KONA Core: The Brain Behind Your LoRaWAN Network

A carrier-grade LoRaWAN Network Server engineered for secure, scalable, and reliable IoT operations — from a single private network to national-scale deployments.

As more LoRaWAN network server vendors exit the market or consolidate through acquisition, the choice of platform becomes a long-term strategic decision.

TEKTELIC KONA Core is built precisely for operators, enterprises, utilities, and service providers who need a platform they can trust for years — one that grows with them, integrates with their systems, and never becomes a bottleneck.

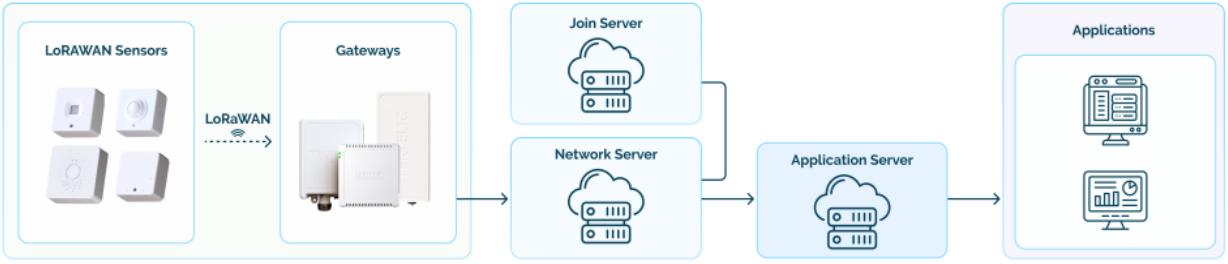
Devices are the voices, gateways are the ears — and KONA Core is the brain that understands, organizes, secures, and directs the communication.

ARCHITECTURE OVERVIEW

A Complete LoRaWAN Server Stack

A complete LoRaWAN server architecture integrates three logical functions. KONA Core delivers all three in a unified, carrier-grade platform.

Network Server	Application Server	Join Server
Validates packets, removes duplicates, manages ADR, schedules downlinks, handles MAC commands, and routes data to applications.	Receives, decodes, and processes device payloads. Routes data to dashboards, BMS, SCADA, cloud platforms, and enterprise systems.	Manages secure OTAA device activation. Stores root keys and derives session keys, keeping network and application security properly separated.



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CORE CAPABILITIES

More Than a Packet Router

KONA Core is a complete LoRaWAN network control platform. It connects gateways, devices, users, applications, APIs, and operational tools into one manageable system — built on a service-oriented architecture with no single point of failure, N+1 redundancy, and horizontal scalability proven in networks with hundreds of thousands of devices.

01 — Uplink Processing **Packet Validation & Deduplication** Receives uplink packets from all gateways in range, removes duplicates, validates message authenticity and integrity, and forwards only legitimate data to the application layer.	02 — Device Management **Provisioning, Profiles & Groups** Supports OTAA and ABP activation, QR-based provisioning, device profiles, and group management. Configure thousands of devices consistently without manual errors.
03 — Device Classes **Class A, B & C Support** Serves battery-powered sensors (Class A), scheduled receive devices (Class B), and near-always-listening control devices (Class C) — all on the same network.	04 — Signal Optimization **Adaptive Data Rate (ADR)** Instructs each device to use the optimal spreading factor and transmit power based on signal conditions. Extends battery life, reduces airtime, and increases overall network capacity.
05 — Downlink Control **Downlink Scheduling & Gateway Selection** Schedules acknowledgements, MAC commands, configuration updates, multicast messages, and application downlinks. Automatically selects the best-positioned gateway for each transmission.	06 — Network Control **MAC Command Handling** Manages LoRaWAN MAC-layer commands for ADR, channel plans, transmit power, receive windows, link checks, and device status — actively controlling how the network behaves, not just routing packets.
07 — Data Delivery **Application Routing & Payload Codecs** Routes validated data via MQTT(S), HTTP(S), Azure IoT Central, ThingsBoard, and AWS IoT Core. Decodes raw device payloads into structured flat or nested JSON for immediate application use.	08 — Advanced Capabilities **Multicast & FUOTA** Sends a single command to groups of devices simultaneously. Supports firmware updates over the air (FUOTA), enabling remote software updates across large device fleets without truck rolls.
09 — Gateway Operations **Remote Gateway Management** Supports remote gateway configuration, software updates, and bulk operations. Works alongside KONA Element for full gateway fleet visibility, alarms, and diagnostics.	10 — Observability **Monitoring, Alarms & Real-Time Display** Real-time packet display for commissioning and troubleshooting. Monitors devices, gateways, integrations, and events. Log aggregation, email alerting, and event streaming APIs keep operators informed.

