

MSI MC-IOT MC EDGE

MISSION CRITICAL IOT, MOTOROLA SOLUTIONS



SCADA/ IOT WORLD CHANGING



2007
ACE3600 BEST IN CLASS RTU

2020
MC_EDGE BEST IN CLASS RTU

COMM	ANALOG RADIO	BROADBAND
BACKEND	ON PREM SERVER FARM	CLOUD
HMI/ CONFIGURATION TOOLS	WINDOWS	WEB
MONITORED DEVICES	WIRED DEVICES	WIRELESS DEVICES - LPWAN

MSI IOT PLAN - PORTFOLIO



2018

2019

2020

2021

LEGACY

MOL SUPPORT (ACE3600, ACE1000, OTHERS)

MC EDGE

ORIENTED TOWARDS FORWARD LOOKING IOT/SCADA MARKET

Our focus with MC Edge is migrate existing ACE3600 Use Cases and generate new Use cases



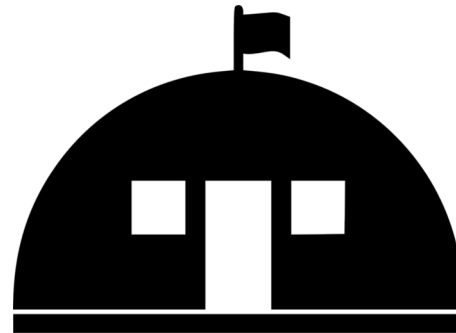
MC-IOT TARGETS

MISSION CRITICAL BROADBAND



Commercial

- Water/wastewater: Water pumping and treatment
- O&G: Well, tank and pipeline monitoring
- Electric: Distribution network monitoring



State

- Mass Notification
- Safety & Security
- Base Utilities (Water & Electric)



Public-safety/Smart-city

- Increment Siren solution
- Flood monitoring
- Environmental monitoring
- Safety & Security

PRODUCT FEATURES MC-EDGE



Land Mobile Radio



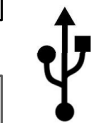
Wireless Sensors Network
8 Channels LoRaWAN



Cellular (Verizon)

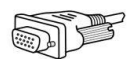


External Communication:
- Data radio
- Redundant Cellular



Memory Exp. For Logging

Smart Assets:
(Eth, RS232, RS485,USB)
- Modbus: Serial/IP Master/Slave
- User Protocol



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



PRODUCT FEATURES MC-EDGE

Wireless Sensors Network
8 Channels LoRaWAN

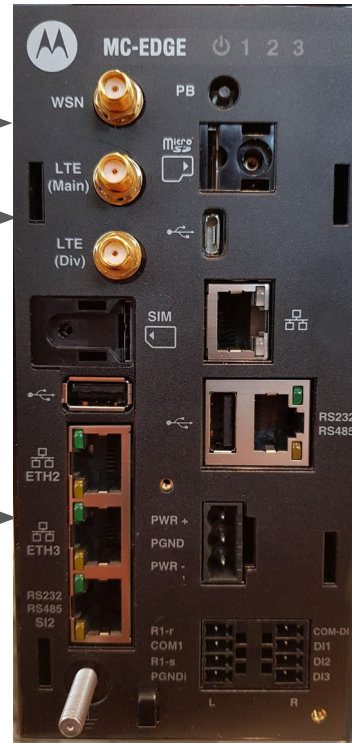


LTE
Verizon Bands 13, 4



Ext. Communication Interfaces (Eth, RS232, RS485,USB)

- Smart Assets
- Tetra Radio
- Siren Controllers



Memory Exp. For Logging

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MC-EDGE (REMOTE TERMINAL UNIT)

REACH AND RESILIENCE CONNECTIVITY



NETWORK AGNOSTIC & REDUNDANCY

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



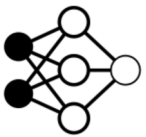
MULTIPLE BUILT IN RADIOS

Built in radio inside the MC-EDGE: LMR, LTE, LoRaWAN or digital data radio modem



SCALABLE NETWORKS

Easily expand the number of nodes in existing link or increase the number of links without affecting the operation, performance and reliability of the existing networks.



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 MONITORING OF REMOTE ASSETS

With LoRaWAN Gateway and LoRaWAN Server the MC-EDGE, which monitor a main asset, can extend monitoring capabilities to remote assets with wireless sensors



LONG RANGE

LoRaWAN has very wide coverage range about 5 km in urban areas and 15 km in suburban areas



SUPPORT SENSORS LOW POWER

LoRaWAN design to consume less power from any other technology to enable battery operation up to 10 years



LOW COST SENSORS

Low cost was identified as one of the critical quality parameters for designing the LoRaWAN infrastructure and edge in order to enable the IoT use cases.



