

Advanced CPUs: The Impact on TCO Evaluations of Retail Store IT Investments

EXECUTIVE SUMMARY

Sponsored by: Intel

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September 2008

INTRODUCTION

The breadth and depth of operational, competitive, and economic pressures facing retailers today shows signs of only intensifying on an increasingly global level — be it from fuel prices, the housing maelstrom, commodity costs, or the growing success of the global megamerchants. While many of these macrolevel industry challenges are out of the grasp of the average merchant to influence regardless of size or segment, there is one critical area where retailers can take a stand and differentiate their offering and their brand: the store shopping experience.

With current shoppers becoming increasingly selective among merchants, and the emerging group of Generation Y ("Millennials") consumers expecting a more technology-driven approach to retail, it is left to the broadening capabilities of a new breed of customer-facing retail touch points to drive a new blend of interaction, personalization, and efficiency that result in bigger baskets, higher margins, and increased customer loyalty.

Recent industry IT spending data shows that retailers are redirecting much of their store-specific technology investments toward those new systems and platforms that will help create this adaptive, game-changing retail experience for consumers. Global Retail Insights' *Worldwide Retail IT Spending Guide, Version 1, 2008* forecasts that total investment in shopper-centric store hardware technology (including POS hardware, self-checkout, self-service, loss prevention, mobile devices, payment technology, and digital signage) will grow from \$8 billion in 2008 to \$9.7 billion in 2011. Digital signage spending alone is forecast to grow over 22% between 2006 and 2011, while retail self-service hardware will grow over 13%.

ASSESSING STORE TECHNOLOGY TOTAL COST OF OWNERSHIP: BENEFITS BEYOND THE CAPITAL INVESTMENT

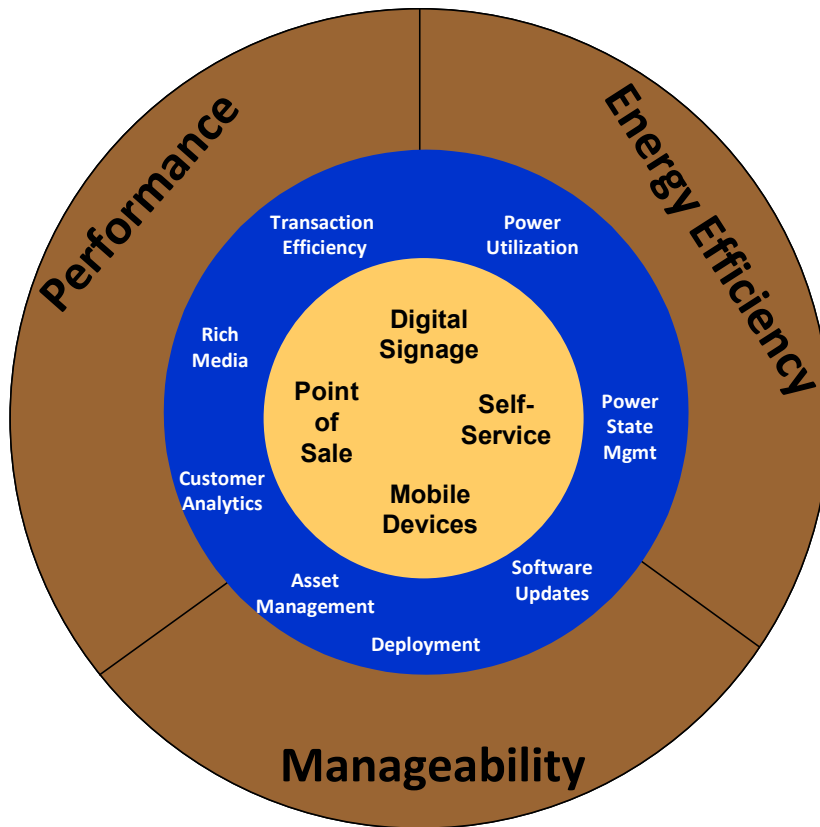
Many retail IT and store operations executives struggle to justify the up-front acquisition/purchase costs of point-of-sale (POS) replacement terminals, allowing legacy store equipment to potentially create a competitive disadvantage. The challenge is especially acute for new capital spending on advanced customer touch point technology such as self-service terminals and digital signage. However, store system projects that focus on a benefits model that evaluates the total cost of ownership (TCO) rather than just initial capital expenditure are much more likely to gain clarity on the full spectrum of potential cost savings and operational improvements from advanced store platforms. Retailers that accurately assess the broad TCO-centric impact of cost and benefit metrics (including system evaluation, staging, deployment, operations and management costs, as well as final removal and disposal) quickly realize *that as little as 20–25% of the TCO of a store technology project is actual system purchase price*. Additionally, the full TCO benefits can be realized more quickly, allowing for payback even when the useful POS asset life is shortened. It is therefore critical that retailers establish a TCO-oriented financial assessment methodology when evaluating the specific technology and operational capabilities of new POS and store systems and the more expedient way in which the technology can be updated.

