# 4G CONNECTIVITY FOR TOLL ROAD AUTHORITIES

Cellular Hardware for Traffic Management

Many of our nations highways run through mountainous regions, open deserts, vast plains, and other remote areas with unreliable cellular coverage. A large number of toll collection facilities, still operating on legacy 2G and 3G cellular devices, are scattered along those highways. As older networks are taken off-line, reliable network connections will be even harder to achieve, unless those outdated devices are replaced- and soon.
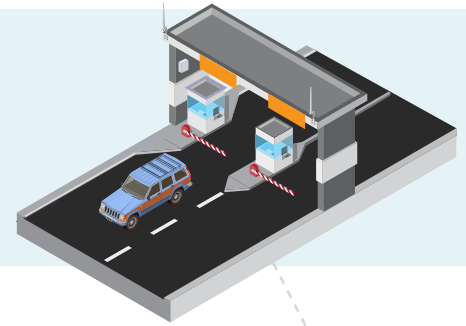
Challenges Faced | OUTDATED CELLULAR EQUIPMENT

State and County Toll Road Authorities manage hundreds of human and machine assets scattered across their respective territories. With many toll collection facilities operating with outdated cellular equipment, the reliability of their network connections has fluctuated. These organizations need as near 100% uptime as possible, otherwise traffic delays and lost revenues can result. They need newer, faster, and more reliable routers and antennas to keep their operations running smoothly 24 hours a day, 365 days a year.

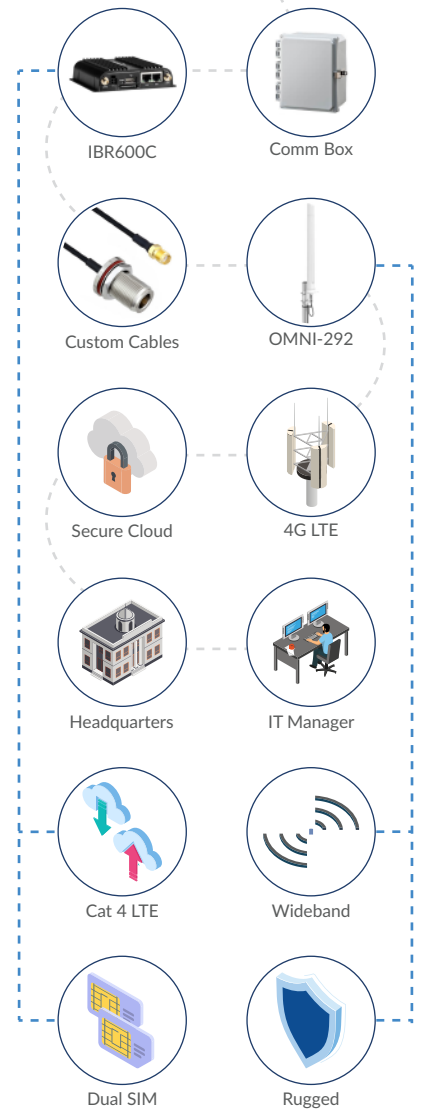## Router Solution | SEMI-RUGGEDIZED IOT ROUTERS

USAT works with several TRA's across the USA. Many asked USAT to help them replace aging 3G hardware with more robust 4G solutions. They needed easy to manage cellular routers that could satisfy their core requirements and maximize system uptime. The team at USAT recommended IBR600C routers from Cradlepoint - delivering the auto-carrier selection, cellular failover, and WiFi functionality their various fixed applications required. And with NetCloud IoT Essentials + Advanced Software they were able to easily register, configure, and monitor each of their IBR600C endpoints over-the-air.

Antenna Solutions | ANTENNA SELECTION BY APPLICATION

Many TRA's reported varying connectivity issues based on the location of, and equipment being utilized within, their various toll collection points. Most facilities were located near cities, yet some were in remote areas. The proper selection of antennas makes a sizable difference in signal strength and reliability. After consulting with USAT, these organizations were able to obtain the right antennas for each use case- including Poynting OMNI-292's for short range, XPOL's for medium range, and LPDA's for long range applications.

Proven Results | RELIABLE 4G CONNECTIVITY

Every TRA utilized our DevProv+ suite of services to configure each new device to work within their existing network infrastructure. Additionally, they hired USAT to custom cut and crimp cables to meet their exacting specifications. Each of their toll collection facilities and assets, whether manned or unmanned, wired or wireless, saw instant increases in connection speed, strength, reliability, and overall system uptime.

IoT Router:	Device Software:	Wideband Antenna:	Custom Cabling:
IBR600C	**NetCloud IoT**	**OMNI-292**	**N**(F) **to SMA**(M)

IBR600C

Comm Box

Custom Cables

OMNI-292

Secure Cloud

4G LTE

Headquarters

IT Manager

Cat 4 LTE

Wideband

Dual SIM

Rugged

CONTACT ONE OF OUR SOLUTIONS ENGINEERS TODAY