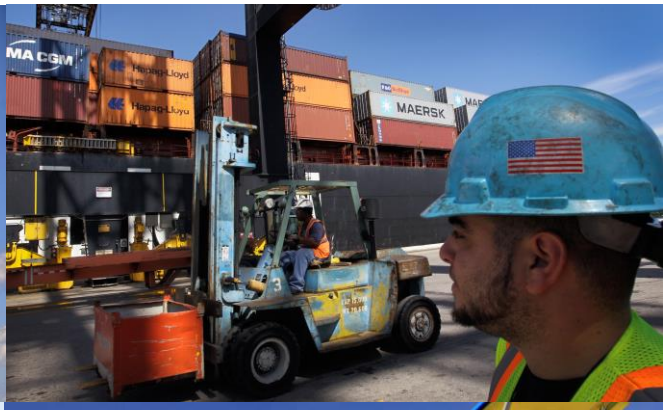
FALKEN Secure Networks RFID

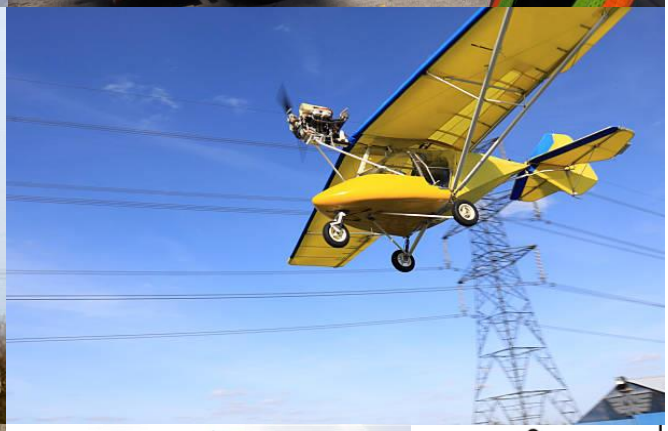
10 YEARS OF INNOVATION 2007-2017

WIRELESS
Eliminates costly power and network cabling

Active RFID 433 MHz
Collision Avoidance Safety System

√ Complete Integrated Solution-as-a-Service



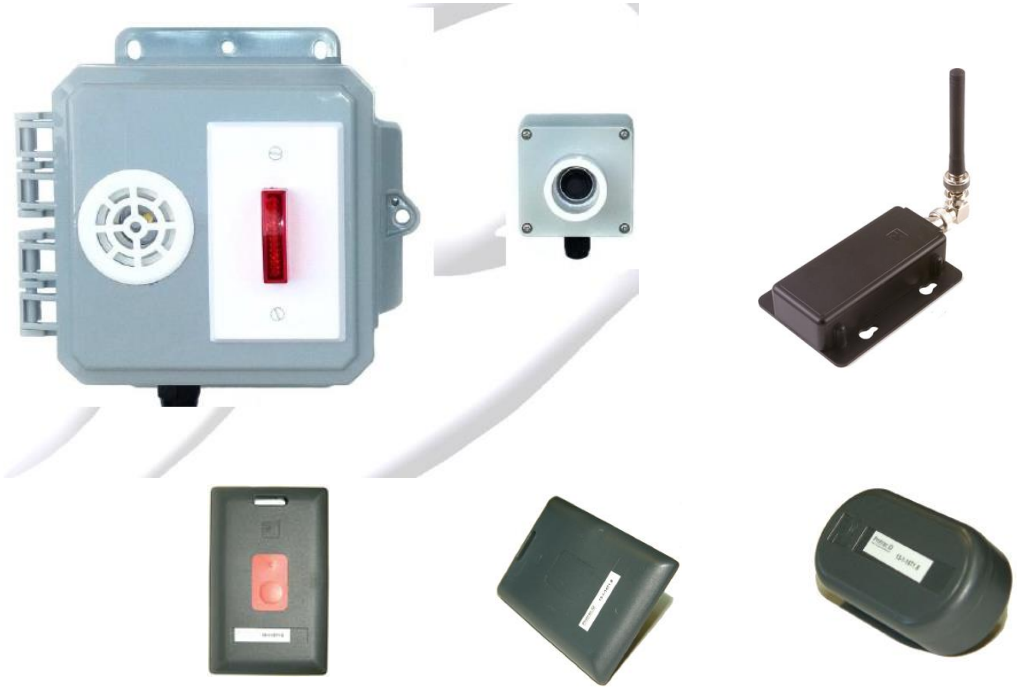


Overview

FSN's Active RFID-Enabled Collision Avoidance Safety System is an automatic, wireless safety threat detection solution installed in vehicles and low flying aircraft to alert the vehicle operator or pilot audibly and visibly of safety threats including other vehicles and personnel that come within a set distance of the vehicle, or telecom towers and power lines, thus preventing collisions with vehicles, property and personnel.

This system can be installed in any AC or DC powered vehicle such as Helicopters and ultralight aircraft, Lift Trucks, Material Handling Equipment, Excavators, Bulldozers, Backhoes, Graders, Mining Equipment, overhead cranes, shipping container off-loading equipment and more. Virtually any moving equipment that may have other equipment around it or personnel moving around the equipment can use this Collision Avoidance Safety System.

The system consists of an IP68 Reader and Alarm enclosure that houses the system smarts, an IP68 operator "Snooze" button, an external vehicle mount antenna and a vehicle operator Active RFID identification badge and/or Active RFID Asset Tags on mobile personnel or mounted on fixed infrastructure such as Telecom Towers and Power Lines. Tags can be set to beacon at defined intervals such as every 1.5 seconds or 3 or 5 seconds. The tags are powered by a Li-ion battery with a 5 year battery life warranty. Battery Life can be lengthened depending on the beacon rate. The Read Range is adjustable from 2 to 200 meters(600 feet) with standard antennas and up to 500 meters(1500 feet) with our special antennas. Example: a low flying helicopter travelling at 200km/hr covers 55 meters per second which needs to be factored into the alarm activation interval. Read Range and tag read performance can be affected by rainfall, RF interference and metal obstructions in the area. Battery life is affected by cold weather, especially below 0^0C.