SIMPLE DEPLOYMENT

LoRaWAN network is easy to deploy due to its simple architecture, simple star topology with standard built in device management and provisioning definitions.

Legacy Architecture with MC-EDGE



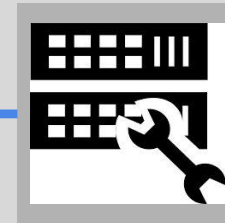
COMMAND and CONTROL CENTER



HMI



ACE GW/FEP

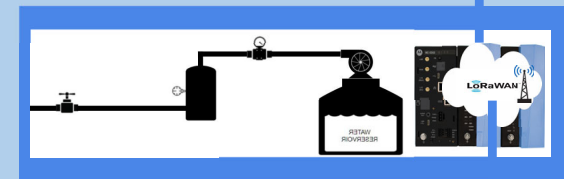
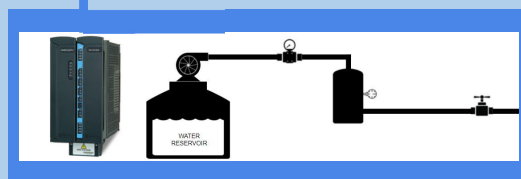
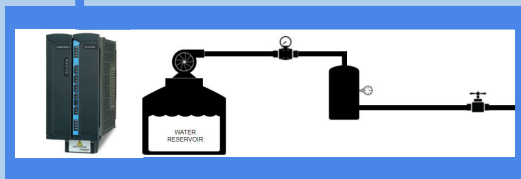


DEVICE MANAGEMENT
(STS)

RADIO NETWORK
TETRA/LTE/ANALOG



REMOTE ASSETS



DISTRIBUTED ASSETS



New Architecture with MC-EDGE



Cloud (HYBRID)

MSI & PARTNERS APPLICATIONS

MC COMMUNICATION

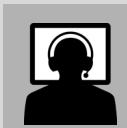
IOT SERVICES

ANALYTICS

DEVICE MANAGEMENT

COMMAND and CONTROL CENTER

VPN (HYBRID)



HMI (WEB)

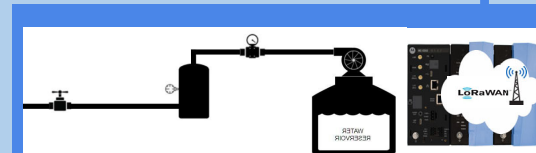
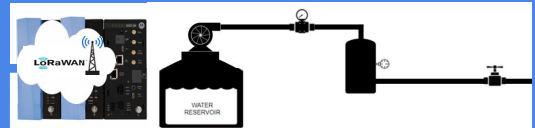
MSI MC-IOT GW



DEVICE MANAGEMENT (WEB)

REMOTE ASSETS

RADIO NETWORK
TETRA/LTE/ANALOG



DISTRIBUTED ASSETS



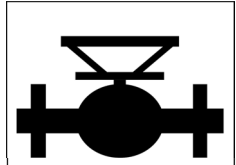
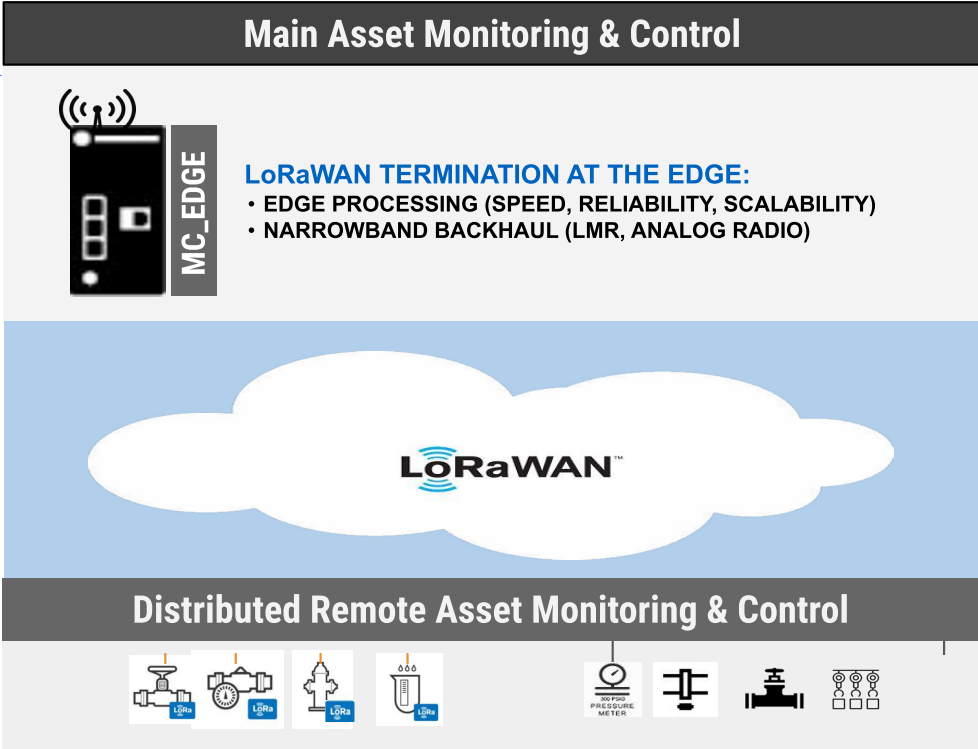
MC-EDGE LORAWAN



