SUPPLEMENTAL BID BULLETIN NO. 2018-003

PROCUREMENT OF ICT EQUIPMENT

As discussed during the pre-bid conference held on August 07, 2018, the OSG is reposting the **Terms of Reference** to clarify the documentary requirements, i.e. manufacturer's certification for major components (for all I.T. Equipment) and the technical specifications.

For the public's information and guidance.

August 08, 2018.

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TERMS OF REFERENCE

For the delivery of the Following:
Office Productivity, Server and Storage and LAN and Wireless Upgrade

1) **For all I.T. equipment:**

   • The Bidder must be an authorized reseller/authorized dealer of the brand being offered for a period of at least five (5) years. A current valid manufacturer's certification required as part of the technical component on bid proposal for major components such as for Lot 1: Notebook PC, Mobile devices, Scanners and VOIP phones. For Lot 2: Blade System and Storage Area Network. For Lot 3: Network Component (Wireless and LAN).

   • The Bidder must not exceed to ninety (90) day delivery lead-time upon receipt of Notice to Proceed.

   • Winning Bidder must provide a standard/universal adaptor/converter for a 3-pin (UK) or round power plug.

   • Winning Bidder must provide a standard 2.0 USB cable for printer/scanner.

   • The Bidder must provide at least two (2) customer satisfaction certificate from previous client companies/agencies.

   • Must attach brochure of the brand being offered.

2) **For laptop computers:**

   • The Bidder must be an Authorized Service Partner (ASP) of the brand being offered and a current valid manufacturer certificate is required as part of the technical component on bid proposal.

   • The Bidder must have at least two (2) manufacturer certified engineers for the brand of laptop and desktop computers, including workstations being offered.

   • The brand which represents the bidder must apply in the latest top 3 of the Leaders Group of Gartner's List for Global Enterprise Notebook and Desktop. Certification in the inclusion in the Top 3 is required from the brand's manufacturer.

- Winning Bidder should replace a factory defective unit with a new unit within 30 days upon delivery of the item.

- In case of outside repair within the 3-year warranty period, the winning bidder shall provide a service unit to the OSG.

- For the two above items: Must submit Proof of warranty as part of the technical component.

If repair of the unit is refused by the Winning Bidder during the warranty period because of damage not being covered by the warranty, the Winning Bidder shall submit a report detailing its refusal not more than fifteen days from the communication of its refusal.

TECHNICAL SPECIFICATIONS:

OFFICE PRODUCTIVITY			
ITEM	**QTY**	**UNIT COST**	**TOTAL**
CORPORATE NOTEBOOK PC	180	₱50,000.00	₱9,000,000.00
MOBILE DEVICE 2 IN 1 TABLET	60	₱30,000.00	₱1,800,000.00
INTERACTIVE MONITOR	1	₱100,000.00	₱100,000.00
LED TELEVISION 75" COMMERCIAL UHD TV WITH ADJUSTABLE STEEL TV CART	2	₱200,000.00	₱400,000.00
FILE STORAGE	6	₱36,000.00	₱216,000.00
MULTIMEDIA PROJECTOR WITH MOUNTING KIT	6	₱45,000.00	₱270,000.00
SCANNER (AUTO DOCUMENT FEEDER)	6	₱25,000.00	₱150,000.00
SOLID STATE HARD DRIVE 500GB 2.5" SATA	21	₱10,500.00	₱220,500.00
BARCODE PRINTER	23	₱20,000.00	₱460,000.00
BARCODE SCANNER	6	₱8,000.00	₱48,000.00
HIGH RES SCANNER (75PPM)	2	₱350,000.00	₱700,000.00
VOIP PHONE WITH POWER ADAPTOR	93	₱8,000.00	₱744,000.00
		GRAND TOTAL	**₱14,108,500**

ICT EQUIPMENT		QTY
Corporate Notebook PC		**180 Units**
Classification	True Branded Notebook PC	
Certification	Must belong in the top 3 of the Leaders Group of Gartner's Magic Quadrant for Global Enterprise Notebook and Desktop (Must provide certificate)	
Processor	8th Generation Intel Core i5 Processor	
	i5-8250U (3.40 GHz Max. Turbo Frequency)	
Cache Memory	6 MB SmartCache	
Chipset	Intel SoC (System on Chip) platform	
Memory	8G (1X8GBDDR4 2400) On Board	
Max Memory	up to 20 GB of DDR4-2400Mhz, dual channel capable	
Graphics	AMD Radeon R17M-M1-70 GDDR5 2G	
	supports three independent displays; Max resolution: 3840x2160@30Hz (HDMI); 1920x1200@60Hz (VGA)	
HDD	1TB 7MM 5400RPM	
Support HDD	Must Support Dual HDD (SSD + Traditional HDD)	
Display	14.0" (355mm) FHD TN (1920x1080) Anti-Glare, LED backlight, 220 nits, 16:9 aspect ration	
Connectivity	Integrated 10/100/1000 MBps Lan Controller; Wireless 802.11 ac 1x1 and Bluetooth 4.1	

Ports	Two USB 3.0 (one with optional Always On), one USB 3.1 Type-C Gen 1, one optional USB 3.1 Type-C Gen 1 (with the function of DisplayPort and PowerDelivery), one optional USB 2.0 in Ultra-bay, VGA, HDMI, Ethernet (RJ-45)
Audio Support	HD Audio, Stereo speakers with Dolby® Audio™, 2W x 2
Keyboard	6-row, spill-resistant, multimedia Fn keys
Touchpad	One-piece touchpad, multi-touch
Security	Security chip Fingerprint reader Power-on password, hard disk password, supervisor password, security keyhole
Security Chip	Firmware TPM 2.0, integrated in chipset
Fingerprint	Touch-type fingerprint reader
Multimedia Options	Integrated Stereo Speakers, at least 0.3MP fixed focus, physical camera shutter
Operating System	Windows 10 Pro Standard Preinstalled (Must provide certificate from the manufacturer that the OS installed is Genuine OS)
Features	Sleek and robust design
Color	Iron Gray
Battery	2-cell 30Wh + 2-cell 39Wh Li-Polymer
Adapter	BLACK 65W 3-PIN
Carrying Case	Standard Carrying Case
Dimensions	WxDxH: 13.5" x 9.72" x 0.79"; 343mm x 247mm x 20.3mm
Maximum Weight	Must be 1.85 kg / 4.07 lb
Other	Must include branded MiniSaver™ lock
	Must include an Optical Travel Mouse
Warranty	Must be 3 years warranty on parts and labor. (A valid certificate issued by the manufacturer must be submitted).
Environment	EPEAT Silver; ENERGY STAR (A valid certificate issued by the manufacturer must be submitted) 6.1; RoHS-compliant

