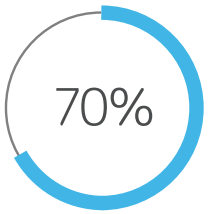
DELL Technologies

SOLUTION BRIEF: Enabling retailers to deliver data-driven business value from a growing ecosystem of connected devices.

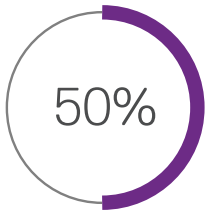
Insight-driven retail with the Internet of Things (IoT)

IoT is revolutionizing the retail industry by harnessing massive amounts of data produced by connected devices across the value chain. With better insights, retailers are empowered to make data-driven decisions for enhanced customer experience, streamlined operations, increased revenue, and ultimately a more sustainable business. To achieve this, retailers are investing in the following initiatives:

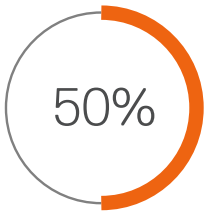
- **Asset protection and loss prevention (APLP):** Retailers have long used video surveillance for APLP. Today, video surveillance data can be combined with other IoT data and advanced analytics to deliver deeper insights that can uncover criminal activities as they happen, such as shoplifting, fraud at point of sale, and warehouse theft. Smart surveillance systems can also help to improve customer and employee safety, and help meet insurance and regulatory requirements.
- **Customer-centric store experience:** IoT enables retailers to analyze customer behavior to determine new opportunities, such as tracking footfall to inform smart product placement and store layouts, ensuring minimal checkout queues, and understanding product performance to inform future stock. Smart inventory management is enhancing the omni-channel experience for shoppers who research online by helping them to determine in-store product availability prior to visiting the store.
- **Greater inventory accuracy and control:** IoT is streamlining the retail supply chain. Real-time analytics, track and trace capabilities, and integration across partner/vendor ecosystems are enabling stakeholders to gain a holistic view of their operations. These capabilities provide more informed scheduling for pickups and drop offs, greater visibility and remediation of bottlenecks, optimization of conditions for the transportation of goods, and enhanced fleet management. Once goods reach the warehouse, edge devices maximize efficiencies in the warehouse. IoT in the supply chain is truly driving efficient retail—from the use of robots or drones for enhanced space utilization and stock checks to sensors for smart building features including smart lighting, security, and cooling.
- **In-store operations and staffing efficiencies:** IoT capabilities are empowering retail stores and staff to enhance productivity, reduce costs, and increase customer centricity. In-store technologies are helping to relieve staff of routine tasks, enabling them to focus on the customer. Automated refrigeration and oven technology, smart lighting, real-time stock checks with smart shelves and drones, and computer vision to check stock quality are all powering the in-store revolution. Staff equipped with mobile devices are able to fulfill backend tasks and help customers throughout the store.
- **Innovative business models and enhanced product design:** Today, smart products from appliances to clothing to cars are producing massive quantities of data. Retail manufacturers are using this data to help improve product design and performance. This level of continuous, real-time feedback from the field is revolutionizing how businesses develop, refine, and market their products. Design teams, for example, are using product data to track why customers purchase their products, how and when they interact with the product, and what improvements are needed in future releases.



of retailers by 2021 are expected to invest in IoT to expand into new sales channels and create higher-margin products and services.[1]



of retailers have already adopted IoT in some form.[1]



of retailers by 2023, according to IDC, "will have implemented IoT in at least four digital transformation use cases, also enabling the reallocation of up to three percent of operations budget to innovation budget."[2]

1. http://bit.ly/2ZokIWo
2. http://bit.ly/2ko09BP

Dell Technologies: Your Trusted Retail Partner

In today's digital economy, retailers must analyze their value chain and determine how emerging technologies like IoT can deliver real value. Dell Technologies can help you realize the full potential of IoT with integrated, validated, and secure IoT solutions.

IoT provides many opportunities for retailers to achieve their key strategic priorities by tackling some of the most pertinent challenges to the business. Dell Technologies teams with retailers to identify key business challenges and then provides a retail foundation to securely connect, aggregate, analyze and transform IoT data to impact key business outcomes. Our IoT solutions bring together IoT devices and sensors to analytics to automation to cloud with best-of-breed hardware, software, and peripheral devices, all backed by services and support to help you deploy, manage, and scale your IoT solution as you grow.

