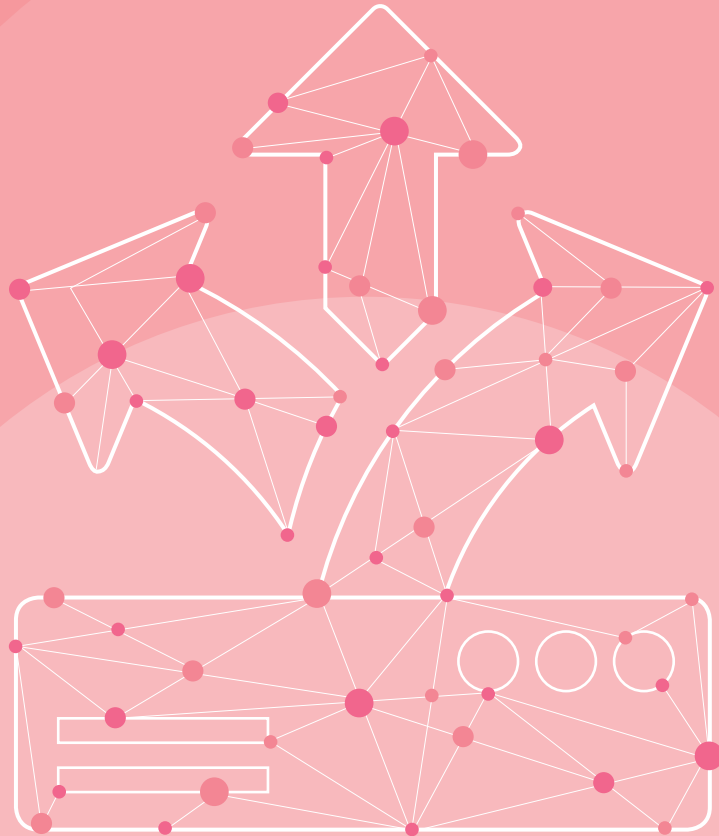# PAS-K · PAS-KV · PAS-KS

Application Delivery Controller

PIOLINK

PAS-K · PAS-KV

PIOLINK's PAS-K is an application delivery controller that solves the traffic overload to the servers and stably delivers applications to service users without interruption. Its high availability, performance, and scalability make it ideal for on-premises and cloud infrastructure environments. PAS-K has been ranked No. 1 in the Korean ADC market for several years.

PIOLINK ADC platform

PAS-K

- ADC appliance providing comprehensive application delivery
- 2-200 Gbps throughput

PAS-KV

- ADC appliance for virtualization
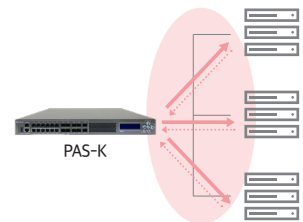- Up to 44 multiple virtual instance

PAS-KS

- Software ADC on hypervisor
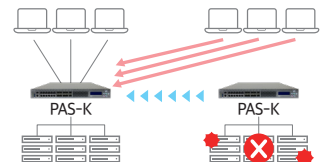- Virtual appliance for x86 servers

Availability Guarantee

Various Load Balancing

When 2 or more servers provide a same service of an application, PAS-K balances the load of traffic toward servers in front of these servers. This load balancing method can be applied to firewalls, VPNs, and gateways as well to maximize the efficiency of using the target devices' resources while maintaining the stability on service even when there is an explosion of traffic.
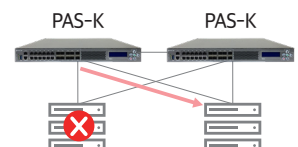

PAS-K

GSLB (Global Server Load Balancing)

As the extended concept of the server load balancing feature for website service, GSLB (Global Server Load Balancing) can be used for the data center redundancy or establishing the disaster recovery center. You can maintain the availability of the service as the connection is routed toward the most proper one among the other sites when there is an unexpected trouble.

