



5 **Common IoT Data Challenges** **(and How AI Solves Them)**

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Introduction

It's estimated that IoT devices will produce upwards of **79.4 zettabytes** of data in 2025.

From smart factories and connected vehicles to precision agriculture, billions of devices generate streams of information every second. Yet raw data alone doesn't create value - it must be transformed into actionable insights.

Artificial intelligence (AI) is the key to unlocking this potential. By using AI to manage IoT data, organizations can detect anomalies, predict outcomes, optimize operations, and make real-time decisions at scale.

This eBook explores **five of the most common challenges** companies face with IoT data - and how AI, combined with Soracom's value-added services, can provide you with practical solutions available for immediate implementation.



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Challenge 1: Data Overload and Complexity

The Challenge

As IoT deployments scale, data volumes can overwhelm traditional systems. Logs pile up, streams flow in faster than they can be analyzed, and it becomes difficult to extract meaningful information.

The AI Solution

AI-powered tools filter, classify, and prioritize data automatically. Machine learning algorithms can detect patterns, identify anomalies, and summarize key events so that organizations can focus on what really matters.

How Soracom Helps

With **Soracom Query**, you can **run real-time queries across fleets of any size** to instantly monitor usage, costs, and reliability. Query simplifies troubleshooting, forecasting, and anomaly detection **without the need for custom infrastructure**, so teams spend less time building pipelines and more time driving smarter operations. And because Query supports **natural language questions, API export, and BI tool integrations** like Tableau or Looker Studio, organizations gain flexible insights on demand.





Challenge 2: Limited Access to Actionable Insights

The Challenge

Even after IoT data has been collected, it's often trapped in silos or presented in formats that may be difficult to interpret, leaving operational teams to struggle to convert raw numbers into meaningful insights.

The AI Solution

AI and natural language interfaces allow users to query data in plain language, quickly surface trends, and generate automated reports. This makes decision-making faster and more accurate, without requiring specialized data scientists for every question.

How Soracom Helps

Soracom Query makes interpreting large amounts of data easier by aggregating and analyzing it at the fleet level. Anyone on your team, not just engineers, can ask questions in natural language, extract results via API, or plug directly into BI dashboards. The result: **smarter, faster operations** with insights that are always at your fingertips.



Challenge 3: Real-Time Decision Making at Scale

The Challenge

Modern IoT deployments often demand immediate responses. Fleet management, smart factories, and energy grids won't just wait around for teams to formulate plans to react to changing conditions.

The AI Solution

Edge-based AI and streaming analytics enable real-time event detection, predictions, and automated actions. Decisions are made faster, improving operational efficiency and reducing downtime.

How Soracom Helps

Soracom Flux empowers organizations to automate IoT workflows using a **low-code app builder** designed for non-engineers as well as developers. With Flux, you can set up real-time alerts and automate responses to IoT events, turning raw data into action instantly. AI integration makes this even more powerful, enabling everything from **vehicle measurement analysis to real-time energy-saving notifications**. Customers across industries have already used Flux to accelerate development cycles, reduce costs, and scale adoption without heavy engineering resources.

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Challenge 4: Security and Compliance Risks

The Challenge

IoT data is sensitive and often crosses borders. Security breaches or regulatory non-compliance can be costly, particularly in healthcare, finance, and industrial applications.

The AI Solution

AI can detect unusual network activity, flag potential breaches, and automate compliance reporting. Machine learning models provide continuous monitoring and predictive threat detection.

How Soracom Helps

The **Soracom MCP Server** acts as a **secure adapter that connects IoT devices with AI systems** via the Model Context Protocol (MCP). This makes it possible for AI platforms to query and act on operational data in real time while keeping sensitive information under **fine-grained access control**. The MCP Server also empowers users to **diagnose SIM behavior, automate configurations, and generate billing insights** using natural language queries. Because it's **open-source and community-driven on GitHub**, MCP Server encourages experimentation while evolving into a robust, AI-native platform for IoT deployments.





Challenge 5: Scaling IoT Fleets Without Losing Control

The Challenge

As IoT fleets grow from hundreds to thousands of devices, managing performance, data usage, and cost becomes increasingly complex. Without visibility into trends across the fleet, teams may struggle to anticipate demand, allocate resources efficiently, or detect issues before they escalate.

