LoRaWAN® in Buildings -- Practical Designs

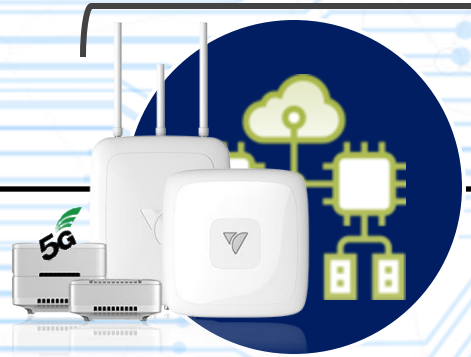
LoRaWAN & niagara framework®

# A Perfect Pair for Built Spaces

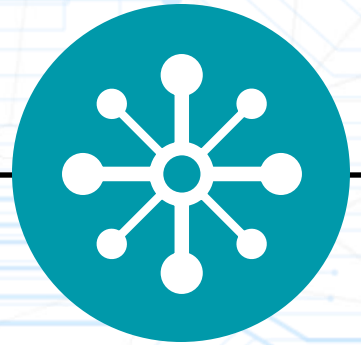
*Mark Tubinis / Veea Inc.*

*Chief Commercial Officer*

# VeeaCloud-Managed Edge Platform Offers More Solutions for More Use Cases




**Edge-Cloud Computing**
Devices offer a multi-tenant Linux server function with storage



**Wi-Fi & IoT**
Connects more people, places, and things—everywhere

**5G**
Breaks the speed barrier and improves responsiveness

**Agentic Edge AI**
Powers smarter systems and automation

**Cloud Mgt, Apps & Analytics**
Drive insight and decisions

STAX

STAX-NVMe

STAX-5G

veea Hub
**All-in-One Models**

**VeeaHub Pro indoor Model**

**VeeaHub Pro S Indoor Model (4G & LoRaWAN Options)**

**VeeaHub Pro S Outdoor Models (4G, 5G & LoRaWAN Options)**

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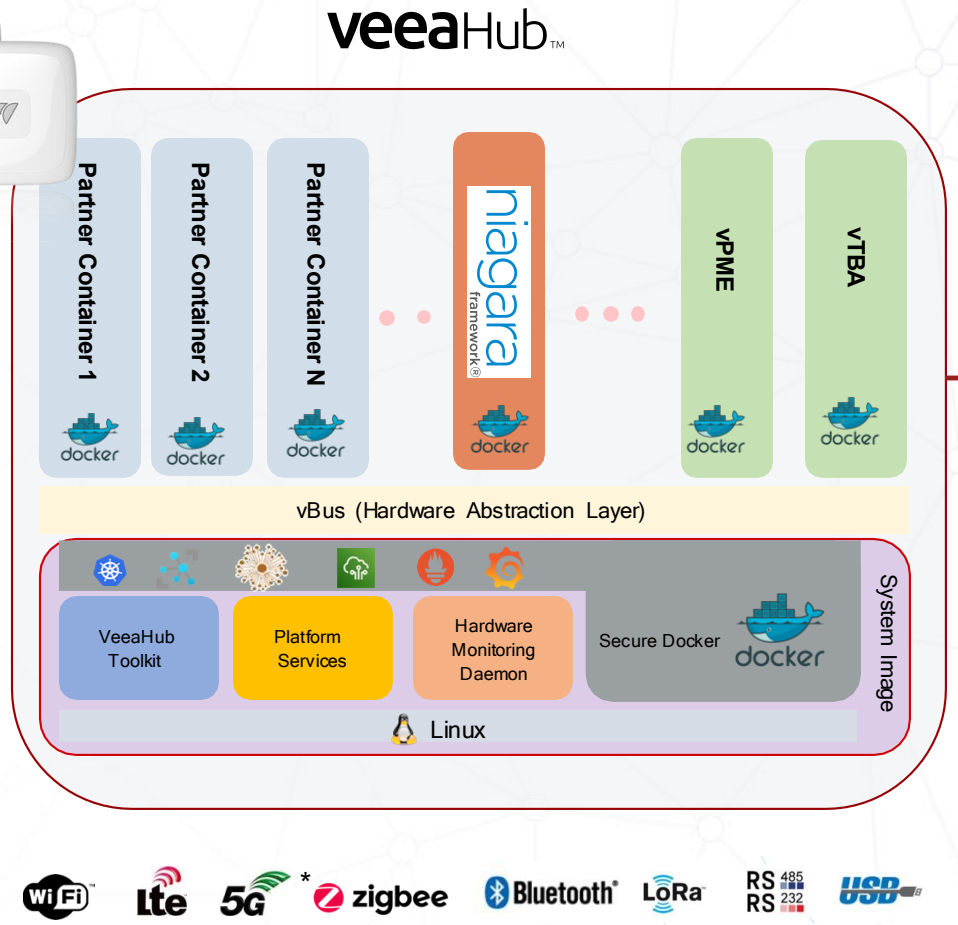
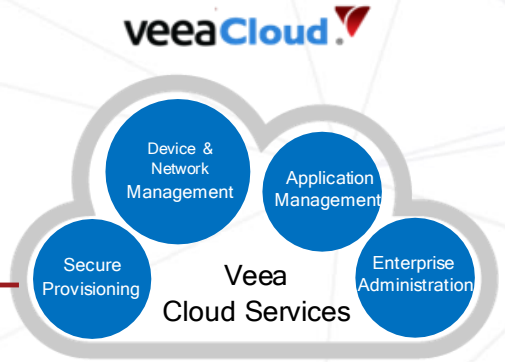
# Veea Edge Platform and Containerized niagara framework®