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11 — Automation **REST APIs & Billing Integration** Full REST API support for mass device provisioning, configuration workflows, and third-party system integration. Billing APIs enable integration with customer-management and subscription platforms.	**12 — Multi-Tenancy** **Role-Based Access & Customer Separation** Define user access levels, manage sub-customers, set subscription limits, and isolate work environments. Purpose-built for public operators and managed service providers.
13 — Security **Enterprise-Grade Secure Operation** TLS encryption, SSO, x.509 certificate support, controlled access, annual penetration testing, and security audits. Meets the requirements of utilities, healthcare, industrial, and public network environments.	**14 — Global Reach** **Regional Frequency Plans & Third-Party Support** Correct channel plans, data rates, and regulatory rules for North America, Europe, Asia, and beyond. Supports TEKTELIC and third-party devices and gateways, including the Semtech UDP packet forwarder.

DEPLOYMENT MODELS

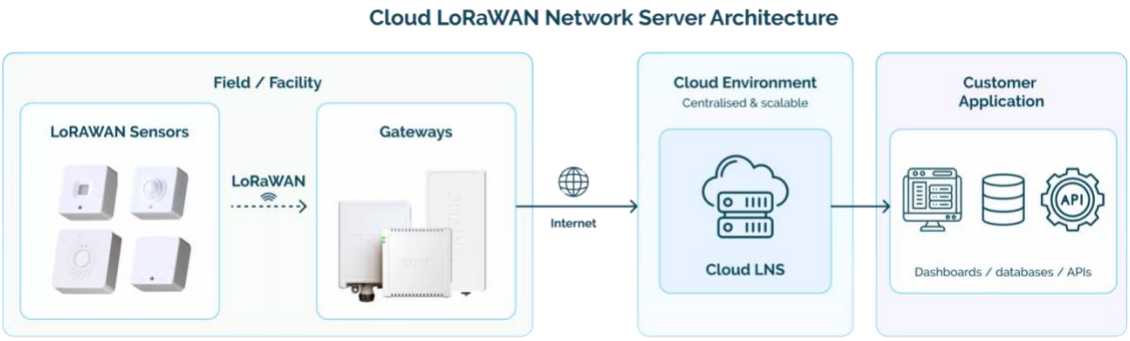
Choose the Model That Fits Your Operations

KONA Core is infrastructure-agnostic. Whether your priorities are speed, control, or compliance, there is a deployment path that matches your business, IT, and security requirements.

Cloud LNS

Runs in the cloud and connects all gateways to a central system. Managed by TEKTELIC with fast deployment, automatic scaling, and minimal IT overhead.

BEST FOR: Operators and enterprises that want to launch quickly and keep infrastructure management lean.



Private Cloud LNS

Dedicated deployment in a customer-controlled cloud environment. Combines cloud operational flexibility with greater control over security posture, data residency, and configuration.

BEST FOR: Customers who need cloud agility but require isolation, dedicated resources, or specific compliance controls.

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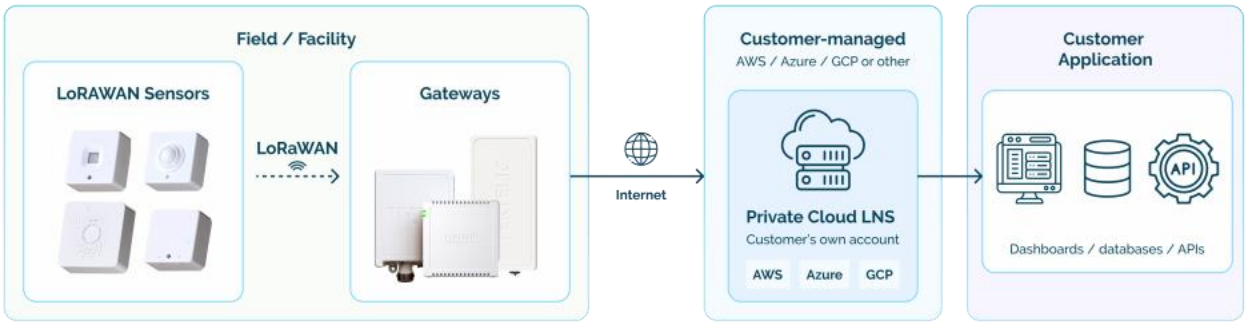
Private Cloud LoRaWAN Network Server Architecture

