ORBCOMM®

WHERE DATA DRIVES DECISIONS

Reefer ROI: 10 ways to maximise returns with smart reefer container technology

How smart monitoring delivers cost savings, operational efficiencies and competitive advantage for shipping lines

The value of smart reefer container technology

ORBCOMM's smart reefer solutions give operators a single platform to monitor temperature, power status, location, alarms and performance data across their entire fleet. This enables immediate action when issues occur and unlocks deep data-driven operational insights.
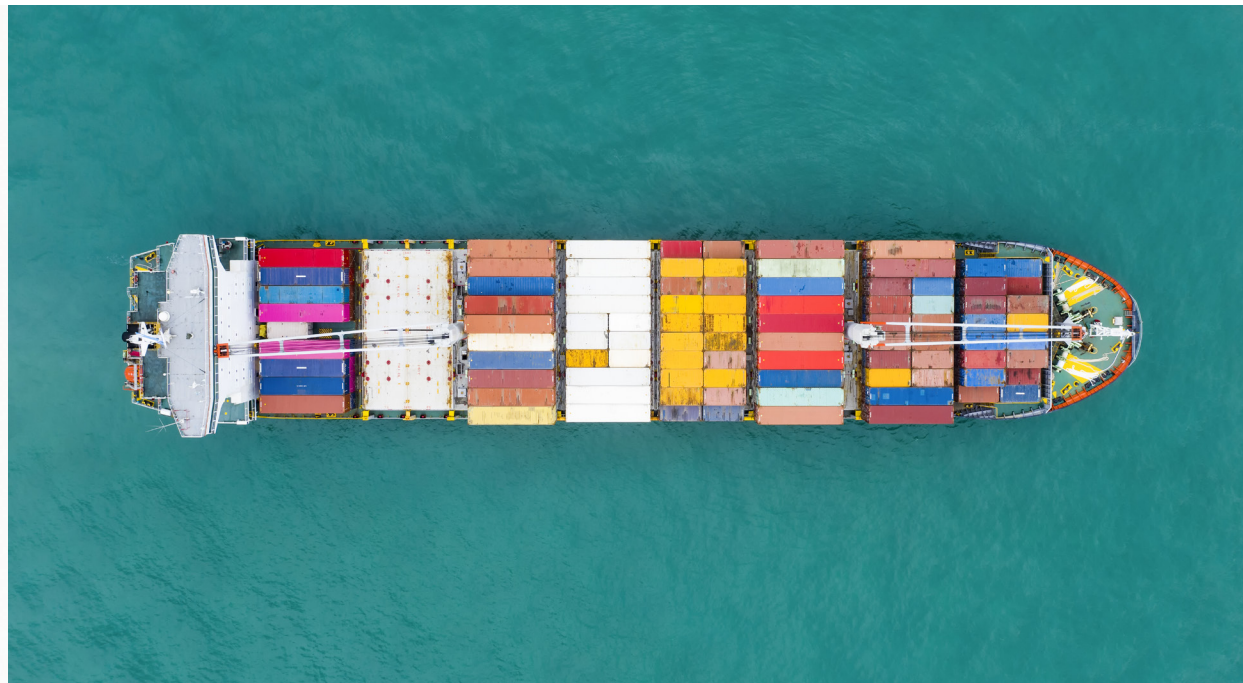
The result is reefer operations that are:

- Safer, with real-time risk alerts fewer manual interventions and and real-time risk alerts
- More secure, with full visibility across every journey
- More efficient, through automation and maintenance
- More profitable as costs drop and equipment performance improves

Yet, many shipping lines still lack a structured approach to calculating the ROI of smart reefers, and the specific cost savings and performance gains they can expect from adopting the technology.

Read on for a concise framework for understanding the multiple ways smart container technology delivers ROI and how to start capturing it for those responsible for:

- Reefer operations
- Equipment and asset management
- Maintenance and repair
- IT and digital transformation
- Commercial performance
- C-suite roles evaluating fleet strategy

ORBCOMM's reefer monitoring solutions are trusted by leading shipping lines worldwide. Its smart reefer solutions provide asset visibility, predictive insights and automation to reduce costs, enhance safety and drive operational efficiency. The ORBCOMM Maritime platform processes over 8 million reefer messages per day and integrates with all major OEMs and third-party devices.