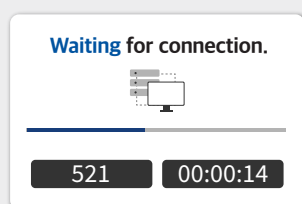PAS-K   PAS-K

High Availability

After monitoring the availability of the service, sessions are initiated only on the servers which are operating properly. PAS-K provides the high availability with various failover features (e.g. VRRP) along with the synchronization feature for sessions and configurations.

PAS-K   PAS-K

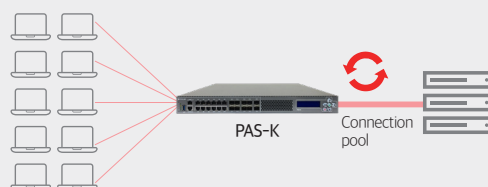## Traffic Surge Protection & Connection Guarantee

Controlling the Traffic Explosion and Guaranteeing Connections

When there are traffic explosions more than the amount that servers can handle (e.g. buying tickets for concerts, booking trains and air planes during holiday seasons, and registering/enrolling college courses), PAS-K prevents servers from going down. A window pops up to display the estimated waiting time and the number of people waiting if there are requests more than the threshold. The connection is automatically started when the service becomes available.

Waiting for connection.

521   00:00:14

Connection Pooling

PAS-K saves servers and multiple connections information to prevent troubles from massive traffic. When users send requests for a web page, you can reduce the server loads by reusing connections which are stored on PAS-K instead of starting new connections. Moreover, users can enjoy the stable service with more pleasant speed on loading pages.

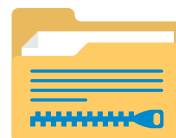PAS-K   Connection pool

Enforced Performance

Memory Caching

PAS-K responds to service requests by storing frequently asked content, instead of servers. This caching feature reduces the load on servers while improving the response speed.

HTTP Compression

As a main content (such as image files) is compressed and transmitted to users, it is possible to save the bandwidth and minimize the troubles of delaying transmission. If servers perform the compression feature, there is a problem of increasing the load on the hardware resources such as the CPUs and memories of the servers. PAS-K runs the HTTP compression feature to reduce the load on the servers.

FEO (Front-End Optimization)

This is for improving the perceived speed for users. The front-end parts take 80% of the time on loading web pages. PAS-K improves the actual quality of service by reducing the perceived loading speed on the users' web browsers by optimizing the steps of compiling JavaScript/CSS/HTML codes and image files.
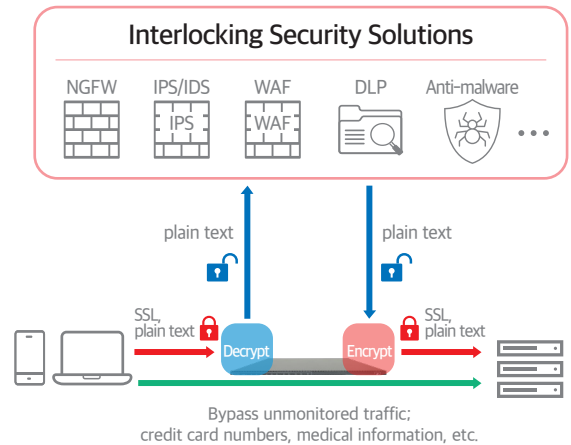

SSL Offloading

By encrypting and decrypting SSL traffic instead of the servers, PAS-K can reduce the load on the servers and minimize the delays. PAS-K supports the SSL acceleration feature as the default, and you can add more cases according to the bandwidth demand.

SSL Visibility

SSL-VU™

Server-side SSL visibility is provided to prevent threats posed by encrypted traffic. PAS-K decrypts SSL packets and delivers them to security solutions such as firewall and IPS. The traffic verified by security solution is re-encrypted and forwarded into the server. Through this procedure, personal information traffic is not decrypted.

Interlocking Security Solutions

NGFW   IPS/IDS   WAF   DLP   Anti-malware

plain text   plain text

SSL, plain text → Decrypt   Encrypt → SSL, plain text

Bypass unmonitored traffic;
credit card numbers, medical information, etc.

Flexible Management

PREScript™
(Rule&Event Script)

With the script-based language, PAS-K can support various features which are not provided as the default regular features. This feature allows the administrator to add the details on collecting trouble information, troubleshooting, running commands for each site or user.

