wedge networks
securing the cloud connected world

ABSOLUTE REAL-TIME PROTECTION SERIES™

SERIES OVERVIEW

"The Future of Network Security in the cloud … Secure Access Security Edge (SASE) will be as disruptive to network and network security architectures as [infrastructure-as-a-service] was to the architecture for data center design."

- Gartner

OVERVIEW

The cloud network security industry is experiencing a drastic change due to the emergence of cloud computing, edge computing, 5G, Work-From-Home, IIoT, CAV, etc.. The term Secure Access Service Edge (SASE) has been coined by industry analyst, Gartner, to refer to this rapidly emerging market. Wedge is poised to take on a leadership position in the emerging SASE market through its technology innovations and partnerships with MSSPs, OEMs, VAARs, and SIs. Purposely-built from the ground up as a high performance, patented software platform, Wedge is best suited for this market; with existing contracts and established partnerships.

COMPETITIVE ADVANTAGES

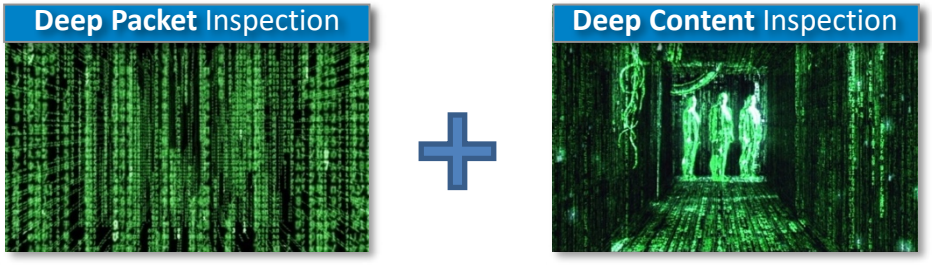
The ability to rapidly roll out security services and to deliver them as and when needed, while maintaining performance is a key challenge to the nascent SASE market. Solutions from Wedge Networks that can combine deep content inspection with advanced machine learning for real-time threat prevention represents how many security services will be delivered from the cloud core to the network edge.

WEDGEARP™ - KEY ATTRIBUTES
1. NETWORK TRAFFIC VISIBILITY
2. REAL-TIME PERFORMANCE ON SOFTWARE
3. AI / ML FOR APT AND REAL-TIME PREVENTION
4. SECURITY FUNCTIONS ORCHESTRATION
5. DEPLOYMENT OPTIONS

Network Traffic Visibility

Wedge pioneered the concept of Deep Content Inspection (DCI) in 2008; a widely acknowledged network security approach. While conventional solutions, such as Secure Web Gateways (SWG), which use the 'proxy' approach in which web content is fetched, reconstructed, stored and inspected, DCI is advantageous over SWGs due to the following:

- Visibiity across ALL network traffic- not just web- in which network traffic is reconstructed in real-time, with their constituting sessions correlated, giving as-it-happens (REAL-TIME) visibility across ALL content and sessions in the network traffic flow.
- Zero footprint to network traffic flows- Unlike SWGs which must be configured as "proxies" on endpoint devices or switches.
- High performance – the patented SubSonic technology achieves more than 10x performance gains over SWGs.

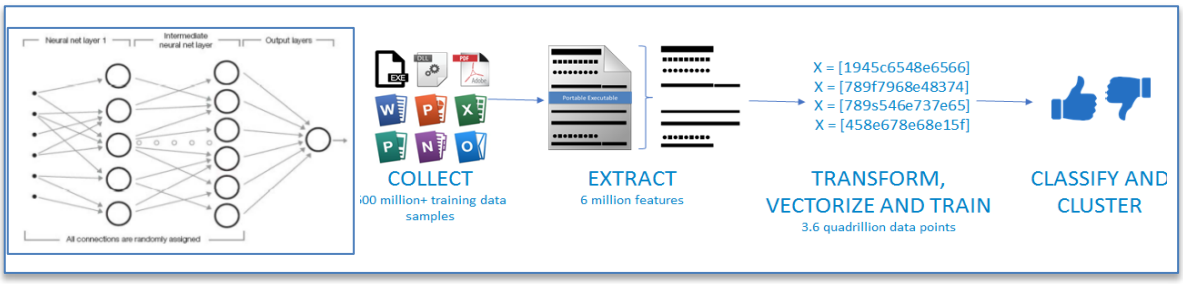


Real-time Performance on Software

Based on the award-winning WedgeARP™ technology platform, WedgeARP™ uses a software defined massive threading network traffic processing architecture, which makes it portable across all platforms.

