



BUCK THE TREND

When it comes to selecting the best IT infrastructure for your data centre, Luca Rozzoni, European business development manager at Chatsworth Products, explains that it's not always about the latest tech trend.

Technological trends will always influence buying decisions, as they are driven not only by advancements in technology, but the evolving needs of the data centre itself.

As more demands are being placed on the modern data centre, the focus has been on making purchasing decisions that drive efficiency, resiliency and redundancy, whilst still offering greater flexibility in the future. However, trying to decide on the best data centre design and the most appropriate products is not always about the latest trend.



What is right for one data centre might not be right for another

Whilst it is important to adopt the latest technologies, what is right for one data centre might not be right for another. It is vital to understand the different options available in terms of server cabinets and racks and the different advantages that they can bring.

The drive for efficiency has recently seen a decline in legacy open frame racks, with a rise in the adoption of enclosed cabinets. However, open frame

racks still offer a perfectly viable solution for many data centre deployments, and address a variety of applications, from supporting active equipment such as switches and servers, to providing a straightforward cable patching platform.

A key factor for choosing an open frame rack is usually financial. A complete rack solution, including cable management accessories, can reduce the cost by 50-75 per cent of the equivalent enclosed cabinet configuration.

Open frame racks also have the benefit of providing straightforward

access to the equipment or cabling sections. Without walls or side panels, the hardware is accessible from all angles, even after the installation of the cabling and active equipment.

The lack of side panels also means that it is possible to use wide and deep vertical cable managers along both sides of the frame, offering the perfect cable management solution. For example, when combined with advanced vertical cable managers, a 42U open frame rack can expand density by up to 1,000 connections (best achieved by using angled patch panels) for both copper and fibre cabling.

The ease of access provided by open frame racks can reduce the maintenance time - and the associated costs - of any future changes. The ability to access cabling and equipment quickly and easily can be extremely advantageous in terms of the MTTR (Mean Time To Repair), offering the best chance of meeting key Service Level Agreement (SLA) targets.

In essence, open frame racks are cost effective, easily accessible and durable, making them a sound option for telecom equipment, servers or networking with a relative low power load where cooling requirements are not a key cause for concern.

However, the cost savings that can be achieved through open racks have to be weighed against the potential for poor aesthetics and a greater security problem. The ease of access for open racks poses a security risk for both accidental and/or intentional damage. Additionally, open frame racks do not offer the same degree of aesthetics as enclosed cabinets. With equipment, cables and cable managers all in plain sight, they can be difficult to make attractive. This problem becomes worse over time if they are poorly maintained.

Finally, whilst by their very nature open racks are designed to provide unobstructed airflow, this means that the active equipment is exposed to dirt and debris, which can cause irreversible damage to the fans and the silicon technology.

Superior airflow

Enclosed cabinets offer much better controlled airflow and the potential for increased security measures. The superior airflow management offered by enclosed cabinet solutions is becoming increasingly important as demands placed on the data centre result in a greater reliance on the infrastructure itself. With rack power density continuing to rise, cooling optimisation technologies are becoming critical to ensure greater efficiency and reliability.

Enclosed cabinets offer a variety of highly effective air segregation strategies from cabinet level containment, to cold aisle and hot aisle containment. Cabinet level containment is characterised by a vertical exhaust duct (chimney) and combined with specific accessories and defined cabinet geometries to control the airflow. Cold aisle containment is defined by an aisle roof and two aisle doors to create a segregated cold aisle environment. Hot aisle containment is created by building a hot aisle exhaust system connected to the return plenum and two aisle doors to form a segregated hot aisle environment.

Enclosed cabinets also offer a much safer environment for hosting sensitive data. A variety of locking systems are available to prevent unauthorised entry, which has become a key concern for many data centres and their customers. Unfortunately, this restricted access can cause problems when it comes to maintenance operations.

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Efficient rack design

Designing an IT infrastructure that is going to work best for your data centre involves more than just choosing between racks, enclosures and cabinets. It's vital to understand the thermal and environmental performance of your chosen infrastructure.

Keeping track of environment variables will help create a more efficient rack design. For example, some servers will generate more heat, while others may need more power. By seeing what system is taking up which resources, administrators can better position their environment for optimal use.

Today's intelligent power distribution units (PDUs) can provide monitoring of voltage, amperage, power and energy at the input and branch circuit levels with threshold and notification capabilities. This greater visibility allows a proactive approach to reducing IT equipment energy consumption.

When designing an IT infrastructure and trying to choose between enclosures, server cabinets and racks, it is wise to examine all the factors that will play a major role in the lifetime of the installation and look at sourcing a complete solution that will not only serve the core requirements but create a data centre that is 'fit for the future'. 

