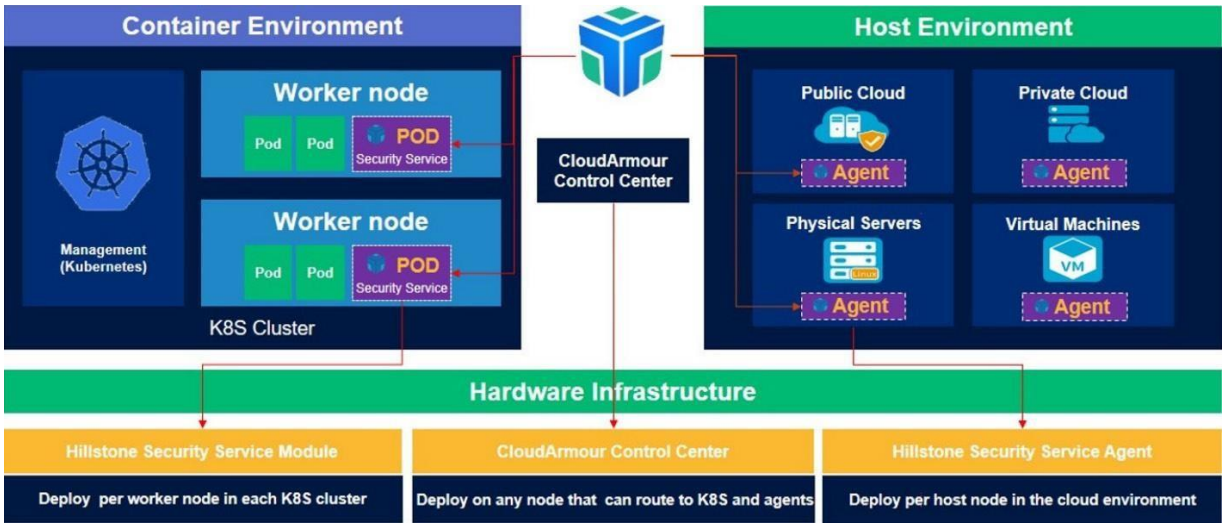
Hillstone CloudArmour

Cloud Native Application Protection Platform

As workloads expand from traditional physical appliance-based or virtual machine-based to the modern container-based or serverless in public, private, hybrid, and even multi-cloud environments, security protection and risk management on cloud platforms must now span development and runtime. CloudArmour provides deep visibility of the cloud workloads with full security control, allowing organizations to comprehensively understand their cloud security posture, and act accordingly to meet the security demands of both the evolution of DevOps and the new cloud infrastructure architecture. Hillstone CloudArmour combines micro-segmentation and runtime protection to protect cloud-native applications and workloads. It delivers advanced intrusion prevention and powerful anti-virus capabilities. It also integrates vulnerability management and compliance across the entire lifecycle of applications. CloudArmour helps enterprises embrace a cyber-resilient cloud security infrastructure.



Product Highlights

Full and Deep Security Visibility of Converged Cloud Workload

CloudArmour provides a centralized dashboard of the cloud security posture with statistical and analytical information for hosts and cloud assets that allow organizations to have a unified workload monitoring and real-time assets management. The dashboard provides granular details such as cloud environment system status, vulnerabilities, network flows, security incidents and threats. CloudArmour automatically synchronizes with container registries, Kubernetes clusters and hosts in real-time about the status of key components such as images, apps, services, and clusters, as well as the OS, network cards, and processes in the host. CloudArmour's posture insight function provides a deep insight into vulnerabilities relations and traffic connections between applications and services, which provides a comprehensive view of poten-

Product Highlights (Continued)

tially vulnerable applications, abnormal traffic, risky behaviors, and other info that security operators could take actions against. This empowers security operators to make informed decisions and take swift actions to strengthen cloud security.

Unified and Granular Network Micro-segmentation

Extensive micro-segmentation allows for network micro-segmentation, such that the access from one asset to another is restricted according to policy. It adapts to multiple cloud platforms and workloads in a loose-coupling manner, meaning it is non-invasive, and there are less dependencies, so changes or exploits in one component or asset may not necessarily result in changes or exploits in another component. It automatically discovers the application dependencies and dynamically enforces the micro-segmentation policies to avoid the proliferation of potential threats among an enterprise's assets. CloudArmour can minimize the threat attack surface via industry-leading micro-segmentation and traffic steering technology, providing point-to-point network visibility and granular control based on apps, services or work nodes. This is critical for helping users understand the security posture before delineating micro-segmentation policies. When creating policies, CloudArmour provides a Smart Policy Assis -tant that uses advanced traffic log analysis to intelligently model traffic and generate microsegmentation policies. With its Policy Simulation functionality, administrators can safely validate and fine-tune policies in a risk-free environment, ensuring accuracy without impacting live operations. This robust combination boosts both the efficiency and accuracy of policy management, streamlining security operations while reducing operational risks.

