

Economic Benefits of Deploying Aruba CX 10000 with Pensando

Introduction

Current data center architectures based on legacy network approaches are stretched to their limit. Enterprises, struggling with cost, complexity and the need to scale to meet demand. The move away from traditional “scale up” deployments to more flexible software-defined network (SDN) architectures place new burdens on resources and operations; studies have shown that in an SDN environment, anywhere from 31 to 83 percent of server CPU resources are now used to support network/cloud services rather than application workloads.



Pensando has addressed this by creating the *Pensando Distributed Services Platform*, designed from the ground up to give enterprises the unique ability to drive cloud-like agility, security and operational simplicity across their entire infrastructure, with unmatched scale and performance. The heart of the Pensando platform is the industry's first and only fully-programmable function accelerator, which can be implemented at the compute edge, providing unprecedented scale, security, and observability.

Pensando has partnered with Aruba Networks to introduce the **Aruba CX 10000 with Pensando**, a new category of data center switch that combines best-of-breed L2/3 switching with the industry's first hardware-accelerated services processor. The Aruba CX 10000 allows the *Pensando Elba* function accelerator to be deployed within the network fabric, creating a pervasive firewall and telemetry environment within the data center.

ESG Economic Validation

Enterprise Strategy Group, a leading IT analyst, research, validation, and strategy firm, has quantified the economic benefits of the Distributed Services Platform. Their past research has documented that the Pensando platform, when deployed using Pensando Distributed Services Cards (DSCs), can provide significant benefits to cloud services providers and enterprises adopting a hyperscaler model.

Highly-leveraged cloud-native environments such as that of CSPs need all the power that domain-specific processors such as the Pensando DSC can offer. Traditional enterprises will see significant benefits from the same services, but are more sensitive to business continuity: being able to rapidly implement new services with minimal change to existing deployment

“ESG's analysis found that Pensando's **scale-out software-defined services** approach enabled organizations to centralize management, simplify administration, and optimize performance. Qualitative and quantitative findings confirmed that the Pensando Distributed Services Platform allowed customers to consolidate network monitoring, eliminate appliances, reduce network downtime, increase server utilization efficiency, and improve security.”

environments is key. In response, Aruba and Pensando have built distributed services into a high-performance top-of-rack switch.

With the CX 10000 distributed services switch, ESG has found significant cost benefits for classic enterprise infrastructure models, with the additional advantage that edge computing can be rapidly deployed into existing data centers by integrating stateful services into the network fabric.

Product Overview

The Aruba CX 10000 with Pensando is a high-performance access layer/leaf data center switch in a compact 1U form factor that provides 3.2Tbps of switching capacity based on Aruba AOS-CX, 48 ports of line rate 10/25GbE, and 6 40/100GbE ports. Two Pensando Elba accelerators deliver 800G of stateful services bandwidth. The Aruba Fabric Composer (AFC) provides unified network configuration, coordinated with the Pensando

Policy and Services Manager (PSM) which administers stateful firewall, segmentation and observability services. New stateful services can be added in the future via a simple software upgrade.

"The Aruba CX 10000 can help customers expand a zero-trust architecture deeper into the data center, providing 800G east-west stateful services across every switch port, dramatically scaling and strengthening the security of critical applications and workloads."

