

INFOBrief

Dell™ 4210 Rack Cabinet *Optimized for PowerEdge™, PowerApp™ & PowerVault™*



Key Points

Completely redesigned, the Dell 42U rack enclosure maximizes system manageability, improves accessibility and offers excellent hardware security features. It supports the same Dell PowerEdge, PowerVault, and PowerApp products as Dell's previous rack, offers a host of new features, and does it all at a lower overall cost.

- The Dell™ 4210 Rack Cabinet, a full-size 42U rack, offers unprecedented ease-of-access to the front, back, and sides of the installed servers. Easier servicing can result in decreased downtime and heightened reliability.
- The Dell 4210 Rack Cabinet offers an added level of security to enhance safe operation of mission critical server and storage systems.
- Integrated cable management features in the Dell 4210 Rack Cabinet are designed to bring an end to customers' cable nightmares.
- The Dell 4210 Rack Cabinet is the ideal enclosure to facilitate the proper cooling and environmental protection of all Dell PowerEdge™, PowerVault™, and PowerApp™ rack-mount products.
- The Dell 4210 Rack Cabinet is designed to make Dell hardware installation a fast and painless process via the tool free Rapid Rail™ and cable management arms included in Dell Rack Mount Installation Kits and clearly labeled U positions on all rails.

Racks have evolved to provide physical hardware consolidation, environmental protection, and simplified serviceability.

The Dell 4210 maintains all of the features of Dell's previous 42U rack, with over a dozen additional enhancements, and does it all at a lower overall cost.

Simplified installation reduces overall time needed to physically set-up new server and storage components.

Background

As the importance of centralized server administration has grown in both the corporate and data center environments, system administrators realized the need to move servers off of overcrowded desktop space and wooden shelving into something more sturdy and accessible. The first set of metal shelves used for this purpose quickly evolved into custom-manufactured rack enclosures. The benefits of such racks are considerable, and include added environmental protection, easier access to vital components, more stable cable connections, the ability to fit more components into available office space, better air-flow for easier server cooling, and more. The standard for rack-mounted components is measured in rack Units (1.75-inch [44.45mm] = 1U) with a full size rack capable of holding 42U.

Dell began offering branded racks about one year after the launch of the PowerEdge line (1995). Manufactured for Dell by Rittal, the racks have been modified several times over the years, undergoing changes in coloration, branding, and materials. Rittal also manufactures the new 4210 rack enclosure. Based on one of Rittal's more feature-rich product lines and customized to Dell specifications, the 4210 Rack Cabinet addresses many of Dell's customers' needs for greater accessibility, security, manageability and reliability.

Product Description

The Dell 4210 Rack Cabinet takes our rack enclosure offerings to the next level. Designed with a best of breeds approach, we have taken the basic functionality and capabilities of our previous racks and added a host of features designed to simplify installation, enhance security, facilitate system and cable management, and more. Dell listened carefully to customers' comments and designed a rack that can help recapture their most precious resource - time.

The Dell 4210 Rack Cabinet conforms to industry standards for full height racks. It is designed to accommodate 19-inch wide rack-mount components and can bear a full 2000 lbs. of internal components. Fully 1000mm deep, it provides ample room for cable management in the rear of the cabinet without interfering with optimal airflow. From this basic platform Dell has added features designed to enhance or simplify the following functional categories:

1. Installation
2. Cable Management
3. Serviceability
4. System Availability
5. Hardware Security

Installation

A very time consuming operation for IT managers is new system installation. Devoting several hours to physically mounting heavy server components into a new rack is hardly the most productive use of these professionals' time.

To address this Dell incorporated several new features designed to make hardware installation as painless as possible, including visible rail markings for all U positions on both the front and back of all posts, and split back doors to decrease the amount of rear clearance space required. Dell has also developed of the tool- free Rapid Rail and cable management mounting system. Finally, the overall rack height is less than 2 meters, allowing it to roll through standard height doorways.

Figure 1
Numbered “U” Mounting Holes and Rapid Rail Installation



Cable Management

Another area of concern is managing the myriad of cables necessary to connect all of the server and storage components together inside the rack. Accidentally disconnecting cables from servers while trying to stuff them into a space that is not ample for their volume can lead to hours of downtime while trying to sort out the hundreds of feet of cable some racks require.

To address this, Dell has taken a number of steps, including: increasing the overall depth of the cabinet to a full 1000mm to allow more space behind the hardware components; attaching solid metal cable management clips on the rear rails; and making available our custom tool free component cable management arms. Further, to address the differing locations of cable input locations (i.e. drop from ceiling or rise from under the floor) Dell has placed cable access holes in the roof, rear doors, and through the bottom of the cabinet.

Cable Management arms and clips help eliminate downtime due to unintentional cable disconnections.

