



Kathmandu Upatyaka Khanepani Limited

Project Management Unit

Tripureshwor, Kathmandu, Nepal

ADDENDUM No. 2

Contract No. KUKL/G/03/22

IFB Published on: 10th December 2018 in **Gorkhapatra** daily for Supply & Installation for the Upgradation of Computerization and Automation of KUKL Billing and Accounting System

(Date of Issue of Addendum No 2:9th January 2019)

Pursuant to Clause No. 8 and 24.2 of Instruction to Bidders (ITB) of bidding document, all prospective bidders are hereby informed that the deadline for submission of bid has been extended upto 12:00 noon NST of **25 January 2019**.

Reference	Text in Initial Invitation for Bids	Corrected Text as Addendum No. 2*
IFB Para 5	To purchase the Bidding Document, eligible bidders should on or before 10 January 2019, 16:00 Hrs. (NST).	To purchase the Bidding Document, eligible bidders should on or before 24 January 2019 , 16:00 Hrs. (NST).
IFB Para 6 (Bullet 2)	Deliver your bid: <ul style="list-style-type: none">● On or before the deadline: 11 January 2019; 12:00 Noon (NST). Late Bids will not be accepted.	Deliver your bid: <ul style="list-style-type: none">● On or before the deadline: 25 January 2019; 12:00 Noon (NST). Late Bids will not be accepted.

*For Details, please visit website of Kathmandu Upatyaka Khanepani Limited (KUKL)

*<http://kathmanduwater.org/index.php/notice/>

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Supply & Installation for the upgradation of Computerization and Automation of KUKL Billing and Accounting System

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Section 6 Part 1 3.4.2 System Architecture Figure 3: Desired Development Stack	MS-SQL	Database
Section 6 Part 1 3.4.2 System Architecture	MS-SQL/Oracle The entire architecture relies on the centrally powered Database. Without the database, the formation of the above architecture is of no use. The Database shall comprise of enterprises license. The database server should be in high availability state.	Database The entire architecture relies on the centrally powered Database. Without the database, the formation of the above architecture is of no use. The license for database shall be of enterprise edition but can use open source database. The database server should be in high availability state.
Section 6 Part 1 1.1.4.3 Customization for Data Center Upgrade		Following points has been added as: 1. "The bidder will be responsible for supply of necessary license for database upgrade as per PART I – Supply Requirements Figure 3: Desired Development Stack and Section 3.4.2 System Architecture"



