



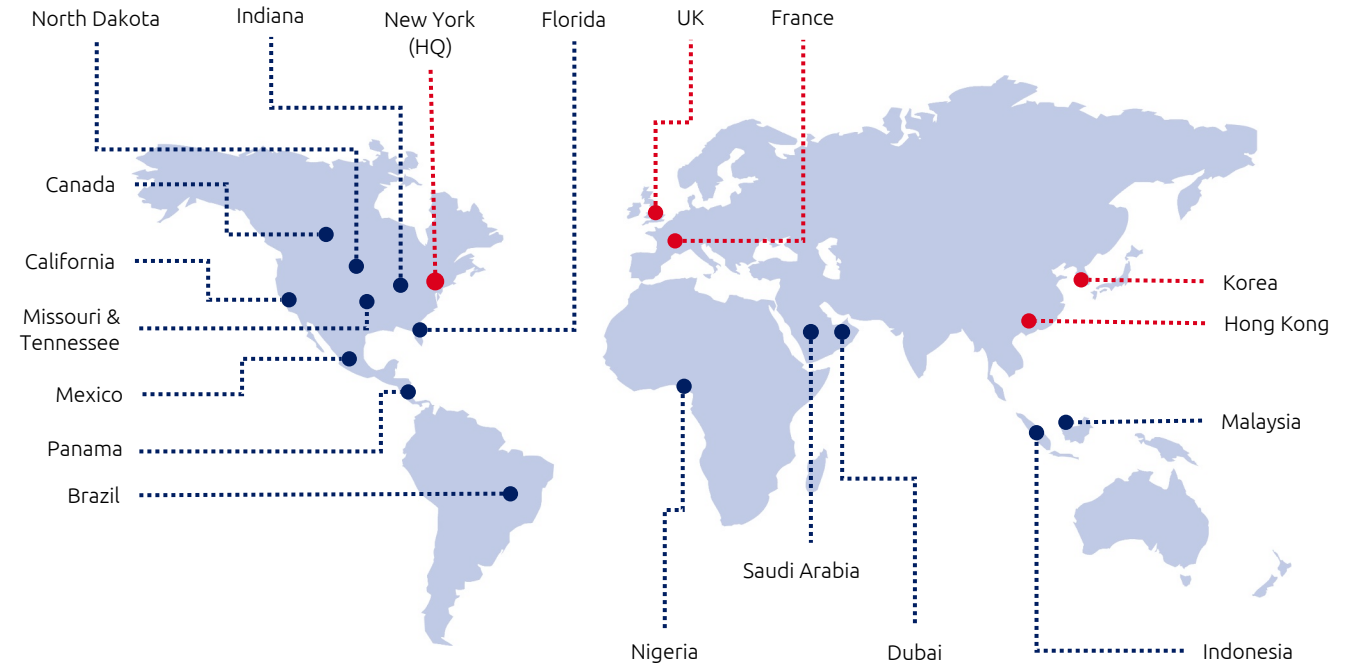
Introducing Veeva Edge Platform

Extending Niagara reach and functionality

Roger Lucas

SVP of Systems Engineering

- **Headquartered in NYC**
with presence in the Americas, Europe & Asia
- **Significant partner ecosystem**
including Honeywell, CableLabs and Qualcomm
- **Global deployments** – including:
 - Digital Inclusion (Indonesia & Panama)
 - Precision Agriculture (North Dakota & Indiana)
 - Community Wi-Fi (Brazil & France)
 - Smart spaces (Florida & Korea)
- **99 patents granted, 33 pending**
covering 26 patent families
- **Gartner-recognized leading smart edge platform**
with secure IoT and application runtime support

