Brochure

MC-Edge
Key capabilities for oil and gas

Prioritizing safety, driving efficiency, and optimizing remote operations across the entire energy lifecycle.

MOTOROLA SOLUTIONS

As global energy demand grows, the oil and gas industry is expanding into remote, challenging locations. This shift, combined with ESG pressures and a shrinking workforce, necessitates rapid modernization and automation. Technology, especially the Internet of Things (IoT), edge computing, and analytics, is becoming critical for optimizing productivity and meeting strict environmental compliance.

As operations move into remote areas, handling the increased data flow requires robust edge computing for optimization, automation, and risk management. The MC-Edge™ Intelligent Gateway is a single, versatile solution that enables real-time control.

Key advantages of MC-Edge

High-availability, cyber-secured communication

The MC-Edge is highly secured and can overcome data link availability issues and guards against cyber-security threats using features like HSM and IP SEC.

Autonomous monitoring and control (RTU functionality)

Enables remote unmanned infrastructure (like pipelines or barges) to operate independently. MC-Edge executes local control logic and collects data, ensuring operational continuity even if the main communication links are temporarily lost.

Wide-area, low-power IoT connectivity

Features integrated LoRaWAN Gateway and Server, allowing for the use of low-cost, low-power wireless sensors and actuators across a wide 20 km radius (line of sight). This is essential for monitoring hard to reach locations and mobile elements, and saving costs.

