Solution Brief
Mobile Retailer–Store Access Network

When a major U.S. mobile carrier elected to refresh its legacy access network infrastructure for 1000's of the company's retail stores in 2017, it decided to look not only at their existing switching/routing vendors for a possible upgrade path but also to see just how far disaggregated HPC, data center, and enterprise networking solutions had progressed and what advantages they might bring to the carrier's retail business. In the end, it wasn't much of a contest.

Pica8® was the beneficiary of the carrier's comprehensive decision-making process with most of the selection criteria strongly tipping in favor of the modern disaggregated hardware/software model. They realized the world had changed significantly since their last network was installed. Compared to brand-name vendors' offerings, the PoE switching hardware underpinning Pica8's PICOS® network operating system was more powerful – faster CPU, more memory – more reliable -- six 9's and sporting dual, not single, power supplies – and provided a staggering 50%+ CAPEX savings after the legacy vendor's discount. It even came with a very familiar and comfortable command-line interface (CLI). The Pica8 system's UI meant that the carrier's IT group already knew how to configure, manage and install the Pica8 switches prior to seeing them.
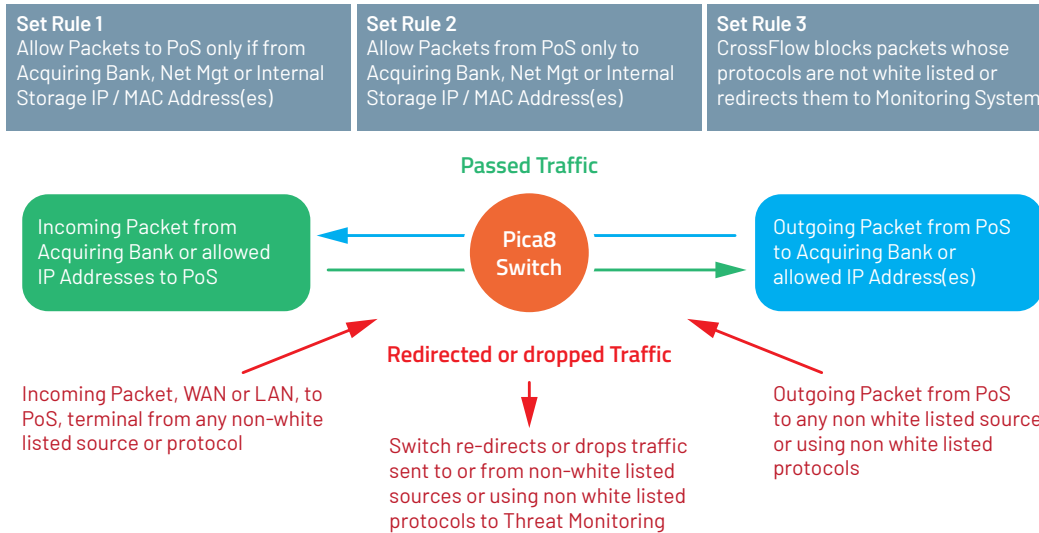
While the mobile carrier jumped on the immediate opportunity to increase its stores' efficiency, productivity, ROI, and TCO (for all the reasons described above), they were also strongly influenced by Pica8's ability to offer something that no other networking vendor could give them — a way to future-proof both their access network and to simplify the deployment of future network services with the immediate benefit of being able to raise the security posture and cyberattack responsiveness of their retail operations. This security upgrade comes courtesy of Pica8's exclusive dual control-plane CrossFlow™ functionality, which is built into PICOS on the new switches.

With CrossFlow, the flexibility and programmability inherent in an SDN data plane can be seamlessly blended into traditional L2/L3 networking functionality on the same port – or ports – of a switch – a significant industry first. So, for example, if unauthorized or suspicious activity is detected in the carrier's network, the carrier's remote IT manager – no truck roll required — can now dynamically push out a new security configuration to all the network's switches and redirect – or drop – the data flows of interest with a simple command. Most importantly this can be done with no impact on the live network. Everything stays up and running, including the critical IT Apps running in the retail stores that serve and support every aspect of operations, from marketing products and services, to sales, production, delivery, inventory, collections, payments, accounting and communications with customers.

Because PICOS comfortably co-exists with all the other in-store electronics and networking equipment, such as PoS terminals, VoIP phones, security cameras, Wi-Fi access points and so on, the mobile carrier was able to leave all of its other retail business-critical devices up and running with no reprogramming required by the access network modernization effort. When swapping out old access switches to Pica8 solutions, store revenue and profits don't take a hit, they actually rise.

Dynamic Pica8 Threat Blocking

Set Rule 1
Allow Packets to PoS only if from Acquiring Bank, Net Mgt or Internal Storage IP / MAC Address(es)

Set Rule 2
Allow Packets from PoS only to Acquiring Bank, Net Mgt or Internal Storage IP / MAC Address(es)

Set Rule 3
CrossFlow blocks packets whose protocols are not white listed or redirects them to Monitoring System

Passed Traffic

Incoming Packet from Acquiring Bank or allowed IP Addresses to PoS

Pica8 Switch

Outgoing Packet from PoS to Acquiring Bank or allowed IP Address(es)

Redirected or dropped Traffic

Incoming Packet, WAN or LAN, to PoS, terminal from any non-white listed source or protocol

Switch re-directs or drops traffic sent to or from non-white listed sources or using non white listed protocols to Threat Monitoring

Outgoing Packet from PoS to any non white listed source or using non white listed protocols

Because the PICOS network operating system software is not tethered to any specific hardware chassis – as was the case with the legacy solution — the mobile carrier was not only able to select from a number of higher-spec switch manufacturer options for its retail operations upgrade, but also knew that it could easily – and inexpensively — upgrade again in the future whenever the hardware state-of-the-art moves forward. And they also saw additional business value in decoupling support and training for the networking software and hardware.

The Pica8 Remote or Branch Office (ROBO) solution running PICOS software is a compelling new offering for any retail business as it allows them to slash their CAPEX and OPEX while adding new dynamic security capabilities to protect critical company data and customer credit card information.

With Pica8's ROBO solution architecture, retail customers automatically get the following upgrades to their current access network infrastructure:

- New store-data security capabilities with remote infiltration termination/redirect
- Network redundancy for "no IT-preventable outages" (at current non-redundant switch prices)
- Protection from WiFi-connected customer media interference with in-store VoIP telephony
- QoS priority for voice, security video and payments so the store is always "in business"
- Enhanced monitoring and analytics via the use of PICOS's CrossFlow feature
- Elimination of legacy vendor lock-in with its built-in high support/product costs, planned obsolescence and slow response times

All of the above – and more — comes with typical switching cost reductions of > 50% for retail customers along with 24/7 global service. For this U.S. mobile carrier Pica8 made all the sense in the world.

For more details on this store access network deployment or to set up a consultation to see how Pica8, the new best practice in secure networking, can help protect and modernize your retail operations, please reach out to us at sales@pica8.com.