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		2. "The bidder will be responsible for the migration of data base if different database is proposed."																					
Section 6 Part 1 3.3 Implementation Plan		1) The following sentence has been added in Item 10) Post Implementation Phase "ALL license for hardware, software and database shall be issued in the name of KUKL "																					
Section 6 Part 2 2.4.2 Word Processor, Spreadsheet and Presenter	<table border="1"> <thead> <tr> <th>Title</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Brand</td> <td>Microsoft Office 365 Business or Equivalent</td> </tr> <tr> <td>License Type</td> <td>Enterprise (Payable one time)</td> </tr> </tbody> </table>	Title	Specification	Brand	Microsoft Office 365 Business or Equivalent	License Type	Enterprise (Payable one time)	<table border="1"> <thead> <tr> <th>Title</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Preferred Brand</td> <td>Microsoft Office 2016 or equivalent or newer</td> </tr> <tr> <td>License Type</td> <td>Standard or equivalent (Payable one time)</td> </tr> </tbody> </table>	Title	Specification	Preferred Brand	Microsoft Office 2016 or equivalent or newer	License Type	Standard or equivalent (Payable one time)									
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Section 6 Part 2 1.2.1 Handheld Meter Reading Device	<table border="1"> <thead> <tr> <th>Title</th> <th>Specifications</th> </tr> </thead> <tbody> <tr> <td>Operating System</td> <td>PayDroid based on Android 5.1 or equivalent</td> </tr> <tr> <td rowspan="2">Processor</td> <td>Application CPU: ARM Cortex A7 1.0 GHz 4 Core Processor</td> </tr> <tr> <td>Security CPU: Cortex-M4</td> </tr> <tr> <td>Memory</td> <td>1GB or more DDR3 SDRAM, 8GB or more EMMC Expandable to 41 GB or more via Micro SD Slot</td> </tr> <tr> <td>Display</td> <td>5.0 Inch or higher 720 x 1280 Pixel Capacitive Touch Screen</td> </tr> </tbody> </table>	Title	Specifications	Operating System	PayDroid based on Android 5.1 or equivalent	Processor	Application CPU: ARM Cortex A7 1.0 GHz 4 Core Processor	Security CPU: Cortex-M4	Memory	1GB or more DDR3 SDRAM, 8GB or more EMMC Expandable to 41 GB or more via Micro SD Slot	Display	5.0 Inch or higher 720 x 1280 Pixel Capacitive Touch Screen	<table border="1"> <thead> <tr> <th>Title</th> <th>Specifications</th> </tr> </thead> <tbody> <tr> <td>Operating System</td> <td>PayDroid Powered by Android 7.0 or higher</td> </tr> <tr> <td>Processor</td> <td>Application CPU: Quad-core Cortex-A53, 1.4GHZ Security CPU: 32-bit RISC Core (ARMv7-M), 1.25DMIPS/MHz or equivalent</td> </tr> <tr> <td>Memory</td> <td>2GB DDR + 16GB eMMC 1 x Micro SD Card Slot, Expandable up to 128GB</td> </tr> <tr> <td>Card Readers</td> <td>Magnetic Card Reader , Smart Card</td> </tr> </tbody> </table>	Title	Specifications	Operating System	PayDroid Powered by Android 7.0 or higher	Processor	Application CPU: Quad-core Cortex-A53, 1.4GHZ Security CPU: 32-bit RISC Core (ARMv7-M), 1.25DMIPS/MHz or equivalent	Memory	2GB DDR + 16GB eMMC 1 x Micro SD Card Slot, Expandable up to 128GB	Card Readers	Magnetic Card Reader , Smart Card
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		White LED Backlight			Reader , Contactless Card Reader
	Physical Keys	1 x ON/OFF Key 2 x Shortcut		Camera	5 Megapixel or higher Auto Zoom Camera 0.3 Megapixel Fixed Front Camera Rear Camera with LED Flashlight
	Printer	High-Speed Thermal Printer Paper Roll Width / Diameter: 2.25" / 1.57"		Display	5.5-inch or higher Capacitive Touchscreen
	Communications	4G LTE Bluetooth 4.0 Wi-Fi: 802.11 b/g/n, 2.4 GHz		Audio	1 x Speaker Volume up to 85dB 1 x Microphone
	Camera	5 Megapixel or higher Auto Zoom Camera 0.3 Megapixel Fixed Front Camera		Physical Button	1 x ON/OFF Button 2 x Volume +/- Button
	Card Readers	Magnetic Card Reader, Smart Card Reader, Contactless Card Reader		Communications	WiFi 2.4G 4G (FDD-LTE / TDD-LTE) + 3G (WCDMA / CDMA2000) + 2G (GSM / CDMA / GPRS) Bluetooth 4.0
	Battery	Long Lasting Li-Ion Battery, 5,250 mAH or higher, 3.7		Card Slots	1 x SIM + 2 x SAM or 2 x SIM + 1 x SAM
	Audio	Speaker Functionality, Microphone & Sound, Wave Payment Supported		Peripheral Ports	1 x Micro USB Supports charging and USB 2.0, OTG 6 x POGO pin or equivalent
	Physical	L x W x H (mm): 175.7 x 78 x 57 Weight (g): 458 g or less (Including Battery)		Printer	2-inch Thermal Printer Print Speed: 80mm/s Paper Width: 58mm Diameter: 40mm
	Location	Must Support GPS		Battery	2600 mAH or higher Rechargeable Li-ion Battery
	Peripheral Ports	At least 1 Micro-USB (OTG) 1 SIM Card Slot 2 PSAM Card Slot		Adapter	Input: 100 - 240V AC, 50Hz / 60Hz Output: 5.0V DC, 2.0A
		1 Micro SD Card Slot, Supports Up To 32 GB			



