



Future-proofing connectivity for the digitally-enabled store

The retail sector is undergoing a massive digital transformation, from the high-end outlet to the local corner store. The ability to attract and retain customer loyalty—while continuously offering new services—is forcing the retail sector to continuously adapt to remain relevant in this highly-competitive landscape.

The Challenge

The modern retail store is a highly-connected digital hub, evolving from simple cash transaction for products to new in-store data services, such as banking and customer Wi-Fi.

The challenge is to provide connectivity to everything from point-of-sale machines, security cameras and alarm systems, as well as refrigeration units to produce ordering and fulfilment.

The ability to deliver on the digitally-enabled retail store is dependent on:

- **Connectivity** – highly-available and reliable connection of remote locations to distinct data services

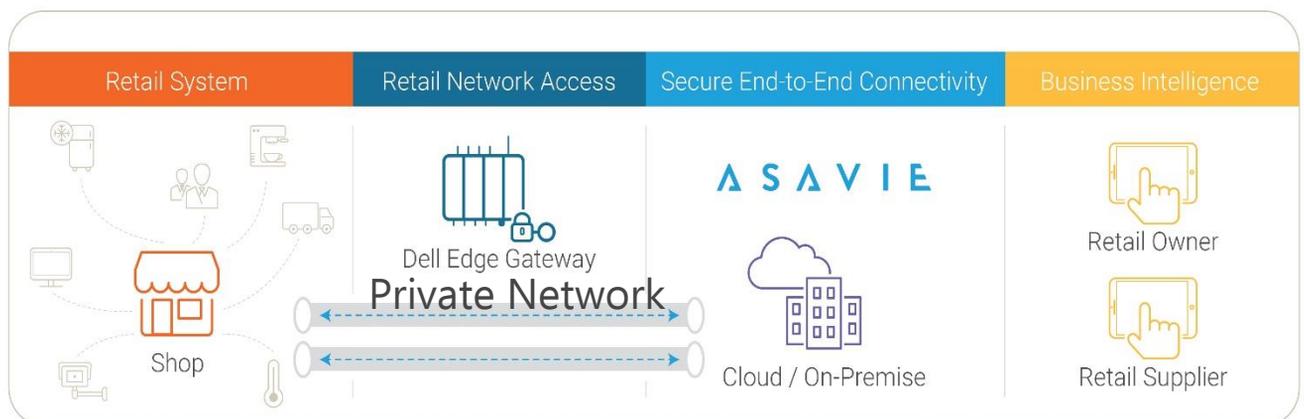
- **Security** – ability to securely connect and protect data in transit, and extend the security perimeter from the store to the cloud and/or centralized head offices
- **Smarter access gateways** – seamlessly connecting wired and wireless networks, with the ability to scale and add new services with no disruption to existing services

Rapidly evolving retail connectivity requirements

Connectivity is core to the modern store's success, in which loss of connectivity will impact operations, revenues, and costs. Even the smallest connectivity outage will result in customers leaving the store without making a purchase.

Enabling a highly-available and connected store is primarily dependent on the selection of the right network access gateway. As a core component to a store's success, the access gateway needs to include the right level of compute/memory, enabling multiple connectivity options, while also compact to enable ease of install in an already physically-constrained environment.

Connected Store



Dell Edge Gateways, future-proofing retail business connectivity



5 steps for architecting a highly-available and connected store

1 | Design an intelligent and scalable network

The modern retail chain is dependent on the seamless running of services from independent providers, such as point of sales, refrigeration specialists, digital signage and advertising, security cameras and alarm systems, etc. As more and more in-store procedures become digitized, the network architecture must be able to scale without the need to continuously re-architect the in-store network design. In addition to the network access node and network needing to be resilient and secure, the design should be flexible to create individual network segments per service type. This helps mitigate against security incidents and connectivity outages.

A successful connected store's network design will incorporate:

- Redundancy for failover and high availability: ability to automatically route traffic between primary and secondary access nodes
- Network security best practices: from the devices to services e.g. segmented networks per service to managed traffic policies
- Future-proof technologies: ease of implementing new services per store with minimal technical fuss

2 | Enable robust and scalable store connectivity

Network security and the ability to secure data transmission end-to-end, is key to retail success. A key implementation decision is choosing the correct network access gateway. The Dell Edge Gateway series provides the necessary compute and network interfaces on which to build a highly-connected store. Additionally, Dell, in conjunction with its connectivity partner Asavie, provides private and secure connectivity beyond the store. Together, Dell and Asavie can securely connect services, such as point of sales, ATMs, lottery services and/or bill payment facilities.

