paloalto NETWORKS

the network security company™

ARISTA

Technology Partner Solution Brief

The Palo Alto Networks Technology Partner Program is comprised of a select group of partners that deliver solutions or products integrated with the next-generation firewall.

SOLUTION OVERVIEW

Palo Alto Networks and Arista Networks have partnered to offer the highest performance next-generation firewall implementation in the industry. The modern data center has ever-increasing demands for throughput and performance, and the security infrastructure required to protect and segment the network must be able to meet those demands. The combination of Arista Networks' Datacenter Switches along with Palo Alto Networks' next-generation firewalls provides unmatched security in high-performance data centers without impacting throughput.

LOW LATENCY

In legacy firewalls, the addition of bolt-on IPS engines and other threat mitigation mechanisms significantly decrease performance. Palo Alto Networks next-generation firewall delivers App-ID, User-ID, and Content-ID in a single engine and its Single-Pass Parallel Processing (SP3) architecture that allows full functionality with minimal impact to latency. The SP3 architecture performs operations once per packet, so networking functions, application identification, policy enforcement and threat mitigation are performed in one pass through the data plane. In addition, the architecture is stream-based and uses a uniform signature set to detect and block threats, so latency through the engine is minimized.
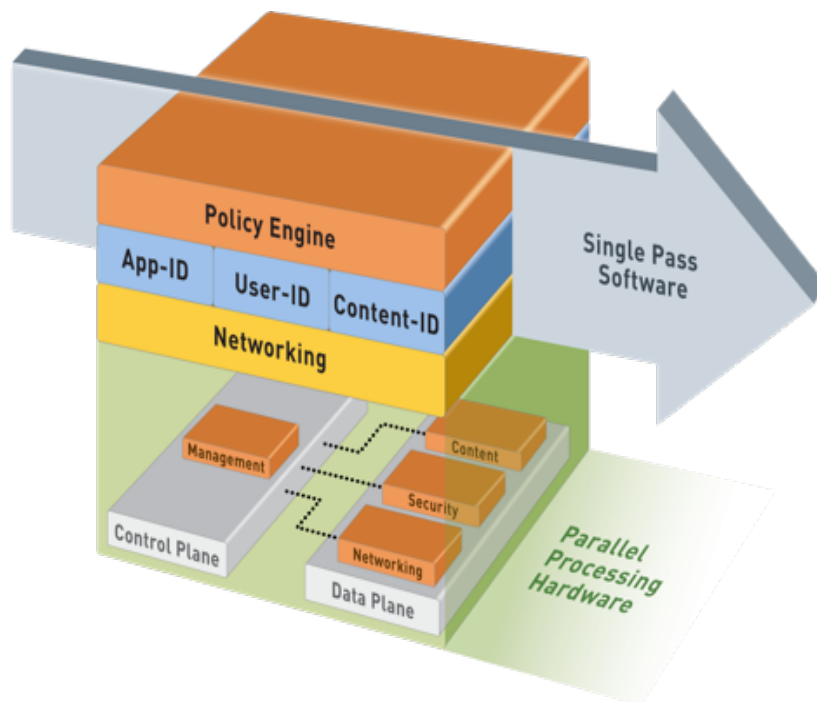

Palo Alto Networks Single-Pass Parallel Processing Architecture

Arista Networks 7124SX switch provides line-rate throughput with latency less than 1 microsecond. In the demonstration of the combined solution, with two Arista switches and multiple Palo Alto Networks firewalls in parallel, the average end-to-end latency was measured at 17 microseconds, even with App-ID, Vulnerability Protection, Anti-Virus, and Anti-Spyware enabled.

SCALABLE THROUGHPUT

In addition to ultra-low latency, the combination of Arista Networks and Palo Alto Networks provides unprecedented firewall scale. Arista Networks MLAG technology allows for link-aggregation of up to 32 10 Gigabit Ethernet connections. This creates a single logical interface of up to 320 Gbps across two chassis in an Active/Active topology, with no blocked paths and no proprietary protocols to simplify scaling bandwidth. Palo Alto Networks' unique Virtual-Wire technology can transparently perform line-rate next-generation firewall protection, without requiring configuration changes to the datacenter switches. Combining these two technologies enables the Palo Alto Networks firewalls to inspect each link in the Arista Networks MLAG with minimal complexity and allows the firewall to scale as the data center bandwidth requirements increase.