We strongly recommend testing first in the actual operational environment.



How It Works:

All employees, visitors, contractors, or other personnel entering the facilities or grounds must carry a FSN Active RFID Personnel Identification Badge to ensure any vehicle can "see' the parties as they move around in the areas where vehicles or heavy equipment are operating.
Each equipment or vehicle operator also wears a Personnel Identification Badge which has a small red pressure sensor on the front of the badge. As an operator enters a vehicle or piece of equipment they simply press the red pressure sensor on the badge and they become "married" to that vehicle or piece of equipment and the Collision Avoidance Safety System no longer "sees" them as a threat. When the operator leaves the vehicle or equipment they become "unmarried" to the piece of equipment as soon as they leave the detection range. Operators are still seen by other vehicles and pieces of equipment which ensures that in any event of the operator being out of the vehicle they are fully visible to other vehicles or equipment. This allows for shift changes, lunches, breaks, etc., without any need to reprogram any software or set any shift schedules.

For use cases involving low flying ultralight and helicopter aircraft, the protective Reader Enclosure and external antenna are installed in each aircraft with our ultra long range 433 MHz Active RFID tags mounted on top of infrastructure such as telecom and power towers. These tags are IP67 rated with UV stabilized PVC encapsulation and survive in liquids, in concrete, airport asset tracking underground in mines, on cattle, etc. in all weather conditions. They are commonly used as high speed identification systems for secured facilities and can be read at very high speeds reliably. The tag can be read up to 2 km especially in the air so you would consider setting the RSSI to read a tag and provide an alert at a desired distance such as 200 meters. The ‘Smart’ Reader software can be set for ‘read distance and then initiates an alarm at that point. There are generally no issues with EM from power lines or other RF interference.