ICT EQUIPMENT		QTY
2 in 1 Tablet		**60 Units**
Classification	Must be 2 in 1 Tablet	
	Must be 10.1" IPS FHD display	
Dimension	Width (mm / inches) 256.6 / 10.1"	
	Thickness (mm / inches) 9.6 / 0.38"	
	Height (mm / inches) 170.8 /6.72"	
Weight	690 g (1.52 lbs)	
Operating System	Android™ 6.0.1 Marshmallow (upgradable)	
Processor	Intel® Atom™ x5-Z8550 Processor (2M Cache, Quad-Core, Up to 2.4 GHz)	
Sound	Dolby Atmos	
Memory	RAM (4 GB LPDDR3)	
	ROM (64 GB)	
	Card Slot (microSD™; Supports Up to 128 GB)	
Battery	Type : Li-ion Polymer	
	Capacity : 8500 mAh	
	Standby Time : Over 70 Days	
	General Usage : 15 Hours	
Display	Size : 10.1" FHD IPS (1920 x 1200)	

	Color Depth : 16.7 Million
	Color Gamut : 70%
	Brightness : 400 nits
	Touch :
	On Screen : Capacitive Touch with AnyPen Technology
	Create Pad : Capacitive Touch and EMR Pen Technology
	Material : Magnesium Aluminum Alloy
Colors	Gunmetal Grey
Connectivity	WLAN : WiFi 802.11 a/b/g/n/ac; Dual Channel (2.4 GHz and 5 GHz)
Camera	Rear : 8 MP Auto-Focus
	Front : 2 MP Fixed-Focus
Keyboard	Halo Keyboard
Sensors	Vibrator
	G-Sensor
	E-Compass
	Ambient Light Sensor Hall
	Sensor
	GPS
	A-GPS
Software	Note Saver
	Collection
	SHAREit
	SYNCit
	Google Docs
	Google Sheets
	Google Slides
	McAfee® Security
	Evernote®
	ArtRage TouchPal
	IME
Includes	Charger
	USB Cable
	Warranty Card
	Quick Start Guide
	Real Pen
	Ink Cartridge Refills (3x)
	Book Pad
	Book Sleeve
Warranty	Must be 1 year on parts and labor (on site)

ICT EQUIPMENT		QTY
Interactive Monitor		**1 Unit**
Screen Size	43" 10 Point Multi Touch Display with Slim Bezel 27.0mm width	
	Must be IR (Infrared Rays) Spread technology	
Panel Orientation	Landscape & Portrait	

Interactive White Board Software	Application software for business
	Integration of board page and application
	Character recognition function
DRAWING	Pen / Brush / Spray / Eraser / Shape
DATA FORMAT	Intrinsic / PDF / JPG
MEDIA	Image, Audio, Video
APP LINKAGE	PowerPoint, Excel, Word, Internet Explorer
E-MAIL	Share writing/drawing data via e-mail
SCREEN SPLIT	2 horizontal Screens
USAGE CONVENIENCE	Preview / Navigation / Screen Lock
CAPTURE	Full / Window / Automatic Copy & Paste
RECORDING	Full / Window / Rectangle
ZOOM	In / Out (100% ~ 400%)
WRITING SPACE RESIZE	Resize From 1,920 x 1,080 to 3,840 x 2,160
Touch	GUI for FHD/UHD resolution
Available object size for touch	Ø 8mm
Scan Time	9 ~ 14ms
Accuracy	1mm
Interface	USB 2.0
Protection Glass Thickness	2.8T (Anti-Glare)
Operating Systme Support	Windows 7, Windows 8 / Mac OS X (10.7 or later) / Android / Linux (Kernel 3.9 or later)
Touch Resolution	1,428 x 803
Overlay Dimension (W x H x D)	997 x 586 x 23.5 mm (Max 60 mm)
Weight	6.5kg
Warranty	One year on parts and labor

ICT EQUIPMENT		QTY
LED TELEVISION 75" COMMERCIAL UHD TV With Adjustable Steel TV Cart		2 Units
Display	Diagonal Size: 74.6"	
	Type: Edge LED	
	Resolution: 3,840 x 2,160 (4K UHD)	
	Brightness: 400cd/m2	
	Dynamic Contrast Ratio: 1,000,000:1	
	Viewing Angle Degree: 178° / 178°	
Broadcasting System	Analog: NTSC	
	Digital: ATSC/VSB/Clear QAM	
Audio	Audio Output / Speaker System: 10W + 10W / 2.0 ch	
	Sound Mode: 6 modes (Standard, Cinema, Clear Voice III, Sports, Music, Game)	
Interface	Side: HDMI In, USB 2.0	
	Rear: RF In, AV In (Sharing with Component In), Component In + Video, Optical Digital Audio Out, HDMI In, RS 232-C In, RJ45 (SNMP), External Speaker Out	
Dimension	Bezel Width (L/R, U, B) : on bezel based (mm): 14.7, 14.7, 14.7	
	Bezel Width (L/R, U, B) : off bezel based (mm): 12.7, 12.7, 12.7	
Vesa (mm)	600 x 400	
WxHxD/weight (without stand)	66.8" x 38.6" x 1.5" / 91.1lb	

WxHxD/weight (with stand)	66.8" x 41.4" x 11.7" / 92.6lb	
TELESCOPIC HEIGHT ADJUSTABLE ULTRA LARGE DISPLAY STEEL TV CART FOR 60"-100" TV		**2 Units**
Features	Height adjustable TV mount	
	Free-tilting design for multiple monitor viewing angles	
	Quick-release spring lock adjusts height effortlessly	
	Quick assembly shelf assures easy post-installation and height adjustable	
	Cable management keeps everything organized	
	Heavy-duty casters offer maximum portability and mobility	
Specifications:		
Material:	Steel, Plastic	
Color:	Black	
Surface Finish:	Powder Coating	
Column Size:	60X110X2.0 Thickness X990mm Length	
Dimension:	1350x683x2325mm (53.1"x26.9"x91.5"	
Fit screen size:	60"-100"	
VESA Compatible:	200x200,300x300,400x200,400x400,600x400,800x400,800x600,1000x600	
Weight Capacity:	100kg (220lbs)	
Tilt Range:	+5°~ -10°	
Adjustable Height:	Yes	
Metal Sheet Thickness:	Panel T=1.8mm；Bracket T=2.0mm (Panel T=0.071"；Bracket T=0.079")	
Weight Capacity per Layer:	5kg (11lbs)	
Warranty	One year on parts and labor	
ICT EQUIPMENT		**QTY**
NETWORK ATTACHED STORAGE FOR DIVISIONS (FILE STORAGE)		**6 Units**
Technology	Must be High performance 2-bay NAS server	
Features	Must have High-speed data transfer and must be AES-NI hardware encryption engine	
	Must be screw less drive bay design and hot-swappable support	
	Must be dual core processor	
	Must have 4K Ultra HD video transcoding that allows you to transcode H.264 4K videos to 1080p and stream them to high-definition TVs, digital media players, mobile handsets, and computers in the required format	
	Must have User Home feature that automatically create a "home" folder for every user account	
	Must have Ultimate file center feature	
	Must be comprehensive network protocol support including FTP, SMB2, AFP, NFS and WebDAV. With Windows AD and LDAP integration	
	Must have Cloud Station Back up feature	
OS	Must include DiskStation Manager	
Specifications		
CPU	Intel Celeron N3060 Dual Core 1.6 burst up to 2.48 GHz 64 bit	
System Memory	1GB	
Storage	2 Drive Bays (Hot Swappable)	