The diagram below shows a 100 Gbps next-generation firewall design recently demonstrated by Arista and Palo Alto Networks. Each PA-5060 firewall delivers 20 Gbps of throughput, with two 10 Gbps Virtual-Wires per system. Up to 4 7100SXs and 16 PA-5060s can be integrated into this design. The MLAG technology will automatically balance traffic between the different links in the aggregated bundle. If any link or system is taken off-line, traffic will be automatically rebalanced among the remaining links, providing full HA functionality.
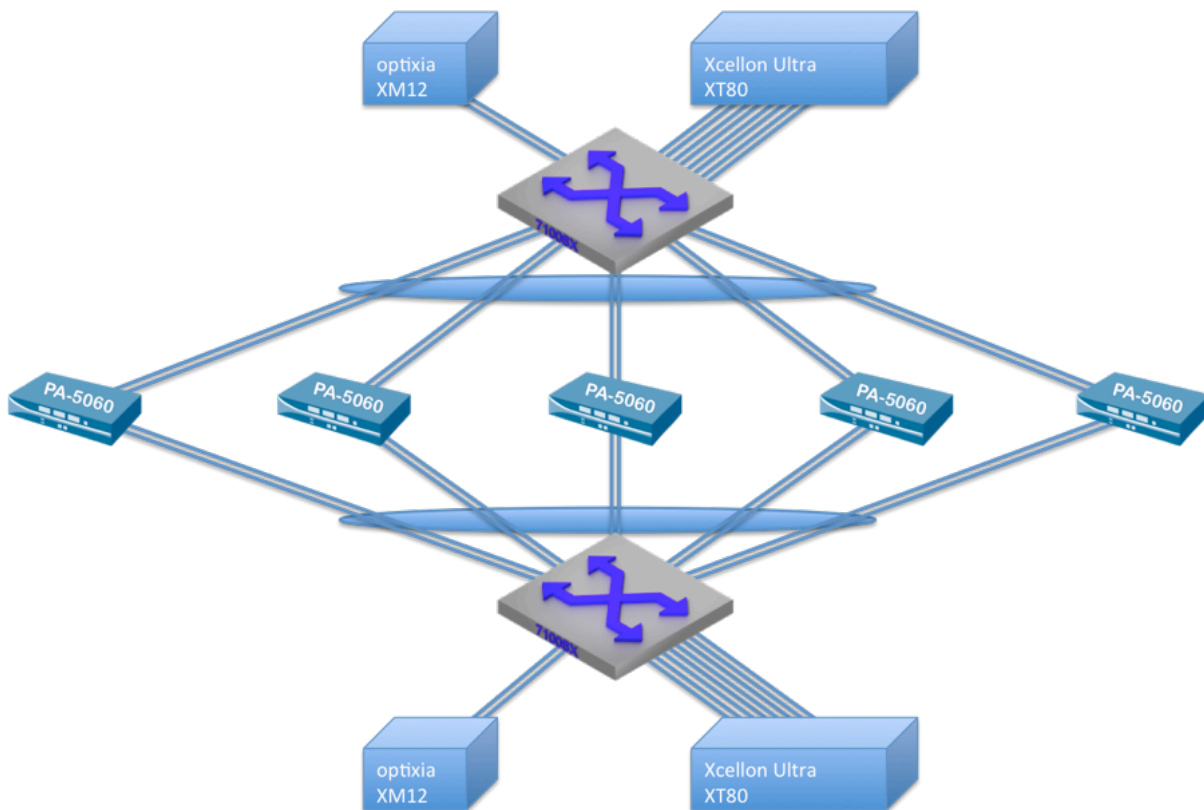
100 Gbps Next-Generation Firewall

This implementation successfully demonstrated the ability to carry real-world traffic at 100 Gbps scale. Using Ixia Xcellon Ultra XT80 and optixia XM12 test equipment, a combination of TCP and UDP traffic, stateful and stateless sessions, were sent through the firewalls. 20 Gbps of stateless UDP traffic was provided by the optixia XM12 chassis, and 80 Gbps of stateful TCP traffic was provided by the XT80 chassis, delivering a traffic profile similar to what might be found in a production environment.

The following graphic shows the throughput of the stateful TCP traffic. Even with the 20 Gbps stateless UDP traffic in the background (not shown), the network was able to deliver 80 Gbps of stateful TCP traffic.

80 Gbps of stateful TCP traffic throughput

The combination of Arista Networks and Palo Alto Networks provides a unique solution for high-performance data centers, providing next-generation firewall security without compromising on throughput or latency.

100 Gbps Next-Generation Firewall

Latency	**17 microseconds**
Throughput	**100 Gbps**
Scalability	**Up to 320 Gbps**

PALO ALTO NETWORKS

Palo Alto Networks™ is the network security company™. Its next-generation firewalls enable unprecedented visibility and granular policy control of applications and content – by user, not just IP address – at up to 20Gbps with no performance degradation. Based on patent-pending App-ID™ technology, Palo Alto Networks firewalls accurately identify and control applications – regardless of port, protocol, evasive tactic or SSL encryption – and scan content to stop threats and prevent data leakage. Enterprises can for the first time embrace Web 2.0 and maintain complete visibility and control, while significantly reducing total cost of ownership through device consolidation. Most recently, Palo Alto Networks has enabled enterprises to extend this same network security to remote users with the release of GlobalProtect™.

ARISTA NETWORKS

Arista Networks was founded to deliver Cloud Networking Solutions for large data center and computing environments. Arista's award-winning best-of-breed 10 Gigabit Ethernet switches redefine scalability, robustness, and price–performance. At the core of Arista's platform is EOS a ground-breaking new software architecture. Arista Networks markets its products worldwide through distribution partners, systems integrators and resellers.

LEARN MORE

For more information on the Palo Alto Networks/Arista Networks solution, contact:

Palo Alto Networks
3300 Olcott Street
Santa Clara, CA 95054
Main: (408) 753-4000
www.paloaltonetworks.com

Arista Networks
5470 Great America Parkway,
Santa Clara, CA 95054
Main: 408-547-5500
www.aristanetworks.com