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Unified ITS Device Management Platform

REAL-TIME MONITORING | AUTOMATED MANAGEMENT | AI-DRIVEN INSIGHTS

Redefining ITS Device Management for the Modern World

A Smarter Way to Manage Traffic Infrastructure

Managing Intelligent Transportation Systems (ITS) has never been more complex. Agencies and consultants face rising maintenance demands, outdated manual workflows, and fragmented tools that slow down operations. EdgePulse changes the game—bringing automation, intelligence, and real-time control to ITS infrastructure management.



From reactive to proactive management— detect issues before they cause disruptions.



From complexity to simplicity— replace scattered tools with a single, unified platform.



From data overload to clear insights— AI-powered analytics help optimize decision-making.

OUR MISSION

Advancing ITS Management for a Connected Future

At TapLane, we believe in a smarter, safer, and more efficient transportation ecosystem. Our mission is to empower agencies and consultants with a platform that:

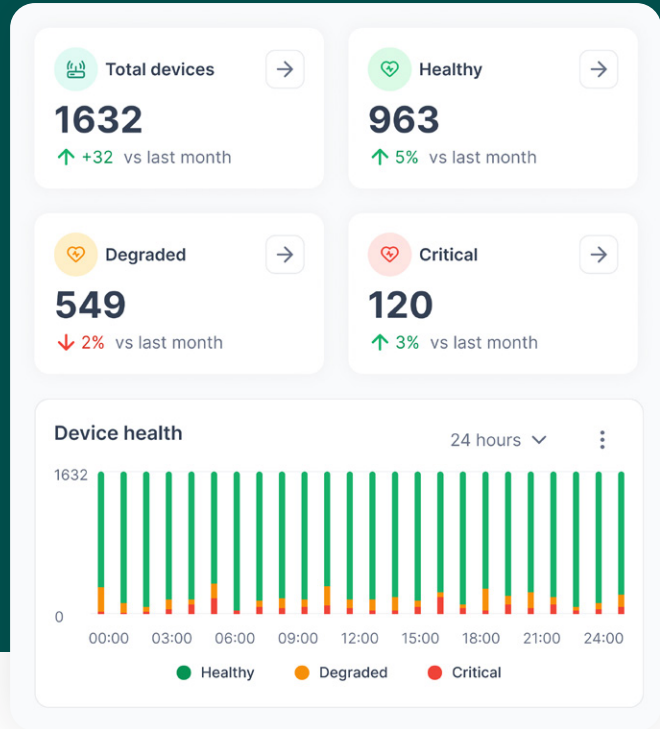
- ✓ Simplifies ITS operations through automation, centralized device management, and seamless integration.
- ✓ Optimizes device performance with AI-driven analytics and diagnostic insights.
- ✓ Future-proofs infrastructure with cutting-edge security and compliance tools.

We don't just enhance ITS device management— we make it smarter, more efficient, and easier to maintain.



EdgePulse at a Glance — A Unified Solution for ITS Operations

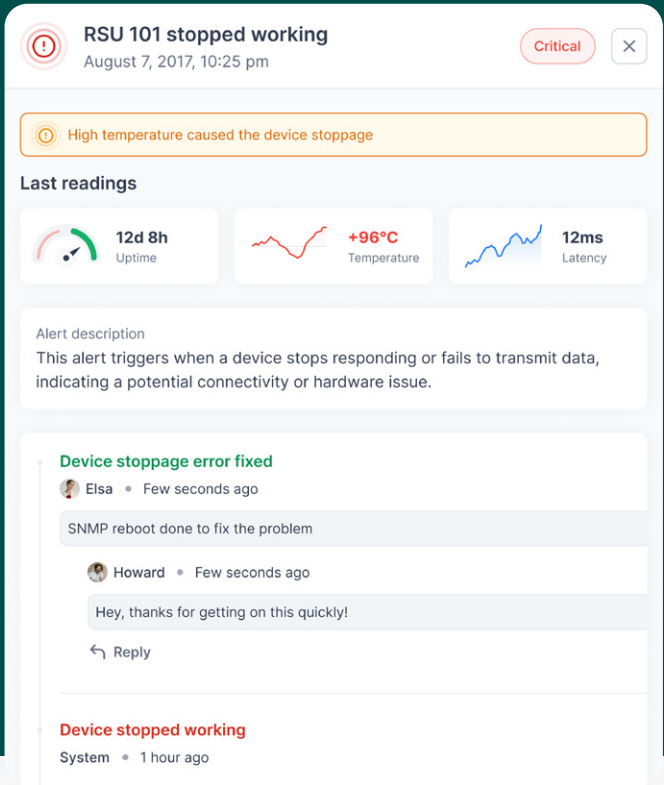
Seamless Monitoring, AI-Powered Insights, and Proactive Management



