



A cabinet is an enclosure with four rails and a door (or doors) and side panels. A rack is an open, freestanding 2- or 4-post frame that doesn't have doors or sides. The decision on whether to use a cabinet or rack depends on a number of factors.

### **1. Equipment**

Before you choose a cabinet or rack, you need to determine what equipment you're planning to house. This list can include servers, switches, routers, and UPSs. Consider the weight of your equipment as well. The extra stability of a cabinet might be important if you're installing large, heavy equipment like servers. An open rack is more convenient than a cabinet if you need frequent access to all sides of the equipment.

### **2. Environment**

With the open design, racks are a good choice in areas where security isn't a concern such as in locked data centres and closets. And racks typically cost less than cabinets.

Cabinets, on the other hand, protect equipment in open, dusty, and industrial environments. Aesthetics can be a factor too. Will customers or clients see your installation? A cabinet with a door looks much neater than an open rack. When you're trying to create a professional image, everything counts.

### **3. Ventilation**

If your equipment needs ventilation, a rack offers more air circulation than a cabinet. Even if your cabinet is in a climate-controlled room, the equipment in it can generate a lot of heat. The requirements for additional airflow increase as more servers are mounted in a cabinet. Options to improve airflow include doors, fans, and air conditioners.

### **4. Size**

**Width:** The width between the rails in both cabinets and racks is 19 inches with hole-to-hole centres measuring 18.3 inches. But there are also cabinets and racks with 23-inch rails. Most rack-mount equipment is made to fit 19-inch rails but can be adapted to fit wider rails.

**Rack Units:** One rack unit (RU or U) equals 4.45 cm (1.75 inches) of vertical space on the rails. A device that's 2U high takes up 8.89 cm (3.5 inches) of vertical rack space. Rack units are typically marked on the rails. The number of rack units determines how much equipment you can install.

**Depth:** Cabinets and four-post open racks come in different depths ranging anywhere from 61 cm to 122 cm (24 to 48 inches) to accommodate equipment of varying sizes, particularly extra-deep servers. The rails on some cabinets and 4-post open racks are also adjustable to different depths.



When you consider the width, height and depth of a cabinet, or rack, clarify whether they are inside or outside dimensions.

## **5. Weight**

Cabinets and racks vary in terms of the amount of weight capacity. Some cabinets can hold 500 kg or more. Carefully consider the weight of your equipment and decide where you want to mount it before choosing a cabinet or rack.

## **6. Rails**

The vertical rails in cabinets and racks have holes for mounting equipment. Two-post racks typically have threaded 12-24 or 10-32 tapped holes. Four-post racks and cabinets often have M6 square holes for mounting servers.

## **7. Moisture, dust, shock, vibration**

Look for a cabinet with an IP rating when housing electronic components outside of a protected data centre. IP standards are designed for corrosion resistance, protection from rain, submersion, liquids, dust, falling objects, and other hazards. Cabinets and racks can also be bolted to the floor for extra stability.

## **8. Power provisioning**

There are multiple options for powering rack-mounted equipment. Power strips can be mounted vertically or horizontally. Power Distribution Units (PDUs) and Power Managers have additional capabilities such as remote management and metering. Uninterruptible power supplies (UPSs) typically mount in the bottom of a cabinet or rack because of their weight.

## **9. Cable management**

Most cabinets and racks have built-in cable management troughs and cable rings for routing cable.

## **10. The extras**

The type of shelving you choose depends on the equipment you plan to mount. There are multiple options: solid, vented, stationary, and pull-out shelves. And there are shelves built to hold specific pieces of equipment, such as servers or keyboards. Other extras include fans, waterfall brackets, and grounding bars.