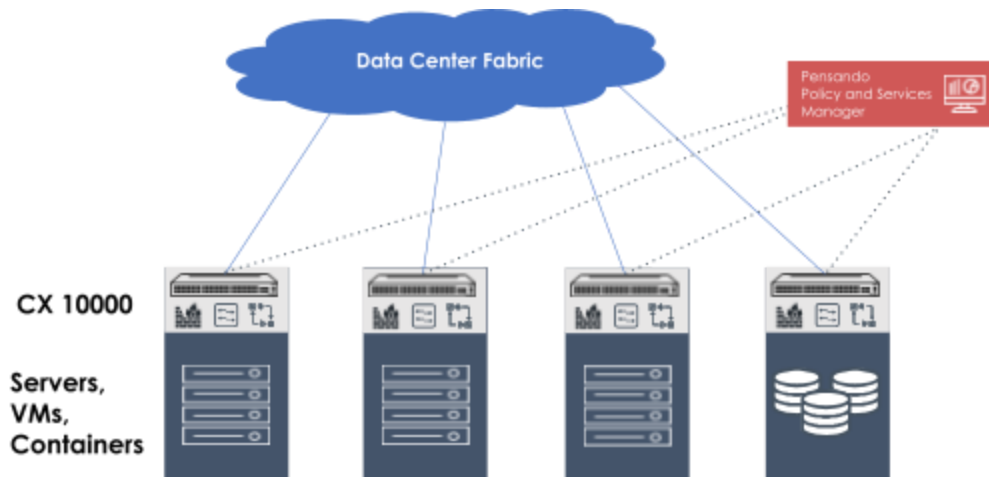


Figure 1. By integrating software-in-silicon into top-of-rack switches, stateful services become part of the data center fabric, providing segmentation, distributed firewall and telemetry services, without changing existing servers and appliances.

ESG predicts that "distributed services switches will play a significant role in enabling existing data centers as well as creating a robust distributed services environment for new data center deployments... even further TCO savings can be expected when additional functions like advanced DDoS protection, encryption, network address translation (NAT), load balancing is supported on the product."

Methodology

The economic comparison took into account the benefits of the CX 10000 vs. traditional east-west firewalls software-based agents, based on reporting from customers. The stateful services used as the basis for TCO analysis include stateful firewalling and telemetry.

“ESG modeled three-year costs based on an enterprise with a few data centers and 2,000 on-premises servers. The firewall scenario was sized and based on bandwidth requirements as bandwidth is the commonly used metric for sizing a firewall implementation. In the software agent-based model, the solution was sized based on the number of workloads because that’s the most common licensing model for agent-based segmentation. In both scenarios, capital and operational expenditures such as ongoing maintenance were also considered.”

In the firewall model, Pensando eliminated east-west firewalls and replaced top-of-rack switches. Over three years, ESG’s model predicts a total three-year savings of \$1,957,800, or 51%, as shown in Figure 2.

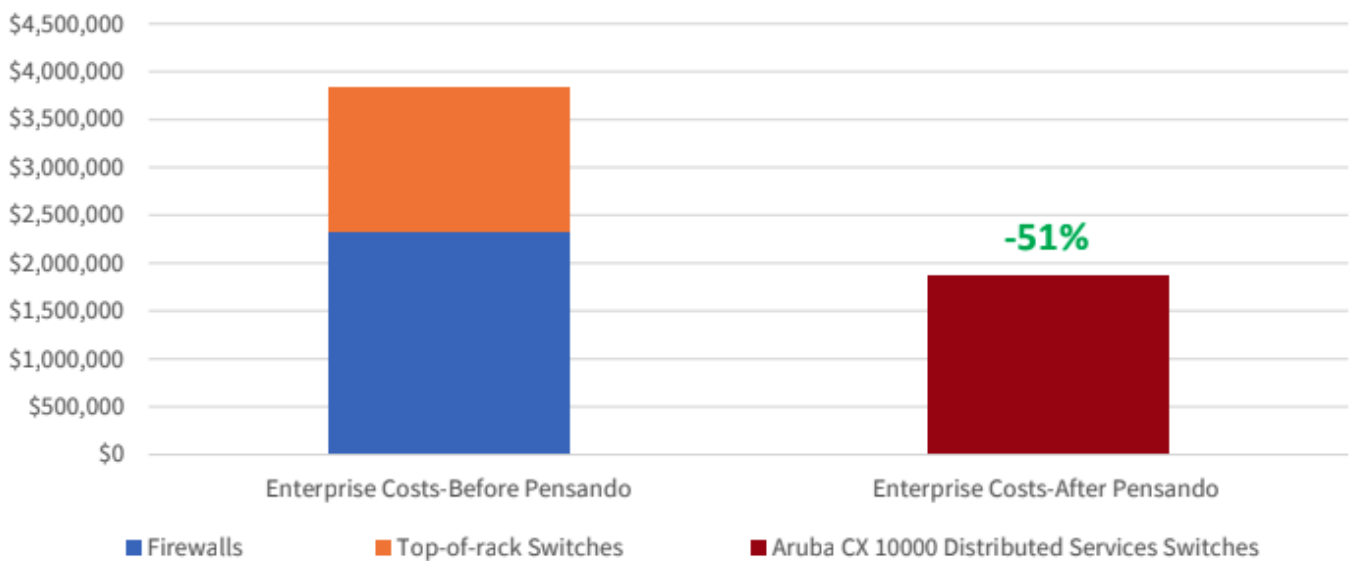


Figure 2. Aruba CX 10000’s distributed stateful services implementation compared to East-West firewalls (source: ESG)

