Cylus and Waterfall Security Solutions

Cybersecurity Solution Tailored for Rail Signaling and Rolling Stock with Secure Accessibility

Railway systems are both increasingly connected and technologically sophisticated. These developments increase performance, efficiency, and safety, but also expose these systems to a growing array of cyber threats. While it is essential that rail systems remain vital and operate smoothly, these new cybersecurity threats cannot be addressed adequately by traditional security measures, such as firewalls.

Both new and existing rail projects face cybersecurity risks. Security solutions require continuous security monitoring and threat management of OT and IT networks in order to detect and address cybersecurity threats before harm is caused. Since rail systems are complex and cannot be modified due to rigorous safety requirements and SIL certifications, security solutions must be able to collect and monitor data passively, without affecting operations or introducing new vulnerabilities to the network.

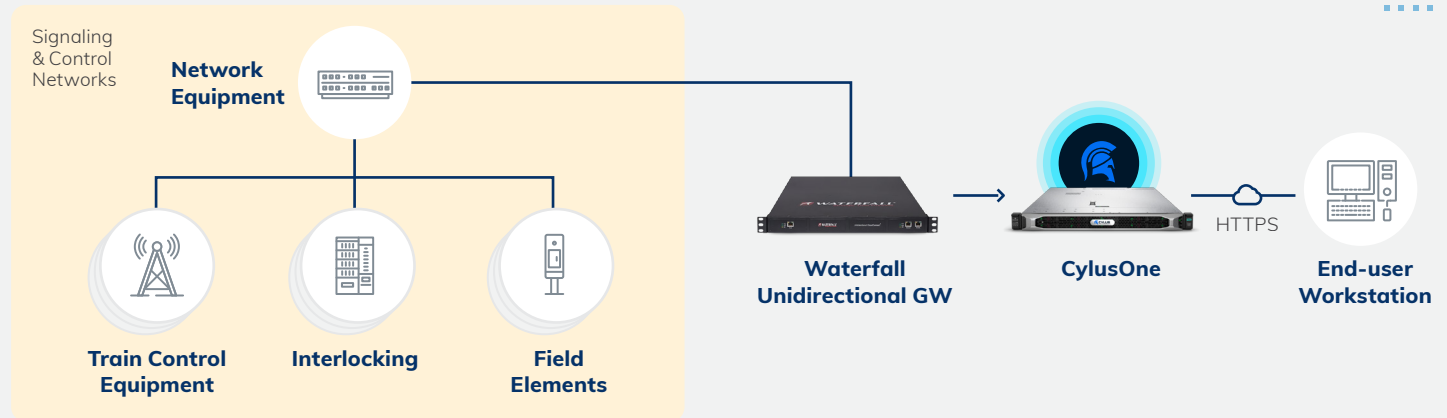## A Combined Solution Offering the Best of Both Worlds

CylusOne provides a complete and real-time continuous cybersecurity analysis of the entire network for rail companies, offering a detailed view of the information across all network levels. This in-depth visibility into operational networks eliminates blind spots, reveals asset connections and classifies redundant connections. By monitoring the network as a whole, CylusOne uncovers cases where safety and security requirements have been breached and service availability can be affected.

