

# NETWORKING COMPANY LEARN HOW SERVER TECHNOLOGY IMPROVED POWER DENSITY FOR A NETWORKING COMPANY

## WHO

**Anonymous**

**Datacenter Design Engineer**

This engineer was brought over to the lab's team to help build their IT labs. He is responsible for both the design and building of the labs.

## LOCATION

United States

## ABOUT

**The Networking Company**

- 380 global sites doing business in 165 countries
- 170 labs around the world
- Annual R&D of \$6B+ on total revenue of over \$40B
- Employs over 70k people worldwide

## CHALLENGES

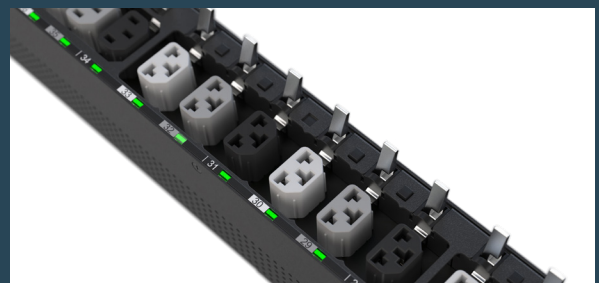
- Power and space constraints within the cabinet
- Lack of flexibility to accommodate frequent hardware changes

## RACK TECHNOLOGY

- HDOT Rack PDUs with Alt-Phase Outlets
- Third-party DCIM tool

## BENEFITS

- Higher power and outlet density
- The right outlets in the right place on the strip
- Integration with third-party DCIM
- Higher operating temperatures, resulting in improved power efficiency
- Flexibility to accommodate any type of load in a cabinet



*"We were seeking a universal high-density power strip that would provide us the flexibility to meet the ever-changing demand in our facility."*

**ANONYMOUS**  
Datacenter Design Engineer

# IMPROVED POWER DENSITY FOR A UNITED STATES NETWORKING COMPANY

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## ABOUT THE NETWORKING COMPANY\*

This Networking Company is a leading provider of networking hardware, software, and solutions that support digital security, converged infrastructure, cloud computing, mobility, and the Internet of Everything. The company's mission is to shape the future of the Internet by creating unprecedented value and opportunity for its customers, employees, investors, and ecosystem partners. It has become the worldwide leader in networking - transforming how people connect, communicate, and collaborate.

It has over 380 global sites doing business in 165 countries and 170 globally. It employs over 70,000 people, has revenues of over \$40B annually, and spends over \$6B annually on research and development.

## THE CHALLENGE

Historically, this organization relied on single-phase power for IT and networking equipment cabinets. But as time progressed, technology evolved along the lines of both speed and density. More network ports were put into the same amount of space, and network speeds went from megabits per second to hundreds of gigabytes per second. Single phase 208V power allowed for a maximum of only 5-6 kilowatts of load per cabinet. Equipment loads got commensurately larger. This led to the frequent tripping of circuit breakers within the labs.

"Our deployments typically have an A & B side power feed, requiring 2 power strips per cabinet. Now, if

*"We used to have four separate PDU configurations to meet the various cabinet loads and configurations. Server Technology HDOT PDUs have reduced that to one."*

ANONYMOUS  
Datacenter Design Engineer

your power strips are 2 RUs wide (3.5") each, that's 4 RUs of valuable real estate inside the cabinet for power and cable management," said the Datacenter Design Engineer. "The key challenge for us was to have enough power density in the smallest form factor possible."

Fortunately, they already had enough power in the buildings where the labs are housed to support higher power densities in the racks but had to update the infrastructure within the labs to incorporate overhead busways to deliver three-phase power to the rack.

The data center engineer had to use four different PDU models to meet the various loads and outlet types for the lab's cabinets. The organization sought a universal high-density power strip that would provide the flexibility to meet the ever-changing demands of the facility. The Networking Company's goal was to use any cabinet to house and power any device brought into the lab for the next 5-7 years. Therefore, the company sought to increase the available power per rack from 6kW to 17kW, likely making routine use of about 12kW.