Conventional solutions such as Intrusion Detection & Prevention Systems (IDPS) are typically installed as inline systems with the ability to terminate in real-time when a KNOWN threat is detected. Wedge's network traffic processing architecture is advantageous over IDPS due to:

- Deep Content Inspection- In real-time Wedge can detect threats that are embedded in content that is not visible at the packet level.
- Further, with the ability to reconstruct network traffic into its constituent content using software techniques rather than hardware accelerated DPI techniques, which use hardware buffers, Wedge is able to apply more in-depth and complete threat analysis techniques like full malware polymorphic analysis rather than the few 'streamed' malware signatures (limited sample size) that DPI solutions use. With full payload reconstruction Wedge can enable and deliver benefits from Deep Learning AI.



AI / ML for APTs and Real-time Prevention

WedgeARP™ is natively embedded with a well-trained Deep Learning multi-layer neural network to detect and block, in real-time, brand new malware. Conventional solutions use Sandboxes to detect brand new malware. Wedge's Deep Learning AI is advantageous over sandboxes due to the following:

- Wedge provides real-time detection of never-before-seen malware using Deep Learning AI techniques at the perimeter, and before the malicious content gets into the network, rather than waiting 1440 minutes to detect a breach and then requiring the system administrator / SecOps team to react, providing the necessary remediation.
- Further, given its automated learning capabilities, WedgeARP™ can ensure high malware detection accuracy without the need for expensive, expert remediation.
- In addition, given that Wedge inspects content rather than building statistical models, our solutions produce alerts only when there is a certainty of malware rather than other solutions' excessive false positives (noise). This noise is what leads to 'alert' fatigue and hence can allow for malware representing REAL threats to creep in under the distraction of heightened 'alerts'.

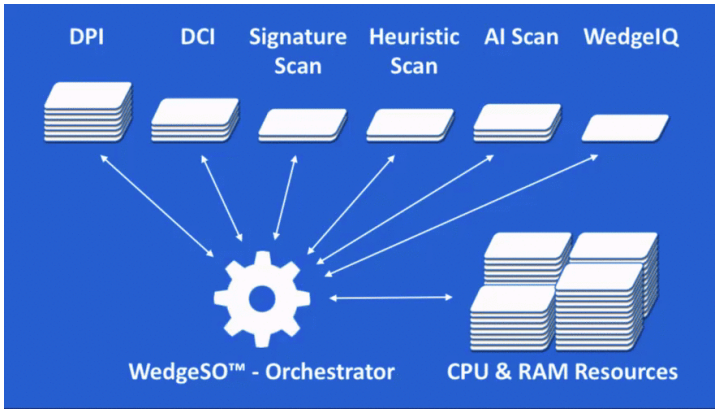
Security Functions Orchestration

Wedge is a leader in Orchestrated Threat Management (OTM) – awarded a Gartner Cool Vendor designation for this important contribution to the industry.

Wedge's OTM approach is a competing approach to the conventional Unified Threat Management (UTM) approach.