	2 x 2TB NAS HDD, Interface : SATA 6Gb/s, Cache : 64MB, Spin Speed : 5900RPM
	* Max Sustained Data Transfer Rate OD (MB/s): 159
	* Voltage Tolerance, Including Noise (5V): ±5%
	* Voltage Tolerance, Including Noise (12V): ±10%
	* Load/Unload tested to 600,000 cycles
Compatible Drive Type	3.5" SATA III / SATA II HDD
	2.5" SATA III / SATA II HDD
	2.5" SATA III / SATA II SSD
Supported RAID Type	Hybrid RAID
	Basic
	JBOD
	RAID 0
	RAID 1
RAID Migration	Basic to RAID 1
File Sharing Capacity	Maximum Local User Accounts: 2048
	Maximum Local Groups: 256
	Maximum Shared Folder: 256
	Maximum Shared Folder Sync Tasks: 4
	Maximum Concurrent CIFS/AFP/FTP Connections: 256
Snapshot Replication	Maximum Snapshots per Shared Folder: 256
	Maximum Snapshots of all Shared Folder: 4096
External Ports)	2 x USB 2.0 Port
	1 x USB 3.0 Port
	1 x eSATA Port
	USB Copy
Size (Height x Width x Depth)	165 mm x 108 mm x 233.2 mm
Weight	1.25 kg
Warranty	One year on parts and labor
	The bidder must be an authorized reseller of the brand being offered

ICT EQUIPMENT	QTY
MULTIMEDIA PROJECTOR WITH MOUNTING KIT	**6 Units**

Features	Must have ColorBoost3D & ColorSafe II Features
Resolution	Native XGA (1,024 x 768)
	Maximum WUXGA (1,920 x 1,200)
Aspect Ratio	4:3 (Native), 16:9 (Supported)
Contrast Ratio	Dynamic Black 20,000:1
Displayable Colors	1.07 Billion Colors
Brightness	3,600 ANSI Lumens (Standard),
	2,880 ANSI Lumens (ECO),
	(Compliant with ISO 21118 standard)
Projection Screen Size (Diagonal)	27" ~ 300" (69cm ~ 762cm)
Projection Distance	1.2m ~ 11.8m (3.9' ~ 38.8')
Throw ratio	1.94 ~ 2.16 (51"@2m)
Projection lens	F = 2.41 ~ 2.53, f = 21.85mm ~ 24.01mm, Manual Zoom & Focus

Lamp Type	Osram 195W
Lamp Life	5,000 Hours (Standard),
	6,000 Hours (ECO),
	10,000 Hours (ExtremeEco)*
	Lamp Life of ExtremeEco mode is based on an industrial standard of educational usage cycle, which consists of 45 minutes of Full, ECO and/or Dynamic modes, 75 minutes of ExtremeEco (lowest lamp power) mode and 15 minutes of Power Off mode
Ceiling Mounting Capability	Yes
Audio	3W Speaker x 1
Keystone correction	+ / - 40° (Vertical, Manual)
Weight	2.5 Kg (5.5 lbs)
Dimensions	314 x 223 x 93 mm
	(12.4" x 8.8" x 3.7")
Remote Control	IR remote control,
	PgUp/PgDn functions
Power Supply	AC input 100~240V,
	50/60 Hz
Power Consumption	235 Watts (Standard),
	195 Watts (ECO),
	<0.5 Watts (Standby)
Noise Level	31 dBA (Standard),
	28 dBA (ECO)
Input Interface	Analog RGB/Component Video (D-sub) x 1
	HDMI (Video, Audio, HDCP) x 1
	PC Audio (Stereo mini jack) x 1
Control interface	USB (Mini-B) x 1
Mounting Kit	Universal Projector Ceiling mount bracket
Accessories	10 Meter VGA Cable and HDMI cable
Warranty	One year on parts and labor on site

ICT EQUIPMENT		QTY
SCANNER (AUTO DOCUMENT FEEDER)		6 Units
Type	Desktop sheet-fed scanner	
Document size	Plain paper	
	U-turn path:	
	Width: 50.8 to 216mm	
	Length:70 to 356mm	
	Straight path:	
	Width: 50.8 to 216mm,	
	Length:53.9 to 356mm	
	Use Long Document mode to scan documents up to 3,000mm long	
	Business card	
	50 x 53.9mm or larger. Vertical feeding only	
	Plastic Card	

	53.9 x 85.5mm (ISO standard). Embossed cards can be scanned
Document thickness	Plain paper
	U-turn path:
	52 - 128g/m2 (0.06 - 0.15mm)
	Straight path:
	40 - 209g/m2 (0.05 - 0.25mm)
	Business card
	300g/m2 0.35mm or less
	Plastic Card
	0.76mm or less
Document feeding	Automatic sheet feeding
Feeding Capacity	6mm stack (including curls) or 30 sheets of 80g/m2
Scanning element	CMOS CIS
Light source	LED (Red, Green, and Blue)
Scanning side	Simplex / Duplex / Skip Blank Page / Folio
Scanning modes	Black and white, Error diffusion, Advanced Text Enhancement, Advanced Text Enhancement II (for Windows only), 256-level grayscale, 24-bit colour
Scanning Resolutions	150 x 150dpi, 200 x 200dpi, 300 x 300dpi, 400 x 400dpi, 600 x 600dpi
Scanning Speed *2	Simplex:
(A4 / LTR, Portrait, 200dpi)	25ppm
	Duplex:
	50ipm
Interfaces	Hi-Speed USB 2.0
Software	Windows:
	ISIS / TWAIN driver, CaptureOnTouch, Presto! BizCard,Omnipage, PaperPort, eCopy PDF Pro Office, Evernote
	Mac
	TWAIN driver, CaptureOnTouch, Presto! BizCard,Presto! PageManager, Evernote
Dimensions (W x D x H)	300 x220 x156mm with the feed tray closed
Weight	Approx. 2.7kg
Power Requirements	AC100 to 240V (50 / 60Hz)
Power Consumption	Scanning:
	12.8W or less
	Sleep:
	1.8W or less
	OFF:
	0.5W or less
Operating environment	Temperature:
	10°C to 32.5°C
	Humidity:
	20% to 80% RH
Warranty	One year on parts and labor on site

