

# CrossTalk

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NEWSLETTER

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> Europe



Dave Mullen and Michael Lawrence

More and more, technologies require near instant feedback from the network. Whether it is autonomous vehicles, smart building technology, or IoT sensors, data transfer latency needs to be shorter. However, extremely low latency simply cannot be accomplished without bringing the data center's computing power closer to the connected device's location — to the edge of the network.

Utilizing the edge is about compute enabled, low latency, highly secure networks running modern software applications. Companies in every industry can leverage edge data center technologies, but only if they have a clear understanding of how these data centers will be applied. Edge data centers are not universal in their design, and the cabling infrastructure will be determined by the application.

### Segmentation of Edge Applications

Roughly 90% of processed data is in a centralized data center or cloud, a figure that is subject to rapid change. Gartner predicts that more than 50% of data processed will be at the edge by 2025. The outflow of data processing to the edge is spurred not only by lower latency demands but also by the new capabilities of 5G.

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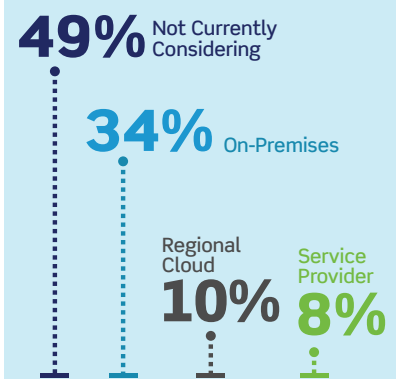
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## LEVITON POLL

**What type of edge data centers are you involved in or considering?**



From a June 2023 survey of 113 network professionals.

With speeds up to 10 Gbps at peak, and 100+ Mbps average, 5G is a compelling accelerant moving data processing to the edge. Compared to 4G/LTE Advance, 5G offers a 100x increase in traffic capacity and network efficiency, and a 10x decrease in end-to-end latency.

A good general definition of edge computing comes from James Stranger, the chief technology evangelist at CompTIA. According to Stranger, the edge is “the practice of capturing, storing, processing and analyzing data near the client, where the data is generated, instead of in a centralized data-processing warehouse.” But simply storing data at the edge of the network, rather than in a traditional hyperscale cloud data center, doesn't necessarily mean there is only one edge. Increased demand for 5G, and IoT applications utilizing 5G, continue to influence significant shifts in computing out of the cloud and into the specialized applications of edge data centers.

## Edge applications can be simplified through segmentation:



### User Edge

On -premises data centers designed to run specific applications for low latency and critical business functions.



### Access Edge

Telecommunications organizations operating micro data centers in facilities in secondary cities. These may be applied to smart cities, IoT, and transportation.



### Regional Edge

Regional colocation facilities and cloudlets that may be developed by existing hyperscale data center operators. Some use cases are smart buildings, health care facilities, and smart grid utilities.

Even though the edge is part of an overall data center strategy, edge facilities must function as stand-alone data centers across multiple branches, or regions, where installation and maintenance can vary. Different segments of the edge encompass the different types of data processing needs, which are all ultimately motivated by unique network demands and specifications. Latency, reach, and network infrastructure are different depending on the various applications.

	User Edge	Access Edge (Service Provider)			Regional
Category	On-Premises	Tower Edge	Outer Edge	Inner Edge	Regional Edge
Geographical Reach and Service	On-Site	Local	Domestic	Domestic	Regional
Number of Cabinets (TYP)	~1	~2	~5	~10	100+
Latency	<10ms	<20ms	<30ms	<40ms	<50ms
Panel Density (LC ports / per RU)	144/96/72	144/96/72	144/96/72	144/96	144/96
Typical Fiber Type	Multimode	Multimode	Multimode/Single-mode	Multimode/Single-mode	Multimode/Single-mode
Data Rates	10G	10G/100G	100G/400G	100G/400G	100G/400G/800G

All values in this table are typical and not definites.