Specifications

Reader
Frequency: 433.92 MHz
Antenna Input: BNC Female
Sensitivity: -103 dBm
Bandwidth: 700kHz
Size: 110 x 63 x 22 mm (4.3” x 2.4” x 0.86”)
Weight: 35 gm (1.2 oz)
Max Current: 60 mA
Supply Voltage: 8.5 ~ 24 VDC - Optional AC converter

Operating Specifications
Operating Temperature: -20° ~+70° (-40°F to 155°F)
Storage Temperature: -20° ~ +80° (-40°F to 176°F)
Humidity: 10 ~ 90 % Non Condensing

Strobe
Operating Voltage: 12VDC
Current Draw: 125mA
Candle Power: 100,000CP
Material: UL-94 Flame retardant plastic
Lens Color: Red
Dimensions: 70 mm x 2.54 mm x 2.54 mm (2 3/4" H x 1" W x 1" D)

Piezo Siren

Operating Voltage: 6-14VDC
Current Draw: 90mA @ 12VDC
Sound Output: 104dB @ 12VDC
Tone: Single tone Piezo
Material: UV Resistant, high impact poly-carbonate plastic
Dimensions: 127 mm x 76.2 mm x 12.7 mm (5 " H x 3" W x 1/2" D)

Enclosures

Main control enclosure - 157 mm x 157 mm x 100 mm
IP68 Rating
Fully Lockable to prevent tampering
Snooze control enclosure - 80 mm x 80 mm x 40 mm
IP68 Rating

Antenna

Easily fixed to all surfaces including metal surfaces - bolt on, VHB tape or magnetic tape 173 mm mast
IP67
Mount vertical or horizontal with antenna in vertical position.
Optional Movement and Tamper Alarm Sensor

Personnel Badge Tag - for Operators

Size: 84 x 56 x 7.6 mm (3.3” x 2.2” x 0.3”)
Weight: 25 gm (0.88 oz)
Emergency/Duress Button included
Battery: Internal Lithium , IP67 (Not Field Replaceable).
Material: UV Stabilized PVC encapsulation, high impact resistant, ultrasonically welded and sealed

Personnel Badge Tag - for Employees, Visitors, Contractors

Size: 84 x 56 x 7.6 mm (3.3” x 2.2” x 0.3”)
Weight: 25 gm (0.88 oz)
Battery: Internal Lithium , IP67 (Not Field Replaceable). Battery Life typically 5 years but can be reduced by cold temperatures below 0^0C (some insulation may be required to ensure tags still beacon if below -20^0C).
Material: UV Stabilized PVC encapsulation, high impact resistant, ultrasonically welded and sealed

Ultra Long Range Asset and Infrastructure Tag

Easily attaches to all surfaces including metal
Frequency: 433 MHz
Adjustable read range from 2 ~ 200 meters (600 feet) with standard antennas and over 500 meters (1,500 feet) with our special antennas
Vehicle tags can be monitored at 300+ mph
Material: UV Stabilized PVC encapsulation, high impact resistant, ultrasonically welded and sealed

Optional Neodymium Magnets are provisioned with ruggedized adhesive to permanently affix to the tags. The tags are then easily placed on steel towers with a 3 to 5 lb. pull-force for removal and redeployment. These great magnets are coated with a durable layer of plastic. The 1/2" x 1/4" dimensions are the finished dimensions of the plastic coating. They won't mark or scratch surfaces they come in contact with. Various colors are available and they are also completely weatherproof and operate up to 80°C.

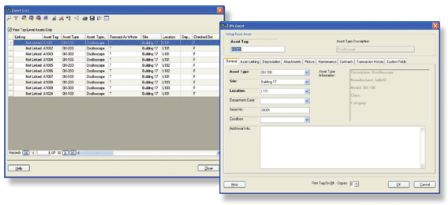
Optional Network Router::Manufactured by Cradlepoint

The semi-ruggedized Enterprise Router receives the tag read and alarm event data from the Active RFID Reader and pushes the data wirelessly to the central Server via the customer preferred cellular network.

IBR600B Router shown with WAN /Cellular and WIFI antennas installed

The COR Extensibility Dock attaches under the COR IBR600B Router to provide 2 additional 10/100 Ethernet ports needed for Reader, redundant power, additional GPIO's

COR



Software -Optional

Collision Avoidance systems may optionally desire a Network Management System to monitor and manage the tag and reader device components in a network along with management reports. Such a system would provide heartbeat and system status periodic reporting from the Reader and Alarm devices as well as the tags.