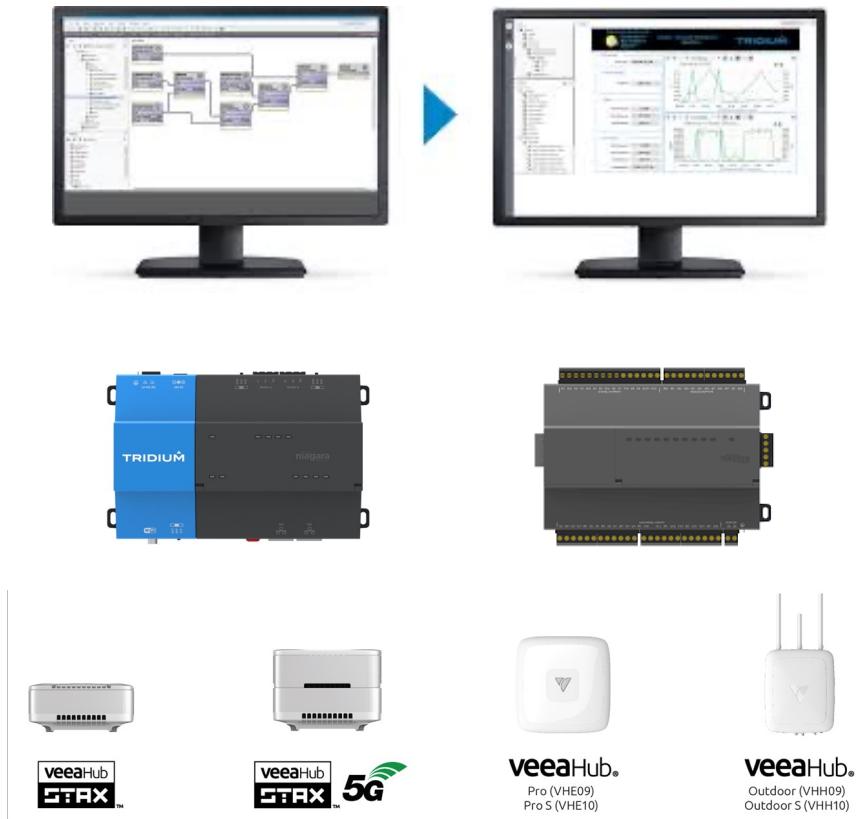


Offices & Key Deployments Worldwide

As of September 2023

Intelligently Connected™

- **Traditional built environment projects are targeted to enable expansion**
 - Featuring off-network cellular backhaul, enhanced Wi-Fi, Bluetooth, Zigbee and LoRaWAN
 - Add wireless devices to reduce deployment cost and increase granularity of info
 - Expand reach of Niagara cost effectively where wiring is too expensive
- **VeeaHubs allow Tridium partners to run SAAS applications**
 - Runs Containerized Portable Niagara 4.13
 - Run additional applications in parallel on the same VeeaHub
 - Advanced network architecture enable devices to connect to Niagara across a mesh
 - Centralized management and network monitoring
 - Remote mentoring of hubs from Control Center
- **Expand into new opportunities utilizing Niagara and Veea ecosystem**



Niagara Supervisor

- Server or PC-based software that aggregates and controls all data and devices on the Niagara Network.
- Workbench Universal Programming tool

JACE (Java Application Control Engine)

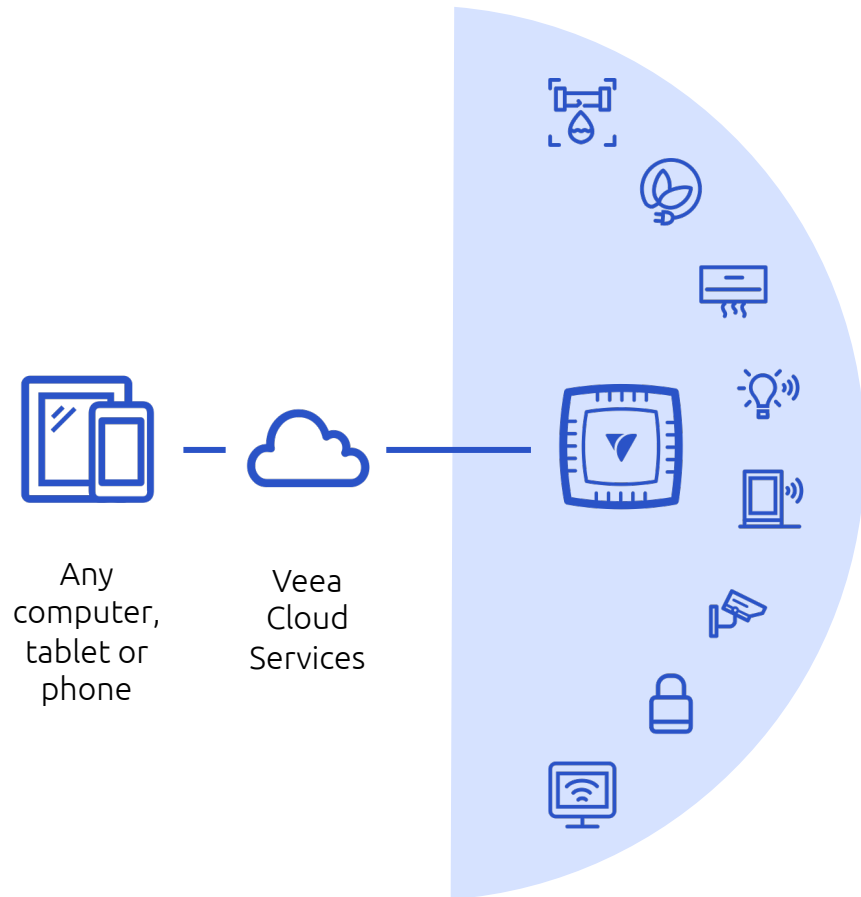
- Network area controller that physically integrates systems providing a server and simple browser interface.

Edge Controller(s)

- Native-Niagara controller for field-level unitary applications.

Veeva Linux Controller(s)

- VeevaHubs extend Niagara with container(s) + networking features + IoT suite



Access to your devices and troubleshoot from anywhere – without on-site visits.

Remote access to your deployments and devices

- Easily install and monitor status of devices
- Troubleshoot and fix remotely without on-site visits
- Access to Niagara and non-Niagara devices

Access to your telemetry & data collected at the edge

- Get actionable data for service improvements

Visibility and access to local networks

- Detect and prevent unauthorized access

Veeva-Enabled Benefits of Smart Spaces



The Old Way

The New Way

The Benefits

 <p>Hard-wired Niagara implementation to end-points and solutions</p>	 <p>Containerized Niagara running at the edge closer to the end-points and solutions</p>	 <p>Decreased latency and increased security</p>
 <p>On-site IT and site visits for configuration and troubleshooting</p>	 <p>Remote management and configuration of deployments</p>	 <p>Reduced ongoing maintenance costs & elimination of on-site visits</p>
 <p>Wired end-points</p>	 <p>Mixed Wired and Wireless, mesh connected end-points</p>	 <p>Reduced installation cost for retro-fit sensors</p>
 <p>Different policies for different devices & networks</p>	 <p>Single pane of glass to manage, view and access deployments and end-point devices</p>	 <p>Simplified management and maintenance of deployments</p>
 <p>Static and centralized data analytics</p>	 <p>Edge-based actionable data collection</p>	 <p>Real-time decision making and data processing</p>
 <p>Siloed functionality and limited use-case expansion</p>	 <p>VeevaHubs enable extended functionality and use-cases</p>	 <p>New and incremental revenue opportunities</p>

