IoT and t3leSense™: Advanced IoT Platform

Any sensor, any scale. Your data, your rules.

James Patke

VP of Sales and Business Development

September 26, 2024

AGENDA

Objectives:

- Demonstrating how IoT transforms operations across industries.
- Addressing challenges like physical security and aging infrastructure.

1. IoT Across Industries

2. Key IoT Applications Across Sectors

3. IoT Addressing Aging Infrastructure

4. IoT Physical Security

5. IoT Benefits Summary Across Industries

6. t3leSense™ Platform

7. Sample Use Cases

IoT Across Industries

What is IoT and how does it work?

- Residential IoT model.
- Industrial/Enterprise markets such as utilities, precision agriculture, and health care.
- Sensor monitoring of critical infrastructure.
- Machine to machine, wired (ethernet), wireless air interface LoRa (long range), Narrowband IoT, 4G/5G including CBRS, CAT-M, Bluetooth, Zigbee, WiFi.

What are the Key components?

- Sensors, Connectivity, Data Analytics, and Automation.
- Devices for actions based on sensor output.

Why does it matter?

- Real-time monitoring, predictive maintenance, and operational cost reduction.
- Improves operational efficiency.
- Maximizes asset investments.
- Enhances security and safety.

Sample IoT Applications Across Sectors

Energy & Environment
- Smart meters, energy efficiency, and sustainability.
- Industrial IoT across sectors.
- Monitoring equipment, organizing production, and reducing downtime.

Smart Cities
- Public safety, smart lighting, and traffic management.

Health Care
- Wearable devices, patient monitoring, and hospital asset tracking.

Retail & Supply Chain
- Inventory management, logistics, and customer behavior.

IoT Addressing Aging Infrastructure

Real Time Detection Optimizing Replacement Schedules

- Coordinate maintenance activities.
- Reduce time allocation for these activities.

Predictive Maintenance

- Real time data insights.
- Identify when parts and machinery will wear out.

Cost Optimization

- Consistent monitoring helps reduce downtime lowering operations costs.
- Timely maintenance prevents costly emergency repairs.

IoT Addressing Physical Security

Securing Assets
- Using IoT sensors and devices for surveillances.
- Complimentary to existing security practices.

Real Time Alerts
- Identify tampering of assets, Intrusions or unauthorized access.
- Reduce time allocation for these activities.

Perimeter Security
- Real time asset tracking and geo location.
- Geo-fencing detection - trigger alerts based on asset location.

Condition Monitoring
- Tracks environmental conditions for safety.
- Monitor state of asset to ensure safety.

IoT Benefits Summary Across Industries

Operational Efficiency
- Automation of assets, procedures and process.
- Real time insights and analytics.

Cost Savings
- Predictive maintenance routines.
- Optimized resource management.

Enhanced Customer Experience
- Personalization and enhanced feedback.
- Better services for customers.

Regulatory Compliance
- Meeting government compliance requirements.
- Meeting safety, environmental and operational standards.

ANY | SENSOR TECHNOLOGY SCALE

t3leSense ™
YOUR IoT SOLUTION

YOUR | DATA RULES SECURITY

Central Functionality

Users	**Sensors**	**Device control**	**Custom Rules**	**Reports**
Administrate and manage users, access rights and organizations	Administrate, manage, log and supervise individually or in batch	update, change function, turn on switch, etc.	("IFTTT") Automations, AI & Machine Learning	Time bound or on demand. Graphs or invoice data

