

madison
Technologies



Thermal Fire Detection. Camera-as-a-Sensor Solution.

The Need

The waste industry is seeing a sharp increase in waste fires on garbage trucks and in waste facilities. Across Australia, more than 450 fires have been linked to lithium-ion batteries between mid 2021 and early 2023.

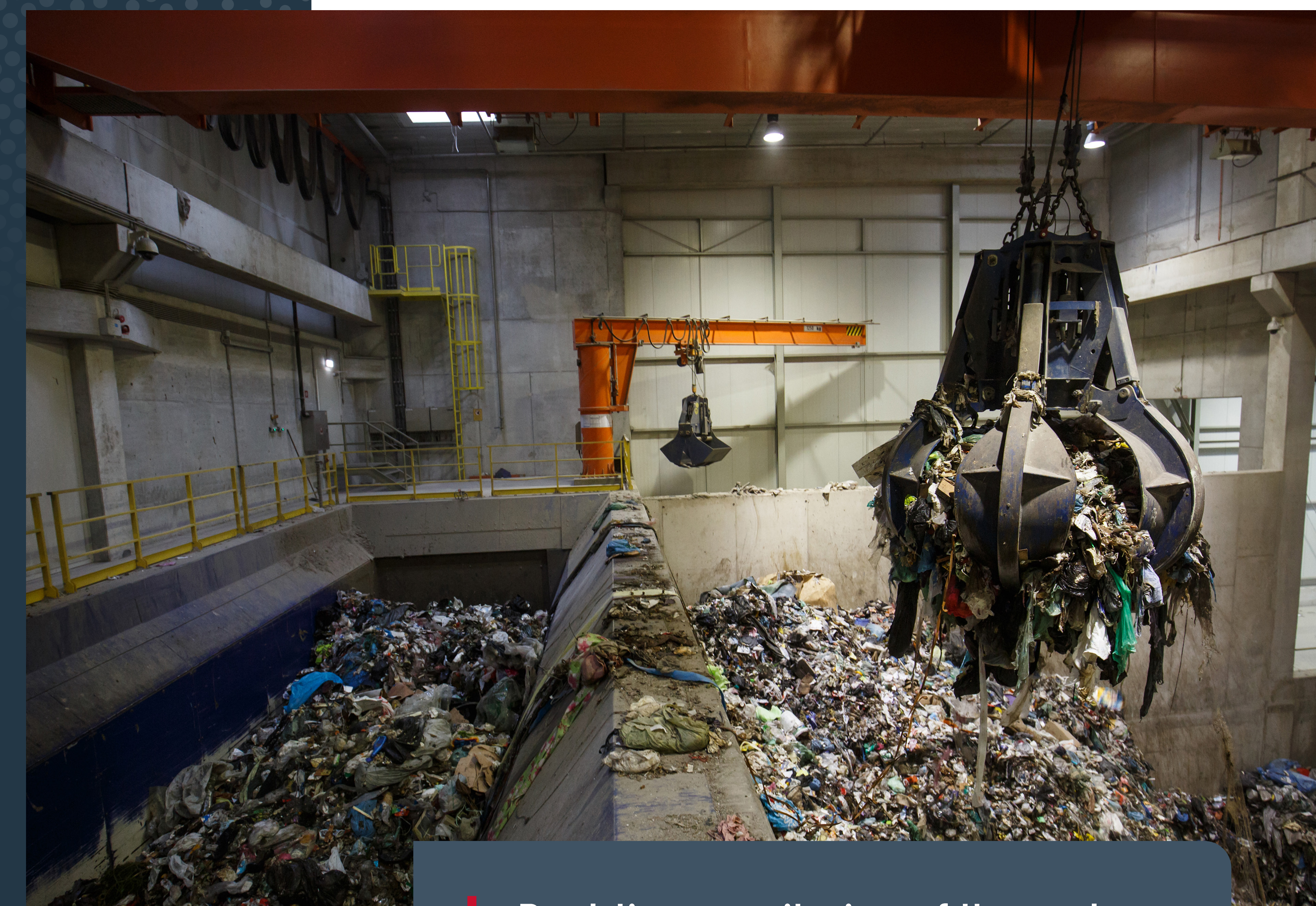
Australia waste management companies are experiencing challenges with fires caused by improperly disposed batteries, especially lithium-ion batteries, which often inadvertently end up in household waste and pose a constant potential risk for landfill sites.

