

## Customer Profile

A major metal processor in North America with worldwide operations in 30 countries.

The company is recognized as an industry leader, introducing and directing new business opportunities in markets such as aerospace, packaging, automotive, and building and construction.

## Country

United States

## Industry

Metals, Metal Processing

## Challenges

- Provide a secure network environment with high availability
- Deliver scalability for future changes and upgrades
- Adhere to budget constraints

## Panduit Solutions

- Physical Infrastructure Design Services
- Deployment and Management Services
- Integrated Network Zone System
- Micro Data Center
- Control Panel Optimization

## Benefits

- Reduced deployment time by up to 75%
- No Battery UPS backup that lowers risk of downtime
- Maintenance-free UPS with lower cost of ownership
- High availability and increased process network
- Robust, integrated, secure network

## Unified Physical Infrastructure



## Case Study: Metal Processor

### Integrated Network Zone System Reduces Downtime and Increases Network Uptime for Major Metal Processor

#### Challenges

The location of enterprise and factory networks on the same fiber backbone was found to be a risk and caused a major metal processor to experience lengthy, unnecessary network downtime whenever there was a failure. To reduce the loss of valuable production time and lost revenues, the company needed to separate the two network systems.



This separation would address growing network demands to increase network bandwidth, throughput and security, which were critical for the company's future growth.

Also, upgrading the original 1940s brownfield physical infrastructure would provide the ability to maintain a competitive advantage and meet customer demands by increasing network uptime and availability. The implementation of these improvements

would deliver a secure, reliable and future-ready network, enhancing the company's ability to enter into untapped markets.

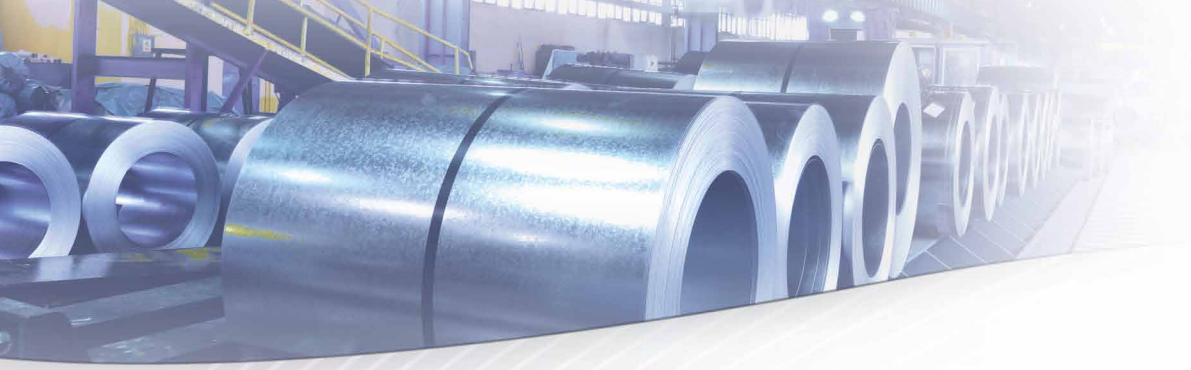
The company also needed a central network distribution point to accommodate the multiple tunnels, outdoor, aerial, underground and indoor areas that function as outdoor environmental spaces to easily perform moves, adds, and changes.

Redesigning and building a new process control network would involve standards-based design elements to comply with current regulations and required the company to focus on key needs such as:

- Choosing the right framework of the logical architecture
- Selecting the media type and addressing environmental considerations
- Developing a phased plan for network deployment
- Planning for switch deployment

Finally, the company needed a solution for a maintenance-free UPS with device management and predictive monitoring to ensure that the network's operational condition was maintained at an optimum level.

To address these challenges, the company needed a solutions provider that could identify and provide best practices to help accommodate its anticipated growth and maintain a competitive edge through proven expertise. The solution provider also needed to provide assistance to establish a realistic budget that would meet the network requirements and allow it to deploy the solution over a period of time.



