

Case Study of Cold Aisle Construction in Saudi Arabia Data Center





Overview

Cold aisle containment improves cooling efficiency metrics significantly, enhancing SHI by over 0. Numerical analysis revealed critical hot spots due to hot air recirculation in the studied data center. Saudi Aramco's Exploration and Petroleum Engineering Computer Center (ECC) is a three-story data center built in 1982. Beyond a simple separation of flows via the creation of dedicated aisles, cold aisle containment allows for the containment of aisles for optimized cooling.



Case Study of Cold Aisle Construction in Saudi Arabia Data Center

Numerical and experimental investigations on thermal management

This study proposes the container data center with the featured cold aisle containment (CAC) as effective thermal control strategy. In design, the overhead downward flow system is

Impact of Hot and Cold Aisle Containment on Data Center

This paper examines both methodologies and highlights the reasons why hot-aisle containment emerges as the preferred best practice for new data centers.



IMPROVING DATA CENTER EFFICIENCY AND CAPACITY WITH AISLE

The fundamental difference between Hot Aisle Containment and Cold Aisle Containment is their respective abilities to increase efficiency and capacity in a particular type of data center.

How a Cold Aisle Containment Helped Saudi Aramco's

The installation of the Cold Aisle Containment System in one of the biggest companies in the world has greatly affected the overall environment of their energy-heavy data centers.

Data Center Solutions



The Hot / Cold Aisle approach is considered to be the norm for data center designs. Racks are aligned front to front and cold air is delivered using the raised floor as a

Efficient Cooling Transformation: Dubai Cold Aisle

Efficient Cooling Transformation: Dubai Cold Aisle Modular Data Center Case Study Jul 23, 2025 Project Background: To meet evolving IT

Cold Aisle Containment & Hot Aisle Containment

Executive Summary of Aisle Containment This article examines cold aisle containment and hot aisle containment (also known as cold or hot air containment) from a neutral perspective. Cross-Guard, as



The Advantages And Disadvantages Of Hot-Aisle, Cold

But there are some disadvantages to cold-aisle containment. Allowing the discharge air from the hot aisle to fill the room results in temperatures

A DEEP DIVE INTO THE WORLD OF HOT & COLD AISLE

AISLE CONTAINMENT Aisle containment is a crucial strategy in data center management. It involves the use of physical barriers or enclosures at the end of server aisles to separate hot and cold

Optimizing Thermal Performance in Data Centers: A

Through a combination of theoretical insights and practical examples, this study provides engineers, designers, and stakeholders a comprehensive



Data Centre Cooling: Hot Aisle and Cold Aisle Design

Ultimately, achieving optimum cooling in a hot/cold aisle data centre arrangement is a complex task that requires meticulous planning and attention to detail. Each

What are hot and cold aisles in the data center?

Hot and cold aisles in the data center are part of an energy-efficient layout for server racks and other computing equipment. The goal of a hot/cold

Optimized cooling , Solutions , Legrand Saudi Arabia Saudi Arabia



Beyond a simple separation of flows via the creation of dedicated aisles, cold aisle containment allows for the containment of aisles for optimized cooling. Hot and cold air are separated from the definition

Increasing the Thermal Efficiency of an Operational Data Center Using

In this case study, by applying the proposed method, SHI, RCI and COP of the cooling system have been improved by more than 0.45, 17% and 19.5%, respectively. These results demonstrate the

Data Center Containment , Schneider Electric Saudi Arabia

Schneider Electric Saudi Arabia. Discover our range of products in Data Center Containment: APCNetShelterAisleContainment, APCNetShelterRackContainment, APC NetShelter Pod Containment



Optimized cooling , Solutions , Legrand Saudi Arabia Saudi Arabia

Optimized urbanization of the clean room (computer room, the heart of the data center): Legrand offers you support in choosing solutions during the definition phase of the room's urbanization (design). The

Cold & Hot Aisle Containment For Data Center Efficiency

Cold aisle and hot aisle containment systems have emerged as essential strategies in modern data center airflow management. While these



On cold-aisle containment of a container datacenter

A full cold-aisle containment design without Coanda effect shows the best overall performance. In this study, influences of various blockage arrangements as well as cold-aisle

FOCUSED COOLING USING COLD AISLE CONTAINMENT

Arranging racks into a hot aisle/cold aisle configuration (discussed at right) is a cooling best practice that has been implemented to improve the efficiency of raised floor data centers.

Data Centers

ICS Arabia is a leader in design, construction and operations of highly reliable, scalable, redundancy and connectivity requirements-based data centers. Our



Saudi Aramco's Cold Aisle Containment Saves Energy

Saudi Aramco reconfigured the legacy data center to a Cold Aisle/Hot Aisle configuration, increasing rack densities and nearly doubling capacity.

Analyzing the Cooling Behavior of Hot and Cold Aisle Containment in

Different types of air distribution schemes have different impacts on the energy efficiency of cooling systems. The analysis results of this paper demonstrate that sealing an appropriate aisle (hot aisle or



FOCUSED COOLING USING COLD AISLE CONTAINMENT

Introduction Cooling is the hot topic in data center circles today. As heat densities and cooling costs rise, data center professionals are looking for more efficient cooling solutions. Aisle containment can

Cold Aisle Containment: An Essential Strategy for Data

The implementation of cold aisle containment is not merely an operational improvement; it is an essential strategy for sustaining long-term

Ground Supported (GS) Hot and Cold Aisle Containment

This case study details the application of an Ardmac ground supported, structural HAC



(Hot Aisle Containment) assembly for a data centre project based in Austria.

Cold Aisle Containment: Complete Implementation Guide for Data Center

Complete cold aisle containment guide for data centers. Learn CAC benefits, implementation steps, and achieve 35% cooling cost reduction.

Numerical and experimental investigations on thermal management

This study presents a container data center via the cold aisle containment design combining with a HX on the airside and a EWC on the waterside as an effective solution to enhance



Optimizing Thermal Performance in Data Centers: A

Abstract Data centers are power- and cooling-intensive facilities where even minor inefficiencies can translate into significant energy and

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