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WHITE PAPER

Why SD-WAN Is a Critical Component in the Future of Retail?

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INTRODUCTION: DIGITAL TRANSFORMATION IS RESHAPING RETAIL

Digitization is reshaping the retail landscape across every industry faster than ever before. Just look at how the makeup of the Fortune 500 has changed from the early days of the digital era, in 2000. An alarming 52% of those companies have gone through acquisitions, mergers or bankruptcies, or they simply don't exist anymore. They weren't all retailers, but the inevitability of upheaval is obvious. In the same period, the expectations of the CIO shifted from cost cutting to revenue generation and activities that support competitive advantage.

With all the pressures coming from outside and within retail organizations, retail C-level execs expect that the herd will thin considerably in the next five years, according to research conducted by ZK Research. The demise of some of those businesses might end up having little to do with the pricing and product strategies that have buoyed retailers for decades; instead, it might all come down to technology and the customer experience—things retailers have shied away from.

But while many luddites in retail have felt helpless as online behemoths employ a combination of technology and the customer experience to spirit business from the brick-and-mortar set, those retailers might finally be ready to change their tune. Retail will need to embrace digital transformation and use technology not for technology's sake, but to enhance the customer experience, which will be a defining characteristic of successful retailers in the next few years.

An industry that once was defined by pricing and product is shifting to a focus on the customer experience. At a recent industry conference, Williams-Sonoma CEO Laura Alber summed things up: "I do not believe that [we're in the midst of a retail apocalypse] and I do not believe that Amazon is killing retailers. I believe retailers' bad service is killing retailers." With that in mind, retailers are starting to focus on creating better experiences through the introduction of new technologies such as the cloud, the Internet of Things (IoT), mobility, video and omnichannel interactions. These activities directly affect the top line: Consumers' positive experiences lead to better engagement with the brand, which leads to more revenue and brand loyalty.

Physical retailers won't go away. In fact, many brick-and-mortar retailers remain an indispensable channel for customer engagement. Amazon validated that idea when it acquired Whole Foods to expand its grocery operations and gain a foothold in the physical world. The Whole Foods/Amazon experience is a glimpse into the future. All retailers will have to employ an arsenal of

DIGITAL TRANSFORMATION DEFINED

ZK Research defines digital transformation as the application of new technologies to create new business services and processes by leveraging the convergence of people, processes and networked things. Digital innovation involves companies transforming business operations to generate more revenue, lower costs and achieve unprecedented levels of efficiency to gain a sustainable competitive advantage in their markets.

ABOUT THE AUTHOR

Zeus Kerravala is the founder and principal analyst with ZK Research. Kerravala provides tactical advice and strategic guidance to help his clients in both the current business climate and the long term. He delivers research and insight to the following constituents: end-user IT and network managers; vendors of IT hardware, software and services; and members of the financial community looking to invest in the companies that he covers.

digital tools to bridge the online and physical worlds and enhance the customer experience in order to gain a competitive advantage (Exhibit 1).

However, it won't be easy to accomplish this laundry list of priorities. Already, in-store bandwidth use is exploding in retail as stores put tablets, video, digital signs and other technologies to work. A quick look at our view of the store of the future shows almost all of these advanced technologies are network centric. Organizations that embrace digitization have quickly become leaders in their respective markets while they watch the laggards recede into the distance.

