



Capitalizing on the IBM Retail Environment for SUSE LINUX.

An open, flexible, retail-optimized Linux point-of-service platform



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Introduction

A wide selection of products. Extensive hours. Convenient locations. A pleasant shopping environment. And fast and flawless checkout. Today's savvy consumers know what they want; they're often armed with research about a particular product, and they expect sales associates to be knowledgeable in order to guide them in their purchase decisions. It's the job of retailers to meet and exceed those expectations by providing customers with better goods and services at better prices – while lowering operational costs, increasing efficiencies and maintaining profitability. The point of sale (POS) – also considered the point of service – provides an ideal opportunity for retailers to accomplish these objectives. No longer just the place to ring up customers' purchases, the POS is a critical component of store operations and includes all customer touch points – such as the physical store, the Web, kiosks, personal digital assistants (PDAs) and marketing e-mails. The POS also plays a vital role in differentiating a retailer from its competitors – both brick-and-mortar and virtual – by enhancing the customer experience and boosting customer loyalty. Yet many retailers are operating with aging POS systems that hinder their ability to keep pace with changes in the retail industry and customer demand. In a recent study, nearly half of retailers surveyed reported that the POS equipment they are currently using is more than five years old.¹

Retailers recognize the importance of maintaining synergy between IT and retail business operations; keeping customers happy requires an infrastructure that can process transactions quickly and accurately, and at the lowest possible cost. Unnecessary IT overhead, multiplied across geographic locations, can bog down store and network operations and can drain valuable resources, resulting in high costs.



Highlights

This white paper shows how the retail-optimized IBM Retail Environment for SUSE LINUX can help retailers respond quickly to market conditions, improve customer service, protect technology investments and optimize flexibility storewide.

According to a recent study, nearly one-third of retailers surveyed are planning to upgrade their POS systems in the next two years.

This white paper describes how the Linux® operating system is well suited to address retailers' challenges and opportunities. It illustrates how the Linux platform can help retailers reduce costs through an open and flexible environment that simplifies and enhances store operations – all while helping to lower the total cost of ownership (TCO). The paper also shows how the retail-optimized IBM Retail Environment for SUSE LINUX (IRES) – offered jointly by IBM and Novell, Inc., and pretested for use with IBM POS technologies – can help retailers respond quickly to changing market conditions, improve customer service, protect technology investments and optimize flexibility storewide.

Recognizing the advantages of the Linux platform

As they upgrade their store environments, retailers are looking for solutions that will help them provide broader, richer and more engaging interactions with consumers. Examples include consumer-empowered devices, such as kiosks in stores for price checks, gift registries and photo processing; and flat-panel displays that enable retailers to update advertising on the fly and replace costly-to-change static signage.

Not only must these new POS technologies enable retailers to sell through multiple channels, they must be integrated with a retailer's systems so that messaging and data are consistent across all channels, and customers receive the same level of service at different touch points.

With nearly one-third of retailers planning to upgrade their POS systems in the next two years,² the industry is ripe for technology solutions that can enable new customer-facing applications, speed customer checkout, improve reliability and reduce TCO. The Linux operating system is the ideal platform for delivering that technology, offering advantages such as:

- *Reliability and stability*
- *Better performance at a lower cost*
- *Flexibility and scalability, inherent in using open standards*



Highlights

Linux technology supports applications that enable retailers to deliver a superior customer experience—an important element in creating an on demand retail environment.

Leveraging the capabilities of the Linux operating environment, IRES runs on a wide range of hardware platforms, enabling retailers to take advantage of Linux technology at the POS and on back-office servers.

- *A security-rich environment*
- *A scalable, low-risk platform that allows retailers to integrate applications as their business needs evolve.*

Linux technology enables retailers to build loyalty and motivate spending by supporting applications that enable them to deliver a superior customer experience—an important element in creating an on demand retail environment. Java™ applications that integrate with the Linux operating system help to modernize the retail store environment and provide the sales force with access to the right information at the right time, improving their effectiveness and boosting productivity.

Enhancing the retail store with the IBM Retail Environment for SUSE LINUX

Leveraging the capabilities of the Linux operating environment, IRES runs on a wide range of hardware platforms, from mainframe computers to desktop and notebook computers and PDAs, enabling retailers to take advantage of Linux technology at the POS and on back-office servers. Providing a distribution of SUSE LINUX Retail Solution (SLRS) from Novell—based on the robust SUSE LINUX Enterprise Server (SLES) base—IRES features POS-specific tools and is optimized to work with select IBM SurePOS™ systems, IBM @server® xSeries® hardware and IBM middleware, and offerings from leading independent software vendors (ISVs).

