NUTANIX XI IOT SOLUTIONS FOR RETAIL

The Power of Integrated Intelligence

DRIVE IMPACT ACROSS THE BUSINESS

- **Deep analytics:** Real-time data collection and analysis from video, to point-of-sale, to warehouse.
- **Integration across retail channels:** Connected devices can facilitate seamless integration between digital and physical sales streams—like digital signs that automatically update to match online pricing.
- **Dynamic customer interactions:** Signs that react to customers' facial expressions and automated service kiosks deliver more satisfying customer experiences by enabling customization and personalization.
- **Far-reaching operational efficiencies:** From automation of cumbersome tasks to supply-chain optimization to safety compliance, IoT solutions extend OPEX/CAPEX benefits to virtually all levels of retail operations.

Technology is rapidly transforming the retail industry, as e-commerce sellers continue to drive a hyper-competitive marketplace. While these digital sales are the fastest growing revenue stream in retail, they still account for less than 10% of overall sales. Indeed, the accelerating expansion of prominent online sellers' investment in physical stores dramatically demonstrates the enduring value of physical, customer-facing retail infrastructure.

Meanwhile, even as digital sellers work to expand their physical presence, traditional retailers are working hard to integrate new technology with legacy retail infrastructure and practices.

These parallel trends point to the same underlying reality: retail innovation is dependent on the integration of technology at the true edge of operations, where it can be tightly integrated with storefronts, warehouses, and other vital physical infrastructure.

The most revolutionary innovation trend today centers on the integration of network functionality with existing retail foundations like signage, to point-of-sale devices, to video monitoring, to logistical management—creating an Internet-of-Things (IoT).

This interconnected ecosystem of internet-enabled devices, sensors, datahubs, networks, microprocessors offers limitless opportunities to the retail industry. Proven applications range from streamlined customer interactions—like automated checkout—to advanced analytical opportunities like granular footfall analysis based on in-store tracking data.

NUTANIX™
Your Enterprise Cloud Platform

This technology transformation, however, also comes with data management challenges. Enterprises looking to optimize operational responsiveness and maximize spend on customer-facing technology must process IoT data closer the source and turn the influx of data into real-time actionable intelligence. Provisioning a platform capable of handling this load at retail sites while controlling costs, maintaining performance, and ensuring reliability requires a flexibly designed edge computing solution aligned with a well-defined business strategy.

RETAIL IOT: INFRASTRUCTURE FUNDAMENTALS

The connected infrastructure underlying retail IoT poses a new set of challenges: stringent requirements for latency, bandwidth, and security that were previously not a concern at retail locations that stand separately from larger infrastructure installments. Additionally, remote support capabilities are critical for site deployments that can't affordably maintain onsite tech personnel.

These requirements, particularly vital for ensuring that IoT services are fast, dependable, and adaptable, are best fulfilled by processing capabilities in close proximity to sensors and imaging devices. Applications like live HD-video analysis generate huge quantities of data, and thoughtfully planned onsite computing capabilities—commonly called edge computing—prevent the need for the high-cost infrastructure necessary to send data at these volumes to a central datacenter or the cloud for routine processing.

Figure 2: Real-time Customer Interactions at the Edge

An edge computing approach allows real-time analysis closer to the data source, providing actionable results within milliseconds. By running the data through analytics at the edge, organizations can strategically set parameters on what information is worth sending to a cloud or centralized datacenter for long term processing.

The infrastructure needed to support these requirements must be carefully planned to address issues such as latency, security, and data privacy. An optimal, enterprise-grade retail IoT deployment should:

- Enable collection and analysis of data at or near the source
- Facilitate the generation of predictive models of vital behavior like purchasing trends and in-store customer behavior
- Enhance security through connected monitoring devices including cameras, motion sensors, and doors
- Offer video and motion-tracking capabilities enabling real-time and long-term analysis of foot traffic, time spent considering specific items, and more
- Enable peer-to-peer communication between on location devices to facilitate near zero latency services
- Control costs and limit sprawl