REST API·ANSIBLE

PAS-K supports REST API so that it can be configured and monitored in 3rd party solutions when managing cloud infrastructure. It also supports ANSIBLE, a script-based IT infrastructure operation automation tool for easy cloud management.

Cloud Plug™

This is a plug-in which allows you to create and remove services, real servers, and health checks of PAS-K on VMware orchestration.

Features

Layer 2	802.1Q VLAN, spanning tree (STP, RSTP, MSTP, PvST+), jumbo frame, LACP link aggregation, port mirroring, port trunking	**Health Check**	link, ARP, ICMP, TCP, UDP, HTTP, script, NTP, TFTP, RADIUS
		Acceleration	SSL (software, hardware), compression, caching
Layer 3	ECMP, static, RIP, OSPF, BGP, QoS, IGMP	**High Availability**	HA, eVRRP (enhanced VRRP), MVRRP (multiple VRRP), stateful active-standby failover, active-active failover
Layer 4	server load balancing, firewall load balancing, VPN load balancing, cache server load balancing, gateway load balancing, global server load balancing, DNS load balancing, inbound load balancing	**Security**	DDoS protection (SYN cookie, SYN flooding, HTTP DDoS), network firewall, content filtering, SSL-VU™
		IPv6	supported (IPv6 Ready Logo Phase II), IPv4/IPv6 dual stack
Layer 7	delayed binding, URL-based load balancing, cookie-based load balancing, SSL ID-based load balancing, connection pooling, traffic surge protection, sure connect, spill over, PREScript™ (rule & event script)	**Management**	CLI (telnet, SSH), GUI (web manager), PREST-API™ (REST API), SNMP, SNMP trap, syslog, remote syslog server, authentication (RADIUS, TACACS+ AAA), email alarm, dual-boot, TCP dump save, SSH connect port
		Monitoring	watchdog timer, sensors on fan/temperature/power errors

PAS-K

PAS	K1800	K3200	K3200X	K3600
Ethernet Ports (Total)	22	22	16 or 24	22
·40 GbE Fiber (QSFP+)	-	-	-	-
·10 GbE Fiber (SFP+)	2	2	4	2
·1 GbE Fiber (SFP)	8	8	12, 8 (optional)	8
·1 GbE Copper	12	12	8 (optional)	12
Memory (RAM)*	4 GB	16 GB	16 GB	16 GB
SSD*	120 GB	120 GB	120 GB	120 GB
Power supply	dual / hot-swappable power			
Power Consumption	84 W	89 W	110 W	89.7 W
Power Input	100-240 VAC, 50-60 Hz (universal voltage)			
Dimension (WxDxH)	428 x 458 x 44 mm	428 x 458 x 44 mm	428 x 508 x 44 mm	428 x 458 x 44 mm
Weight	8.1 kg	8.1 kg	8.8 kg	8.1 kg
EMC	KC (Class A) / VCCI (Class A)			
Backplane	140 Gbps	140 Gbps	640 Gbps	140 Gbps
Throughput (L4/L7)	2 Gbps / 2 Gbps	6 Gbps / 6 Gbps	8 Gbps / 6 Gbps	12 Gbps / 10 Gbps
Concurrent Sessions	3,600,000	16,000,000	16,000,000	16,000,000
L4 CPS (max)	150,000	520,000	520,000	520,000

*Memory and SSD are provided at the listed capacity or higher.

