

Solution Brief

Logistics and Tracking
Artificial Intelligence



Delivering Actionable Insights with AI, Automated Logic, and Visualizations with EPIC iO DeepInsights

EPIC iO's DeepInsights scalable platform leverages Intel® technology to provide real-time visibility into assets, help improve safety, and drive operational efficiency.



About EPIC iO

EPIC iO is at the forefront of technology, empowering businesses to thrive in the digital age by harnessing the transformative potential of 5G-ready connectivity and AI and IoT solutions.

EPIC iO is dedicated to making businesses safer, smarter, and more connected through its innovative software-focused approach. The company's cutting-edge open AI platform, DeepInsights, is the cornerstone of EPIC iO's mission.

Harnessing the Value of Data with AI

Enterprises today are capturing an unprecedented volume of data, sourced from an array of channels such as sensors, cameras, or transaction records. Yet, despite this wealth of information, many businesses find themselves grappling with the challenge of how to harness its full potential. The overwhelming proliferation of data can strain conventional analytical approaches, leaving organizations adrift in a sea of unprocessed information. However, within this data deluge lie valuable insights that can revolutionize the way organizations operate, strategize, and innovate. Embracing digital transformation empowers organizations to navigate this flood of data, extracting meaningful patterns, anticipating future trends, and crafting informed strategies for data-driven decision making.

From retail to smart cities to hospitals, organizations across all sectors are striving to harness the power of data to drive insights and improvements in hopes of creating a safer, smarter, and more connected world. However, many industries are hindered by several common challenges, including:

- **Managing vast amounts of data** can be difficult for organizations seeking actionable insights and meaningful patterns. A recent global survey revealed that 33% of business leaders struggle to generate insights from data, with 30% feeling overwhelmed by its volume¹.
- **Integrating with legacy technology** compounds these challenges, as it tends to be both costly and complex. This exacerbates data volume issues and contributes to fragmented visibility and disjointed workflows within organizations.
- **Decentralized data** makes gaining actionable insights difficult. Centralizing and gaining insights from data is needed for reducing operational costs and achieving comprehensive coverage. Transitioning to smart solutions, especially those offering features like a single platform for all feeds is crucial to extract meaningful insights from data.

Businesses are increasingly turning to AI-based solutions to navigate the complexities of data management and analysis. With AI-driven solutions like EPIC iO's DeepInsights, businesses can streamline data processing, enhance security measures, and foster connectivity across their operations. This transformative approach not only helps companies cultivate an efficient environment, but also utilizes the value of their data to stay ahead of the curve in a competitive market.

The EPIC iO AI Solution

EPIC iO's DeepInsights solution is the response to a multi-industry need for increased security, system synergy, and more connected operations. The solution boosts effectiveness by turning vast amounts of data into actionable insights. DeepInsights, EPIC iO's open software platform, provides data-driven insights for the public sector and enterprises to make critical business and operational decisions.

The AI solution was designed with three main focuses: advanced AI video analytics, rapid deployment across systems of all sizes, and enhanced insights delivered through DeepInsights' Dashboards. The solution offers deployment flexibility for any infrastructure, processing IoT sensor data and video AI-based analytics at the edge, in the cloud, or both.

Intelligent environments created by DeepInsights help improve safety and security. Its scalability and AI flexibility allow integration with IoT sensors and other systems, enabling gradual project and solution expansion. From helping retail operations increase both operational efficiency and store's overall safety and security to helping hospitals and healthcare facilities run smoothly, ensuring patients receive the care they need.

Your Data Journey

- 1. Connectivity:** The solution offers various types of connectivity to edge sensors, including IoT sensors, cameras, and other devices. The design enables communication and data federation among all devices, allowing access from any location.
- 2. Ingestion:** Sensor and camera data is ingested into the edge computer, on-premises server, or MEC, supporting a variety of protocols including legacy systems.
- 3. Enrichment:** After ingestion, data is enriched, either at the edge, in the MEC, or in the cloud. Enrichment enhances the data's value, whether it is AI-based video analytics or pattern identification within IoT data streams.
- 4. Insights:** After the enrichment process, DeepInsights provides valuable insights into events, such as a near-miss at an intersection, or predicting maintenance on a quickly-filling silo.
- 5. Outcomes:** The outcome is a cost-effective, seamless, and easily scalable AI platform that creates a safer, more secure and connected world.