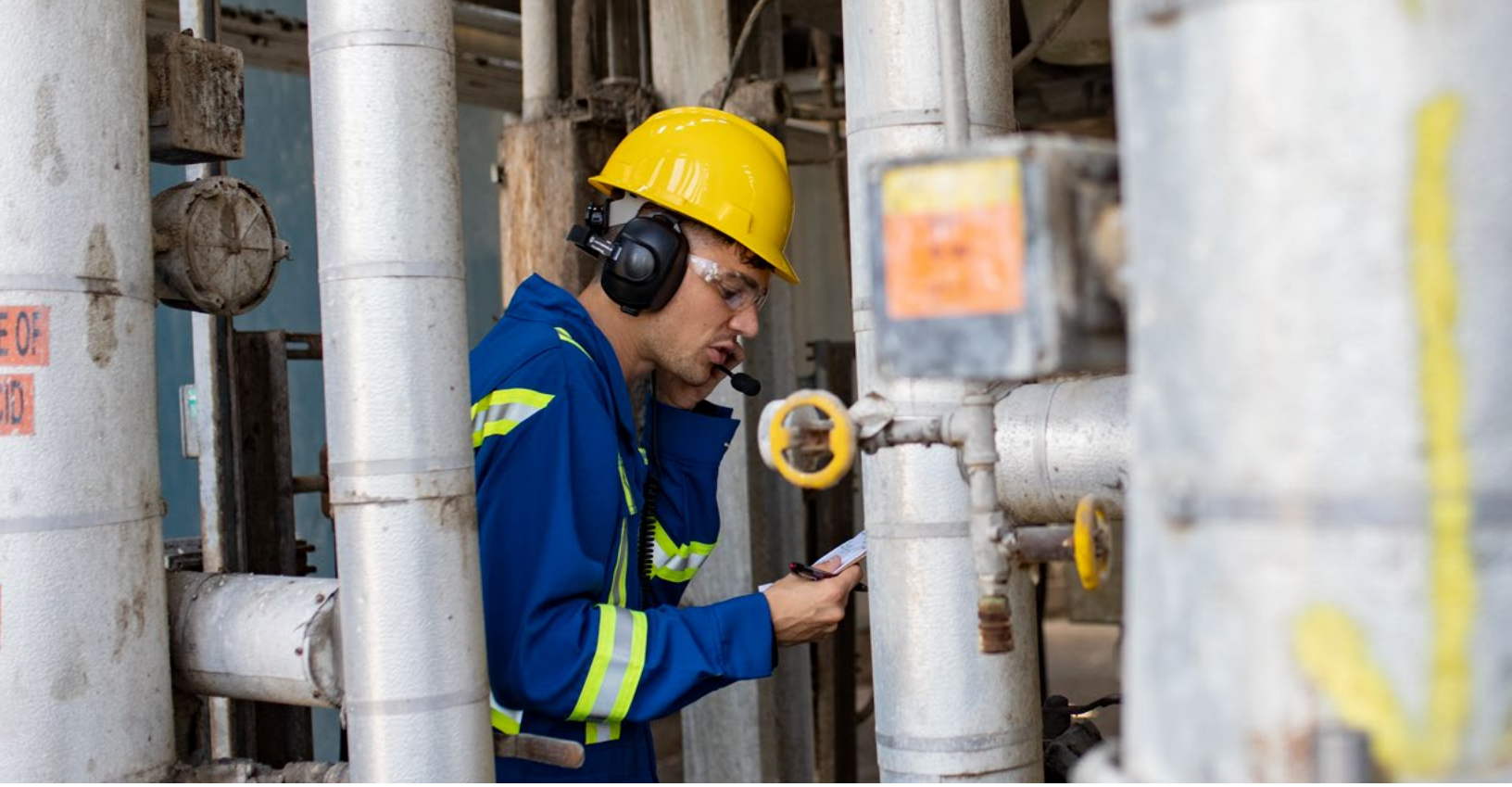
Versatile data forwarding gateway

Collects and forwards data reliably using multiple backhaul options (e.g., P25 LMR, Tetra, MOTOTRBO, DMR, LTE, Ethernet, MANET) to ensure data reaches centralized applications for analysis and reporting.

Personnel safety and man overboard (MOB) detection

During offshore operations, a Man Overboard (MOB) event requires instantaneous detection and communication to maximize survival chances. By integrating the MC-Edge with an external AIS receiver, the system immediately reads the emergency signaling from the life vest's radio-beacon. This is critical because the RTU instantly generates a multi-channel alert (visual, acoustic, mobile/radio messaging), guaranteeing the emergency is communicated immediately to relevant personnel for a successful rescue.

If	Then	And
A crew member falls into the water, and the radio-beacon incorporated into their life vest activates and starts emitting AIS signaling.	The MC-Edge, integrated with an AIS receiver, immediately reads and processes the emergency signal.	The system instantly generates a multi-channel alert (including visual signaling, acoustic, alarms, and messages sent to radios or mobile phones), guaranteeing that the life-threatening emergency is communicated immediately to relevant personnel and control rooms.



Wireless leak detection and instant isolation

Protecting remote pipelines from hazardous leaks requires a cost-effective, wide-area detection system that can initiate an immediate, localized safety response. If a gas leakage sensor detects a critical safety level via LoRaWAN, the autonomous MC-Edge instantly executes a local Emergency Shutdown (ESD) by closing the nearest valve via the MC-Edge wired fast IO. This is essential for environmental protection and product savings, as it isolates the leak in seconds without waiting for central SCADA confirmation.

If	Then	And
A wireless sensor located in a remote field over a wide area and communicating via LoraWan, detects a harmful leak.	The MC-Edge triggers a local Emergency Shutdown (ESD) by closing the nearest valve.	The leak is isolated in seconds, minimizing environmental risk and saving valuable products without waiting for central SCADA confirmation.

Real-time gas quality protection

Gas product quality is constantly threatened by corrosive elements like moisture, risking pipeline integrity and violating sales contracts. The MC-Edge acts as a real-time guardian, protecting infrastructure and ensuring sales compliance. If it detects a sudden rise in corrosive elements, it immediately generates a High Priority Quality Alert, allowing operators to reroute the contaminated gas or shut down the source before incurring serious long-term damage or costly fines.

If	Then	And
The MC-Edge detects a sudden rise in corrosive elements like moisture in the pipeline.	The MC-Edge generates a High Priority Quality Alert to the control center.	Operators can reroute the contaminated gas or shut down the source before it causes serious long-term damage or costly regulatory fines.

Offloading Monitoring Telemetry Systems (OMTS)

