

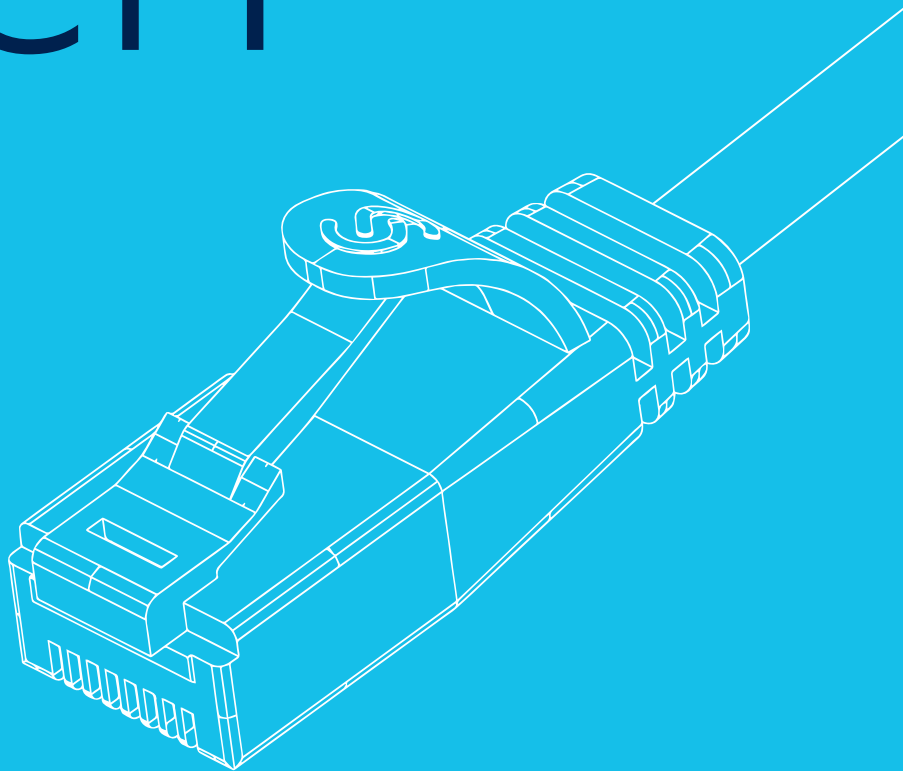
# pure patch

WHITEPAPER  
SLIM PATCH CORDS  
01\_2025

Solutions for  
Efficient Network Cabinet  
Architecture



[justslim.eu](https://justslim.eu)



# Cause of chaotic Network Cabinets

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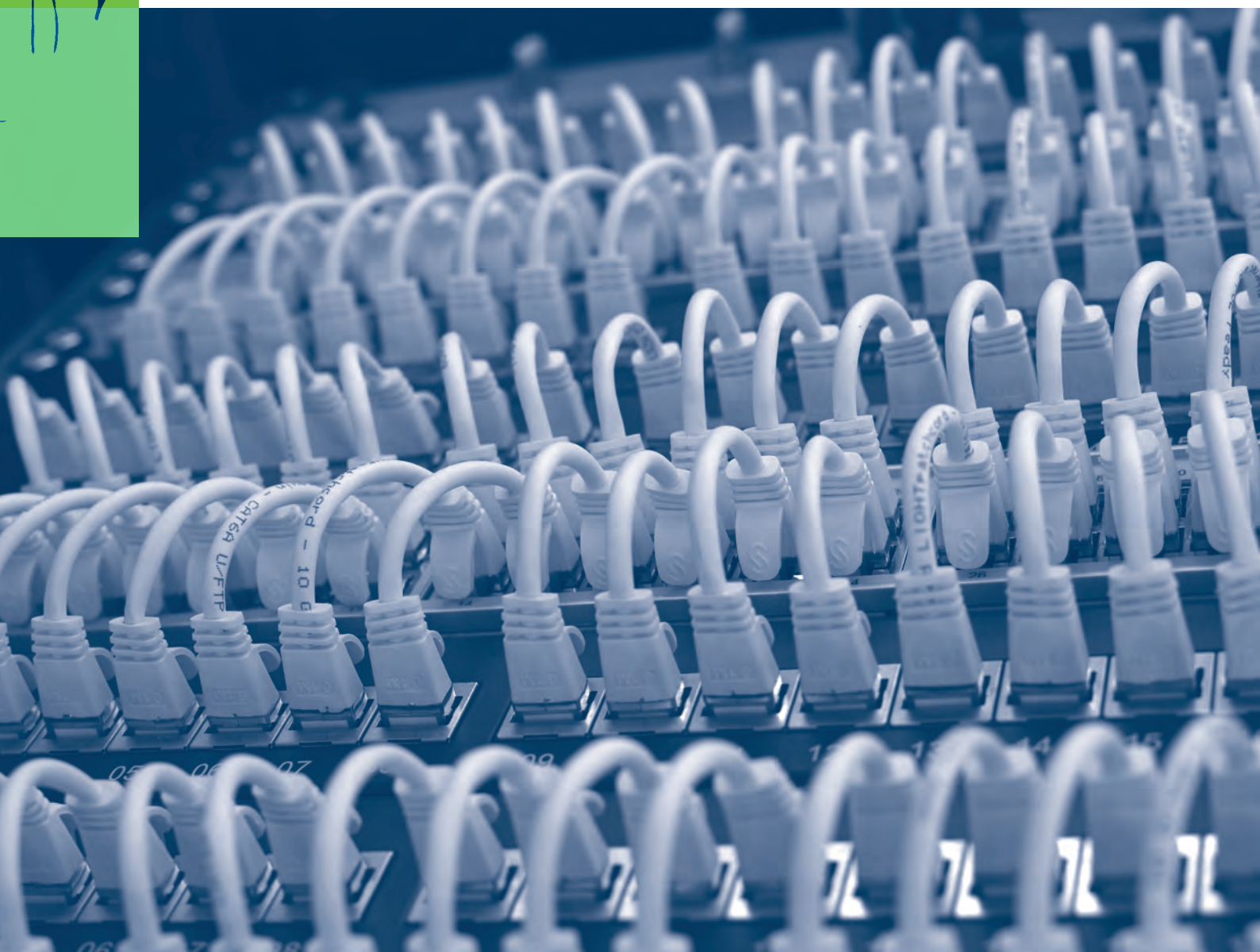