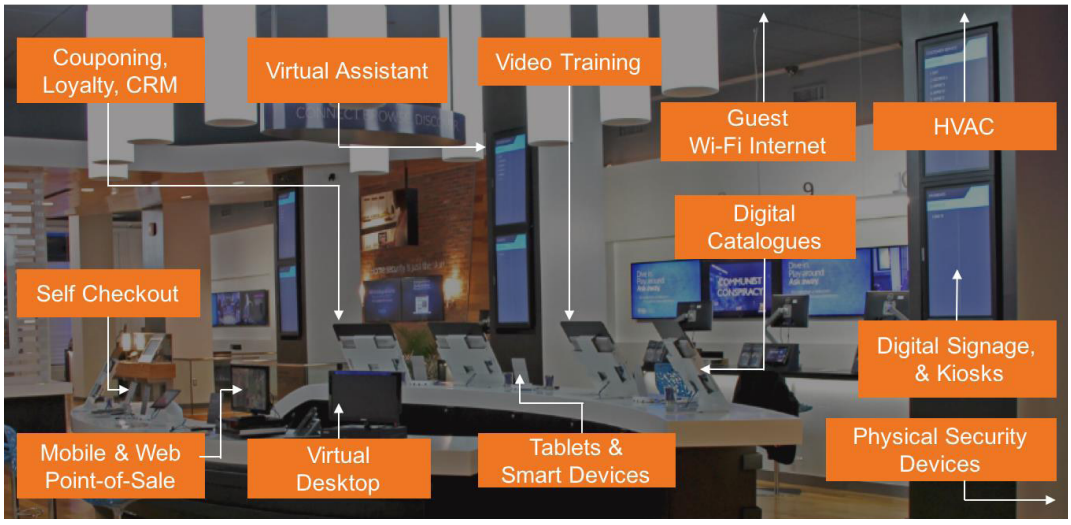
There are solid reasons for adopting a digital transformation strategy; topping the list is profitability. ZK Research studies have discovered that digital organizations are 64% more profitable than companies that have not embraced this shift. If a retailer's network fails or the company stumbles on the customer experience front, it can be fatal. A recent Accenture survey showed that 66% of millennials changed their brand loyalties in the past 12 months because of a bad experience. So, it's clear: To make the move, the network—particularly the WAN—must evolve to keep pace with the demands of the business.

In this report, ZK Research explores the challenge with legacy WANs and how software-defined wide area networking (SD-WAN) enables retailers to undertake digital transformation. We also share what to look for in an SD-WAN service provider. Finally, we share some recommendations on how retailers should proceed.

SECTION II: THE CHALLENGE WITH LEGACY WANS

Legacy WANs have several problems that hamper their use in retail environments. First of all, legacy WANs lack the agility and flexibility that digital organizations need—especially those in retail. For a retailer, the failure of a network can cause immediate loss of revenue and brand aban-

Exhibit 1: Unique In-Store Experiences Are Required to Thrive



VeloCloud

donment. The cascade of issues a network failure can cause are too numerous to list. But think about this: If the point-of-sale system is down, revenue screeches to a halt.

If the data a customer needs in order to make a choice is unavailable, a potential sale is lost. If the inventory system is down, an employee will have to search the warehouse for a product in the hope that a customer will wait. The problem is, the patience of shoppers is pretty short. They'll just go down the block or across the mall and get what they want. In fact, according to a recent British study, 41% of shoppers have changed their mind about making a purchase due to a long checkout line, and 86% said they will avoid a store that they think has long lines—with 74% saying they'd rather shop at a competitor.

So, why not just improve the legacy WAN? Doing so is possible, but it takes time; usually, it's a box-by-box update with a lot of manual work that results in long lead times. Traditional networks like legacy WANs are designed with an "active–passive" architecture, which means that only one link can be active at a time. This drives up costs because companies end up paying for bandwidth they don't use. And when the average time to make a network-wide change is four months, it's almost a certainty that customers will abandon a brand rather than wait in long lines.

Other factors are contributing to the inadequacy of legacy WANs. New applications are sucking up much of the available bandwidth on networks—leaving little for other business-critical applications. In-store WiFi is a great value for customers, but if it consumes bandwidth that the store needs to process transactions, it can be self-defeating.

Many retailers use a hybrid in-store/internet structure that works like this: In-store purchases and in-store ordering of out-of-stock items both happen online. This requires high bandwidth at each location to download images without having to backhaul to the primary data center. Using a legacy WAN often saddles a retailer with backhauling internet over the WAN, which means traffic traverses the WAN twice. If you're looking for efficiency, that's not the way to get it.

So, just get some network engineers to manage the network so the retailer can avoid slowdowns and route traffic more efficiently. No big deal, right? Not so fast. Those network engineers will face an uphill battle because they lack the visibility into network conditions to effectively plan capacity. Prioritizing applications is also not an option because legacy WANs provide no ability to prioritize unified communications or video over other applications. With little visibility and/or control over individual applications, an attempt at capacity planning could do more damage.

