HIGHLIGHTS

As we work to make the Rail industry smarter, security becomes increasingly more important. We know that over the last decade the transportation industry has become increasingly vulnerable to security threats and risks. These threats affect rail roads, train stations, subways, rail tunnels, power stations, level crossings and the connected cities. In today’s environment, rail industry is faced with a critical need to protect its passengers, employees, goods, infrastructure and assets from possible threats with a smarter security system that enables rapid response to security breaches and prompts quicker investigation of events. IBM, along with the ecosystem of industry partners, can help organizations meet these challenges and enhance their physical security capabilities with innovative, integrated smarter security solutions. IBM can help design and implement a strategy that enables organizations to assess, detect, protect and recover from security exposures in their information technology (IT) and physical security environments.

One of the key aspects of this strategy is IBM Smart Vision Suite (SVS), an end-to-end, intelligent video surveillance system capable of automatic threat detection and rapid forensic video search.

The major software component of SVS is IBM’s unique search based video analytics technology, which provides an open framework for event integration and correlation, highly specialized searches based on multiple object attributes, and advanced real-time alerts.

With SVS, the clients can automate the following monitoring scenario and generate instant alerts for:

- People entering tunnels.
- People entering the rail yard after normal work hours
- People stealing copper wire. This can be detected with a combination of loitering alerts and other sensor data.
- Any foreign, dangerous objects on the tracks

Conceived and designed by IBM Research, the capabilities of SVS allow for real-time decision making and post-event analysis of people and activities, thereby enabling the convergence of physical and IT security.

SMART VISION SUITE

IBM Smart Vision Suite is an open and extensible framework for video analytics, supporting both real time alert and content based search capabilities. The technology provides a security backbone to many industries including Public sector, Travel & Transport, Defense, Financial Sector, Gaming and Retail among others.

SVS search billions of video events in seconds and there by increases the operational efficiency and investigation speed by over thirty times. The operators no longer needs to spend hours to find and count red cars but use SVS to search for an object “CAR” of “RED” color.

SVS provides a comprehensive solution that includes:

- Rapid Content Based Video Searching
- Real time Instant alerts
Multi sensory compound search on the meta data

Event Cross-correlation from cameras and other sensors

Integrated video management from Partners

Advanced event summarization and visualization

Open framework for integrating sensors and events streams from other applications

Advanced system management capabilities

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TRAIN STATION SOLUTION

Train stations represents one of the most common and high risk challenges of rail security. These challenges present a close relationship between security and safety of the rail assets, the rail systems and the people that interact with that system including its employees and passengers. IBM SVS enables the automation of the key security scenarios including:

**Alerts and Search:**
- Abandoned Object (Luggage),
- Person crossing the yellow line continuously in absence of train,
- People loitering for an extended period of time,
- Big metallic object, log of wood, motorcycle on the tracks,
- Crowd of people running in absence of train,
- Person activity detected after the station is closed,
- Person crossing the rail road track.

RAIL TUNNELL SOLUTION

Rail tunnel represents one of the highest risk sites of the rail infrastructure. These sites present the challenges of a very high impact risk, low accessibility, tough to monitor and deploy infrastructure and lack of automated high accuracy solutions.

IBM ‘s SVS offers some unique highly optimized capabilities that can be deployed to meet the sensitive security requirements of these sites. Some of the key scenarios that SVS has been deployed across these sites are following:
- Person entering the tunnel at any time,
- Person or animal or any moving object except train identified on the track,
- Big metallic object, log of wood, motorcycle on the tracks

RAIL YARD AND POWER STATION SOLUTION

Rail yard and power stations present yet another very sensitive security challenge. These sites are not only stock rooms for expensive parts, parking rail cars and wagons but also control the power supply for the rail infrastructure. Using IBM ‘s SVS technology, the clients can automate some of the following monitoring scenarios:
- Person entering the rail yard after normal work hours,
- Person stealing copper wire. This can be detected with a combination of loitering alerts and other sensor data,
- Abandoned cars for the grey car scenarios,
- Big metallic object, log of wood, motorcycle on the tracks

A PRECONFIGURED AND OPTIMIZED SECURITY PLATFORM FOR RAIL

Rail sites like tunnels, rail yards, bridges and stations represents a highly distributed rail infrastructure that needs to be operated from both a central site and a remote location. One of the biggest challenges is the accessibility of these sites and lack of skilled employees who could deploy, monitor and operate the security
infrastructure. Keeping this in mind, IBM has designed a solutions that brings in pre-packaged solution components including cameras, encoders, video management platform and an end to end IT Server and storage platform. IBM in conjunction with its customers and industry partners have selected the best of the breed solution components tailored for Rail.

IBM’s Customer Solution Center facility provides a factory staging facility where the complete infrastructure including cameras, encoders, servers and storage are configured with the correct production network settings including IP addresses, hostnames, DNS and tested in a simulated network. Based on the customer needs, the CSC also configures the analytics for each site. The entire system is then documented with the details for any low skill person to open and deploy on the site. The system is then packaged in a box and shipped onsite. The objective is to keep the onsite work to a minimum and very simple to deploy

SOLUTION COMPONENTS AND ARCHITECTURE

IBM’s physical security rail solution includes a pre-integrated, tested and packaged solution optimized for Rail industry. The solution includes the following key components:

- IBM Smart Vision Suite for Rail
- IBM Blade Center S

ADDITIONAL RELATED SERVICES

SVS video analytics and search capabilities are an essential component of any physical security architecture. In addition to SVS implementation, IBM can leverage extensive experience as well as depth and breadth in security to perform related services that will augment the SVS architecture to provide a full scale defense in depth security solution. These services may include:

- Project Management
- Business Value workshop
- Physical and logical security assessment
- Vulnerability/Risk assessment
- Policy, process and standards definition
- Solution and Infrastructure design and recommendations
- Custom user interface design and analytics development
- System integration and solution implementation
- Compliance audit
- Training and support

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Armonk, NY 10504-1783
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