## F O R E W O R D

A proper network Cabinet is the heart of any IT infrastructure. When the cabling is clean and organized, the entire network works better. Maintenance is easier and there are fewer outages. This is where our patch cable solutions come in.

Our products are designed to make patching in network Cabinets more efficient and organized. We offer robust and durable cables that are easy to install. Whether you manage a small network in an office or a large IT landscape in a data center, our solutions help you to  
and save you time.

In this white paper, we show you how our patch cable solutions can make your job easier. We explain the benefits and provide practical installation tips. Our goal is to give you the best tools to manage your network Cabinets.





COMPETENCE  
FROM  
STYRIA





Eastern Styria - diversity that inspires. From lofty heights to gentle hills, from breathtaking views of alpine pastures to picturesque vineyards in the south - nature in this region is multifaceted and shapes the people who live here. It offers hospitality, thermal baths, culinary experiences, a good glass of wine and the freedom to experience time anew. And we are right in the middle of it all: TRIOTRONIK, for almost 30 years. We are rooted here in the green heart of Austria and our heart beats with passion for our company, the people who live here, our region and our landscape. With values such as honesty, respect, appreciation and modesty, we work closely together in the company and offer our products and services worldwide with quality awareness and Styrian esprit.

We not only take responsibility for our employees, but also support various aid organizations in our region. In this way, we combine team spirit within the company with social commitment in the region and beyond. Our Vision: We want to become the leading competence center for network technology in Europe and establish our products on the global market. Together with you, we want to realize our vision and shape the future of network technology.