The Past

Today

Future

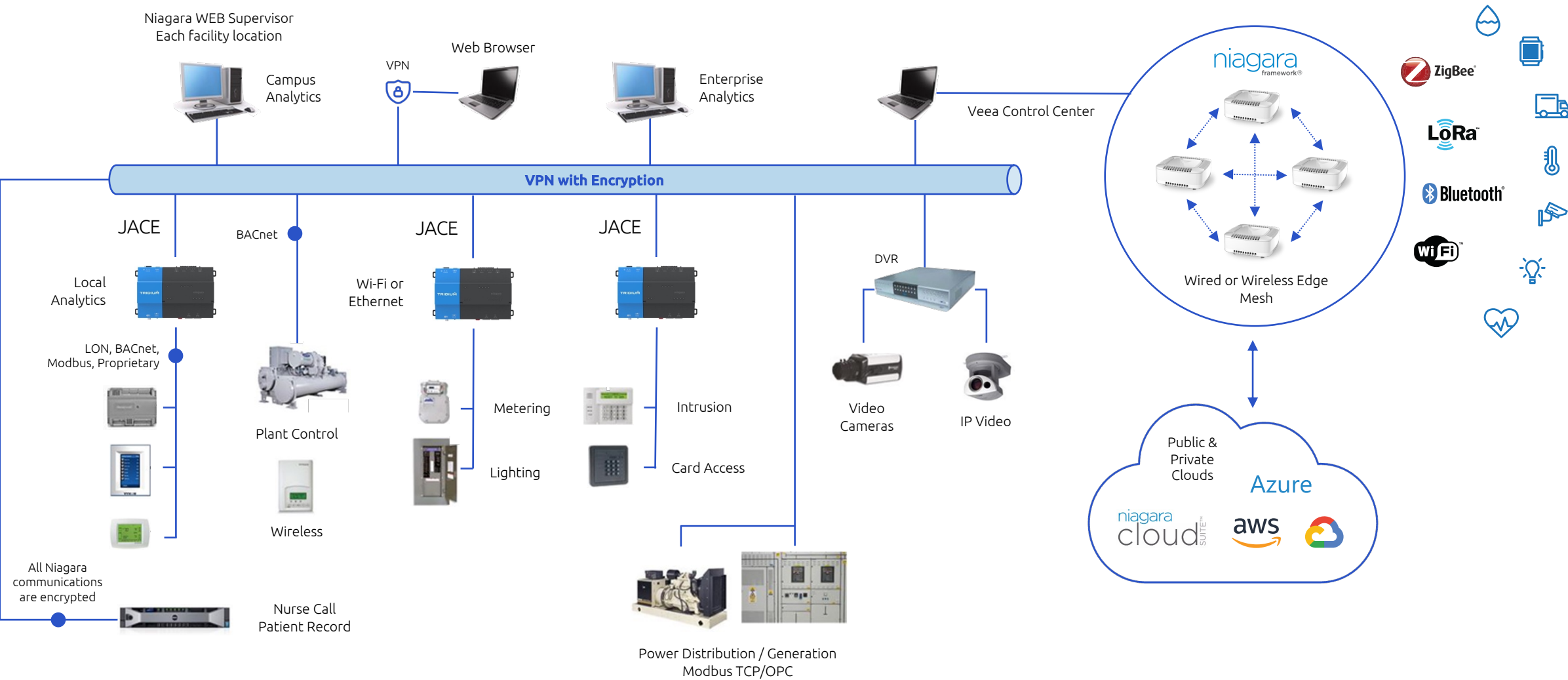
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All VeeaHubs share the same secure computing platform as well as Wi-Fi, Bluetooth, Zigbee, Matter, and Thread support with optional support for LoRaWAN and 4G/5G WWAN modules as well as storage expandability.

Model	Environment	Connect							Compute					
		Wi-Fi		Ethernet	Cellular & IoT				Memory				CPU	Storage
		Dual Band	Tri-band		4G	5G	LoRa	BT & Zigbee	2GB	3GB	4GB	8GB	GHz	
STAX	Indoor		●	10 100 1G 2.5G 5G	▲	▲		●		●			1.4	32 GB Up to 2 TB
VHE09 (Pro)		●			▲		▲		●		▲		1.5	
VHE10 (Pro S)			●		▲					●	▲			
VHH09 (Outdoor)	Outdoor	●			●		●				●	▲		
VHH10 (Outdoor S)			●		▲	▲	▲				●	▲		

