Customer Success

Keeping Toronto's Public Safe using Real-time Critical Connectivity

How Dejero provides the Toronto Police Service, the largest municipal police service in Canada, with stable connectivity in unstable environments

Overview

With a population of 2.8 million people, Toronto is the largest city in Canada and fourth most populous city in North America.

It hosts a wide variety of events, from concentrated professional sporting clashes like the Raptors basketball and Maple Leafs hockey teams, to wide-area public events like the Toronto Marathon, Pride Toronto and Rolling Loud.

It may surprise you to learn that Toronto is also the location for over 1,200 rallies, demonstrations, major sporting events, festivals and parades each year.

The Emergency Management and Public Order unit is responsible for public safety at every event where crowd monitoring is required. In addition to situational management, this highly specialized department is also responsible for search management, public order, explosive disposal, and works hand-in-hand with many other teams in the Toronto Police Service.

About the Toronto Police Service

The Toronto Police Service's Emergency Management and Public Order - Public Safety Section is a highly specialized unit addressing crowd management, emergency preparedness and CBRNE Response (Chemical, Biological, Radiological, Nuclear and Explosives), Search.

It is part of a diverse group making up the Toronto Police Services' Public Safety Operations team. Each unit has a specialized skill set which contributes to the safety of Toronto's communities. These teams work closely with one another, with other divisions, and with external agencies, so real-time and reliable communication is critical.

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With responsibility for coordinating searches for missing persons, the team requires extensive resources, such as Remote Pilot Aircraft Systems (RPAS). These have a variety of uses like canvassing neighborhoods, live searches and tracking, as well as real time monitoring and downloading of videos to locate and recover missing persons.

They can efficiently cover large, often remote, areas in a cost-effective way, and features like infrared, and thermal heat detection mean they can help find missing persons quickly.

In mission-critical environments where public safety is paramount, lives depend on the ability to communicate and provide secure, real-time information to a multitude of internal and external stakeholders.

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Challenge

The ability to anticipate and react to a dynamically changing environment is key to ensuring public safety. Getting that data in real time heavily depends on reliable remote connectivity—and reliable remote connectivity at large events can be incredibly challenging.

Densely populated crowds of people using their personal mobile devices put a huge strain on cellular networks. Not only does it multiply the number of signals cell towers need to process, but data-intensive apps and live streaming can quickly overload a network.

So, when your job is to ensure the safety of people at those large events, you need a solution that won't let you down.

"Large events in Toronto tend to oversaturate the city's cell towers, which can lead to a loss of connectivity," says Michael Snea, Logistics Lead for overseeing and supporting the Toronto Police Service relating to Public Safety and Emergency Management. "It is vital to maintain connectivity for both data and video so we can respond to and provide situational management for all levels of command."

For critical communications and situational awareness, uninterrupted connectivity is essential to effectively communicate, coordinate, and manage developing situations.

Furthermore, the use of RPAS to deliver live high-definition video feeds is extremely bandwidth-intensive — even a partial signal failure can render a unit useless.

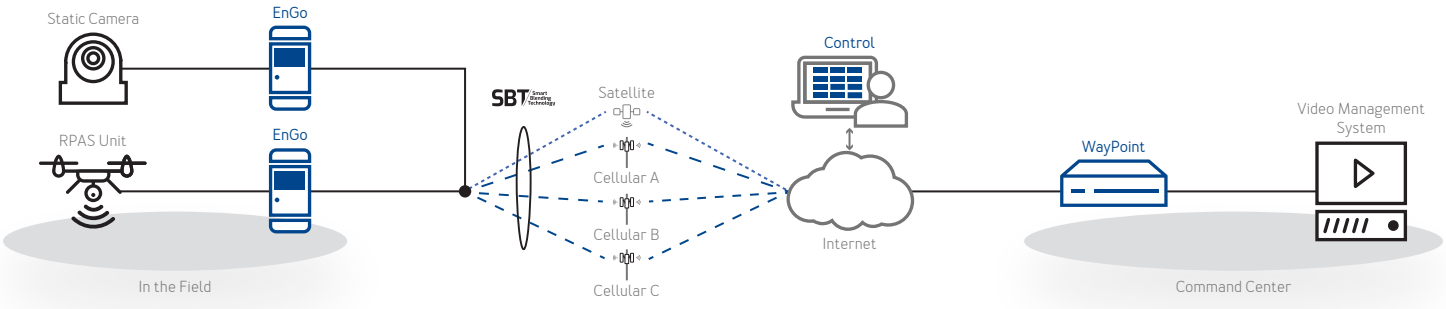
Public safety officials are especially sensitive to these concerns as so much of their work relies on secure, low latency, real-time feeds. “As technology evolves, there is more of a requirement to use video to help public safety officials make informed decisions. Low latency is critical in a public safety environment — a delay of even five seconds can be devastating when you are dealing with a dynamic situation,” adds Snea.