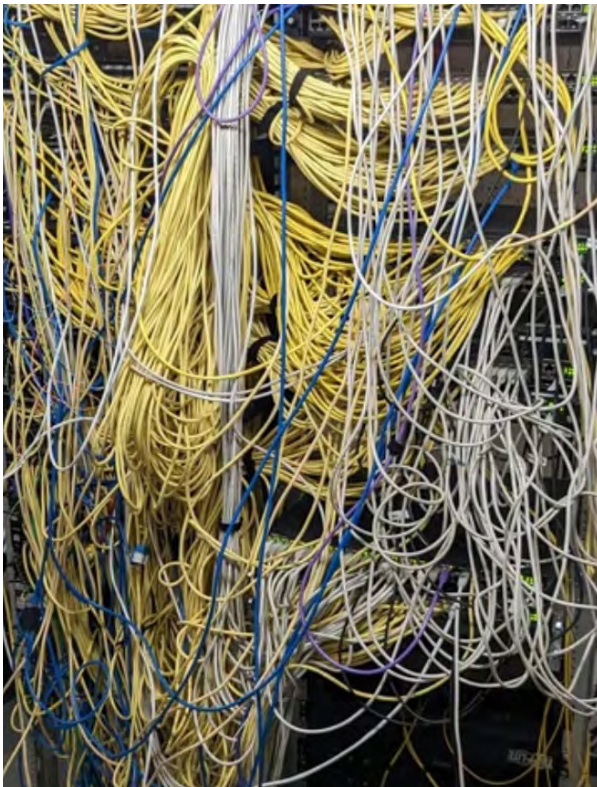
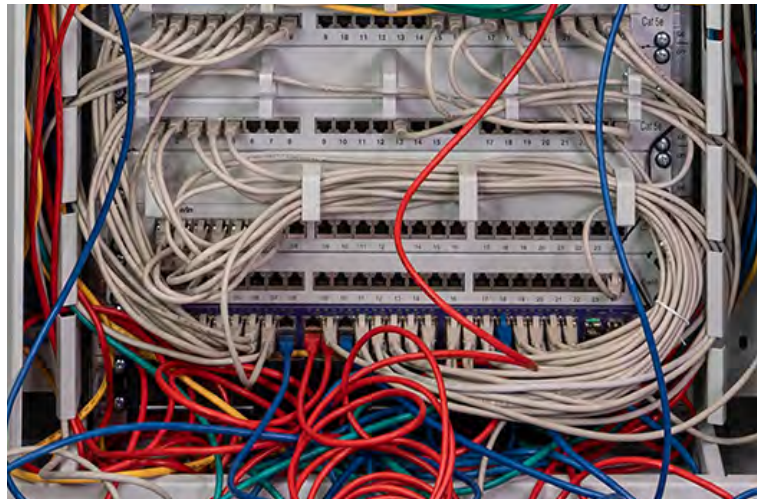
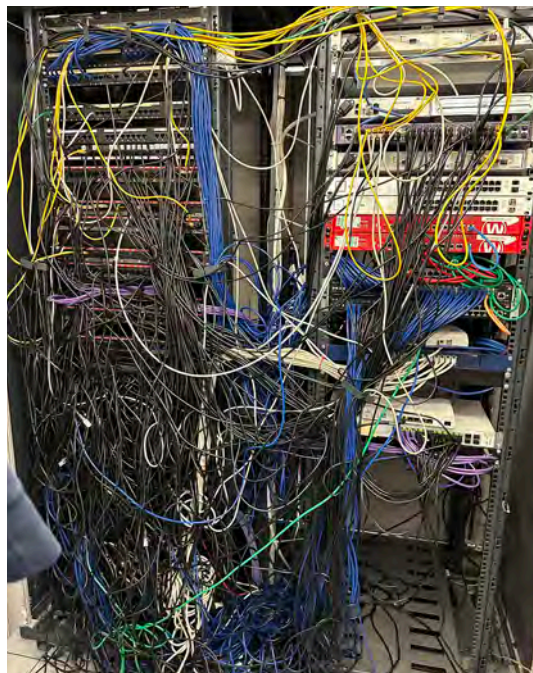
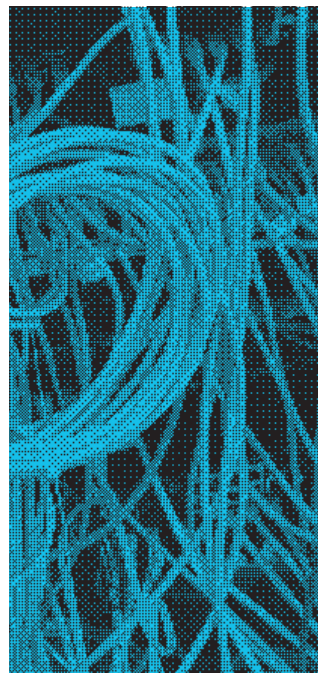
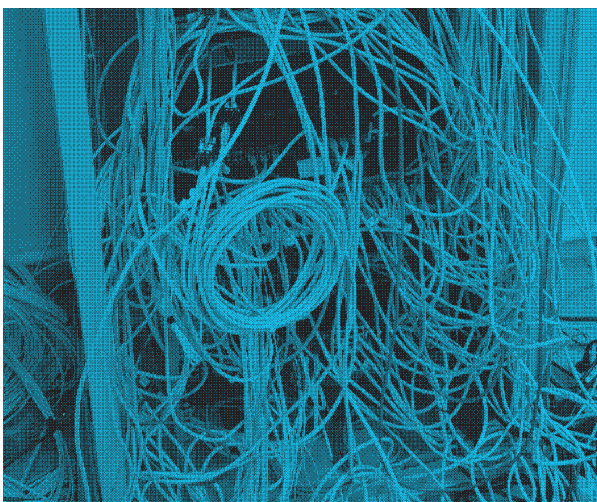
# EVERY IT PROFESSIONAL KNOWS THE PROBLEM.

Getting the patch cables in the network closet neatly is always a Herculean task. If you start out patching the closet nicely, after a while it usually looks chaotic and the beautiful closet turns into an IT monster. Then you keep patching and patching and at some point you say to yourself: „Don't bother anymore. Everything is working for now. So let's leave it at that.“ Then you close the closet door. The closet is usually in a dark room. So out of sight, out of mind.

But what happens when you need to replace something in the closet? The switch breaks down or new switches or other components are added? Then that „monster“ you never wanted to see again suddenly becomes a reality. When a switch needs to be replaced, a feverish search is made to find where all the patch cords go. This can take a long time. Because there is often no documentation.

## BUT WHY IS ALL THIS HAPPENING?

The basic problem with all cabling problems in the network closet is a lack of planning or adherence to a construction method that has always been used. True to the motto: We've always done it this way, so we'll continue to do it this way!





Let's take a look at how a network closet is created. In most cases, a new building is constructed and a network cabling designer is hired. The IT department specifies how many data points are needed per workstation, and the designer then calculates the cable runs, the corresponding number of data cables, patch panels, etc. This entire quantity structure is then put out to tender. This entire bill of materials is then put out to bid, and an installer wins the bid and does the work. The customer is happy because they are hopefully getting the quality they wanted according to the bid.