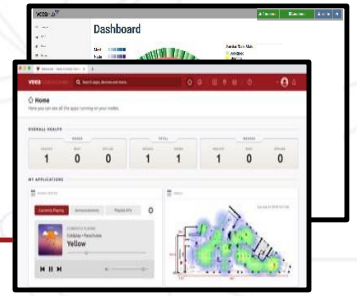






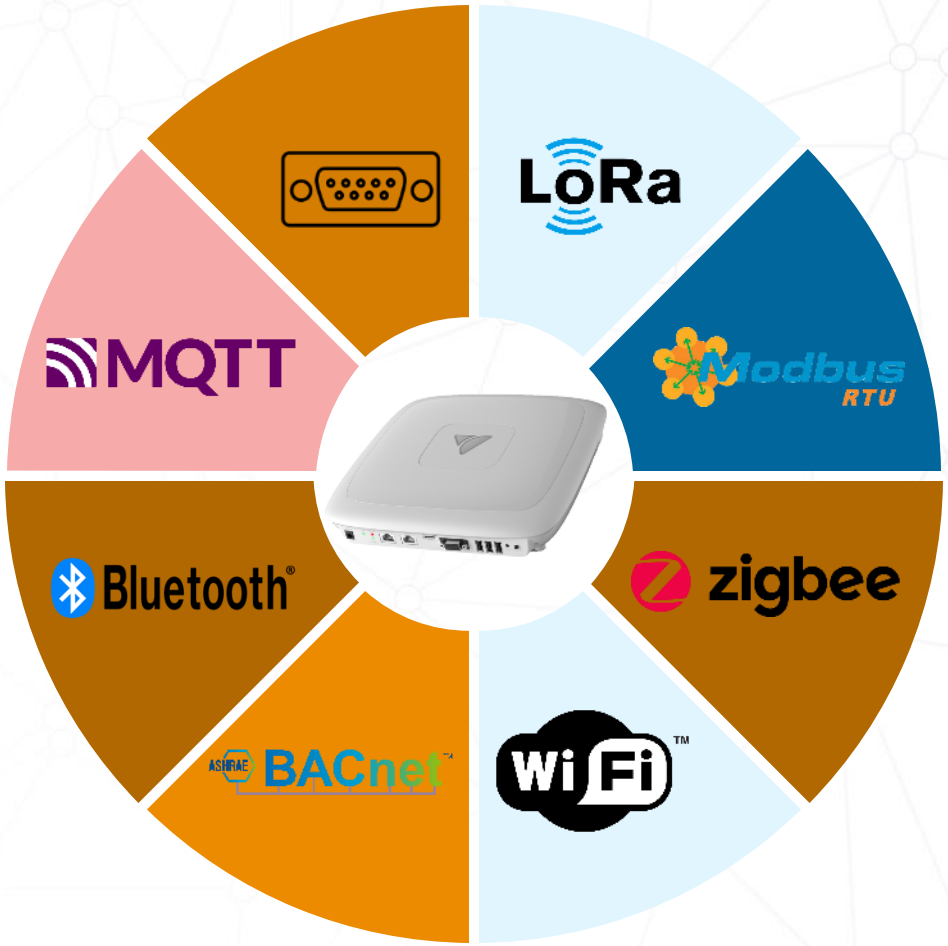



- Veea Control Center




- Patent Pending Secure Docker Container System
- vMesh – Highly extensible device connectivity (wired and wireless) and application mesh
  - vBus Hardware Abstraction Layer – Enable devices (IP and non-IP) to securely connect to containers distributed across vMesh
- veeaCloud – Orchestration and Management

