Making Mobile Food Management More Efficient

Using sensors, tags and other wireless technologies to track assets and goods through the global supply chain and within municipalities is one of the fundamental use cases for the Internet of Things (IoT). It is also one of the most impactful, with trillions of dollars of economic value to be generated by asset supply and usage.

Mobile Food Management Challenges

As food trucks become more popular, and food carts offering hot and cold foods and beverages continue to serve hundreds of thousands of people a day, sanitation and food safety management can be challenging, and compliance can be expensive and prone to error when done manually by local agencies.

> According to 2016 Department of Health reporting in one large city, inspectors conducted 4,319 food cart and truck inspections and found 5,044 violations. In 1,193 cases, there were multiple violations cited.

Innovation Opportunities

Low cost, ubiquitous IoT network coverage is enabling a new set of asset tracking applications that can automate services and provide a host of benefits to businesses of all sizes. By placing low-cost, low-power sensors on food carts and trucks, data can be sent to a centralized location where those responsible for ensuring standards are followed can monitor trucks and carts remotely. With notifications and alerts, potential threats to public health can be avoided. With reporting and analytics, managing thousands of locations and the licensing process becomes less labor intensive and therefore less expensive.

Breakthrough Solutions

Chenoa Information Services, a US based, global software engineering company, designed a solution to meet the operational needs of a large US city at a cost-effective price. Along with network, device and cloud partners they designed, developed, integrated and implemented an asset tracking solution with the administrative applications and user interface to provide the city's Department of Health real-time views of mobile food vendor locations, inspection status and licensing, and more.

Senet - Connecting the IoT Revolution

Working with Senet, Chenoa is implementing a LoRaWAN network throughout the city by strategically deploying gateways on building rooftops. Senet was chosen by Chenoa given their history as a proven and trusted LoRaWAN connectivity provider, and their unique approach to building and managing LoRaWAN networks, including a network management system purpose-built, from the ground up for the scale of IoT. Prior to this solution, the city's Department of Health was constrained by the cost of cellular data plans, coverage availability and the lack of in-house IoT development expertise to create a reliable solution.

Chenoa selected and configured LoRa sensors designed to withstand the extremes of water, snow and heat and mounted them on food carts and trucks. Through the integration of Senet's LoRaWAN network and the Azure IoT Cloud, data collected from the sensors is delivered to the tracking application using and real-time and REST interfaces, providing GPS maps for asset location, system alerts, device battery life monitoring, network alerts, and more.

## Results: Automation, Increased Compliance & Savings

With LoRaWAN, the Department of Health is expecting to recognize 75% savings on data transmission costs alone.

With this system, Chenoa has delivered a cost-effective and highly reliable remote management and quality assurance system to the city's Department of Health. Using comparative data plan pricing from a national cellular company, it was determined Senet's LoRaWAN network would result in an estimated 75% savings on data transmissions costs on an annual basis.

Add the decrease in food vendor compliance issues and the automation of data collection and the Department of Health will recognize significant benefits through enhanced operational efficiencies and associated cost savings.

- More efficient compliance by automating measurement for Department of Health

- More automated reporting from the food trucks and carts

- Significant network cost savings

- Assurance of more sanitary and safe food for citizens

- Data that can be integrated with licensing systems

Mobile Food Vendor Tracking Interface
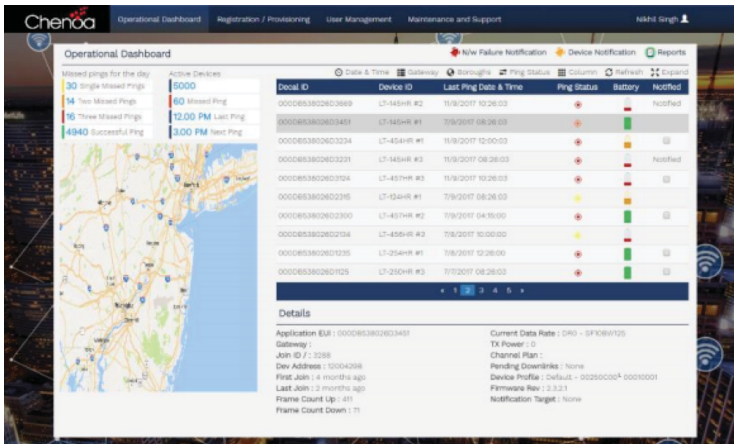
Features include:

- GPS Location Maps
- Battery Life of Devices
- Asset Information
- Status of Ping from Network to Device
- Status of Network to Azure
- Schedule Pings
- Alerts and Notifications
- User Management
- Geo-fencing
- Bar Code - Web Scanner Feature for Associating IDs

Solution Partners

New Opportunities for Municipalities

With Senet's unique network deployment models, it is extremely easy for additional applications to be added to the same network.

Municipalities, for example, are in a unique position to partner with other solution providers to create the backbone for connected city-wide services. LoRaWAN gateways deployed on a combination of city, utility and other infrastructure assets create relationships that supports rapid network deployment, broad coverage and revenue sharing without any individual party incurring the brunt of the capital equipment expense.

Senet then manages these network assets using its Network Operating System. Once deployed, any device from any application or solution provider that connects to these networks generates a new revenue stream for the municipality and other parties involved.

Embracing such an opportunity could mean a huge technological leap forward and lay the foundation for true smart and connected cities.

Why Senet?

Massively scaled device volume will come from applications that instrument the ordinary or hidden business activities but yield revolutionary results. This scale requires platform technology that supports ease of deployment, proven security and efficiency in operation.

With an advanced architecture purpose built for Low Power Wide Area Network (LPWAN) service delivery, and cloud-based Operations Support System (OSS) and Business Support System (BSS) built from the ground up, Senet offers a modern approach to network deployment, device connectivity and customer engagement.

LoRaWAN™ is the open global standard for carrier-grade LPWAN connectivity, designed to connect low-cost, battery-operated sensors over long distances and offers unique benefits in terms of bi-directionality, security, mobility, and geolocation.

For More Information

To learn more about Senet and our solution partners, visit **www.senetco.com** or call **+1 877-807-5755**.

For developers interested in onboarding and testing LoRaWAN end device sensors and gateways on the Senet network, sign up at: **https://portal.senetco.io**