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Auckland Transport

Auckland Transport expands video analytics and realizes its vision of safer roads and more efficient public transportation with OpenText and Vidsys.

Overview

Auckland Transport was formed in 2010, when the transport functions of the eight former Auckland local authorities and the Auckland Regional Transport Authority were combined, to oversee roads, traffic networks, and public transportation. The merger yielded five different operational centers with various technologies. A small staff monitored hundreds of older CCTV screens and tracked inputs on pedestrians, cyclists, and vehicles. "We were missing so much," says Roger Jones, Auckland Transport Executive General Manager. "The cameras were being used for reactive investigation rather than active problem management."

Auckland Transport utilizes the Vidsys Converged Security and Information Management (CSIM) platform to integrate and correlate existing CCTV, intercom, OpenText™ IDOL analytics, traffic management systems and other relevant data in order to monitor scenarios of interest. Due to the increasing amount of data needing to be processed by Auckland Transport's business units, the requirements for the Vidsys CSIM platform continue to expand. Vidsys continues to provide new features, enhancements and configuration changes to meet these requirements.

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ROGER JONES
Executive General Manager
Auckland Transport

Challenge

Making the roads safe necessitates pinpointing hot spots and trends, mitigating and reacting swiftly to issues, and monitoring the performance of the entire transportation network. In addition, multiple stakeholders and partners—from police and emergency responders to third-party application developers—need actionable insight on travel activities.

"Our stakeholders want fast, real-time data about traffic lights, congestion, buses, and trains," Jones notes. "They want to use the analytics to transform their business operations day-to-day. We didn't have that wealth of data."

The agency faced the challenges of launching a new CCTV system, converging the units and their data, and then assimilating and churning out vast data volumes to those who need to know.

Auckland Transport
An Auckland Council Organisation

At a Glance

- **Industry**
  Government
- **Location**
  Auckland, New Zealand
- **Challenge**
  Upgrade the city-wide surveillance camera infrastructure and implement an on-premises big data analytics platform to provide fast, real-time data to stakeholders and transform business operations.
- **Products and Services**
  IDOL
  Vertica Analytics Platform
  Vidsys Converged Security and Information Management (CSIM)
- **Success Highlights**
  + Promoted safety with insights into transport use driven by analytics
  + Auckland City services improved with real-time data channeled to stakeholders and partners
  + Proactive problem management with incident, hot spot, and traffic violation detection
  + New applications developed and user experience improved with real-time, rapid streaming of high volume data
  + End-to-end batch file processing time cut in half

Solution

Three years ago, the agency selected video recording and analytics powered by IDOL, a data analytics solution that enables personnel to derive insights and patterns from massive amounts of real-time streaming video data. Housed in the agency's facilities, HPE ProLiant BladeSystem, HPE 3PAR StoreServ Storage, and OpenText™ Critical Watch support the IDOL platform.

Evolution

This year, with a major new refocusing on public safety, the agency is enjoying the benefits of their investments. They have built a dedicated in-house team of video analytics specialists who work full time with IDOL's Media Server application, the highly configurable computer vision engine. This team combines analytics including Scene Analysis, Automatic Number Plate Recognition and Object Classification to build and run scores of user-story-driven analytics scenarios for surveillance and to gather evidence and accurate statistics about pedestrian safety and traffic flow all across the largest city of the country.

Results

Exceeding Customer Expectations

The agency extracts about 1TB of data monthly from the train CCTVs and at least 8PBs of data weekly from street cameras mounted at intersections. In addition, the Microsoft SQL Server-based warehouse holds around 3TBs of data. The IDOL data analytics platform processes CCTV video analytics, integrating that data into the incident management system and feeding the OpenText™ Vertica™ analytics database to enable data mining and higher level alerts based on the combination of multiple video analytics events.

Over 500 video analytics are currently running on over 200 cameras in real time with an additional 200 plus having been used in the past for completed projects. All these analytics results enable staff to respond to issues that make 1.4 million citizens safer on the road. Agency personnel can detect traffic violations, congestion, and parking problems, as well as harness patterns uncovered by the IDOL platform.

Multiple stakeholders inside and outside the agency benefit from ad-hoc investigations built with video analytics at their foundation. Whether monitoring pedestrian safety at an inner-city railway crossing, quantifying the problem of vehicles running red lights at a major intersection, detecting vehicles illegally stopping in bicycle lanes or measuring vehicle speed at key points of interest, IDOL video analytics is enabling the agency to build a richer picture of how the Auckland transport network is really used, enabling the agency to improve safety in all areas of transportation in the city.

"The public safety is a huge step increase," Jones admits. "That has financial ROI across the medical and broader community spectrums. As a transport agency, our IDOL analytics platform is helping us exceed customer expectations and shape positive perceptions."

Putting the data to work, the agency has gained an integrated ticketing system with insight on travel times, patterns, trip frequencies, and demographics.

"We can now start to tailor our messaging, especially for transport, to the stops where people are at the right time of day," Jones says. Instead of conducting ad-hoc surveys, city planners can use the real-time data from license plates to construct heavy transport and trucking options.

"This is very much about the planners having reliable information," Jones says.

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Enabling Strong Analytics

Current statistics and other significant volumes of data—such as the parking system—reside on the OpenText™ Vertica™ Analytics Platform, which processes structured data quickly. IDOL feeds this growing repository of relevant knowledge by producing live alerts from long-running video analytics like pedestrian counting and anonymized Automatic number Plate Recognition across the agency's CCTV network and accelerates the delivery of insights from it, linking statistics with historic corporate information and financials in the SQL warehouse.

The warehouse data integrates with the OpenText™ and API Management Solution data stores to provide integrated reports at the front end. The data analytics platform provides faster end-to-end batch file processing. Previously, batch processing took 4.5+ hours. As a result, service, bus, and ferry operators could not leverage needed information when starting their work day. Now, batch processing finishes in 2 hours.

"We have a huge performance increase," Jones explains. "When the operators come in to work, they have yesterday's information, and they can make the right business decisions. The API Management Solution platform can manage streaming of high data volumes at high velocities."

Special Vehicle Lane Enforcement

Using IDOL, AT can now remotely enforce traffic rules on special vehicle lanes with video analytics. This reduces operational costs and increases compliance with bus lane regulations.

Driving Towards a Safer Future

The agency's latest success is the well-publicized deployment of a special vehicle lane use enforcement system based on analytics, which, for the first time, provides a practical and automated mechanism to identify and generate evidence to fine vehicle owners for illegally using special vehicle lanes such as bus lanes. By providing a real deterrent to back up the ruling set by the New Zealand Transport Agency, AT will promote safer and more efficient road use for all commuters in the city of Auckland.

Through its investment in big data technologies from OpenText™, Auckland Transport is building upon its "Future Cities" vision, one in which developers and officials employ all types of data, sensors, and technologies to improve products and services for their citizenry. Jones sees the agency continuing to enhance resident experiences as more agency stakeholders and partners fully grasp the potential of big data.

"We are looking to enable them to take that data and do something with it, find patterns we don't have the expertise to find, and deliver value back to us and to everyone else. We've provided the platform and enabler. They must pick it up and run with it," he concludes.

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