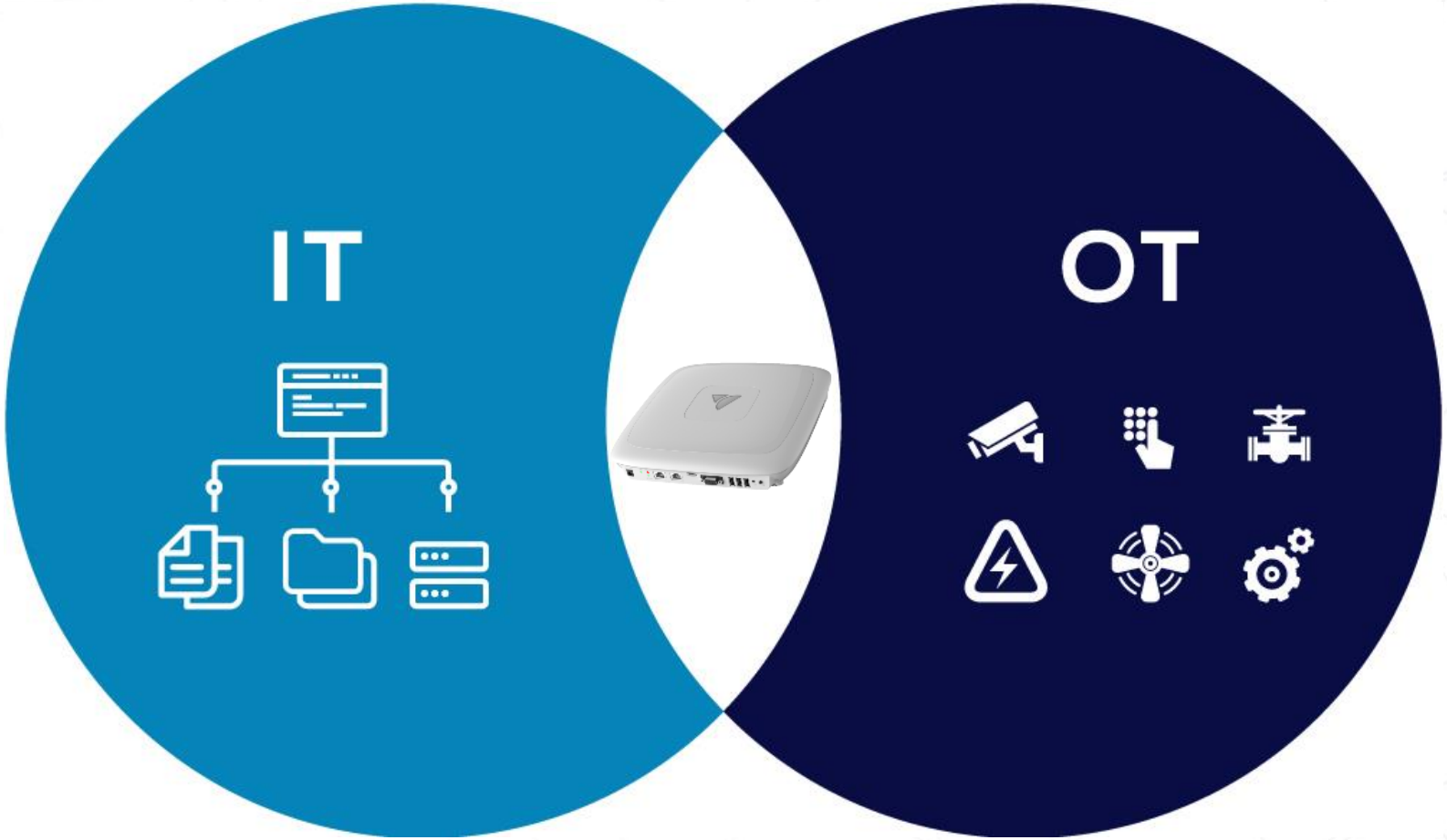
# VeeaHub Extends Niagara




By design, the VeeaHub receives and sends data over a variety of built-in protocols, transposes, and ability to create virtualized devices:

- Modbus RTU and BACNet MSTP Gateways
- Wi-Fi
- Bluetooth
- LoRa-WAN to MQTT Service
- Zigbee

# Veea Bridges the Gap Between IT & OT




- Segregates complex, IT-managed environments from the collection and management of IoT data from the same location.
- Securely connects to a customer's existing LAN while simultaneously maintaining a WAN-based cloud connection.
- Flexibility for Multiple Network Scenarios and Corresponding Configurations.

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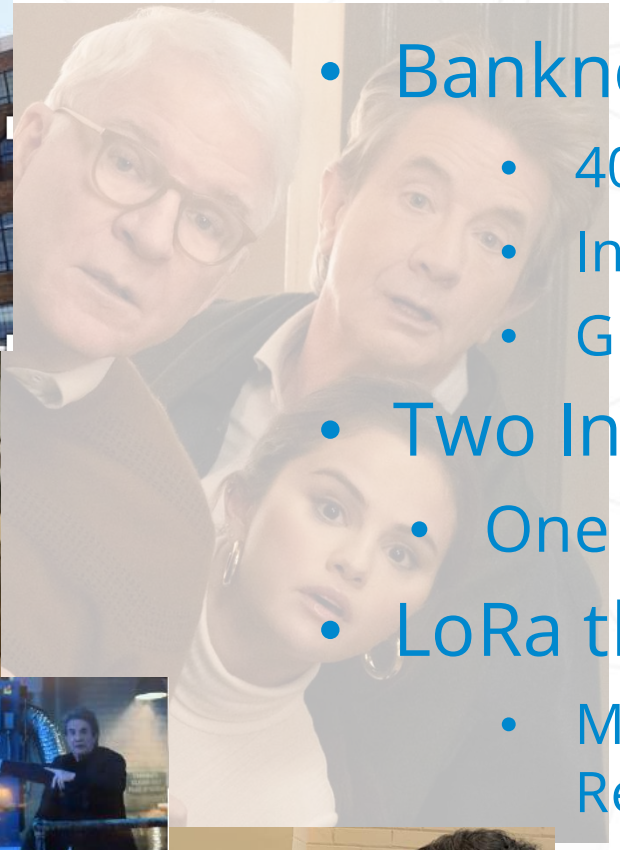
# Only niagara framework® in the Building

energyiQ



- Banknote Building In the Bronx
  - 405,000 Sq ft + 178,000 Sq ft lot
  - Incubator Spaces, State Agencies, Not for Profit
  - Graded as a C- for Energy Management
- Two Independent Niagara Systems
  - One Unfortunate Building Manager
- LoRa the only way to solve Big Issues
  - MicroClimate Monitoring and Automated Reporting
  - Energy saving automations not possible without fine grained data and localized conditioning

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Only Murders in the Building
Season 1, Episode 10

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# Vidanta Nuevo Vallarta Resort Niagara Solution

**Individual Water Pump Locations**

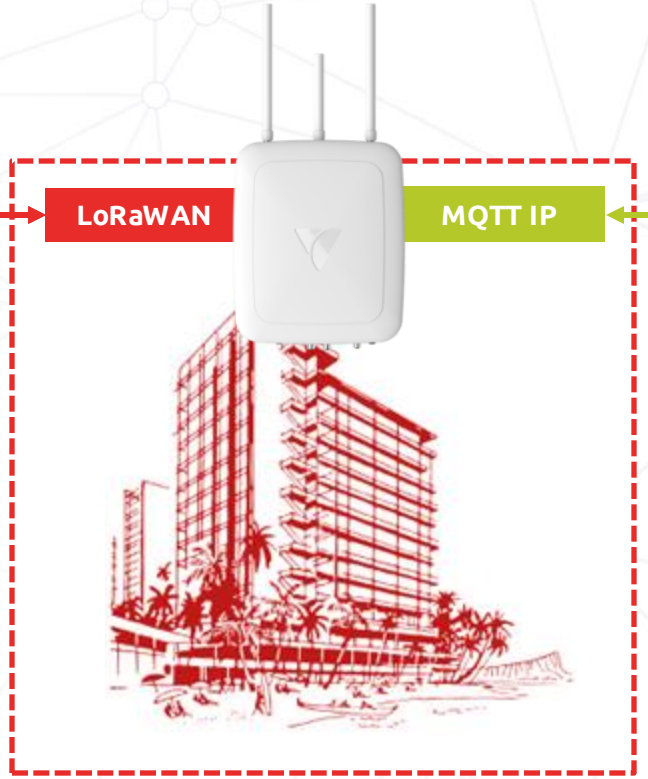
**Sensors:**
Water Level, Pump On/Off, Energy Usage