ICT EQUIPMENT	QTY
SOLID STATE HARD DRIVE 500GB 2.5" SATA	**21 Units**

Capacity	500 GB
Interface	SATA 6Gb/s Interface, compatible with SATA 3Gb/s & SATA 1.5Gb/s interface
Key Features	
Sequential Read Speed	Up to 540 MB/s Sequential Read
Sequential Write Speed	Up to 520 MB/s Sequential Write
Random Read Speed	SATA 6Gb/s Interface, compatible with SATA 3Gb/s & SATA 1.5Gb/s interface
Random Write Speed	Random Write (4KB, QD32):Up to 90,000 IOPS Random Write
Memory Speed	32 layer 3D V-NAND. 512 MB Low Power DDR3 SDRAM
Controller	MGX Controller
Trim Support	Yes
AES Encryption	AES 256 bit Encryption (Class 0) , TCG/Opal, IEEE1667 (Encrypted drive)
Internal Storage	Yes
Temperature proof	Yes
General	
Power Consumption (W)	50 MW
Voltage	5V ± 5% Allowable voltage
Reliability (MTBF)	2 Million Hours Reliability (MTBF)
Environmental Specs	
Operating Temperature	32ºF - 158ºF
Form Factor	2.5" SATA III "
Dimensions (W x D x H)	3.94" x 2.75" x 0.27"
Weight	0.1
Warranty	5 Years Limited Warranty or 150TBW Limited Warranty

ICT EQUIPMENT	QTY
BARCODE/QR CODE SCANNER	**6 Units**

Technology	Handheld 2D Barcode Scanners
	Must Scans 1-D, 2-D and PDF417 bar codes on paper, mobile phones and computer displays
	Must have Omni-directional scan pattern
	Must support all common interfaces
	Must provide reliable operation despite spills and drops
	Must be compatible with 123Scan and Remote Scanner Management (RSM)
	Must be capable of PDF417, MicroPDF417, Composite Codes, TLC-39, Data Matrix, Maxicode, QR Code, MicroQR, Aztec
	Must have Motion Tolerances of Up to 25 in. / 63.5 cm per second
	Must support the following protocols over USB: HID Keyboard (default mode), SNAPI, COM Port Emulation, IBM SurePOS (Yellowstone) (IBM Handheld,IBM Tabletop, OPOS);
	Must support the following protocols over RS232: Wincor Nixdorf, ICL, Fujitsu, Olivetti, Keyboard Wedge and RS485 IBM46xx ;
	The minimum resolution must be SR: Code 39 4 mil; UPC 60% 5 mil; PDF417 5 mil, Datamatrix 7.5 mil
Dimensions	6.7 in. H x 3.7 in. L x 2.7 in. W (17 cm H x 9.3 cm L x 6.8 cm W)
Warranty	One year on parts and labor

ICT EQUIPMENT	QTY

BARCODE PRINTER		23 Units
Standard Features:	Must be 32 bit RISC processor	
	Must have Co-resident EPL and ZPL programming languages (emulator is not allowed)	
	Must have Triple connectivity: Serial, USB and parallel	
	Print methods: Thermal transfer and direct thermal modes	
	— thermal transfer and direct thermal	
	* Construction: Dual-wall frame, reinforced plastic	
	* OpenACCESS™ for easy media and ribbon loading	
	* Certified Microsoft ® Windows ® drivers	
Resolution	203 dpi/ 8 dots per mm	
Memory	8 MB Flash, 8 MB SDRAM (standard)	
Print Width	4.09"/104 mm	
Maximum Print Length	39"/990 mm	
Maximum Print Speed	4"/102 mm per second	
Media Sensors	Standard: Fixed reflective and transmissive sensors	
Media width	1.00"/25.4 mm to 4.24"/108 mm	
Media length	0.38"/9.6 mm to 39"/990 mm	
Maximum media roll size	5"/127 mm O.D. on a 1.00"/25.4 mm, 1.5"/38 mm I.D. core	
Media thickness	0.003"/0.08 mm to 0.007"/0.18 mm	
Media types	Roll-fed or fan-fed, die cut or continuous direct thermal labels with or without black mark, tag stock, continuous receipt paper, wristbands, and optional liner-free direct thermal media	
Ribbon Characteristics:		
Outside diameter	1.34"/34 mm	
Standard length	244' (74 m)	
Ratio	1:1 media to roll to ribbon	
Width	1.33"/33.8 mm to 4.3"/110 mm	
Core I.D.	0.5"/12.7 mm	
Firmware:	* The printer must have Powerful programming language that lets printers run stand-alone applications, connect to peripherals, and much more (option)	
	* The printer must have Programming utility that makes it dramatically easier for programmers to create and test complex ZBI 2.0 programs and distribute them to the printer	
	* The printer must have Programming Language that provides sophisticated label formatting and printer control and is compatible with tabletop and mobile printers	
	* The printer must have Eltron Programming Language that simplifies label formatting and enables format compatibility with legacy applications	
	Line Mode support (GK888d) enables format compatibility with legacy applications	
Fonts/Graphics/Symbologies:	• 16 resident expandable ZPL fonts	
	• One resident scalable ZPL font	
	• 5 resident expandable EPL2 fonts	
	• Supports user-defined fonts and graphics — including custom logos	

Bar Code Symbologies:	• Bar Code Ratios: 2:1 (non-rotated) and 3:1
Warranty	One year on parts and labor

ICT EQUIPMENT		QTY
HI-RESOLUTION DOCUMENT SCANNER (75PPM)		**2 Units**

Type	Must be Desktop sheet-fed scanner
Document Feeding	Must be Automatic or manual sheet feeding
Document size	
Width	Must be 50.8 - 305mm
Length	Must be 70 - 432mm
Long Document Mode:	Must be up to 3,000mm
Document thickness and weight	
Continuous Feeding	Must be 20 - 209g/m2, 0.04 - 0.25mm
Non-Separation Mode	Must be 20 - 255 g/m2, 0.04 - 0.3mm
Feeding Capacity	Must be 48mm stack or 500 sheets of 80 g/m2
Scanning Element	Must be 3-line CMOS CIS
Light Source	Must be LED (red, green, and blue)
Scanning Side	Must be Simplex / Duplex
Scanning Modes	Black and White, Error Diffusion, Advanced Text Enhancement, Advanced Text Enhancement II, 256-level Grayscale, 24-bit Color, Auto Colour Detection
Scanning Resolutions	150 x 150dpi, 200 x 200dpi, 240 x 240dpi, 300 x 300dpi,
	400 x 400dpi, 600 x 600dpi
Scanning speed*1 (A4 / LTR, 200dpi)	
B&W	**Portrait:** DR-G1100: 75ppm (Simplex) / 150ipm (Duplex) Landscape
	Landscape: DR-G1100: 100ppm (Simplex) / 200ipm (Duplex)
Grayscale	**Portrait:** DR-G1100: 75ppm (Simplex) / 150ipm (Duplex)
	Landscape: DR-G1100: 100ppm (Simplex) / 200ipm (Duplex)
Colour	**Portrait:** DR-G1100: 75ppm (Simplex) / 150ipm (Duplex)
	Landscape: DR-G1100: 100ppm (Simplex) / 200ipm (Duplex)
Interface	Hi-Speed USB 2.0
Technical Specification	
Scanner driver	ISIS / TWAIN
Useful functions	Job Function, Ultrasonic Double-Feed Detection, Staple Detection, Text Enhancement, Dropout and Color Enhancement, Auto Page Size Detection, 3-D Color Correction, Image Rotation, Skip Blank Page, Edge Emphasis, Moiré Removal, Prevent Bleed Through / Remove Background, Contrast Adjustment, Shading Correction, Brightness Adjustment, Deskew, Border Removal, Scanning Side Selection, Scan Area Settings, Add-on Settings, Text Orientation Recognition, Punch Hole Removal, Folio Scan, Unnecessary dots removal, Notch removal, Background Smoothing, Character Emphasis, Count Only Mode, Verify Scan, Rapid Recovery System, MultiStream™
Power requirements	AC220-240V (50 / 60Hz)
Power Consumption	**220 - 240V:** 94.3W (Scanning), 1.7W (Sleep mode)
Operating Environment	10 - 32.5°C
	Humidity: 20 - 80% RH