FALKEN Secure Networks

RFID

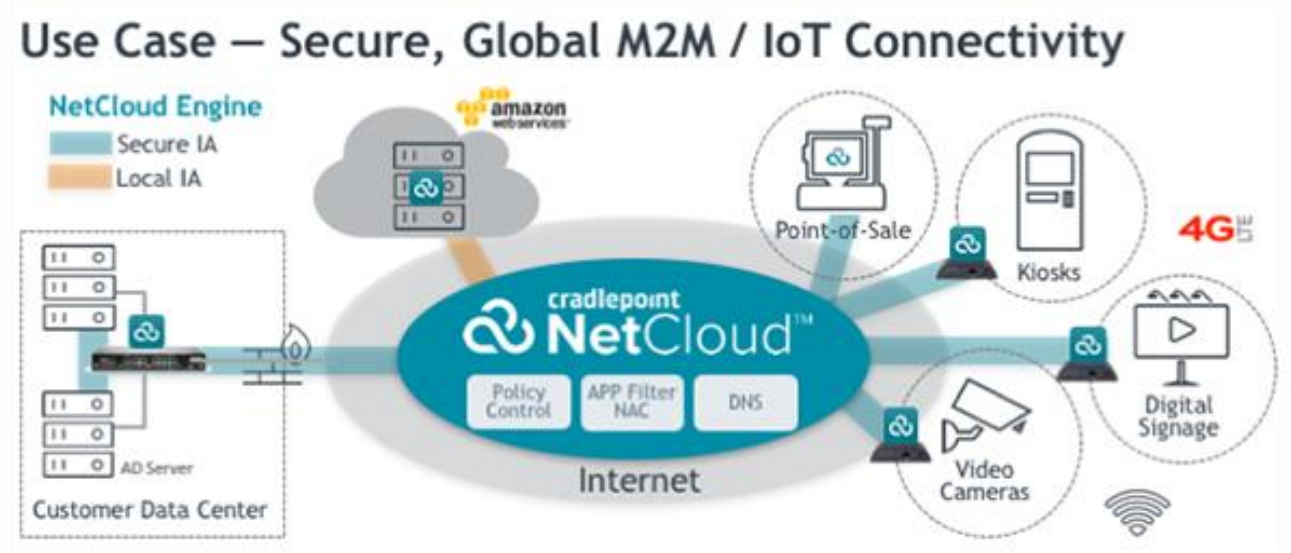
cradlepoint NetCloud™

Cradlepoint Software Services

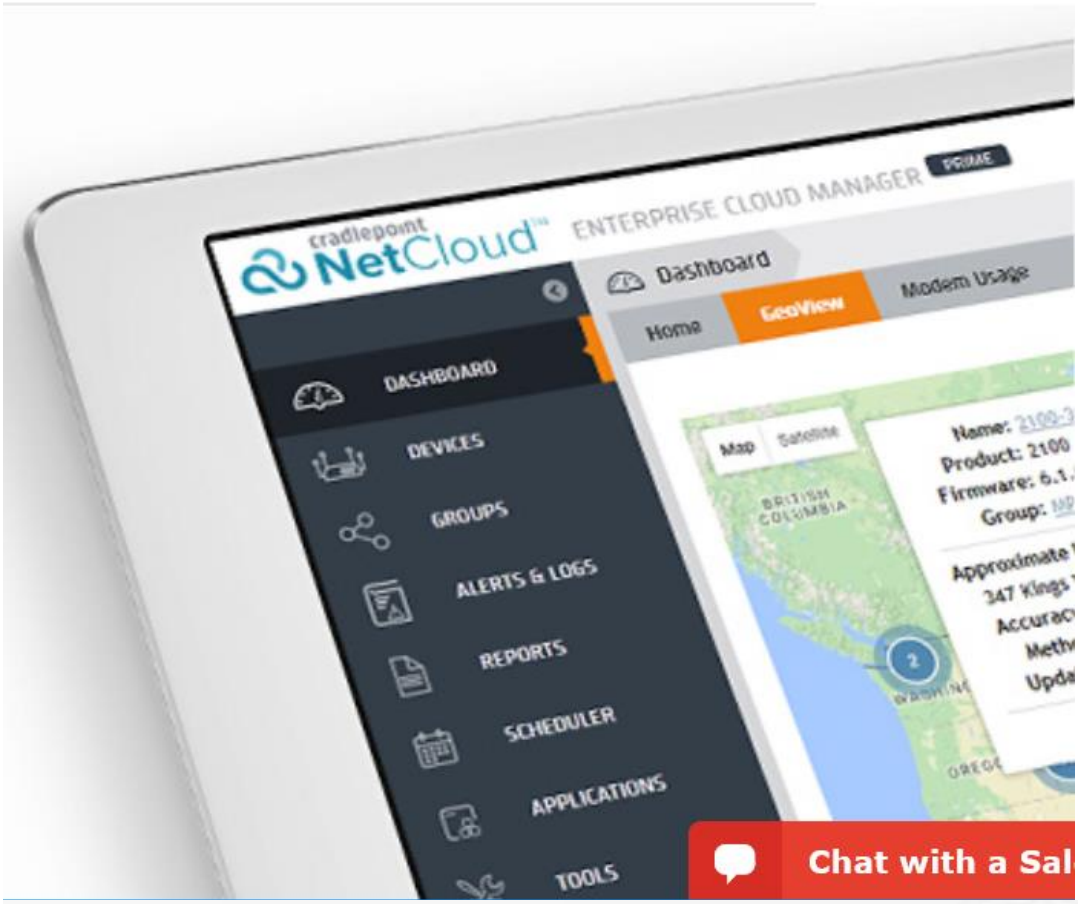
Enterprise Cloud Manager & NetCloud Engine