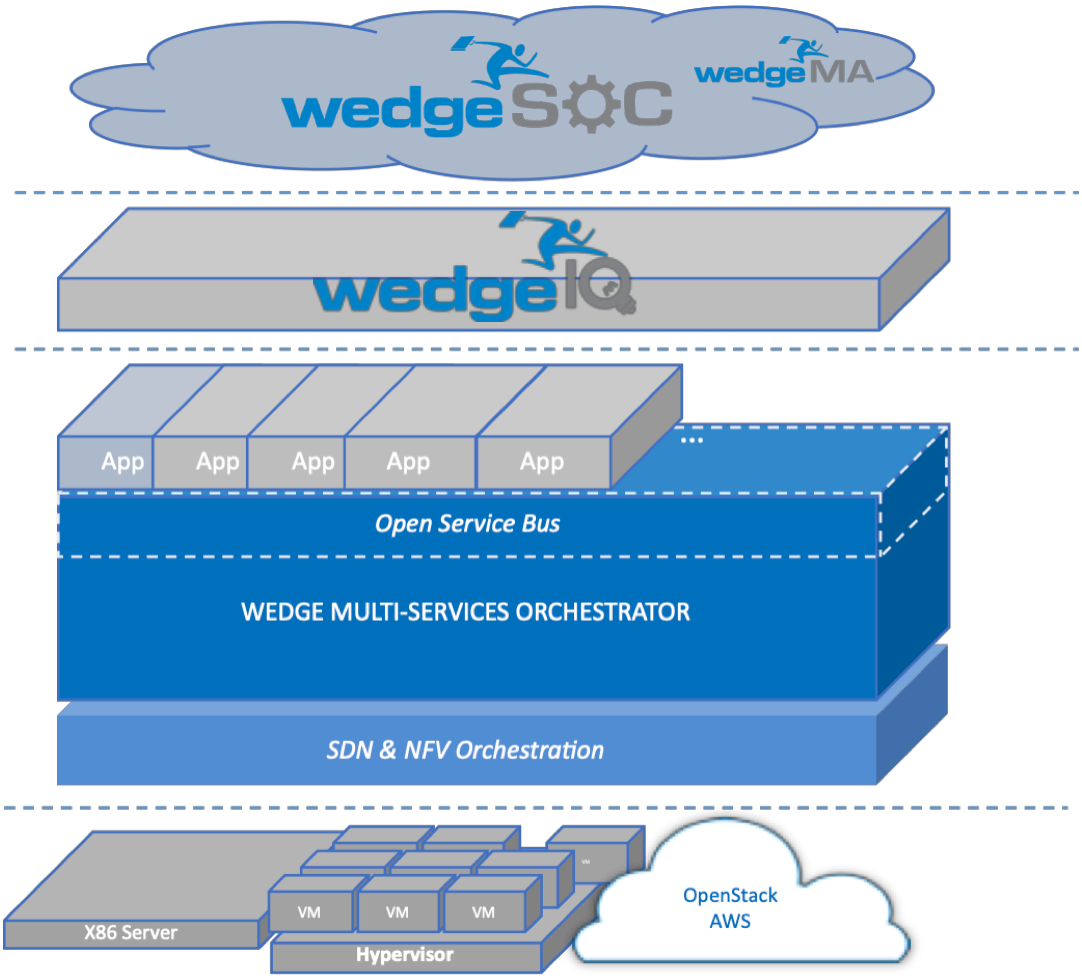
Wedge OTM is better than UTM due to:

- OTM's ability to intelligently auto-focus on the most pressing threat any given time, without sacrificing system performance.
- OTM allows the optimal system resource usages, especially for data center COTS x86 servers.



WEDGEARP™ - DETAILS OF KEY ATTRIBUTES AND ADVANTAGES	
1. NETWORK TRAFFIC VISIBILITY	
DEEP PACKET INSPECTION	
Traffic Classification	OpenAPPID, Asymmetric Web Filter
DoS and Exploits Detection / Blocking	Snort Syntax
DEEP CONTENT INSPECTION	
MIME Types	All IANA Registered MIME Types
Unarchiving and Unpacking	500 distinct run-time packers, with more than 3000 versions, including common types such as .zip, .rar; recursive packing, and new types such as google/brotli
Application Protocols	HTTP, FTP, SMP, IMAP, POP3, SOAP, MAPI, XML/HTTP, Webmails (Yahoo, Google, Outlook)
TLS Versions	v1.1, v1.2, v1.3
2. REAL-TIME PERFORMANCE ON SOFTWARE	
Scalability	Linear Scalability with the number of vCPUs
Hyper-Visor Supported	ESXi, Hyper-V, XEN, KVM, VirtualBox
Cloud Platform Supported	AWS, Azure, OpenStack, VMWare Cloud
3. AI / ML FOR APT AND REAL-TIME PREVENTION	
Protected Endpoint OSes	MS Windows, Linux, iOS, Android, MAC OS
AI / ML Algorithms	CNN, GCNN, FM
Analysis Types	Real-time Static; Behavior Simulation; In-Situ
4. SECURITY FUNCTIONS ORCHESTRATION	
Intrusion	IDS, IPS
Malware	Multi-signature Database; AL/ML; Malware Analyzer;
Web-Filtering	Custom URL Lists, McAfee SmartFilter, Regional CERT Supplied Database,
DLP	Automaton, Regex, Network Based
MDR / EDR Integration	Cylance, TriagingX
GRC Compliance	Lawful Interception (ETSI 103)
Application Control	Web Chat Sessions; VoIP Applications
SIEM	Export to third party systems; Import from third party systems; Multi-node clustering; Scheduled reporting
5. DEPLOYMENT OPTIONS	
Network Integration	L2 Transparent Bridge, Router Mode, Two-legged Router Mode, LACP, RSTP, TAP, Asymmetric Web Filtering, Sandvine Divert
Load Balancing	LACP-Based Smart Clustering, F5, Brocade, DNS Round Robin, OpenFlow
Form Factors	NFVs, VMs, Appliances (100 Mbps to 10 Gbps)
SASE Topology	Cloud Enforced-Cloud Managed; Edge Enforced-Cloud Managed; Edge Enforced-Edge Managed; On-Premise

