



THE GLOBAL LEADER IN  
CLOUD CLIENT COMPUTING

# Maintaining the Competitive Edge in the New Era of Anywhere, Any Time Retail

How Virtualization and Cloud Client  
Computing Improve Efficiency and  
Production While Reducing Costs

A white paper by Wyse Technology Inc.

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# Introduction

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## The New “Normal” in Retail

Retail today is all about being better, faster, and leaner. The past few years have been some of the most brutal and unforgiving in modern memory for retail organizations in the U.S. and around the globe. Constraints on consumer spending caused by the global recession and increasing costs are putting retail margins under greater pressure. Consumer spending remains patchy and unpredictable, and set against a background of continued economic challenges, increasing fuel costs and the specter of inflation, the focus for retailers is on cost-reduction as a means to offsetting margin pressure. Markets are changing rapidly and will continue their trend developments through 2011. But beyond these difficult market conditions, retailers will have to address the issues presented by the rapidly changing landscape of modern retailing. This can be seen in the short product life-cycles of consumer electronics goods, the impact of downloadable files on the music industry and the complex mix of retail channels now available to consumers – from main-street, the internet, catalogues, and mobile devices. Consumers are becoming far more sophisticated in their approach to gaining market knowledge and now have far higher expectations of service and value.

We can also expect to see stronger competition between retailers for the high-spending, tech-savvy segment of the population – those who own smart-phones and spend more time on the web. Retail organizations must be able to access to up-to-the-minute data on their supply chains to respond to changing patterns of demand and market needs. Real-time inventory, forecasting and order management tools are required to ensure that enough of the fastest selling products are re-ordered and routed to wherever demand is detected, thereby enabling the balancing, prioritizing and streamlining of stock levels across the business to achieve the “convenient fulfillment” that consumers are now expecting. As smart-phone applications now allow users to make available their location to third parties, retailers must be prepared to tap into this resource by targeting promotions to priority customers in the vicinity. Traditional brick-and-mortar retailers have to move away from a fixed-point-of-sale to embrace a more mobile sales force armed with hand-held devices that enable staff to check stock availability in-store and across all channels, reserve items at another store for pick-up or arrange delivery to a home address, and importantly, to enable staff to price-match when necessary. This is the new reality of the retail merchandising environment.

## Unique Challenges Facing Retail Organizations

In a recent report from Accenture<sup>1</sup>, the consulting firm identifies several critical issues for CIOs in retail industry. Business leaders in retail face different challenges from their counterparts in other industries—and need to scrutinize their decisions about information technology investments such as cloud computing with a new level of awareness. Specifically, they need to take into account the impacts on their business from these industry-specific factors:

1. Customer - The model for communicating and transacting with customers is evolving from anonymous cash transactions to customer-identified loyalty transactions executed in-store, online or via mobile phones.
2. Data - Retailers manage an immense amount of data between their customers, products, stores, sales, marketing, and supply chain. The cost of capturing and maintaining this ever expanding data is expensive on traditional architectures.
3. Analytics - Customers expect better and differentiated services based on the valuable data they are providing. Retailers not only need to collect this valuable information but must also analyze it in combination with sales, marketing, and supply chain data, to better serve and communicate with their customers—thereby improving both their top and bottom lines.
4. Capabilities and cost reduction - Retail is traditionally a low margin industry with limited capital to invest. Combined with the fact that most retailers are operating with increasingly antiquated systems, they are looking for low cost opportunities to upgrade their capabilities, while decreasing the operating costs of those that will remain.
5. Data security - Companies and customers need to know that their data is safe. Given the vast amount of data retailers possess, it is paramount that their corporate data and more importantly the data their customers entrust them with is safeguarded.

## Retailers Respond with Continued Information Technology Investment

Despite the negative impact of the recession on retail sales, retailers have continued to increase their IT investments, according to a new study from ABI Research<sup>2</sup>. The report indicates that investment in retail information technology, consisting of integrated point of sale (POS) systems, payment terminals, POS barcode scanners, POS printers, and electronic article surveillance (EAS) systems, continued growing during 2009. In 2010, retail IT spending in the U.S. totaled approximately \$14.8 billion, and retail IT spending is expected to expand at a rapid pace during the next four years. By 2014, ABI predicts retail IT spending in the U.S. will have grown by approximately 50% from its 2009 level, reaching almost \$21 billion. The study finds that continuing growth in retail technology systems shipments and revenues will be driven by global demand for technologies which are highly efficient and customer-friendly, and which also meet rapidly evolving security standards.

