

BleedIO Tech Partner Integration Architecture

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How netMESH integrates with established enterprise hardware ecosystems — extending, not replacing, the platforms customers already own.

Overview

BleedIO's netMESH platform is designed to complement existing enterprise infrastructure rather than demand rip-and-replace. Through four proven integration patterns, netMESH adds decentralized BLE Mesh networking, IoT sensing, and self-healing resiliency on top of hardware customers have already deployed and trust.

This document illustrates two representative integration targets — **Trackunit TU700** (construction/fleet telematics) and **RUCKUS T350c** (outdoor Wi-Fi 6) — and the architectural patterns that generalize to any partner ecosystem.

Integration patterns

Pattern A — Sidecar BLE/Mesh with cellular uplink (Trackunit TU700)

What TU700 provides: Rugged cellular edge connectivity for construction fleets and jobsites, with Bluetooth tag/gateway support for asset visibility.

How netMESH integrates:

- A BleedIO Edge Node (compact Linux device or embedded module) is co-located with the TU700.
- The Edge Node runs a passive BLE scanner for legacy sensors/tags (advertising-only, no pairing) and a full Bluetooth Mesh stack (proxy + relay/control roles).
- Data is normalized into netMESH's device identity, authentication, and encryption model.
- The TU700 provides rugged cellular backhaul; BleedIO adds mesh resiliency and interoperability.

Data flow: BLE legacy advertisements + Mesh telemetry → BleedIO Edge Node → MQTT/HTTPS → cloud or Trackunit/third-party API.

Value: Customers keep Trackunit's proven jobsite connectivity while gaining mesh self-healing, legacy BLE capture, and coverage for non-powered and indoor assets.

Pattern B — Tag bridging into locMESH coverage (Trackunit BLE tags)

For customers already using Trackunit Bluetooth tagging (tools, attachments, non-powered assets), BleedIO can:

- Ingest tag sightings (MAC/rotating ID + RSSI + timestamp) from jobsite gateways.
- Fuse sightings with locMESH readers to extend location coverage into buildings, yards, and warehouse transitions — providing location awareness beyond any single system.

Pattern C — Wi-Fi overlay with IoT edge (RUCKUS T350c)

What T350c provides: Outdoor Wi-Fi 6 access point for venues and smart-city deployments, with robust mounting and power infrastructure.

How netMESH integrates:

- The T350c is mounted outdoors where coverage is needed (poles, walls, fixtures).
- A BleedIO edge gateway is co-located to passively listen for BLE legacy devices and participate in BLE Mesh as a proxy/relay/controller.
- The T350c Wi-Fi uplink carries BleedIO telemetry to cloud or customer NOC.

Value: RUCKUS provides the outdoor Wi-Fi footprint; BleedIO turns that footprint into IoT-grade coverage (BLE sensing + BLE Mesh control) without adding a fragile central hub.

Pattern D — Integrated IoT radio (RUCKUS T350d variant)

When a project requires BLE/Zigbee sensing directly inside the access point, the **T350d** variant offers an integrated switchable IoT radio. BleedIO integrates at the IoT Suite/controller layer — ingesting BLE observations or controlling downstream nodes — while netMESH provides the mesh interoperability and self-healing overlay.

Dual-plane architecture: legacy BLE + Bluetooth Mesh

Every deployment supports two parallel wireless planes, unified in software:

Plane	Mode	Capabilities
Legacy BLE	Listen-only (passive scan)	Beacon/tag/sensor advertisements; no pairing; fast PoCs; sightings + decoded sensor data feed locMESH analytics
Bluetooth Mesh	Managed + resilient control	Self-routing, self-healing mesh nodes; proxy bridging for phones/gateways; command/control + telemetry + OTA policy

This dual-plane design aligns with BleedIO's core thesis: decentralized mesh gets stronger with scale, eliminates hub single points of failure, and enables rapid provisioning.

Why it matters

- **Not a standalone island.** netMESH is designed to layer onto enterprise hardware customers already own — Trackunit, RUCKUS, and similar platforms — reducing adoption friction and accelerating time-to-value.
- **Channel-friendly.** Each integration pattern creates a co-sell opportunity with the partner’s existing sales team and installed base.
- **Expands TAM.** By integrating with construction telematics, smart-city Wi-Fi, and enterprise IoT platforms, BleedIO accesses verticals beyond its direct sales reach.
- **Defensible differentiation.** The mesh interoperability layer (patent pending) is hardware-agnostic — BleedIO captures value at the network intelligence layer, not the radio layer.

Target integration partners

Partner / Platform	Category	Integration pattern
Trackunit (TU700, Kin)	Construction telematics	Sidecar uplink + tag bridging
RUCKUS (T350c/T350d)	Outdoor Wi-Fi 6 / IoT	Wi-Fi overlay + integrated IoT radio
Nordic Semiconductor	BLE SoC	Firmware SDK compatibility
Silicon Labs	BLE SoC	Firmware SDK compatibility
Enterprise MQTT brokers	Data transport	Native MQTT + RESTful API integration

Source references

- [Marketing/Velociti integration.docx](#) (original technical integration notes)
- [context/bleedio-netmesh-data-sheet.md](#) (netMESH platform data sheet)
- [bleedio-product-plan repo: docs/product/product-vision-master.md](#)

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