1. Remote reefer monitoring: Top ROI for cutting costs

Manual inspections every 8–12 hours are costly, reactive and leave gaps. ORBCOMM replaces this with real-time, exception-based monitoring, cutting costs, improving safety and protecting cargo through instant alerts.

Key ROI benefits
- Eliminates the need for manual monitoring
- Enables fast data-driven response to machinery, temperature or power failures
- Minimises spoilage and claims by enabling action before issues escalate
- Improves safety by requiring fewer people at the terminal
- Enhances supply chain reliability with full visibility
- Powers smarter decisions with real-time data and reports

2. Pre-trip inspections

Manual pre-trip Inspections (PTIs) are time-consuming and energy-intensive, and are performed on empty containers on average every 3–4 months.

ORBCOMM technology can reduce manual PTIs with a remote process that constantly analyses each container's historical and current performance data to confirm the container's health status. This is done hourly on a running, fully loaded container.

At a glance: ORBCOMM smart reefer container stats

Significant labour cost reduction from remote reefer monitoring

Up to 70% of manual PTIs are eliminated through automated remote PTIs

20–40% reduction in cargo spoilage incidents and claims

Key ROI benefits
- Reduces manual PTIs by up to 70%
- Reduces manual labour, electricity and handling
- Reduces CO_2 emissions by limiting unnecessary plug-ins
- Speeds up container readiness and turnaround
- Enables equipment segregation for better resource planning and optimisation
- Better detection of underlying faults with historical performance data

"Using ORBCOMM data to optimise the PTI process, you focus only on the containers that require immediate attention to protect the cargo; you're using actual live performance data instead of performing service on empty containers."

Lars H. Jensen
ORBCOMM Director, Product Management—Smart Containers

3. Off-power monitoring: Preventing cargo loss and reducing energy waste

Power loss is one of the biggest threats to cargo integrity. Manual checks performed only every 8–12 hours can leave containers unplugged until the next inspection, leading to spoilage and costly claims.

ORBCOMM technology provides alerts when a reefer loses power—so teams can act immediately and avoid unnecessary losses.

Power loss isn't even limited to equipment failure, says Lars H. Jensen, ORBCOMM's Director of Product Management—Smart Containers.

"You'd be surprised how many reefers get unplugged at terminals, and no one notices," Jensen says. "If a reefer is off-power and isn't caught quickly, you could lose the whole shipment. In high-value cargo, that's hundreds of thousands of dollars gone."

Key ROI benefits
- Prevents cargo loss with instant power-loss alerts
- Enables fast intervention to protect sensitive goods
- Ensures lines only get billed for the time plugged in.
- Increases operational efficiency and safety. As with automated alarm monitoring, off-power monitoring allows for immediate action only when required and will minimise the need for manual labour and interventions.
- Reduces manual interventions with event notifications based on the commodity and sensitivity of the cargo.

"ORBCOMM's advanced telematics solutions are an ideal complement to TOTE Maritime Alaska's best-in-class service."

Michael Noone
President, TOTE Maritime Alaska

4. Power and electricity cost management

Reefers left plugged in unnecessarily drive up electricity costs. ORBCOMM gives operators power usage data, so they only use and pay for what's needed.

Key ROI benefits
- Tracks actual power usage to eliminate electricity overcharges
- Supports accurate billing and better terminal cost control
- Better procurement

5. Maintenance and repair cost reduction: optimised fleet

Unplanned reefer failures drive up repair costs and impact service reliability. ORBCOMM enables preventive maintenance by identifying issues before they become breakdowns.

Key ROI benefits
- Reduces unplanned repairs and improves cargo protection with early fault detection
- Lowers maintenance and repair costs by spotting patterns across OEMs and controller types
- Improves asset procurement for new and leased containers
- Extends asset life through smarter maintenance cycles
- Minimises downtime and service disruptions. Operators can act before a reefer fails, not after.

