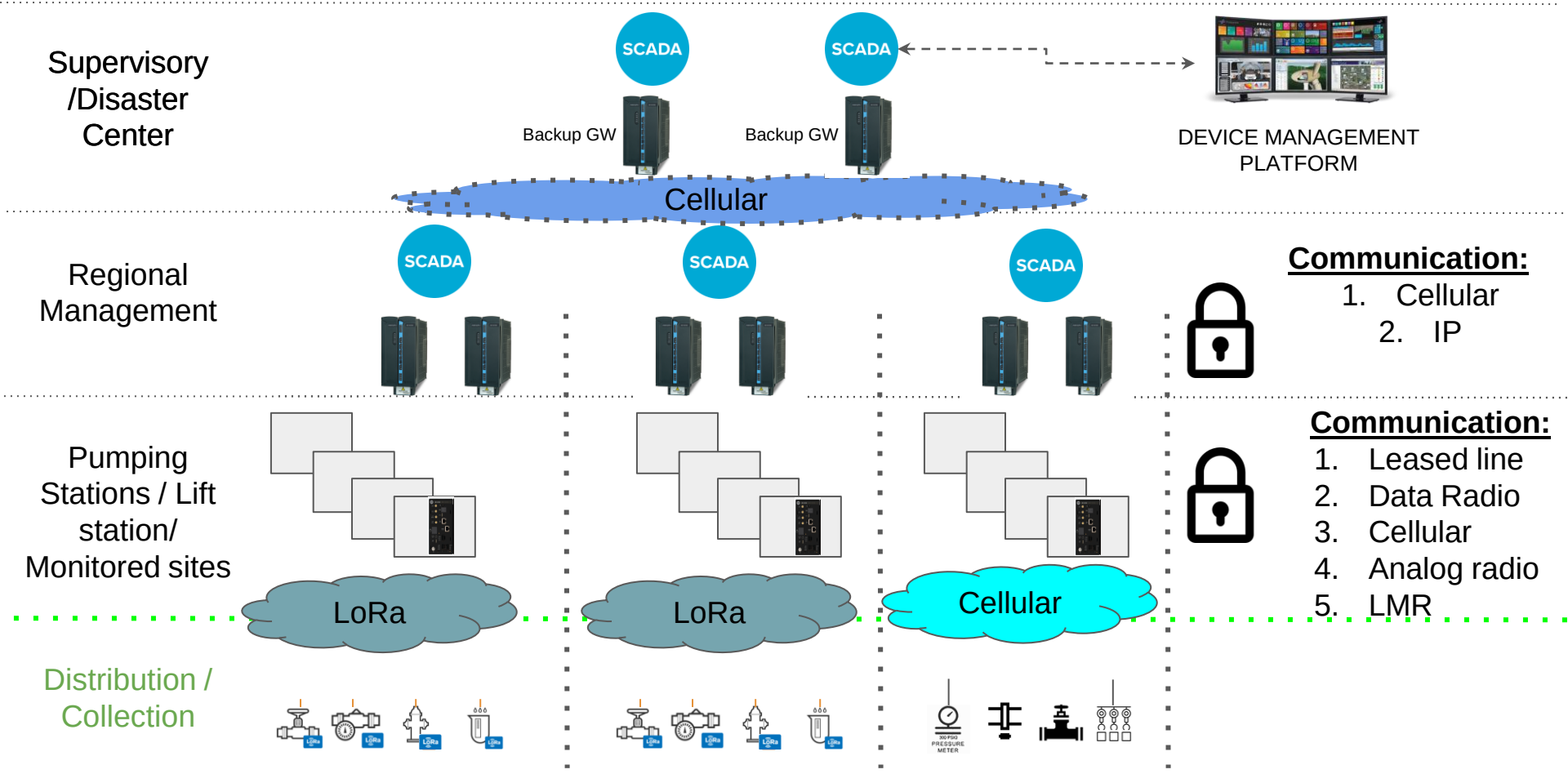

MOTOROLA MC-IOT
Mission-Critical Reliability & Security
MOTOROLA SOLUTIONS

MOTOROLA MC-IOT SYSTEM ARCHITECTURE



PRODUCT FEATURES MC - EDGE

Land **M**obile **R**adio
ASTRO P25
(APX4000 derivative)

Wireless **S**ensors **N**etwork
8 Channels LoRaWAN

LTE
Verizon Bands 13 , 4

Audio Out Interface
P25 Audio out (Public announcements)

FIPS 140-Level 2 → 3 Cryptographic Engine

Ext. Communication Interfaces (Eth, RS232, **RS485**,USB)
- Smart Sensors
- APX6500

Discrete Inputs/Outputs

Base: 3 DI's & 1DO
Expansions:
- **Input:** 12 DI, 8 AI
- **Output:** 8 DO, 2 AO
- **Mixed:** 7 DI, 6 DO, 4 AI,1 AO

MSI MC IoT Value Proposition

NETWORK AGNOSTIC

Creating virtual IoT network that support any underlying physical network. Resulting with the ability to establish one IoT network over several separate networks.