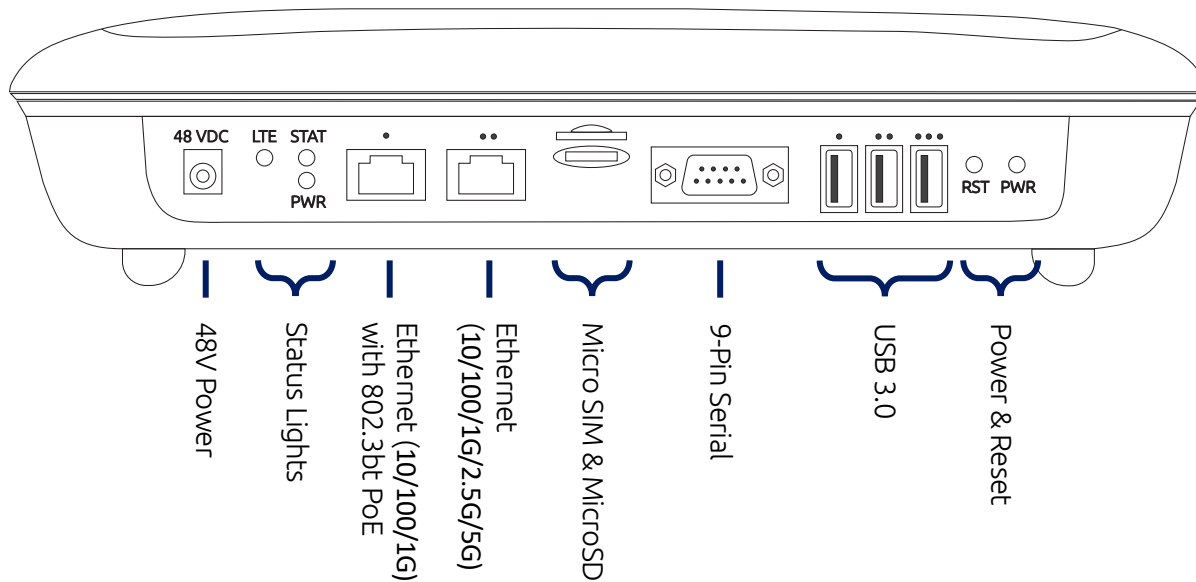
● Standard ▲ Optional Upgrade



Veeahub Pro (VHE09) and Pro S (VHE10) Indoor Models



Veeahub Pro (VHE09) and Pro S (VHE10) models bring a wide range of connectivity and expansion options for enterprise-grade applications.



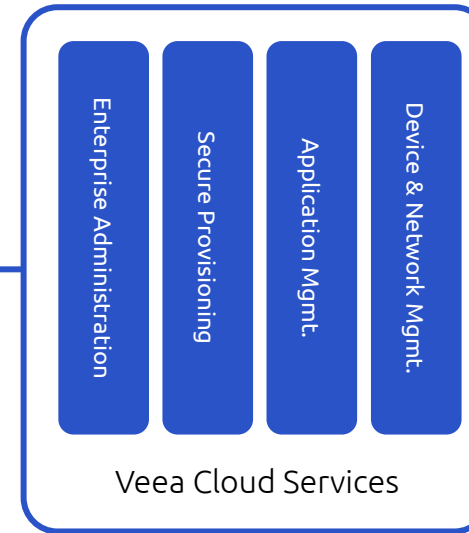
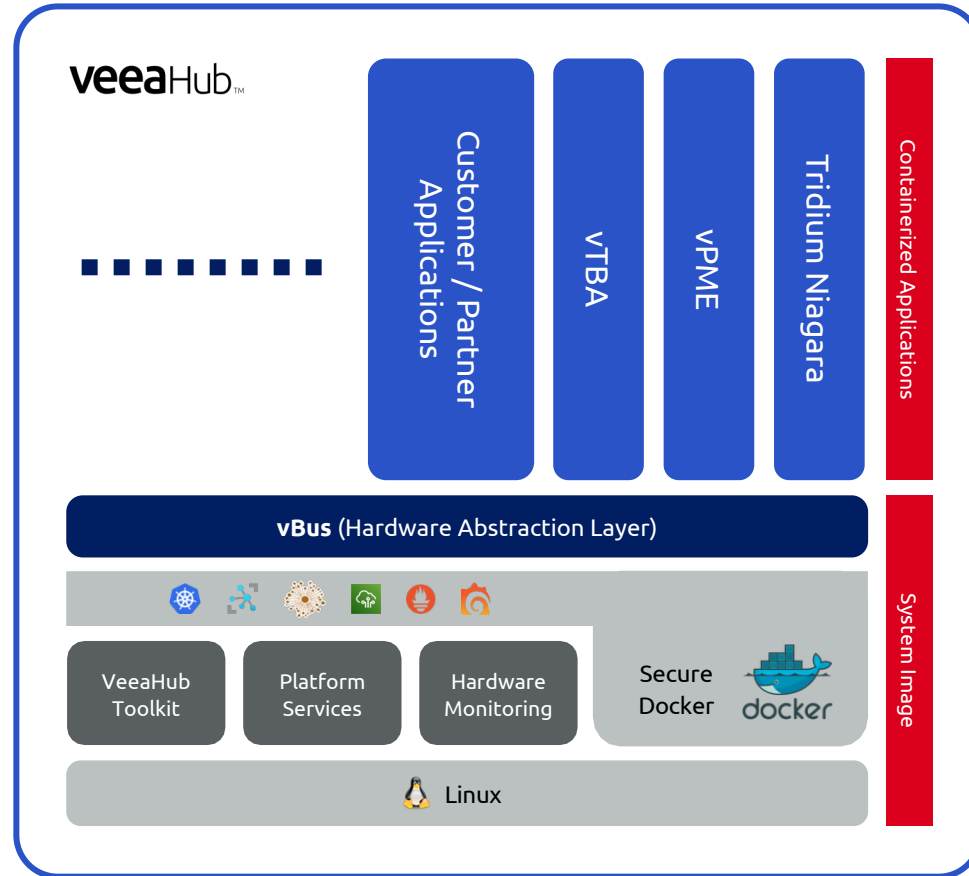
Powerful & versatile

