

Cutting Cabling Costs

By Mike Martin

Are your cabling costs soaring out of control?

Important cable management considerations for data center layouts

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Executive Summary

When designing a data center it is important to look closely at all of the crucial areas where you can save money. Whether it is installation, hardware, or software costs there are always ways to save time and money. With data center restrictions such as height constraints and concrete floors, Martin Enclosures has developed a way to save tremendous time and money regarding cabling costs. When data center managers are presented with Martin’s in row wireway solutions, they may ask themselves a series of questions. Why incorporate raised floor and extensive overhead ladder racks in my data center when I don’t have to? Why pay electrical contractors for the extra time to work under the floor or overhead, when they can simply work at the base of the cabinet? Why force electrical contractors to work in unsafe conditions high off the ground or under floor tiles. Martin Enclosures will demonstrate how their in row wireway solution might be ideal for you data center.

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Cabling Cost Reduction Options

The biggest cost in running or installing the electrical circuits to the cabinets in a data center is the labor. As data centers have evolved over time, the amount of power and circuits in a single cabinet have increased from 1 or 2, 120v, 15 amp circuits up to as many as 4 to 6, 230v, 3 phase circuits. Adding power circuits raises the cost of the labor to install them and in addition to the increased labor for the circuits, the material such as Sealtite® or Liquid tight and copper wire increases especially if you are running your circuits under the raised floor.

The cost of copper has more than doubled in the last 5 years. Unfortunately, as operators, we cannot control the copper price so we have to look at other avenues to control installation costs. The most effective way to save money on installation costs is to reduce the amount of time needed to complete the job which equates to lower labor costs. Electrical contractors do not like to hear this, but there are ways to dramatically cut back on the amount of labor needed to run the power circuits to the cabinets in a data center. On the other hand, the Martin Wireway method allows electrical contractors to win more jobs by presenting more competitive bids.

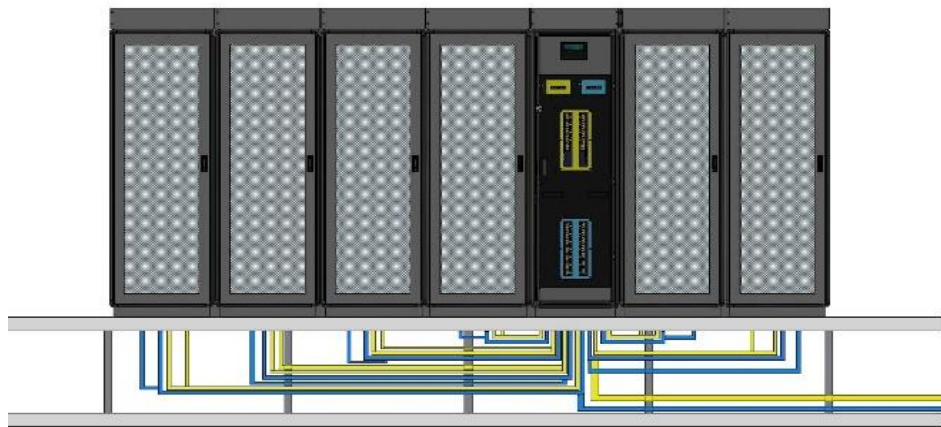


Figure 1. Traditional Under the Floor Cabling Method

By running the power circuits through the wireways in the base of a cabinet from the in row Power Distribution Enclosures (PDEs), it not only saves money on material and labor for the circuits but it also keeps the area under the raised floor very neat and organized by not having a huge amount of cable clutter. With virtually no circuit cables under the floor it allows the cooling plenum to be more efficient which in turn saves more in electricity costs. The only cabling needed under the floor would be the two conduit runs coming from the facility UPS to each PDE and even those runs could be overhead if desired. Slab floor facilities can also take advantage of this approach by relying less on ladder racks and the safety risk of climbing up and down ladders during install.

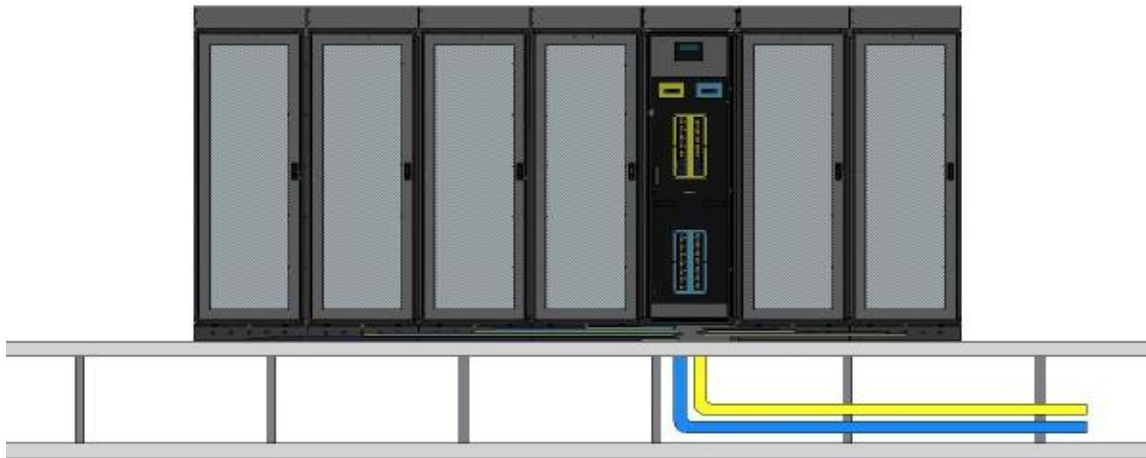


Figure 2. Martin Wireway Method

Beyond the cost savings realized, incorporating the front and rear base wireway system provides for a very convenient and aesthetically acceptable location for the power circuits. Whenever additional power circuits are required in the future, the front covers and pre-punched inside wireway knockouts simplify the process.