Advanced Threat Detection and Runtime Protection

The advanced threat detection and prevention capability can help detect threats and mitigate risks during runtime on cloud workloads, including containers, VMs, and bare-metal servers. It builds behavior models by monitoring the activities of workloads, such as processes, syscalls, files, and networks. Through these models, CloudArmour can detect abnormal behaviors and deploy rules to identify and prevent advanced threats effectively. CloudArmour also injects Runtime Application Self-Protection (RASP) directly into the application runtime environment, allowing it to instantly detect and block threats that target application, such as injection attacks and data exfiltration. This enables real-time, in-process defense, enhancing protection against sophisticated, application-layer threats. With robust monitoring and blocking capabilities, CloudArmour effectively safeguards against high-risk behaviors like abnormal logins, reverse shells, webshells, and local privilege escalation. Moreover, CloudArmour utilizes a powerful virus scanning engine, conducting thorough scans of host and container image files to detect viruses. Upon detecting any malicious files, CloudArmour promptly takes appropriate actions like isolation, deletion, repair, or trust, effectively eliminating threats to ensure a secure environment. Moreover, CloudArmour's case-based investigation capability leverages deep correlation analysis to stitch together fragmented security events across the environment. It empowers analysts to rapidly reconstruct the attack chain, pinpoint the initial access vector, and uncover adversary techniques and lateral movement paths—delivering actionable insights to drive effective response and containment.

Complete Vulnerability Management Across the Entire Application Lifecycle

CloudArmour provides deep insights and management of the vulnerabilities of images, containers, working nodes and hosts. CloudArmour integrates security as part of the Continuous Integration and Continuous Deployment workflow. It continuously monitors and scans vulnerabilities of VMs, cloud hosts, and bare metal servers throughout the lifecycle from application development to daily operation, triggering alerts if necessary to mitigate potential risks ahead of time. Vulnerability scanning is also continuously performed on repositories, and images with serious vulnerabilities can be alerted and

Product Highlights (Continued)

blocked from reaching production. For complex vulnerabilities, CloudArmour applies virtual patching to deliver non-intrusive mitigation, buying critical time for thorough remediation without disrupting business operations.

Out-of-the-box Security Compliance Assessments and Enforcement

CloudArmour starts with exposure surface management, identifying and closing unnecessary ports to reduce the system's attack surface and limit potential entry points. It also assesses the compliance posture of cloud workloads with recommendations based on the industry's best practices. It leverages the pre-configured compliance checks from CIS Benchma-rks for Kubernetes, Docker, Linux, images and application runtime configurations, and provides a standard list of recommendations of remediations for each compliance risk. Compliance check results can be exported for further analysis or auditing.

Features

Overview
- Support system overview with visibility into threat protection, risk management, container security, and microsegmentation logs
- Support unified host risk view to present all threats related to a host in one place
- Support security dashboard for real-time monitoring of key security metrics

Asset Management
- Support asset management with two-tier grouping based on clusters and host groups/namespaces
- Support asset label management
- Support inventory of container services, image files, and asset labels
- Support synchronizing local images with container repositories
- Support global Windows/Linux asset analysis, including account, software package, process, service, web, port, and database information, and support software package information query

Security Posture Insight
- Support insights into microsegmentation events, as well as internal and external traffic within clusters
- Support visibility of network connections of services
- Support displaying asset communication details in a list view
- Support creating microsegmentation policies based on forensics during policy simulation

Vulnerability Management
- Support vulnerability scanning for hosts and images
- Support on-demand and scheduled scanning tasks
- Provide risk detection dashboards for hosts and images
- Provide visibility into vulnerability information and the affected component packages
- Support network-layer protection against exploitation of known host vulnerabilities
- Support manual, automatic, and offline updates of signature databases
- Support vulnerability allowlists

Weak Password Detection
- Support custom weak password dictionaries
- Support defining weak password scanning tasks
- Support weak password allowlists

Compliance Check
- Support compliance checks for hosts, containers, and images
- Support custom compliance check scope and compliance policies
- Support on-demand and scheduled compliance checks
- Provide visibility into compliance risk trends, compliance rate, risk details
- Support exporting compliance check results

Intrusion Prevention
- Support detecting abnormal host login behavior
- Support detecting webshell on hosts/containers
- Support detecting reverse shell and local privilege escalation behavior on hosts/containers
- Support WebRCE detection for hosts and containers
- Support memory shell detection on hosts
- Support sensitive file alteration detection
- Support detection of high-risk comman execution such as reverse shells, malicious commands, file modifications,etc.
- Support container escape detection
- Support custom signatures and custom detection rules
- Support behavior-based analysis of host activities, including processes/threads, file and registry access, network connections, DNS queries, pipes, and module loading
- Support behavior event allowlist creation
- Support custom behavior detection rules

Antivirus
- Support multi-engine virus scanning
- Support virus scanning of host files and image files
- Support three scanning modes: fast, balanced, and low resource consumption
- Support custom path, critical path, and complete virus scanning
- Support on-demand and scheduled scanning
- Support management of isolation and trusted files
- Support scanning for various virus types, including spyware, adware, spam, trojans, auto-dialers, malicious applications, compressed file bombs, and compression virus
- Support detection of compressed viruses
  Support batch handling of viruses with options for repairing, deleting, isolating, trusting, or ignoring
- Provide virus risk trend visualization and detailed scan results
- Support manual, automatic, and offline updates of signature databases