<sup>1</sup> Accenture report  
“Six Questions Every Retail Executive Should Ask About Cloud Computing”- Michael Mojica, Jeff Stephenson and Alan Healey, 2011

<sup>2</sup> ABI Research -  
“Next Generation Point of Sale Systems and Retail Technology”, 2010

According to the latest National Retail Federation (NRF) annual survey, average retail margins improved by a modest 0.7 percent in 2010. Retailers have begun to understand that some large investments in IT turn out to be cost-savers in due time, especially when applied on a large scale. The NRF study also agrees that retailers plan to loosen their wallets, particularly in mission-critical areas, like IT, where headcount and budgets are expected to increase. 74% of respondents in 2011 will increase their consumer insight and data gathering initiatives. And 69% of respondents identify m-commerce and e-commerce as a strategic initiative in their organizations.<sup>3</sup>

A majority of respondents to the NRF study stated that they now match prices and make 80% of their merchandise available online, for example. While retailers are working harder to stimulate demand on the front end, they have also streamlined internal systems and processes, consolidated platforms, and integrated data across channels. With these internal improvements at the forefront of retail mindsets, efficiency and value has become critical. With fewer buyers in stores, competition for the share of wallet has intensified. To win shoppers, the industry has focused on improving customer interactions. Because buyers are more fragmented and product proliferation is on the rise, the quality of the customer experience has quickly become a key point of differentiation, with IT playing a key role.

## **Information Management and Cloud Computing Adoption**

The amount of information available to retailers from IT systems today can be overwhelming. Each individual store's profits are influenced by daily sales, overhead, employees, shipping, campaigns, and traffic that change on a daily basis. However, proper systems must be in place so that information can be:

- Collected quickly, reliably, and efficiently
- Analyzed to make sense of the past and plan future decisions
- Distributed to the right people within the organization so that they can act on it

In a recent Microsoft-commissioned survey of about 3,000 business decision-makers across the United States, nearly half of the respondents (48 percent) from the retail industry said that their companies have used server virtualization and cloud computing. One-third (32 percent) said that their companies were ready to move all applications to server virtualization cloud computing.

Retailers say that they are being pulled toward the cloud computing environment because it can address three key issues: focusing on core competencies, meeting unpredictable demands and improving customer service. Cloud computing enables retailers to focus their resources on the things that set them apart: Store portals, social media, digital marketing and employee retention. It also enables retailers to invest less in maintaining, monitoring and updating shared working documents, e-mail and, operational data. Retailers have been quick to realize the benefits cloud offers, and have turned their focus to sustainability and efficiency, leveraging improvements and technology that will pay off in the long run.

<sup>3</sup> NRF/KPMG Annual Retail Industry Survey – March 2011

## Economic and Operational Benefits of Cloud Client Solutions

The benefits of virtual desktop and centralized server infrastructures as part of a cloud computing environment are largely financial: Software and storage are hosted and supported on the centralized server infrastructure, enabling retailers to avoid investment in technologies that are quickly outdated, and reduces time spent on technical support. This model also enables IT teams to leverage software investments and choose from a wider range of applications than would be practical to purchase for each individual PC, for example.

Research firm Gartner recently compared the Total Cost of Ownership (TCO) of personal computers versus what they term server-based computing (SBC). SBC is simply one implementation of cloud client computing. According to their findings, the “TCO of a SBC deployment used to deliver all applications to users is around 50% lower than that of an unmanaged desktop deployment, and 11% to 18% lower than that of a locked and well-managed PC deployment.” In addition, the direct costs “of SBC are between 12% and 27% lower than those of traditional PCs.”<sup>4</sup>

Other benefits associated with cloud client capex and opex are also compelling; on average, it costs more than twice as much to provision a PC vs. a cloud client. PCs typically incur significant annual maintenance costs associated with software maintenance and upgrades, hard drive failure, and troubleshooting, while cloud clients are essentially maintenance-free, and can be easily swapped out when necessary. The average lifespan of a cloud client is six to eight years, vs. the three to four year lifespan of a PC, thus extending the buying cycle and reducing costs over time. In addition, cloud clients provide a greener solution from an energy perspective, consuming 10% or less of the wattage (under 7 watts versus 100 or more) required to operate a PC.

