

## NEXT-GENERATION RETAIL NETWORKS ACCELERATE DIGITAL TRANSFORMATION

Forward-looking retailers are continuously seeking innovative ways to improve business performance and maintain a competitive edge in today's global economy. Many are fusing in-store and online technologies, using data analytics, machine learning and AI to reinvent the customer experience and streamline business processes. In-store location beacons, smart sensors and surveillance cameras can provide valuable insights into consumer behavior. And digital signage and interactive mobile apps can entice shoppers and transform customer engagements.

By delivering rich, omnichannel shopping experiences—blending physical and digital interactions, providing the right information at the right point in the buyer journey—retailers can increase online and foot traffic, and boost conversion rates and upsell opportunities. And by optimizing operations and merchandising, retailers can increase workforce productivity, improve inventory management and reduce expenses

### The Challenge: Ensuring Fast, Reliable And Secure Connectivity

Digital retail applications fundamentally reshape network traffic flows, introducing performance, security and service quality challenges for system architects. Historically, most retailers hosted applications in central data centers or colocation centers. They connected retail sites over MPLS networks or private WANs, over which they had deep visibility and tight control.

In the new model, retail applications and services are hosted in public and private clouds (as well as in data centers). And high volumes of business-critical application traffic flow over best-effort public internet connections over which the retailer has little visibility and control.

Traditional retail-store networks, designed to support conventional business applications and IT services aren't well suited for the digital era. Retailers must rearchitect their networks to meet the increased performance, agility and resiliency demands of the cloud-first world. service delivery

### Example Digital Retail Applications

**Process Automation** – Use AI and ML to streamline workflows and optimize operations

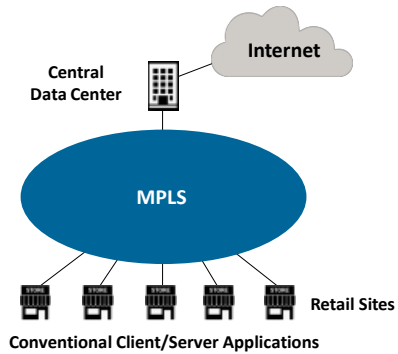
**Immersive Experiences** – Use digital signage, smart shopping carts and interactive mobile apps to engage consumers

**Omnichannel Retailing** – Blend in-store, online and social interactions to improve customer loyalty

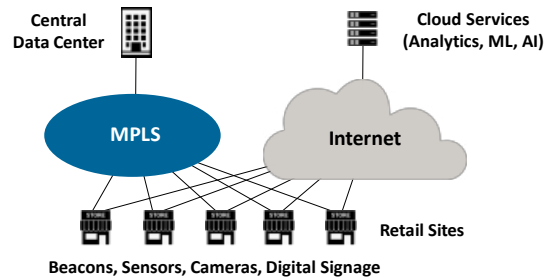
**Intelligent Merchandizing** – Use beacons and sensors to analyze shopper patterns and optimize store layouts

**Kiosks** – Introduce self-serve terminals with bots and live sales and support specialists

**Traditional Retail Network**  
Retail Sites are Connected over MPLS Network  
Internet Traffic is Backhauled Across WAN



**Cloud-Centric Retail Network**  
Traffic Flows Across MPLS Network and Public Internet



## The Solution: 128T Session Smart Networking

The 128T Session Smart Networking solution is an advanced, service-centric networking solution that takes SD-WANs to a new level. Ideal for next-generation retail networks, the solution provides fast, secure and reliable WAN connectivity with unmatched economics and simplicity.

The 128 Technology solution eliminates the inherent inefficiencies and cost constraints of traditional branch office networking products and legacy SD-WAN solutions, and meets stringent next-generation retail network requirements:

- **Economics** - The 128 Technology solution is a fully software-based solution that runs on commercial off-the-shelf servers for ultimate economics and choice. Unlike with a traditional service function chaining approach, the 128 Technology solution performs multiple logical network functions (router, stateful firewall, WAN optimizer, etc.) in a single virtual network function (VNF), significantly reducing CPU and memory requirements. Secure Vector Routing and lossless application delivery expand bandwidth capacity by as much as 50%. And native analytics obviate the need for external network monitoring and analysis solutions.
- **Scalability** - The 128T Session Smart Networking solution supports up to triple the number of routers per head-end and delivers up to four times the hardware performance of alternative solutions. Zero-touch provisioning enables plug-and-play installation at remote sites, allowing retailers to turn up hundreds of locations per week.
- **Security** - 128 Technology's pioneering Secure Vector Routing approach provides strong data security without the overhead of traditional encryption protocols. Deny-all (zero trust) routing, Layer 3/4 DoS/DDoS protection, payload encryption, and NAT and VPN functionality protect applications and infrastructure against data loss and malicious attacks.
- **Availability** - The 128 Technology solution provides continuous connectivity without requiring expensive hot-standby tunnels like conventional branch office networking or legacy SD-WAN solutions. In the event of a link failure or ISP outage, the solution seamlessly redirects traffic over an alternative path without disrupting sessions or impairing application performance.
- **Visibility** - Unlike alternative solutions that encapsulate all dataflows into a single overlay tunnel, 128 Technology's tunnel-free architecture gives network administrators full visibility into individual dataflows, so they can efficiently monitor end-to-end sessions, track KPIs and troubleshoot problems. Single-pane-of-glass, centralized management simplifies ongoing administration and operations at unstaffed retail locations, and makes it easy to institute uniform policies across clouds.
- **Performance** - The 128 Technology solution supports a variety of WAN optimization features, traffic steering and QoS functions, and session-aware routing capabilities, along with a tunnel-free architecture to ensure high performance and service quality for diverse applications and services.