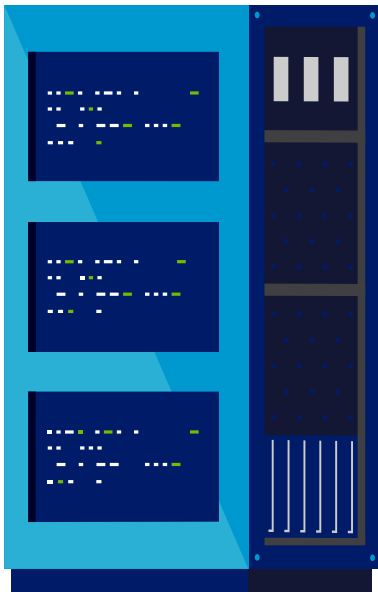
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Source: Gartner "Predicts 2022: The Distributed Enterprise Drives Computing to the Edge"

## Data Rates and Cabling Infrastructure

It is important to recognize that the effect of 5G deployments goes beyond adding more edge computing — it will also place more strain on the core cloud computing performed in centralized data centers. Roughly 90% of data is still processed in these data centers today, and 5G will speed up the introduction of 400 Gb/s and 800 Gb/s optics and switches in hyperscale and cloud data centers to move data faster. 400 Gb/s switch options entered the market in late 2018 and early 2019, and adoption of these new switches took off in 2020. The new 400 Gb/s switches, based on 12.8 Tb/s chips, provide much faster speeds and greater network density. Today, 200 Gb/s and 400 Gb/s switches make up 20 percent of total data center switch shipments, according to a Dell'Oro 1Q 2023 Ethernet Switch Data Center Report.

However, as we now see more 200 Gb/s, 400 Gb/s, and eventually 800 Gb/s in hyperscale cloud data centers, we will also see 100 Gb/s optics deployed at servers and in edge data centers. 100 Gb/s is now a fundamental building block in data centers, and there will remain a strong demand for 100 Gb/s.

It is also important to note that the majority of 100, 200, and 400 Gb/s transceiver options are for single-mode networks because of bandwidth and distance capabilities. This trend is also partially a result of the decreasing cost of single-mode optics, prompted by their adoption by cloud companies with major purchasing power, and recent standards committee activities that specify more single-mode options for higher speeds. As this trend continues, centralized and near edge data centers may find single-mode solutions to be more enticing.

## Network Security at the Edge

Networks for micro data centers use a combination of copper and fiber cabling, usually with copper connectivity and fiber uplinks. As micro data centers are sometimes located in more exposed or even ruggedized environments, cabling and connectivity should be robust and protected within the rack. These data centers may not have back up power or the high levels of security, fire detection, or cooling that are all part of a centralized data center. Secure connectors and assemblies that lock into ports might be a greater priority, along with locking cabinets and additional security.

As edge data centers are often distributed in more remote locations, intelligent port management may be helpful in monitoring networks from a central location. Intelligent patching allows for real-time visibility of the status of network connections. Managing and tracking connections is a simple means to identify unauthorized access and to control disruptions caused by human error. As the number of edge data centers grows, intelligent patching is scalable to accommodate increased demand, offering continual network security as the network grows.

Ultimately, edge and micro data centers can end up having very different requirements than large data centers. These differences include the physical infrastructure, and there are numerous considerations you can encounter. Looking for more guidance on edge data center applications? [Learn more in our on-demand webinar, Honing the Edge.](#)



## SUSTAINABILITY SPOTLIGHT

Learn about Leviton's CN2030 program and the progress we have made in our first Sustainability Report

[DOWNLOAD NOW](#)

## What's New in Sustainable Packaging

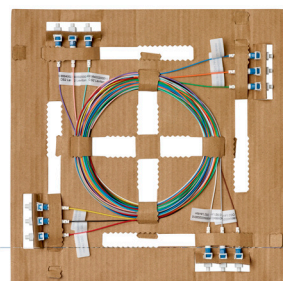
Leviton's SST Cat 6A UTP cable and tight buffer pigtail kits are available in sustainable packaging, allowing EMEA customers to reduce the amount of waste they produce at the jobsite while improving installation efficiency.

Leviton's SST Cat 6A UTP cable has a new Reelex® packaging option. SST Cat 6A cable is our next generation Cat 6A cable, offering superior heat management and noise-cancelling performance in our global MILLENNIUM™ copper systems. The new Reelex® packaging allows for high-performance SST Cat 6A UTP cable to be easily carried, stacked, and pulled.



### Advantages of the new Reelex® box for SST:

- No need for cumbersome reel carts, payoff stands, or brakes
- Boxes are stackable, offer a smaller physical footprint
- Post-consumer recycled content is used in the corrugated cardboard
- 100% recyclable packaging minimizes jobsite waste



Also, Leviton began transitioning from single loose buffer pigtails to tight buffer pigtail kits for customers in Europe and the Middle East. The tight buffer kits will be sold in quantities of 12, each as a standard, and will come packaged in 100% paper-based recyclable materials.