REDUNDANCY & NETWORKING

Support Passive and Active Multi links connectivity.
Allowing the creation an expansion of a Meshed network in an agnostic way and

FEDERAL LEVEL CYBER SECURITY

State of the art end to end IoT cyber security suite

EDGE COMPUTING AND PROCESS AUTOMATION

With edge computing capabilities, things like decisions, Filtering, Logging , analytics and more can be taken in the edge thus increasing efficiency , allow real time applications and allow local process implementation
.

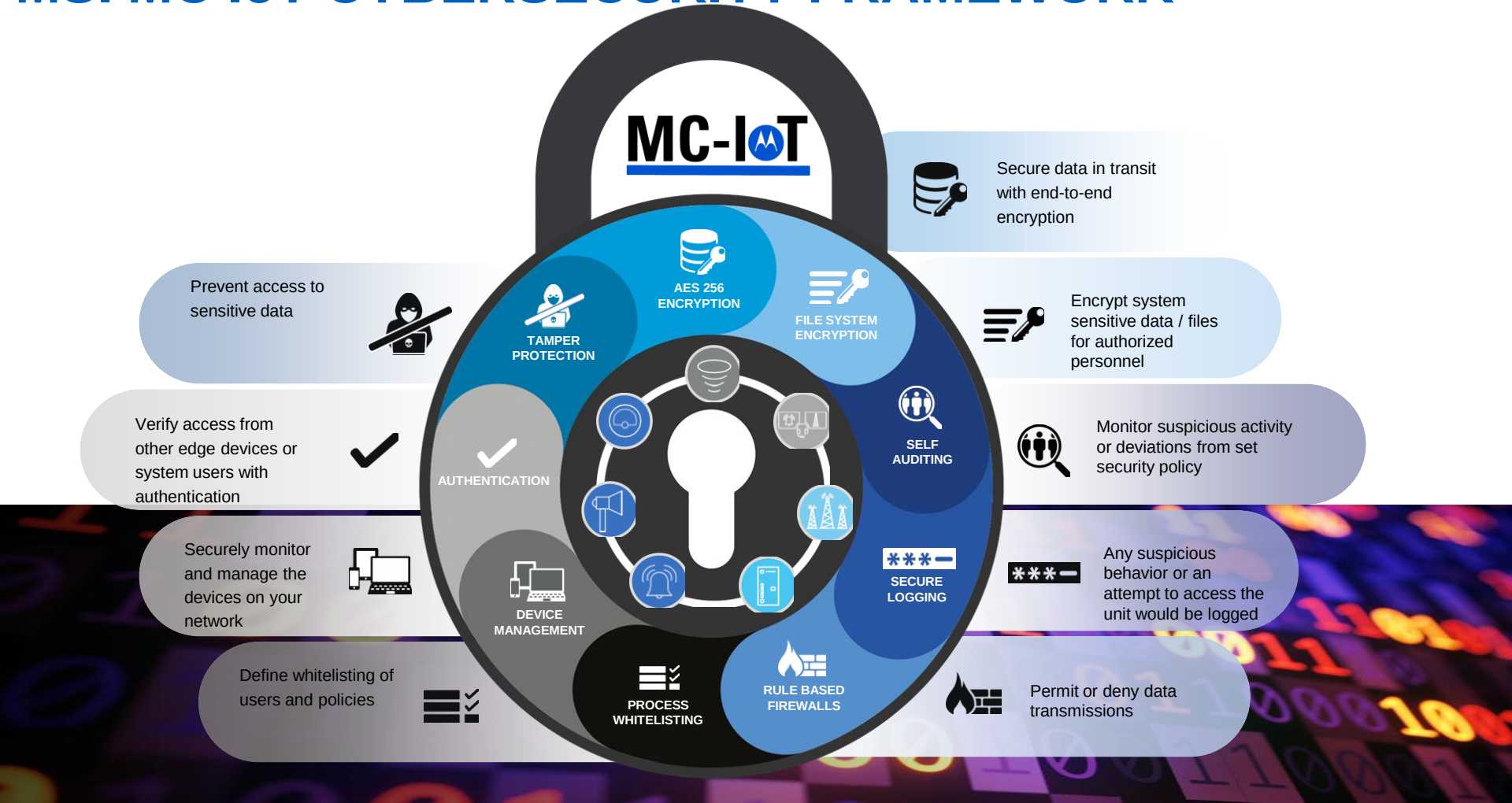
EXTENDING OPERATIONAL REACH WITH LOW POWER WSN

With LoRaWAN Gateway and LoRaWAN Server the operation reach can grow to rural location with no power nor communication coverage, and still provide one holistic ecosystem