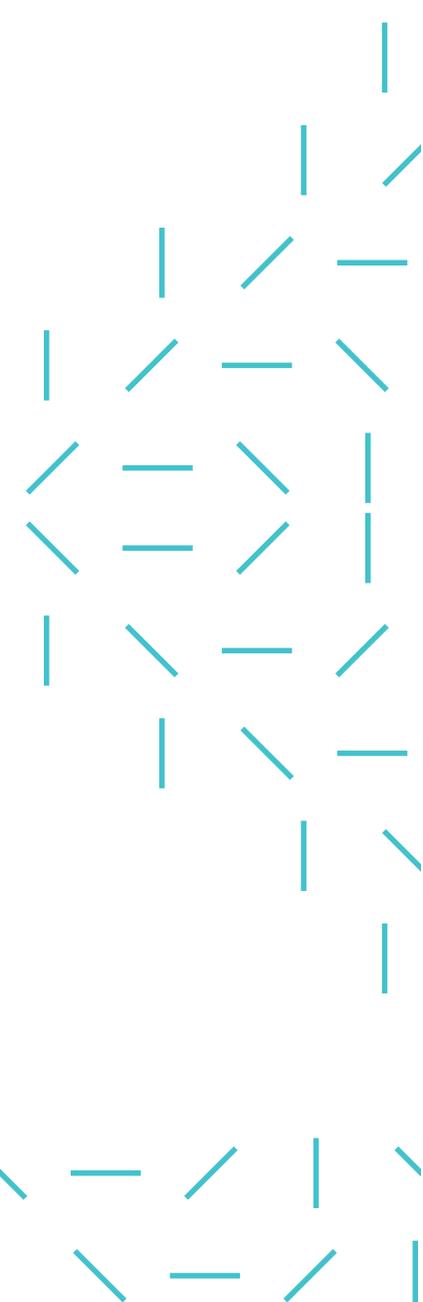
The AI Solution

AI analytics help teams recognize trends and anomalies across large deployments, turning fleet data into **early warnings and actionable insights**. These tools enable operators to:

- **Detect** abnormal device behavior or data spikes in real time
- **Identify** inactive or underperforming SIMs
- **Track** long-term growth patterns to guide capacity and budget planning

How Soracom Helps

Soracom Query provides instant visibility across entire fleets, simplifying the analysis of usage, cost, and reliability data.



Case Studies / Use Cases



Smart Agriculture

Sensors measure soil moisture and environmental data. With **Soracom Query + Flux**, farmers get real-time irrigation recommendations that conserve water while improving yields.



Fleet Management

Connected vehicles stream performance and location data. **Flux automation and Query analytics** enable predictive maintenance alerts, helping operators avoid costly downtime.



Healthcare IoT

Remote monitoring devices track patient vitals. The **MCP Server** keeps sensitive data secure while allowing AI models to flag anomalies and alert caregivers instantly.

Conclusion

Turning Challenges into Competitive Advantage

IoT data creates enormous opportunity—but only if organizations can overcome the five core challenges:

1. Data Overload and Complexity



AI filters the noise.

2. Limited Access to Insights



AI makes data usable by everyone

3. Real-time Decision Making



AI enables instant responses.

4. Security and Compliance Risks



AI strengthens protection and auditability

5. Scaling Across Fleets and Geographies



AI optimizes performance and cost at scale

How Soracom Helps

Soracom Query

delivers instant visibility into IoT fleets, simplifying troubleshooting, forecasting, anomaly detection, and cost management—without building custom infrastructure.

Soracom Flux

empowers teams to automate IoT workflows with low-code tools and bring AI into real-time decision-making, cutting costs while speeding up innovation.

Soracom MCP Server

provides a secure bridge between IoT devices and AI systems, enabling seamless real-time data interaction with fine-grained access control—built openly for developer-driven evolution.

With these services, Soracom makes it easier to design, deploy, and scale IoT solutions that are AI-ready from day one.

Ready to see how Soracom can help you unlock the full value of IoT with AI?

Talk to our team to explore the best approach for your deployment.