The Solution

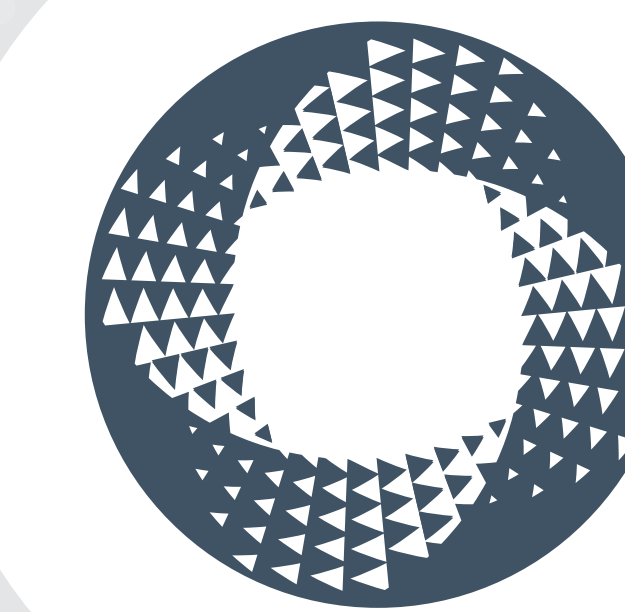
When it comes to lithium-ion batteries, being able to immediately detect rising temperatures is crucial. A characteristic feature of lithium-ion batteries is their high energy density. Thermal runaway poses a particular risk of battery fires since this kind of chain reaction takes less than 60 seconds from start to explosion. These temperature variations are often not visible to the naked eye or by purely visual monitoring. The Mobotix M73 cameras with thermal radiometry technology, along with calibrated, industry-standard, high-end thermal sensors were selected to solve the challenge the waste management company was facing.

Despite the best efforts of waste management companies to collect and process hazardous waste, batteries that are not disposed of correctly can ignite and create dangerous fires. This poses a threat to the safety of workers, the local community, and the environment as the risk of fire remains and the company needs to be prepared to manage breakouts with the least impact to operations.

The M73 cameras and high-end thermal sensors measure thermal radiation throughout the entire imaging area, and assign a temperature value for each pixel, giving detailed real-time data measurements. The solution also allows up to 20 different temperature events to be configured simultaneously in thermal radiometry windows or over the complete sensor image with a temperature range from -40°C to 550°C . With real-time monitoring, any temperature fluctuations outside of the parameters set in the cameras immediately trigger alarms, enabling staff the opportunity to take action and stop the thermal runaway before it becomes a fire.