Putting DeepInsights to Work



Visualize trends and insights from IoT sensors and cameras



Access live video and review past events



Deploy and manage cameras, IoT sensors, and edge devices at scale



The API allows for a multi-vendor strategy for integrating AI capabilities across different sources



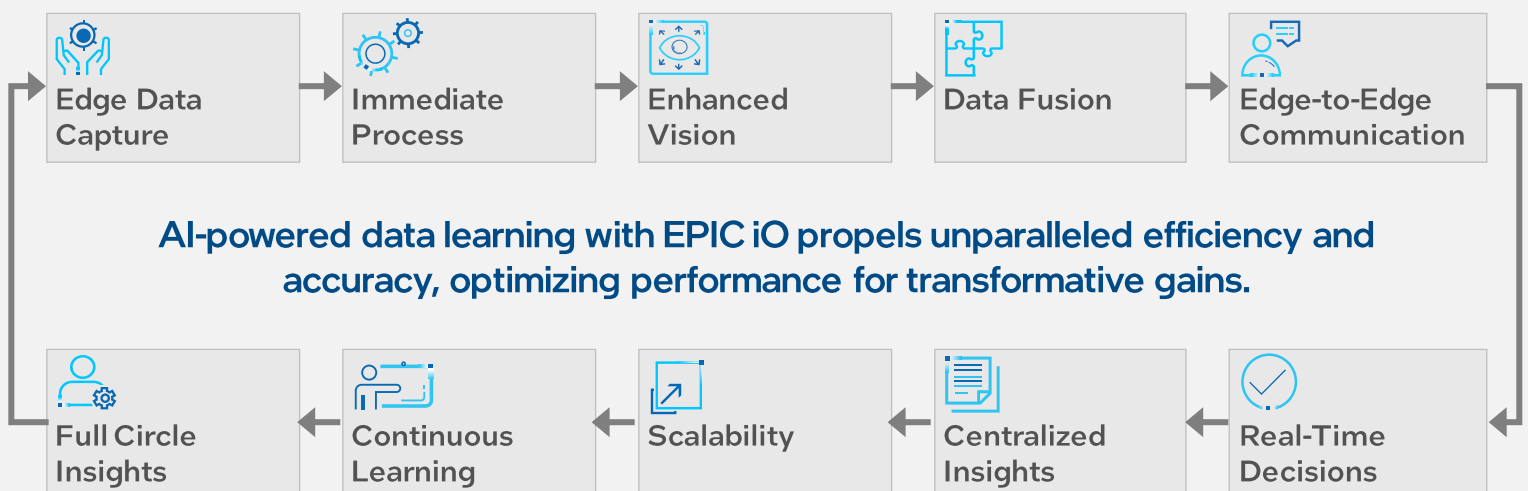
Send alerts into enterprise applications



Plug & play and camera agnostic AI analytics



Deploy at the edge, in your datacenter, or in the cloud



DeepInsights Industry Applications

Smart Cities

- Live Security Alerting
- Forensic Security Review
- Safe Parks
- Intelligent Transportation
- Smart Parking
- License Plate Recognition
- Energy Monitoring
- Water Monitoring
- Environmental Monitoring

Smart Retail

- Shelf Access Trends
- Foot Traffic Heat Map
- Loss Prevention
- Queue Monitoring
- Parking Lot Occupancy
- Parking Lot Safety
- License Plate Logging
- Restricted Area Security
- Cold Storage Monitoring

Smart Utilities

- Live Security Alerting
- Sensor Monitoring
- SCADA Integration
- Remote Surveillance
- Thermal AI Monitoring
- Infrastructure Conditions
- Equipment Monitoring

Smart Environments

- Live Security Alerting
- Forensic Security Review
- Vaping and THC Detection
- Room Disinfection
- Watchlist/Safety Threats
- Fire Detection and Alert

Smart Healthcare

- Patient Monitoring
- Infection Control
- Slip and Fall Detection
- Patient and Staff Safety
- Private Cellular Network
- HIPPA Compliant

DeepInsights End-Customer Benefits



Increase safety and security

DeepInsights allows users to identify suspicious movements or behavior rapidly. IoT sensors monitor concurrently for safety concerns, providing real-time alerts for actionable insights.