Dimensions	**Feed trays closed:** 480 x 535 x 315mm
(W x D x H)	
Weight	Approx. 22.8kg
Warranty	One year on parts and labor

ICT EQUIPMENT		QTY
VOIP PHONE WITH ADAPTOR		**93 Units**

Technology	Must be Business Media Phone
	Must have 2 programmable lines/registrations
	Must have 2.5" Graphical backlit LCD display with 5-way navigation cluster for control
	Must be HD voice and Acoustic Fence Technology
	Must have 2 x Ethernet 10/100 for network pass through
	Must have RJ9 Headset support with electronic hook switch
	Must have full duplex Type 1-compliant speakerphone features
	Must be designed for interoperability and is certified to interoperate with the industry's broadest range of PBX systems and SIP call control platforms
	Must have Zero Touch Provisioning and web-based configuration tool
	Must be simple to deploy, easy to administer, upgrade, and maintain
User interface features	Must have Voicemail support
	Reversible desk stand/wall mount
	Unicode UTF-8-character support
Feature Keys	4 context-sensitive "soft" keys
	2-line keys with bi-color (red/green) LED
	"Home" feature key
	4-way navigation key cluster with center "Select" key
	2 volume control keys
	Dedicated hold key
	Dedicated headset key
	Dedicated hands-free speakerphone key
	Dedicated microphone mute key
Call handling features	Shared call/bridged line appearance
	Distinctive incoming call treatment/call waiting
	Call timer and call waiting
	Call transfer, hold, divert (forward), pickup
	Called, calling, connected party information
	Local three-way audio conferencing
	One-touch speed dial, redial
	Remote missed call notification
	Do not disturb function
	Electronic hook switch capable
	Local configurable digit map/dial plan
Network and provisioning	SIP Protocol Support
	SDP
	IETF SIP (RFC 3261 and companion RFCs)

	Two-port Ethernet switch
	10/100Base-TX across LAN and PC Ports
	Manual or dynamic host configuration protocol (DHCP) network setup
	Time and date synchronization using SNTP
	FTP/FTPS/TFTP/HTTP/HTTPS server based central provisioning for mass deployments
	Provisioning and call server redundancy supported
	QoS Support–IEEE 802.1p/Q tagging (VLAN), Layer 3 TOS, and DHCP
	Network Address Translation (NAT) – support for static configuration and "Keep-Alive" SIP signaling
	RTCP and RTP support
	Event logging
	Syslog
	Hardware diagnostics
	Status and statistics reporting
Security	802.1X Authentication and EAPOL
	Media encryption via SRTP
	Transport Layer Security (TLS)
	Encrypted configuration files
	Digest authentication
	Password login
	Support for URL syntax with password for boot server address
	HTTPS secure provisioning
	Support for signed software executables
Power Adaptor	Must include External Universal AC Adapter 12V
Warranty	Must be One year with premier service program that provides Service Partners with technical telephone support, advance parts replacement, software upgrades & updates, and access to Polycom's enhanced support portal. The SLA must be included on the technical requirements
	The bidder must be an authorized reseller of the brand being offered.

SERVER AND STORAGE UPGRADE			
ITEM	**QTY**	**UNIT COST**	**TOTAL**
BLADE SERVER SYSTEM	1	₱3,934,000.00	₱3,934,000.00
- **BLADE SYSTEM**	1		
- **BLADE SERVERS**	4		
SAN STORAGE	1	₱1,500,000.00	₱1,500,000.0
PC SERVER	1	₱206,500.00	₱206,500.00
		GRAND TOTAL	**₱5,640,500.00**

ICT EQUIPMENT	QTY
BLADE SERVER SYSTEM	**1 Lot**
Compatibility	Blade Chassis System must be compatible with existing Blade Chassis of the OSG (IBM Blade Server E) including its existing Storage Area Network (DS 3400 and Dell VNXe System). New and existing SAN should be seen by the New Blade Chassis System.
CHASSIS	**1 Unit**
Form Factor	Blade with 10U chassis that can accommodate up to 14x half-width horizontal nodes. Supports mixing 2P, 4P and 8P nodes on the same chassis
Midplane	Must have passive midplane
Management Module	Blade Chassis should have 2x redundant management module
Network Switch	Blade Chassis should have 2x network switch that includes 14 internal 10 GbE ports enabled (one to each compute node) and 10 external 10 GbE ports enabled with options to upgrade (per Switch). With 10x initially activated ports with 10x 10Gb base-T SFP+ Transceivers and 10x 1GbE Transceivers. Standard with Flexible Port Mapping capability.
SAN Switch	Blade Chassis should have 2x SAN switch that includes 28 internal full duplex 16/8Gb FC ports (per Switch). 24 external ports for 16 Gb or 8 Gb SFP+ transceivers supporting 4 Gb, 8 Gb, and 16 Gb port speeds (per Switch). With 12x initially activated external ports per switch with 12x 16Gb and 12x 8Gb FC Transceivers.
Fans and Cooling	Blade Chassis should have 10x redundant Fans. Should be capable of Zoned Adaptive Cooling with fans can be independently slowed or sped up.
Power Supply	Blade Chassis should have 6x redundant 2500W PSU
Power Consumption	Must be 12,900 watts maximum
Power Cable	Blade Chassis should have 6x 2.5m, 16A/100-240V, C19 to IEC 320-C20 Rack Power Cable
Warranty	3 Years Parts, Labour, On Site, 4Hr Response Time, 24x7
Implementation Services	Installation and configuration must be included
ICT EQUIPMENT	**QTY**
BLADE SERVER NODE	**4 Units**