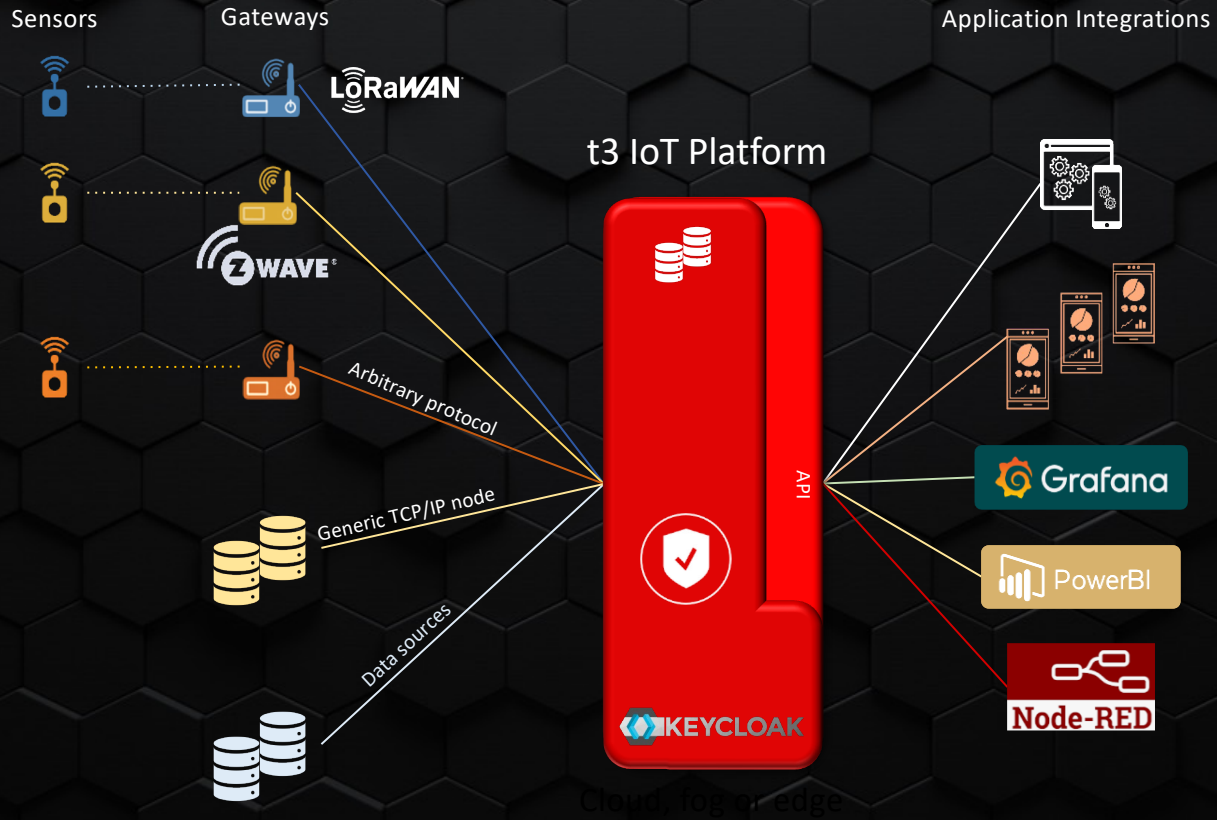| **Data**	**API**	**Security**	**Locations**	**Control Panel**
collect, manage, publish, share, time series	All data and functionality	SAML, Oauth2, OpenID, LDAP, Active Directory, and more	Visualizations, dashboards	Customizable Dashboards

Use Cases – Proven Platform

SMART BUILDING

SMART CITY

SMART HOME

SMART UTILITIES

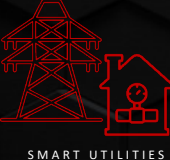**SMART AGRICULTURE**

SMART SOCIETY

- Equipment location
- Sound level
- Air humidity
- Air temperature
- Ambient Light
- CO2-level
- Distance
- Pressure
- Accelerometer
- Movement
- Water temp
- Water depth
- Night light, guidance
- On/Off wall plug
- Fire Alarm
- Presence detection (security, WiFi/BLE)
- Level monitoring, Silos
- Crop Freezing alert
- Crop Anti-Freezing action
- Mold Risk Detection, Crop
- Energy Consumption, IMD
- Water Consumption, IMD

- Smart EV charging posts
- License Plate recognition, garage
- Passenger detection
- People Counter, in-out
- Desktop Occupancy
- Detailed and distributed error detection power grid
- Air Quality (hum, CO2, CO, PPM, hydrocarbons)
- Theft detection (vibrations, ultrasonic)
- Water quality farming (nutrition, PH, etc)
- Thermostat control, radiators
- Thermostat control, heating system
- Cooling system monitoring, defrosting control
- Power, measure consumption
- Power, on/off
- Parking Spot Usage
- People Flow pedestrian tunnel
- Bicycle Road, usage
- Water Heating Temp
- Wireless M-Bus Heating control

- Aging in place
- Smart homes
- Smart windows
- Water leakage
- Door/Window, open/close
- Light control
- Digital doorbell with camera
- Water valve on/off
- Power cabinets
- Waste Bin - Fill Level
- Clean desks (Covid-19)
- Bench/Pew usage
- Energy distribution power grid
- Street Light Control
- Burglary alarm
- Collect navigation data
- Weather station
- Asset Mgmt/Move Alert art
- Storage Inventory
- High School IoT Education
- Classroom Occupancy Level
- Ground Temp
- Ground Temp Forecasting

- LoRaWAN coverage
- Satellite support, agriculture
- Analysis and optimization of WiFi networks
- Oversteering heating and ventilation
- Measure ventilation and heat
- Presence based lightning, heating, ventilation control
- Automated Rounding
- Operation Redundancy
- Camera Control
- Sailboat Racing Positioning
- Water Leakage hidden in building constructions
- Crane Wear Detection
- Collecting engine data, shipping
- Man-overboard detection & positioning
- Accident detection, person (fall)
- Personal Safety Alarm
- School Restaurant Visitors
- School Restaurant Queue Length
- Airport indoor asset tracking
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