„We would also like to make a small comment on the subject of tendering and structured data cabling. In our experience, there is far too little definition of the quality to be delivered and many designers use standard texts in the tender. This often allows the contractor to use very inferior products. And since these are components that will be installed for the next 20 years and the entire IT infrastructure uses them to send data, much more attention should be paid to this“.

Back to the main topic:

The installer goes to work. The locations of the network closets and the number of network ports are determined. The installer then pulls in the cables and mounts them one at a time onto the patch panels in the network closet. Installation of the panels usually starts at the top. There is usually nothing predetermined. You do a panel, then a cable route. Then the next panel, then another patch panel, and so on. This continues until all the cables in the cabinet are connected. Then the cabling is measured and, in the best case scenario, everything works perfectly and the structured cabling is installed. The installer's job is done. His job is done, so to speak. Now the question arises: „Is it necessary?“

W E S A Y

**N O !**

There is another way. There is a way to design the wiring in the network closet so that problems like this never happen again. You just have to do a little rethinking and break through the „we've always done it this way“ process.

Now comes the customer's IT department. They need to install their switches and get the network up and running. Since, as described above, all the ports are now located on the panels at the very top of the network closet, the switches are usually installed further down in the network closet, or sometimes even in a separate closet next to it.

Now the „cabling“ with patch cables begins. Different lengths are ordered and patching begins. One port at a time is connected to the switches. Sometimes all ports, but usually just the ones you need at the moment. Of course, you need different lengths for each port, and then the first problem begins. What to do with the excess cable? As described in the beginning, this usually works fine at first. As more ports are patched, it becomes more difficult. And when switches are added later, they are again installed „somewhere“ in the rack where there is only one rack unit available. And the patch cable problem starts all over again, usually worse than it was in the beginning. And so, over time, this „monster“ grows into what we described at the beginning.

With SLIM, we at **TRIOTRONIK** have invented a series of patch cables with which other solutions can be realized. Patch cables are the cheapest components in an IT infrastructure. Nevertheless, they are often neglected and just any cable is used. But you don't take just any tires for your car. You pay attention to what you put on them to make the car run well and safely. Why don't we do the same with IT? We always like to compare infrastructure to a data highway. And the fastest sports car (switch or server) is useless if the highway is a gravel road and doesn't run smoothly.

A patch cable failure is not only annoying, it can also be very expensive. Downtime caused by patch cable failures is enormous worldwide and difficult to detect. They can be sporadic, and the fault is often looked for in the switch or server/computer area.

This is why proper patching with high quality patch cables is so important and a passion for us. Every day we try to communicate this to the market and bring more attention to this topic. We underline this importance with certified cables that support all standards. And a unique, flexible design.

## SO WHAT IS OUR APPROACH?

There is not just one. There are several. Which one you choose is up to you. We're not saying that patching with traditional patch cables doesn't work. If you do it properly and plan it, you can do it conventionally. But it takes a lot more effort.



