

The smart store runs on Spectro Cloud and SNUC

A fleet-ready, 3-node edge reference architecture that keeps every store open during WAN outages, powers in-store AI for loss prevention and self-checkout, and scales from 100 to 10,000+ locations — without a truck roll or a field engineer on site.

Why this matters for retail operations

The retail reality

- Every minute a lane goes down during peak is direct, unrecoverable revenue loss.
- Shoplifting incidents are up 93% and losses up 90% since 2019, according to the National Retail Federation.
- Store networks flap constantly — POS and SCO must keep transacting when the WAN drops.
- The store manager is the most technical person on site; every truck roll costs \$1,000+.

What store ops leaders need

- Transaction continuity — POS, SCO, and payment keep processing through outages.
- In-store AI horsepower for loss prevention, SCO vision, and shelf analytics.
- Zero-touch rollout so a new store comes online by unboxing and plugging in.
- One console managing every location identically — from 100 to 10,000+ stores.

The store reference architecture: SNUC EE-2300 + witness

A three-node Kubernetes cluster sized for the stockroom — not the data center. Two rugged, fanless EE-2300 nodes carry every store workload with synchronous replication. A low-power witness breaks the tie during network partitions, delivering true HA without a third full server crowding the closet.

Worker 1

Control plane + worker

- **Hardware:** SNUC EE-2300 — AMD Ryzen AI HX 370, up to 128 GB DDR5, up to 12 TB NVMe, 80 TOPS AI per node
- **Networking:** 2x 25 GbE SFPs + 2x 2.5 GbE + dedicated 1 GbE BMC
- **Store workloads:** POS, SCO vision, loss prevention, digital signage, inventory

Worker 2

Control plane + worker

- **Hardware:** SNUC EE-2300 — identical configuration; synchronous replication partner
- **Networking:** 2x 25 GbE SFPs + 2x 2.5 GbE + dedicated 1 GbE BMC
- **Store workloads:** Active HA pair for automatic failover and no lost transactions

Witness

Quorum tiebreaker

- **Hardware:** SNUC EE-1000 / compact NUC - OS disk only; fanless, palm-sized, fits behind the counter
- **Networking:** 2.5 GbE + dedicated 1 GbE BMC
- **Store workloads:** None — quorum only

Proof points

 **10× faster store rollouts.** A Fortune 500 QSR chain using Palette now activates ten times more stores per year than before.

 **\$4M+ in projected three-year OpEx savings.** Same customer: zero-touch provisioning and remote operations eliminated the \$1,000+ truck roll previously required for every site, contributing to more than \$4 million in projected OpEx savings over the next three years.

Read the Spectro Cloud global restaurant chain case study

 **Zero lost transactions during WAN outages.** Palette's decentralized architecture means each store's cluster has its own control plane and continues to operate on last-known policy when it can't reach the management plane — POS keeps transacting even when the network fails.

Learn more about decentralized architecture

 **10,000+ stores from one console.** Spectro Cloud performance-tested Palette at 10,000 simulated Kubernetes clusters and 36,000 edge nodes managed from a single instance, with no performance degradation or instability. The test was run for a retail customer planning to deploy edge Kubernetes to 10,000 locations.

See Spectro Cloud's scale-testing write-up

Next step

Reach out to schedule a consultation with an Edge Expert to map out your specific retail deployment.

[Schedule Now](#)

The Spectro Cloud + SNUC stack

Every store, always open. Every update, zero disruption.

Palette Edge pushes zero-downtime OTA updates to thousands of stores and keeps each cluster running locally when the WAN drops. The EE-2300 runs POS, SCO, and 80 TOPS of in-store AI for loss prevention on one box. NANO-BMC closes the loop — recover any store remotely without dispatching a tech or interrupting trade.

NANO-BMC remote management

- **Transaction continuity** — POS stays up offline
- **In-store AI** — vision, shelf, shrink analytics
- **Zero-touch rollout** — store manager plug-and-play
- **Remote recovery** — fix any node, powered off

Business outcomes for retail operations

What changes the day after you deploy this architecture:

- **Stores stay open when the WAN doesn't.** POS, SCO, and payment keep transacting locally — no more signs on the door during ISP outages.
- **Shrink goes down.** 80 TOPS per store runs computer vision on self-checkout, entrance gates, and backroom cameras — catching theft in real time.
- **Rollouts get 10× faster.** Zero-touch provisioning means the store manager unboxes the device, plugs it in, and Palette takes it from there.
- **Truck rolls disappear.** OTA updates and NANO-BMC remote recovery eliminate the \$1,000+ field visit for firmware, OS, or app fixes.

1. 10× faster rollouts and \$4M+ projected three-year OpEx savings — Global restaurant chain accelerates store transformation with Spectro Cloud (spectrocloud.com/customers/global-restaurant-chain). Fortune 500 QSR case study; the customer is unnamed per their public-reference policy. Corroborated on spectrocloud.com/edge/why-spectro-cloud.
2. Zero lost transactions during WAN outages — Decentralized architecture for Kubernetes environments (spectrocloud.com/platform/decentralized-architecture). Describes the per-cluster control plane and last-known-policy enforcement that keeps workloads running during disconnection.
3. 10,000+ stores from one console — How we tested scaling to 10,000 Kubernetes clusters without missing a beat (spectrocloud.com/blog). Details the simulated performance test at 10,000 clusters / 36,000 edge nodes managed by a single Palette instance. Also republished on The New Stack.
4. NRF shrink statistics (93% shoplifting, 90% losses since 2019) — cited by Spectro Cloud on Retailers: AI at the edge. Original source: National Retail Federation.



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