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# VCAS™ TECHNICAL OVERVIEW

## System Architecture & Integration Requirements

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### System Overview

VCAS™ (Verified Custody & Access System) is an identity-verified custody control platform for regulated retail environments. The system uses phone-based biometric verification (Face ID/Touch ID) rather than custom hardware biometrics.

VCAS is designed as vertical-agnostic custody infrastructure. While the initial deployment targets cannabis retail, the architecture supports any regulated product category requiring identity verification and chain-of-custody: cannabis, alcohol, pharmacy, and industrial/secure applications.

#### Core Principle

The phone is the key. All identity verification happens on the customer's device. VCAS hardware validates the cryptographically signed authorization—no cameras, no biometric hardware on the locker.

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### System Architecture

#### Layer 1: Customer Mobile Application

Available as HERB N' GO™, The Budega™, Kush N' Karry™ (licensed brands), white-label (operator's brand), or hybrid ("Powered by").

- **Identity & Verification:** One-time ID + selfie. Face ID/Touch ID for all subsequent. Biometric data stays on device (secure enclave). VCAS receives only cryptographic confirmation.
- **Customer Features:** AI Budtender, order history, one-tap reorder, real-time inventory, payment, pickup notifications.
- **Access Tokens:** Time-bound, geo-located, cryptographically signed, require biometric confirmation.

#### Layer 2: VCAS Hardware

- **Entry System:** QR scanner or NFC reader. Validates access token. No cameras or biometric hardware.
- **Locker Wall:** Modified commercial system (24-48 compartments, configurable S/M/L). Individual electronic locks. Dual-sided access. QR/NFC scanner, LED indicators, 10" touchscreen, environmental monitoring.
- **Kiosk (Optional):** Walk-in customers without app. Order → staff loads → locker pickup.
- **Connectivity:** Ethernet primary, WiFi + 4G/5G backup, local edge controller.

## Layer 3: VendraIS™ Cloud Platform

Module	Function
Identity & Access	Verification, token generation, authorization
Custody Chain	Immutable logging of all custody events
Hardware Control	Lock/unlock, status monitoring
POS Integration	Order sync, inventory, payments (Treez primary)
Compliance & Reporting	Audit trails, regulatory reports, regulator dashboard
AI Budtender	Recommendations, personalization, learning

## Customer Journey

Step	Action	Time
1. Register	Download app, submit ID + selfie, enroll Face ID	5 min (once)
2. Order	Browse menu, AI Budtender, pay in app	At home
3. Enter	Face ID → signed token → door unlocks	5 sec
4. Pickup	Face ID → locker opens → grab order	15 sec
5. Done	Custody logged, receipt generated, audit complete	10 sec

Total: 60-90 seconds. Zero staff interaction.

## Technical Specifications

Component	Specification
Hardware	Modified commercial locker (Luxer One class)
Compartments	24-48 per unit; S/M/L sizes
Access	QR + NFC (no cameras/biometrics on hardware)
Display	10" capacitive touchscreen
Connectivity	Ethernet + WiFi + 4G backup
Power	110-240V; optional battery backup
Footprint	6'W × 7'H × 2'D
Platform	AWS/Azure; SOC 2 planned
Encryption	TLS 1.3; AES-256 at rest
Compliance	CCPA/GDPR; DEA-ready

## Vertical Application

Vertical	Identity Requirement	Custody Requirement
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<b>Cannabis</b>	Age 21+ / medical card	State + DEA Schedule III
<b>Alcohol</b>	Age 21+	State liquor authority
<b>Pharmacy</b>	Prescription + patient ID	DEA (controlled), state board
<b>Industrial</b>	Employee/contractor badge	Asset management, OSHA

## Robotics Integration Roadmap

Phase	Timeline	Capability
<b>1. VCAS Lockers</b>	2026	Staff loads, customer pickup via phone biometric
<b>2. Compliant Vending</b>	2028	Machine assembles up to 6 items, zero staff
<b>3. Robotic Fulfillment</b>	2029+	Lights-out backend, VCAS = handoff layer

VCAS is the compliance layer that makes full automation legally possible. Without verified custody transfer, robots are just vending—and vending is illegal in most states.

## Integration Requirements

POS: Treez (primary); Dutchie, Flowhub planned. ID Verification: Dispensify and others.  
 API: RESTful, OAuth 2.0, webhooks.

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