You Don't Have to Give Up Your Valuable Floorspace to Add Network at the Edge

Edge computing has been a hot topic in the industry in recent years, but when it comes to real-world scenarios, very little content is readily available. The definition of edge data center has yet to be fully defined—the Telecommunications Industry Association (TIA) is currently working with a task group focused on defining an edge data center standard—but the common denominator is clear: computing now occurs in any location.

These edge locations can be anywhere from warehouses, oil fields and mines to commercial areas, roadsides, and manufacturing floors—a big difference from the environmentally controlled data center environments that IT systems administrators are used to.

As an added challenge, there is still a considerable gap when it comes to project ownership. For example, a new manufacturing facility project is typically managed by Manufacturing Facilities Operations so the need for additional IT space may be an afterthought.

In fact, this is the nature of edge computing. "Think of it as homesteading in the Wild West except in this case, it is the IT professionals leaving the safety of their data centers for new frontiers; they can't plan for everything and there are many unknowns," says Sam Rodriguez, Sr. Product Manager of Industrial Solutions at Chatsworth Products (CPI).

This highlights the importance of partnering with a total solution supplier that is able to provide the right products and the expertise to solve the most challenging edge deployment scenarios.

CPI Case Study

Real-World Case Study: Where Will the Network Go Now?

A growing online food services company needed to expand fulfillment and distribution operations, so it leased a new, state-of-the-art industrial building. The location was responsible for preparation, kitting, packaging and shipping product.

This included the manufacturing facility, which was responsible for processing thousands of orders per month while ensuring absolute freshness. Manufacturing also had to ensure the fastest cycle time from the kitchen to packaging and to the delivery trucks as quickly as possible. To support this automated process, the IT network had to be located on the manufacturing floor, but a number of important considerations and obstacles persisted, including:

• To maximize capacity, it wasn't possible to give up floorspace for the network
• To maintain sanitary conditions, the IT equipment had to be protected from frequent hose-down cleaning
• The network equipment required high-capacity cooling but there was no space to add ducting to tie into the building's HVAC system
• Each cabinet required two air-conditioning units for redundancy, but they had to be placed on the same side of the cabinet, creating an unbalanced load and tipover hazard
• The air conditioner placement created an airflow circulation challenge
• The construction schedule was extremely short

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CPI first worked with the project design team to identify the customer's specifications and understand facility limitations. From there, the team worked collaboratively in an iterative process to develop several configurations, with CPI's designers delivering the following custom solution within an incredibly short turnaround window:

• RMR™ Type 12 Modular Enclosure, in two different sizes, with a unique plinth base system to support the air-conditioning units that would be placed on the lower sides of the enclosures
• Two different sizes (47U and 34U), which were required to match some locations with reduced height clearance
• Dual 8,000 and 12,000 BTU air-conditioning units with digital thermostat and communications package with linked controllers
• Staggered air-conditioning placement to avoid airflow restriction during operation
• Sealed, reinforced panels and doors to help support the added weight of the air conditioners
• 10" gland plate with dual 6" conduit openings to provide an attachment point for network and power cables
• 120 VAC power to use existing power circuits
• Anchoring system on top of the enclosure to provide additional bracing since units are placed overhead
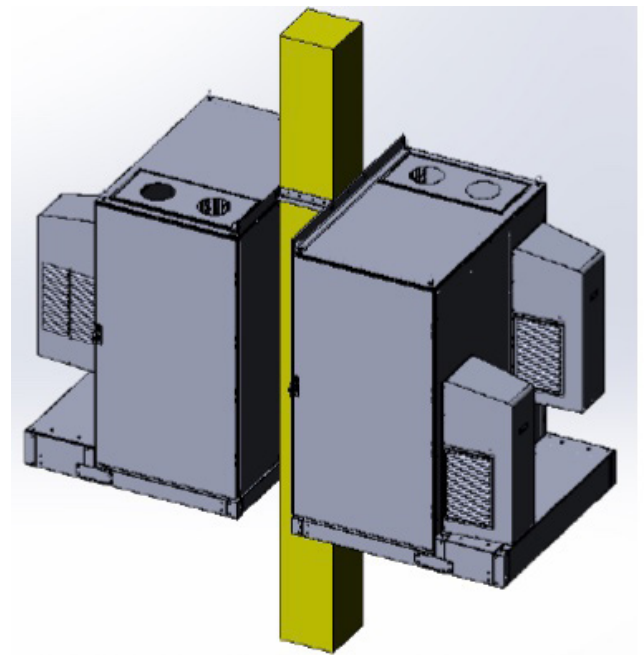
3D design was promptly provided by the CPI engineering team.

Edge is Anywhere

After the project was completed, CPI learned the enclosures were not installed on the production floor, but instead mounted to the building support columns side-by-side, only a few inches from the top of the ceiling, thus preserving the valuable production space for the manufacturing operation.

Lessons Learned

This case study highlights the importance of partnering with suppliers who can provide enclosure design expertise in a personalized manner. Because of the nature of edge locations, specifications are not always known upfront or they can change quickly. Below are some considerations for planning deployments at the edge:

- Engage all subject matter experts on the project team as early as possible
- Develop a thorough site survey or interview process to identify unique issues and qualify the problem statement
- Real-time 3D design can be an invaluable tool to demonstrate concepts, receive feedback and identify unforeseen issues
- The migration of IT to the edge creates unique challenges that can be addressed with innovative ideas
- Safety is always a project requirement as unplanned deviations may be required to address unknown constraints encountered at the edge
- IT networks moving to the edge require highly specialized enclosure designs
- Enclosure manufacturers who specialize in customization can address unique requirements of edge computing
- Expertise in mechanical design, cooling, and power are essentia to developing secure remote IT locations
- Expertise in product customization and short lead times are not mutually exclusive

About CPI

Chatsworth Products (CPI) is a global manufacturer providing voice, data and security products and service solutions that optimize, store and secure technology equipment. CPI Products offer innovation, configurability, quality and value with a breadth of integrated system components, covering virtually all physical layer needs. Unequalled customer service and technical support, as well as a global network of industry-leading distributors, assures customers that CPI is dedicated to delivering products and services designed to meet their needs. Headquartered in the US, CPI operates global offices within the US, Mexico, Canada, China, the Middle East and the United Kingdom. CPI's manufacturing facilities are located in the US, Asia and Europe.

CPI is listed with the General Services Administration (GSA) under Federal Supply Schedule IT 70. Products are also available through GSA Advantage and through Government Wide Acquisition Contracts (GWACs), including GSA Connections and NITAAC-ECS III. (chatsworth.com/gov)

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