

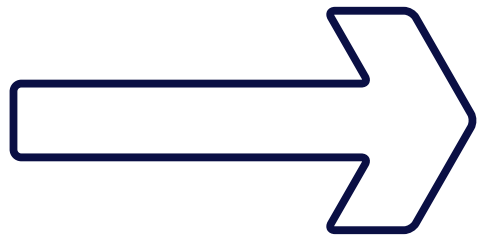


CASE STUDY

LOW VOLTAGE SERVICES IN ACTION

Cabling Support for
New Construction





THE CHALLENGE

When a 300,000 square foot robotic order picking distribution center requested assistance in the final stages of their build-out, Exact IT implemented a low voltage cabling infrastructure design and installation swiftly, in just under four weeks preceding their go-live target. The implementation ensured high-speed data transfer, minimal latency, and optimal performance for warehouse automation.

PROJECT SCOPE

This project involved designing and deploying a structured cabling system that supports seamless communication between wireless access points, robotic picking systems, and backend servers. The cabling system was mapped out to support the office space in addition to the warehouse. The infrastructure includes:



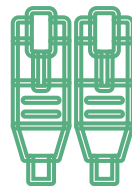
- **75 Wireless Access Points** (WAPs) strategically placed for optimal coverage



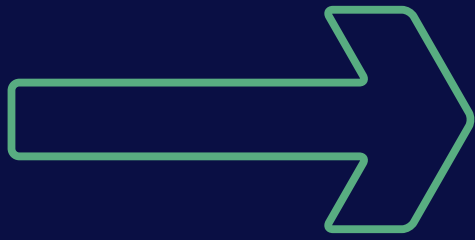
- **2 Servers** housed in a climate-controlled MDF



- **12-Strand Fiber Optic Cable** running 200 yards from the demarcation point to the MDF



- **Category 6A Ethernet Cabling** for wired connections between switches, servers, and access points



THE SOLUTION

THE SOLUTION: STRATEGIC NETWORK DESIGN

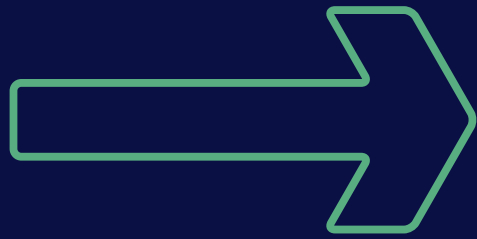
To meet the demands of a high-performance, automated warehouse environment, the network was precisely engineered for speed, reliability, and scalability. Under certain specifications, the network provides seamless connectivity across both office and warehouse spaces. This solution laid the foundation for uninterrupted operations and future growth.

Core Infrastructure Specifications

- **Fiber Backbone:** A 12-strand, single-mode fiber optic cable links the demarcation point to the MDF, ensuring high bandwidth and low latency
- **MDF & IDFs:** The MDF served as the primary networking hub, with strategically placed Intermediate Distribution Frames (IDFs) if needed
- **Redundant Power & Cooling:** UPS systems and climate control measures were implemented to prevent downtime

Wireless Network Deployment

- **Access Point Placement:** Using predictive site surveys, access points were evenly distributed to cover the entire facility without interference or dead zones
- **Controller-Based Management:** A centralized wireless controller managed SSIDs, authentication, and performance optimization
- **Wi-Fi 6 Technology:** Ensured high throughput and support for numerous IoT and warehouse automation devices



THE SOLUTION

Installation Plan

With a detailed blueprint in place, the installation phase focused on precision, compliance standards, and long-term performance. Meticulous planning and expert implementation minimized disruption while preparing the facility for high-demand operations.

Fiber Installation

- The 12-strand fiber optic cable was routed via overhead cable trays, ensuring protection and accessibility
- Fiber termination and testing were performed to meet industry standards
- Redundant pathways were considered for disaster recovery planning

Copper Cabling Deployment

- Category 6A cabling was utilized for all access points and network connections
- All cables were terminated, labeled, and tested for compliance with TIA/EIA standards
- Proper cable management was implemented using structured conduit and cable trays

Testing & Certification

- Fiber and copper cabling underwent Fluke testing to ensure compliance with ANSI/TIA standards
- A heatmap validation survey confirmed optimal wireless performance
- The system underwent rigorous performance testing before go-live



THE RESULTS

This structured low voltage cabling solution ensured a high-speed, low-latency network to support robotic order fulfillment throughout the 300,000 square foot distribution center. The combination of fiber backbone, Cat6A cabling, and strategically deployed wireless access points guaranteed seamless operation and scalability for future expansion. As a trusted partner, Exact IT provides a strategic approach to the fix, followed by an intuitive method of implementation, always advising where to invest in future IT needs.

EXACT IT
consulting