PAS	K5200	K4300	K5400	K5600	K8620R
Ethernet Ports (Total)	16 or 18 or 24	22	16 or 18 or 24	16 or 18 or 24	20
·40 GbE Fiber (QSFP+)	2 (optional)	-	2 (optional)	2 (optional)	4
·10 GbE Fiber (SFP+)	16, 8 (optional)	2	16, 8 (optional)	16, 8 (optional)	16
·1 GbE Fiber (SFP)	-	8	-	-	-
·1 GbE Copper	8 (optional)	12	8 (optional)	8 (optional)	-
Memory (RAM)*	16 GB	16 GB	32 GB	64 GB	128 GB
SSD*	120 GB	120 GB	120 GB	120 GB	160 GB
Power Supply	dual / hot-swappable power				
Power Consumption	120 W	98 W	129 W	135 W	391.4 W
Power Input	100-240 VAC, 50-60 Hz (universal voltage)				
Dimension (WxDxH)	428 x 508 x 44 mm	428 x 458 x 44 mm	428 x 508 x 44 mm	428 x 508 x 44 mm	428 x 731 x 88 mm
Weight	8.8 kg	8.1 kg	8.8 kg	8.8 kg	17 kg
EMC	KC (Class A) / VCCI (Class A)				
Backplane	640 Gbps	140 Gbps	640 Gbps	640 Gbps	960 Gbps
Throughput (L4/L7)	16 Gbps / 12 Gbps	18 Gbps / 16 Gbps	30 Gbps / 20 Gbps	50 Gbps / 30 Gbps	80 Gbps / 40 Gbps
Concurrent Sessions	18,000,000	16,000,000	36,000,000	40,000,000	60,000,000
L4 CPS (max)	700,000	800,000	1,000,000	1,400,000	1,800,000

*Memory and SSD are provided at the listed capacity or higher.

Appearance

PAS-K1800 / K3200(V) / K3600(V) / K4300(V)

PAS-K3200X(V)

PAS-K5200(V) / K5400(V) / K5600(V)

K8620R(V)

PAS-KV

PAS	K3200V	K3200XV	K3600V	K5200V
Ethernet Ports (Total)	22	16 or 24	22	16 or 18 or 24
·40 GbE Fiber (QSFP+)	-	-	-	2 (optional)
·10 GbE Fiber (SFP+)	2	4	2	16, 8 (optional)
·1 GbE Fiber (SFP)	8	12, 8 (optional)	8	-
·1 GbE Copper	12	8 (optional)	12	8 (optional)
Memory (RAM)	32 GB	32 GB	32 GB	32 GB
SSD	480 GB	480 GB	480 GB	480 GB
Power Supply	dual / hot-swappable power			
Power Consumption	89 W	110 W	89.7 W	120 W
Power Input	100-240 VAC, 50-60 Hz (universal voltage)			
Dimension (WxDxH)	428 x 458 x 44 mm	428 x 508 x 44 mm	428 x 458 x 44 mm	428 x 508 x 44 mm
Weight	8.1 kg	8.8 kg	8.1 kg	8.8 kg
EMC	KC (Class A) / VCCI (Class A)			
vADC (included)	4	4	4	4
vADC (max)	12	12	12	20
Backplane	140 Gbps	640 Gbps	140 Gbps	640 Gbps
Throughput (L4/L7)	6 Gbps / 6 Gbps	8 Gbps / 6 Gbps	12 Gbps / 10 Gbps	16 Gbps / 12 Gbps
Concurrent Sessions*	16,000,000	16,000,000	16,000,000	18,000,000
L4 CPS (max)*	520,000	520,000	520,000	700,000

*The performance such as the throughput can be changed if more virtual ADCs are added.

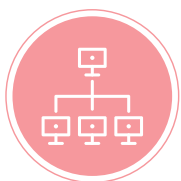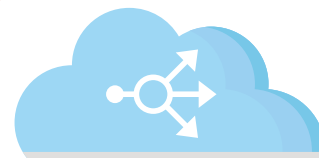| PAS	K4300V	K5400V	K5600V	K8620RV
Ethernet Ports (Total)	22	16 or 18 or 24	16 or 18 or 24	20
·40 GbE Fiber (QSFP+)	-	2 (optional)	2 (optional)	4
·10 GbE Fiber (SFP+)	2	16, 8 (optional)	16, 8 (optional)	16
·1 GbE Fiber (SFP)	8	-	-	-
·1 GbE Copper	12	8 (optional)	8 (optional)	-
Memory (RAM)	32 GB	64 GB	64 GB	128 GB
SSD	480 GB	480 GB	480 GB	1TB
Power Supply	dual / hot-swappable power			
Power Consumption	98 W	129 W	135 W	391.4 W
Power Input	100-240 VAC, 50-60 Hz (universal voltage)			
Dimension (WxDxH)	428 x 458 x 44 mm	428 x 508 x 44 mm	428 x 508 x 44 mm	428 x 731 x 88 mm
Weight	8.1 kg	8.8 kg	8.8 kg	17 kg
EMC	KC (Class A) / VCCI (Class A)			
vADC (included)	4	4	4	4
vADC (max)	24	24	32	44
Backplane	140 Gbps	640 Gbps	640 Gbps	960 Gbps
Throughput (L4/L7)	18 Gbps / 16 Gbps	30 Gbps / 20 Gbps	50 Gbps / 30 Gbps	80 Gbps / 40 Gbps
Concurrent Sessions*	16,000,000	36,000,000	40,000,000	60,000,000
L4 CPS (max)*	800,000	1,000,000	1,400,000	1,800,000

