CASE STUDY

Delivering end-to-end incident management across the Tel Aviv Red Line

NTA Metropolitan Mass Transit System | *Israel*



Industry

- Security

Solution

- Octave Coda Orchestrator

Challenges

- Wide range of incident types
- Multiple stakeholders
- Combine PSIM / incident management

Results

- Single, unified system
- Faster, coordinated incident response
- Reduced risk and improved reliability

The Red Line is the first phase of the Light Rail Transit (LRT) network, constructed by **NTA Metropolitan Mass Transit System Ltd. (NTA)** to improve welfare and quality of life of Israel's citizens. Opened in August 2023, the Red Line forms the backbone of the mass transit system in the Tel Aviv metropolitan area, which transports more than 300,000 passengers each day along 24 km of track and through 34 stations (10 of which are underground), connecting the municipalities of Petah Tikva, Bnei Brak, Ramat Gan, Tel Aviv-Yafo and Bat Yam.

Need for single, unified installation

Integral to the smooth running of this new world-class light rail system is the ability to manage incidents, be they operational, safety, security, critical maintenance or cyber or natural disasters. With the project built from the ground up, NTA commissioned the creation of a cutting-edge technological ecosystem that would connect the many different stakeholders involved in the Red Line to provide truly holistic, end-to-end management of the entire incident lifecycle. This large-scale, complex initiative was ultimately implemented by MTRS3 Solutions and Services Ltd. (MTRS), an international transport security consulting company based in Israel that has been NTA's trusted security and emergency preparedness consultant for mass transport projects since 2015.

Following an exhaustive tender process, during which NTA and MTRS evaluated solutions available on the market, Octave was awarded the contract to supply and assimilate its Octave Coda Orchestrator (formerly HxGN dC3 Orchestrator) incident management system. Given the importance and scale of this project, high demands were placed on the solution. It needed to be a single, unified installation, capable of effectively operating as a traditional PSIM for security-related tasks, as well as an incident management system for managing the response to operational, safety, critical maintenance, cyber and natural disaster emergencies and crises.

"Octave has a wealth of experience in the deployment of incident management solutions for rail operators around the world."

Asaf Karavany
Project Manager, Red Line Project
Octave



Getting the most advanced, tailored solution was important, but it was also essential the vendor demonstrated proven vertical sector experience. To this end, it was very beneficial that Octave could present NTA with the opportunity to observe a fully operational Coda Orchestrator system in Europe, as well as at other reference sites with rail operators around the world.

Fully integrated approach

Coda Orchestrator is a leading incident management system that addresses every aspect of the incident lifecycle. It is designed to integrate and correlate vast amounts of information in real time, from multiple diverse systems. This state-of-the-art level of integration ensures situational awareness is delivered when and where it is needed, helping mitigate risk, prevent incident escalation and ensure a reliable, fully coordinated, appropriate and consistent response every time.

With the Red Line scheduled to begin commercial operations in the summer of 2023, a rigorous process of design, integration, configuration, testing and commissioning of the solution commenced. It was especially important to the customer to have total confidence in the technology, methodology and procedures to ensure the entire system would be fully operational when the first train departed.

The scale of the task was immense, with direct integrations between Coda Orchestrator and more than 20 security-, safety- and rail-related systems encompassing more than 10,000 data points. The systems and subsystems include video surveillance (3,000 wayside and on-board cameras), access control (including gates, doors and barriers) and perimeter intruder detection, fire and smoke detection, passenger help points, public address and display systems and automatic fare collection. These systems are installed in stations, stops, tunnels, at-grade alignment tracks, depots and on board the trains. In addition, there are integrations (through an enterprise service bus) with the signaling and train control systems and other services and information management systems, such as an asset and maintenance management system and a geographic information system.

By integrating this complex architecture of sophisticated systems to produce a single unified solution, operators are provided with workstations from which they can centrally coordinate the appropriate incident response. The process of developing predetermined workflows to manage the vast array of operational, safety, security, cyber, critical maintenance and natural disaster incidents that could potentially occur on the line was intensive. All stakeholders were consulted from day one of the system's design to deliver a solution that would be intuitive for operators to use on a daily basis.

Blueprint for the industry

To date, there are over 80 workflows within Coda Orchestrator to manage a range of incidents, such as a collision involving rolling stock, train derailment, severe weather, abnormal congestion and infrastructure failure, as well as threats to personnel, passengers and property.

Coda Orchestrator is deployed across four Red Line control centers – the Security Operation Center (SOC); the Operation Control Center (OCC, responsible for managing traffic, facilities, power, fire safety and passenger information); the Depot Control Center (DCC); and the Maintenance Control Desk (MCD). Additionally, workstations have been installed in the command-and-control rooms of the police and fire and rescue services via a highly secure web client.

The real-time collaboration between the operator, security team, maintenance and first responders, along with cross-organizational situational awareness were the critical elements to assure an optimal, multistakeholder emergency response.

For example, relevant stakeholders will be alerted to the need to halt movement on a section of track, dispatch emergency medical services and front-line personnel (who will receive notifications and instructions to act directly from the system on their smart devices via a mobile client) and communicate with passengers (by broadcasting pre-recorded announcements and sharing information on the public display system). Furthermore, in the event that rolling stock is damaged, the maintenance team also has its own specific workflows to follow.



The performance of the solution in delivering situational awareness and end-to-end incident management was put to the test during a series of large-scale exercises with the participation of all stakeholders prior to commencement of operations. It was these exercises that provided essential insights that enabled the fine-tuning of the system and ensured the readiness of the Red Line for commercial operation.

It is the collaboration of the solution partner with NTA, operator, first responders and many others involved in the project that made it possible to deliver an innovative and proven solution within the given time frame that metro and rail owners and operators around the world can use as a blueprint.

Looking forward

The next phase of NTA's ambitious project is the Purple Line that will transport passengers from the eastern parts of the metropolitan area to the heart of Tel Aviv. This will be followed by the Green Line, which will connect Holon and Rishon LeZion directly south of the Tel Aviv metropolitan area, to Hezliya, bordering in the north.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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