Hewlett Packard Enterprise | Qumulo

USING ADVANCED ANALYTICS TO PROMOTE PUBLIC SAFETY

Auckland Transport manages traffic flow, deters violations and crime in real time

Auckland Transport expanded its network of video cameras and updated its data platform to better monitor vehicles and serve people in the city. The insight from the edge-to-cloud AI-enhanced video feed is used to optimize transport routes and promote public transportation, as well as shared with emergency services and law enforcement.

Keeping an eye on the city

Auckland Transport (AT) cameras are always on. They record the amount of traffic, cars that speed, and those that run red lights all over the city of Auckland, New Zealand. They see accidents and violence and vandalism. Responsible for all of the city's transport cameras, the agency is one of several organizations that support the Auckland Transport Alignment Project (ATAP).

While AT uses the data collected from the edge by its closed-circuit television (CCTV) network of 3500 (and growing) traffic cameras for intelligence and planning purposes, the agency also records video footage for public safety enforcement. "We use the data to direct police to the location and also for business casing to determine if problems are getting better or worse," says Roger Jones, executive general manager, business technology for AT. "For example, should we change the speed limit here; should we add a speed bump there; should more police patrol this area."

AT adds surveillance feeds from business association cameras into its video management system (VMS) to broaden the agency's view. Jones shares, "Our CCTV network is all about keeping an eye on what's happening around the city from a safety perspective." Aside from traffic, AT is responsible for all of the region's transport services including footpaths, public transport, and parking. Its day-to-day activities keep Auckland's transport systems moving and the agency is doing its part to address traffic congestion, encourage more people to use public transportation,

INDUSTRY: GOVERNMENT SERVICES AND TRANSPORTATION

COUNTRY: NEW ZEALAND

VISION

Keep the citizens of Auckland, New Zealand, safely moving on roads and in public spaces

STRATEGY

Support decision-making, emergency services, and law enforcement with an always-on video management system (VMS) that is enriched with analytics

OUTCOMES

- Supports 60% more cameras, improving visibility into the city
- Reduces data center footprint by 41%, conserving public funding
- Alerts users using AI when it's time to make a decision

→ Click here to see if this document is available in the language of your choice.

and keep citizens safe on roads and in public spaces. Jones continues, "We know how long it takes to get from point A to point B by car and we let people know that they can get there twice as fast on the bus."

Growing vision, growing data

Much of what the cameras record can be overwritten after a period of time, yet the data continues to grow. This proved problematic with the VMS' limited scalability. "We store about a petabyte of data a week," explains Jones. "We don't keep all of that data indefinitely, but if there's a safety incident, we're required by the Public Records Act 2005 to keep it for seven years."

He continues, "Scaling was an issue. We could only have so many cameras per server and if a server went down you lost all those cameras. It was labor-intensive to maintain a lot of physical servers."

Jones had additional use cases in mind that would require more cameras and sophisticated analytics and his vision was bigger than the agency's original VMS. AT was using aging technology and, furthermore, the ongoing costs of maintenance and outsourced management of the platform were significant. The expansive system was complex, difficult to upgrade, and nearing its end of life, as well.

To support additional camera feeds and higher quality images from newer camera technology, AT sought a modern and unified solution that would offer room to grow. "We needed analytics and we needed a single system for the whole city."