6. Remote software updates

Manually updating firmware across a global reefer fleet is time-consuming and costly. ORBCOMM's smart reefer container technology enables remote updates, eliminating the need to bring units in or send technicians out.

Key ROI benefits:
- Reduces technician's time and travel for on-site updates
- Improves performance and reliability with the latest firmware
- Reduces costs and risks associated with missed or delayed updates
- Innovate quickly with new features rolled out remotely in days instead of years.

"With remote updates, we're saving hours of technician time per reefer and are able to roll out critical updates significantly faster."

Lars H. Jensen

7. Cold treatment and data logging

Cold treatment shipments require precise temperature control and records for regulatory compliance. ORBCOMM automates this process,

ensuring accurate logging and eliminating manual errors while facilitating faster processing and approval by authorities.

Key ROI benefits
- Automates compliance for cold treatment regulatory protocols
- Generates digital records accepted by authorities
- Reduces risk of rejected or delayed cargo due to incomplete logs
- Cuts administrative time and manual labour costs

8. Fleet optimisation

Many reefers sit idle or are underutilised due to a lack of visibility. ORBCOMM technology provides location data across the fleet, helping operators improve asset usage and reduce surplus.

Key ROI benefits
- Identifies and tracks idle containers and dwell times
- Improves asset allocation based on location and status
- Enables capability to operate more efficiently with optimised fleet size
- Speeds up container turnaround and cycle times

9 Regulatory compliance

Global regulations around food safety, pharmaceuticals, and emissions are tightening. ORBCOMM helps shipping lines stay compliant with reefer monitoring and automated reporting.

Key ROI benefits
- Supports compliance with cold chain and food safety standards
- Automates temperature logging and audit trails
- Reduces risk of fines, cargo rejections and delays
- Helps meet evolving environmental and traceability requirements

10. Commercial value

Smart reefer data isn't just for internal use; it creates value for customers, too. ORBCOMM enables shipping lines to offer premium services based on visibility, reliability and data sharing.

Key ROI benefits
- Unlocks new revenue by enabling cargo tracking for customers
- Increases customer satisfaction with live shipment updates
- Differentiates service with added transparency and control
- Supports premium pricing models for high-visibility shipments
- Optimised transport plan and compliance
- Possibility of reduced insurance premiums due to full end-to-end visibility

Smarter reefers, stronger ROI

Smart reefer technology is fast becoming an operational necessity. The technology is proven and delivers measurable ROI for the world's top shipping lines. The value goes far beyond tracking container movements—from reducing labour and energy costs to preventing cargo loss, improving fleet efficiency and unlocking new revenue streams.

Whether you manage reefer operations, oversee equipment strategy or shape digital transformation, the numbers point in one direction: smarter is better. ORBCOMM's customers are already cutting costs, improving uptime and transforming their operations with a fully connected reefer fleet.

And this isn't just about efficiency. Regulations are tightening. Customers and authorities are demanding visibility. Sustainability targets are rising. Smart reefer technology helps shipping lines respond to these pressures and stay ahead of them.

And the market isn't standing still. Regulatory pressure is mounting, with several governments expected to make reefer tracking mandatory in the near future. Smart monitoring doesn't just save money. It future-proofs your operations. "Regulations will force this shift. It's not a question of if but when," Jensen says.

Let's talk about your ROI today

Want to know what these numbers look like for your fleet? Book a 1-on-1 reefer ROI review with an ORBCOMM specialist. We'll walk you through the potential savings, performance gains, and implementation options based on your specific operations.

For more information on our solutions or to book a demo:
Email: **sales@ORBCOMM.com**

Visit our website **www.ORBCOMM.com**

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WHERE DATA DRIVES DECISIONS

ORBCOMM is a pioneer in IoT technology, empowering customers with insight to make data-driven decisions that help them optimize their operations, maximize profitability and build a more sustainable future. With 30 years of experience and one of the most comprehensive solution portfolios in the industry, ORBCOMM enables the management of over a million assets worldwide for a diverse customer base spanning transportation, supply chain, heavy equipment, maritime, natural resources and government. For more information about how ORBCOMM is driving the evolution of industry through the power of data, visit www.orbcomm.com.

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