Additional benefits associated with virtual desktop infrastructure and cloud clients include:

*Improved security* – Cloud clients do not store data or sessions, and all data resides on highly secure servers. That makes it much simpler for IT to comply with data security and back-up policies, especially for customer records, inventory, and sales data. End points and individual access can be completely locked down as needed by the IT administrator through centralized control of the virtual machines hosted by the servers.

*Greater reliability* – Cloud clients do not have moving parts such as disk drives and fans, and require no native OS to be loaded on the machine, since they are completely dependent upon the centralized servers. With no PC OS to corrupt, cloud clients, and more secure ‘zero clients’, reduce or eliminate virus or vulnerability issues. Unlike a PC, it is impossible for unauthorized users to “customize” the cloud client with outside software which could potentially disrupt the workstation and the network.

<sup>4</sup> Total Cost of Ownership Comparison of PCs with Server-Based Computing, August 2008, by Federica Troni, Mark A. Margevicius, Michael A. Silver.

*Anytime, anywhere access* – The lower per-unit costs of cloud clients vs. PCs means that more cloud clients can be deployed throughout the retail environment, including back-office systems, online workstations, and point-of-sale (POS) terminals. The centralized server architecture also enables users to access online resources remote locations, thus enabling mobile retail services on smart phones, for example. Software such as Wyse PocketCloud enables secure access to this information from tablets and smart phones from Apple and Google.

*Simplified desktop environment and ease of use* – Since information and computing resources reside on centralized servers, cloud clients can be provisioned with exactly the application(s) required for different users, such as customer service representatives, point-of-sale clerks, and inventory managers. A single cloud client can efficiently display any application and OS supported by the virtual server environment.

## **Increasing Retailer Margins with Wyse Technology Virtualized POS System**

More and more retail organizations are seeing the value of using a cloud computing or virtualized environment to reduce operating expenses, increase data security, and reduce power requirements. Wyse Technology has long provided advanced solutions for retailers. Until now, however, retailers considering virtualization would have to omit point-of-sale (POS) systems from the strategy as no major provider offered a cloud or virtualization-ready POS system that can run today's advanced POS applications. But POS is a critical function in the retail environment.

Wyse Technology and Pippard Inc. have created a POS system that is designed and optimized for virtualized environments. The Pippard MRT-WCR™ includes the traditional POS system display, cash drawer, receipt printer and scanner, but its heart is based on a new Wyse virtual client processor combined with a Microsoft Windows Embedded Standard 2009 operating system.

- The Wyse component is unique in the market, offering hardware support for advanced multimedia and video, enabling easier-to-use and more impactful POS applications.
- It also uses solid state storage rather than a hard disk to store local operating software, significantly increasing reliability and stability. Windows Embedded Standard 2009 delivers peripheral connectivity and enterprise class manageability.

The system is available as a cloud client targeted at the specialty retail market and as a zero client with Wyse WSM targeted at the large format retailer with greater than 6 registers per store, and delivers quality POS hardware at a lower total cost of ownership. This approach connects directly to cloud computing, virtualization and streaming software technologies delivered by Citrix, Microsoft, VMware and Wyse today, and provides several benefits:

- Drives increased margins through lower operating costs, including lower energy costs. The EnergyStar-certified Wyse POS cloud client consumes less than 7 watts of electricity in full operation – the same amount of energy consumed as a typical holiday tree light bulb, and typically 85 percent less than PC-based products. The Wyse POS cloud client simplifies and reduces IT costs, via central management, reducing or eliminating the need to ever visit the system to perform maintenance, upgrades, and diagnostics
- Enables high levels of security - no data is stored on the POS system, so no data is lost or exposed in the case of damage or theft of the system
- Provides POS resiliency and reliability – a solid state memory drive option supports remotely managed, local virtualized POS transaction storage in the event of loss of communications with the central server, and operation continues even in the case of network failure
- Meets changing business needs - seasonal traffic increases can be easily handled by simply connecting additional units to the in-store network

## Using Cloud Clients to Enable e-Commerce

Virtualization is changing the way computing is done for online as well as brick-and-mortar retailers. Jewelry Television reaches more than 65 million viewers in the United States, and millions more via its Web site, and has evolved to become one of the world's largest jewelry retailers. As the business has grown, so too has the call center. Today, approximately 300 customer service representatives (CSRs) handle more than 6 million calls per year and thousands per day during the peak holiday season.