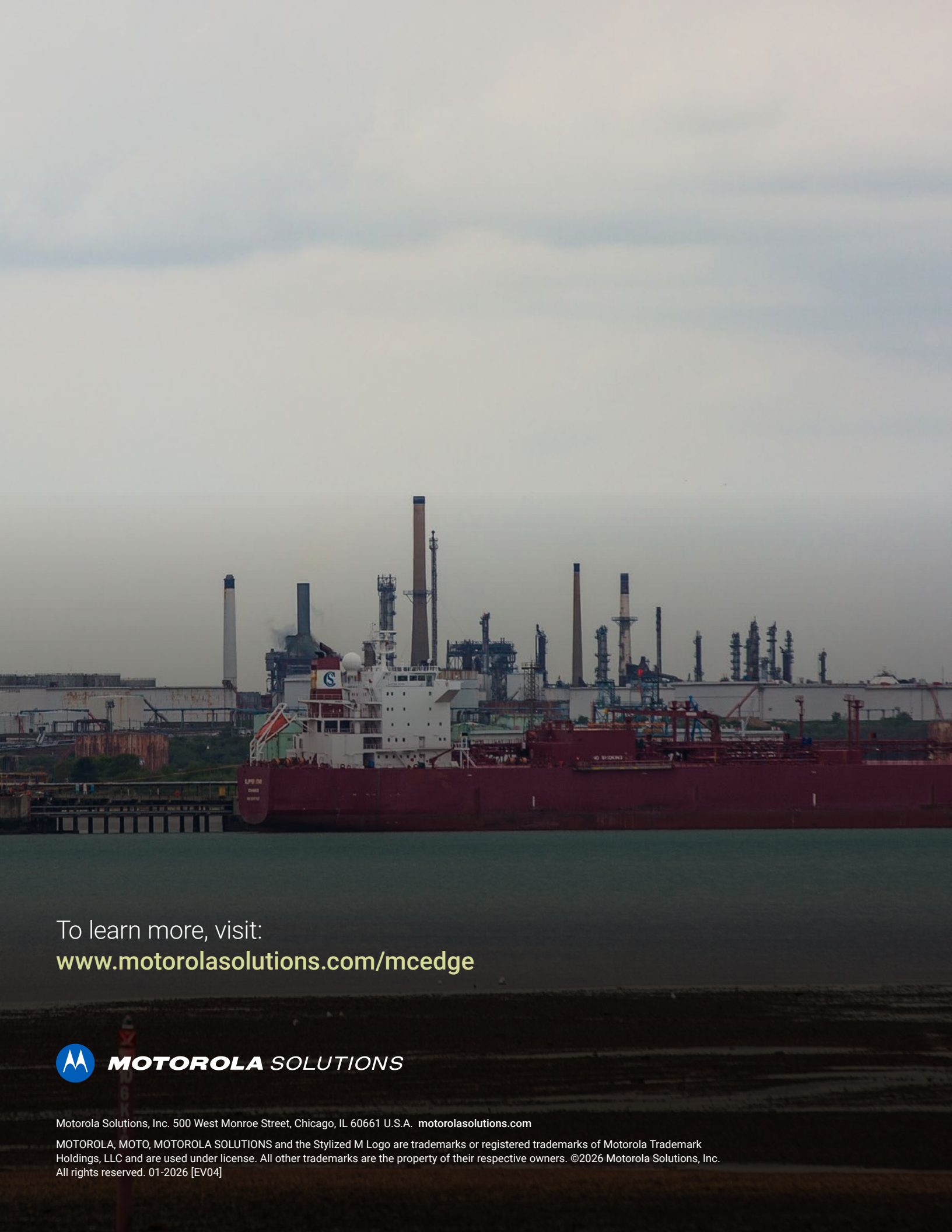
Product transfer operations (like FPSO to tanker offloading) are high-risk procedures that demand an infallible, instantaneous automated response to prevent catastrophic accidents. The MC-Edge functions as an essential safety barrier by executing fail-safe logic to maintain the “Green Line” signal, confirming secured connections. This system is mission-critical for accident prevention because it prevents crude pump startup until a “Permit to Pump” is received, and immediately initiates a Shutdown if the “Green Line” status is violated mid-transfer.

If	Then	And
An operator attempts to begin offloading, or safety parameters are violated during transfer (e.g., high pressure, high hawser tension, or tanker drifting).	The MC-Edge, operating as a duplicated fail-safe OMTS, monitors the “Green Line” signal (confirming secured connections and correct valve positions) and prevents crude export pumps from starting until the “Permit to Pump” signal is received.	**Accident Prevention:** The system immediately initiates a Shutdown of crude export if the “Green Line” status is altered mid-operation, preventing environmental or safety accidents during the high-risk procedure.

People Management and Safety

Immediate, coordinated emergency response requires turning a localized distress signal into a widespread alert and providing continuous personnel visibility. If the Panic Button/SOS Alert is pressed, the MC-Edge receives the message via LoRaWAN, transmits the data to the LoRaWAN server, and triggers a multi-channel notification on actuators, radios, and sirens. This integrated capability ensures immediate, coordinated, and successful emergency response, tracking real-time location and managing emergency drills.

If	Then	And
A crew member presses the Panic Button/SOS Alert on their tracker (signaling a personal emergency).	The MC-Edge receives the distress message via the LoRaWAN network, processes the data, and sends the alert to the LoRaWAN server.	The result is a multi-channel safety notification: an immediate alert is generated on a LoRaWAN actuator, control room radios, sirens, mobile phones, and other relevant communication devices. Rapid Personnel Safety Response: This ensures the life-threatening emergency is instantly communicated to all necessary personnel and control centers.



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