

## Optimising the real-time monitoring of rolling stock and wayside infrastructure.

Modern trains are highly digitised and may contain hundreds of on-board IT and OT systems. However, it can be challenging to accurately monitor these systems both for availability and for configuration management reasons. By accessing a real-time, accurate view of the status and availability of these systems, you can verify their reliability, and facilitate the planning of effective maintenance. RazorSecure Echo provides a simple, centralised solution for the monitoring of a fleet's entire collection of on-board systems.

RazorSecure's Echo is designed specifically for rail and provides enhanced monitoring of your on board systems, even in environments with limited connectivity. By offering a comprehensive view of the entire estate, Echo enables real-time monitoring of critical components, enabling insights into operational integrity and security across various vital systems within the on-board and wayside components. Including, but not limited to CCTV, Information Screens and Network Systems, Echo provides timely insights into their status and performance, allowing you to also see their current geographical location, or in the event of a failure, where they were last seen, enabling operators to make informed operational decisions and respond effectively to operational challenges whilst providing instant and accurate KPIs across your fleets.

Configurable for new and existing rolling stock or wayside infrastructure, Echo is a highly adaptable and versatile tool that can be installed as software or on easy to deploy, low maintenance hardware supplied by RazorSecure, seamlessly integrating with other RS products. With estate-wide and asset specific monitoring options, Echo evaluates system availability and assesses associated risks.

With a number of valuable features, Echo's User Interface provides a single platform for a clear and organised view of system data and assets. Offering a complete overview of the rich contextual data of systems and an understanding of asset condition and status, Echo enables users to inspect historical data and report on historical trends. The comprehensive monitoring solution aids in the swift identification of problematic assets and detects configuration mismatches, optimising performance and security.



## BENEFITS

### ➤ IMPROVE SYSTEM AVAILABILITY

Detects asset availability and performance issues, providing accurate real-time information about device configuration for fast remediation.

### ➤ SINGLE SOURCE OF TRUTH

Provides a single pane-of-glass overview of system availability and configuration status, saving time irrespective of the system vendor or train fleet.

### ➤ FAST TROUBLESHOOTING

Effectively identify and fix persistent problems with key systems, with a combination of historic and real time information.

### ➤ COST SAVING

Optimise resource allocation and address issues faster with the quick identification of faults and trends across your estate, increasing asset life and reducing expenditure.

### ➤ OPTIMISE SYSTEM MAINTENANCE

Comprehensive collection of rich data enables informed decisions on optimisation, upgrades, and replacements of hardware.

# KEY CAPABILITIES

## DISCOVERY PROTOCOLS & THRESHOLD FILTERING

Assets are monitored using ICMP, SNMP or through a variety of data points collected on the system hosting the Edge agent. The Asset Monitoring Tool displays metrics and uses a combination of our asset tree structure, customisable metadata, searching, and adjustable thresholds, to enable focus on performance and availability issues, and decisive action.

## NETWORK VISIBILITY & MONITORING

Using a combination of passive or active monitoring techniques, Echo is deployed in an ideal vantage point, quickly gaining visibility of all devices on the ethernet network. With the identification of performance issues or failed devices, the time, effort, and cost involved in response and recovery from outages is reduced.

## LOW IMPACT

Echo can be deployed without modifying existing routing and utilises a variety of standard performance metrics to determine the state of your fleet.

## REPORTING CAPABILITIES

Echo provides insights into your current performance and analyses trends over an extended timeframe using accurate KPI reporting that can be generated with minimal effort. The tool empowers asset owners to pinpoint areas for improvement and make timely, well-informed business choices, while promoting transparency and accountability with suppliers.

## FLEET & WAYSIDE MONITORING IN A SINGLE VIEW

An easily integrated and scalable solution enabling the discovery of assets on board, and the monitoring of wayside systems. Deployed virtually or as hardware for most types of rolling stock, Echo allows for improved maintenance of digital systems regardless of manufacturer/train type/station. View entire estates at-a-glance, or filter into groups or single assets with the Echo UI.

## CONFIGURATION MANAGEMENT ANALYSIS

Echo allows for the fast identification of changes and mismatches in firmware or software across your assets and devices. Any anomalies or configuration mismatches on the network are highlighted, enabling you to identify potential roll backs, misconfiguration, or unauthorised changes.

## VISUALISATION OF ON BOARD SYSTEMS

Echo provides a clear view of assets displayed as traffic light status indicators or a configurable prioritised device list, enabling you to quickly determine the status of your deployments.

## RAZORSECURE APPROACH

We recognise that each train fleet is different and requires a holistic approach due to differences in system and network architecture. By understanding your cyber risks, we can advise on security best practices and appropriate risk mitigations. We will then work with you to design, integrate, homologate and deploy the RazorSecure solutions as appropriate. Our flexible approach is customised to manage the unique challenges and requirements of each customer. We will work closely with you to find a solution for any challenge you may have. The first step towards improved cyber security is simply to begin a conversation with us, and our team will be happy to guide you through the process.