ACCELERATING RETAIL IOT INITIATIVES WITH NUTANIX

The Nutanix Xi IoT platform delivers local compute and machine learning (ML) for IoT edge devices in one seamless, visual application platform built from the ground up to solve these IoT-specific challenges. The platform eliminates complexity, accelerates deployments and frees developers from burdensome device-level coding, leaving them free

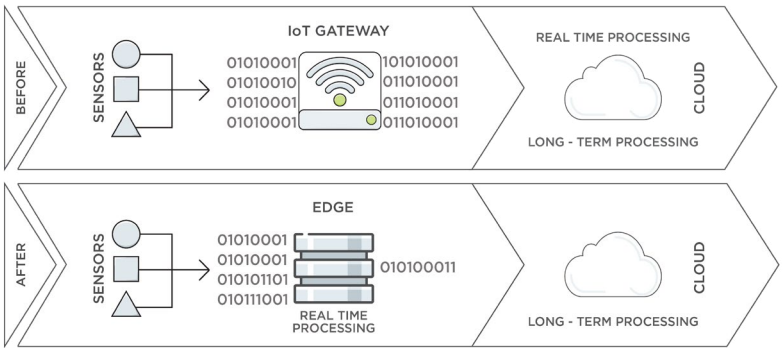

Figure 3: The IoT Gateway is transformed to an intelligence Edge device capable of local real-time processing (edge PaaS)

to focus bringing new IoT applications and services to market. Developers can use low-code development platforms to create application software via graphical user interfaces versus traditional programming methods.

With easy-to-use developer APIs, reusable data pipelines, and pluggable machine learning architecture, Xi IoT accelerates rapid development and global deployment of complex apps at scale.

XI IOT AND EDGE ARCHITECTURE

Xi IoT is a 100% software-defined solution that delivers application lifecycle management and Xi Edge software to run containerized applications at the edge. Xi Edge is based on Kubernetes, which enables consolidation of traditional and next-generation IoT applications.

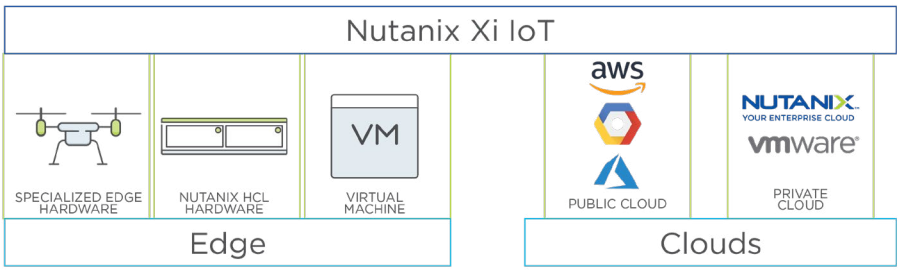

Figure 4: Simplified Edge Computing with Built-in Cloud Connectors

Xi Edge enables ingest of sensor data at the edge in real-time. It can be deployed as bare metal or as a virtual machine (VM) on shared or dedicated nodes. Xi IoT deployments can start small and readily scale to thousands of edge locations.

Xi Edge provides secure access to IoT data sources with data pipelines all the way from the edge to the cloud, including AWS, Azure, GCP, and managed, on-premises private clouds. It also provides seamless data mobility between edge and cloud, which lets users send metadata and build ML models in the cloud.

The simple, cloud-based management provides a user-friendly interface for application development and operations.

ACCELERATE RETAIL IOT INITIATIVES WITH XI IOT

The Xi IoT team has helped some of the most respected names in retail launch their IoT initiatives and begin driving tangible business value. Learn more about Xi IoT at nutanix.com/IoT, and contact us to begin your customized POC today.

DESIGNED FOR OPERATORS AND DEVELOPERS

- **Operator** support is built-in, which consolidates infrastructure sprawl and eliminates application silos. Operators can easily manage planet-scale operations with zero-touch onboarding.
- **Developers** can bring their own cloud and machine learning models from any domain and access rich data and runtime services to execute AI at the edge. Developers can also leverage rich APIs and integrate with existing CI/CD pipelines for easy debugging.

NUTANIX™
Your Enterprise Cloud Platform

T. 855.NUTANIX (855.688.2649) | F. 408.916.4039
info@nutanix.com | www.nutanix.com | @nutanix