Comprehensive ITS Monitoring

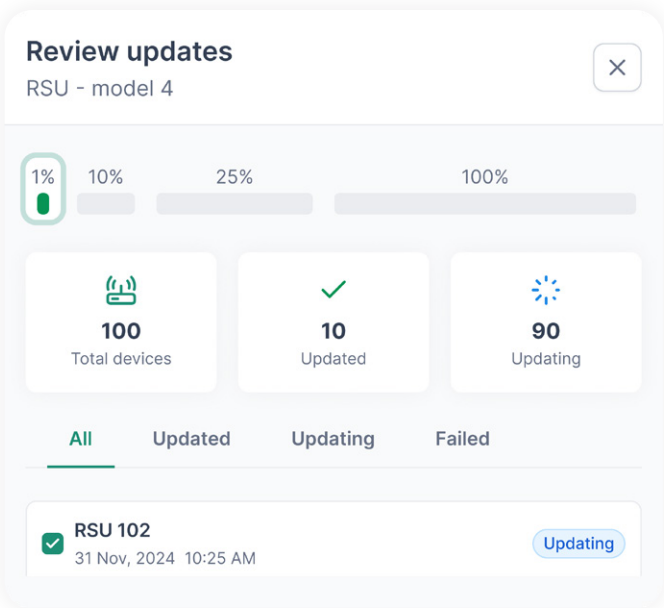
All devices in one dashboard, visualized in real time.

EdgePulse isn't just another ITS tool—it's the future of infrastructure management.



Automated Alerts & Diagnostics

AI-driven insights for smarter decision-making.



Firmware & Compliance, Simplified

Automated credential tracking and firmware updates.



Keeping RSUs Healthy in a Connected Vehicle Environment

The Silent Challenge: Managing RSUs in a Fast-Moving Network

RSUs (Roadside Units) are the backbone of Connected Vehicle (CV) communication, but managing them in an evolving network comes with hidden challenges.



Device Configuration

Varying hardware, firmware, and deployment setups make consistent configuration a challenge.



RSU Connectivity

Maintaining stable communication links can be difficult due to signal drops and network instability.



Message Formatting

Messages like MAP, SPaT, and TIM must meet strict standards—small errors can lead to compliance issues.



Maintenance & Updates

Coordinating firmware updates and certificate renewals across devices takes time and reliable tools.



EdgePulse eliminates the headaches of RSU management—simplifying configuration, ensuring reliable connectivity, and validating critical V2X messages, so your infrastructure runs smoothly.

Stay Ahead with Proactive Health Monitoring

Visibility into RSU and ITS device health is key to reducing disruptions and ensuring long-term reliability. Our platform detects early signs of degradation, performance issues, and connectivity loss—making it easy to prevent downtime and stay ahead of maintenance.



Hardware & System Health: Track CPU, memory, disk, and temperature to ensure safe device operation.



Uptime & Heartbeats: Monitor uptime and get alerts when devices go offline or behave abnormally.