Form Factor	Half-width
Processor	2x Xeon Silver 4114 10C 85W 2.2GHz Processor
Memory	8x 16GB DDR4 2666 MHz. up to 24 DIMMs can be installed
Storage	2x 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD
Connectivity	4-port 10Gb Virtual Fabric Adapter and 16Gb 2-Port Fibre Channel Adapter
Features	With predictive failure analysis which covers processors, memory, and drives, plus the fans and power supplies.
Warranty	3 Years Parts, Labour, On Site, 4Hr Response Time, 24x7
Implementation Services	Installation and configuration must be included
ICT EQUIPMENT	**QTY**
STORAGE AREA NETWORK	**1 Unit**
Form Factor	2U Rackmount SAN
Controller memory	16 GB per system (8 GB per controller module)
Controller	Dual Redundant Converged Network Controller
RAID Levels	RAID 1, 5, 6, and 10
Storage	3x 400GB SSD and 16x 1.2TB HDD
Ports	4x SFP/SFP+ host ports with two built-in dual-port CNCs (each port on the same CNC must have the same connectivity type; different CNCs might have different connectivity types) and 1x 1GbE ports for management per Controller.
Transceivers	8x 16GB FC SFP+ Transceivers
Features	SSD Tierring

Performance	Dual controller configuration
	  Up to 250000 random disk read IOPS
	  Up to 7 GBps sequential disk read throughput
	  Up to 6 GBps sequential disk write throughput

Cooling	Redundant cooling with two fans built into power and cooling modules (PCMs).
Power supply	Two redundant hot-swap 580 W AC power supplies built into PCMs.
Management interfaces	1 GbE port (UTP, RJ-45) and serial port (Mini-USB) on the controller modules. Web-based interface (WBI); Telnet, SSH, or Direct Connect USB CLI; SNMP and email notifications.
Cables	2x 4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable and 8x 5m LC-LC OM3 MMF Cable
Warranty	3Yr 24x7 4Hr Response + Drive Retention
Implementation Services	Installation and configuration must be included
Misc	
FC HBA	1x Dual port 8Gb FC HBA for x3550 M5 (5463)
NIC	1x Dual port 10GbBase-T NIC for x3550 M5 (5463)
Implementation Services	Installation and configuration must be included
Scope of Work	
Blade Chassis	
	Unboxing and initial setup
	Racking
	Assembly of Power Supply and Cooling Fans
	Initial Configuration of Chassis Management Module (CMM)

	Initial Configuration of Flex Network Switch	
	Initial Configuration of Flex SAN Switch with SAN Zoning	
	Installation of Server Nodes	
	Knowledge Transfer	
Server Nodes		
	Configuraiton of Server Nodes	
	RAID Configuration	
	OS Installation (Windows Only)	
	Knowledge Transfer	
Storage		
	Unboxing and initial setup	
	Racking	
	Create Storage Pool	
	Create Host	
	Mount volumes to Host	
	Testing	
	Knowledge Transfer	
Existing x3550 M5		
	Removal of 2x Single port FC HBA	
	Installation of 1x Dual port FC HBA	
	Installation of 1x Dual port 10GbBase-T NIC	
ICT EQUIPMENT		**QTY**
PC SERVER		**1 Unit**
Case Type	Full Tower	
M/B Compatibility	E-ATX (12" x 13"), ATX, Micro-ATX, Mini-ITX	
Expansion Slots	PCI-E x 8	
Maximum Compatibility	VGA Card Length: 370mm	
Front Ports	At least 2x USB 3.0	
Power Supply Compatibility	PSII: ATX12V and EPS12V	
	- Length up to 230mm	
MOTHERBOARD		**1 Unit**
Chipset	Intel B250	
CPU SUPPORT	7th & 6th Gen Intel LGA 1151 Processor	
MEMORY	Support Dual Channel DDR4 2400/ 2133/ 1866 MHz	
	2 x DDR4 DIMM Memory Slot	
	Max. Supports up to 32GB Memory	
EXPANSION SLOT	1 x PCI-E 3.0 x16 Slot	
	11 x PCI-E 3.0 x1 Slot	
STORAGE	6 x SATA3 Connector	
USB	4 x USB 3.0 Port	
	1 x USB 3.0 Header	
	2 x USB 2.0 Port	
	2 x USB 2.0 Port (only 5V power, up to 1.5A)	
	2 x USB 2.0 Header	
LAN	Realtek RTL8111H - 10/100/1000 Controller	

	Support Super LAN Surge Protection	
CODEC	Realtek ALC887 8-Channel HD Audio	
	Support HD Audio	
REAR I/O	1 x PS/2 Mouse	
	1 x PS/2 Keyboard	
	4 x USB 3.0 Port	
	2 x USB 2.0 Port	
	2 x USB 2.0 Port (only 5V power, up to 1.5A)	
	1 x DVI-D Connector, resolution up to 1920 x 1200 @60Hz	
	1 x RJ-45 Port	
	3 x Audio Connector	
INTERNAL I/O	1 x USB 3.0 Header	
	2 x USB 2.0 Header	
	6 x SATA3 6Gb/s Connector	
	1 x SATA Power Connector (for rear USB power enhancement)	
	1 x Front Audio Header	
	1 x Front Panel Header	
	1 x CPU Fan Header	
	2 x System Fan Header	
	1 x Serial Header	
	2 x PCI-E 12V 4Pin Connector	
DIMENSION	ATX Form Factor Dimension: 29.5cm x 21cm (W x L)	
OS SUPPORT	Supports Windows 10(x64) for Intel 7th Generation Processor	
FEATURES	Supports 100% Solid capacitor	
	Supports Charger Booster	
	Supports BIOS Online Update	
CPU SPECIFICATIONS (i5-7600K)		**1 unit**
Performance	# of Cores 4	
	# of Threads 4	
	Processor Base Frequency 3.80 GHz	
	Max Turbo Frequency 4.20 GHz	
	Cache 6 MB SmartCache	
	Bus Speed 8 GT/s DMI3	
	# of QPI Links 0	
	TDP 91 W	
Memory Specifications	Max Memory Size (dependent on memory type) 64 GB	
	Memory Types DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	
	Max # of Memory Channels 2	
	ECC Memory Supported ‡ No	
Processor Graphics	Processor Graphics ‡ Intel® HD Graphics 630	
	Graphics Base Frequency 350 MHz	
	Graphics Max Dynamic Frequency 1.15 GHz	
	Graphics Video Max Memory 64 GB	