SLES is a universal operating system, shipping on dozens of platforms and hardware architectures. Because it uses the same code base as its source for all hardware platforms, SLES helps ensure that changes made on the software for IBM @server zSeries® servers are immediately available for the IBM @server pSeries® and xSeries lines.³ This allows retailers to leverage the same operating system skills across their entire business. Based on SLES, IRES is an open, flexible platform that enables POS functions for the retail



Highlights

IRES is a leading Linux solution specifically tailored for the retail industry, enabling the Linux platform for all three tiers of retailing.

By facilitating the consolidation of IT skill sets, IRES helps retailers increase utilization rates and lower IT costs.

IBM provides extended support for IRES, complete with predictable upgrade release cycles and a pricing structure appropriate for POS clients.

environment. Plus, IRES is a leading Linux solution specifically tailored for the retail industry, enabling the Linux platform for all three tiers of retailing—user touch points, in-store servers and enterprise servers.

Lower TCO

With IRES for the POS, the Linux operating system scales to retail environments of all sizes and runs anywhere in the store—from the POS to back-office servers to a mainframe. This built-in versatility enables retailers to scale out or up as their needs evolve and to leverage the same applications and administration skills—helping to eliminate the costs of managing multiple operating systems in a single store or across the enterprise.

By facilitating the consolidation of IT skill sets, IRES helps retailers increase utilization rates and lower IT costs—including by reducing the need for Linux skills in all stores. Additionally, a combined server/client image allows for a single system to be used as a backup server and POS/client terminal in larger stores, or as the server and a backup POS terminal in smaller store environments (ten or fewer POS terminals). Solution components in IRES are preconfigured and tested together. And IBM provides extended support—complete with predictable upgrade release cycles and a pricing structure appropriate for POS clients—helping retailers to take out costs by streamlining store operations. IRES comes standard with scalable systems-management tools designed for use by employees with limited IT expertise. IRES supports thin-client diskless environments—helping to improve uptime and speed recovery from downtime—without the need to purchase additional software.

Comprehensive, single-source support

IRES includes a cost-effective, retail-friendly support and maintenance model that delivers the long lifecycle, world-class support and coverage, and rapid response that retailers need to maintain high uptime storewide. Retailers can



Highlights

With IRES, retailers can take advantage of a convenient and highly available single point of contact.

The open nature of Linux technology allows it to work seamlessly with heterogeneous environments.

IRES offers four customizable packages that help enable rapid application deployment, reduce complexity and boost productivity.

take advantage of a convenient and highly available single point of contact for real-time technical assistance and systems integration. In addition, IBM provides lifecycle stability for IRES, with extended support at the operating-system level and a new version every 12 to 18 months, rather than every 4 to 6 months. Maintenance services from IBM help ensure that retailers receive release updates and full support for future versions.

POS solution flexibility

Because of its innate flexibility, the Linux operating system is an optimal fit for POS systems. The open nature of Linux technology allows it to work seamlessly with heterogeneous environments, enabling retailers to integrate their Linux operating systems with existing Microsoft® Windows®, UNIX® or other systems.

IRES offers four customizable packages, specifically designed for IBM retail POS terminals. These packages help enable rapid application deployment, reduce complexity, facilitate ease of installation, boost productivity and optimize the retail environment. And because IRES provides the ability to centrally deploy and manage an image from one location, retailers can take advantage of additional security.

- *Minimal operating system*—a minimal image that contains only the runtime environment for native-code applications and a library for non-graphical user interface support
- *Java technology-capable operating system*—includes the features of the minimal operating system image and adds essential graphical interface capabilities as well as the ability to run Java programs
- *Java technology and browser system*—includes the features of the Java technology-capable operating system image and essential graphical interface capabilities, and adds a Web browser
- *Desktop operating system*—high-functionality POS clients with full graphical user interface (GUI) capabilities for a traditional desktop experience



Highlights

Taking advantage of IRES storewide, retailers can manage POS terminals and POS software distribution and installation from a central site, helping to enhance operational efficiency.

IRES enables retailers to take control of their operating system, make it unique to their operations and lock it down as tightly as they want, making it more secure.