> *“At the scene of an incident or emergency, your personnel don’t need the added stress of worrying about connectivity — nor do they need to be IT experts. The Dejero system is so user friendly; it’s plug and play. The system is up in two minutes: I plug into a source and it feeds directly into our video management system.”*
>
> *Michael Snea, Logistics Lead for overseeing and supporting the Toronto Police Service relating to Public Safety and Emergency Management*

Solution

The Toronto Police Service met all these needs with the deployment of five Dejero EnGo mobile transmitters.

The Toronto Police, which is the third largest police force in Canada (after the OPP and RCMP), has actually been using Dejero technology since 2016. Its Corporate Communications department first identified Dejero as a solution to provide live video feeds, including for news conferences to local news agencies like CP24.



Dejero EnGo transmits real time camera feeds from static cameras and airborne RPAS units using Dejero’s *Smart Blending Technology™*, which aggregates diverse IP networks, combining multiple connections into a single managed service. Dejero Control cloud-based management system monitors the signals as they arrive into a Dejero WayPoint receiver located at the Toronto Police’s Command Center. The WayPoint reconstructs video, decodes HEVC or AVC, and outputs to a video management system where the feeds can be accessed by any authorized user to the Service, internal or external.

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In fact, Canadian news channel CP24 was already a Dejero customer, and whilst working with them to create public awareness about various events, the Toronto Police Service identified the Dejero solution as having real-time benefits to public safety. The Corporate Communications group were an early adopter of Dejero equipment in this sector and had successfully deployed Dejero solutions when Snea's Emergency Management and Public Order team began utilizing the technology in a public safety environment.

"Dejero has built in technology to bridge various connectivity networks, it is very beneficial for all of us," says Snea.

The Dejero EnGo mobile transmitters employed by the public safety team transmit high-quality live video with latency as low as 0.5 seconds to ensure real-time, high-definition video feeds in the field.

> *"The EnGo units can be deployed onto smaller platforms in areas that were previously inaccessible with our traditional 40 lb cameras. They enable us to access places and camera feeds that we were unable to before. The fact that they connect with multiple carriers and use a multi-SIM system also cuts downtime and gives us better quality video for situational management."*
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It uses Dejero's patented *Smart Blending Technology* which protects against network dropouts by combining multiple cellular connections into a single managed service to deliver levels of reliability public safety agencies can depend on.

By combining multi-carrier and multi-technology solutions across LTE, fiber, and satellite connections, Dejero *Smart Blending Technology* delivers resilient, dependable connectivity and improves uptime so incident commanders can make informed decisions when they need to.

Made with lightweight, aircraft-grade aluminum, the EnGo transmitter's rugged design is tough and lightweight for demanding field use. EnGo units are certified by leading regulatory, industry, and mobile network operators and offer AES-256 encryption security for data transfer over public internet links. The EnGo transmitter's dynamic routing of packets over multiple connections provides public safety agencies with secure, fast, and prioritized network access.

Toronto hosts a wide variety of events, from concentrated professional sporting events like the Raptors basketball and Maple Leafs hockey teams, to wide-area public events like the Toronto Marathon, Pride Toronto and Rolling Load.