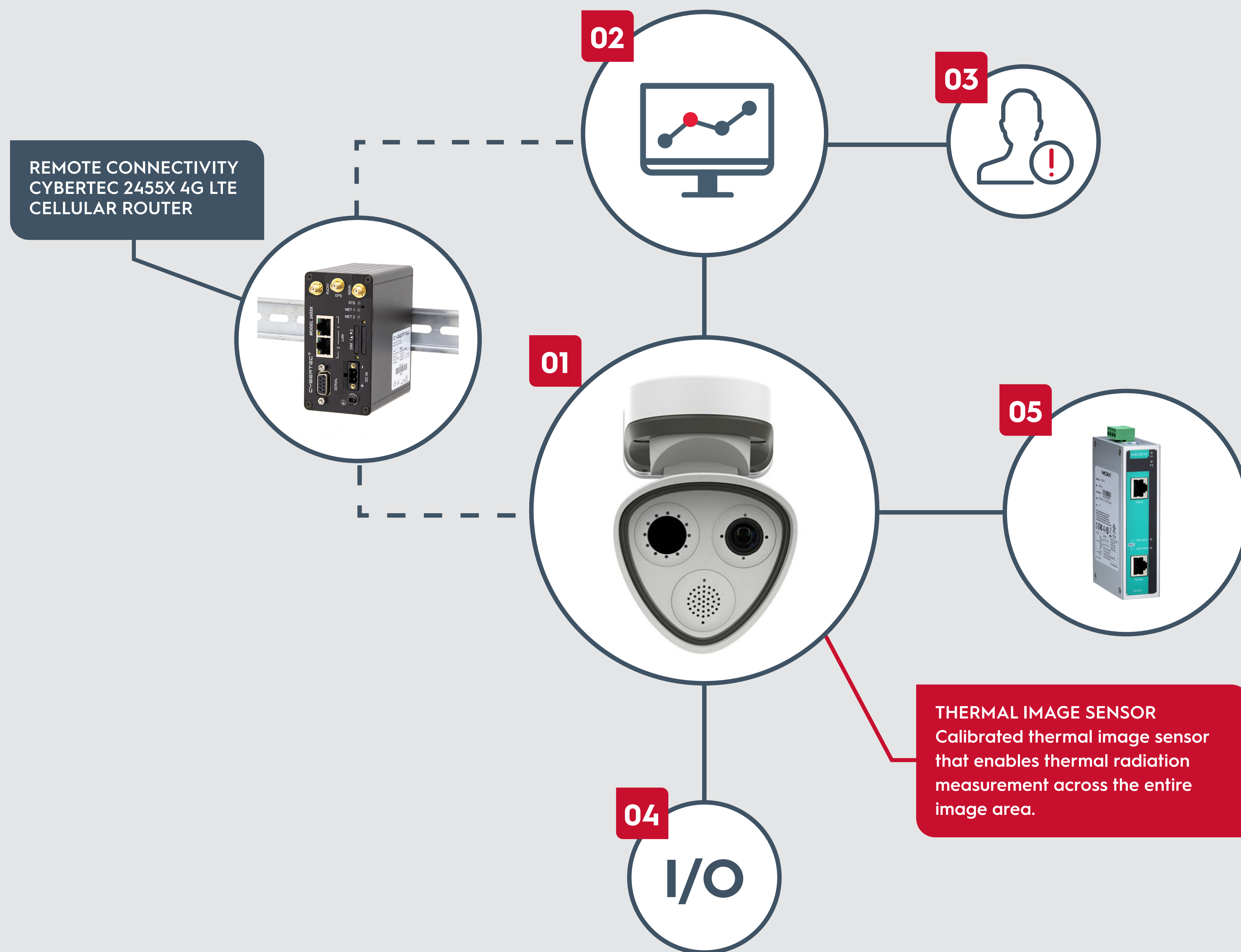


Real-time monitoring of thermal radiation, ensuring temperature fluctuations can be acted on before thermal runaway causes a fire.



Solution Architecture

THERMAL FIRE DETECTION



- 01** **MOBOTIX THERMAL IMAGING CAMERA**
Mobotix High-End Thermal Camera with intelligent Plug-In App concept.
- 02** **MOBOTIX MxMc VIDEO MANAGEMENT PLATFORM**
View alarm events, visualise what triggered events and gain live view for situational awareness.
- 03** **ALERTS AND ALARMS**
Recieve alarms and alerts in real time via email or the MxMc platform, based on preconfigured triggers.
- 04** **LOCAL I/O**
IO for integration with further elements e.g. Fire Alarm Systems or Automation systems.
- 05** **POWER OVER ETHERNET (PoE)**
Power over Ethernet transmits both power and data for easy installation.