	4K Support Yes, at 60Hz
	Max Resolution (HDMI 1.4)‡ 4096x2304@24Hz
	Max Resolution (DP)‡ 4096x2304@60Hz
	Max Resolution (eDP - Integrated Flat Panel)‡ 4096x2304@60Hz
	DirectX* Support 12
	OpenGL* Support 4.4
	Intel® Quick Sync Video Yes
	Intel® InTru™ 3D Technology Yes
	Intel® Clear Video HD Technology Yes
	Intel® Clear Video Technology Yes
	# of Displays Supported ‡ 3
	Device ID 0x5912
Expansion Options	Scalability 1S Only
	PCI Express Revision 3.0
	PCI Express Configurations ‡ Up to 1x16, 2x8, 1x8+2x4
	Max # of PCI Express Lanes 16
Package Specifications	Sockets Supported FCLGA1151
	Max CPU Configuration 1
	Thermal Solution Specification PCG 2015C (65W)
	TJUNCTION 100°C
	Package Size 37.5mm x 37.5mm
	Low Halogen Options Available See MDDS
Advanced Technologies	Intel® Optane™ Memory Supported ‡ Yes
	Intel® Turbo Boost Technology ‡ 2.0
	Intel® vPro™ Technology ‡ No
	Intel® Hyper-Threading Technology ‡ No
	Intel® Virtualization Technology (VT-x) ‡ Yes
	Intel® Virtualization Technology for Directed I/O (VT-d) ‡ Yes
	Intel® VT-x with Extended Page Tables (EPT) ‡ Yes
	Intel® TSX-NI Yes
	Intel® 64 ‡ Yes
	Instruction Set 64-bit
	Instruction Set Extensions Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
	Idle States Yes
	Enhanced Intel SpeedStep® Technology Yes
	Thermal Monitoring Technologies Yes
	Intel® Identity Protection Technology ‡ Yes
	Intel® Stable Image Platform Program (SIPP) No
Security & Reliability	Intel® AES New Instructions Yes
	Secure Key Yes
	Intel® Software Guard Extensions (Intel® SGX) Yes
	Intel® Memory Protection Extensions (Intel® MPX) Yes
	Intel® OS Guard Yes
	Execute Disable Bit ‡ Yes
	Intel® Boot Guard Yes

RAM SPECIFICATIONS	8GB DDR4 Compatible w/ mother board & cpu	
6X USB 3.0 PCI-E EXPRESS 1X TO 16X EXTENDER RISER CARD ADAPTER POWER CABLE		6 Units
Power Connector	Sata 15 PIN POWER / 6 PIN POWER CABLE / MOLEX 4 PIN	
The board size	130mm * 50mm	
USB Cable Length	600mm	
Compatible use	With any graphics cards	
SSD SPECIFICATIONS		1 unit
Capacity	At least 120GB	
Form Factor	2.5"	
NAND Flash	3D NAND	
Dimensions (L x W x H)	100.45 x 69.85 x 7mm	
Weight	47.5g	
Interface	SATA 6Gb/s	
Sequential R/W performance (max)	Up to 520 / 450MB/s	
Shock resistance	1500G / 0.5ms	
MTBF	2,000,000 hours	
6x GPU SPECIFICATIONS (RX 580)		6 Units
Compute Units	36	
Base Frequency	Up to 1257 MHz	
Boost Frequency	Up to 1340 MHz	
Peak Pixel Fill-Rate	Up to 42.88 GP/s	
Peak Texture Fill-Rate	Up to 192.96 GT/s	
Max Performance	Up to 6.2 TFLOPs	
ROPs	32	
Stream Processors	2304	
Texture Units	144	
Transistor Count	5.7 B	
Memory Speed (Effective)	8 Gbps	
Max Memory Size	8 GB	
Memory Type (GPU)	GDDR5	
Memory Interface	256-bit	
Max. Memory Bandwidth	256 GB/s	
Features	Crossfire Technology	
	Vulkan API	
2x PSU SPECIFICATIONS		2 Units
Wattage	1200 Watts	
Form Factor	ATX 12 V	
Features	Full Modular	
	80 PLUS Platinum Certified	
	Multi-GPU setup	
Warranty	One year on parts and labor	
Implementation	Since GPU will be attached to the Full Tower Case, it needs to be machine customized to attached the 6x Riser card in the middle of the case by using flat metal and screws/rivet.	

LAN AND WIRELESS UPGRADE			
ITEM	**QTY**	**UNIT COST**	**TOTAL**
WIRELESS LAN UPGRADE			
- Access Point 802.11n/ac 2x2:2/3x3:3 MUMIMO Dual Radio Integrated Antenna AP Including Services	20	₱1,700,000	₱1,700,000
- Flat Surface Wall/Ceiling AP Basic Flat Surface Mount Kit	20		
- LIC-AP Controller per AP Capacity License Including Services	20		
- LIC-PEF Controller Policy Enforcement Firewall Per AP License Including Services	41		
- Modular Core Switch with 6 Module Slot with 2x 700W PoE+ PSU and rackmount kit	1		
- 8 Port 1G/10GbE SFP+ v3 Mod	1		
- 24 Port 1000BASE-T PoE+ v3 Mod	1		
- 24 Port 1000BASE-T v3 Mod	1		
- 24 Port 1000BASE-T PoE+ v3 zl2 Mod	1		
LAN EQUIPMENT UPGRADE			
ADDITIONAL MODULE FOR EXISTING OSG CORE SWITCH			
- 8 Port 1G/10GbE SFP+ v3 zl2 Mod	1	₱160,000.00	₱160,000.00
- 8 Port 1/2.5/5/XGT PoE+ v3 zl2 Mod	1	₱160,000.00	₱160,000.00
- HPE X132 10G SFP+ LC SR Transceiver	4	₱45,000.00	₱180,000.00
- 24 Port 4SFP+ Layer 3 Switch	1	₱92,000.00	₱92,000.00
- Managed Network Switch POE L2 (24-port)	6	₱20,000.00	₱120,000.00
- LAN and Wireless Implementation and Services including installation and knowledge transfer	1		
		GRAND TOTAL	**₱2,412,000.00**

WIRELESS ACCESS POINT COMPATIBLE WITH EXISTING ACCESS POINT AND CONTROLLER (ARUBA)	**20 Units**
Specifications	Must be Wave 2 access points that deliver high performance and superb user experience for medium density environments	
	Must have 3x3:3SS MU-MIMO capability	
	Must provide simultaneous data transmission to multiple devices (up to two)	

