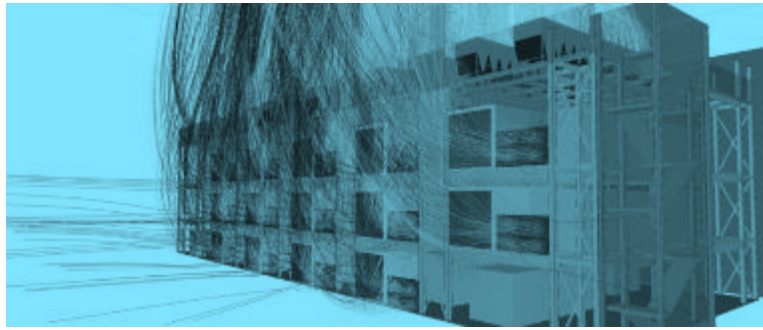
High-density data hall design validation

Optimal cooling performance with advanced CFD analysis

Salute partnered with a leading data centre facility in Norway to enhance the design of a 1.25MW high-density data hall, validating and optimising cooling performance before construction began.



Project data

Deployment location: Norway

Size of data hall: 1.25M

Deployment type: Computational Fluid Dynamics (CFD) modelling and validation for high-density data hall design

Our customer's business priority

- Achieve reliable, efficient cooling for a high-density data hall environment.
- Maximise rack power density while maintaining optimal inlet temperatures.
- Validate the design to minimise risk and avoid costly post-build modifications.

Problems our customer faced

- Confined 3.25m slab-to-slab height creating airflow and containment challenges.
- Limited design information on fan wall unit placement and control strategies.
- Need to understand resilience under failure conditions to ensure uptime.

Solutions provided by Salute

- Simulated both normal operation and failure scenarios to validate cooling resilience.
- Modelled rack layouts, containment systems and high-density zones up to 30kW per rack.
- Identified potential thermal hotspots and optimised cooling strategy pre-construction.
- Delivered advanced Computational Fluid Dynamics (CFD) modelling to test thermal performance.

Business Impact

- **Improved resilience and efficiency**
  enhancing system design to maintain thermal stability and optimise airflow performance
- **Enabled increased rack density and capacity**
  achieving up to 35kW per rack while maximising operational reliability and energy efficiency