Improve operational efficiency

The solution provides data-enriched information, allowing companies to move faster and make smarter decisions, leveraging near real-time data to stay ahead and drive business forward.



Reduce in-house costs

DeepInsights reduces reliance on human resources, automating work activities and paving the way for significant efficiency gains. Predictive maintenance offers a cost-effective alternative to the traditional approach of waiting for equipment failures to occur to minimize downtime and enhance reliability.

DeepInsights Key Features

Unified Dashboard: EPIC iO provides a centralized dashboard that offers a comprehensive view of a wide variety of business operations. The solution allows organizations to seamlessly integrate, process, and analyze data from an expansive variety of assets and systems on a single platform for enhanced control and oversight of all operations.

Device Fleet Management: IoT technology delivers near real-time data regarding the location, status, and condition of vehicles and assets. This data empowers fleet managers to maintain constant awareness of asset whereabouts, facilitating route optimization and swift response to emergencies or disruptions. With access to this comprehensive information, fleet managers can make informed decisions regarding maintenance and repairs, as well as resource allocation, maximizing operational efficiency.

Alerts and Customized Notifications: False alarm prevention is enhanced, and the solution proactively notifies stakeholders of security breaches. The solution safeguards 24/7 secure perimeters, helps create safer bike and hike trails, deters vandalism and graffiti, and detects fire and vape incidents.

Predictive Maintenance: The solution incorporates predictive maintenance capabilities, enabling businesses to anticipate and address equipment issues before they occur. DeepInsights uses advanced algorithms to forecast potential maintenance needs based on patterns and trends, enhancing operational efficiency and productivity.

Workflow Automation: Supporting workflow automation to streamline repetitive tasks, the solution automates business processes and improves operational efficiency. This automation reduces manual errors, accelerates task completion times, and frees up resources for higher-value activities.

Scalability and Customization: The solution is designed to be scalable and customizable to meet the unique needs of businesses of all sizes and industries. Whether businesses are just starting out or are established enterprises, EPIC iO can be tailored to fit their requirements and grow with their business.

DeepInsights Customer Success Story – Improving Operational Efficiency for a Public Utility Authority in California

Challenge: A public water utility serving 16 million Californians in 20 irrigation districts, was struggling with aging infrastructure, causing intermittent data with limited SCADA visibility. With many vulnerable, remote sites, the city had difficulties identifying physical security threats reliably and monitoring attributes throughout its locations.

Solution: The customer worked with EPIC iO to implement DeepInsights with a four-part process

- Secure 4g/5g network via modems
- Integrate new IoT sensors with existing SCADA equipment
- Utilize an edge-computing platform with high-definition cameras for AI-supported autonomous surveillance
- Condense analytic information through DeepInsights dashboard system

Result: The city was able to expand its reach through 130 sites and extended its range of IoT sensors by 5 miles. DeepInsights provided a single pane of glass system that centralized the platform to monitor, manage, and analyze data from multiple sources, offering a unified view and streamlined operations.

Outcomes

1

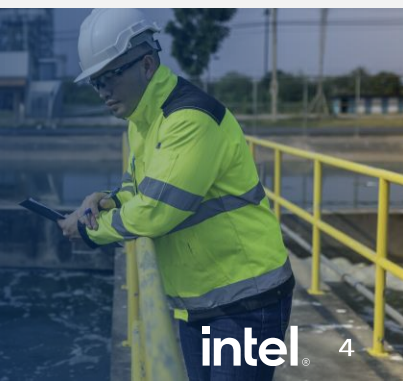
Unified solution in a single pane of glass

130

Sites with block houses under management

5 miles

Extended range of new IoT sensors



Intel® Partners with EPIC iO to Optimize Performance of DeepInsights

EPIC iO's DeepInsights solution is built on powerful CV technology that is enhanced thanks to cutting-edge components from Intel. Intel® Core™ and Intel® Xeon® processors give the system the power it needs to perform complex tasks, while the OpenVINO™ toolkit helps developers build and deploy EPIC iO's DeepInsights quickly and affordably.



Intel Core processors: The solution uses and supports Intel Core processors. These processors are built specifically for the flexibility to run complex AI workloads on the same hardware as existing workloads. The integration of Intel Core processors facilitates realtime inferencing both on-premises and at the edge, enhancing the adaptability of EPIC iO's DeepInsights across various computing environments.



