



**PA-7050**



**PA-7080**

# PA-7000 Series

Palo Alto Networks PA-7000 Series ML-Powered Next-Generation Firewalls (NGFWs) enable enterprise-scale organizations and service providers to deploy security in high-performance environments, such as large data centers and high-bandwidth network perimeters. Designed to handle growing throughput needs for application-, user-, and device-generated data, these systems offer amazing performance, prevention capabilities to stop the most advanced cyberattacks, and high-throughput decryption to stop threats hiding under the veil of encryption. Built to maximize security-processing resource utilization and automatically scale as new computing power becomes available, the PA-7000 Series offers simplicity defined by a single-system approach to management and licensing.

## Highlights

- World's first ML-Powered NGFW
- Eleven-time Leader in the Gartner Magic Quadrant for Network Firewalls
- Leader in The Forrester Wave: Enterprise Firewalls, Q4 2022
- Delivers 5G-Native Security built to safeguard service provider and enterprise 5G transformation and multi-access edge computing (MEC)
- Extends visibility and security to all devices, including unmanaged IoT devices, without the need to deploy additional sensors
- Supports high availability with active/active and active/passive modes
- Delivers predictable performance with security services
- Supports centralized administration with Panorama network security management
- Maximizes security investments and prevents business disruptions with Strata™ Cloud Manager

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The controlling element of the PA-7000 Series is PAN-OS®, the same software that runs all Palo Alto Networks NGFWs. PAN-OS natively classifies all traffic, inclusive of applications, threats, and content, and then ties that traffic to the user regardless of location or device type. The application, content, and user—in other words, the elements that run your business—then serve as the basis for your security policies, resulting in improved security posture, reduced incident response time, and lower administrative overhead associated with keeping security policies current in a highly dynamic environment.

## Key Security and Connectivity Features

### ML-Powered Next-Generation Firewall

- Embeds machine learning (ML) in the core of the firewall to provide inline signatureless attack prevention for file-based attacks while identifying and immediately stopping never-before-seen phishing attempts.
- Leverages cloud-based ML processes to push zero-delay signatures and instructions back to the NGFW.
- Uses behavioral analysis to detect IoT devices and make policy recommendations; cloud-delivered and natively integrated service on the NGFW.
- Automates policy recommendations that save time and reduce the chance of human error.

### Identifies and Categorizes All Applications, on All Ports, All the Time, with Full Layer 7 Inspection

- Identifies the applications traversing your network irrespective of port, protocol, evasive techniques, or encryption (TLS/SSL). In addition, it automatically discovers and controls new applications to keep pace with the SaaS explosion with SaaS Security subscription.
- Uses the application, not the port, as the basis for all your safe enablement policy decisions: allow, deny, schedule, inspect, and apply traffic-shaping.
- Offers the ability to create custom App-ID™ tags for proprietary applications or request App-ID development for new applications from Palo Alto Networks.
- Identifies all payload data within the application (e.g., files and data patterns) to block malicious files and thwart data exfiltration attempts.
- Creates standard and customized application usage reports, including software-as-a-service (SaaS) reports that provide insight into all sanctioned and unsanctioned SaaS traffic on your network.
- Enables safe migration of legacy Layer 4 rule sets to App-ID-based rules with built-in Policy Optimizer, giving you a rule set that is more secure and easier to manage.

Check out the [App-ID tech brief](#) for more information.

### Enforces Security for Users at Any Location, on Any Device, While Adapting Policy Based on User Activity

- Enables visibility, security policies, reporting, and forensics based on users and groups—not just IP addresses.
- Easily integrates with a wide range of repositories to leverage user information: wireless LAN controllers, VPNs, directory servers, SIEMs, proxies, and more.
- Allows you to define Dynamic User Groups (DUGs) on the firewall to take time-bound security actions without waiting for changes to be applied to user directories.
- Applies consistent policies irrespective of users' locations (office, home, travel, etc.) and devices (iOS and Android mobile devices; macOS, Windows, and Linux desktops and laptops; Citrix and Microsoft VDI; and terminal servers).

- Prevents corporate credentials from leaking to third-party websites and prevents reuse of stolen credentials by enabling multifactor authentication (MFA) at the network layer for any application without any application changes.
- Provides dynamic security actions based on user behavior to restrict suspicious or malicious users.
- Consistently authenticates and authorizes your users, regardless of location and where user identity stores live, to move quickly toward a Zero Trust security posture with Cloud Identity Engine—an entirely new cloud-based architecture for identity-based security.

Check out the [Cloud Identity Engine solution brief](#) for more information.