## Solution

Partnering with Panduit Advisory Services helped the company apply the proper design attributes to the complete physical layer of its new process network. It also helped the company consider varying environmental factors, meet regulatory compliance mandates, optimize operational systems and performance, and reduce deployment time, operation and Maintenance Repair Operations (MRO) costs. To accommodate the company's financial constraints, Panduit Advisory Services helped establish a realistic budget that met the needs of this growing company with a phased plan for network deployment.

The solution Panduit recommended consisted of the Integrated Network Zone System, Micro Data Center, and Control Panel Solutions. It is comprehensive from the control room to the machine control panels, and included a network grounding and bonding infrastructure. This offering allowed Panduit to provide joint engineering and product development, interoperability testing and enhanced infrastructure design through strategic partnerships with Cisco (networking and switching technology) and Rockwell Automation.

The Panduit tailored physical layer solution addressed the following areas:

**Control Room** – Pre-configured 42 RU IT Server Cabinet (Enterprise Layer and DMZ); Grounding and Bonding Infrastructure; Pre-configured 24 RU Micro Data Centers (Layer 3 Routing and Switching)

**Plant Floor** – Integrated Zone Systems (Stratix 8000 and Panduit UPS)

**Enclosures** – Control Panel DIN Rail Mounting Patching Systems

**Connectivity** – Optimized OSP Backbone Fiber Specification using TIA Standards and NEC

**Compliance & Safety** – Comprehensive Grounding and Bonding Solution; Labeling Solution

## Results

The Integrated Network Zone System enables rapid deployment due to its integration with an Allen-Bradley® Stratix Industrial Ethernet Switch, meeting the company's requirements of securing a standardized solution that enables scalability on a global basis for greater agility and faster time to production. The Allen-Bradley® Stratix Switch offers management and diagnostics from within IT, controls environments and optimizes network traffic. This system is pre-engineered, thermally validated, IP66 and NEMA 4 rated, and pre-tested with structured cabling and Rockwell Automation active equipment, providing optimized building-block architectures for the company's network.

The Integrated Network Zone System supports the demands of real-time control and data collection and helps ensure the industrial networks and control systems operate at a sufficient performance margin within the specified environmental conditions. The pre-tested and pre-engineered quality of the solution gives the company deployment and operations confidence through the minimized effort and complication usually associated with deploying a network in segments.





## Results (continued)

The Panduit Uninterruptible Power Supply (UPS) solution, which uses ultracapacitor technology, was specifically selected to allow the company to maintain operational efficiency more effectively through improved device management, employing a smaller width that saves valuable space, and better integration, and zone monitoring. The UPS solution works in conjunction with the Integrated Network Zone System to lower the risk of downtime associated with power interruptions to keep facilities' critical equipment operating at full capacity.

The Micro Data Center (MDC) helps separate networks and reduce conflict points between the networks and enterprise teams that support them. It effectively maintains robust, integrated, and secure networks, bridging the gap between the corporate and industrial networks while maintaining flexibility to quickly disconnect the network links in the event of a problem. The MDC facilitates the connectivity from the plant floor to the enterprise, giving greater visibility into the manufacturing processes to identify problems, optimize processes, and plan for the future.