Intel Xeon processors: EPIC iO's DeepInsights on-premises customers level up their EPIC iO solution with the help of Intel Xeon processors. These processors, designed with high-performing built-in accelerators, help support critical workloads with a wide array of Intel Xeon processor options to right-size the hardware for specific performance needs. Intel CPUs help make AI more affordable and accessible to EPIC iO customers. DeepInsights runs computer vision workloads exceptionally well on Intel Core processors, leveraging the built-in AI acceleration features.



OpenVINO toolkit: EPIC iO's DeepInsights is enhanced with the OpenVINO toolkit, a powerful tool designed to facilitate development of machine learning applications. The OpenVINO toolkit expedites the creation of DeepInsights deep learning algorithms, producing faster and more accurate results. This creates an easier deployment process for EPIC iO customers through Intel hardware, from edge devices to cloud servers. Intel's Open Visual Inference and Neural Network Optimization toolkit enables the EPIC iO Technologies team to seamlessly deliver smart community capabilities, including biosecurity, license plate recognition, and site security, strengthening public safety.

DeepInsights Pre-Validated for Intel at the Intel Validation Lab

Intel's AI solution lab is a comprehensive preconfigured, remote testing environment, optimizing solution performance for the most streamlined customer deployments possible. Intel's AI solution lab partnered with Dell and EPIC iO to test the full system and validate the performance and ease of deployment. Through their joint efforts, EPIC iO and Dell not only optimized solution performance but effectively minimized the cost, complexity, and risk associated with customer deployments.



EPIC iO has collaborated with Intel extensively to ensure our cloud-native DeepInsights AI Platform can be deployed and operated at any Edge, with complete automation, on Intel Core processors to the latest Xeon processors, instantiated on Cloud, VM or Bare Metal, without refactoring. Our combined ability to scale workloads with optimized core and thread usage provides our customers with performance they would generally assume is only available with discreet GPU."

— Michael Knight, CTO EPIC iO

Why Validating Matters

By validating with Dell in the Intel lab, EPIC iO has positioned its solution for:



Simplified AI deployment

An all-in-one preconfigured solution means no need to purchase and experiment with individual components.



Cost-effective performance

The specified system has been tested and proven to deliver the right level of performance to reach desired deployment goals.



Accelerated time to value

Ready-right-now DeepInsights enables fast, easy AI adoption to start identifying opportunities for improving security and cost savings upon implementation.

Conclusion

EPIC iO's centralized platform efficiently manages all safety devices and smart services, promoting operational effectiveness. Its open and interoperable nature allows seamless integration with various systems, while its unique combination of sensors and high-resolution smart cameras enable comprehensive monitoring and alert notifications remotely and in real-time. The solution transcends traditional network limitations by leveraging multiple carriers, increasing its capacity, speed, and reliability. Intel® Core™ processors and Intel® Xeon® processors, combined with the OpenVINO™ toolkit, power EPIC iO's DeepInsights, allowing businesses and communities to seamlessly embrace AI technologies and adopt innovative solutions, creating safer, smarter, and more connected operations.

Learn More

To learn more about the EPIC iO Solution visit:

- [EPIC iO Website](#)
- [DeepInsights AIoT Solution Website](#)
- [EPIC iO Safe Solutions](#)
- [EPIC iO Smart Solutions](#)
- [EPIC iO More Connected](#)

To learn about Intel® technologies visit:

- [Intel Core Processors Product Page](#)
- [Intel Xeon Processors Product Page](#)
- [OpenVINO Toolkit Product Page](#)
- [Intel Validation Lab](#)

Sources

¹[Data Deluge: Businesses Struggle with TMI](#), The Wall Street Journal, 2023



Accelerated by Intel® offerings take advantage of at least one Intel® technology, such as built-in accelerators, specialized software libraries, optimization tools, and others, to give you the best experience possible on Intel hardware.

By taking advantage of acceleration technologies, such as Intel® Advanced Vector Extensions 512 (Intel® AVX-512), Intel® Advanced Matrix Extensions (Intel® AMX), and others, our optimized solution helps accelerate time to innovation and insight.

With Intel technologies and capabilities, a vendor's optimized offering can go beyond the traditional compute and extend to accelerated networking, storage, edge, and cloud. It's all part of helping customers build an optimized infrastructure across the company.

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