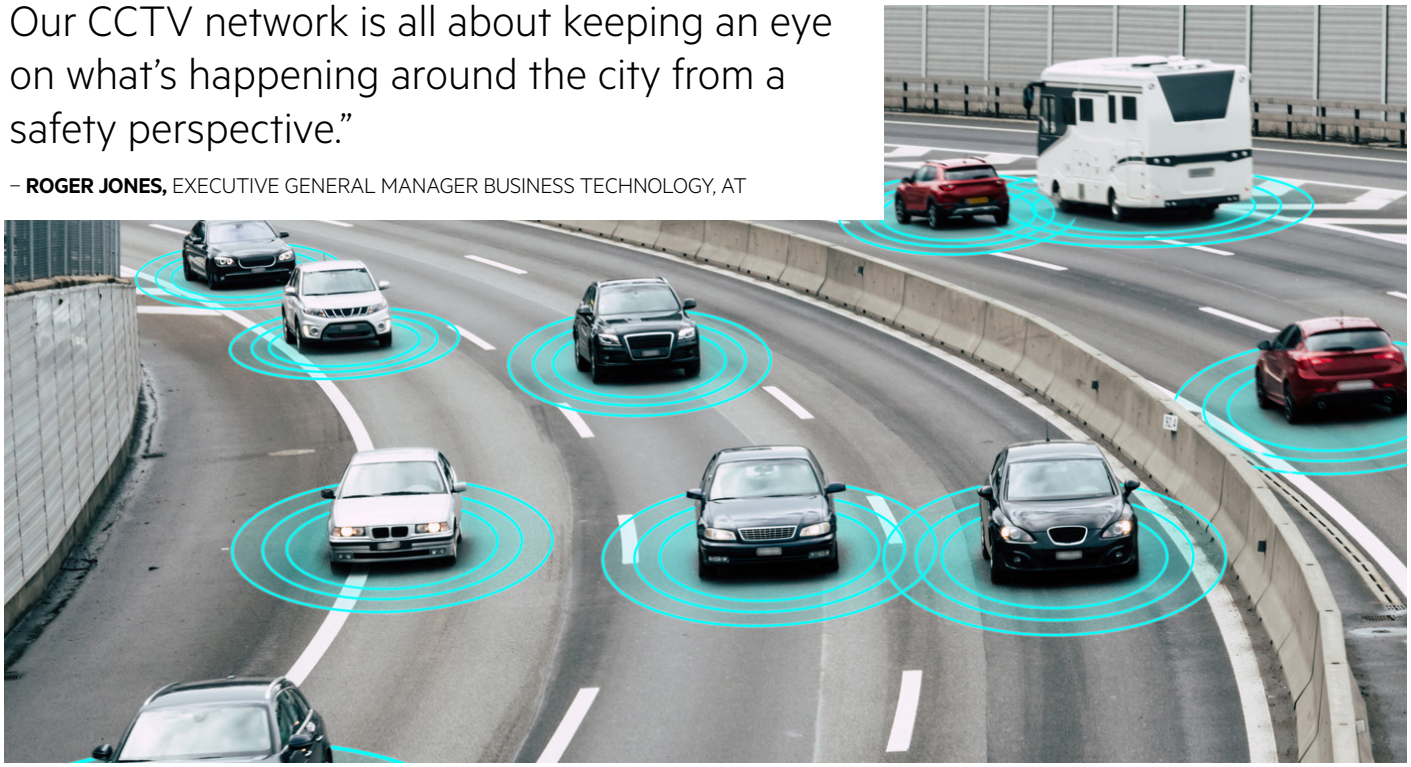
A simplified yet sophisticated solution

AT transitioned its VMS to the Qumulo File Data Platform on an HPE Apollo 4200 Gen10 server running on the HPE GreenLake edge-to-cloud platform. "Our preference was to work with HPE due to the technology and strategic relationship, but we still had to scan the market to ensure our chosen solution was competitive. What we determined is that HPE GreenLake platform delivers the value that we, as a public agency, need," confirms Jones.

The original system comprised 68 rack units spread across 3 racks. Today, AT's VMS is contained within 40 rack units in 2 racks at a co-located data center. This 41% rack space reduction represents a 37% decrease in energy consumption, as well as an associated decrease in carbon emissions due to the reduced power and cooling costs in a system 2/3 the size of the original footprint, yet the Qumulo file system is still able to handle unstructured data in the exabyte realm. Additionally, the previous solution supported only 2500 cameras. Now the agency supports 60% more cameras with a total of 4000. Furthermore, by choosing the HPE GreenLake platform, AT was able to avoid up-front costs and pay for only what is used. "We're also able to easily meet our requirements for disaster recovery, backup, and user management without the added cost or complexity of third-party applications," says Jones.

"Previously, we had a mix of our own staff supporting the servers, plus multiple third parties managing the backups, infrastructure, and physical hardware. Now we have one," Jones says.

> Our CCTV network is all about keeping an eye on what's happening around the city from a safety perspective."
>
> – **ROGER JONES,** EXECUTIVE GENERAL MANAGER BUSINESS TECHNOLOGY, AT



AT has partnered with HPE GreenLake Management Services to monitor and operate its VMS. "HPE managed the end-to-end transformation from the old system to the new one, so the only thing we physically had to do was shift our camera feeds across, and we were up and running," says Jones.

