

Pica8's New PicaPilot™ Software Extends Benefits of Super-Simplified White Box Networking to Every Corner of the Enterprise

REPLACES SWITCH STACKS AND CHASSIS-BASED SWITCHES WITH ONE LOGICAL SWITCH

Enterprise networks, once relatively fixed and stable, now find themselves in a constant state of organic change, largely stemming from the unrelenting demands of new applications, mobile users, and a growing palette of cloud-based services. The avalanche of data they create continues to grow exponentially and the rigid and complex campus network architectures that exist today simply cannot keep up. Clearly, decades of vendor-restricted innovation in the enterprise networking market are now taking their toll on the consumers of legacy network infrastructure. This is where Pica8 steps in.

Pica8's revolutionary new PicaPilot™ management software for the company's Linux-based PICOS® network operating system slashes the operational overhead needed to make ongoing configuration upgrades as well as policy and security changes to all the managed switches in an enterprise. This means that network managers can now control dozens, even hundreds, of multivendor white box switches – including branch, core and field office devices – as if they were a single, logical high-bandwidth switch. In short, PicaPilot was explicitly designed to simplify enterprise networks to the point that they can keep up with the ever-evolving data and security challenges they struggle with today.

To start, PicaPilot is capable of scaling out and connecting almost any number of multivendor 1G-to-100G open white box Ethernet switches. It can orchestrate its CLI-driven workloads across a wiring closet, a large campus, or even, using redundant fiber links, across a large metro area. With PicaPilot, enterprises can now refresh their networks to a modern architecture and move from archaic and costly switch-stacks and chassis to an easily deployed – and far simpler – spine-and-leaf architecture for the first time, all while reaping the full economic benefits of the disaggregated white box networking sourcing model.

PicaPilot is also explicitly designed to leverage Pica8's industry-leading dual control-plane capability, CrossFlow™. CrossFlow provides enterprise network managers with granular, automated management and policy enforcement of every active L2/L3 switch port in their network through the use of a second, integrated centralized OVS control plane. For example, CrossFlow allows NetOps and SecOps teams to quickly remediate security issues, such as DDoS attacks, zoom in on flows of interest, redirect them for in-depth analytics, and so on – all in real time and without network interruption or downtime.

These two disaggregated networking firsts – PicaPilot and CrossFlow – combine to make Pica8 the industry-leading approach for network professionals who want to implement white box networks running enterprise feature sets.

From Complexity to Simplicity in a Single Move

Whether it's just four access switches in a wiring closet, or 40 switches in a 2,000-employee campus, the management headaches associated with configuration management, security updates, monitoring, troubleshooting and so on for all these individual network elements melt away with PicaPilot. In fact, PicaPilot typically reduces the number

of individual network elements that need to be managed at a given enterprise location by a factor of 10x-to-50x, depending on network size. Suddenly, all the IP switches in a building can be managed via a single IP address using PicaPilot’s centralized CLI interface.

To make things even simpler, it does not matter which models or makes of Pica8-supported switches are deployed at specific enterprise sites. (See Pica8’s complete hardware compatibility list at https://www.pica8.com/resources/?resourcelib_category=hardware-compatibility.) Nor does it matter which of these switches are used as leaf or spine switches. In fact, the same switch models can be used for both.

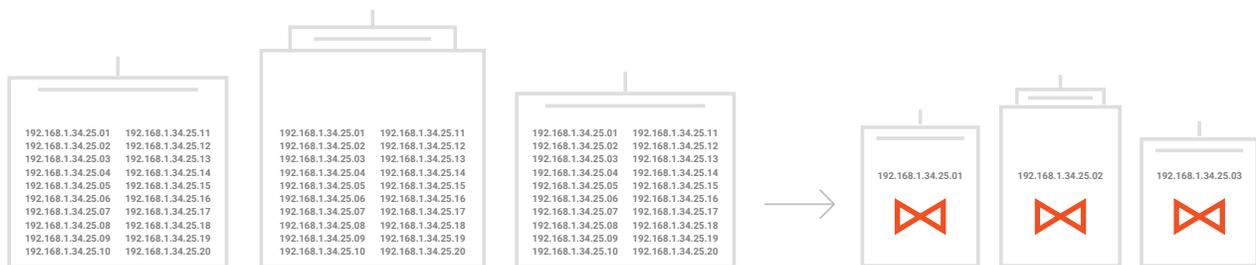
Improved Performance Plus the Lowest TCO in the Industry

Problems with degraded performance due to poor enterprise network bandwidth utilization also disappear with PicaPilot through the use of multi-chassis link aggregation (MLAG) for connecting peer links in lieu of the port-consuming Spanning Tree Protocol.

Not only are the well-known economic advantages of disaggregated white box networking fully in play with the new PICOS PicaPilot solution, but since both PICOS and PicaPilot are sold with straightforward one-time perpetual licenses, there is literally no lower TCO solution for an enterprise network infrastructure on the market today.