RS485-LoRa Converter

**Sensors:**
Water Level, Pump On/Off, Energy Usage, Lighting

RS485-LoRa Converter

**Single Rooftop-Mounted Outdoor VeeaHub**




**Niagara System IP Network Dashboarding Control at Separate Property Location**

Veea provides remote connectivity to both Niagara and disparate endpoints across this sprawling, 2,500-acre property.

# CROWDKEEP + veea

## Smart School Solutions

- **Air Quality Monitoring Vape Detection**
- **Condition Monitoring**
- **Water Quality & Leak Detection**
- **Automated Controls**

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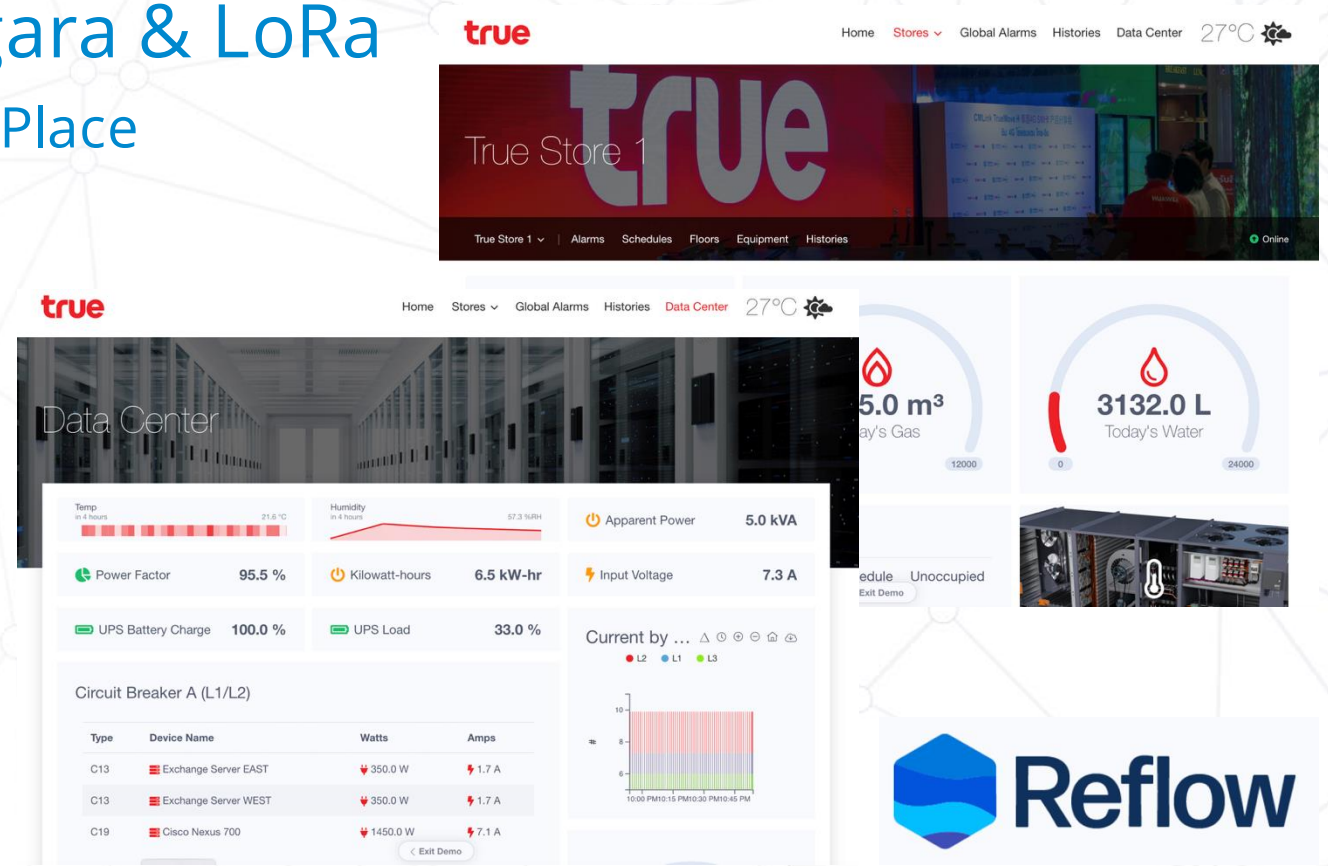
# Unified Carrier Dashboards Across Assets

