AT&T Business

BusPatrol safety technology innovations use advanced AT&T networking to help

protect students

- **Business needs** - Safety technology pioneer BusPatrol wanted to make students safer on their journeys to and from school.

- **Networking solution** - Advanced AT&T networking and AT&T IoT solutions powers BusPatrol's revolutionary technology with highly secure connections throughout North America.

- **Business value** - Students are safer, drivers are held accountable, and schools benefit from advanced technology at no cost to taxpayers.

- **Industry focus** - Safety technology

- **Size** - Start-up

About BusPatrol

BusPatrol is a safety technology company that reduces school bus stop-arm violations at no cost to taxpayers, schools, municipalities, or bus companies. It works to protect children by collaborating with police to help enforce the law and make school bus travel safer. The company and its employees are strong proponents of Vision Zero, an international strategy to eliminate all traffic fatalities and severe injuries by 2025.

The situation

BusPatrol set out to protect students, correct drivers' behavior, and eliminate illegal passing of school buses. BusPatrol needed a highly secure and reliable way to transmit the video feed from its school bus cameras to cloud-based servers and also to law enforcement agencies.

Solution

AT&T helped BusPatrol create an infrastructure to support its important mission. AT&T Internet of Things (IoT) coupled with the mobile broadband network provides secure connections between school buses throughout North America and BusPatrol's servers, enabling the company's breakthrough safety technology and harnessing the transformative power of IoT for Good.

Students face mortal danger when motorists illegally pass stopped school buses. A recent single-day survey of 20 percent of U.S. school bus drivers found that 83,944 vehicles illegally passed their buses. This suggests that over the course of a year, drivers illegally pass school buses more than 15 million times.[1]

Passing a stopped school bus is illegal in all 50 states and every Canadian province. Police call it a stop-arm violation, because of the stop sign-shaped "arm" that extends from the left side of the bus when its flashing lights are activated. Police and school districts have raised the penalties and launched public information campaigns to protect students, but tens of thousands of motorists every day still ignore the law.

BusPatrol was formed to reduce stop-arm violations – and at no cost to municipalities. CEO Jean Souliere represented a group of Canadian-backed investors that saw a way to use technology to make students' daily journey safer. "We did our homework and were shocked to find out that these violations happen a lot more than you can possibly imagine," he said.

Taking advantage of technology to protect students

Souliere was chagrined that transportation innovations had not been used to benefit students. "We asked ourselves why the technology that's being used to move our goods is so high-tech, and the technology being used to transport our kids is almost non-existent," he said. As supporters of the Vision Zero quest to eliminate traffic fatalities, BusPatrol employees turned their attention to eliminating motor vehicle crashes.

"When someone passes a stopped school bus and injures a pedestrian, or crashes into another car because they were texting and driving, we don't call that an accident," Souliere said. "It's a crash. Calling it an accident absolves perpetrators of their bad behavior. Changing the vernacular is the first step to holding people accountable."

Souliere believed that technology could help eliminate traffic fatalities and injuries. "We put our engineering brains to the task and then engineered and built the intellectual property that's currently being used across Canada and the United States to protect children," he said. Souliere and some colleagues launched BusPatrol in 2017.

[1] (Mohn, 2018)

Flipping the model to hold drivers accountable

Cutting-edge technology is not BusPatrol's only innovation. The company also devised a way for cash-strapped school districts to adopt its technology at no cost. "We're seeing ever-shrinking budgets to invest in technology, but the cargo on those vehicles is the most precious of all," Souliere said. "Our kids deserve technology. We can't let money get in the way."

Under BusPatrol's system, motorists who violate the stop-arm law pay for the technology to make students safer. "We've flipped the model by holding people accountable, and there's no better way to do that than by hitting them in the pocketbook," he said.

> "Our solution fixes the problem and we have data to prove it," he said. "Our research shows that 98 percent of the people who get a ticket for illegally passing a school bus don't get a second one."
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> **Jean Souliere**, CEO, BusPatrol

The company created partnerships with school districts, police forces and municipalities to build a program that allows school districts to deploy its technology in phases. Cameras on buses record violations, identify the motorists from DMV records, gain police approval and then send offenders tickets. School districts receive a portion of the revenue from the fines motorists pay, which they can use to invest in future deployments so that every district bus has the BusPatrol technology. "Not a single law-abiding taxpayer dollar is put at risk," Souliere said. "It's always the offenders."

The system has been successful at holding motorists accountable. "No other method has ever worked, but our solution fixes the problem, and we have data to prove it," he said. "Our research shows that 98 percent of the people who get a ticket for illegally passing a school bus don't get a second one."

Connectivity matters

BusPatrol knew technology could make a dramatic difference in student safety, but the final piece of the puzzle was connectivity. BusPatrol needed a highly secure, highly reliable way to transmit video data captured by school bus cameras to its servers, alert authorities, and send tickets to offenders.