WedgeARP™ Product Technology and Platform



WedgeMA™ (in WedgeSOC™):
Cloud-based Malware Analyzer

WedgeIQ™:
Security Intelligence & Management

WedgeSO™:
Security Orchestration (with embedded **WedgeOS™:** Security Services provide the basis for an ever-growing number of applications and products)

Platform:
Available on Appliance, Virtual Machine or Cloud

The WedgeARP™ series of products cater to an ever-growing number of specific security use cases. With an increasing array of embedded and orchestrated security services, enhanced with the security intelligence and management that are provided by WedgeIQ™ and the optional WedgeMA™ cloud service, each product is designed to address critical security requirements for any and all organizations looking for superior accuracy and performance. Available on appliance, virtual machine or cloud, WedgeARP products and applications have the scalablity and flexibility to be deployed in a wide variety of networks in order to cover a broad range of business models. Connect with the Wedge Networks team to learn more!

FORM FACTOR	NDP-1106T (APPLIANCE)	NDP-1108T (APPLIANCE)	NDP-1216T (APPLIANCE)
PERFORMANCE AND SECURITY SERVICES			
Up to Max Endpoints	1,000 Endpoints	2,500 Endpoints	5,000 Endpoints
Scanned Throughput	100 Mbps	250 Mbps	500 Mbps
APPLIANCE SPECS	NDP-1106T	NDP-1108T	NDP-1216T
CPU	1 x 6 Core Intel® Xeon® (3.8 GHz)	1 x 8 Core Intel® Xeon® (3.4 GHz)	2 x 16 Core Intel® Xeon® - Gold (2.3 GHz)
RAM	2 DIMS x 16GB RAM - ECC DDR4-2666 SDRAM	2 DIMS x 16GB RAM - ECC DDR4-2666 SDRAM	8 DIMS x 16GB RAM - DDR4-2933 Smart Memory
Dimensions	15.05" x 17.11" x 1.70"	15.05" x 17.11" x 1.70"	27.83" x 17.11" x 1.69"
Weight	21.81 lbs	21.81 lbs	35.86 lbs
High Availability	YES	YES	YES
USB Ports	1 x USB 3.0, 1 x USB iLO Service Port (Front) 2 x USB 3.0 (Rear) 1 x USB 3.0 (Internal)	1 x USB 3.0, 1 x USB iLO Service Port (Front) 2 x USB 3.0 (Rear) 1 x USB 3.0 (Internal)	1 x USB 3.0 + iLO service port (Front) 2 x USB 3.0 (Rear) 2 x USB 3.0 (Internal) Optional: 1 USB 2.0 (lose iLO serv. Port)
Ports Provided and Available for Use	1 x 1 Gbps Ethernet (On-board/ Non-Bypass Mgmt.) 4 x 1 Gbps Copper Ethernet (With Bypass)	1 x 1 Gbps Ethernet (On-board/ Non-Bypass Mgmt.) 4 x 1 Gbps Copper Ethernet (With Bypass)	4 x 1 Gbps Copper (Mgmt.) 4 x 1 Gbps Fiber Ethernet 4 x 1 Gbps Copper Ethernet (With Bypass)
Drive Capacity	2 x 1.2 TB SAS	2 x 1.2 TB SAS	2 x 2.4 TB SAS
Optional Drive Capacity	YES	YES	YES
Multi-Link Capability	Up to 8 Ports	Up to 8 Ports	Up to 12 Ports
AC Power Supply	HPE 500W Flex Slot Power Supply	HPE 500W Flex Slot Power Supply	2 x HPE 500W Flex Slot Power Supply
AC Input/Output	AC 100~240 VAC	AC 100~240 VAC	AC 100~240 VAC
Rack Mountable Dimensions	1 U Rack Mount	1 U Rack Mount	1 U Rack Mount
REGULATORY CERTIFICATIONS			
EMI	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55032:2012, EN 55024:2010, EN 61000-3-2:2014, EN 61000-3-3:2013	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55032:2012, EN 55024:2010, EN 61000-3-2:2014, EN 61000-3-3:2013	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013, EN62479:2010, EN55024:2010, EN55032:2012 Class A, EN61000-3-2:2014, EN61000-3-3:2013, RoHS EN50581:2012
Certifications	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS
Environment	10°C to 35°C (50°F to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight.	10°C to 35°C (50°F to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight.	10° to 35°C (50° to 95°F); Humidity: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, (non-condensing), no direct sustained sunlight.