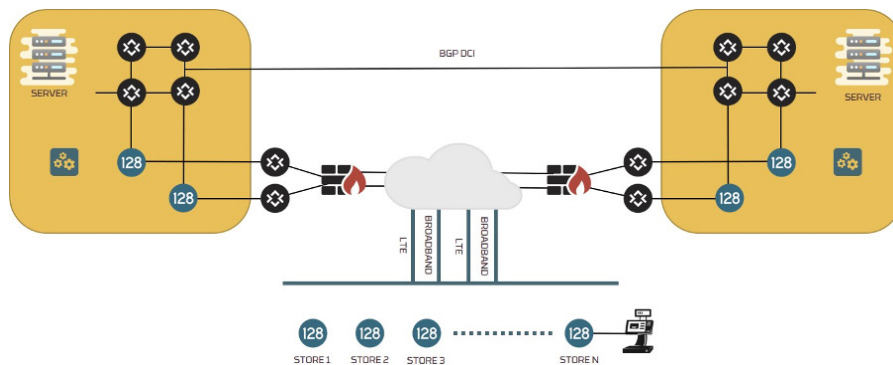
## The 128 Technology Solution Eliminates Retail Network Cost and Complexity

| Requirement                              | Traditional WAN and Legacy SD-WAN  | 128T Session Smart Networking  |
|--|--|--|
| Simple, low-cost platform                | Discrete branch office networking and security middleboxes add cost and overhead. Legacy SD-WANs require expensive servers to support multiple dedicated VNFs. | 128 Technology consolidates all network functions onto a single VNF that runs on inexpensive COTS servers. Plug-and-play installation streamlines rollouts.            |
| Strong security                          | Tunnel overlays safeguard data privacy, but limit visibility and control, and impair performance.  | Secure Vector Routing protects data privacy, while enabling granular traffic management and visibility.  |
| Application-specific service assurances  | Tunnel overlays inhibit traffic management and prevent application-specific SLAs.  | Fine-grained traffic management and application-aware routing enable application-specific, policy-based SLAs.  |
| Continuous connectivity                  | Idle hot-standby tunnels are costly and inefficient.   | Multi-path session migration provides cost-effective protection against link failures and ISP outages. Server load balancing provides BC/DR for critical applications. |
| Optimal performance over low-speed links | High-overhead tunneling protocols squander bandwidth and impair the performance of delay-sensitive applications.   | Secure Vector Routing minimizes protocol overhead. Lossless application delivery optimizes bandwidth utilization and boosts application performance.                   |
| Visibility                               | Tunnel overlays inhibit visibility and control.  | Tunnel-free architecture provides visibility into individual dataflows, enables end-to-end sessions monitoring and troubleshooting.                                    |

## 128 Technology In Action - Major U.S. Pharmacy Chain Slashes Retail Network Cost And Complexity

128 Technology is helping a leading U.S. pharmacy and healthcare company modernize its vast retail data network. The 128 Technology solution replaces an expensive and complicated legacy network, providing agile, secure, reliable connectivity to thousands of stores, over low-cost broadband internet services.

Extensive packet shaping and prioritization capabilities ensure high service quality for delay-sensitive dataflows like unified communications and telemedicine traffic. Policy-based access controls and strong security capabilities protect retail site and data center IT infrastructure against cyberattacks and data breaches. And seamless 4G failover support ensures continuous availability for business-critical applications.



128 Technology Next-Generation Retail-Store SD-WAN

Once fully deployed, the 128 Technology solution will save the company around \$50 million in network infrastructure costs alone.

# 128

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### ABOUT 128 TECHNOLOGY

At 128 Technology we help our customers radically reinvent their digital futures based on a new model for virtual networking called Session Smart™. Session-smart networking enables enterprise customers and service providers to create a service-centric fabric that's more simple, agile, and secure, delivering better performance at a lower cost. Whether your enterprise is moving your business to the cloud, modernizing the WAN edge, seeking more reliable unified communications or pursuing an industrial internet of things (IIoT) initiative, session smart networking re-aligns networks with digital transformation initiatives.

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