- Wi-Fi, Bluetooth, Zigbee, Thread, USB and Serial
- Optional Cellular (4G/5G) and LoRaWAN functionality
- Powerful CPU and expandable storage

Everything needed to get started is included:

- Universal Power Adaptor
- Mounting Bracket and installation parts
- External antennas

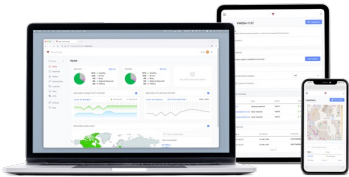
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Veeva Control Center

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





Veeva Control Center

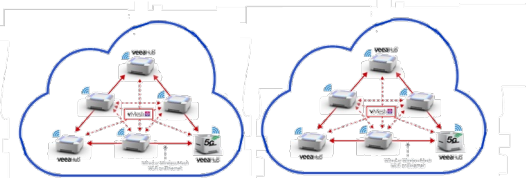


VeevaCloud

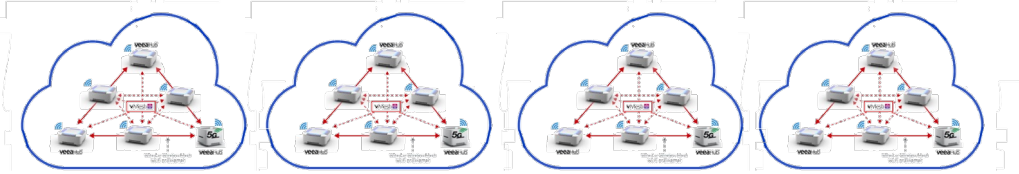
- Authentication
- Provisioning
- Monitoring
- Device Mgmt.
- Application Mgmt.
- Network Mgmt.
- Subscription Mgmt.
- Tenant Mgmt.
- Alarms & Events
- Analytics



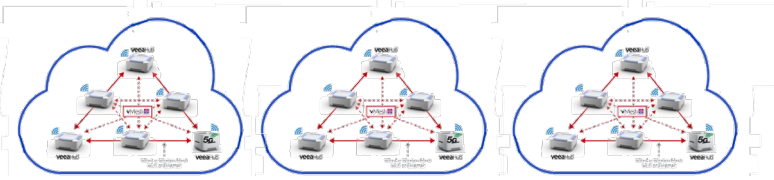
Customer 1



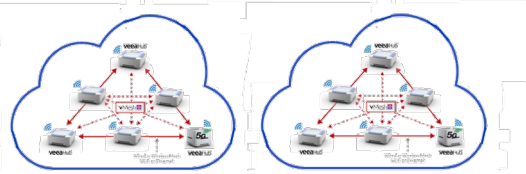
Customer 2



Customer 3



Customer n



Target Verticals for Veeahub + Containerized Portable Niagara



Smart Campus, Building or CRE

- Air Quality
- Energy Use & Management
- Smart Building Controls
- Regulatory Compliance
- Reporting & Insurance Claims

Smart Multi-Family Dwelling (MDU)

- Safety & Security
- Energy Efficiency
- Regulatory Compliance

Smart Agriculture

- Greenhouses & Controlled Environment
- Realtime Management and Controls

Industrial & Enterprise

- Warehousing & Distribution Centers
- Factories
- Transportation Hubs
- Retailers



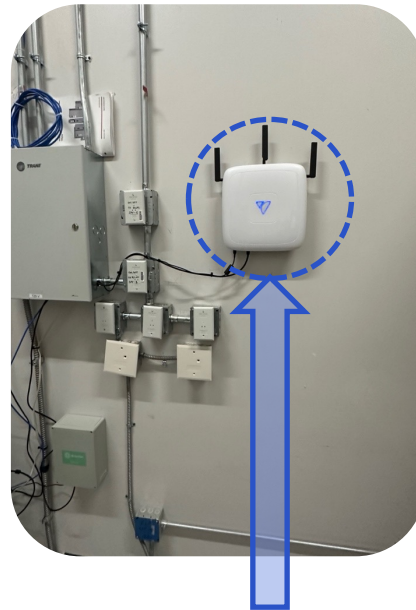
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Fast/Easy Extension of Niagara based systems to add Wireless and Edge Processing

- 4G/5G Connection to Internet
- IIoT Radios – LoRa (most common), Bluetooth, Zigbee
- Bridge to wired world – Ethernet, RS-485/RS-232