## Prevents Malicious Activity Concealed in Encrypted Traffic

- Inspects and applies policy to TLS/SSL-encrypted traffic, both inbound and outbound, including for traffic that uses TLS 1.3 and HTTP/2.
- Offers rich visibility into TLS traffic, such as amount of encrypted traffic, TLS/SSL versions, cipher suites, and more, without decrypting.
- Enables control over use of legacy TLS protocols, insecure ciphers, and misconfigured certificates to mitigate risks.
- Facilitates easy deployment of decryption and lets you use built-in logs to troubleshoot issues, such as applications with pinned certificates.
- Lets you enable or disable decryption flexibly based on URL category, source and destination zone, address, user, user group, device, and port, for privacy and regulatory compliance purposes.
- Allows you to create a copy of decrypted traffic from the firewall (i.e., decryption mirroring) and send it to traffic collection tools for forensics, historical purposes, or data loss prevention (DLP).
- Allows you to intelligently forward all traffic (decrypted TLS, undecrypted TLS, and non-TLS) to third-party security tools with network packet broker and optimize your network performance and reduce operating expenses.

Refer to this [decryption whitepaper](#) to learn where, when, and how to decrypt to prevent threats and secure your business.

## Offers AI-Powered Unified Management and Operations with Strata Cloud Manager

- **Prevent network disruptions:** Forecast deployment health and proactively identify capacity bottlenecks up to seven days in advance with predictive analytics to proactively prevent operational disruptions.
- **Strengthen security in real time:** AI-powered analysis of policies and real-time compliance checks against industry and Palo Alto Networks best practices.
- **Enable simple and consistent network security management and ops:** Manage configuration and security policies across all form factors, including SASE, hardware and software firewalls, and all security services to ensure consistency and reduce operational overhead.

## Detects and Prevents Advanced Threats with Cloud-Delivered Security Services

The traditional approach of using siloed security tools causes challenges for organizations, including security gaps, increased overhead for security teams, and disruptions in business productivity. Seamlessly integrated with our industry-leading NGFWs, our Cloud-Delivered Security Services share threat intelligence across 65,000 customers in order to prevent known and unknown threats across all threat vectors in real time. Eliminate security gaps in your entire network and take advantage of inline AI-powered security services that provide real-time protection everywhere.

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Services include:

- **Advanced Threat Prevention:** Stop known and unknown exploits and command-and-control (C2) attacks with inline AI-powered detections, stopping 60% more zero-day injection attacks and 48% more highly evasive command-and-control traffic than traditional IPS solutions.
- **Advanced WildFire®:** Ensure files are safe by automatically preventing known, unknown, and highly evasive malware 180X faster than competitors with the industry's largest threat intelligence and malware prevention engine.
- **Advanced URL Filtering:** Ensure safe access to the internet and prevent 40% more web-based attacks with the industry's first real-time prevention of known and unknown threats, stopping 88% of malicious sites at least 48 hours before other vendors.
- **DNS Security:** Gain 68% more threat coverage and stop 85% of malware that abuses DNS for command and control and data theft without requiring changes to your infrastructure.
- **Enterprise DLP:** Minimize risk of a data breach, stop out-of-policy data transfers, and enable compliance consistently across your enterprise, with 2X greater coverage of any cloud-delivered enterprise DLP.
- **SaaS Security:** Stay ahead of the SaaS explosion with the industry's only Next-Generation CASB to automatically see and secure all apps across all protocols.
- **IoT Security:** Safeguard every "thing" and implement Zero Trust device security 20X faster, with the industry's smartest security for smart devices.

## Delivers a Unique Approach to Packet Processing with Single-Pass Architecture

- Performs networking, policy lookup, application and decoding, and signature matching—for all threats and content—in a single pass. This significantly reduces the amount of processing overhead required to perform multiple functions in one security device.
- Avoids introducing latency by scanning traffic for all signatures in a single pass, using stream-based, uniform signature matching.
- Enables consistent and predictable performance when security subscriptions are enabled. (In table 1, "Threat Prevention throughput" is measured with multiple subscriptions enabled.)

## Enables SD-WAN Functionality

- Allows you to easily adopt SD-WAN by simply enabling it on your existing firewalls.
- Enables you to safely implement SD-WAN, which is natively integrated with our industry-leading security.
- Delivers an exceptional end-user experience by minimizing latency, jitter, and packet loss.

**Table 1: PA-7000 Series Performance and Capacities**

	PA-7000-100G-NPC-A	PA-7000-DPC-A	PA-7050*	PA-7080*
Firewall throughput (appmix) <sup>†</sup>	51.5 Gbps	68.6 Gbps	343 Gbps	590 Gbps
Threat Prevention throughput (appmix) <sup>‡</sup>	26.5 Gbps	35.3 Gbps	184 Gbps	305 Gbps
IPsec VPN throughput <sup>§</sup>	26 Gbps	34 Gbps	190 Gbps	310 Gbps
Max concurrent sessions <sup>  </sup>	32M	43M	245M	416M
New sessions per second <sup>#</sup>	560,000	746,000	4M	6M
Virtual systems (base/max)**	–	–	25/225	25/225

Note: Results were measured on PAN-OS 11.1.

\* Results in this column were derived from an optimum combination of PA-7000-DPC-A and PA-7000-100G-NPC-A cards populated in all available slots.