In addition to capacity planning and network traffic, security is also a major concern with legacy WANs. Securing internet links at each location is difficult because so many organizations use an inefficient "hub-and-spoke" model. Retailers need a new WAN approach to safeguard revenues and ensure brand loyalty in this increasingly digital world: SD-WAN.

SECTION III: SD-WAN ENABLES DIGITAL TRANSFORMATION IN RETAIL

So, what is SD-WAN? Put simply, it simplifies branch office networking and ensures applications perform at optimal levels. Unlike traditional WANs, a software-defined WAN makes the network

more agile and reduces cost. SD-WAN shares principles with software-defined networking (SDN)—mainly to abstract the network hardware and transport characteristics from the applications that use the network.

SD-WAN brings a level of agility to the WAN never seen before. For example, SD-WAN enables multiple links, devices and services to coexist and interoperate with existing solutions. This setup is simpler and can make a retailer more agile and capable of adjusting based on in-store needs. Software-defined WANs have APIs that integrate seamlessly with popular retail management and reporting systems. This eliminates the cobbling together of disparate systems that many retailers spend time fussing over.

SD-WAN separates the control and data-forwarding planes, which enables the centralization of configuration tasks. As a practical matter, this means retailers can control devices in one or more locations with software hosted elsewhere, which leads to faster installation and provisioning. Often, it just means unboxing, powering up, adding the SD-WAN appliance to the WiFi network or plugging it into Ethernet. This simplicity greatly reduces the need for expensive truck rolls and time-consuming configuration, because once connected to the network, configuration can happen centrally. In addition, if a device needs to have changes applied, that's simpler as well because the software-defined WAN has a centralized portal and includes the ability to deploy changes to the whole network simultaneously.

High availability is another plus because, unlike legacy WANs, software-defined WANs use an "active–active" architecture. This approach provides protection against blackouts and brownouts and can induce failover in less than a second. Making the network run more efficiently is simpler with SD-WAN as well, because retailers can easily set quality of service (QoS) policies for applications and traffic types, making it easy to optimize voice, video traffic or other priorities.

In addition, because SD-WAN was born in the digital age, it can easily connect directly to cloud apps, which greatly improves convenience while also increasing branch and cloud security. And because SD-WAN enables easy network segmentation, it's easy to conform with PCI requirements on the processing, storage and transmission of credit card information.

For engineers looking to proactively manage the network, the network visibility provided by SD-WAN offers a significant advantage. From a central console, engineers can monitor the network conditions 24/7 easily, troubleshooting any issues across any number of stores—all with no on-site IT staff.

So, these are great capabilities. Finding a solution provider that delivers the precise solution retailers need can be a challenge, though. The next section features a guide to evaluating vendors.

SECTION IV: WHAT TO LOOK FOR IN A SOLUTION PROVIDER

Choosing the right vendor for any kind of technology is critically important. And with SD-WAN, because of all that rides on the decision, it's even more critical. ZK Research has assembled this guide to the must-haves for SD-WAN to ensure retailers make the right decision for their organization.

THE IMPORTANCE OF CLOUD DELIVERY

Cloud delivery is a critical innovation in SD-WAN. With every aspect of SD-WAN delivered over the cloud, retailers benefit from the following:

> It eliminates the bulk of on-premises infrastructure, requiring only a minimal amount.

> It enables centralized configuration and easy management via a web-based portal.

> It delivers faster time-to-market so that a retailer can get it set up without consuming IT resources, triggering a truck roll or wasting planning cycles.

> It includes rapid updates, so downtime is limited.

> It includes direct connectivity to cloud providers, which improves security and performance.

> It opens up retailers to rapid innovation because the entire service is delivered via the cloud.