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	Environmental	0°C ~ 50°C (32°F ~ 122°F) or better Operating Temperature	Sensor	Light sensor G-Sensor (optional)
		5% ~ 95% or better Relative Humidity, Non-Condensing	Location	Must Support standard GPS
		-20°C ~ 70°C (-4°F ~ 158°F) or better Storage Temperature	Accessories	Charging Base Wireless Base Multifunctional Base Charging Cable
	Voltage	Input: 100 - 240V AC, 50Hz / 60Hz Output: 5.0V DC, 2.0	Indicators	4 x Contactless Transaction Lights Charging Indicator Smart Card Reader Indicator
	Accessories	Multi-Functional Base, Charging base and	Certifications	PCI PTS 5.x, SRED, EMV L1 & L2 EMV Contactless L1 , MasterCard TQM, Visa payWave, MasterCard Contactless , ABECS Discover D-PAS, Interac_Flash L2, APCA , CE , Anatel RoHs or equivalent
		1.0 m Micro-USB Charging Cable		
	Certifications	PCI PTS 5 x EMV L1 & L2 or equivalent, MasterCard Contactless, Visa payWave, MasterCard TQM	Warranty & Support	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
	Warranty & Support	Minimum 2 (two) years full warranty (without cost) including parts replacements, software, labor	Installation and Commissioning	Vendor shall take full responsibility of installation and commissioning part with necessary accessories
	Installation and Commissioning	Vendor shall take full responsibility of installation and commissioning part with necessary accessories		
	Section 6 Part 2 2.1.1 Network Switch	Features	Description	Features
	Interface	Minimum 24 x 10/100/1000 Base-T ports with 4x10G SFP+ Uplink ports	Interface	Minimum 24 x 10/100/1000 Base-T ports with 4x1G SFP+ Uplink ports



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	Switching Capacity	160 Gbps or higher	Switching Capacity	40 Gbps or higher
	Forwarding Rate	90 Mpps or higher	Forwarding Rate	20 Mpps or higher
	MAC Address	16K or higher	MAC Address	16K or higher
	Security Features	Packet filtering based on MAC addresses, MAC address authentication, Port-based 802.1x authentication, RADIUS authentication, Portal authentication, Port isolation, Storm suppression, DHCP snooping, ACL	Security Features	Packet filtering based on MAC addresses, MAC address authentication, Port-based 802.1x authentication, RADIUS authentication, Portal authentication, Port isolation, Storm suppression, DHCP snooping
	VLANs	4K VLANs, Access port, Trunk port, Hybrid port, Management VLAN, Voice VLAN	VLANs	4K VLANs, Access port, Trunk port, Hybrid port, Management VLAN, Voice VLAN
	Spanning Tree Protocol (STP)	STP, RSTP, MSTP	Spanning Tree Protocol (STP)	STP, RSTP, MSTP
	Routing Protocol	IPv4 and IPv6 Static Routing	Routing Protocol	IPv4 and IPv6 Static Routing
	Warranty	One year of product replacement warranty	Preferred Brand	Cisco, Juniper or Equivalent
			Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
Section 6 Part 2				



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2.1.2 Integrated Service Router	Features	Description	Features	Description
	Hardware and Interfaces	The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 10 x 10/100/1000 Base-T port	Hardware and Interfaces	The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 8 x 10/100/1000 Base-T port and with 2x10G SFP
	VPN Performance	2 Gbps or higher	Ram	1GB or Higher
	Concurrent Session	1 Millions or higher	Flash Memory	512 MB or Higher
	IPSec Tunnel	175 or higher	IPSec Tunnel	175 or higher
	SSL Users	100 or higher	SSL Users	50 or higher
	Layer 2 switching	Should support 802.1Q and 802.3ad/LACP	Layer 2 switching	Should support 802.1Q and 802.3ad/LACP
	Routing	Should support Static routes, OSPF, BGP	Protocols	Networking Protocol: Gigabit Ethernet, IEEE 802.1ag, IEEE 802.1ah, IEEE 802.1D, IEEE 802.1Q, IEEE 802.1x, OSPF, RADIUS, RIP, SSH, TACACS+ Remote Management Protocol: CLI, HTTP, SNMP 3, Telnet Transport Protocol: IPSec, L2TP
	Virtual Router/ Firewall	10 or higher		
	Security	Should support • Zone based firewall/ Policy based firewall • Stateful firewall, ACL filters		
User Authentication	Should support third-party user authentication RADIUS, LDAP, Active directory			