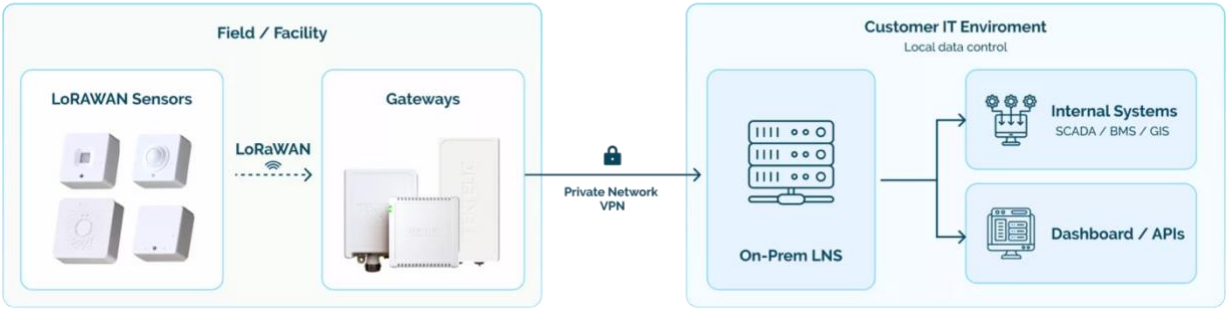


On-Premises LNS

Runs inside your own infrastructure. Full control over data, security, and integration with internal systems. Includes deployment automation, cluster management, and monitoring tools.

BEST FOR: Enterprises, utilities, and public operators requiring full data control or deep internal IT integration.

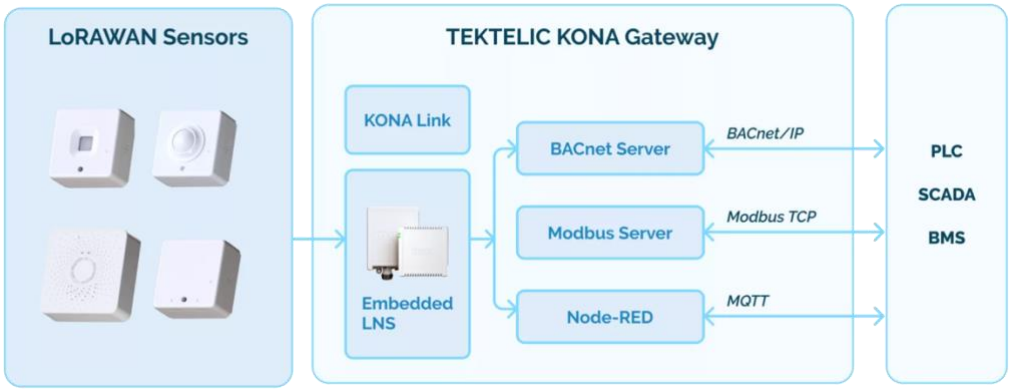
On-Premise LoRaWAN Network Server Architecture



Embedded LNS

Runs directly inside the gateway itself. No separate server required — the gateway handles network server functions locally for a fully self-contained setup.

BEST FOR: Small or remote deployments where a standalone, local setup without external infrastructure is needed.



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INTEROPERABILITY

Open Where It Counts

KONA Core supports TEKTELIC and third-party LoRaWAN devices and gateways. Standard gateway interfaces such as the Semtech UDP packet forwarder mean customers are not forced to replace existing infrastructure. Open APIs ensure data flows into the tools your teams already use.

Supported integrations

MQTT(S), HTTP(S), REST API, Azure IoT Central, ThingsBoard, AWS IoT Core, custom enterprise systems, and third-party billing platforms.

Device class support

Full support for Class A (battery-powered sensors), Class B (scheduled receive), and Class C (near-always-on control devices) — enabling any use case within a single deployment.

COMPLETE ECOSYSTEM

KONA Core Is One Part of a Bigger Picture

Real deployments need more than a network server. TEKTELIC designs every component to work together — from RF planning to device configuration to geolocation and application management.

TEKTELIC LORAWAN ECOSYSTEM

- **TEKTELIC Gateways** — Carrier-grade hardware for every environment
- **KONA Core** — LoRaWAN Network Server (this product)
- **KONA Element** — Gateway fleet management, OAM & diagnostics
- **KONA Link** — Local gateway configuration interface
- **KONA Radiant** — RF planning and coverage simulation
- **ATLAS** — Device configuration and management server
- **LOCUS** — Real-time location services application
- **Geolocation Server** — LoRaWAN-based location without GPS
- **BMS Integration** — Direct integration with building management systems
- **TEKTELIC Sensors, Trackers & Medical IoT Devices**

TEKTELIC POSITIONING

Why KONA Core

TEKTELIC's advantage is that it does not treat the LNS as a simple software add-on. TEKTELIC

offers a complete LoRaWAN system: gateways, devices, LNS, network management, local gateway configuration, RF planning, applications, APIs, and deployment expertise.

As customers do not only need LoRaWAN packets. They need a reliable end-to-end system that can be deployed, monitored, secured, integrated, expanded, and supported for many years.

KONA Core is designed for:

- Public and private network operators
- Smart buildings and campus networks
- Utilities and industrial IoT
- Healthcare and medical IoT environments
- Large-scale enterprise and national deployments