Because federal laws protect the privacy of students and their education records, BusPatrol could not use the public internet to transmit data. It required a rock solid virtual private network. "We were looking for a provider that could understand our unique needs," Souliere said. "They couldn't be met with a standard approach. We wanted to get as many SIM cards as

possible into the market so that we can connect virtually any bus, and virtually any asset to our network, in near-real time."

Souliere and his associates began looking for a provider with global reach to build private encrypted networks that could track and audit the sharing of evidence as BusPatrol's cameras gathered it.

Preserving evidence in the cloud

BusPatrol technologists determined that AT&T could best support its innovative solutions. "We needed a consumption-based model, and, quite honestly, AT&T was the only one who was listening to us," Souliere said.

"When we told them what we were looking for, they didn't tell us why it was impossible. They took a different approach, and found ways to make it possible," he said. "We're very lucky that we found them. AT&T was able to build the infrastructure to support us, in a very quick time frame."

The industrial-grade computers on BusPatrol school buses now connect through the AT&T Control Center and 4G LTE network. "We've built an encrypted virtual private network. Every time the stop-arm is deployed, it creates a small clip that gets shot up into the cloud," Souliere said. The company recently enhanced the efficiency of its platform with Automatic Violation Analysis, which it calls AVA. "We leverage artificial intelligence and machine-learning to build evidence effectively, and then we serve up that evidence package to police officers," Souliere said. "The plate matching is done for them and the evidence is gathered so they don't have to fill out any paperwork."

Police view the videos to determine if a violation has occurred. "They simply click 'yes' or 'no', based on their judgment," Souliere said. BusPatrol prints tickets and sends them to offenders, with a link that enables them to view the evidence. "Ninety percent of offenders pay online right away when they see video of their car passing a school bus."

"Easy to use and extremely robust"

AT&T technology has become a vital enabler of BusPatrol operations. "What's absolutely critical to us is the 4G, soon to be 5G AT&T network and the AT&T custom build outs of virtual private connections," he said. "These allow us to transfer our data without it ever being exposed to the public internet so that none of that information is interrupted or available to hackers."

"That technology allows the school districts to remotely download video evidence over the internet or cellular connection," he said. "It goes directly from the bus to the district without being handled by multiple people and it's encrypted with metadata that gets all the evidentiary information, such as time and location, that the authorities might need."

AT&T cloud capabilities were valuable and easy to access. "We had a very smooth transition," he said. "AT&T and their experience with cloud computing and our existing technology on the back end was very useful. And the AT&T Control Center platform was easy to use and extremely robust." From a business standpoint, he said, it has helped BusPatrol analyze data usage and forecast future costs.

BusPatrol appreciates the value it derives from the relationship, he said. "AT&T was able to come up with some really aggressive pricing that's made what we do so much more scalable," he said. "So we're able to deploy faster and protect more kids."

Reducing stop-arm violations

BusPatrol documents a 25 to 30 percent reduction of stop-arm events during the year after a district first deploys its technology. "Our data definitely shows a reduction, which carries over into the second year as well," Souliere said.

The events continue to decrease as organizations increase the number of buses deploying the technology. "Montgomery County, Maryland has been a wonderful example of how this technology can be deployed," Souliere said. The county started in 2016 with 25 buses, expanding to 1,000 by the end of 2018; soon all 1,350 of the county's school buses will be using BusPatrol's stop-arm technology.

"That's over $13.5 million dollars of equipment deployed in a school district that wouldn't have

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otherwise been able to pay for it," Souliere said. "So now every child in Montgomery County has the safest school bus fleet in the world. It's that simple."

He noted that BusPatrol also helps districts avoid costs. Montgomery County, for example, retires 100 of its 1,300 buses every year, and formerly had to install interior cameras on new buses at a cost of $3,000 per bus. With BusPatrol now supplying the cameras at no cost, the county saves $300,000 annually.

A data collection engine that enhances safety and security

Souliere added that BusPatrol's unique funding model enables districts to receive a portion of the revenue from traffic tickets that are generated from its buses. Once this revenue pays for the bus technology, districts can add other safety equipment such as internal cameras and GPS telemetry. "This can turn a bus into a data collection engine that enhances safety and security," Souliere said.

BusPatrol can also help a district make students safer by recommending changes to bus stop locations by informing officials of stops where the most violations occur. "A stop may be in a bad location. There could be obstructions and drivers may not be able to see the bus in time to stop," he said. "Proactively changing stops could prevent a child from being injured."

BusPatrol's Student Safety Ecosystem Marketplace will make a variety of Safety Technologies available to School Districts, both developed by BusPatrol and its Partner community. The goal is to make every aspect of student life safer through technology, including the school buildings. "Surveillance technology, powered by and funded by BusPatrol stop-arm program, will help schools provide camera systems inside buildings to give law enforcement greater situational awareness," Souliere said. This could also include exterior cameras and license plate recognition applications that alert police in near-real time to potential threats.

Most of BusPatrol's technology is predicated on highly dependable AT&T networking solutions. Souliere said the company appreciates the benefits of being an AT&T customer. "AT&T has been a great provider, and we very much look forward to deploying thousands and thousands of buses on its network."