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	High availability	Should provide active/active, active/passive deployment	Routing	Should support Static routes, OSPF, BGP
	System management	Should support CLI, HTTPS, SSH	Security	Should support <ul style="list-style-type: none"> • Zone based firewall/ Policy based firewall • Stateful firewall, ACL filters
	Warranty	One year of product replacement warranty	User Authentication	Should support third-party user authentication RADIUS, LDAP, Active directory
			High availability	Should provide active/active, active/passive deployment
			Features	Features Access Control List (ACL) support, Class of Service (CoS), Intrusion Prevention System (IPS), Link Fragmentation and Interleaving (LFI), Low-latency queuing (LLQ), MAC address filtering, NAT support, Quality of Service (QoS), RADIUS support, Spanning Tree Protocol (STP) support, VLAN support, VPN support, Class-Based Weighted Fair Queuing (CBWFQ), Virtual Routing and Forwarding (VRF), Weighted Fair Queuing (WFQ), DHCP client, DHCP relay, DHCP server, DNS proxy, DiffServ support, IGMP snooping, IPv6 support
			System management	Should support CLI, HTTPS, SSH
			Preferred Brand	Cisco, Juniper or Equivalent
			Others	Shall be rack mountable
			Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor



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		License	Vendor shall provide two-year VPN license (without cost)																											
		Installation and Commissioning	Vendor should take full responsibility of installation and commissioning part with necessary accessories																											
Section 6 Part 2 2.1.6 Router for Data Center	<table border="1"> <thead> <tr> <th>Title</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Hardware and Interfaces</td> <td>The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 16 x 10/100/1000 Base-T port and 4 x 1 Gigabit SFP</td> </tr> <tr> <td>Storage Capacity</td> <td>Storage: 400GB or higher for log retention</td> </tr> <tr> <td>VPN Performance</td> <td>9 Gbps or higher</td> </tr> <tr> <td>Firewall Throughput</td> <td>18 Gbps or higher</td> </tr> <tr> <td>Concurrent Session</td> <td>2 Millions or higher</td> </tr> <tr> <td>IPSec Tunnel</td> <td>2000 or higher</td> </tr> <tr> <td>SSL Users</td> <td>300 or higher</td> </tr> <tr> <td>Layer 2 switching</td> <td>Should support 802.1Q and 802.3ad/LACP</td> </tr> </tbody> </table>	Title	Specification	Hardware and Interfaces	The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 16 x 10/100/1000 Base-T port and 4 x 1 Gigabit SFP	Storage Capacity	Storage: 400GB or higher for log retention	VPN Performance	9 Gbps or higher	Firewall Throughput	18 Gbps or higher	Concurrent Session	2 Millions or higher	IPSec Tunnel	2000 or higher	SSL Users	300 or higher	Layer 2 switching	Should support 802.1Q and 802.3ad/LACP	<table border="1"> <thead> <tr> <th>Title</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Hardware and Interfaces</td> <td>The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 8 x 1G SFP/Base-T port & 2 x 10G ports with media convertor and required fiber should support interfaces supported by router like Channelized E1/T1, V.35, G.703, LTE, Gigabit and 10G Ethernet modules to accommodate field upgrades without rebooting the router. should have 2 empty slot for future use</td> </tr> <tr> <td>Processor</td> <td>multi-core Processor</td> </tr> <tr> <td>Power supply</td> <td>Redundant Hot swappable power supply</td> </tr> <tr> <td>Memory</td> <td>minimum 16GB RAM & 16 GB FLASH.</td> </tr> </tbody> </table>	Title	Specification	Hardware and Interfaces	The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 8 x 1G SFP/Base-T port & 2 x 10G ports with media convertor and required fiber should support interfaces supported by router like Channelized E1/T1, V.35, G.703, LTE, Gigabit and 10G Ethernet modules to accommodate field upgrades without rebooting the router. should have 2 empty slot for future use	Processor	multi-core Processor	Power supply	Redundant Hot swappable power supply	Memory	minimum 16GB RAM & 16 GB FLASH.
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	Routing	Should support Static routes, OSPF, BGP	VPN Performance	Minimum 3Gbps and upgradable to minimum 6 Gbps in future.
	Traffic management	Application prioritization based on source, destination, user, service, service group,	IPSec Tunnel	2000 or higher
	Virtual Router/ Firewall	10 or higher	SSL Users	300 or higher
	Security	Should support Zone based firewall/ Policy based firewall Stateful firewall, ACL filters Should Integrate with Active Directory for user and group based firewall policies	Layer 2 switching	Should support 802.1Q and 802.3ad/LACP
	User Authentication	Should support third-party user authentication RADIUS, LDAP, Active directory	Routing	Should support Static routes, OSPF, BGP, Policy based routing, IPv4 and IPv6 tunneling
	High availability	Should provide active/active, active/passive deployment	Traffic management	Application prioritization based on source, destination, user, service, service group,
	System management	Should support CLI, HTTPS, SSH	Latyer-3 Features and Security	Should support other IP Services like GRE tunneling, ACLs, IPSEC VPNs, Firewalling, NAT services. Should support IPSec with IKEv2 Encryption. Should support Voice traffic optimization with features like WRED, H-QoS, RSVP, performance routing and network based application routing Should support Multicast routing protocols IGMP v1/v2/v3, PIM-SM, PIM-SS, DVMRP, IPv4 to IPv6 Multicast, BFD, IEEE802.3ah, IEEE802.1ag Should support DHCPv6, IPv6 QoS, RIPng, OSPFv3 Should support MPLS, Layer2 and Layer3 VPN, L2TPv3 Should support Zone Based Firewall feature or an external appliance for the same functionality can be provided. Should Support Traffic Optimization feature built in the router operating system or an
	Warranty	One year of product replacement warranty		



