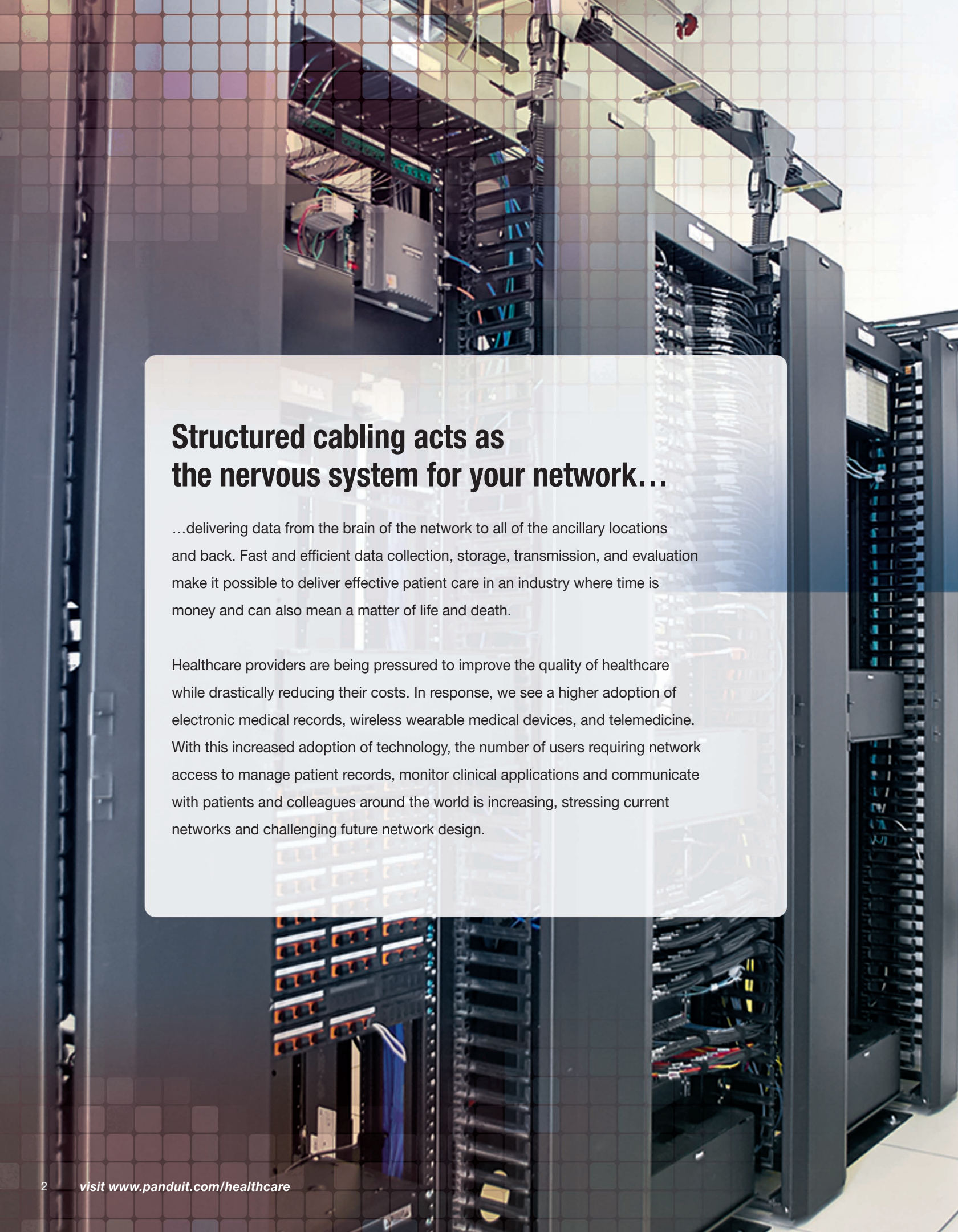
Infrastructure for Healthcare Technology

PANDUIT®

infrastructure for a connected world



Structured cabling acts as the nervous system for your network…

…delivering data from the brain of the network to all of the ancillary locations and back. Fast and efficient data collection, storage, transmission, and evaluation make it possible to deliver effective patient care in an industry where time is money and can also mean a matter of life and death.

Healthcare providers are being pressured to improve the quality of healthcare while drastically reducing their costs. In response, we see a higher adoption of electronic medical records, wireless wearable medical devices, and telemedicine. With this increased adoption of technology, the number of users requiring network access to manage patient records, monitor clinical applications and communicate with patients and colleagues around the world is increasing, stressing current networks and challenging future network design.