*The performance such as the throughput can be changed if more virtual ADCs are added.

PAS-KS

PAS-KS is virtual ADC appliance. It provides the same operating system and same functions as PAS-K and supports various cloud platforms and hypervisors. Respond to fast business service needs such as frequent creation/deletion of virtual servers.

ADC failure points can be distributed on a service-by-service basis, reducing the economic burden of purchase, installation, and maintenance compared to dedicated appliances.

Various Hypervisor and Cloud
- VMware
- Xen
- KVM
- Hyper-V
- AWS

High Speed Packet Processing
- Supports SR-IOV/Pass-through
- Supports Virt-IO multi queue
- Improve network performance by supporting OVS-DPDK

High Performance SSL Processing
- Supports Intel QAT
- Supports SR-IOV/Pass-through

Flexible Operations Management
- Supports REST API
- Supports PREScript
- Supports ANSIBLE

License & Installation Guide

PAS	KS200	KS500	KS1000	KS40000
Throughput	200 Mbps	500 Mbps	1 Gbps	40 Gbps

* Expendable up to 40 Gbps with combination of licenses

Minimum installation environment (when installing one PAS-KS)

CPU	x86, 64-bit CPU with Intel VTx or AMD-V			
CPU Core	1	1	1	8
Memory	3 GB	3 GB	4 GB	8 GB
HDD	40 GB	40 GB	40 GB	40 GB
Hypervisor	QEMU/KVM, VMware, Xen, OpenStack			

Features

Layer 2	802.1Q VLAN	Health Check	link, ARP, ICMP, TCP, UDP, HTTP, script, NTP, TFTP, RADIUS
		Acceleration	SSL, compression, caching
Layer 3	ECMP, static, RIP, OSPF, BGP, QoS, IGMP	High Availability	HA, eVRRP (enhanced VRRP), MVRRP (multiple VRRP), stateful active-standby failover, active-active failover
Layer 4	server load balancing, firewall load balancing, VPN load balancing, cache server load balancing, gateway load balancing, global server load balancing, DNS load balancing, inbound load balancing	Security	DDoS protection (SYN cookie, SYN flooding, HTTP DDoS), network firewall, content filtering
		IPv6	supported (IPv6 Ready Logo Phase II), IPv4/IPv6 dual stack
Layer 7	delayed binding, URL-based load Balancing, cookie-based load balancing, SSL ID-based load balancing, connection pooling, traffic surge protection, sure connect, spill over, PREScript™ (rule & event script)	Management	CLI (telnet, SSH), GUI (web manager), PREST-API™ (REST API), SNMP, SNMP trap, syslog, remote syslog server, authentication (RADIUS, TACACS+ AAA), email alarm, dual-boot, TCP dump save, SSH connect port

PIOLINK is specialized in network and security.
We ensure the industry's best application availability and performance and
own unrivaled technologies and leadership in this intelligent,
advanced IT environment by offering the build-up of Cloud infrastructure,
the easy management of networks and data protection.
Our flagship products are Application Delivery Controller (ADC)
having Korea's No.1 market share, Web Application Firewall (WAF/WAAP),
Cloud Managed Networking and Hyper Converged Infrastructure and services,
Managed Security Service (MSS or MSSProvider)and Security Consulting.

PIOLINK