Asavie's secure networking platform - Asavie PassBridge™ provides:

- A managed network service delivering private connectivity with intelligent routing for all in-store services
- Ease of connecting the store access gateway to a central office, cloud and/or individual premises of the in-store service providers
- Scaled connectivity for unique store locations, connect any-to-many and many-to-many network types securely
- Cost-effective connectivity per store, with the ease to scale connectivity to a chain of interconnected stores

3 | Use cellular WAN for remote and resilient connectivity

The Dell Edge Gateway* series, with its built-in cellular modem, supports cellular WAN-like applications. The Dell Edge Gateway is ideal for remote store locations where physical-wired connectivity is not possible. However, if the fixed-line network is the primary connection option, the cellular connection can be used as an alternative or secondary network path, enabling network failover and ensuring the continuity of key data services for the store. In addition, administrators can easily apply dynamic traffic management policies for the cellular WAN connection, ensuring key business flows are maintained and unnecessary flows (e.g. in-store customer Wi-Fi) are disconnected. This provides the peace of mind that the cellular connection cannot be exploited and that there is no unnecessary data costs during times of failover.

Asavie's cellular WAN connectivity provides:

- Centralized provisioning and management for hundreds of connected stores, all from an intuitive web based user graphical interface
- Bi-directional communication for out-of-band management service connecting to and through the Dell Edge Gateway to the in-store networks and data services
- Necessary tools for IT administrators to facilitate remote debug of store issues from anywhere

* The Dell Trusted Platform Module on the Dell Edge Gateway prevents hacking attempts to capture passwords, encryption keys, and other sensitive data that is unique to the store.



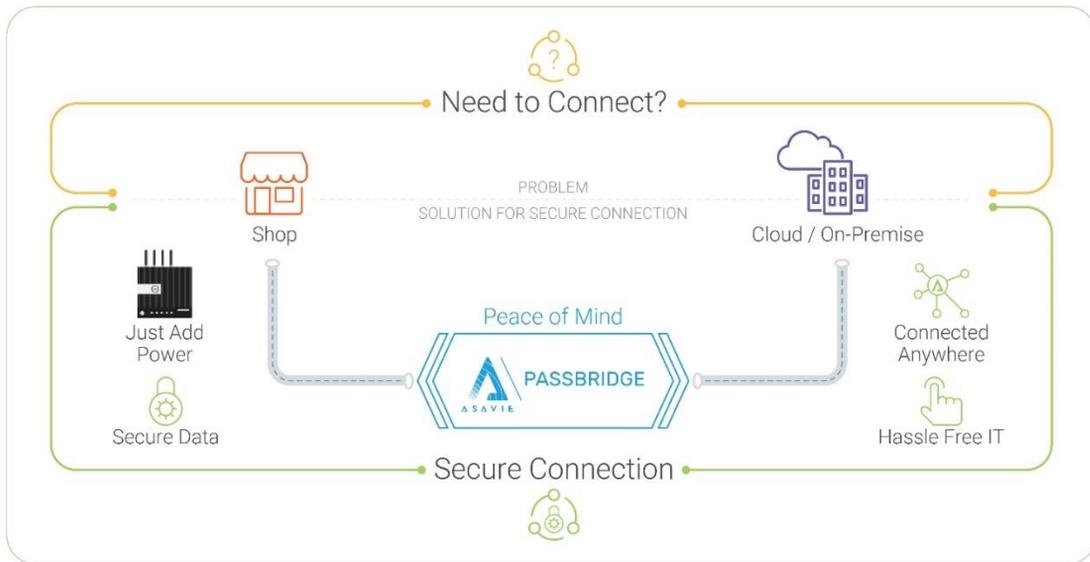
4 | Differentiate with a secure connectivity-enabling service

Using Asavie's secure connectivity minimizes the effort/cost required by a business to ensure that their stores are safe from cybersecurity attacks. With Asavie's integrated network layer-based security, the Dell Edge Gateway is the only hardware device that needs to be deployed per store. More importantly, it ensures that there is a consistent base-security posture for all connected stores. This provides the business owner with the peace of mind that each store location is safe from cybersecurity threats.

Asavie PassBridge™ enables a private network-as-a-service on a per store basis. A key advantage of Asavie's connectivity service is the multi-pronged approach to security; Asavie PassBridge™ acts as both a trust authority and a traffic manager. Only authenticated Dell Edge Gateways are then allowed to attach to the private network. And each data service can be routed as required, connecting each store to the various store provider's data service. The ability to sub-tenant the local area network in-store minimizes exposure to security threats from inside the store. Asavie's end-to-end private connectivity makes it impossible for a hacker to attack the Dell Edge Gateway from external sources.