Improve Patient Care and Reduce Costs with Today's Medical Technology

The base of any network is structured cabling. By installing high quality, top-performing cabling systems from Panduit as your facility's nervous system, you enable:

- Improved quality of care, reduced risk of medical errors, and lower operating costs by using technology to automate processes and increase data transfer speeds
- Greater utilization of electronic medical records and advanced clinical applications by upgrading network bandwidth with high-performance, high-speed data transport systems
- Better response times, via a wireless network that provides mobile access to patient databases and work requirements facility-wide
- Secure and protected patient medical records in accordance with regulatory compliance to improve identity management through physical security devices that deter unauthorized network access
- Adoption of the latest medical technologies, helping to attract and retain top talent and grow patient market share

Imagine wireless communication like a brain synapse…

…carrying data across a space between two devices (neurons). Wireless networks have become a necessity to support medical technology and are being stretched to maximum capacity by applications such as bring your own device (BYOD) for on-the-go access to patient records, wearable health monitors, and wireless imaging which helps to eliminate tripping hazards.

These new mobile applications mean that an average worker can have three or more devices (e.g., cellular phone, laptop, tablet) at any given time, combined with patient wearable monitors and medical devices and machinery all competing for access to the wireless network. In order to provide reliable and fast wireless data transfer – and in turn, quality patient care – the structured cabling that sits behind the access points must be robust.

Panduit recommends installing Category 6A cabling to wireless access points (WAPs) to provide the necessary bandwidth and superior heat dissipation when using Power over Ethernet (PoE) to power the WAPs. The Panduit Category 6A cabling system utilizes MaTriX technology to improve heat dissipation beyond the industry norm. Rated to 90°C, MaTriX cable is the most robust PoE cabling option on the market. Combined with the Panduit TG jack, which is rated to 65°C (5°C above the industry standard), Panduit's Category 6A cabling is designed to support the most extreme wireless installations. Beyond connectivity, many wireless networks require in-ceiling installations, demanding Plenum-rated products. Panduit offers a full suite of UL 2043 rated products, from patch cords and cable to jacks and surface mount boxes.

:: Only **40%** of healthcare facilities feel they are providing enough wireless connectivity in high-density areas

Eyes and ears are connected to the brain…

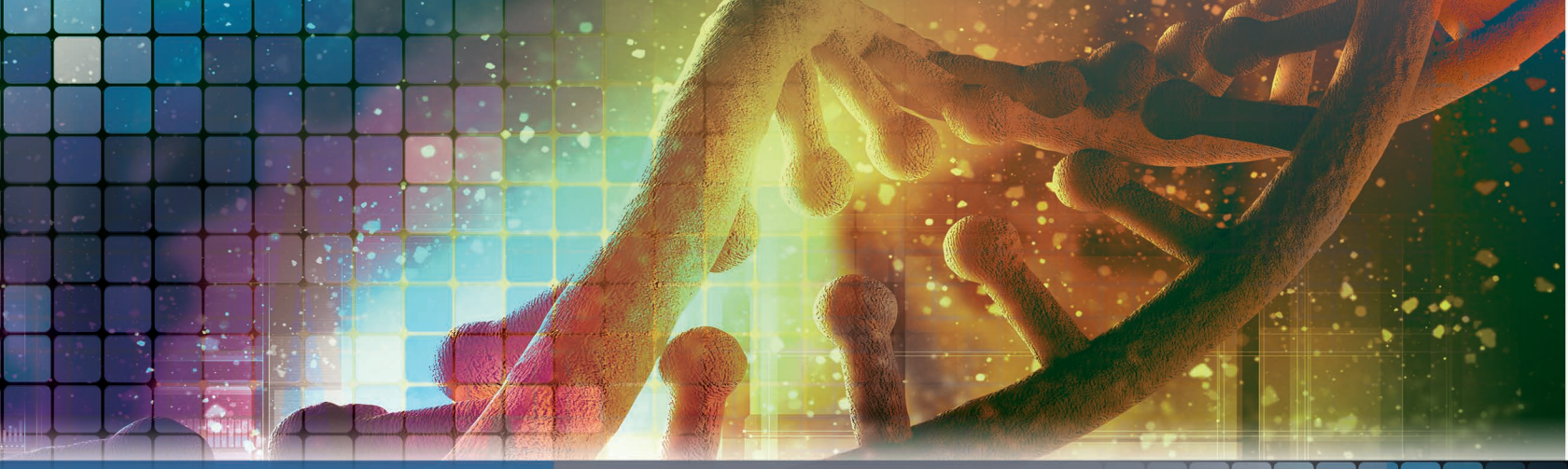
Shouldn't your audio/visual devices be connected to the brain of your network?

The uptake of telemedicine and advanced digital imaging, combined with digital signage for communication and increased patient expectations for entertainment, is positioning audio/video technology as a crucial component in high-quality patient care. From crystal clear MRI scans to hospital cafeteria lunch menu displays, audio/visual applications can now run seamlessly over the same twisted pair copper cabling that runs your Ethernet network. Using category cable as an A/V delivery medium brings double benefits: you can extend the distance of traditional connections like HDMI^ and VGA up to 100 meters in a single link (instead of the traditional 15-30 meters); and simplified installation with just one type of cable to pull. By extending the distances, A/V systems can now be centrally housed in a telecommunications room and deployed in a similar fashion to structured cabling, running over existing IP-based networks.