MOBOTIX
BeyondHumanVision

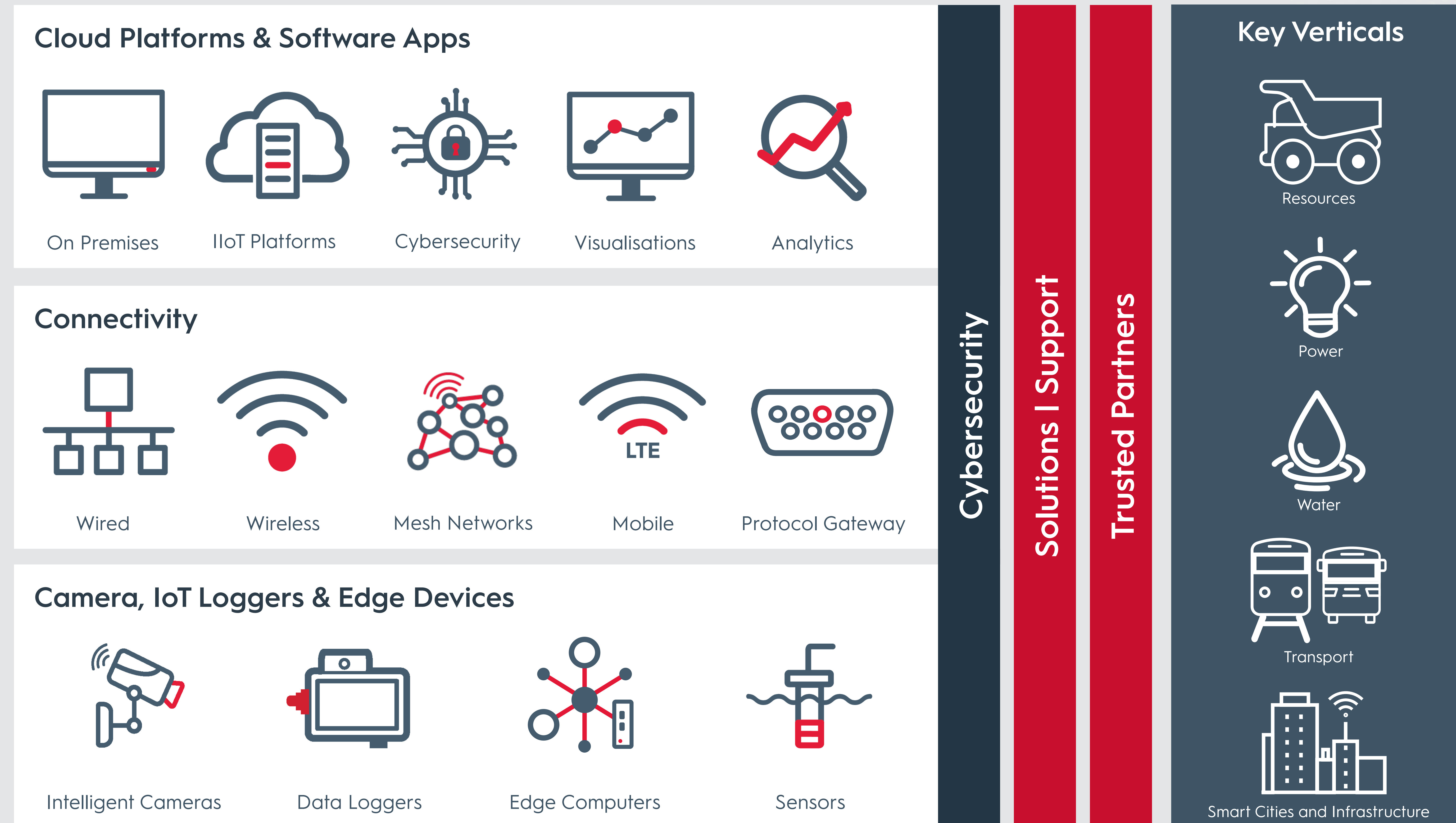
MOXA®

CYBERTEC

Critical operational environments require specialist understanding



Technology Stack



With a 30-year legacy of providing resilient industrial technology solutions, we're familiar with many of the challenges the industrial sector faces as it embraces digital transformation to better understand and manage resources, improve safety, and increase efficiencies.

Our experience connecting and protecting people, assets and the environment, combined with our industry leading technology portfolio, means we're the preferred partner for IIoT, industrial networking, cybersecurity, asset management and asset visibility, giving our customers digitally transformed critical operating environments that unlock data insights and business intelligence.