Today AT can access a single dashboard to see consumption, as well as compute and storage trends, which is important for forecasting and on-demand planning. "We're able to dial up additional storage and compute power as we add more cameras at the edge—and we are always adding more cameras," Jones continues.

"We have a very close relationship with HPE, with engagement at the executive level for joint road map sessions. Additionally, Qumulo provides real-time support—our team has a direct line with engineers."

Jones summarizes, "The whole HPE GreenLake cloud services value proposition was really about taking all the management headaches away."

> We use the data to convert people to public transport. We know how long it takes to get from point A to point B by car and we let people know that they can get there twice as fast on the bus."
>
> – **ROGER JONES,** EXECUTIVE GENERAL MANAGER BUSINESS TECHNOLOGY, AT

Real-time analytics assistance

The new VMS system offers AI analytics from the edge that help Jones and his team make decisions in real time. For example, at rail stations, AT can detect people who cross the platform onto the tracks or climb into the stabling yard. The agency knows if someone is driving in a bus lane or if people are violating commuter lane regulations. If there is an unusually large crowd congregating or whether a taxi is parked in the wrong place for too long, AT can see this. The AI automatically detects these scenarios and presents the footage to an enforcement officer in real time.

Jones notes, "Previously, enforcement or parking officers had to stand out on the side of the street in all kinds of weather with handheld cameras recording violations. Now they are able to monitor what is going on from a remote location, which means they can not only do their job more safely, but also they're more productive because they're not passively waiting for something to happen."

Additionally, the new system can resolve a specific issue that the old platform couldn't, which is seamless upgrades. "We have continuous uptime: We're able to perform online upgrades and patches without taking the Qumulo and HPE system offline, says Jones."

Ultimately, AT can use the AI analytics and AI to inform decisions that advance the way people live and move around the city. In addition to vehicles, the AI counts pedestrians, cyclists, and scooters so the agency can understand the transport flow—not just the traffic flow, but the movement of people across the city. This information feeds into AT's transport planning and optimization of the transport routes.

"Our CCTV network supports so many different use cases across the city, and the beauty of it is, that they all supported by a single back-end system," Jones states.

The future of the VMS

Jones has big future plans for AT's VMS and HPE GreenLake Management Services. First of all, there are additional use cases. "One of the ideas we're considering is adding cameras around schools to monitor dismissal behavior and determine whether the traffic flow should be rerouted or if a safety officer should be present," Jones says. Another idea is better management of loading zones for commercial vehicles. "A refrigerator delivery truck can't afford to be parked blocks away from its destination," Jones explains. The agency is also considering using AI to override the traffic light programming based on what is happening in real time, so that nobody has to stop at five red lights in a row, wait too long to make a left turn, or sit at a deserted intersection.

Second, AT may add other applications to the HPE GreenLake platform to reduce storage costs and simplify management. Jones says, "We're collecting data off a bus every nine seconds and we've got 1200 buses that run from 5:00 a.m. until about 2:00 a.m., so that generates quite a lot of data. And then there are the ferries and trains as well."

Lastly, Jones shares, "We do provide a lot of advice to agencies in other cities who want to perform the same kind of transport planning and public safety support. We are contemplating what that might look like in the future, whether we continue to engage on a consulting basis or whether we provide a shared service."

After all, there's plenty of room left for growth.

> Our CCTV network supports so many different use cases across the city, and the beauty of it is, that they all supported by a single back-end system."
>
> – **ROGER JONES,** EXECUTIVE GENERAL MANAGER BUSINESS TECHNOLOGY, AT

EXPLORE MORE

→ **FIND** more Digital Game Changer stories

hpe.com/storage/qumulo

hpe.com/us/en/greenlake/public-sector.html

hpe.com/us/en/services/remote-infrastructure-monitoring.html

SOLUTION

HPE GREENLAKE PLATFORM

- HPE GreenLake cloud services
- HPE GreenLake for storage

HARDWARE

- HPE Apollo 4200 Gen10
- HPE Primera A670
- HPE ProLiant DL560 Gen10
- Aruba switches

SOFTWARE

- HPE InfoSight
- Qumulo File Data Platform

KEY PARTNERS

- Qumulo

CHAT EMAIL CALL UPDATES

Hewlett Packard Enterprise

a50005189ENW