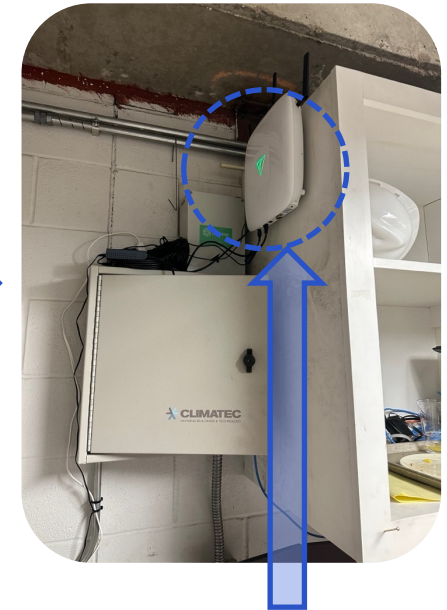
Existing
BMS



Veeahub
TRIDIUM
niagara4



Existing
BMS



Veeahub
TRIDIUM
niagara4
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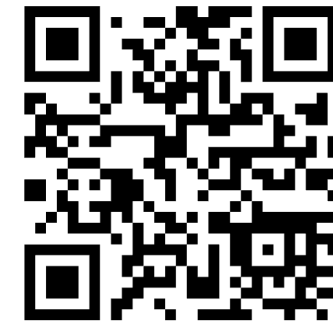


Thank you

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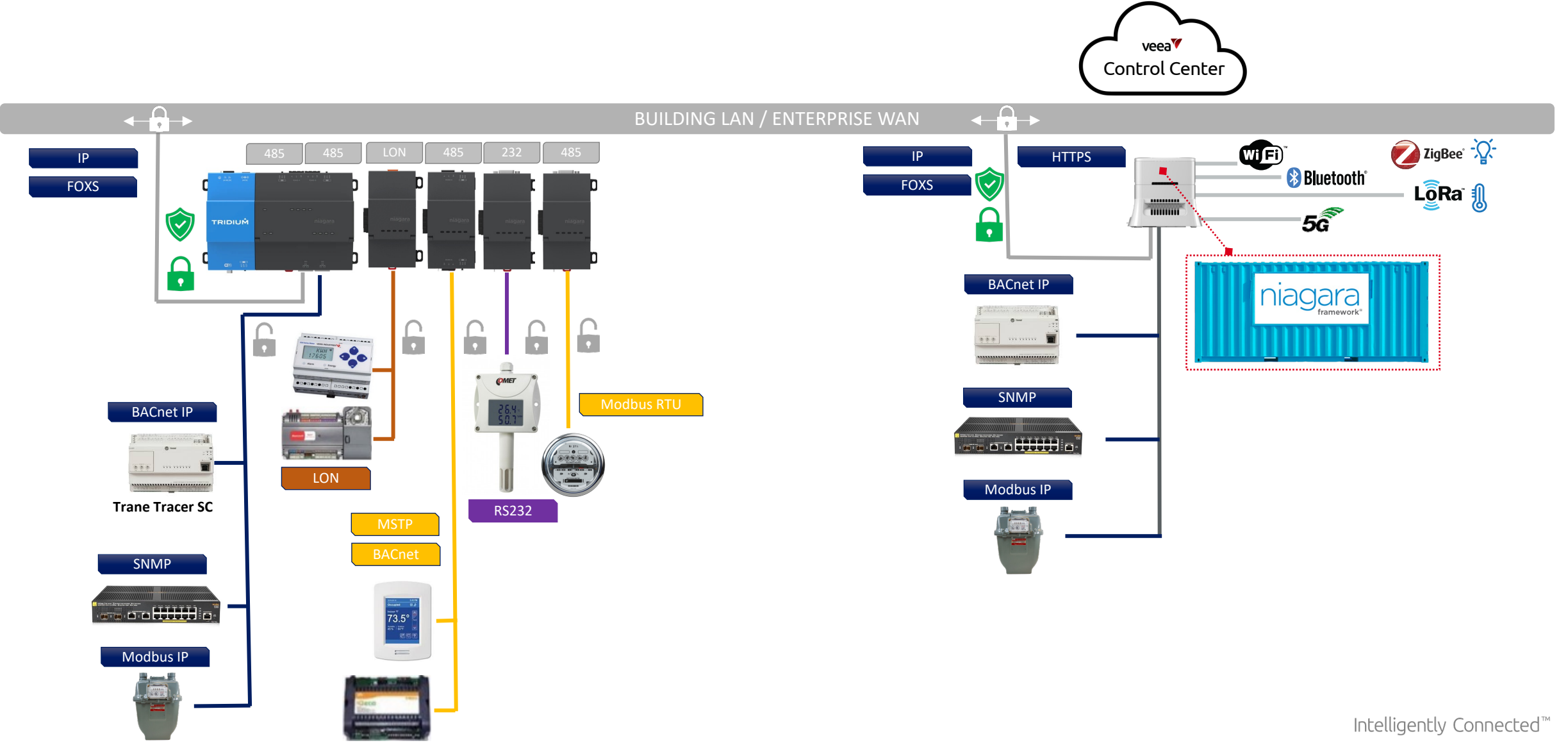