ADVANCED CUSTOMER-FACING TECHNOLOGY: REVIEWING THE MOST IMPORTANT TCO METRICS

As new platform and processing architectures are introduced into the latest retail store systems, retailers must broaden their awareness of the breadth of specific TCO-related improvements these new systems can drive. Advancements in CPU technologies coming to new store systems are now oriented toward a critical combination of three broad TCO business benefits, as well as specific functions (see Figure 1):

FIGURE 1

Store System TCO Benefits



Source: Global Retail Insights, 2008

- **Performance improvements.** The increased power, performance, and scalability of newer computing architectures (ultimately the combination of integrated CPU and video capabilities) are now allowing more interactive and efficient transactions between retailer and shopper. Whether it's a new mobile tablet device providing guided selling advice to a confused consumer, a self-service kiosk providing efficient ordering or product location services, or a content-driven digital signage system displaying personalized at-product promotions, it has become crucial for the system core to effectively scale computing performance to support new store application functionality — including more embedded rich media and real-time analytics — without any negative impact to any retail sale, ever.

- **Energy efficiency.** On the surface, it would seem unlikely that performance gains and energy cost reduction would blend as benefits from the same technology platform. But new CPU designs initially tailored toward mobile-centric devices now allow finite, logic-level control of energy usage and are allowing in some cases over **70% reduction in required power utilization (compared with legacy POS platforms)** — **all while still providing as much as double the raw processing** performance as previous generations of processors. In addition, the lower power requirements of these new CPUs positively impact the store cooling needs for each newly installed store systems device. These real, financial impacts on operational costs truly define TCO-centric benefits as they continue to annually contribute improvements for the entire life of each deployed asset chainwide and help to support a retailer's eco-oriented strategies and sustainability efforts.
- **Manageability.** Most large chain retailers have migrated to some level of centralized, device-level management for store technology. Unfortunately, the early deployments of these management platforms would often be mostly software centric, have limited retail device support, and be complex to use — thus reducing many of the potential TCO benefits of field service visits and increased availability. With newer CPU architectures having device management and security functionality embedded at the chip level, any equipped store terminal can allow fully transparent remote management. This provides for a smaller team of IT or store operations personnel to initiate more proactive cost-cutting actions such as centralized deployment configurations, automated power-off management during hours a store is closed, deep virus detection and repair, and hands-off software distribution and updates.

THE INTEL® CENTRINO® 2 PLATFORM: MOBILITY ADVANCES PROVIDE A FOUNDATION FOR RETAIL TCO

In mid-2008 Intel introduced the Intel® Centrino® 2 family of processors. Codenamed Montevina, this processor family was originally designed with specific capabilities targeted toward the next generation of enterprise business notebook computers. However, the expanding list of advanced (yet blended) performance and efficiency benchmarks became perfectly aligned with the requirements of the next wave of retailer store platforms — and the core benefits required in a TCO-oriented assessment model.

Contributing capabilities that align the Intel® Centrino® 2 platform with retail store system requirements include increased (up to two times) performance driven by improvements in 45nm chip design, L2 cache, and 64-bit support — as well as the improved embedded graphics supporting advanced retail user interfaces and rich media. Intel® Centrino® 2 also directly supports virtualization, providing increased application and OS flexibility in store terminal and server configurations. With retailers fully entrenched in an immersive culture of customer data privacy and security, Intel® Centrino® 2 also provides chip-level security and trusted platform functions to help support drive and data encryption.

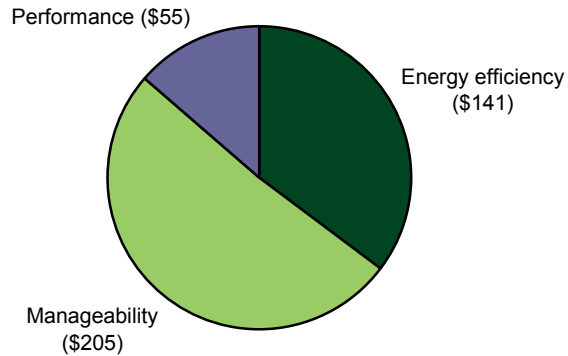
Lastly, Intel has successfully merged Intel® Centrino® 2's raw performance improvements with new functionality directed at active, embedded device and power management. These management capabilities include chip-level virus detection, active health monitoring, and centralized asset management. The lower power utilization (as much as a 65 watt reduction) can combine with active power status management to significantly lower POS operational energy costs both during and after business hours.