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			<p>external appliance for the same functionality can be provided. Shall have 802.1p class of service and marking, classification, policing and shaping. Should support SSHv2, SNMPv2c, SNMPv3 and NTP Should support AAA using RADIUS and TACACS+</p>										
		User Authentication	Should support third-party user authentication RADIUS, LDAP, Active directory										
		High availability	Should provide active/active, active/passive deployment										
		System management	Should support CLI, HTTPS, SSH										
		Preferred Brand	Cisco, Juniper or Equivalent										
		License	Vendor shall provide two-year at least 20 VPN license (without cost)										
		Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor										
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2.1.7 Firewall for Data Center	Hardware and Interfaces	The proposed solution must be in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Enterprise Firewall published in any last three years or in the 'Leaders/Challengers/Visionaries' Quadrant of Gartner's Magic Quadrant for Wired/Wireless LAN Access infrastructure in any last three years Minimum 16 x 10/100/1000 Base-T port and 4 x 1 Gigabit SFP	Maximum concurrent sessions, with AVC	2 million or more
	Storage Capacity	Storage: 400GB or higher for log retention	Maximum new connections per second, with AVC	24K or more
	VPN Performance	9 Gbps or higher	IPSec VPN Throughput (1024B TCP w/Fastpath)	1.5 Gbps or higher
	Firewall Throughput	18 Gbps or higher	Maximum VPN Peers	7500 or more
	Concurrent Session	2 Millions or higher	Centralized management	Centralized configuration, logging, monitoring, and reporting are performed by the Management Center or alternatively in the cloud with Cisco Defense Orchestrator or equivalent
	IPSec Tunnel	2000 or higher	Application Visibility and Control (AVC)	Standard, supporting more than 4000 applications, as well as geolocations, users, and websites
	SSL Users	300 or higher	AVC: OpenAppID support for custom, open source, application detectors	Standard
	Layer 2 switching	Should support 802.1Q and 802.3ad/LACP	Security Intelligence	Standard, with IP, URL, and DNS threat intelligence
	Routing	Should support Static routes, OSPF, BGP	NGIPS	Available; can passively detect endpoints and infrastructure for threat correlation and Indicators of Compromise (IoC) intelligence
	Traffic management	Application prioritization based on source, destination, user, service, service group,	URL Filtering: number of categories	More than 80
	Virtual Router/Firewall	10 or higher		



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	Security	Should support Zone based firewall/ Policy based firewall Stateful firewall, ACL filters Should Integrate with Active Directory for user and group based firewall policies	URL Filtering: number of URLs categorized	More than 280 million
	User Authentication	Should support third-party user authentication RADIUS, LDAP, Active directory	Automated threat feed and IPS signature updates	Yes
	High availability	Should provide active/active, active/passive deployment	VLANs maximum	1024 or higher
	System management	Should support CLI, HTTPS, SSH	Stateful inspection firewall throughput	10 Gbps or higher
	Warranty	One year of product replacement warranty	Stateful inspection firewall throughput (multiprotocol)	5 Gbps or higher
			Concurrent firewall connections	2 million or more
			New connections per second	40000 or more
			IPsec VPN throughput (450B UDP L2L test)	1 Gbps or higher
			IPsec/Cisco AnyConnect/Apex site-to- site VPN peers	7500 or more
			Maximum number of VLANs	750 or more
		High availability	Active/active and active/standby	
		Scalability	VPN Load Balancing	