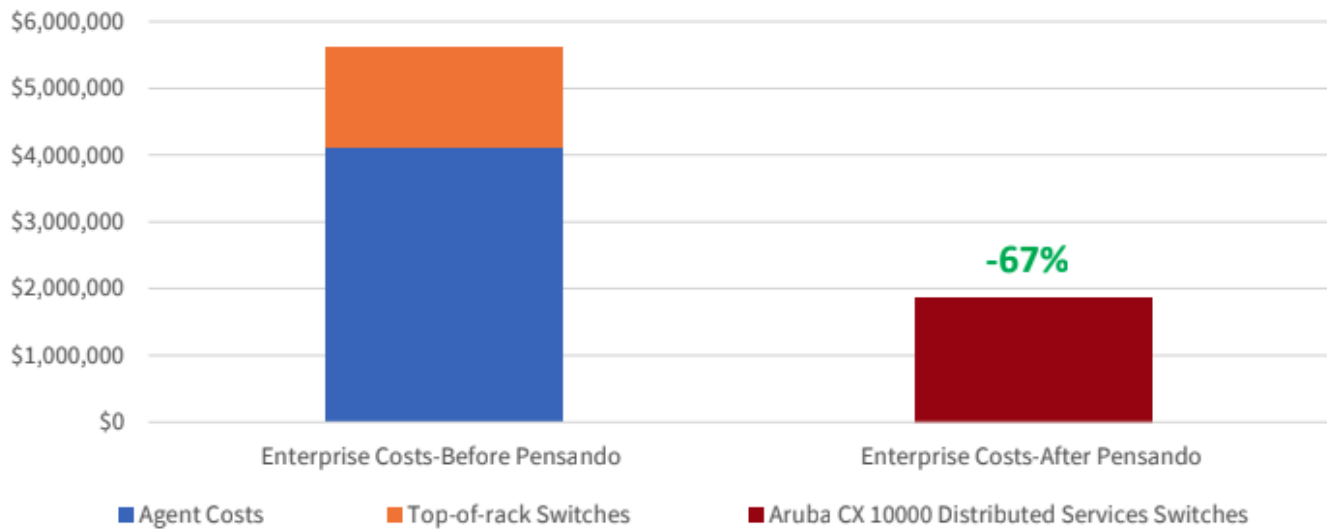
ESG’s analysis concluded that the increasing complexity of IT, driven by or in tandem with the explosive growth of data and other industry challenges, has created an environment ripe for efficiency gains.

By using the Aruba CX 10000 to replace traditional top-of-rack switches and east-west fire walls, the total three-year savings is almost \$2 million in an environment with 2,000 on-premises servers.

“Because cybersecurity presents an especially daunting challenge, the fact that organizations can easily tap into zero trust principles represents a large advantage and larger savings.”

ESG’s modeled scenarios demonstrate significant savings for both traditional enterprises and cloud service providers, and conversations with real-world customers confirm that. ESG analysis revealed a 64% three-year TCO savings for a cloud services provider with 20,000 servers looking to Pensando to provide

network monitoring and management, core network services, security policy management and enforcement, and data encryption.



Source: Enterprise Strategy Group

Figure 3. Aruba CX 10000's distributed stateful services compared to agent-based segmentation (Source: ESG)

ESG reports that “an enterprise with 2,000 servers could save 84% over three years by consolidating network monitoring, east-west firewalls, load balancers, and microsegmentation under Pensando.”

In a similar enterprise incorporating stateful services such as firewalls and flow-based telemetry. “ESG's model predicts Aruba with Pensando could provide a total three-year savings of 51% compared to hardware firewall deployments and 67% compared to software agent-based segmentation.”

“ESG customer interviews and conversations with industry analysts have consistently shown that the Pensando Distributed Services Platform is a critical tool for success in today's digital age.”

To see the complete report, which covers the cost benefits of the Pensando Distributed Services Platform using either Aruba CX 10000 switches or Pensando Distributed Services Cards, please visit: <https://pensando.io/documents/esg-economic-validation/> .

ABOUT PENSANDO SYSTEMS

Founded in 2017, Pensando Systems is pioneering distributed computing designed for the New Edge, powering software-defined cloud, compute, networking, storage and security services to transform existing architectures into the secure, ultra-fast environments demanded by next generation applications. For more information, please visit pensando.io .