Power can be run from the circuit breaker in the PDE through the wireway that is incorporated into the base of the PDEs and the enclosures, up into the enclosure and be terminated in a junction box or hardwired to the power strips.

Completing a total in-row wireway solution, the addition of a variety of top mounted wireways provides an integrated and flexible solution for delivery of data and other low-voltage or grounding requirements. It can be a definite advantage when used with or without overhead ladder racks, fiber trays, or other facilities wire management provisions. Top Wireways can be customized for size, shape and configuration based on specific site or application requirements.

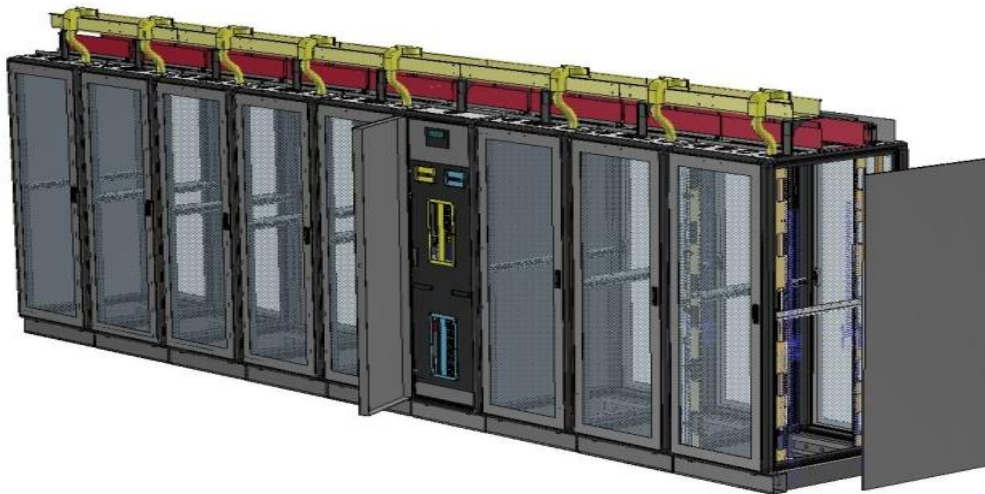


Figure 3. Martin's In-Row Data Center Solutions Including Wireways and Cable Troughs

Martin International Enclosures has implemented its design of the Wire Way Base, Power Distribution Enclosure (PDE), and cable trough system into many data centers around the US. This very unique way of distributing power circuits, network cable, and fiber runs enables customers to save tens of thousands of dollars as opposed to the typical under the raised floor and/or in ladder rack applications.

Martin International Enclosures delivers solutions that cut cabling and wiring costs. This scalable solution allows the customer to add enclosures to either end of the row without adding to the infrastructure and without going under the raised floor to run the cables.

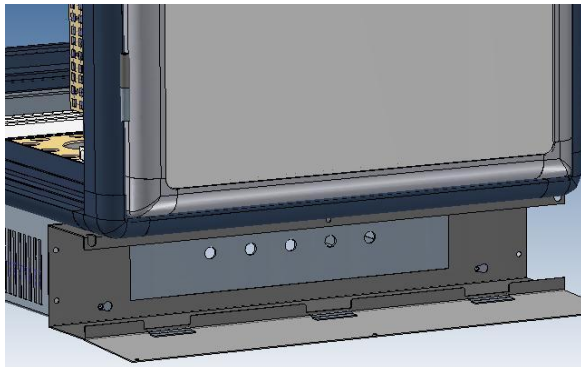


Figure 4. Bottom Wireway Channel

circuitⁱ where running a circuit through the wireway base has been estimated to be \$50 - \$100 per circuit which creates a savings of \$300 - \$350 per circuit.

The cost savings on using the PDEs and cabinets and running the power circuits through the wireway bases are so significant and obvious that once a Data Center Manager or Engineer takes a good look at it and understands how it works they don't even run cost comparisons. It's a no brainer. The labor and material cost savings have been close to 75% compared to the traditional way of running the cables under the data center raised floor or over head in ladder racks. A standard under the floor circuit has been estimated to be around \$400 per

In a one megawatt data center using an average of 8kw per rack it translates into (125) racks X (4) circuits per rack for a total of (500) circuits. (500) circuits X and average saving of \$350 per circuits provides a savings of \$175,000.00.

About Martin

We design and manufacture the highest quality of off the shelf, modified standard and custom enclosures, racks, and cabinets for data centers, industrial environments, and outdoor applications.

Data center and facilities managers rely on us when they have non-standard environments, non-standard equipment to house, or other unique requirements. Unlike other suppliers who offer pre-configured stock products, we design and build custom products, even in small lots, to meet each customer's specific needs.

Our philosophy is based on continuous improvement, manufacturing excellence, and uncompromised customer satisfaction. We use only the highest quality materials and take pride in producing a quality product that bears the Martin name.

For More Information Please Contact: sales@martinenclosures.com

References

<http://www.infomine.com/investment/metal-prices/copper/5-year>

<http://www.it.umd.edu/units/ETI/ops/RDC/costs.html>