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		Centralized management	Shall be possible to perform centralized configuration, logging, monitoring and reporting
		Adaptive Security Device Manager	Web-based, local management for small-scale deployments
		Hardware Specifications	
		Form factor (rack units)	1RU
		Integrated I/O	At least 12 x 10M/100M/1GBASE-T Ethernet interfaces (RJ-45), 4 x 10 Gigabit (SFP) Ethernet interfaces
		Maximum number of interfaces	Up to 16 total Ethernet ports (12x1G RJ-45, 4x1G SFP)
		Integrated network management ports	1 x 10M/100M/1GBASE-T Ethernet port (RJ-45)
		Serial port	1 x RJ-45 console
		USB	1 x USB 2.0 Type-A (500mA)
		Memory	Minimum 16GB
		Storage	At least 1x 200 GB, 1x spare slot (for MSP)
		Warranty & Support	Minimum 2 (two) years full warranty (without cost) including parts replacements, software, labor



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		Installation and Commissioning	Vendor shall take full responsibility of installation and commissioning part with necessary accessories
		Preferred Brand	Cisco, Palo Alto, Juniper or Equivalent
		Power Supplies	Redundant Hot swappable power supply
		License	Defense Threat, Next Generation IPS License, Malware Protection License, URL Filtering License shall be available for at least 2 Years
		Other Firewall Specifications	
		Proposed Firewall shall not be proprietary ASIC based in nature & shall be open architecture based on multi-core CPU's to protect & scale against dynamic latest security threats.	
		Firewall shall provide application detection for DNS, FTP, HTTP, SMTP, ESMTP, LDAP, MGCP, RTSP, SIP, SCCP, SQLNET, TFTP, H.323, SNMP	
		Firewall shall support creating access-rules with IPv4 & IPv6 objects simultaneously	
		Firewall shall support operating in routed & transparent mode	
		Shall support Static, RIP, OSPF, OSPFv3 and BGP	
Firewall shall support manual NAT and Auto-NAT, static NAT, dynamic NAT, dynamic pat			
Firewall shall support NAT66 (IPv6-to-IPv6), NAT64 (IPv6-to-IPv4) & NAT46 (IPv4-to-IPv6) functionality			