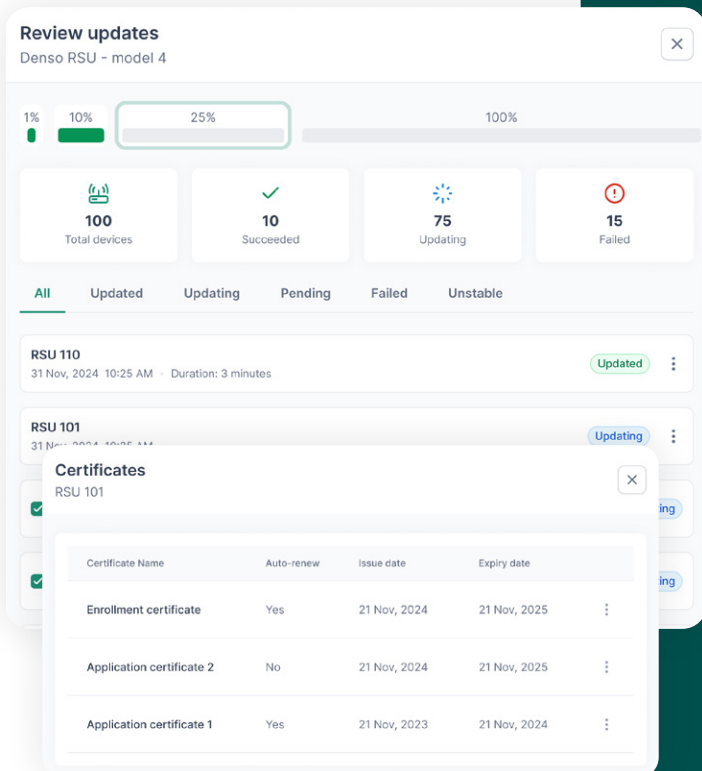


Network Connectivity: Monitor latency, packet loss, and connection drops in real time



Diagnostics & Error Logs: Access logs and recurring error patterns for faster troubleshooting.





Firmware & Certificate Management Without the Hassle

Managing RSUs shouldn't require manual intervention. EdgePulse **automates updates, patches, and security compliance**, ensuring devices are always secure and up to standard.



One-Click Firmware Updates

Keep every RSU running the latest stable release without manual intervention.



Automated Certificate Renewal

No more expired credentials—EdgePulse tracks and updates RSU certificates automatically.



Proactive Security Management

Constant encryption monitoring and security alerts safeguard CV communications.



All-in-One V2X Suite for RSU Management

The EdgePulse V2X Suite equips agencies with powerful tools to author, validate, and deploy MAP and TIM messages across their RSU network — all in one centralized platform.



MAP & TIM Message Creation

Create and manage MAP and TIM messages using intuitive, visual tools with map-based editing for fast, accurate deployment.



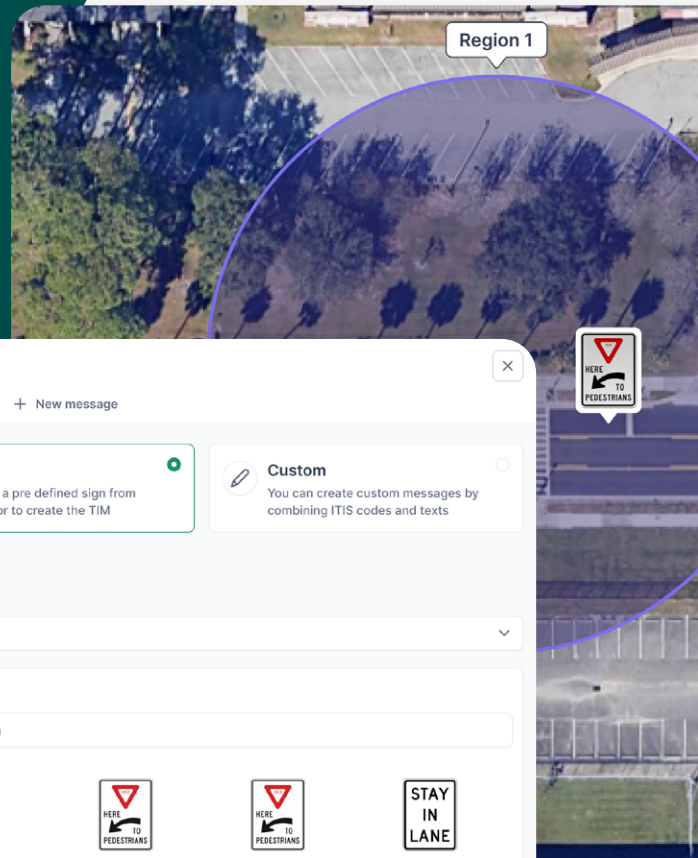
Advanced Message Management

View, coordinate, and schedule messages across RSUs and regions — with full visibility into message status, timing, and delivery metrics.