Because IRES can scale to different POS applications, retailers gain the flexibility to run the technology on solutions ranging from non-GUI systems to full-graphic Java technology-based solutions. IRES provides support for dual displays, helping to enhance customer service. It also supports legacy and current Universal Serial Bus (USB) devices (such as RS-232 and RS-425), helping retailers protect their investments in higher-speed peripherals.

Retailers can use IRES as a tool to build, manage the distribution of and configure POS client images to the POS terminal. Taking advantage of IRES storewide, retailers can also manage POS terminals and POS software distribution and installation, all from a central site, helping to enhance operational efficiency. IRES includes a Lightweight Directory Access Protocol (LDAP)-enabled Trivial File Transfer Protocol (TFTP) server that delivers operating system images to POS systems automatically. Designed with out-of-the-box capabilities to help boost productivity, IRES enables retailers to plug in the solution and boot it up from the network – avoiding the need to manage each client as a separate entity. And with the flexibility to support open standards for the retail industry, including JavaPOS drivers, IRES helps facilitate future technology integration.

Exceptional network security

Because Linux technology is not subject to the onslaught of virus attacks commonly experienced by other operating systems, IRES offers greater security with fewer patches. One reason for the better security is the platform's modular nature: with just a few commands, IT professionals can clean and restore an infected server without rebooting. IRES enables retailers to take control of their operating system, make it unique to their operations and lock it down as tightly as they want, making it more secure.



Highlights

Linux technology is partitioned in a manner that limits the scope of any security breach, helping retailers prevent server outages and related store downtime.

Leveraging proven systems-management capabilities, IRES helps simplify central system management and make it easier to track in-store hardware and software inventory.

IRES facilitates simplified installation of in-store servers, so retailers can get new servers up and running in their Linux environment with less intervention and fewer manual steps.

Designed as a modular multiuser operating system from its inception and tested by members of an open community that provides a fertile environment for innovation, Linux technology is designed to protect service modules and kernels from being compromised – even if a hacker exploits a flaw. Strong remote management interfaces inherent in IRES not only help lower management costs but also reduce exposure to security attacks. And Linux software is partitioned in a manner that limits the scope of any security breach, reducing the likelihood of a crash affecting an entire server. This helps retailers prevent server outages and related store downtime.

Enhanced retail functionality

IRES includes operational capabilities designed to improve the overall reliability and ease of use of the operating system. The solution leverages proven systems-management capabilities, similar to those of the time-tested IBM 4690 operating system, to help simplify central system management and make it easier to track in-store hardware and software inventory. This allows retailers to be proactive in servicing peripherals and in validating software updates. And remote maintenance capabilities for the POS environment support the delivery of new client images from the enterprise server. A GUI streamlines the reporting process for easier network diagnostics, and dynamic role-based configuration capabilities help simplify network administration.

IRES facilitates simplified installation of in-store servers, so retailers can get new servers up and running in their Linux environments with less intervention and fewer manual steps. The solution also enables retailers to leverage best-of-breed third-party offerings, including Ready for IBM Retail Store Innovations solutions developed by independent hardware and software vendors, which are pretested and validated for use with IBM POS technologies.



Highlights

IRES is compatible with the IBM Store Integration Framework—an integrated, open-standards-based foundation for on demand store environments that allows retailers to “snap in” wireless devices and ISV applications to speed time to value.

IRES is an ideal solution for retailers looking to take their POS systems to the next level, offering the ability to simplify store operations, lower ongoing support costs and optimize the retail environment.

IRES is compatible with the IBM Store Integration Framework—an integrated, open-standards-based infrastructure that provides the foundation for an on demand retail operating environment. The Store Integration Framework and its components enable the system-management capabilities inherent in IRES. Based on open, industry standards, the Store Integration Framework helps provide a technological foundation for on demand store environments that allows retailers to easily “snap in” wireless devices and ISV applications to speed time to value. This not only helps make it easier for retailers to adopt new applications and devices, it also allows them to leverage existing investments in POS technologies by integrating them with the rest of the store environment. Because Linux has an open and uniform code base, ISVs can integrate their solutions into the environment—without time-consuming adaptations—and build custom POS client images that include their specific software. Using the standard interfaces inherent in the SUSE LINUX platform, retailers and ISVs can develop POS applications that enable visibility into the supply chain and provide inventory, loss-prevention and cash- and workforce-management functions.