DEFINING REAL BENEFIT: A RETAILER TCO EXAMPLE

To help quantify the various TCO-oriented operational and financial benefits that can be derived from advanced store technology systems underpinned by the latest processor platforms, Global Retail Insights developed a quantification model that calculates potential business value and cost directed at a broad list of TCO-oriented metrics. Two calculations were made: one for the annual TCO benefits derived for a single POS terminal and another that looks at potential chainwide benefits based on a sample retailer configuration — in this case a \$3 billion regional grocery retailer. Eight TCO benefit calculations were modeled and aggregated to each of the major benefit categories — performance, energy efficiency, and manageability — that new CPU platforms can directly impact as part of a new generation of store systems. The annual financial benefit from these improved TCO metrics can be seen in Figure 2.

FIGURE 2

Annual TCO Benefits per POS Terminal



Source: Global Retail Insights, 2008

The \$401 annual TCO benefits per POS terminal reflects major improvements in all major operational cost areas, with over half (\$205) of the annual benefits coming from improved automated management that reduces service calls, staff requirements for software updates, deployment costs, asset tracking, and the ability to ensure systems are powered down during hours a store is closed. Energy-efficiency benefits derive from both lower CPU wattage (72% less compared with the average legacy POS system deployed) and lower overall cooling requirements for newly deployed POS systems.

When compared in many cases with the operational costs of an existing legacy POS configuration, the TCO value that can be generated simply from benefits directly impacted by advanced CPU capabilities is striking. In Figure 3, the sample retailer's capital costs for new POS acquisition would be nearly \$5 million. The life-cycle benefits modeled, including just the eight most CPU-impacting TCO metrics, amount to nearly two-thirds of the original purchase price. The value proposition presented by the CPU functionality outlined in the new Intel® Centrino® 2 processor family becomes by itself a powerful contribution toward making the case for investment in new consumer-centric store technology.

FIGURE 3

Advanced CPUs and New Store Technology: Positive TCO Impacts Versus Legacy POS Platforms

\$3B Retailer: Example Business Configuration

Sales	\$3,000,000,000	Daily sales/store	\$41,667
Stores	200	Days open/year	360
Terminals	2,000	Service/store/year	24
Asset life (years)	5	Service call visit	\$150
Labor cost/hour	14	Energy cost (\$kWh)	\$0.10
Cashiers/store	16	System cost	\$2,500
Open hours/day	14		

Note: Energy cost is U.S. national average.

TCO Metrics and Benefits

Category	Metric	Potential Improvement	TCO Benefit
Performance	Transaction throughput	45 mins/week labor reduction	\$110,000
Manageability	Service calls	15% reduction (in store)	\$108,000
Manageability	Software updates	\$100/store/update and 4/year	\$80,000
Manageability	Deployment	\$40/terminal	\$16,000
Manageability	Asset tracking	12 hours/store/year	\$34,000
Manageability	Power-off automation	90% reduction/hour closed	\$173,000
Efficiency	Power usage	72% reduction (90W to 25W)	\$66,000
Efficiency	Terminal cooling cost	70% less cooling required	\$216,000

Sample Retailer (Large) – TCO Benefit

TCO Value – Annual	\$803,000
TCO Value – Asset Life	\$4,015,000

Source: Global Retail Insights, 2008

CONCLUSION

The TCO-oriented financial benefits that the latest processing architectures such as Intel® Centrino® 2 bring to retail store systems are compelling — over \$400 in annual per-terminal TCO value derived from both performance improvements and cost reductions around improved energy usage and more flexible and capable systems management. Over a shorter five-year asset life of the new POS asset, these benefits can amount to 80% of the up-front purchase cost of the system itself.

As retailers strive to find the "hook" in the business case for new store technology and an improved customer experience, the powerful impact of TCO-related benefits and business value helps give retailers the justification to invest in advanced store platforms today and to keep the technology refreshed on a more regular basis — thus enabling the capability and flexibility to deliver the right retail experience to the right kind of shopper.

The battle for consumers in this difficult retail climate will be won by those merchants that establish an efficient, flexible, and high-performing store system architecture. Making big investments in these new technology strategies is never easy, even when the direct financial benefits seem clear. But now, with the ability to combine dramatically increasing processing capabilities with the efficiencies of improved power utilization and system management, the opportunity to define and defend a strong TCO-oriented business case for POS-related technology investment has never been stronger. Those retailers that make that proactive move toward a new, differentiated shopping experience can look to more easily capture an increased share of the shopper's wallet.

METHODOLOGY

This executive summary was sponsored by Intel. Global Retail Insights feels strongly about the business value of conducting a TCO-oriented business case analysis for POS and any other store system technology investments. While this document describes specific vendor products used to fully calculate the TCO model results, it is not our intention to recommend any specific solution or vendor.

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