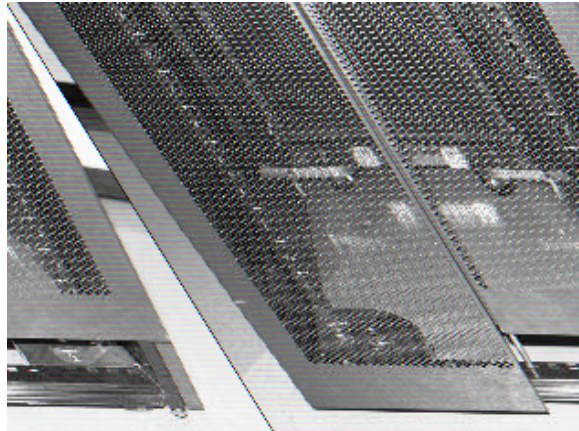
To accommodate a variety of data center cable layouts, Dell has provided multiple cable access slots in the roof, rear doors, and bottom of the cabinet.

Figure 2
Roof Cable Access Holes



Easier cable access is provided through roof cable access holes

Figure 3
Split Rear Door with Cable Access Opening



Split rear doors give the new rack the same overall footprint as previous racks allowing for easy integration into existing Dell environments.

Rapid Rails allow servicing of most Dell components without having to physically remove them from the rack.

Serviceability

Another time consuming activity of the IT manager is the physical servicing of the server and storage components after they are mounted in the rack. When a server or storage component does fail, time is of the essence in replacing it to ensure the uninterrupted operation of the system.

To simplify the servicing of the installed systems, Dell has designed Rapid Rails to help administrators effortlessly glide out servers to maintenance positions without the need to remove the server from the system, or disconnect any of the cables. The reduced weight side panels with built-in handles are designed to provide improved ease-of-access to the 0U side space.

System Availability

Since servers have to perform in real world situations, they are often subjected to environmental situations that may adversely impact their

Solid rubber casters, adjustable leveling feet and bolt-down stabilization straps all combine to provide a high level of rack stability.

continued operations. If there is inadequate physical clearance between them and other objects, they may not be able to pull enough air through their fans to properly cool the processors. If servers are bumped or jarred by physical contact, their cards and boards may be dislodged or their cables disconnected.

While racks in general compensate for much of this, the new Dell 4210 Rack Cabinet includes features to increase these protections. Ventilated front and rear doors provide optimal airflow for Dell products without the need for additional fans. For greater rack stability Dell includes, in addition to the four solid casters, leveling feet and a bolt down stabilization bracket.

Hardware Security

After investing the time and money in acquiring, installing, and configuring the servers in a rack cabinet the last thing a system administrator wants is to have them physically tampered with or stolen. For security Dell includes key locks on front and rear doors, as well as on the side panels. For ease-of-access Dell has designed these locks and handles to be easier to operate than those on previous Dell racks.

Locks on all doors and side panels help protect vital hardware from unauthorized physical access or theft.

Target Market Segments/Applications

This product is targeted primarily at the data center and Internet Infrastructure market segments. It is designed to be ideal for these and other environments where space is at a premium and network administrators are trying to physically bring together their servers for easier overall management.

Features and Benefits

The Dell 4210 Rack Cabinet has all of the industry-standard features of Dell's previous 42U rack, but also incorporates multiple enhancements to increase its usability and functionality. Table 1 shows the major improvements and the benefits that customers should realize from them.

Table 1
Feature / Benefit Chart

Feature	Benefit
Labeled U Positions	Easy installation of components
<2M Height	Fits through standard doors
Rapid Rail® / Cable Management Arm Mounting Kits	Allows fast, tool free hardware installation
Easily removed Removed door Door hingesHinges	Allows for fast, simple reconfiguration of door orientation
Locking doors and side panels	Additional hardware security
Light weight (35lb.) Side Panels	Easier 0U Side Access
Built in side panel handles	Easier 0U Side Access
Split Rear Doors	Reduced rear clearance requirements
Leveling Feet	Centers rack weight and orientation to prevent tipping
Bolt Down Stabilization Bracket	Stabilizes rack to prevent tipping
1000mm Depth	Provides greater cable management room in back
Perforated front and rear doors	Enhanced natural convection cooling
Heavy duty – Solid Casters	Allow for greater weight bearing
2,000 lb capacity	Allows for more dense components
Cable Holes in Roof	Allows for ceiling drop cabling access
Cable Management through Rear Door	Easier floor rise cabling access
Open bottom	Additional floor rise cable access

Service and Support

- Three-year limited warranty¹ (three years of standard Next Business Day² parts replacement and one year of Next Business Day labor)
- 7-day/24-hour Lifetime Telephone Technical Support for troubleshooting and diagnosis of Dell hardware
- 7-day/24-hour E-support services featuring extensive online support capabilities

¹For a complete copy of our Guarantees or Limited Warranties, please write Dell, USA, L.P., One Dell Way, Round Rock, TX 78682.

²Service may be provided by third-party. Technician will be dispatched if necessary following phone-based troubleshooting. To receive next business day service, Dell must notify the service provider before 5pm (depending on service contract) customer time. Availability varies."

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