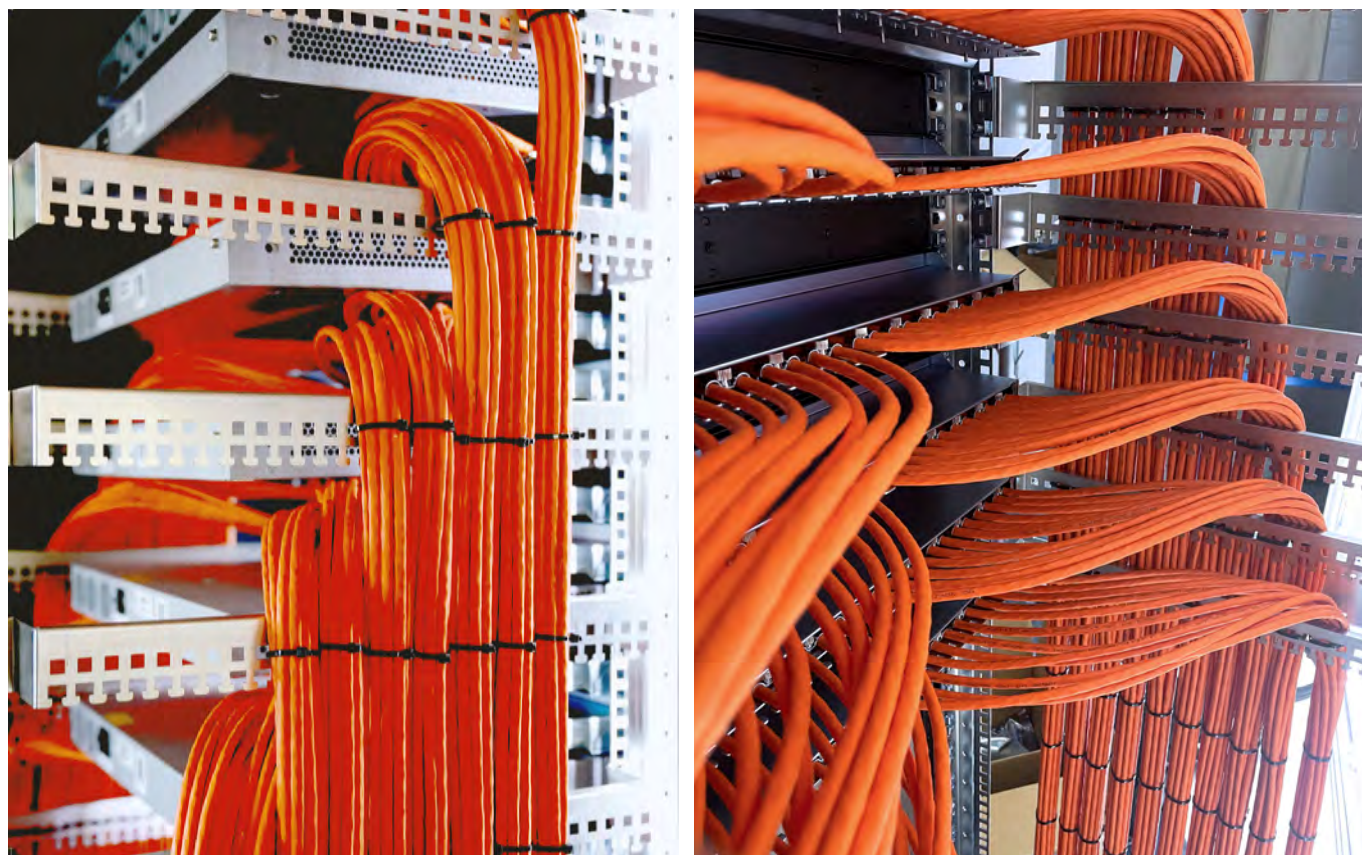
## SOLUTION # 1

It all starts with planning before the installer starts installing the panels. In this approach, the panels should not simply be mounted from the top and separated by cable routing panels, as is often the case, but space should be left between the panels for switches. This approach also requires the use of 48-port switches.

Setup for solution approach #1

### 24-Ports Panel 48-Ports Switch with PoE 24-Ports Panel

Then continue in the same order. See the pictures on the next page. When installing the network cables, the installer must make sure that a U is left between the panels and that the network cables are routed accordingly in the cabinet so that switches can be installed later. This not only helps with the appearance and ventilation of the cabinets, but also makes it much easier to install the switches, as the cables act as a „guide“ and the switch can be easily installed without the need for another person.



Is this extra work for the installer? Not really! At most, the network cables will need to be laid more neatly, as shown in the pictures at the top of the page. But this is the way it should generally be done.

Once the installer has done the cabling, you have a cabinet with individual, free height units between the panels. Now IT can come in and install a 48-port switch everywhere. All ports are now connected to the switch ports directly below with short patch cables. We recommend our KAT6A version for 10 Gigabit transmissions. Our multipacks of 50 pieces each are a great help here. They are 8 to 10 times faster than conventional patch cables. You don't have to unpack each patch cable individually. This not only saves a lot of time, but also a lot of plastic waste!

A 240-port network Cabinet can be completely patched in about 45 minutes. Including switch installation! Using conventional patch cables, this takes about 6-8 hours. What each port is allowed to do is configured on the switch. The connection to the servers and other network devices such as NAS or the like is made via another switch installed in the switchboard or in a neighboring switchboard. The switches for the network ports are then connected to this switch via uplink ports.