One integrated retail ecosystem: Dell Technologies' robust retail IoT partner ecosystem and open API integration platform reduces the complexity and uncertainty of integrating solutions from multiple providers. Our fully virtualized, in-store infrastructure supports a variety of workloads including computer vision, IoT, and traditional applications that can be deployed quickly and managed at scale. We also have specialized, pre-integrated solutions such as Dell Technologies IoT Solution for Surveillance with computer vision technology that combines hardware and software optimized for retail surveillance needs. Helping to bring it all together, the Dell Boomi cloud-based retail integration platform is used by hundreds of large retailers today to link to partner applications, govern data, and automate business and workflows across the retail value chain—without the cost and complexity of traditional middleware or custom coding.

One infrastructure partner: Dell Technologies end-to-end computing architecture spans edge to core to cloud to build your retail IoT foundation and maximize the performance of your applications. Our Dell Technologies Edge Gateways for IoT help you capture, analyze and gain insights from sensors and other devices, while Dell PowerEdge Servers are optimized for data analytics and machine learning performance at the edge to deliver real-time response. With Dell EMC next-generation storage and data protection solutions, you can manage both current data and future workloads with efficiency, security and scalability. Our Dell EMC VxRail hyperconverged infrastructure combines servers, storage, networking and virtualization into one cloud-ready appliance to achieve true application deployment flexibility. As you expand your IoT capabilities using multiple cloud-native workloads, Dell Technologies Cloud combines VxRail and VMware Cloud Foundation in one pre-engineered ready-to-run platform to eliminate silos of operation with service management, governance, security, automation and orchestration tools.

Secure, resilient operations: Our expertise, technologies, and services span security, analytics and detection, network monitoring and micro-segmentation, data protection, and endpoint security. Dell Technologies is committed to the advancement of cybersecurity making strategic research and development investments across a variety of fundamental and advanced cybersecurity capabilities. VMware Pulse IoT Center provides secure, edge infrastructure and IoT device management with active, real-time threat detection. VMware Photon OS, an open source, minimal security-hardened Linux container host with VMware Pulse IoT Center device management enables easier development and management of cloud native apps, such as real-time data analytics. Running the Pulse Agent on Photon further enhances the security of edge devices with certificate, DNS, and security token services.

IoT data analytics: Dell Technologies data analytics portfolio empowers retailers to aggregate all kinds of data, and scales with one storage backbone to support cloud analytics. Our federated analytics approach enables distributed IoT data to be analyzed locally, wherever the data resides, without the need to transfer it to a central location. Only the local results are shared, and the raw data itself stays put. This approach enables higher-order learning at scale while conserving bandwidth, accelerating time to insight, and preserving privacy, as the individual data points used to calculate the local results cannot be reverse-engineered from the local results themselves.

Maximize value from your retail IoT environment with Dell Technologies

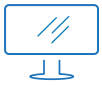
Consult with Dell Technologies retail experts to help prioritize which IoT solution is right for you. Together, we can build a fully integrated IoT solution designed to help turn your IoT data into data-driven decisions throughout the value chain—enabling you to enhance the customer experience, decrease costs, maximize efficiencies, strengthen security, and improve safety.

WHY DELL TECHNOLOGIES FOR RETAIL IOT

1. Trusted by the world's top retail brands to deliver consumer-centric retail transformation.
2. End-to-end solutions from edge to core to cloud.
3. One point of integration, service and support across the Dell Technologies network of retail partners.
4. Brings together IoT, analytics, automation, and cloud incorporating best-in-breed hardware, software and peripheral devices.

"Organizations are looking to integrated IoT solutions that bring together the storage, security, network and management and orchestration. Companies need to find a partner that understands these requirements and can help provide the piece parts to build out a holistic solution. Dell Technologies' holistic portfolio of key IoT solutions and go-to-market options make them a solid partner for your IoT journey"

Carrie MacGillivray
Group Vice President, IoT and Mobility, IDC



Learn more about our solutions for retail

Contact one of our retail experts

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