Furthermore, Asavie's connectivity service with the Dell Edge Gateway directly enable operational efficiencies that stores are striving to achieve today, such as:

1. **Improved productivity:** assign security controls per store, per network e.g. rate limit social media flows
2. **Innovative promotions:** interconnect networks e.g. inventory and digital signage for in-store promotions
3. **Increased foot traffic & revenue:** offer new data services as part of in-store experience e.g. lottery terminals



Asavie and Dell simplify secure connectivity for Retail

5 | Data and business performance analytics

Harvesting data can be expensive. And, while all data is important, not all of it is necessary. The Dell Edge Gateway's powerful compute and memory make it possible to run store decision-making applications at the store's edge. With flexible interface options for wired-LAN and wireless networks, including Zigbee and Wi-Fi, it's simple to connect key systems, such as refrigeration, point of sale, and inventory management. Store owners can be assured that the correct decisions are made in-store, which will positively impact their bottom line.

By securely capturing and transmitting meaningful data with Asavie's private connectivity-to-cloud services (such as Amazon AWS or Microsoft Azure), retail operations can be significantly improved, and at a fraction of the cost of traditional process-management software.

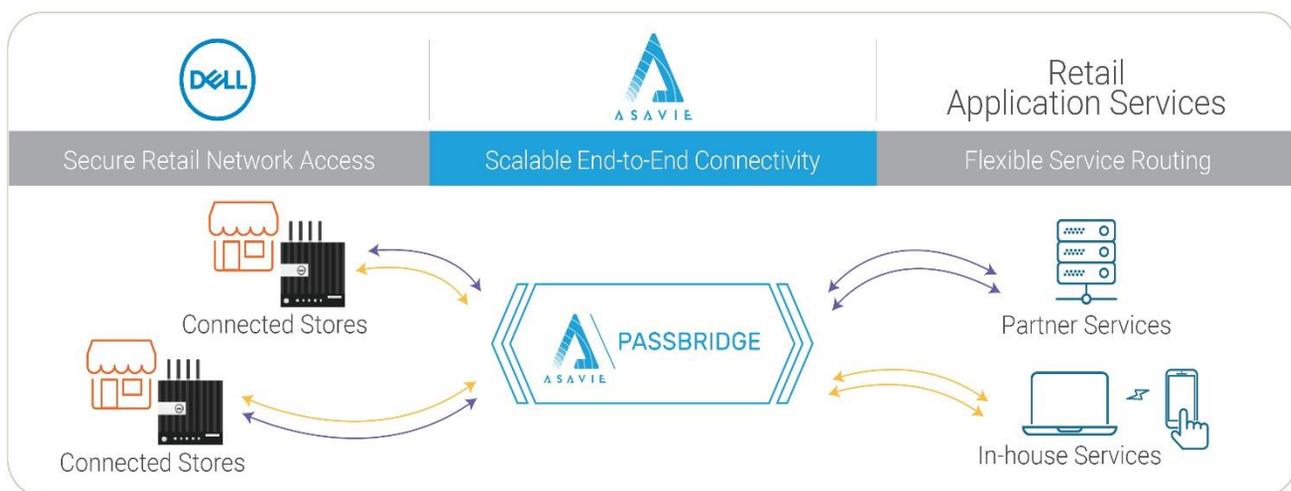
Future-proofing retail connectivity

Simplifying connectivity for new retail store locations

Retail chains are continuously expanding. And when it comes to new store openings, deadlines are aggressive and cost sensitive. The key to success for any modern retail outlet, is the ability to equip the store with physical devices and to seamlessly connect the devices to a number of application services in the cloud/centralized location.

When deploying such a solution with Asavie, store owners have a choice between the enhanced compute capabilities of the Dell Edge Gateway 5000 series, and the compact Dell Edge Gateway 3000 series. Both offer store owners ease of install and flexible network-interface configurations, allowing secure connectivity between store appliances. And with Asavie's secure and private networks, remote store locations can securely connect to multiple application services that are either running in the cloud, on premise, and/or securely route the appliance-provider's data (from lottery terminals, refrigeration units, etc.) to where it's needed.

The joint Asavie and Dell solution helps to significantly reduce costs of new store fit-outs, by reducing the requirement to just one physical access gateway. The Asavie on-demand secure network greatly simplifies install practices to a simple plug-and-play connection out of the box, ensuring minimal delay of securely connecting the new store location.



Asavie and Dell abstract complex network and routing, enabling ease of aggregating data services

Along with our IoT Solutions Partners, we provide technology you can trust to help you get started quickly and efficiently.

Dell takes a pragmatic approach to the Internet of Things (IoT) by building on the equipment and data you already have, and leveraging your current technology investments, to quickly and securely enable analytics-driven action.

The Dell IoT Solutions Partner Program is a multi-tiered partner ecosystem of technology providers and domain experts to complement Dell's broad portfolio of IoT-enabling technologies.

To learn more visit us online at: www.delliotpartners.com

Contact Dell Sales to learn more about the Dell Edge Gateway, our ecosystem of qualified partners, and to deploy this flexible retail connectivity solution today.



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