- Blending of Traditional Niagara & LoRa
  - Right sensor/actuator – Right Place
  - One view
- Single Pane of Glass Across Fleet
  - DataCenters
  - Distribution Centers
  - Cell Sites
  - Retail Stores

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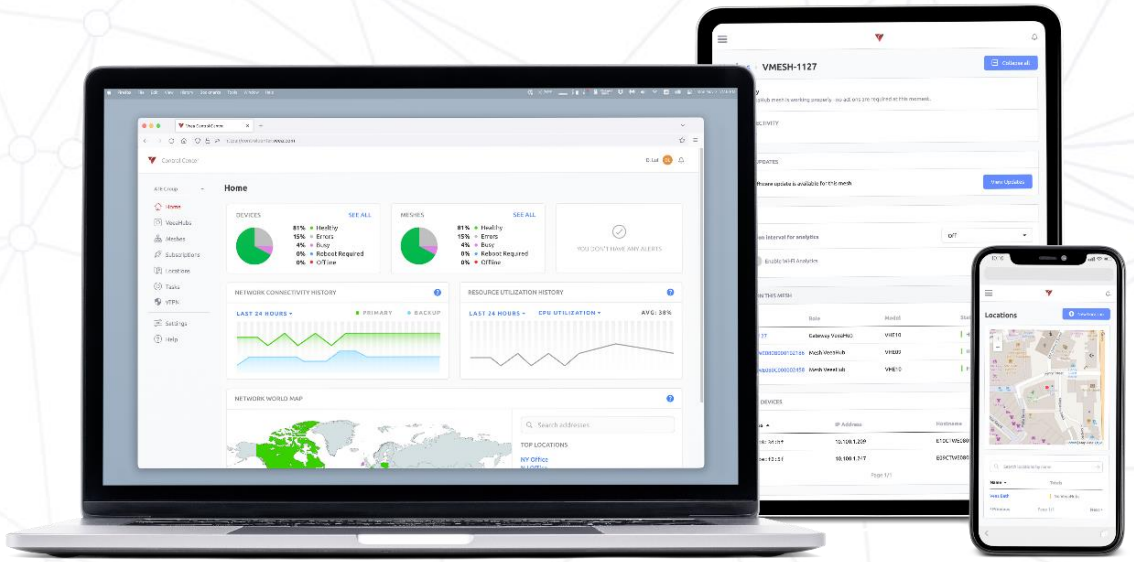
# Critical Success Factors For Practical Deployments

## Robust, Secure Remote Access

- Connect remotely to applications, services, and endpoints, all through a single pane of glass with Veea's cloud-based Control Center.
  - Remote device discovery.
  - Remotely configure network routing, firewall, and port forwarding.
- Configuration of secured dynamic routing to control access to container resources
- Full LoRa Config Access
- Integrated 4G / 5G easy access without IT




## Training & Tools

- Get team comfortable with LoRa
  - Wireless IS reliable, secure for sensing and control
  - Choose reliable sensor/actuator Partners
- Tools to validate Coverage & Performance
- Advanced Training on Containerization

## Easy Onboarding/Device Normalization

- Simplified Device Onboarding
  - Device Identity and GeoLocation
  - Robust Profile Library
- Data Normalization to Ease Integration of LoRa info
  - Standardized Device Schema
  - Work Across the Ecosystem from Edge to Cloud

## THANKS TO OUR PARTNERS FOR HELPING THE EMBRACE OF LORA

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CONNECTING
THE WORLD