INTELLIGENT TRANSPORTATION

Connecting Highways Through 5G & Fiber

The future of transportation will rely on digital applications to create safer, more efficient roadways. The foundation of these applications is a strong communication network. In this Q&A, **Jimmy Kim**, *head of business development for transportation and mobility at Verizon Business,(left) and* **Daniele Loffreda**, *head of virtualized edge solutions marketing at Ciena, discuss how a communication network built on 5G and fiber can support the digitization of infrastructure.*

How is technology shaping the future of transportation?

Jimmy Kim: Transportation agencies have started to shift from building more infrastructure, such as bicycle and pedestrian paths, to using technology and data to make the most of the infrastructure they already have.

To reduce traffic incidents, departments of transportation (DOTs) are utilizing data in impactful ways. They are turning to data-driven methods like signal optimization to reduce accidents. Technology is playing a critical role in this transformation.

Daniele Loffreda: Another big challenge is traffic congestion. As they look toward the future, DOTs will be focusing more on improving digital infrastructure like traffic management systems to make traffic flow more efficiently — reducing time wasted for motorists and decreasing environmental impact from pollution.

How can 5G and fiber impact the success of transportation applications?

Kim: To make this digital infrastructure work, DOTs first need the connectivity that enables it. Without basic connectivity to the proper endpoints, any new solution will not be of value.

Loffreda: Together, 5G (or fixed wireless) and fiber provide a one-two punch. Fixed wireless provides broadband-level performance, particularly in remote areas where it is difficult or expensive to build fiber networks. But 5G also requires more cell sites, so you want to get fiber into the ground as soon as possible. Once you have both, it is more cost-effective to get data back to a traffic management center via fiber.

What best practices should DOTs be adhering to as they adopt new digital transportation applications?

Kim: They must have clear communication with and between applications. One way to enhance communication is to put assets in the cloud. Cloud-based applications can provide more secure, reliable communication between endpoints, both internal and external to the agency.

DOTs should also develop standards and policies for data management and exchange. With a concrete strategy for what data they manage versus what they rely on third parties to manage, they can avoid confusion in the long run.

Loffreda: Each new device represents a vulnerability point. DOTs need to think through how to safeguard and ensure the privacy of the data they collect. Agencies should look for cloud-based security software that will support the expansion of their digital capabilities without impeding the performance of their network.

Kim: With over four million miles of open roadway and less than a quarter of the infrastructure already connected, the task of building a connected digital infrastructure can feel daunting. But by taking advantage of every funding source, including the Infrastructure Investment and Jobs Act, agencies can make strides toward blanketing this infrastructure with the fiber and broadband required for a successful transformation of transportation.

verizon

https://www.verizon.com/business/products/internet-of-things/connected-smart-cities-communities/real-time-response-system/

ciena

https://www.ciena.com/insights/transportation

ADOBESTOCK