

PALO ALTO NETWORKS AND APARNA SYSTEMS

High-Capacity Scale-Out Firewalls

Key Benefits of the Integration

- Supports open architecture, enabling the full suite of features of the Palo Alto Networks VM-700 for cost-effective Layer 4 security.
- Embeds load balancing functionality and enables scale-out deployment of VM-700s.
- Adds servers incrementally for seamless capacity upgrades.

The Challenge

To combat rising costs associated with their networks, communications service providers (CSP) have been changing their network architectures and investing in network functions virtualization (NFV). Networking devices are also becoming more virtualized to reduce costs and increase scale by being more open and extensible at the services layer. Meanwhile:

- CSP networks are seeing an explosion of connections and becoming more susceptible to threats from the network edge.
- Platform form factor is becoming a critical decision point as space, power, and cooling are limited resources.
- Network operators are moving away from high-end, proprietary appliances and toward software-based products.

Aparna Systems

Aparna Systems is taking cloud infrastructure integration to the next level with its “open edge” Aparna μ Cloud™ system, purpose-built for edge computing application deployment. Edge computing deployment environments require that systems fit in more constrained spaces than data centers and that they are designed for low-touch deployment, maintenance, and upgrades.

The Aparna μ Cloud 4015 high-density system enables customers to deploy their private, public, and telco cloud infrastructures in non-data center operating environments, such as central offices, network closets (of satellite enterprise offices and industrial locations) and more. The Aparna μ Cloud 4015 system’s revolutionary “Open Software” integrates compute, networking, and storage technologies in a patent-protected architecture.

Palo Alto Networks

The Palo Alto Networks Security Operating Platform prevents successful cyberattacks through intelligent automation. It combines network and endpoint security with threat intelligence and accurate analytics to help streamline routine tasks, automate protection, and prevent cyber breaches. Tight integrations across the platform and with ecosystem partners deliver consistent security across clouds, networks, and mobile devices, natively providing the right capabilities at the right place across all stages of an attack lifecycle.

Palo Alto Networks and Aparna Systems

The joint integration enables deployment of a next-generation firewall (NGFW) that addresses the need for an open architecture with the full suite of features of Palo Alto Networks VM-700 virtualized NGFW for cost-effective, Layer 4 based security. Specifically:

- The ultra-converged functionality of the Aparna μCloud 4015 merges high-capacity, off-the-shelf forwarding planes with cost-effective compute and storage to provide a high-capacity platform with attractive power-per-bit in a 4U form factor.
- By installing numerous VM-700s, all configured with the same threat posture, and using a packet forwarding engine (PFE) to load-balance flows across all virtualized firewalls, the deployment can provide an aggregate capacity of up to 75 Gbps.
- The ability to have other applications and functions, such as security intelligence and distributed threat defense, at the edge of the network enables deployment of trusted access networks.

Use Case No. 1: High-Capacity Scale-Out NGFW

The Aparna μCloud 4015 system can run multiple VM-700 instances in its 15 servers in a scale-out configuration, with Layer 4 load balancing across all virtualized firewalls. A fully populated 4015 supports a throughput of 75 Gbps, with 5 Gbps per single server or VM-700 instance.

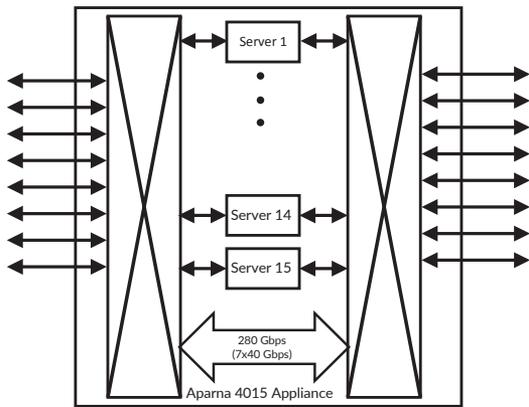


Figure 1: Aparna μCloud 4015 Block Diagram

Use Case No. 2: Trusted NFV Infrastructure with Integrated Firewall VNF

The Aparna μCloud system can run applications and virtual network functions (VNFs) in a multi-application configuration with network-based isolation, preserving application cluster independence and eliminating inter-application turbulence.

Along with embedded VM-700s, the platform can also support other VNFs, such as vCCAP and vRAN, to provide a trusted NFV appliance. These VNFs can be a mixture of bare metal, virtualized, and containerized, allowing for maximum infrastructure flexibility.

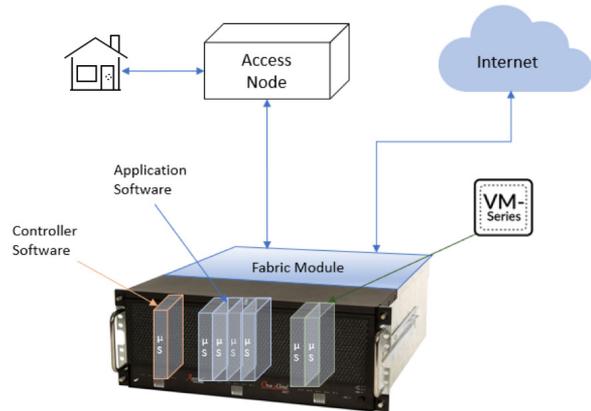


Figure 2: Aparna μCloud 4015 and VM-700 NGFW

About Aparna Systems

Aparna Systems' pioneering μCloud™ and μServer products are revolutionizing edge computing infrastructure through the ultra-convergence of compute, storage and networking resources in a self-contained system that sets new standards for agility, scalability and affordability. The company's μCloud and μServer products provide a high density, high performance and high availability Cloud-in-a-Box solution for edge applications ranging from Hybrid Cloud Gateways to Edge AI applications. The μCloud's compact, energy efficient design also minimizes the need for space, power and cooling. The open software system supports bare metal, containerized and/or virtualized deployments in single- and multi-applications environments, and sets a new price/performance standard in the industry with its disruptive combination of improved application performance and reduced capital and operational expenditures. The privately-held company is headquartered in Fremont, California. www.aparnasystems.com

About Palo Alto Networks

We are the global cybersecurity leader, known for always challenging the security status quo. Our mission is to protect our way of life in the digital age by preventing successful cyberattacks. This has given us the privilege of safely enabling tens of thousands of organizations and their customers. Our pioneering Security Operating Platform emboldens their digital transformation with continuous innovation that seizes the latest breakthroughs in security, automation, and analytics. By delivering a true platform and empowering a growing ecosystem of change-makers like us, we provide highly effective and innovative cybersecurity across clouds, networks, and mobile devices. Find out more at www.paloaltonetworks.com.



3000 Tannery Way
Santa Clara, CA 95054

Main: +1.408.753.4000
Sales: +1.866.320.4788
Support: +1.866.898.9087

www.paloaltonetworks.com

© 2019 Palo Alto Networks, Inc. Palo Alto Networks is a registered trademark of Palo Alto Networks. A list of our trademarks can be found at <https://www.paloaltonetworks.com/company/trademarks.html>. All other marks mentioned herein may be trademarks of their respective companies. aparna-systems-tpb-041219