† Throughput is measured with App-ID and logging enabled, with appmix transactions.

‡ Threat Prevention throughput measured with App-ID, IPS, antivirus, antispysware, WildFire, DNS Security, file blocking, and logging enabled, utilizing appmix transactions.

§ IPsec VPN throughput is measured with 64 KB HTTP transactions, and logging enabled.

|| Max concurrent sessions are measured utilizing HTTP transactions.

# New sessions per second is measured with application override, utilizing 1 byte HTTP transactions.

\*\* The base system includes 25 virtual systems at no cost, and up to 200 additional licenses may be purchased. The maximum number of virtual systems supported is 225.

**Table 2: PA-7000 Series Networking Features**

Interface Modes
L2, L3, tap, virtual wire (transparent mode)
Routing
OSPFv2/v3 with graceful restart, BGP with graceful restart, RIP, static routing
Policy-based forwarding
Point-to-Point Protocol over Ethernet (PPPoE) and DHCP supported for dynamic address assignment
Multicast: PIM-SM, PIM-SSM, IGMP v1, v2, and v3
Bidirectional Forwarding Detection (BFD)
SD-WAN
Path quality measurement (jitter, packet loss, latency)
Initial path selection (PBF)
Dynamic path change
IPv6
L2, L3, tap, virtual wire (transparent mode)
Features: App-ID, User-ID, Content-ID, WildFire, and SSL decryption
SLAAC

**Table 2: PA-7000 Series Networking Features (continued)**

IPsec and SSL VPN
Key exchange: manual key, IKEv1 and IKEv2 (pre-shared key, certificate-based authentication)
Encryption: 3des, AES (128-bit, 192-bit, 256-bit)
Authentication: MD5, SHA-1, SHA-256, SHA-384, SHA-512
GlobalProtect Large Scale VPN for simplified configuration and management*
Secure access over IPsec and SSL VPN tunnels using GlobalProtect Gateway and Portals*
VLANs
802.1Q VLAN tags per device/per interface: 4,094/4,094
Aggregate interfaces (802.3ad) intracard and/or intercard, and LACP
Network Address Translation
NAT modes (IPv4): static IP, Dynamic IP, Dynamic IP and Port (port address translation)
NAT64, NPTv6
Additional NAT features: Dynamic IP reservation, tunable Dynamic IP and Port oversubscription
High Availability
Modes: active/active, active/passive, HA clustering
Failure detection: path monitoring, interface monitoring
Mobile Network Infrastructure†
5G Security
GTP Security
SCTP Security

\* Requires GlobalProtect License.

† For additional information, refer to our [ML-Powered NGFWs for 5G](#) datasheet.

**Table 3: PA-7000 Series Hardware Specifications**

	PA-7000 NPC	PA-7050 Full System	PA-7080 Full System
PA-7000-100G-NPC-A	SFP/SFP+ (8), QSFP+/QSFP28 (4)	SFP/SFP+ (48), QSFP+/ QSFP28 (24)	SFP/SFP+ (80), QSFP+/ QSFP28 (40)
PA-7050-SMC-B PA-7080-SMC-B	–	SFP MGT (2), SFP HA1 (2), HSCI HA2/HA3 QSFP+/QSFP28 (2), RJ45 serial console (1), Micro USB serial console (1)	
PA-7000-LFC-A	–	480 GB SSD, system drive RAID1 (2 x 240 GB)	
AC input voltage	–	100–240 VAC (50–60 Hz)	
Rated input current	–	27-12A	65-27A
AC power supply output	–	2500 W @ 240 VAC 1200 W @ 120 VAC	
DC input voltage	–	-40 to -60 VDC	
Rated input current	–	60A	135A
DC power output	–	2500 W/power supply	
Max current/power supply	–	16 A @ 180 VAC In 75 A @ 37.5 VDC In	12 A @ 240 VAC In 75 A @ >40 VDC In
Power supplies (base/max)	–	4/4	4/8

**Table 3: PA-7000 Series Hardware Specifications (continued)**

	PA-7000 NPC	PA-7050 Full System	PA-7080 Full System
Max inrush current/power supply	–	50 AAC/75 ADC peak	30 AAC/100 ADC peak
Mean time between failure (MTBF)	Configuration dependent; contact your Palo Alto Networks representative for MTBF details.		
Max BTU/hr	–	10,236	20,132
Rack mount (dimensions)	–	9U, 19" standard rack (15.75" H x 19" W x 24" D)	19U, 19" standard rack (32.22" H x 19" W x 24.6" D)
Weight (standalone device/as shipped)	–	187.4 lbs. AC/185 lbs. DC	299.3 lbs. AC/298.3 lbs. DC
Safety	–	cTUVus, CB	
EMI	–	FCC Class A, CE Class A, VCCI Class A	
Certifications	–	NEBS Level 3	
Environment			
Operating temperature	–	32° to 122°F, 0° to 50°C	
Nonoperating temperature	–	-4° to 158°F, -20° to 70°C	



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