Software Defined Networking (SDN) with NetCloud Orchestrates Seamless Configuration, Deployment, Secure Data Transmission & Network Management with Network-As-A-Service.

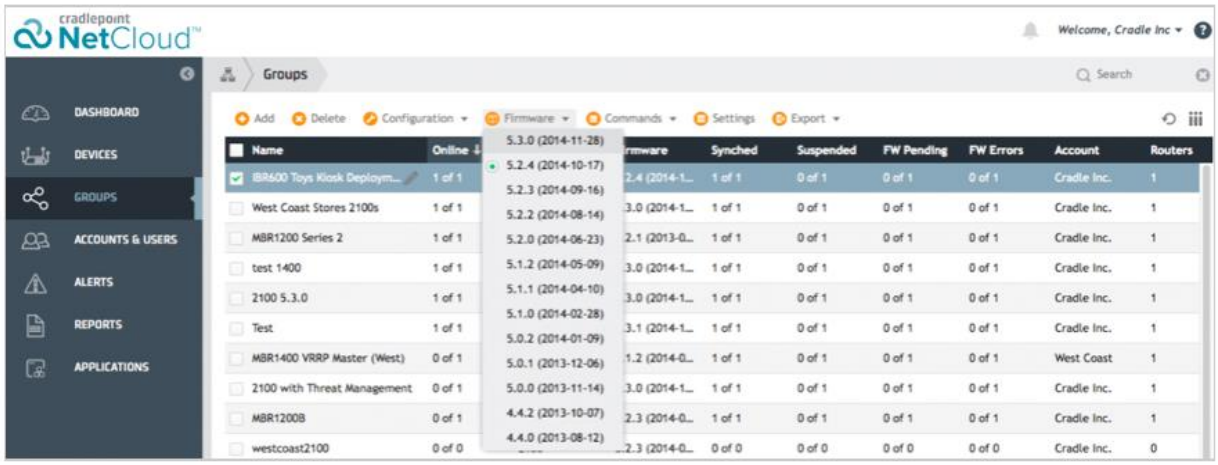
Rapidly deploy and dynamically manage networks at geographically distributed locations with Enterprise Cloud Manager, Cradlepoint's network management service within the Cradlepoint NetCloud platform. Improve productivity, reduce costs, and enhance the intelligence of your network and business operations.



Quickly Deploy, Manage and Monitor your network.


cradlepoint
NetCloud
ENTERPRISE CLOUD MANAGER
Dashboard
Home
GeoView
Modem Usage
DASHBOARD
DEVICES
GROUPS
ALERTS & LOGS
REPORTS
SCHEDULER
APPLICATIONS
TOOLS
Map
Satellite
Chat with a Sal


cradlepoint
Enterprise Cloud Manager



The Authorized Admin or Installer would upload a unique map for each site or area. Active RFID Asset Tags are assigned to each person or tower site which allow the system to understand which Tag assets to show for each map. In the admin Assets screen would be a list of all of the assets for all of the sites.

