The mission-critical router that primes transit operators for the connected future.

A great deal has changed in a relatively short period of time in the way public transit systems operate, and the driving force behind so many of these developments is connected technology. Passengers now have access to up-to-the-minute information services using high-speed Internet that improves with every new train, bus or system upgrade.

Operators significantly benefit from the safety and efficiency improvements that a connected world brings – along with the service efficiencies and increased ridership that can be achieved.

Deploying and managing the wide array of systems that passengers now expect and operators rely on is a major effort and has previously required the installation and calibration of multiple systems – a considerable headache for the integrators responsible for making them work. The US manufacturer Digi International is helping integrators clear those hurdles with a new streamlined router-based architecture – the WR64.

The Digi WR64 mobile access router handles the mission-critical transit functions of today's busses and trains, from ticketing, vehicle performance and security to high-speed passenger Wi-Fi. The company has connected more than 100 million devices in its 33-year history and counts SEPTA, New York's Metropolitan Transportation Authority and Toronto Transit Commission among its many deployments.

Digi explains why it's time for transportation operators to consider the future of the entire communication system. "We've learned a lot about transit over the past several years in the transportation market and we've leveraged the relationships we've built to gather insight on the specific needs of connectivity in the industry overall,

in terms of key features, size and compatibility," said Scott Nelson, Vice President, Product, at Digi International. "The result is Digi WR64, which not only supports the key function of segmented public and private data flow, but is the first such product to do so with future performance levels in mind."

Versatile and secure
The Digi WR64 is a versatile communications gateway that performs a multitude of tasks in complex transit and transportation systems. A dual concurrent LTE-Advanced router supports true segmented traffic flow with both cellular and Wi-Fi connectivity. Internet access for riders is managed securely and without performance or cybersecurity impact to on-board communications systems. On-board systems retain priority and any remaining bandwidth is made available to Internet traffic.

The router also strengthens operational offerings with a suite of functions to facilitate fare collection, surveillance cameras and dispatch, as well as the digital signage and location maps passengers rely upon.

Those tasks are performed under a robust layer of security designed around a dedicated cryptographic co-processor and Digi TrustFence® – which can adapt to new cyber threats as they evolve.

High-speed service

Routers designed for the transit industry have not been sufficiently equipped to handle the ever increasing speed of cellular technology. The current generation of LTE-Advanced is being overtaken by LTE-Advanced Pro and soon 5G New Radio (5G NR). Digi WR64 is future-proofed to meet these ever increasing speeds, and the higher expectations accompanying next-generation applications. The central processor is a 64-bit quadcore architecture running a matching 64-bit Linux operating system, and each communication module is connected by a dedicated 10 GT/s PCI-2.0 or USB 3.0 data bus.

Better business decisions

The power of data has become a more vital cog in the overall running of a network. Harnessing the vast amounts of business information effectively – such as passenger and infrastructure statistics – means employees can manage their day-to-day more effectively and can also help them make more intelligent decisions in the future. To better reach their business goals, operators must quickly and securely gather and analyse key performance data to improve their processes and operations.

Safety first

Passenger safety and security are the chief concerns of all transit agencies. There are few on-board systems more important in this area than the mobile access router: the method of communication that links the entire chain of command. Reliable communications for all on-board systems ensures a safe environment is maintained and that authorities are promptly notified of any incidents.
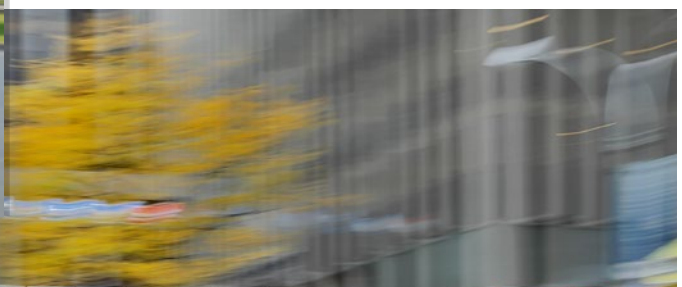
Digi TransPort WR64

Digi WR64 is designed for mission-critical communications, with support for priority and pre-emption and failover to backup networks. This is critical for coordinated dispatch and reliable location tracking following an incident when cellular networks may be overloaded, in order to expedite the arrival of emergency response teams.

The new standard for dual redundant communications

Passengers today demand a faultless on-board Internet experience. And with so many transportation options available, for transit organisations that are unable to provide seamless Wi-Fi will it's conceivable they will struggle to grow or even retain their ridership. Meanwhile, agencies must also be able to integrate vehicle data from engines, logistics programmes, fare collection, security cameras, even digital signage – all while maintaining the highest level of security and reliability.

The new Digi WR64 meets these complex simultaneous needs with dual CAT 11 cellular modules and dual high-speed Wi-Fi radios so that transit agencies can securely segment private data from public data, and deliver an Internet experience that keeps riders coming back.

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