Standards Compliance & Validation

Ensure full NTCIP 1218 support and SAE J2735 compliance with built-in AI-assisted validation tools.



Create TIM

Message 1 + New message

Regular You select a pre defined sign from the selector to create the TIM

Custom You can create custom messages by combining ITIS codes and texts

Content

Message type
Advisory

Select sign

Search sign

Grid of signs: SPEED LIMIT 50 MINIMUM 30, YIELD here to pedestrians, YIELD here for pedestrians, STAY IN LANE, LEFT LANE FOR PASSING ONLY, STAY IN LANE, YIELD here to pedestrians, SPEED LIMIT 50 MINIMUM 30.

All ITS Devices, One Platform — A Smarter Ecosystem

Supporting the Full
Range of ITS Devices
for Smarter Cities

Intelligent Transportation Systems (ITS) are more than just RSUs. EdgePulse provides full support for a wide range of critical ITS devices, ensuring seamless integration, real-time monitoring, and automated control.



Seamless Integration Across All ITS Devices

From roadside signs to traffic cameras, EdgePulse brings everything into one unified platform—allowing agencies to monitor, manage, and optimize all ITS devices effortlessly.



VMS (Variable Message Signs)

Track device health and communication status to ensure reliable roadside messaging without unexpected failures.



CCTV Cameras

Monitor operational status, ensure network connectivity, and track performance metrics to keep surveillance infrastructure running reliably.



Traffic Controllers

Remotely manage and configure NTCIP-compliant traffic controllers, reducing manual interventions.



Sensors & Detectors


Monitor sensor connectivity, detector activity, and data reporting to help agencies maintain accurate and responsive ITS infrastructure.

Discover. Connect. Manage — Automatically.

New ITS devices shouldn't be a challenge to onboard. EdgePulse makes it effortless—automatically detecting, categorizing, and integrating devices in real time, ensuring a smooth, efficient workflow from day one.

Smart Auto-Discovery: Find Devices Instantly

EdgePulse scans your network across vLANs and subnets, automatically detecting all connected ITS devices—no manual input required.




Discovering new devices
Searching for devices on your network.

Seamless Auto-Detection & Compatibility Check

Our system instantly identifies device standard, type, and model, ensuring a frictionless onboarding process.

Whether it's RSUs, controllers, or sensors, EdgePulse streamlines compatibility so you don't have to.



60 Compatible Devices
Your devices are ready for onboarding

Real-Time Monitoring from the Get-go

As soon as a compatible device is detected, EdgePulse begins collecting key performance data, providing instant insights into your infrastructure—no delays, no extra steps.

Device info	
Device Type	CC Camera 101
Serial Number	SN987654321
Model Name	RV340
Manufacturer	Cisco Systems

Review, Enrich & Customize

Enhance your device data by reviewing and updating detected details. Add missing information like vendor, model, location, and custom labels for complete network visibility.

✓

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Review →

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No Tedious Setup. No Guesswork. Just Scan, Detect, and Manage.

Actionable Insights: ‘AI That Keeps You Ahead’

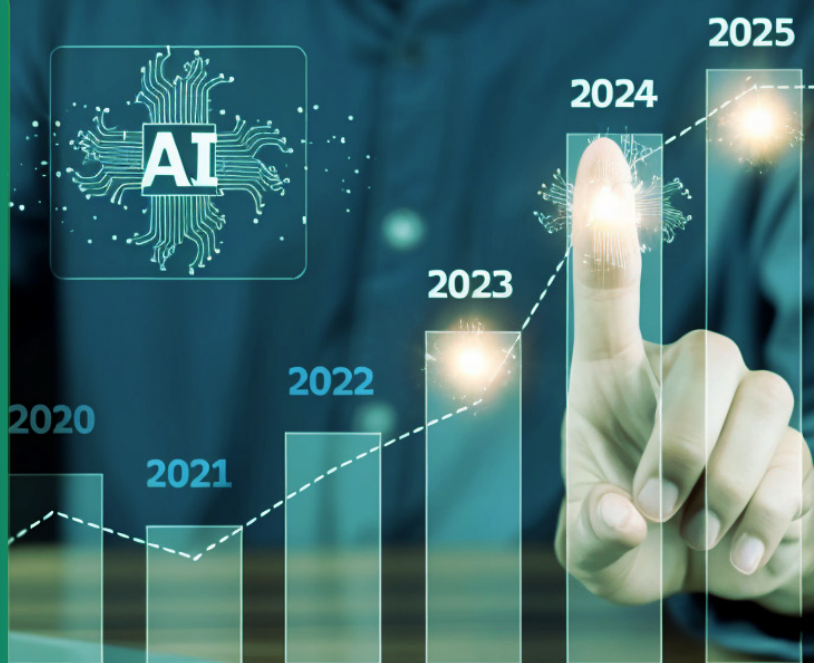
Raw data is just numbers. EdgePulse transforms it into clear, actionable insights—helping agencies predict, prevent, and optimize ITS device performance in real time.