Conclusion—rely on industry-leading technology and expertise

The store environment provides an incredible opportunity for success in retail. Key to that success is an operating system that can be integrated with advanced technologies to help retailers improve the customer experience at the point of service. For retailers looking to take their POS systems to the next level, IRES is an ideal solution that offers numerous advantages. It helps to simplify store operations and lower ongoing support costs by enabling retailers to leverage in-house IT expertise more effectively and efficiently across stores and the enterprise. IRES offers predefined Linux installation packages tailored for retail, and it helps to reduce complexity, facilitate ease of installation and optimize the retail environment—contributing to a lower TCO.



Highlights

Offering flexibility by supporting the open-standards solutions that are pervasive throughout the retail industry, IRES allows retailers to implement solutions that will be developed in the future.

Leading ISVs are integrating their retail-focused offerings with IRES and boosting their business by helping retailers demonstrate measurable business benefits in mission-critical areas.

IRES provides thin-client solution enablement, including centralized systems management and remote boot capabilities, and supports high-availability solutions configured with dual-store servers—enabling extended functionality. IRES offers flexibility by supporting the open-standards solutions that are pervasive throughout the retail industry and allowing retailers to implement solutions that will be developed in the future. And by tapping IBM as a single point of contact for support and maintenance, retailers can minimize the risk and complexity of in-store solutions throughout the entire lifecycle of their SUSE LINUX operating system.

Leading ISVs are integrating their retail-focused offerings with IRES and boosting their business by helping retailers demonstrate measurable business benefits in mission-critical areas within the store and throughout the retail enterprise. By offering IRES—and other Linux solutions—to their clients, many ISVs are reinforcing the flexibility of their Java applications and strengthening their commitments to the Linux platform, enabling them to comfortably respond to a greater number of sales opportunities. These ISVs are leveraging IRES to offer clients freedom of choice with regard to their operating system platforms. Plus, Linux technology can be remotely loaded on diskless registers and is an excellent new solution for retailers operating with older hardware, due to its ability to run on very lean environments—providing an opportunity for many DOS-based clients to move to a modern, efficient operating system with greater capabilities. In most cases, ISVs have been able to easily port their applications to IRES.

Teaming up to deliver the IBM Retail Environment for SUSE LINUX, IBM and Novell leverage the strengths of both companies. Novell offers leadership through the SUSE LINUX operating system, both in 64-bit and large-scale



Highlights

Novell offers leadership through the SUSE LINUX operating system, and IBM provides one of the most diverse solution portfolios in the retail industry.

By actively engaging with the retail community on IRES, IBM continually applies its Linux thought leadership to fulfill emerging retailer requirements.

server Linux solutions and as the originator of one-source Linux software. IBM provides one of the most diverse solutions portfolios in the retail industry and has extensive hands-on experience in a wide range of retail formats. This combined expertise uniquely positions IBM and Novell to provide solutions that are conditioned to deliver high performance in retail.

Linux technology is a critical component of IBM's vision of the on demand retail business. IRES offers a rich platform that provides the basis for a comprehensive solution – built on integrated components that have been specifically optimized for retail operations. By actively engaging with the retail community on IRES, IBM continually applies its Linux thought leadership to fulfill emerging retailer requirements. IBM has performed SLRS integration testing with IBM POS hardware and IBM middleware – including the IBM Store Integration Framework, IBM DB2® Universal Database™ software, IBM WebSphere® software and IBM Tivoli® systems management products for the Linux operating system – helping to ensure successful deployments for Linux retail solutions.

IBM has forged a proven track record, with more than 30 years of global experience, nearly two million POS terminal installations worldwide and the reputation of working closely with companies around the world to deliver comprehensive services and best-of-breed technology that meet their unique needs. By taking advantage of the IBM Retail Environment for SUSE LINUX, retailers can tap into IBM's thought leadership and comprehensive knowledge of retail IT, store infrastructure and retail operating systems.

For more information

To learn more about the IBM Retail Environment for SUSE LINUX, contact your IBM sales representative or visit:

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Research Triangle Park, NC 27709
U.S.A.

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¹ Buzek, Greg; Holman, Lee; *Store Level Server Study*; IHL Consulting Group; October 15, 2004.

² Buzek, Greg; Holman, Lee; *Store Level Server Study*; IHL Consulting Group; October 15, 2004; target for this study was retailers in the U.S. and Canada with over US\$5 million in sales.

³ The IBM Retail Environment for SUSE LINUX is currently only supported on the IBM @server xSeries platform.