Note: *Due to ongoing sourcing issues / constraints that are occurring globally, hardware specifications listed on this data sheet may have some variances to the products that are shipped to the customer. Wedge Networks, Inc., reserves the right to adjust shipped specifications, as needed. However, Wedge Networks guarantees that the hardware shipped will fully support the software solution that the customer has purchased. For specific hardware requirements, please ensure that these specifications are brought up with your salesperson prior to purchase.*

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DATA SHEET

FORM FACTOR	NDP-2222T (APPLIANCE)	NDP-2228T-2.5 (APPLIANCE)	NDP-2228T-5 (APPLIANCE)	NDP-2428T-10 (APPLIANCE)
PERFORMANCE AND SECURITY SERVICES				
Up to Max Endpoints	10,000 Endpoints	16,667 Endpoints	27,778 Endpoints	50,000 Endpoints
Scanned Throughput	1 Gbps	2.5 Gbps	5 Gbps	10 Gbps
APPLIANCE SPECS	NDP-2222T	NDP-2228T-2.5	NDP-2228T-5	NDP-2428T-10
CPU	2 x 22 Core Intel® Xeon® - Gold (2.1 GHz)	2 x 28 Core Intel® Xeon® - Gold (2.7 GHz)	2 x 28 Core Intel® Xeon® - Gold (2.7 GHz)	4 x 28 Core Intel® Xeon® - Gold (2.7 GHz)
RAM	8 DIMS x 16GB RAM - DDR4-2933 Smart Memory	8 DIMS x 16GB RAM - DDR4-2933 Smart Memory	12 DIMS x 16GB RAM - DDR4-2933 Smart Memory	16 DIMS x 16GB RAM - DDR4-2933 Smart Memory
Dimensions	17.54” x 26.75” x 3.44”	17.54” x 26.75” x 3.44”	17.54” x 26.75” x 3.44”	17.54” x 29.71” x 3.44”
Weight	43.00 lbs	43.00 lbs	43.00 lbs	75.23 lbs
High Availability	YES	YES	YES	YES
USB Ports	3 x USB 3.0 (1 Front, 2 Rear)	3 x USB 3.0 (1 Front, 2 Rear)	3 x USB 3.0 (1 Front, 2 Rear)	2 x USB 2.0 (Rear) / 3 x USB 3.0 (2 Front, 1 Rear)
Ports Provided and Available for Use	4 x 1 Gbps Copper (Mgmt.) 4 x 1 Gbps Fiber Ethernet 4 x 1 Gbps Copper Ethernet (With Bypass)	4 x 1 Gbps Copper (Mgmt.) 4 x 10 Gbps Fiber Ethernet 4 x 10 Gbps Copper Ethernet (With Bypass)	4 x 1 Gbps Copper (Mgmt.) 4 x 10 Gbps Fiber Ethernet 4 x 10 Gbps Copper Ethernet (With Bypass)	4 x 1 Gbps Copper (Mgmt.) 4 x 10 Gbps Fiber Ethernet 4 x 10 Gbps Copper Ethernet (With Bypass)
Drive Capacity	2 x 2.4 TB SAS	2 x 2.4 TB SAS	3 x 2.4 TB SAS	5 x 2.4 TB SAS
Optional Drive Capacity	YES	YES	YES	YES
Multi-Link Capability	Up to 24 Ports	Up to 24 Ports	Up to 24 Ports	Up to 32 Ports
AC Power Supply	2 x HPE 800W Flex Slot Power Supply	2 x HPE 800W Flex Slot Power Supply	2 x HPE 800W Flex Slot Power Supply	4 x HPE 1600W Flex Slot Power Supply
AC Input/Output	AC 100~240 VAC	AC 100~240 VAC	AC 100~240 VAC	AC 200~240 VAC
Rack Mountable Dimensions	2U Rack Mount	2U Rack Mount	2U Rack Mount	2U Rack Mount
REGULATORY CERTIFICATIONS				
