

Checkout Confidence: Stabilizing Multi-Scanner POS at Scale

AMBITION

A **global industrial technology leader** delivers advanced retail platforms used across high-volume checkout environments worldwide. In a setting where uptime and accuracy are non-negotiable, its JavaPOS system began to fail under complex multi-scanner workloads.

Synchronization conflicts, inconsistent event handling, and initialization errors created operational instability at the checkout — directly affecting store performance. The ambition was precise: **eliminate systemic defects while preserving full compatibility with existing POS ecosystems.**

To achieve this, the organization needed to:

- **Eliminate recurring defects:** Resolve synchronization, initialization, and concurrency failures at their source.
- **Re-architect for stability:** Replace brittle shared structures with a resilient, scalable POS architecture.
- **Protect legacy operations:** Ensure all changes remained fully backward-compatible with existing POS applications.

ACTION

The organization partnered with **Wipro Engineering – Connected Services** to structurally refactor the JavaPOS architecture rather than apply incremental fixes.

Operating as a specialized extension of the client's integration teams, Wipro addressed the core architectural flaws through targeted engineering interventions:

- **Architecture Isolation:** Replaced the shared scanner object with independent scanner-specific instances to ensure predictable device behavior.
- **Concurrency Control:** Engineered synchronized event queues and dedicated monitoring threads to eliminate race conditions and data collisions.
- **Compatibility Assurance:** Validated changes across OPOS, POS4NET, and existing POS applications to preserve checkout behavior.
- **Framework Modernization:** Upgraded service object code to align with current control object standards and support future upgrades.

AMBITIONS REALIZED

By resolving the structural causes of failure, Wipro transformed a fragile legacy POS system into a resilient, production-ready retail platform.

The Business impact:

- **Reliable multi-scanner operations**, with per-device isolation ensuring seamless synchronization in high-volume environments.
- **Persistent defect elimination**, removing recurring issues that previously burdened QA and retail support teams.
- **Future-ready foundation**, enabling POS framework upgrades without regression risk or operational disruption.

Wipro Limited (NYSE: WIT, BSE: 507685, NSE: WIPRO) is a leading AI-powered technology services and consulting company focused on building innovative solutions that address clients' most complex digital transformation needs. Leveraging our consulting-led approach and the Wipro Intelligence™ unified suite of AI powered platforms, solutions, and transformative offerings, we help clients realize their boldest ambitions to build intelligent and sustainable businesses. The Wipro Innovation Network – part of the Wipro Intelligence™ suite – underpins our commitment to client-centric co-innovation and co-creation by bringing together capabilities from the innovation labs and partner labs, academia, and global tech communities. With over 240,000 employees and business partners across 65 countries, we deliver on the promise of helping our customers, colleagues, and communities thrive in an ever-changing world. For additional information, visit us at www.wipro.com.