Leviton's 900-micron tight buffer pigtail kits are user friendly and better for the environment. This tight buffer design allows for faster and more reliable splicing without the need for additional tools or clamps often required when terminating loose buffers.

Both products are included in Leviton's global systems. Leviton's **global fiber** and **copper systems** offer environmentally conscious solutions, including bulk pack options, sustainably smart packaging, and other environmentally optimized product designs.



SUSTAINABLY  
**SMART  
PACKAGING**

# NEWS YOU CAN USE

## INDUSTRY



Ed Fenton, Ronald Tessier

Ronald Tessier, Senior Director of Operations for US Copper Cables at Leviton, was recently awarded with the **2023 Distinguished Career Award** by the Wire & Cable Manufacturers' Alliance (WCMA).

We're thankful for all Ronald does to ensure that Leviton brings the best to our customers.

**Congratulations, Ronald!**

## SPOTLIGHT

### Electric Vehicle Trends



**Global investment in electric vehicle manufacturing and battery production is expected to exceed \$626B by 2030.** 3.1 million electric vehicles were sold in 2020, representing 4.7% of all new passenger car sales. EV sales are projected to jump to 48% of passenger car sales by 2030. What's contributing to the manufacturing boom?

Firstly, corporations and governments around the world have adopted commitments to reduce their emissions to address the climate crisis. Fleets of electric vehicles offer emissions reductions. Additionally, as battery costs decline, more car manufacturers have the potential to reach price parity with internal combustion vehicles. Some estimates claim price parity could come as early as 2024. Lastly, governmental policies, like the Inflation Reduction Act and California's Clean Cars, have codified tax credits for EV manufacturers and consumers.

Also, earlier this year, EU countries approved a landmark law requiring all new cars sold to have zero CO2 emissions from 2035, and 55% lower CO2 emissions from 2030, versus 2021 levels.

The booming electric vehicle market will require smart manufacturing and charging infrastructure to maintain its growth. Leviton is an experienced partner to EV factories and EV customers.

Learn more at [Leviton.com/NS/EV](https://www.leviton.com/NS/EV)

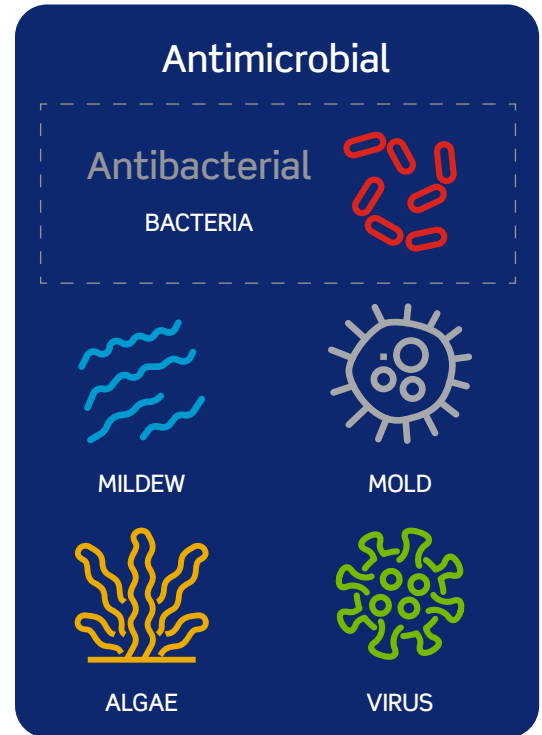
# TECH TIPS

## Antibacterial or Antimicrobial?

### What is the difference?

For environments where surface cleanliness is a daily pursuit, parsing the differences between products labeled antibacterial or antimicrobial can be a challenge. This is especially true as these two terms tend to be used interchangeably. For one, **an antimicrobial product has a substance capable of killing or inhibiting the growth of one or more microorganisms**, such as bacteria, fungi, and protozoa.

On the other hand, **an antibacterial product specifically refers to substances that are designed to kill or inhibit the growth of bacteria**. In other words, when a product is labeled antimicrobial, it may be treated to protect against one or many microorganisms. The best practice is to confirm with the manufacturer about how the product is protected.



# ASK THE EXPERTS



**Q:** What is the benefit of sub-jacketed fiber?

**A:** Sub-jacketing allows compliant fiber groups to be installed in individual routing paths, giving network managers more options with breakouts in racks, cabinets, and cable management routing. Leviton SJX cable and assemblies use sub-jacketed fibers. SJX is designed for higher fiber-breakout flexibility, the latest transceiver options, and long cabling runs.