# SOLUTION # 1

## WHAT IS THE BENEFIT?

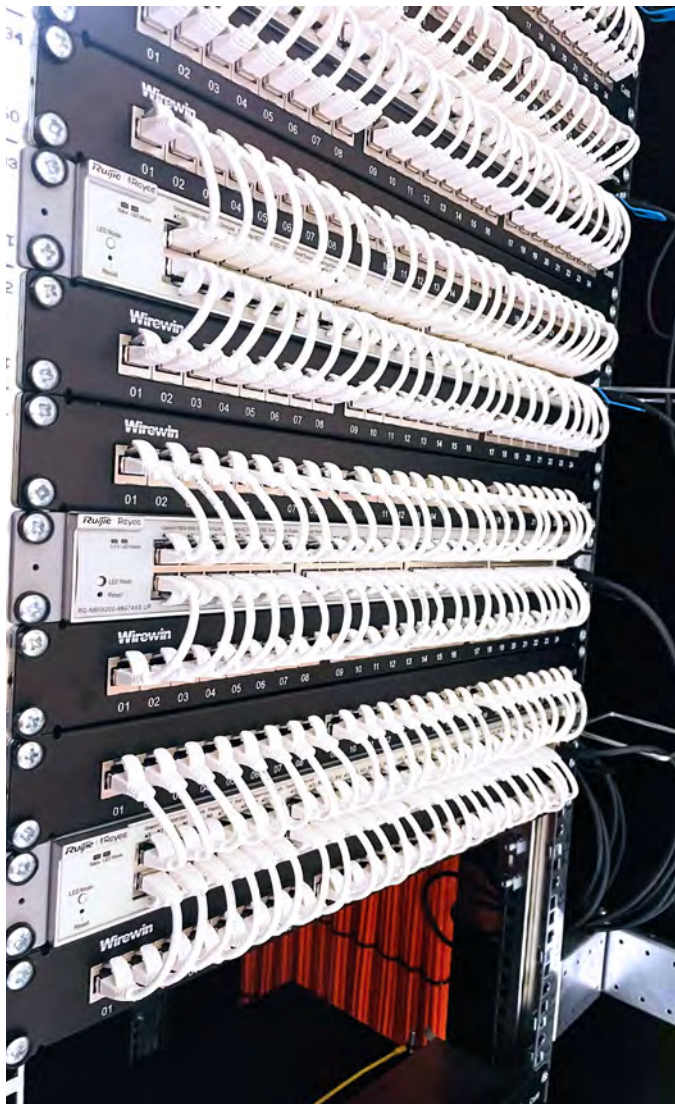
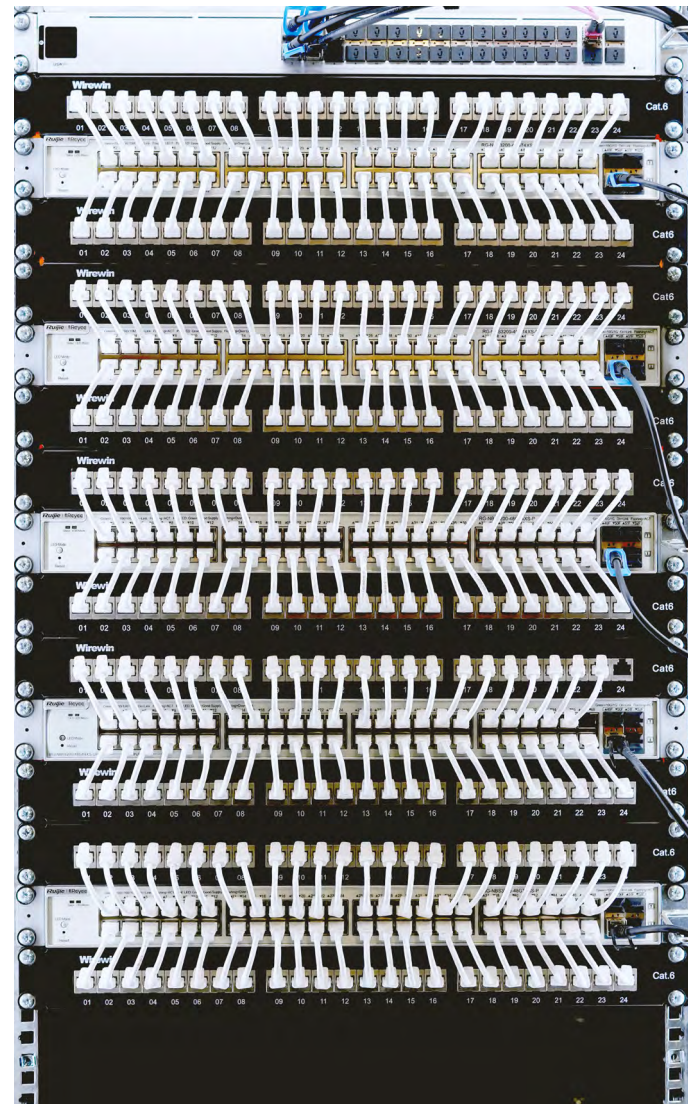
**1) All ports wired:** Not only do you save the hassle of documenting cables, you have your entire network ready to go. And because you know where each copper port is connected, you can set up the configuration very easily.

**2) Perfect appearance:** This is the most attractive and flexible solution! However, this option also requires a switch port for each copper port. This means you have to invest more in the switch infrastructure. However, you will save so much time and effort over the life of the system that this additional investment is well worth it.