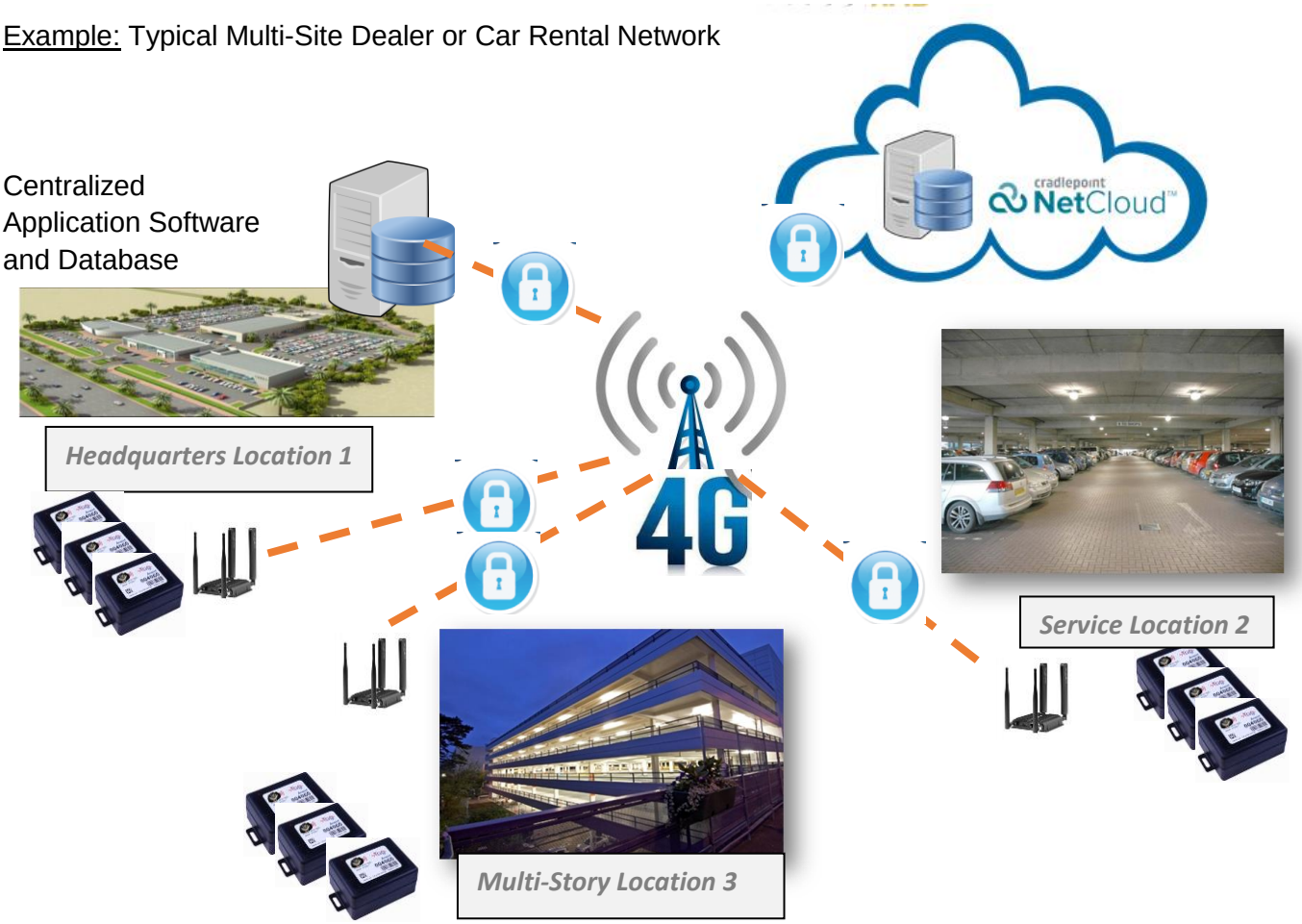
Multi Site Networked Systems

The Centralized Application Server and Database with Cloud-Managed Networking for multi-site M2M Applications is ideal for automated wireless vehicle location and inventory systems, Kiosks, Surveillance Cameras, Digital Signs and Parallel Networks.