:: More than **60%** of hospitals have Category 5e and 6 cabling systems installed, limiting their ability to support future technologies

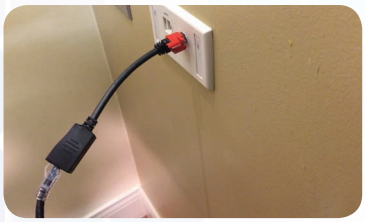
New technology such as HDBaseT* will further improve the capabilities of A/V over twisted pair cable as it matures and becomes more prevalent in source and display devices. By connecting audio/visual systems over Ethernet networks, all of the information that is flowing through your hospital's nervous system becomes easily accessible in visual and audible formats. Panduit® category cabling is proven to deliver high quality, reliable A/V performance. When combined with our space-saving products designed for high-density applications, you don't have to worry about adding new systems like A/V to existing telecommunications rooms.

^HDMI is a registered trademark of HDMI Licensing, LLC.
*HDBaseT is a registered trademark of Valens Semiconductor Ltd.



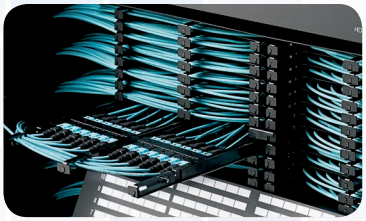
Robust, Reliable Products for Healthcare Environments

Copper Cabling Systems – Panduit® copper systems provide the infrastructure needed to connect networking applications in any healthcare environment. Our industry-leading Category 6A solution with MaTriX™ technology delivers 10G and takes the guesswork out of applications like Power over Ethernet and HDBaseT.



Break-Away Adapter – Protect expensive equipment and infrastructure, and eliminate tripping hazards with this patch cord adapter that releases when pulling force is applied – such as when a medical cart is wheeled away from the wall in a hospital room.

Network Security Components – Block unauthorized access to network infrastructure with a full line of blockout and lock-in devices. Compatible with copper and fiber connectivity, as well as USB ports, the devices can help protect sensitive patient records.



Innovative Fiber-Optic Cabling Systems – Panduit leads the industry with innovative fiber-optic solutions that meet today's network requirements and provide a migration path for tomorrow's applications. Panduit offers a full range of fiber-optic cable and connectivity, including PanMPO™ and HDFlex™, which simplify the migration to 40G and beyond.

Racks, Cabinets and Cable Management – whether you're building out your data center or equipment rooms, Panduit offers a rugged, reliable infrastructure to support your technology. Look for innovative features like vertical cable managers that can house patch panels for ultra-high-density deployments, and components to help manage power and cooling challenges in the data center.

TIA-1179 Standard Highlights

Due to the increasing complexity of healthcare technology, TIA (Telecommunications Industry Association), has developed TIA-1179, a telecommunications infrastructure standard, as a resource specifically for healthcare facilities. Use TIA-1179 to plan and install structured cabling systems including cabling and pathways and spaces for telecommunications infrastructure, as well as healthcare system requirements, such as RFID, BAS, nurse call, security, access control, and pharmaceutical inventory and dispensing systems.

Highlights:

- Entrance Facilities (EF) and Telecommunications Rooms (TR) should be larger than typical commercial spaces to accommodate additional systems such as BAS, nurse call, security, biomedical systems
- Equipment Rooms (ER) shall provide a minimum of two diverse pathways between the ER and the EF for critical care areas that would be severely impacted by the loss of telecommunications services. These pathways should be separated by as great a distance as possible
- There shall be a minimum of two diverse-route backbone pathways and cables to each TR or TE that services critical care areas that would be severely impacted by the loss of telecommunications services. These pathways should be separated by as great a distance as possible
- TRs should not have non-telecommunications services contained within them
- Category 6A cabling is recommended for new installations
- For fiber backbone cabling, 850-nm laser-optimized 50/125 µm or single-mode optical fiber cabling is recommended
- Adding or changing horizontal cabling after the initial installation has the potential to result in a decrease in the quality of care provided, decreasing the effectiveness of infection control measures
- Ensure work area outlet densities reflect the needs of each specified work area, including:
  - Patient services
  - Surgery, procedure and operating rooms
  - Emergency
  - Ambulatory care
  - Women's health
  - Diagnosis and treatment
  - Caregiver
  - Service and support
  - Facilities
  - Operations
  - Critical care
- Work area densities are classified into three types:
  L = Low: Two to six outlets in each area
  M = Medium: Six to 14 outlets in each area
  H = High: > 14 outlets in each area

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