EMI	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55024:2010, EN 55032:2012 Class A, EN 61000-3-2:2014, EN 61000-3-3:2013, RoHS EN 50581:2012	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55024:2010, EN 55032:2012 Class A, EN 61000-3-2:2014, EN 61000-3-3:2013, RoHS EN 50581:2012	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55024:2010, EN 55032:2012 Class A, EN 61000-3-2:2014, EN 61000-3-3:2013, RoHS EN 50581:2012	EN 60950-1:2006 + A11:2009 +A1:2010 +A12:2011 +A2:2013, EN 62479:2010, EN 55024:2010, EN 55032:2012 Class A, EN 61000-3-2:2014, EN 61000-3-3:2013, RoHS EN50581:2012
Certifications	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A, RoHS	CE Mark, UL, cUL, IEC, EN, KCC, BSMI, CCC, TUV, C-tick, CISPR Class A
Environment	10° to 35°C (50° to 95°F); Humidity: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, (non-condensing), no direct sustained sunlight.	10° to 35°C (50° to 95°F); Humidity: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, (non-condensing), no direct sustained sunlight.	10° to 35°C (50° to 95°F); Humidity: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, (non-condensing), no direct sustained sunlight.	10° to 35°C (50° to 95°F); Humidity: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, (non-condensing), no direct sustained sunlight.

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WedgeARP VM - SYSTEM REQUIREMENTS			
100 MBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	12	24	266GB*
*supports steady rate of 900 malware events per minute for 180 days event storage.			
250 MBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	16	32	266GB*
*supports steady rate of 2,400 malware events per minute for 180 days event storage.			
500 MBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	28	48	516GB*
*supports steady rate of 4,500 malware events per minute for 180 days event storage.			

WedgeARP VM - SYSTEM REQUIREMENTS			
1 GBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	52	96	1,016GB*
*supports steady rate of 10,500 malware events per minute for 180 days event storage.			
2.5 GBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	68	128	2,516GB*
*supports steady rate of 24,000 malware events per minute for 180 days event storage.			
5 GBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	112	160	5,016GB*
*supports steady rate of 48,000 malware events per minute for 180 days event storage.			
10 GBPS SUPPORTED TRAFFIC			
INSTANCE	vCPU	GB RAM	VIRTUAL DISK SIZE
WedgeARP	176	288	10,016GB*
*supports steady rate of 105,000 malware events per minute for 180 days event storage.			

Note: WedgeARP VM can run on any of the following virtualization hosts:

- VMware Workstation Player
- VMware ESX[1] (Version 6.0 or later)
- Oracle VM VirtualBox
- Fusion Drive
- KVM

[1]For 52 vCPUs, use ESX version 6.0 or later.

Rule of Thumb: two (2) vCPUs are equivalent to one (1) Intel® physical core that supports Hyper-Threading.

Standards and Regulatory Compliance

Through the certifications of our technology partners and resellers, WedgeARP supports:

- PCI
- HIPAA
- FIPS
- ITAR
- NIST SP 800-90A, 90B and 90C Draft Standards