A Centralized Application Server and Database is installed at one customer location. All other sites push all tag read data to this central server via Internet or wirelessly via Cellular Network with a VPN which we provide via a pre-configured rugged Cradlepoint Router from each remote site. With the wireless cellular alternative, no remote site cabling or other PC equipment is required, thereby lowering infrastructure costs and simplifying installation, and maintenance.

Our integration with NetCloud includes a multi-site capability. Rather than install and maintain servers at every site, a centralized Server and Database is deployed. Tag read data is transmitted from each Router over a customer selected cellular carrier network. All Router and Reader devices are then deployed, configured and managed centrally. End-to-End Network Security is assured via the IPSec VPN Tunnel which is created and managed automatically from each Router back to the Server along with state-of-the-art AES 256 bit encryption and IP Address Cloaking. Data plan usage is minimized to 6 to 8 MB per month using Cradlepoint's innovative 'Stream Protocol' compared to hundreds of MB if SNMP Network Mgmt. was used.
Cradlepoint NetCloud is a software and services platform that extends the company's 4G LTE-enabled multi-function routers and ruggedized M2M/IoT gateways with cloud-based management and software-defined network services. More than 15,000 enterprise and government organizations around the world—including 75 percent of the world's top retailers, 50 percentof the Fortune 100, and 25 of the largest U.S. cities—rely on Cradlepoint industry-leading products to keep critical sites, workforces, vehicles, and devices always connected and protected.

Example: Typical Multi-Site Dealer or Car Rental Network



Cellular Carrier Selection

Data Usage Plans and SIM Cards are client provided based on client carrier preference.

Country and Carrier Certification

The Cradlepoint Router portfolio includes FCC, Industry Canada and European CE Certifications as appropriate for specific country requirements. Cellular Industry Certification includes PTCRB and GCF-CC(for EU).

Extended Warranty and Support

Hardware and Software Warranty, Help Desk and On-Line Tech Support are provided for full coverage of all system components for the service plan period. 24 x 7 qualified phone support + 12 x 5 email/chat support for Cradlepoint Routers, Enterprise Cloud Manager and NetCloud

Gateway software platform. Hardware repair/replacement-extends standard one year warranty to 5 years.

We Make It Simple to Implement Now

-NO UP FRONT CAPITAL IS REQUIRED ... For installations in Canada and USA, pay monthly like a utility bill over the Plan period.

Further Leveraging This Enterprise RFID Platform:

FSN's RFID Software is a very flexible, customizable, multi-application, multi-RFID technology enterprise platform built on industry standards such as Microsoft.NET, SQL and Microsoft Report Writer. As a result, it offers the flexibility and scalability to accommodate future business requirement changes.

Integration of IP Video Surveillance: Simultaneously, upon an alert being initiated due to vehicle movement (from Accelerometer Sensor in the tag), the software can send a signal to trigger the video recorder to begin recording. If it is a PTZ (Pan, Tilt, Zoom) camera, the system can direct it to focus on the tag location which initiated the alert. In this way, significant savings in storage, bandwidth and security reviewing time are accrued while avoiding recording most of the time while nothing is happening. The Network Router pushes that data wirelessly to a central server via customer preferred cellular network.

CONTACT

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Headquartered in the Greater Toronto Area, FALKEN Secure Networks Inc. (FSN) is the leading System Integrator, Consultant Solution Architect and Value-Added Reseller for advanced Active/Passive Unified RFID, GPS and Wireless Sensor networks, Integrated Video Surveillance, Wireless LAN networks and Secure Enterprise Communications that leverage 'Best-In-Class' standards-based technologies. FSN integrates RF technologies for asset tracking, vehicle fleet and parking management, library, document, people and Manufacturing Work-In-Process visibility, for cost-effective design, and turn-key project implementation for enterprises globally. FSN's domain expertise, especially for complex and harsh operational environments, and breadth of FSN's RFID solution portfolio is unsurpassed.