Finally, the engineers needed a means of better understanding where power was going within the lab – which cabinets were using the most power, what time of day they were seeing the heaviest loads, and whether there were any patterns in the power consumption. Any PDU selection made needed to be compatible with their chosen DCIM solution.

## THE SOLUTION

They spent nearly nine months evaluating power distribution solutions from several vendors. When the datacenter design engineer contacted his local Server Technology representatives, he was pleased by their responsiveness and the array of solutions that could be offered to support the Company's goals. Working with his Server Technology Sales Engineer, the engineer was able to tailor a solution that was specific to their needs.

“Server Tech High Density Outlet Technology (HDOT) with Alternating Phase Outlets (Alt-Phase) provided us both the power and outlet density to support our virtualized server farms which required C19 outlets and our high-density rack mounted clusters which required C13 outlets.” By choosing the outlet type and location on the PDU through the ‘build your own PDU’ approach of Server Technology’s HDOT units, he was able to get exactly what was needed to support the hardware diversity present in the labs. Having



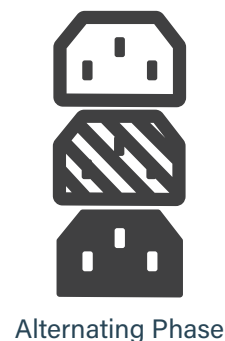
*“We used to have four separate PDU configurations to meet the various cabinet loads and configurations. Server Technology HDOT PDUs have reduced that to one.”*

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alternating phase outlets also made it inherently easier to load balance across phases within each cabinet and row of cabinets within the lab.

Power strips from the Server Technology HDOT family are all delivered in a 1RU (1.75”) wide form factor. The cabinet real estate gained by using the narrower PDU with alternating phase outlets allowed for better cable management to be implemented, resulting in improved airflows and better reliability. The ability to remotely monitor the power to the cabinet, combined with the ability of the PDU to provide alerts and traps, proved to be instrumental in improving the uptime of the power circuits in the lab, as well as helping identify where additional power capacity is available for new gear deployments.

The company was already using a third-party DCIM tool and the Server Technology PDUs integrate nicely via SNMP polling of the PDU.



## THE BENEFITS

Utilizing an HDOT-based power solution affords excellent flexibility for the customer. "Working closely with Server Technology allowed us to get the right product the first time. They were rethinking and re-engineering right up to the last second before the PDUs shipped, and Server Technology was right there along the way to help ensure I got exactly what I needed. They have been true partners in every sense of the word."

Having many of both outlet types on the rack PDU makes it possible to reconfigure the cabinet with different gear without having to install a different power strip. Rackmount servers, virtualized clusters, and storage can all be moved or changed out with ease. Alternating phase outlets enable the user to use shorter power cords than they would with a conventional 3-phase PDU, resulting in a cleaner look and better airflow.

The ability of the Server Technology PDUs to interface to DCIM has been instrumental in gaining a better understanding of the power utilization, available capacity, and improving uptime. The company is experiencing fewer circuit breaker trips and has improved technician productivity by not clamping meters to take current measurements. Personnel also can correlate the temperature in the cabinet to the compute load now, helping determine whether a given cabinet will be able to sustain that load over time.

Server Technology HDOT PDUs provide support for a 60°C operating environment. This allows the labs to operate to TIA-942 standards, a much higher operating temperature than before. This lessens the cooling requirements for the lab, making them more power efficient.

"Our labs are now a showcase. We give daily tours with customers who are both internal and external. We can show them what we're doing with power."

## ABOUT STARLINE

Starline is a global leader in power distribution equipment. For more than 30 years, Starline has provided data center, retail, health care, laboratory, higher education and industrial facilities with the most flexible, reliable and customizable power distribution systems on the market today.

## FOR MORE INFORMATION

[www.servertech.com](http://www.servertech.com)

<https://www.servertech.com/solutions/density>

<https://www.servertech.com/products/switched-pdus/>

\*This company has chosen to be anonymous