To learn more about Veeva and our solutions,
visit veeva.com or scan the QR code

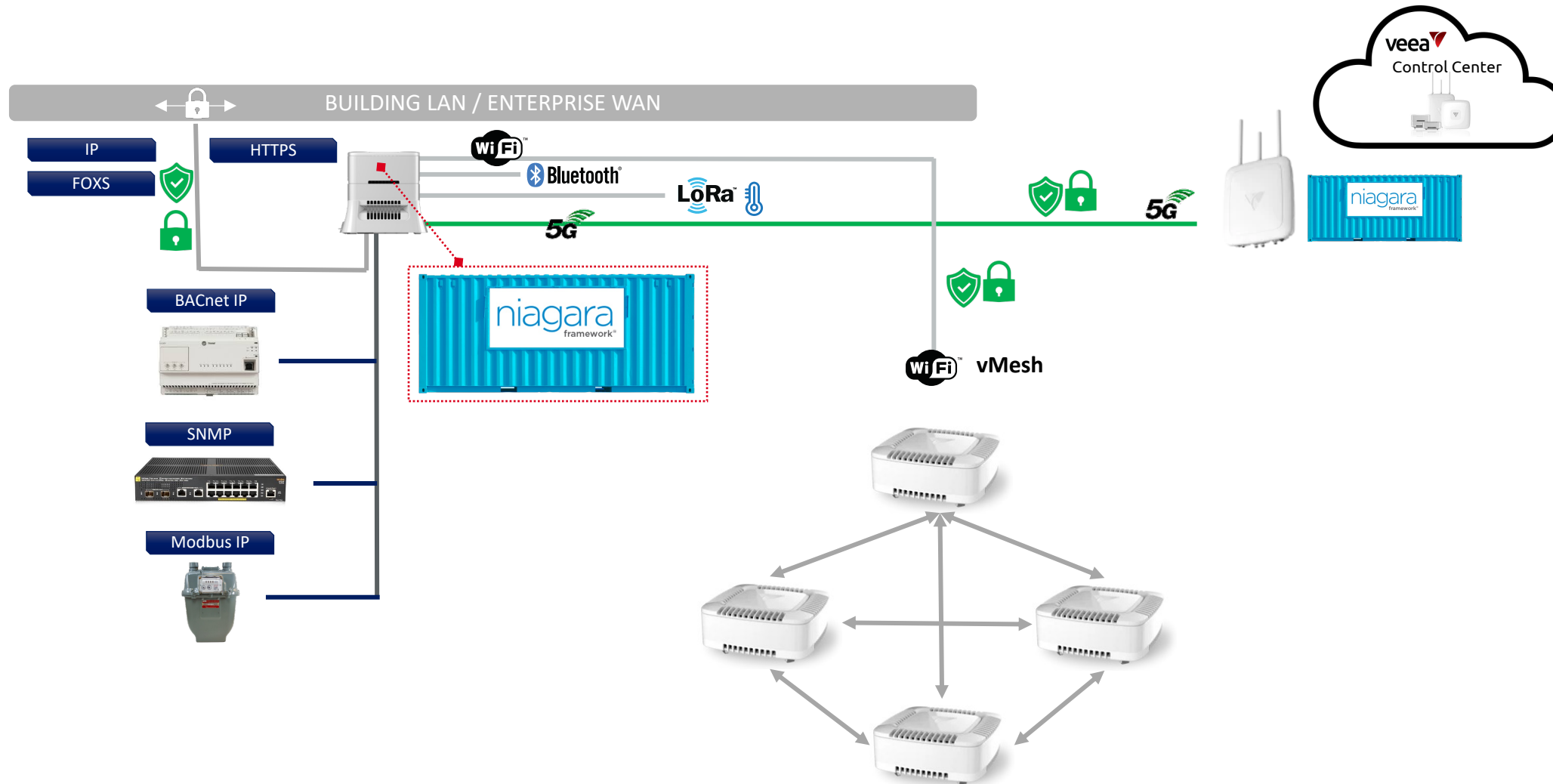


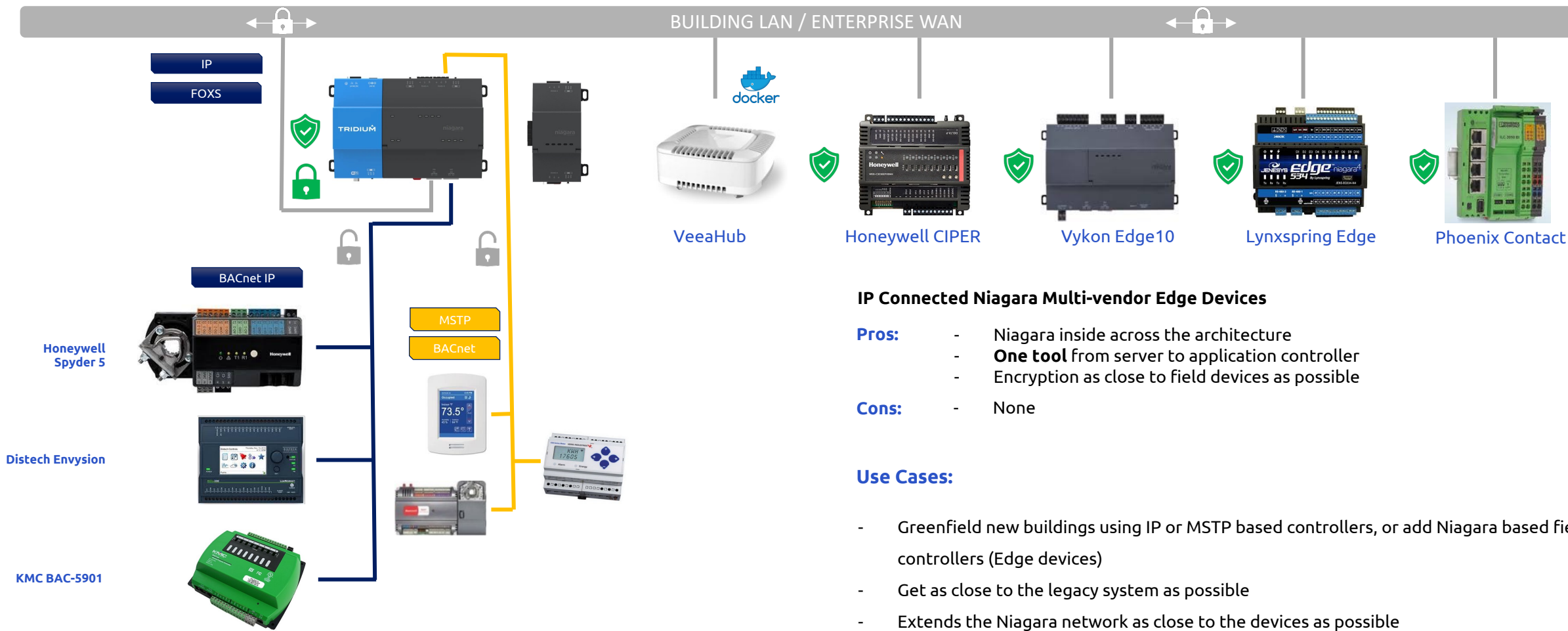
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Veea Hub Integration (BACnet IP, Modbus IP, SNMP, IP)