Make Sure It's Cloud Delivered

Words are important here. Look for SD-WAN that is cloud *delivered*, not cloud managed. Some SD-WAN providers may have a layer in the cloud that enables central management—but be careful because that architecture might not be built on the fundamentals of the cloud. In other words, it might not be cloud native. On the contrary, it could be cobbled together from legacy solutions that have been adapted to the cloud. Parts may be cloud based, but the solution is likely only managed in the cloud.

One company in the SD-WAN space, VeloCloud, has engineered its entire solution based on the abstraction of the management and data plane. This approach enables retailers to just plug in and go—with provisioning, management and configuration all happening centrally and no IT resources required on site. As a result, adaptability, flexibility and scalability are virtually unlimited.

Find an Easy-to-Use Portal

The portal is critical to the operation of SD-WAN. It should include granular functionality that enables the prioritization of voice, data or video traffic—or other factors—based on business needs. It should be simple to make changes to one location or many.

Ensure It Provides Network-Wide Visibility

Look for a solution that provides a total view of the network with centralized monitoring, visibility and cloud control. It's critical for a retailer to be able to deploy to stores while also delivering automatic business policy and firmware updates, link performance and capacity measurements. Being able to instantly see network conditions is necessary for this kind of functionality.

Look for an Array of Cloud Partnerships

What good is it to have a cloud-delivered solution if it doesn't integrate with popular cloud services? Look for a provider with a broad ecosystem of partners across technology providers—one that manages service providers and value-added resellers.

Make Sure It Can Work with an All-Broadband WAN or Hybrid WAN

Transport options vary for retailers. A solution should work within the constraints that retailers face, which could include an all-broadband operation or a hybrid approach that mixes slower connections with broadband. Either way, the solution should work seamlessly.

Get References from Retail Customers

Getting references is a no-brainer, but doing so is sometimes overlooked in the excitement of getting a new solution up and running as fast as possible. Look to peers and see if they have turned to the providers under consideration. Any provider should be able to share case studies and references from the retail sector. Read them, talk to customer references and learn from the experiences they share.

Ensure the Deployment Will Be Simple

It's one thing to know that operation and management will be simple—but how about the deployment of the solution? Look at the way the provider plans to deploy. Take it step by step and ensure the approach is acceptable. This will be a critical first step taken with the provider, and it will set the tone for the entire length of the relationship, so it's critical to get it right the first time. If the deployment scheme seems complicated, keep looking and find a better fit.

SECTION V: CONCLUSION AND RECOMMENDATIONS

The seismic effects of digital transformation are reshaping the retail world. Many retailers are starting to use technology to enhance the customer experience, which will be the defining characteristic of market winners in the years to come. But some, hamstrung by legacy WANs, are struggling to adapt their organizations to bandwidth-intensive applications that are the cornerstones of the digital world. They know they need to change, but to what?

SD-WAN, which abstracts the network hardware and transport characteristics from the applications that use the network, is the modern approach many retailers are choosing to keep pace with digital transformation. Unlike traditional WANs, SD-WAN makes the network more agile and reduces cost.

For organizations looking to compete and win in the brave new digital world, ZK Research offers the following recommendations on how to approach the SD-WAN decision:

Examine your organization and look for the technical bottlenecks. What is slowing down productivity and profitability? Do you have long checkout lines? Is your foot traffic not converting

to sales? Are your stores struggling to implement modern applications, like video, to engage customers? If you have a legacy WAN, it's probably preventing you from rolling out modern applications. SD-WAN can speed things up and enable you to keep your employees productive, reduce the length of checkout lines and convert foot traffic to sales with engaging applications.

When exploring your SD-WAN options, look for a solution that is cloud delivered, not just cloud managed. Certain solutions may appear to be cloud delivered but only have a layer in the cloud to provide central management, and they might not be cloud native. Look for a solution that has been engineered to abstract the management and data plane so you can plug in and start running. Provisioning, management and configuration should happen centrally with no IT resources required.

Look for the following attributes from an SD-WAN provider: An easy-to-use portal with granular functionality; network-wide visibility with centralized monitoring, visibility and cloud control; an array of cloud partnerships to enable integration with popular cloud services; compatibility with an all-broadband WAN or hybrid WAN; solid references from retail customers; and simple deployment.

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