See the Future Before It Happens

- AI-powered trend analysis detects subtle performance shifts before they become critical failures.
- Predictive alerts notify teams of potential malfunctions, network anomalies, or security risks in advance.

Smarter Reports, Automatically

- AI analyzes historical performance data, creating easy-to-read automated reports with key takeaways.
- No manual processing needed—just data-driven decision-making at your fingertips.



Find What You Need, Instantly

- Stop searching, start finding. EdgePulse’s AI-powered Smart Search instantly pulls up key data, system reports, and critical insights—no digging required.
- Need RSU performance metrics? → Jump straight to the latest analytics.
- Looking for device logs or historical health data? → Instantly access past diagnostics for better troubleshooting.
- Skip the menus—just search, click, and go.

Healthy RSU devices

| EP AI

Healthy RSU Devices

Show all RSU devices that are in a health...



OTHER SUGGESTIONS

Critical RSU Devices

Show all RSU devices that are in a critical...



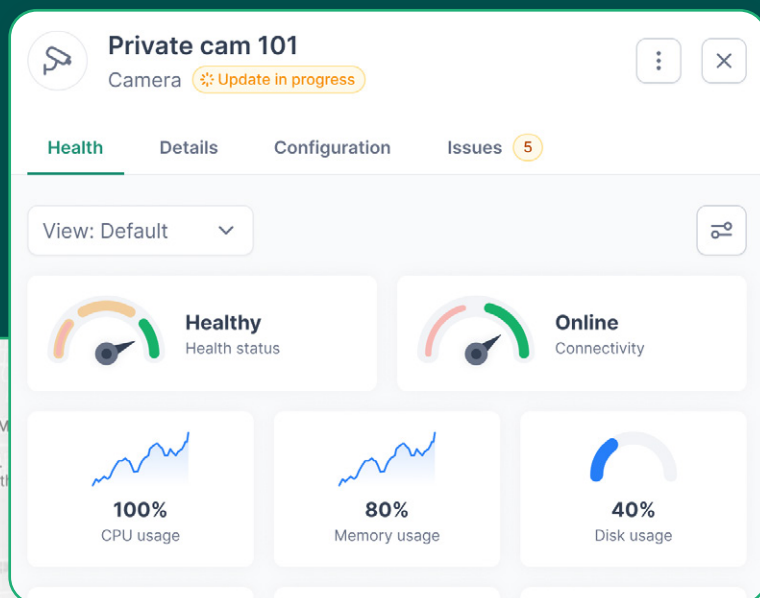
RSU Devices with Alerts

Show all RSU devices that have Alerts



Adaptive ITS Control for Peak Performance

EdgePulse empowers you with actionable intelligence and real-time control, ensuring every device operates at peak performance while minimizing manual effort.¹



Complete Visibility & Remote Control

- Live system-wide visibility with an interactive map-based dashboard, providing instant insights into device health and performance for smarter decision-making.
- Remote troubleshooting & configuration to resolve issues without on-site visits.
- Automated diagnostics to detect and address performance concerns proactively.