First Deployment Q3 2020: **LoRaWAN termination at the edge**



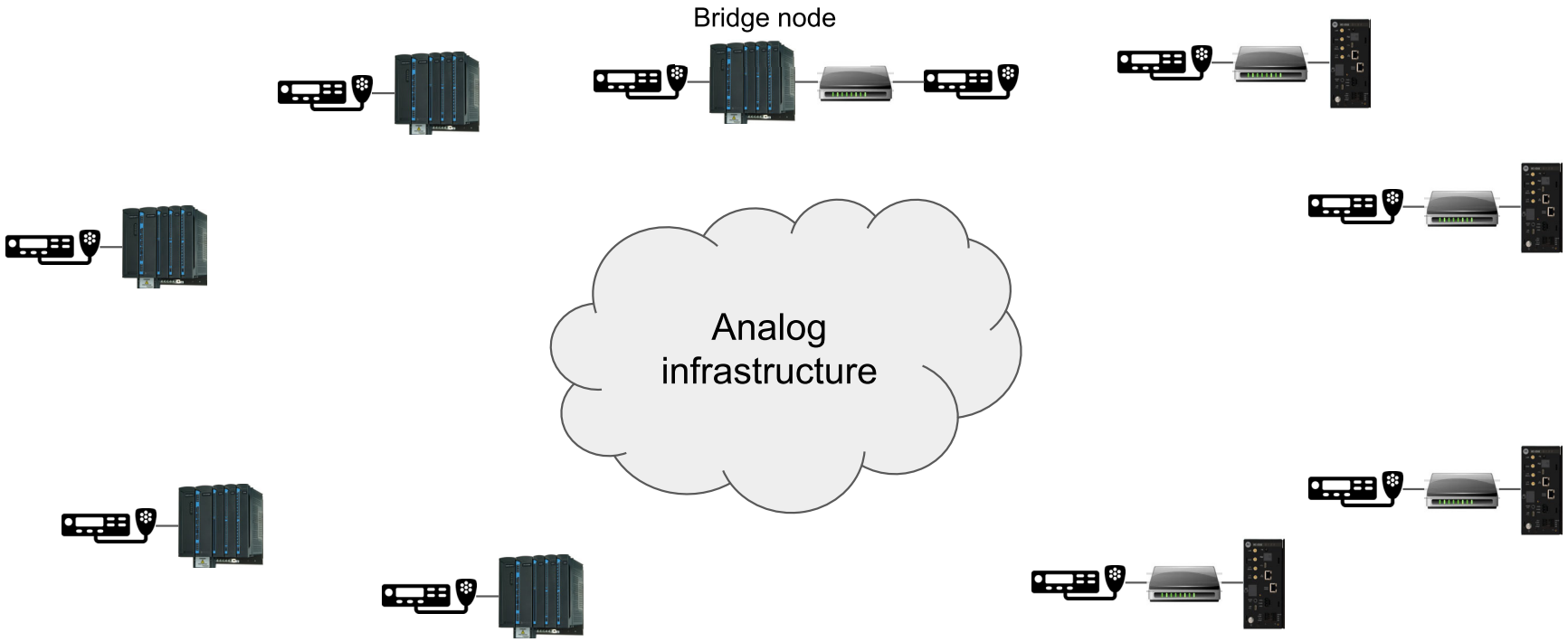
Second Deployment Q4 2020: **LoRaWAN Gateway**



If tank_level > X then turn on pump



Analog radio support: Analog Modem



Roadmap features

Short term:

- Adding support in Codesys - IEC-61131 standard for programming language suite (today we support C toolkit)
- LoRaWAN support:
 - LoRaWAN GW
 - LoRaWAN termination in the edge for local programming and narrowband support
- Increase number of IO module expansion support to 5
- Analog Radio support

Long term/Under consideration:

- Cloud native narrowband communication service (Virtual FEP, Virtual IP Gateway and more)
- E2E Markets solution with partners
- Cloud Device management
- HW Cryptographic Engine