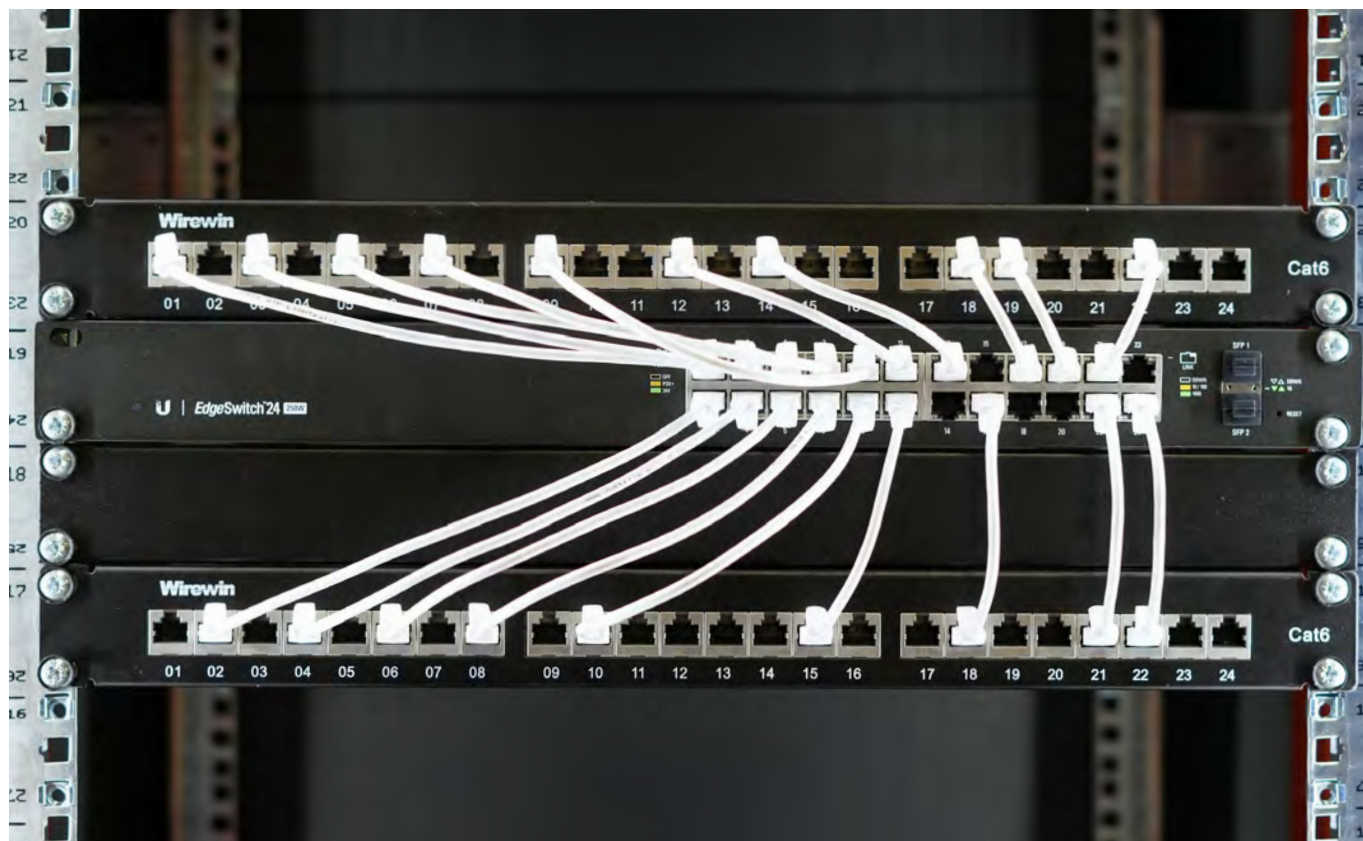
**3) Massive reduction in downtime:** If a switch stops working, all you have to do is unplug all 48 patch cords from the switch, remove the switch, install the new switch, and reconnect all the cords in the same way. Play the stored configuration back into the switch and you are up and running again. This switch swap typically takes about 10 minutes!

**4) No patch cable management required:** You don't have to create documentation or use a patch cable management system. This saves you a lot of money that you can invest more wisely in your switch infrastructure.

**Bottom line on Solution #1:** You have to invest a little more in the switch infrastructure up front, but the payoff is reliable, perfectly installed cabling that not only works, but looks good. And why should our network Cabinets always be hidden away in dark rooms? They are the heart of an IT infrastructure that you can be proud of and show off.



## SOLUTION # 2



But not every customer wants a switch port for every port.  
We have a solution for that as well.

In this case, you don't have to work with 48-port switches, you can work with 24-port switches and leave one U free on each switch for future switches. This way you always have 2U free between the panels. In this case, you will need to use two different patch cable lengths. 10cm for the ports directly below and 15cm or 20cm for the ports above.

Setup for solution approach #2

**24-Ports Panel**  
**24-Ports Switch with PoE**  
**Blindpanels (Empty height unit)**  
**24-Ports Panel**

Here, you patch only the ports you need. If the 24-port switch is not enough, you can simply install another switch in the free height unit later and patch the remaining ports.

This solution may not look quite as perfect as option 1, but it is similar in principle and still prevents patch cable chaos in the rack. We also offer multipacks in different lengths from 0.1m to 0.3m, so you can quickly find the right length for each port.

## SOLUTION # 3



The customer may not want to purchase all switches with PoE because the investment is too high and the number of PoE ports is too low. In this case, use switches without PoE, but wire all ports that do not require PoE with short cables as in Variant #2. To power the PoE end devices, install at least one PoE switch further down in the network Cabinet. The required PoE ports are then connected with longer patch cables. The PoE patch cables are patched from all panels in the cabinet to this switch. Due to the slim design of the SLIM patch cables in combination with the small number of ports, it is no problem to maintain a very good overview even with longer cables. With this option, it is advisable to install a cable management panel at the beginning and end of each „unit“. The individual ports are then routed through these cable guides with longer cables. The rest is wired as in option 2.