Action Center

Alerts 6

Suggestions 10

Issues 4

Controller #15358 st
Few seconds ago

Camera #14256 stop
Oct 21, 2024 10:30 /

RSU #12435 is using
Oct 21, 2024 10:30 /

Camera #14274 upd
Oct 21, 2024 10:30 /

RSU #14296 is havin
Oct 21, 2024 10:30 /

Condition 1

Metric

If temperature

Function

Min

In last

5m

Operator

>=

Value

80°

+ Add condition

Or

Condition 2

Metric

If temperature

Function

In last

Operator

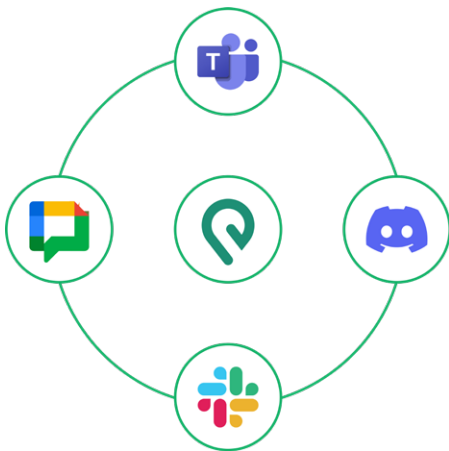
Value

Proactive Alerts & AI-Driven Monitoring

- Custom alert thresholds to detect anomalies before they escalate.
- AI-powered insights to optimize device health & long-term performance.
- Event-based notifications for instant issue resolution.

Intelligent Automation, Reliable Performance

With EdgePulse you can streamline workflows, integrate seamlessly, and automate essential processes, making infrastructure management easier than ever.



Smart Workflows & Open API for Future-Ready ITS

- Seamless third-party integrations with analytics tools, smart city platforms & custom applications.
- Automate workflows, reducing manual tasks.
- Interoperable architecture to future-proof infrastructure without vendor restrictions.

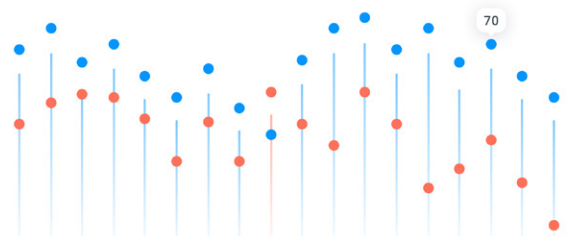
Historical Data

95%

Health Score

36

Active Alerts



Effortless Maintenance & Compliance

- Automated security & compliance tracking to meet industry standards.
- Performance diagnostics & trend analysis for long-term reliability.
- Access historical performance logs for better decision-making & troubleshooting.

A Common ITS Language

EdgePulse ensures full compliance with global ITS standards and protocols, eliminating vendor lock-in and enabling seamless, future-proof integration across all ITS devices.



NTCIP Standards Supported

- ✓ **NTCIP 1218:** Roadside Units (RSUs)
- ✓ **NTCIP 1201:** Global Object Definitions
- ✓ **NTCIP 1202:** Traffic Signal Controllers
- ✓ **NTCIP 1203:** Dynamic Message Signs (DMS) & Variable Message Signs (VMS)
- ✓ **NTCIP 1204:** Environmental Sensor Stations (ESS)
- ✓ **NTCIP 1205:** Closed Circuit Television (CCTV) Camera Control
- ✓ **NTCIP 1206:** Data Collection & Monitoring (DCM) Devices
- ✓ **NTCIP 1207:** Ramp Meter Control (RMC) Units
- ✓ **NTCIP 1208:** CCTV Switching
- ✓ **NTCIP 1209:** Transportation Sensor Systems (TSS)
- ✓ **NTCIP 1211:** Signal Control & Prioritization (SCP)
- ✓ **NTCIP 2202:** Internet (TCP/IP & UDP/IP) Transport Profile
- ✓ **NTCIP 2303:** File Transfer Protocol (FTP) Application Profile
- ✓ **NTCIP 9014:** Infrastructure Standards Security Assessment (ISSA)

Supported Protocols & Security Standards

- ✓ **Communication Protocols:**
SNMP, MQTT, HTTP/HTTPS, SSH, FTP, RTSP — Secure data exchange across ITS networks.
- ✓ **Industry Standards:**
IEEE 1609, SAE J2735, CTI 4501/4502 — Connected Vehicle (V2X) communication and security standards, ensuring compliance with critical message formats such as SPaT, MAP, and TIM.



Built for flexibility, EdgePulse ensures every device speaks the same language—seamlessly integrating into a future-proof ITS network.