Solution Overview

With the PicaPilot add-on, Pica8’s PICOS network operating system (already the leading enterprise open networking solution for enterprise branch offices) can now be deployed across an entire enterprise – in remote offices, branch offices, corporate campuses and company data centers alike – to provide a proven, extremely scalable mainstream open-standards-based alternative to the complex, aging and costly legacy network infrastructure found in most companies today.



“The buildings on the left represent a large campus with three multi-story buildings containing a switch population of 20 switches -- and 20 IP addresses -- per building. With PicaPilot, represented by the icons on the right, all the switches in each building become single logical switches and are now configured and managed via a centralized CLI as a single IP address in each building”

PicaPilot can also be paired with PICOS’ built-in CrossFlow to not only solve the daunting complexity and scalability problems that enterprise networks face today, but also to make deploying and managing new services and applications a snap.

PICAPILOT HIGHLIGHTS

- Single IP management capability eliminates operational overhead associated with managing large populations of individual Ethernet switches, typically reducing the number of managed elements by 10x-50x per site
- Centralized industry-standard CLI for all switches
- Redundant control planes

- Auto/ZTP provisioning
- Aggregated Syslog and SNMP management
- Simplified licensing
- Fault-tolerant architecture improves network reliability
- Much higher scalability than stack/chassis-based networking architectures
- Service-module-ready for future plug-in multicore servers running additional network appliance functions

KEY SOLUTION BENEFITS

• Slashed Operational Complexity

Powerful multivendor interconnected white box Ethernet switches no longer need to be individually managed as they now act like a single, logical, high-bandwidth switch. PicaPilot slashes the operational overhead needed to maintain any enterprise network that needs to accommodate ongoing upgrades and policy/security changes.

• Improved Performance, Scalability, and Flexibility

Disaggregated white box switches can be upgraded at will over time to follow the ASICs performance curve with PicaPilot automatically configuring the new switches; so switching performance will always be state-of-the-art, while software can be upgraded at will on its own cycle. This is simply Moore's Law for enterprise server CPUs now applied to networking silicon. Also, by implementing MLAG rather than Spanning Tree Protocol (STP) as its primary redundancy mechanism, PicaPilot maximizes bandwidth utilization, and horizontal scalability is now only limited by the number of deployed switch ports. (PicaPilot also supports Super-MLAG and/or STP for north- and south-bound operations.) There isn't a more flexible solution on the market as PicaPilot can turn everything from access switches in a wiring closet to an entire campus into a single "logical" switch.

• Unmatched Network Reliability and Availability

The simplified spine/leaf architecture enabled by PicaPilot and PICOS automatically redirects traffic if a leaf switch – or one of the redundant spine switches fails – eliminating the possibility of network downtime. (All the switch interconnection links are used in this architecture.) Also, with a typical reduction in the number of managed elements of 20x to 100x, potential problems caused by misconfigured network devices are essentially removed.

• Future Proofing with the Best TCO in the Business

High-performance disaggregated white box switches running Pica8's Linux-based NOS already make it easy for enterprises to upgrade their switching hardware to the latest and greatest available from a variety of manufacturers, so hardware and software upgrade independently. One does not have to wait for the other, which is the case with vertically integrated switching solutions. But PicaPilot goes one better as it is service-module-ready for future plug-in multicore servers running additional network functions, such as firewalls, SD-WANs, IDSs and so on.

Finally, to calculate the TCO for a Pica8's enterprise NOS deployment, start with all the benefits of white box switching – typically a 50%+ OpEx/CapEx savings – then add to it the reduced operational overhead of PicaPilot and Pica8's perpetual software licensing.

Summary

With the focus on solving the non-trivial problems of webscale data centers and Tier 1 Telcos, most of the innovation efforts in the networking industry over the last decade – SDN, NFV, disaggregation and so on – have historically ignored the specific upgrade, refresh, and innovation needs of large enterprise campuses and branch offices. But with Pica8's unique new PicaPilot configuration and management software added to its industry-leading PICOS open-standards-based NOS, enterprise networks can now move to the head of the network modernization and efficiency curve.

General PICOS Highlights

- Disaggregated white box architecture allows easy upgrades of switch hardware over time to leverage improved ASIC-to-CPU bandwidth improvements while seamlessly repurposing “older” switches to other parts of the network
- Provides two coupled control planes across enterprise switch ports (CrossFlow)
- Standard CLI interface
- Uses a full, unmodified Debian Linux kernel for complete DevOps integration
- Makes use of existing Ethernet wiring and fiber runs
- Choice of multiple switch hardware/ASICs manufacturers removes any vendor lock
- Runs on a wide variety of 1G, 1GPoE, NBASE-T, 10G, 25G, 40G and 100G switches
- 24x7x365 global support