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All EnGo units also support multi-SIM cards from three separate wireless network carriers, which means if a connection is lost or congested, Dejero's *Smart Blending Technology* automatically re-routes packets across the other connection paths to maintain connectivity. EnGo operators are able to transmit video directly to the Toronto Police Services' video management system, allowing its commanders to manage every camera feed.

"The EnGo units are the proof of concept on how to deploy wider Dejero systems and bring in those assets to manage information more effectively," says Snea. "We've been using all five EnGo units in the field. In addition to the RPAS systems, we have been able to use smaller static cameras to transmit video. The EnGo units can be deployed onto smaller platforms in areas that were previously inaccessible with our traditional 40 lb cameras. They enable us to access places and camera feeds that we were unable to before. The fact that they connect with multiple carriers and use a multi-SIM system also cuts downtime and gives us better quality video for situational management."

Crucially, the Dejero solution is also quick and easy to deploy.

"At the scene of an incident or emergency, your personnel don't need the added stress of worrying about connectivity — nor do they need to be IT experts," continues Snea. "The Dejero system is so user friendly; it's plug and play. The system is up in two minutes: I plug into a source and it feeds directly into our video management system. At that point anyone in the service can pull it up and see what's going on."

"It's already connected so it reduces the amount of time it takes for deployment."

The Dejero system has enabled the Toronto Police Service to maintain real time data across hundreds of kilometers and between multiple Command Centers.

Results

The rapid deployment and reliability of the Dejero system has enabled the Toronto Police Service to maintain real time data across hundreds of kilometers and between multiple Command Centers during a number of large-scale events and political rallies.

In one particular deployment, the Dejero solution consistently outperformed other police agencies' systems, allowing multiple police departments to effectively coordinate public safety protocols across long distances.

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"We used the EnGo transmitters with our RPAS units to keep abreast of rapidly developing situations, and to keep multiple command posts informed," says Snea. "The EnGo transmitters fed information to command posts in Ottawa and Toronto; we had no latency issues and zero downtime on all of our RPAS units – the Dejero system outperformed all the other police agencies' systems due to its stability."

"Dejero definitely proved itself, transmitting multiple feeds to multiple sites, and over a 450 km distance."

The deployment of the EnGo field units also serve as a proof of concept in a longer-term plan to support the Department's Central Command with the addition of Dejero GateWay network aggregation devices and WayPoint receivers for twin Mobile Command Vehicles that are currently being built.

Toronto Police Mobile Command Vehicles hold up to 10 people as well as a self-contained briefing area to act as a central command point on the ground. They act as the hub of decision-making during crisis response and event support.

The GateWay will provide robust internet connectivity to enable connectivity for data and video by creating a stable connection between nodes on the Toronto Police network, as well as create the ability to connect standard PC equipment over an Access Point Name (APN).

"The Dejero Gateway will give us enhanced capability. Relying on single SIM and single-source network providers means that connectivity can be lost, prone to dead zones and saturation of cell towers. The ability to connect to central systems remotely and reliably is vital for all kinds of policing," says Snea.

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During protests, rallies and major public events Toronto Police relies on Dejero to ensure information is being transmitted under any condition in real-time.

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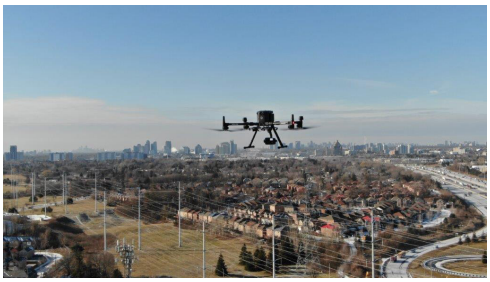
The addition of the Dejero MultiPoint video management solution provides the ability to quickly distribute live content from any location – including Mobile Command Vehicles – and to manage the flow of information. The Toronto Police Service operates a central HQ command center which houses the hub for all content, and it is important to control access to that information.



Dejero EnGo transmitters are used with the Toronto Police Services' Remote Pilot Aerial System units to keep units across rapidly developing situations, and to keep multiple command posts informed.

Connectivity you can count on. Dejero keeps first responders safe with resilient wireless connectivity for mission-critical communications.

Start the conversation today

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