Case Study:
Security over IP Surveillance Solution

Greater Toronto Airport Authority implements an advanced IP video surveillance system designed to handle thousands of cameras at Canada's busiest airport.

The Challenge

Toronto Lester B. Pearson International Airport has the distinction of being Canada's busiest airport with over 29 million passengers traveling through this intercontinental hub in 2000. It is anticipated that by 2020, Pearson will reach the 50 million passenger mark per year. To ensure the airport upholds its strong reputation as a key North American intercontinental hub while meeting the forecasted passenger volume, the development of a new Terminal 1 (T1-New) was required.

Terminal 1 handles domestic, international and trans-border flights and has been constructed in a way that makes it easy to expand as needed to service the growth of passengers. An ever-increasing flow of passengers has particular implications for security. The security plan for Toronto Pearson needed to address the complexity and regulatory compliance of security today, but also requires a forward thinking approach to ensure the airport's security keeps pace with growing requirements.

Adding to the complexity of security at Pearson are the multiple tenants within Terminal 1, each having unique requirements for security and video surveillance (e.g. Canadian Border Services Agency, US Customs and Immigration, Air Canada and several other major airlines). If each tenant implemented its own security strategy that was comprised of multiple systems (e.g. CCTV, access control, etc.), the terminal's overall security plan could quickly become unmanageable.

With these challenges in mind, The Greater Toronto Airport Authority (GTAA), who oversees the Airport's operation, assembled a team of highly knowledgeable consultants and engineers to ensure the proposed system architecture would suit the airport's current and future demands.

Centralized Security Management over IP

To best meet the continually expanding security requirements, the implementation of an Internet Protocol (IP) based security management system was decided. Visual Defence supplied GTAA with its Virtual Matrix System (VMS) for video management within Terminal 1.

As an IP based software platform, VMS is much more flexible and scalable than comparable analog based systems. Without the rigidity inherent in analog matrices, VMS is able to handle additional cameras and users as required.

Additionally, VMS is built using an open architecture which allows for an enormous amount of flexibility for integrating sub-systems like access control or intercom systems providing a central point for security management and administration.

Leveraging Existing Security Infrastructure

The old Terminal 1 used an analog matrix video system along with analog cameras and recording devices for video surveillance. A major benefit the VMS provided the airport was that it allowed the airport to maintain its investment in the legacy equipment while moving to an IP based system. The scalability of the IP solution means that there is virtually no limit to the number of new cameras, recording devices or users that can be added to the system.

The VMS is a true hybrid solution that encodes video from the analog systems to support IP video transmission protocols. The video can then be viewed and controlled (e.g.

pan-tilt-zoom cameras) using either the VMS SoftClient application or using traditional analog monitors and keyboards. This flexibility meant for an easy transition of Terminal 1 security operators who could use the joysticks and monitors they were comfortable with using from the previous system.

VMS also allows the airport to select hardware vendors (e.g. cameras, digital video recorders) of their choice. The VMS seamlessly integrates with the selected hardware devices, providing a central point of management.

Cost-Savings with Security Resource Sharing

The VMS system is capable of sharing resources (e.g., cameras) with the multiple tenants within Terminal 1, providing for significant cost savings and flexibility.

Using one camera to monitor a common area with clear priority rights and protocols allows resources to be used by the GTAA, Air Canada and CBSA at the same time for a range of applications including security and operations without compromising critical activities.

With less equipment required overall, maintenance costs are also significantly reduced.

Meeting the Needs of an Expanding Transportation Hub

As Toronto Pearson Airport grows towards the 2020 projection of 50 million passengers per year, the Visual Defence technology will grow alongside. VMS has provided for a cost-effective transition to digital infrastructure that gives the airport the flexibility and scalability to add to and adapt the security system as requirements change.