Rapid growth has forced the company to scale its call center, and quickly. The need to scale was complicated by the fact that Jewelry Television's existing thin clients could not support the inventory management system that came along with the acquisition of Shop at Home. In January 2008, company executives established a six-week deadline to find a virtual client solution that was compatible with all of the organizations' existing applications, as well as connect to Shop at Home servers for order processing. An evaluation showed the IT team at Jewelry Television how well Wyse virtual clients integrated with VMware's Virtual Desktop Manager to support Jewelry Television's broad set of applications.

Jewelry Television has deployed 350 Wyse V10L cloud clients to support the 300+ person call center, put every single call center application on a Windows XP image, and then quickly integrated that image to make the Shop at Home order processing work. The IT team had four connection servers with desktop virtualization software quickly set up, and created a staging area near the call center where all 900 call center representatives were trained within a matter of days. CSRs were particularly impressed with how quickly they could log on and get to work using the Wyse cloud clients.

Moving away from their earlier architecture had additional benefits for the IT team. Prior to the switch to Wyse, the daily support requests from the call center would come in at any point during the day or night. Because the prior architecture lacked remote log-in capabilities, the IT team would be getting calls in the middle of the night and had to drive to the call center to resolve those issues.

The Jewelry Television IT organization has significantly reduced their IT opex and capex. The previous call center infrastructure required 30 servers. Today's system requires only a total of four (4) connection servers and six (6) virtualized hosts to support all 300 Wyse cloud client desktops. Maintenance overhead has plummeted, going from one support call per day to one support call **per year** with the integrated solution from Wyse, thus making costs for the solution as close to zero as possible.

## Using Virtualization to Get Closer to the Customer

As a broadcast company with a strong focus on customer care, Jewelry Television wants their customer service representatives (CSRs) to have access to the same information as their customers. This means that every CSR is watching a live broadcast of the cable program. Until recently, this would have required televisions on each desk – an expensive proposition as well as one that would take up valuable desk space. With advances in virtual client technology, particularly the Wyse TCX virtualization software suite, Jewelry Television is able to have their CSRs access the television broadcast via live stream to their virtual desktops utilizing multicast video re-direction. The CSRs at Jewelry Television are not only accessing sophisticated inventory and order-management applications; they are also using their cloud clients to watch a live stream of the Jewelry Television show.

The Wyse TCX suite delivers a variety of solutions, all designed to improve the end user experience, including audio, video, multi-screen support and USB support capabilities. This technology solution is the infrastructure upon which Jewelry Television and other retailers...both online as well as brick-and-mortar...can continue to expand upon and improve the customer experience. Virtual desktops are also installed in many of the conference rooms at Jewelry Television's headquarters. In addition, kiosks are set up throughout the company for employees to access information such as benefits and other HR-related information. Cloud clients and virtual desktops are being rolled out in every department as part of an on-going PC replacement cycle.

# Summary

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These examples illustrate the value of deploying cloud clients and a Virtualized Desktop Infrastructure in retail organizations, whether they are online or brick-and-mortar. Not only does the cloud client computing platform from Wyse Technology, consisting of complimentary software and hardware, deliver better VDI with clear and compelling operational benefits to retail organizations, it also enables more efficient economic deployment models for retailers struggling to recover from the effects of the economic recession. Retailers clearly understand in today's hyper-competitive economic environment, the cloud model is a primary pathway to achieving more effective customer interaction, and ultimately a greater share-of-wallet. Wyse Technology continues to deliver ground-breaking software and hardware solutions in virtual computing environments which help retailers boost sales and achieve greater margins by reducing IT maintenance and overhead, enhancing security, delivering more flexible and cost-effective computing power, and providing more energy-efficient solutions that help retail organizations meet the challenges ahead.

Wyse Technology is the global leader in Cloud Client Computing. The Wyse portfolio includes industry-leading thin, zero and cloud PC client solutions with advanced management, desktop virtualization and cloud software supporting desktops, laptops and next generation mobile devices. Cloud client computing replaces the outdated computing model of the unsecure, unreliable, energy-intensive and expensive PC, all while delivering lower TCO and a superior user experience. Wyse has shipped more than 20 million units and has over 200 million people interacting with their products each day, enabling the leading private, public, hybrid and government cloud implementations worldwide. Wyse partners with industry-leading IT vendors, including Cisco®, Citrix®, IBM®, Microsoft®, and VMware® as well as globally-recognized distribution and service partners. Wyse is headquartered in San Jose, California, U.S.A., with offices worldwide.



A white paper by Wyse Technology Inc.