Rethinking Retail Infrastructure and Strategy for the Digital Age

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Questions posed by: CenturyLink
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Q How is digital transformation impacting retailers' networks?

A The retail sector is undergoing a digital transformation (DX). Retailers have no choice but to embrace DX and deliver the frictionless anywhere/anytime experience that consumers expect today.

Traditional networks were not designed for the cloud-based, data-intensive, and sensing-based environments that so many retailers need to build and deploy. To deliver the optimal shopping experience, retailers' IT environments must work together across every customer interface (physical, online, catalog, kiosk, and mobile), every order, and every inventory system across the enterprise.

Network infrastructure, long perceived as "backroom plumbing," has become the strategic foundation of a digital-ready retail enterprise. Retailers report that 42% of new technology initiatives are driven by DX, according to IDC's 2018 Industry IT & Communications Survey; new technologies, along with demands for better performance and agility, have made retailers recognize that network infrastructure is a key strategic asset.

Q What is the "connected store," and how important is network infrastructure to it?

A The connected store (IDC also talks about the "frictionless store") is the reinvention of the store of the future with new store concepts, new business models, and new twists on existing formats that add services or experiences. The experiential retail mission requires that retailers either start anew as digital natives or reimagine and recast their operational models within the new transformation imperative.

In the connected store, everything is reimagined with a relentless digital-first bias. Every customer touch point, product, system and process, and significant store asset is assessed for its need to connect to a network. In the connected store, even refrigeration units, vending machines, and other operational equipment become connected assets.
The connected store leverages pervasive connectivity to automate and link as many activities as possible, enabling data-driven decision making and removing the latencies and inefficiencies that produce friction in the shopping experience. A superior customer experience is a blend of pervasive connectivity, technology innovation, and advanced analytics to make informed in-store decisions. Retailers with disconnected, siloed systems will find it very difficult to deliver the seamless, frictionless immersive retail experience that today’s consumers expect.

The infrastructure for the connected store is a mix of new technologies and higher levels of capacity and performance that legacy networks were not built to accommodate.

Q: What retail technologies will put the most pressure on network infrastructure?

A: The biggest pressures on retail networks in the near term are likely to come from 3rd Platform technologies (a term coined by IDC covering big data and analytics, cloud, mobility, and social). The advent of mobile technologies and their uptake by consumers and stores are two of the more impactful changes. Following closely behind, however, is the evolution of cloud, big data and analytics, and social in the retail industry. Cloud architectures continue to evolve within retail, supporting new workloads and dynamic capacity management that legacy infrastructure did not anticipate.

Retailers are finding that higher-capacity networks are also needed to deploy in-store technologies such as video and analytics systems, point of sale (POS), self-checkout systems, RFID, guest WiFi, multidimensional digital signage, store kiosks, and augmented reality (AR/VR). Other new workloads will come from cognitive systems, the Internet of Things (IoT), next-generation security, and robotics. Cognitive capabilities are already present in new technologies, and 32.5% of retailers are engaged in the production, piloting, or researching of cognitive technologies, according to IDC’s 2018 Industry IT & Communications Survey.

The penetration of the IoT into the retail industry will only increase the number and range of sensors used within the retail environment. Use cases for IoT are growing, particularly in the areas of asset tracking, access control, electrical/mechanical system management, shopper tracking and location-based customer engagement, and digital signage. As sensing devices are introduced into the retail environment to support these use cases, additional traffic is introduced onto the network. IDC’s 2018 Industry IT & Communications Survey found that nearly 25% of retailers are in production with IoT, and another 26.2% are piloting or researching it. Retailers will need to increase their investments in security and cybersecurity; 36.1% are piloting or researching next-generation security, but only 11.5% are in production with it. As these technologies gain a hold in the industry over the next three to five years, they will be putting new workloads onto retail networks that retailers need to start planning for now.
Q What are the new network infrastructure technologies that are components of a next-generation retail network?

A Next-generation retail networks (wired and wireless) will need to support higher capacity, faster performance, better reliability, distributed capabilities, and heightened security.

Agile and forward-thinking organizations are adopting new innovative formats including store incubations, mixed-format stores, stores within a store, digital-physical mashups such as Nike Live, and cashierless concepts such as Amazon Go.

Several very intriguing new network technologies — regardless of industry — bear watching. The retail industry will be able to take advantage of some of these emerging network-centric technologies and innovations as recognition of the network as a strategic asset and enabler increases.

The next-generation retail network will have to adapt to facility innovations as well as to in-store DX to address the realities of today’s retail environment.

With the proliferation of workloads, retailers need to better segregate network capacity to optimize performance across an expanding mix of workloads. Software-defined WAN (SD-WAN) is growing within the retail industry because of its ability to identify discrete workloads and prioritize and optimize them. With retail stores becoming more intelligent locations, computing workloads will multiply, and edge computing will become a greater presence in the retail industry over the longer term with important implications for the network. As retail networks become more complex, the competing demands for agility, performance, and reliability will lead to adoption of such software-defined technologies as intent-based networking and other cloud-centric network technologies.

Q What steps should retailers take to ensure they have a digital-ready, next-generation network?

A Retailers need to recognize that network infrastructure has become a strategic asset as a foundation for DX and innovation. They should assess the digital readiness of their network and infrastructure and identify gaps in capabilities that need to be addressed. Emerging network technologies also need to be evaluated for their fit to the retailer’s needs.

The increasing presence and complexity of cloud models within the enterprise should be assumed. The convergence of multiple clouds within the enterprise — including possible new cloud models — will fundamentally change the way retailers operate. This convergence will also invite new cloud-based technologies into the enterprise (edge computing, for example) that enable new IT models and services, highlighting the strategic importance of new supporting infrastructure. Retailers need to consider the implications of increasing cloud adoption and what this means for the range of new technologies coming into the retail enterprise and the new network topologies likely to arrive in the near term to midterm.
The next-generation network has become much more strategic for the retail industry. As leading retailers are realizing the inevitability — and the opportunity — of digital transformation, the network and its infrastructure have become the strategic nervous system of an industry poised to adopt new and emerging technologies, new retail strategies, new retail business models, and new retail concepts and store formats.
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- Minimizing the risk of digital transformation with an IT partner across unified communications, IT consulting, and managed services
- Building and operationalizing an omni-channel road map that bridges the digital and physical worlds
- Laying the foundation for digital transformation with integrated, secure, and cost-effective networking solutions
- Driving insights and enhancing the customer experience with a programmatic shift to a data science enterprise
- Enabling Defense in Depth to protect your business and your customers with our connected security solutions

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Robert Eastman supports IDC Retail Insights and Manufacturing Insights IT Strategies practices. Robert covers topics such as IT budget and strategy, penetration and use cases for cloud, mobility, big data and analytics and social business, within the industry context.