Veea Hub Integration (BACnet IP, Modbus IP, SNMP, IP)





IP Connected Niagara Multi-vendor Edge Devices

- Pros:**
- Niagara inside across the architecture
 - **One tool** from server to application controller
 - Encryption as close to field devices as possible
- Cons:**
- None

Use Cases:

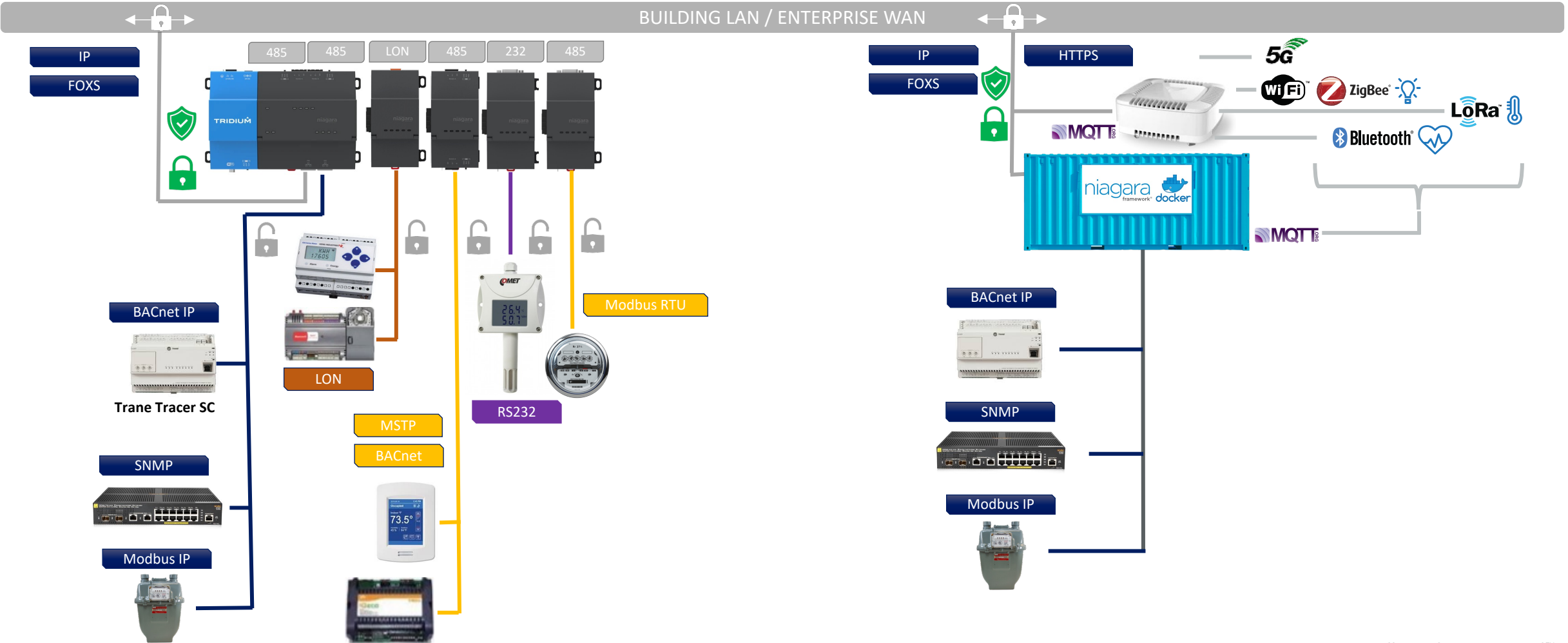
- Greenfield new buildings using IP or MSTP based controllers, or add Niagara based field controllers (Edge devices)
- Get as close to the legacy system as possible
- Extends the Niagara network as close to the devices as possible

- Pros:**
- Integrated Niagara programming tools in the JACE for non-Niagara controllers
- Cons:**
- May require separate branded engineering tools in the JACE, not the controller

Legacy, IP Integration, IoT Sensor



via legacy drivers, BACnet IP, OPC, Modbus TCP, LON...
IoT sensors via MQTT to Veea Broker to Niagara



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