

Cowbell

Distributed Edge Computing Hub Platform-as-a-Service and MLOps-in-a-Box

Improved Operational Agility through Fast Deployable AI-Enabled Cloud-Native Distributed Edge Computing

A comprehensive enterprise edge computing platform-as-a-service solution combining software, hardware, and networking infrastructure needed to streamline and simplify the delivery and management of AI and other applications at the edge while providing an ecosystem for hosting managed apps for reliable big data ingestion from many, many disparate sensors and data sources and third-party applications and thereby, making possible, low-latency and highly integrated edge decision support systems.



Key Differentiators

Enabled by Cowbell's Software Platform via MLOps-in-a-Box

- Fast deployable Edge AI (single- or multi-node) cluster in completely air-gapped and/or hybrid edge-cloud environments, and on-premises
- Cluster, Device, and Peripheral Management with automatic device discovery
- Full observability of the distributed edge computing cluster, networking infrastructure, hosted services and apps
- Simplified “bring your own” third-party apps integration capability enabled by open APIs to integrate with Cowbell's core software platform's cloud-native managed apps
- No vendor lock-in or third-party software licenses with the use of cloud-native and open-source technologies
- Supports orchestration and management of both containerized and non-containerized applications
- Secure, fault-tolerant, highly available distributed edge computing cluster with data redundancy
- Flexible hardware- and network-agnostic software platform in which most subsystems are also OS-agnostic
- Managed services, a.k.a. the Sensor Adapter System, to allow ingestion, management, & analysis of data from multiple and disparate data sources

- Easily configurable HW-accelerated data (incl. video) analytics pipelines enabling low-latency decision support systems will only mesh with user-defined nodes

Enabled by Cowbell's Hardware Platform

- Powerful multi-core CPU and GPU with extensible HW expansion slots for storage (up to 120 TB), networking (including LoRa, LTE) and peripheral add-ons like a backup battery, LTE, GPS, and/or RiSM (Rajant In-line Security Module)
- Wired and wireless (Bluetooth LE, Wi-Fi, and Kinetic Mesh) peripherals integration and management
- Compatible with almost all traditional communications infrastructure including Cellular/LTE, Satellite, and Fiber
- Configurable as a Wi-Fi Access Point, DHCP server, and/or a Mesh networking node
- Rugged industrial-grade enclosure with IP67 for indoor and outdoor use

Model	Description
CB1-2450	A comprehensive enterprise edge computing platform-as-a-service solution combining software, hardware, and networking infrastructure needed to enable cloud-native distributed computing and simplify the delivery and management of AI and other applications at the edge.
Key Technical Specifications	
Networking Platform⁴	<ul style="list-style-type: none"> • Wireless: BLE and Wi-Fi 5 (802.11ac) (2.4, 5 GHz) • Kinetic Mesh: Rajant Cardinal AG¹ with (1) dual-band 2.4/5 GHz, 2x2 MIMO, 300/866.7 Mbps transceiver, and (1) 5 GHz, 2x2 MIMO, 866.7 Mbps transceiver • Max. RF Transmit Power²: 25 dBm ± 2 dB (dual-band 2.4 GHz), 22 dBm ± 2 dB (dual-band 5 GHz), 23 dBm ± 2 dB (5 GHz) • Antenna Connectors: (2) SMA (female) for dual-band 2.4/5 GHz, (2) SMA (female) for 5 GHz, (2) SMA (female) for BLE/Wi-Fi (2.4 GHz)
Computing Platform⁴	<ul style="list-style-type: none"> • AI Performance: 70 TOPS • GPU: 1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores (765 MHz) • CPU: 6-core Arm Cortex-A78AE v8.2 64-bit CPU (1.5MB L2 + 4MB L3) • Memory: 8GB 128-bit LPDDR5 (102.4GB/s) • Storage: 1TB SSD • Operating Systems: Linux
Software Platform	<ul style="list-style-type: none"> • Clustering: automatic discovery, creation, and scaling of a distributed computing cluster • Reliability: fault-tolerant, high-availability, with data redundancy • Operations: MLOps-in-a-Box for simplified delivery and management of AI and other applications • Management: Device, Cluster, Peripheral, and Applications management with integrated UI
Power	<ul style="list-style-type: none"> • DC Power: 9 – 28 VDC • Power Consumption³: 25W (typical); TBD (max)
Input/Output	<ul style="list-style-type: none"> • Ethernet: 10/100/1000 RJ-45 • DC Input PWR: Threaded power jack panel-mount connector, Current Rating: 5 Amps • Field Accessible: (1) HDMI 2.0 (max resolution 3840x2160), (1) USB 3.0 Type-A (Compute), (1) USB 2.0 Type-A (BreadCrumb) • LED: (1) Status LED for BreadCrumb module and (1) Status LED for Compute module
Extensions (available upon request)	<ul style="list-style-type: none"> • Wireless: LTE/5G/LoRa Connectivity by extension sockets • Mass Storage: up to 120 HDD by extension sockets • External Add-ons: LTE, GPS, LoRa, Battery backup • Security: RISM Integration
Physical	<ul style="list-style-type: none"> • Dimensions: 225 x 178 x 77 mm (Wall-to-Wall) • Cooling: Passive Cooling • IP Rating: IP67 (not verified) • Ambient Temperature: -20°C ... +60°C (operating) (not verified) • Humidity: 0 to 95% RH (not verified) • Shock and Vibration: (not verified)
Compliance	<ul style="list-style-type: none"> • FCC (US) (pending) • IC (Canada) (pending) • CE Red (pending)

¹ Channel, frequency and bandwidth options vary based upon regional and local regulations and certifications.

² RF transmit power is governed by local regulations and varies by frequency.

³ Power consumption depends on transceiver and compute configuration.

⁴ Certain customizations available upon request. Contact Rajant Health for more information.