Features (Continued)

Micro-segmentation

- Support node or app level granular control to turn on/off micro-segmentation services
- Support micro-segmentation policy configuration based on various dimensions, including cluster, host group, host, namespace, Kubernetes application, Kubernetes service, custom IP, address book, and domain book
- Support five-tuple control for TCP/UDP traffic
- Support configuration of policy validity periods
- Support micro-segmentation policy simulation
- Support group-based micro-segmentation policy management
- Support atomated generation of micro-segmentation policies
- Support blocked policy event query
- Support global policy configuration

Attack Surface Management

- Support asset exposure analysis to assess open ports and protection coverage

Behavior Monitoring

- Support establishing behavioral models based on dimensions including processes, file read/write operations, and network behaviors
- Support behavior rule configuration for hosts, Kubernetes applications, and host containers
- Support behavioral learning capability with automatic generation of behavior rules
- Support node level granular control to turn on/off behavior monitoring services
- Support blacklist/whitelist protection based on behavioral models
- Support multiple mitigation actions including alerting, blocking, disabling, and ignoring
- Support RASP (Runtime Application Self-Protection)

Case-Based Investigation

- Support case-based investigation to reconstruct the complete attack chain
- Support graph-based attack storyline with detailed threat events
- Support querying raw threat logs for deep analysis

Container Security

- Support manual configuration file compliance check for Docker images and Kubernetes clusters
- Support compliance checks, vulnerability scanning, virus scanning, and secrets scanning for local images and image repositories
- Support creating admission control policies based on compliance, vulnerability, and virus scan results
- Support querying alert events related to admission control policies
- Support global configuration management for admission control policies
- Support anomaly detection for the Kubernetes API

Log Management

- Support detailed display of micro-segmentation, behavior, Kubernetes admission control, intrusion events
- Support access to system, configuration, and audit logs
- Support log forwarding

System Management

- Support multi-tenant management
- Support mandatory password setting require- ments for administrator accounts
- Support automatic bypass of security features based on global settings
- Support real-time monitoring of the operational status of the security guard service across the entire system
- Support proactive alert notifications for critical events on the management interface
- Support role-based access control, including administrator, operator, auditor, and other roles
- Support Radius login authentication
- Support integration with Hillstone iSource Open XDR platform
- Support threat event submission through Syslog
- Support API integration for third-party platforms to retrieve asset and vulnerability information
- The controller supports high availability

Recommended Configuration for CloudArmour Control Center

x86 Architecture Recommended Configuration

Case-Based Investigation Enabled				Case-Based Investigation Disabled			
Workload	CPU	Memory	Storage	Workload	CPU	Memory	Storage
0-500	≥ 8*cores	≥ 16GB	≥ 256GB	0-500	≥ 16*cores	≥ 64GB	≥ 10TB
500-2000	≥ 8*cores	≥ 32GB	≥ 512GB	500-1000	≥ 32*cores	≥ 128GB	≥ 20TB
2000-5000	≥ 16*cores	≥ 64GB	≥ 512GB	1000-2000	≥ 32*cores	≥ 256GB	≥ 20TB

ARM Architecture Recommended Configuration

Case-Based Investigation Enabled				Case-Based Investigation Disabled			
Workload	CPU	Memory	Storage	Workload	CPU	Memory	Storage
0-500	≥ 16*cores	≥ 16GB	≥ 256GB	0-500	≥ 32*cores	≥ 64GB	≥ 10TB
500-2000	≥ 16*cores	≥ 32GB	≥ 512GB	500-1000	≥ 64*cores	≥ 128GB	≥ 20TB
2000-5000	≥ 32*cores	≥ 64GB	≥ 512GB	1000-2000	≥ 64*cores	≥ 256GB	≥ 20TB

Notes:
The control center supports deployment via ISO virtual machine images.
Disk types supported: sda, vda, xvda, hda.

Client Environment Requirements

Operating System Category	Operating System Version
Windows Server	Windows Server 2008/2012/2016/2019 (x86_64)
Linux	CentOS 6/7/8/9 (x86_64)
	Ubuntu 16.04/18.04/20.04/22.04 (x86_64)
	SUSE 11/12/15 (x86_64)
	Redhat 6/7 (x86_64)
	euleros2.0 (x86_64)
	Oracle linux 7/8
	Kylin v10 Server Edition (x86_64/ARM64)
	anolios7/8 (X86_64/ARM64)
	UOS ServerV20 (X86_64/ARM64)
	openEuler 20.03/22.03/23.09 (X86_64/ARM64)
	Rockylinux 8.10/9.5 Alamlinux 8.10/9.5
Kubernetes	> 1.16
Docker	All series
containerd	All series

Version: EX-08.01-CloudArmour-V1.0R5-0725-EN-01