UNIFYING SCADA AND IoT

With the mix of an RTU Grade device and IoT GW in once device, savvy SCADA applications can be integrated in a seamless way

MSI MC IoT CYBERSECURITY FRAMEWORK



SAMPLE APPLICATION: SIREN SYSTEMS

- **Reliability** - Mission critical systems which require 5 9's reliability and security
- **Security Threats** - Rapidly increasing and evolving
- **Siren Proprietary and Limited Architecture**
  - Single wireless communication interface / Limited to analog radios
  - Limited to a specific siren manufacturer
  - Limited support on hierarchical/distributed deployment needs

DALLAS INCIDENT

At 11:42 PM last Friday night in Dallas, suddenly and for no apparent reason, what locals call the 'tornado sirens' went off. All of them. It was a clear, calm night; no foul weather presaged the blare of an emergency system so loud it's meant to wake sleepers inside their houses.

MANITOBA INCIDENT

Cellular backhaul connection failure. "But the premier also believes it's unrealistic to assume a constant, clear cellular signal is feasible across every single area of Manitoba, due to the infrastructure that would be needed to achieve that."

SirenJack bug puts emergency alert sirens at risk for hacks

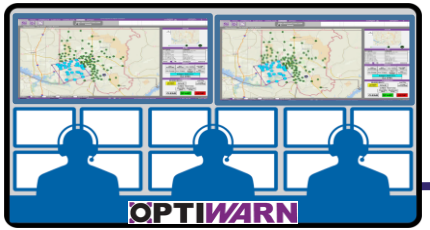
April 11, 2018 08:53 by Elizabeth Montalbano

Researchers have found a vulnerability in emergency-alert systems provided by ATI Systems that could put millions at risk by allowing hackers to sound false alarms or otherwise mislead the public in regards to warning of natural and man-made disasters in the United States.

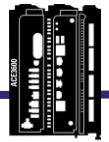
Bastille, which specializes in software-defined radio enterprise threat detection, on Tuesday revealed the bug, dubbed SirenJack, noting their researchers initially discovered it at the ATI installation in the City of San Francisco 90 days ago. They later also confirmed the vulnerability at a second installation in Sedgwick County, Kansas.

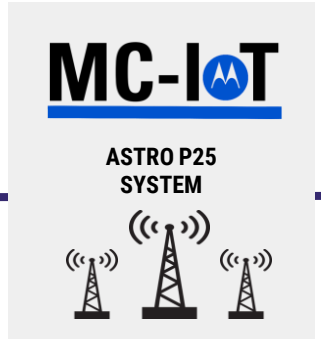
MOTOROLA SIREN SOLUTION

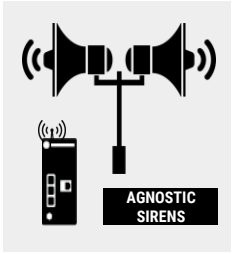
MISSION CRITICAL SYSTEM

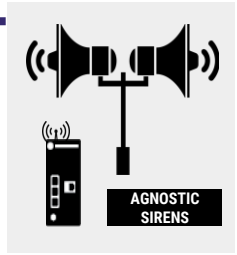


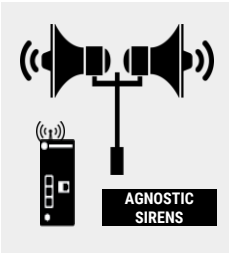
SIREN CONTROL CENTER











SIREN VENDOR NEUTRAL SIREN MANAGEMENT AND ACTIVATION

GROUP, ZONE AND POLYGON BASED ACTIVATION

INTEGRATES WITH MASS NOTIFICATION SYSTEMS

MISSION CRITICAL MOTOROLA ASTRO COMMUNICATION INFRASTRUCTURE

MISSION CRITICAL HIGHLY SECURE EDGE CONTROLLERS

APPENDIX

MISSION CRITICAL IOT

END TO END DESIGN AND ARCHITECTURE

SECURE AND RESILIENT DESIGN

Leverage Deployed ASTRO P25

Secure - Encrypted end-to-end communication by the MC-EDGE eliminates false activations

Resilient / Redundant

- ASTRO System Design
- Architecture Supports Dynamic System Resiliency (DSR)
- Dual link to the Edge (ASTRO + Other)

Control Center Activation

- **Wired Activation** - connection to the core
- **Wireless Activation** - radio-based

SIREN AGNOSTIC SOLUTION

Federal Signal
UV-SERIES (ELECTRONIC)
MC/MCP SERIES (ELECTRONIC)
2001 AC/DC - MECHANICAL

Whelen Engineering
IPS INDOOR SIRENS
WPS OUTDOOR SIRENS
VORTEX

American Signal
TEMPEST
(REQUIRES SPECIAL FIRMWARE)

ATI
(REQUIRES SPECIAL FIRMWARE)