Setup for solution approach #3

**Cable management panel**  
**24-Ports Panel**  
**24-Ports Switch ohne PoE**  
**Blindpanels (Empty height unit)**  
**24-Ports Panel**  
**Cable management panel**

**And 1x PoE switch in the cabinet - or several if required.**

## SOLUTION # 4

If you have existing network cabinets and want to convert them, we would suggest that you remove the existing cable management panels and use those freed-up height units to install switches with the goal of implementing Variant 1 or Variant 2. Of course, this would require a „hard“ cut. But the result is that your network Cabinet will be more neatly wired, and you will have a lot less work to do afterwards.

### PROBLEM



### SOLUTION



#### THE BENEFITS ARE OBVIOUS

- Massive reduction in installation time
- No time wasted unpacking cables and therefore no waste
- Virtually no downtime
- The network enclosure is an absolute eye-catcher
- Improved air circulation inside the rack
- Up to 50% less rack space required in the Cabinet
- Very low cost compared to longer patch cables or even expensive patch cable management solutions

## C O N C L U S I O N

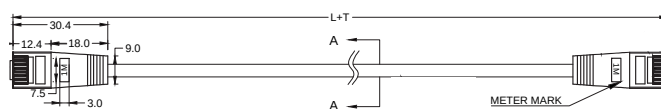
IT infrastructure, and Layer 1 cabling in particular, is often not given the importance it deserves. Compared to other costs in a new building, the cost of structured data cabling is far behind. Much more attention is often paid to what is visible. The furniture in the offices, the lighting, the outdoor facilities, etc. However, it is often forgotten that all communication and IT systems run over this structured cabling and then also over the patch cables, and that these should function without problems for decades. This is where we come back to our appeal: pay attention to data cabling planning and product selection.

**Not only will you be able to display your network enclosures with pride, but you will also be able to enjoy a trouble-free life with your IT infrastructure.**

# PRODUCTS

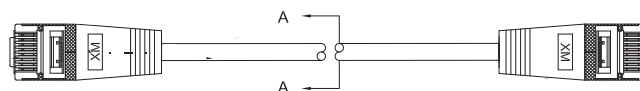
CAT 6  
CAT 6A  
UTP  
STP  
FTP

100% Copper  
RoHS compliant



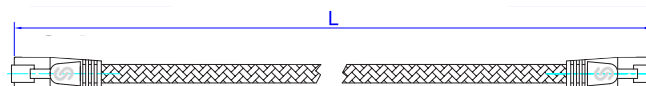
CAT 6  
CAT 6A  
UTP  
STP  
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100% Copper  
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CAT 6

100% Copper  
RoHS compliant





Wirewin

03

04

05

06

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01

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Ruijie 锐捷

Status LED Mode

Green=1000/100/10M On=

Flashing=AC

LED Mode



Reset

Wirewin

01

02

03

04

05

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08

# G L O S S A R Y

## **STRUCTURED BUILDING CABLING**

A standardized building cabling system that provides a flexible, scalable and future-proof infrastructure for carrying data, voice and video. It includes all the cables and related components needed to connect networks within a building or campus and follows a standardized architecture to ensure easy installation, maintenance and expansion.

## **CAT 6 A (CATEGORY 6 A)**

A twisted-pair cabling standard for networks that offers higher performance than Cat6. Cat6A supports a transmission frequency of up to 500 MHz and enables data rates of up to 10 Gbps over distances of up to 100 meters. Designed specifically for 10 Gigabit Ethernet network applications, it features enhanced noise rejection for a stable, high-performance connection.

## **SWITCH**

A network device that routes data packets within a local area network (LAN) based on the MAC address of the destination device. Unlike a hub, a switch sends data only to the specific port to which the destination device is connected, improving the efficiency and speed of network communications. Switches play a central role in building networks, allowing multiple devices such as computers, servers, and printers to connect to a network.

## **NETWORK PORTS**

Physical interfaces on network devices such as computers, switches, or routers that are used for connection and communication within a network. Each network port allows the connection of network cables that transmit data. Network ports can have different specifications, such as Ethernet ports (RJ-45) for wired connections or fiber ports for fiber-optic connections. They serve as access points for network devices to communicate with each other and to transmit data packets across a network.

## **PORTS IN CONNECTION WITH THE CABLING**

Connection points on a patch panel that organize and manage the structured cabling of a network. These ports, typically RJ-45 jacks (now mostly solved with Keystone modules), serve as the interface between the horizontal cables laid in the walls of a building and the patch cables that connect network devices such as computers and switches.

## **LAYER 1**

Also known as the physical layer in the OSI model, Layer 1 describes the basic physical connections in a network, such as cables, plugs, connectors, and other hardware components. In the context of structured cabling, Layer 1 includes all elements responsible for the physical transmission of data, including copper cables, fiber optic cables, patch panels, patch cords and distribution cabinets. This layer ensures that electrical or light signals can be reliably transmitted between network devices.



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