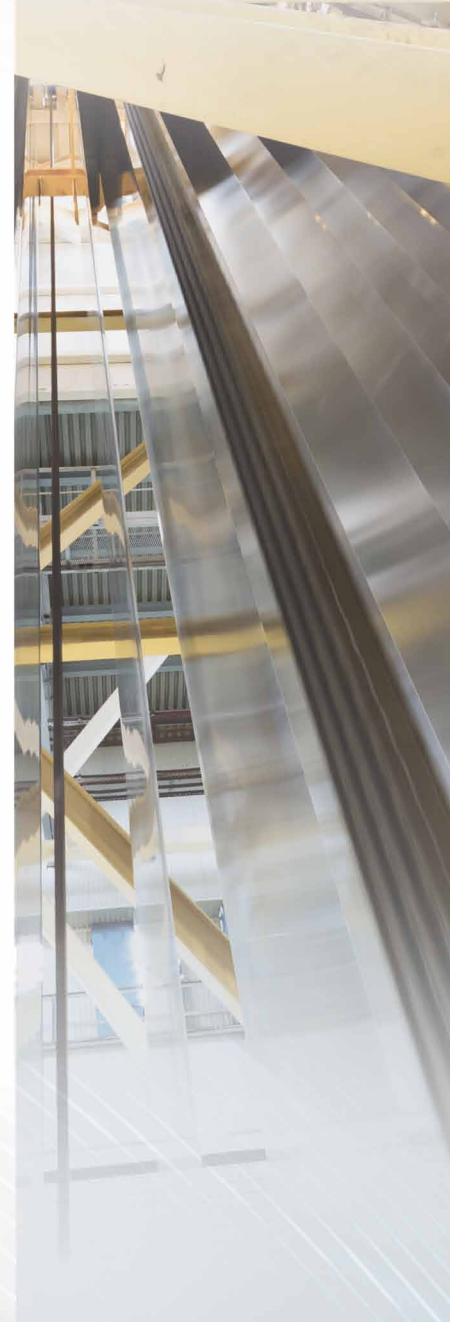
Other product sets that created the solution include the Outside Plant Fiber (OSP) which leverages Panduit OptiCam® Fiber Optic Connectors, which were used for approximately 35,000 sq. ft. of outside plant fiber and 1600 fiber connections. OptiCam® Fiber Optic Connectors install in less than half the time of field polish connectors, virtually eliminating operator error and delivering yield rates approaching 100%.

## Benefits

Panduit Advisory Services applied proven methodologies and best practices to effectively manage risk to the company's physical layer, mitigated problems in its physical infrastructure systems by providing total solutions for availability, reliability, and integration and helped reduce costs of ownership by improved scalability and better service management. Panduit Advisory Services also understood the importance of the logical and physical topologies to meet system requirements, identified in-house capabilities to maintain infrastructure and future growth needs when suggesting solutions, and increased its engagement as the project lifecycle evolved into the deployment phases.

The Integrated Network Zone System and MDC allowed the company to upgrade the networks with minimal downtime, ensuring high availability. The structured, engineered approach to physical infrastructure design addressed the proper pathway identification, distance limitations, regulatory requirements and environmental considerations to ensure the company's investments in network distribution delivered optimum output. The design of the system, as well as its built-in integration allow all phases of the implementation project to run smoothly, improving reliability and safety while reducing deployment, labor, and operating costs.

The addition of the Panduit UPS solution provided the customer with improved availability that eliminates switch restart time after brief power outages, lowers risk of downtime because the system has no battery and is maintenance-free, removing the costs of battery inspections, maintenance, testing, replacement and disposal. The UPS solution provides a Total Cost of Ownership that is 50 to 70% lower than a conventional UPS. Its improved device management and predictive monitoring feature a hold time based on actual load consumption.



## Lessons Learned

With the implementation of the Panduit solution the customer will be able to achieve:

**Speed of Deployment** – Reduces implementation time and costs by removing complexity and delivering a validated solution optimized for partner technology applications

- Reduces deployment time by up to 75%
- Provides a single part number when ordering a full solution for zone architecture deployment in an industrial environment
- Segregated system enables IT to safely access and manage the plant network to maintain Service Level Agreements (SLAs)

### Mitigated Risk of Downtime

- Increases reliability with pre-tested dual fiber uplink and mitigated risk of the delayed plant uptime after scheduled downtime
- Provides expansion of switch and ports as the network grows to make this a future proof enclosure
- Delivers active equipment within an optimized physical layer to provide a consistently high network performance
- No battery UPS solution eliminates the main cause of UPS failures

### Redundancy

- Minimal chance of failure affecting production due to high level of redundancy

### Reliability

- Well-built system
- Active equipment delivered within an optimized physical layer for consistently high network performance
- No Battery UPS solution extends life up to 20 years without periodic maintenance

### Safety

- Protects from shock hazards and allows clean segmentation between the upper level plant network and the machine level network to help maintain network SLAs

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