Waterfall for Intrusion Detection Systems (IDS) enables safe monitoring of OT networks. Waterfall is a hardware-based solution that unidirectionally mirrors OT traffic, enabling secure integration with CylusOne's packet inspection and cybersecurity analysis capabilities within the OCC or SOC. Waterfall Unidirectional Security Gateways enable safe IT/OT integration, unidirectionally
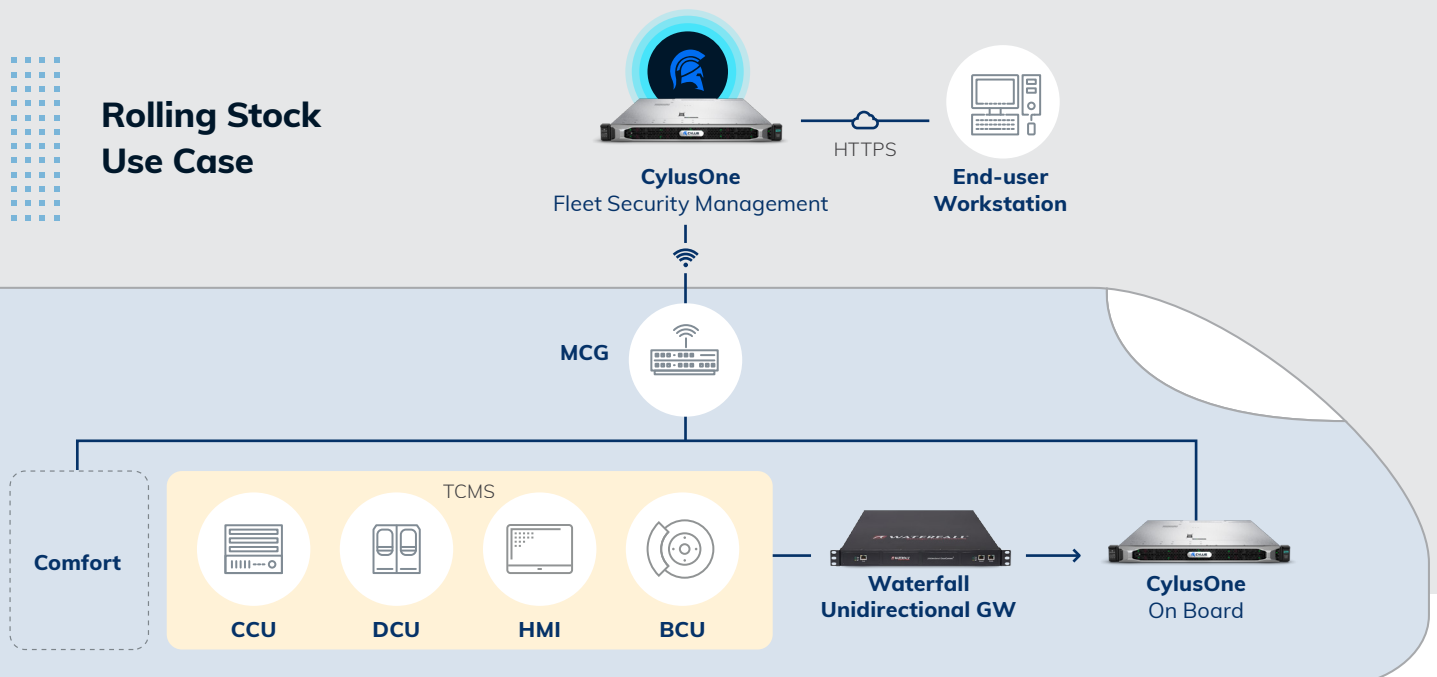
replicating OT servers, devices and databases to IT networks. IT users and applications use the replicas normally and bi-directionally. Waterfall's hardware-enforced solutions enable safe, modern IT/OT integration and OT system monitoring, without risk to physical operations.

The combination of CylusOne and Waterfall products achieves real-time and in-depth visibility and monitoring of all data and systems on critical OT networks while providing the strongest physical, hardware-based protections possible for rail system operations. By integrating Waterfall's Unidirectional Security Gateway with CylusOne, the critical internal infrastructure is physically inaccessible from the external network, while the subsystems are monitored and secured by CylusOne. Together, Waterfall and Cylus constitute safe IT/OT integration, with deep, enterprise-wide, IT and OT network monitoring and intrusion detection.

Signaling Use Case

Signaling & Control Networks

Network Equipment

Train Control Equipment

Interlocking

Field Elements

Waterfall Unidirectional GW

CylusOne

HTTPS

End-user Workstation

Rolling Stock Use Case

CylusOne
Fleet Security Management

HTTPS

End-user Workstation

MCG

Comfort

TCMS

CCU

DCU

HMI

BCU

Waterfall Unidirectional GW

CylusOne
On Board

About Cylus

Cylus, the global leader in rail cybersecurity, helps mainline and urban railway companies avoid safety incidents and service disruptions caused by cyber-attacks. Cylus developed CylusOne™ - the first-to-market solution designed to meet the unique cybersecurity needs of the rail industry. CylusOne detects cyber threats on the signaling and control networks, trackside and onboard, facilitating a timely and effective response. Led by veterans from the Israel Defense Forces' Elite Technological Unit together with top executives from the railway industry, Cylus combines deep expertise in cybersecurity and rail.

For more information
info@cylus.com | www.cylus.com

About Waterfall Security Solutions

Waterfall Security Solutions is the OT security company, producing a family of Unidirectional Gateway technologies and products that enable enterprise-wide visibility for operations, with disciplined control. Waterfall products represent an evolutionary alternative to firewalls. The company's growing list of customers includes national infrastructures, power plants, nuclear plants, off and on shore oil and gas facilities, refineries, manufacturing plants, utility companies, and many more. Deployed throughout North America, Europe, the Middle East and Asia, Waterfall products support the widest range of leading industrial remote monitoring platforms, applications, databases and protocols in the market.

For more information
info@waterfall-security.com | www.waterfall-security.com