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		<p>Firewall shall support Multicast protocols like IGMP and PIM</p> <p>Shall support security policies based on security group names in source or destination fields or both</p> <p>Shall support capability to limit bandwidth on basis of apps / groups, Networks / Geo and Ports</p> <p>Firewall shall support Active/Standby failover</p> <p>Firewall shall support redundant interfaces to provide interface level redundancy before device failover</p> <p>Firewall shall support 802.3ad Ether channel functionality to increase the bandwidth for a segment.</p> <p>Shall have the capability of passively gathering information about virtual machine traffic, network hosts and their activities, such as operating system, services, open ports, client applications, and vulnerabilities, to assist with multiple activities, such as intrusion event data correlation, elimination of false positives, and policy compliance.</p> <p>The device shall allow administrators to create Custom IPS signatures</p> <p>Shall be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies and updating policies) with minimal human intervention.</p> <p>Shall be capable of automatically providing the appropriate inspections and protections for traffic sent over non-standard communications ports.</p>
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		<p>Shall be able to link Active Directory and/or LDAP usernames to IP addresses related to suspected security events.</p> <p>Shall be capable of detecting and blocking IPv4/ IPv6 attacks.</p> <p>Shall support the capability to quarantine end point</p> <p>Solution shall support full-featured NBA capability to detect threats emerging from inside the network. This includes the ability to establish "normal" traffic baselines through flow analysis techniques (e.g., NetFlow) and the ability to detect deviations from normal baselines.</p> <p>The solution must provide IP reputation feed that comprised of several regularly updated collections of poor reputation of IP addresses determined by the proposed security vendor</p> <p>Solution must support IP reputation intelligence feeds from third party and custom lists of IP addresses including a global blacklist.</p> <p>Solution must support URL and DNS threat intelligence feeds to protect against threats</p> <p>Solution must be capable of passively gathering details unique to mobile devices traffic to identify a wide variety of mobile operating systems, mobile applications and associated mobile device hardware.</p> <p>Shall support more than 3000 application layer and risk-based controls that can invoke tailored intrusion prevention system (IPS) threat detection policies to optimize security effectiveness.</p> <p>The appliance OEM must have its own threat intelligence analysis center and shall use the global footprint of security deployments for more comprehensive network protection.</p>
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		<p>The detection engine shall support capability of detecting and preventing a wide variety of threats (e.g., malware, network probes/reconnaissance, VoIP attacks, buffer overflows and P2P attacks).</p> <p>Shall be able to identify attacks based on Geo-location and define policy to block on the basis of Geo-location.</p> <p>The detection engine must incorporate multiple approaches for detecting threats, including at a minimum exploit-based signatures, vulnerability-based rules, protocol anomaly detection, and behavioral anomaly detection techniques. Identify and explain each type of detection mechanism supported.</p> <p>The management platform must be accessible via a web-based interface and ideally with no need for additional client software.</p> <p>The management platform must be capable of role-based administration, enabling different sets of views and configuration capabilities for different administrators subsequent to their authentication.</p> <p>The management platform must include a scheduling subsystem to facilitate automation of routine tasks, such as backups, upgrades, report creation, and policy application.</p> <p>Centralized management can do contextual threat intelligence service accelerates analysis, correlation of events. This can be on appliance or can be cloud services</p> <p>The management platform must be capable of automatically receiving rule updates published by the vendor and automatically distributing and applying those rule updates to sensors.</p>
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		<p>The Centralized management platform must provide robust reporting capabilities, including a selection of pre-defined reports and the ability for complete customization and generation of new reports. Report can be consolidated or can be generate individual NGFW</p> <p>Logging of Administrative Changes that provides an audit trail for administrative activities.</p> <p>The management platform must provide a highly customizable dashboard.</p> <p>The management platform must be capable of integrating third party vulnerability information into threat policy adjustment routines and automated tuning workflows</p> <p>The management platform must be capable of role-based administration, enabling different sets of views and configuration capabilities for different administrators subsequent to their authentication.</p> <p>Shall support REST API for monitoring and config programmability</p> <p>The management platform must provide multiple report output types or formats, such as PDF, HTML, and CSV.</p> <p>The management platform must support multiple mechanisms for issuing alerts (e.g., SNMP, e-mail, SYSLOG).</p> <p>The management platform must include an integration mechanism, preferably in the form of open APIs and/or standard interfaces, to enable events and log data to be shared with external network and security management applications, such as Security Information and Event Managers (SIEMs), and log management tools.</p>
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Section 6 Part 2 2.1.8 Core Switch for Data Center	<table border="1"> <tr> <td data-bbox="450 248 801 316">Warranty</td> <td data-bbox="801 248 1160 316">One year of product replacement warranty</td> </tr> </table>	Warranty	One year of product replacement warranty	<table border="1"> <tr> <td data-bbox="1283 248 1675 316">Warranty</td> <td data-bbox="1675 248 2072 316">Minimum 2 years full warranty (without cost) including parts replacements, software and labor</td> </tr> </table>	Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
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Section 6 Part 2 2.1.9 Link Switch for Data Center	<table border="1"> <tr> <td data-bbox="450 461 801 528">Warranty</td> <td data-bbox="801 461 1160 528">One year of product replacement warranty</td> </tr> </table>	Warranty	One year of product replacement warranty	<table border="1"> <tr> <td data-bbox="1283 461 1675 528">Warranty</td> <td data-bbox="1675 461 2072 528">Minimum 2 years full warranty (without cost) including parts replacements, software and labor</td> </tr> </table>	Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
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Section 6 Part 2 2.1.10 Gigabit Switch for Data Center	<table border="1"> <tr> <td data-bbox="450 652 801 719">Warranty</td> <td data-bbox="801 652 1160 719">One year of product replacement warranty</td> </tr> </table>	Warranty	One year of product replacement warranty	<table border="1"> <tr> <td data-bbox="1283 652 1675 719">Warranty</td> <td data-bbox="1675 652 2072 719">Minimum 2 years full warranty (without cost) including parts replacements, software and labor</td> </tr> </table>	Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
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Section 6 Part 2 2.1.13 Internet Service Firewall for Data Center	<table border="1"> <tr> <td data-bbox="450 860 801 927">Warranty</td> <td data-bbox="801 860 1160 927">One year of product replacement warranty</td> </tr> </table>	Warranty	One year of product replacement warranty	<table border="1"> <tr> <td data-bbox="1283 860 1675 927">Warranty</td> <td data-bbox="1675 860 2072 927">Minimum 2 years full warranty (without cost) including parts replacements, software and labor</td> </tr> </table>	Warranty	Minimum 2 years full warranty (without cost) including parts replacements, software and labor
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