	Must have advanced ClientMatch radio management technology	
	Must have RF management features	
	Must be Dual Radio 802.11ac Access Point	
	Must have Built-in Bluetooth Low-Energy (BLE) radio	
	Must have Advanced Cellular Coexistence (ACC) that minimize interference from 3G/4G cellular networks, distributed antenna systems and commercial small cell/ femtocell equipment	
	Must support priority handling and policy enforcement for unified communication apps, including Microsoft Skype for Business with encrypted videoconferencing, voice, chat and desktop sharing	
	Must have Adaptive Radio Management (ARM) technology that automatically assigns channel and power settings	
	The APs must be configured to provide part-time or dedicated air monitoring for spectrum analysis and wireless intrusion protection, VPN tunnels to extend remote locations to corporate resources, and wireless mesh connections where Ethernet drops are not available	
	Must have Intelligent app visibility and control	
	Must provide comprehensive protection against advanced online threats	
	Must have Integrated wireless intrusion protection offers threat protection and mitigation, and eliminates the need for separate RF sensors and security appliances	
	Must have Intelligent Power Monitoring (IPM)	
	Must be 5GHz 802.11ac 3x3 MIMO (1,300 Mbps max rate) and 2.4GHz 802.11n 2x2 MIMO (300 Mbps max rate) radios, with a total of three integrated omni-directional downtilt dual- band antennas.	
	Must Support for up to 256 associated client devices per radio, and up to 16 BSSIDs per radio	
	Must have Dynamic frequency selection (DFS) that optimizes the use of available RF spectrum	
	Supported radio technologies:	
	- 802.11b: Direct-sequence spread-spectrum (DSSS) - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)'	
	• Supported data rates (Mbps): '- 802.11b: 1, 2, 5.5, 11 - 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 - 802.11n (2.4GHz): 6.5 to 300 (MCS0 to MCS15) - 802.11n (5GHz): 6.5 to 450 (MCS0 to MCS23) - 802.11ac: 6.5 to 1,300 (MCS0 to MCS9, NSS = 1 to 3 for VHT20/40/80'	
	The Transmit power must be configurable in increments of 0.5 dBm	

	802.11n high-throughput (HT) support: HT 20/40	
	802.11ac very high throughput (VHT) support: VHT 20/40/80	
	802.11n/ac packet aggregation: A-MPDU, A-MSDU	
Interface	• 10/100/1000BASE-T Ethernet network interface (RJ-45)	
	Auto-sensing link speed and MDI/MDX	
	- 802.3az Energy Efficient Ethernet (EEE)	
	- PoE-PD: 48 Vdc (nominal) 802.3af PoE	
	• DC power interface, accepts 1.7/4.0-mm center-positive circular plug with 9.5-mm length	
	• Visual indicators (LEDs):	
	Power/system status	
	Ethernet link status (ENET)	
	- Radio status (two; RAD0, RAD1)	
	• Reset button: factory reset (during device power up)	
	• Serial console interface (RJ-45)	
	• Kensington security slot	
	Must include the following:	
Licenses	**Must have AP Licenses**	**20 Units**
	The LIC-AP Controller must be per AP Capacity License	
Support	The licenses must include 1 year foundation care 24x7 Support	
Mounting Kit	**Must be Flat Surface Wall/Ceiling White AP Basic Flat Surface Mount Kit**	**20 Units**
Warranty	Must be lifetime warranty on parts	
	Must include 1 Year Foundation Care Next Business Day Exchange	
Certification	Must belong to the Leaders Magic Quadrant for the Wired and Wireless LAN Access Infrastructure (please attach certificate)	
LIC-PEF CONTROLLER POLICY ENFORCEMENT FIREWALL PER AP LICENSE E-LTU		**41 Units**
	* The PEF Controller must be compatible to the existing AP	
The IDENTITY-BASED POLICY CONTROLS must have the following:		
	* PEF with AppRF technology provides user-level awareness of all traffic across the network. This Mobility Controllers support multiple user categories on a single network, spanning wired, wireless and VPNs.	
	*During the network sign-on process, the identity and role of each user or device is learned. Employees and other authorized internal users can be treated as a single class or further subdivided according to information found in a directory server.	
The INTELLIGENT APPLICATION IDENTIFICATION must be:		
	*Mobile applications: The AppRF technology distinguishes corporate applications like Box from personal applications like Apple FaceTime, even when they are running on the same mobile device.	

	*Network services like Apple AirPrint and AirPlay: IT optimizes IP multicast video traffic and automatically prioritizes services, and adds policy controls.	
	*Web-based applications: Many web-based applications use the same port to communicate with clients and appear as HTTP traffic. The AppRF technology resolves the destination address to identify unique applications like Facebook, Twitter, Box, WebEx and hundreds of others.	
	*Encrypted applications: For encrypted traffic, The AppRF technology uses heuristics to look for traffic patterns and establishes a unique fingerprint to identify those applications.	
COMPREHENSIVE VOICE MANAGEMENT AND CONTROL		
	*Phone number association – SIP-enabled devices can be tracked and displayed by their phone number	
	*Call quality tracking – Automatically calculate, display and track the R-value for each SIP call being processed through a Mobility Controller.	
	*SIP authentication tracking – Track the registration of SIP devices to an IP PBX to determine if they are authenticated	
	*Call detail records (CDRs) – Display calls made to and from Wi-Fi clients, including originator, terminator, termination reason, rejected and failed calls, duration, and call quality.	
	* Real-time call admission control (CAC) information – Quickly determine call density, CAC state and active calls for load balancing.	
Support	* Must include 1Y Foundation Care 24x7 support	
Certification	* Must belong to the Leaders Magic Quadrant for the Wired and Wireless LAN Access Infrastructure (please attach certificate)	
MODULAR CORE SWITCH		**1 Unit**
Switch Type	Must be Modular Chassis	
Routing / Switching	Must be Layer 3 Advanced	
Management	Must be Fully Managed	
Included Accessories		
	* Must include zl2 Management Module	
	* zl2 Switch Fan Tray	
Features		
	* Must be Powerful Layer 3 modular switch series with VSF stacking, Tunnel Node, low latency and resiliency	
	* Must be Smart Rate for high-speed multi-gigabit bandwidth (IEEE 802.3bz) and PoE+ power	
	* Must be Scalable line rate 40GbE for wireless traffic aggregation	

	* Must be Ready for the software defined network with REST APIs and OpenFlow support	
	* Must have Security and network management tools with ClearPass Policy Manager, AirWave and cloud-based Central	
Physical Properties		
Dimensions	17.5(w) x 17.75(d) x 6.9(h) in. (44.45 x 45.09 x 17.53 cm) (4U height)	
Weight	24.5 lb (11.11 kg)	
Port Types		
LAN Ports	up to 144 with optional modules	
Dual Personality Ports	N/A	
SFP Ports	up to 144 with optional modules	
SFP+ Ports	up to 48 with optional modules	
SFP28 Ports	N/A	
XFP Ports	N/A	
X2 Ports	N/A	
CX4 Ports	N/A	
10GBASE-T Ports	up to 48 with optional modules	
QSFP+ Ports	up to 12 with optional modules	
QSFP28 Ports	N/A	
Module Slots	6 open module slots	
Console Port	1 RJ-45 serial console port	
Power Supplies		
Power supply slots	**2x power supply slots**	
Power supply requirements	**Must have 2 x 700W PoE+ zl2 PSU**	
Memory and Processor		
Memory and Processor	N/A	
Gigabit Module	v3 Gigabit Module: Dual ARM Cortex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal v2 Gigabit Module: ARM 11 @ 450 MHz; Packet buffer size: 18 MB internal	
10Gb Module	v3 10G Module: Dual ARM Cortex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal v2 10G Module: ARM11 @ 550 MHz; packet buffer size: 18 MB internal	
Management Module	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	
Fabric Module	N/A	
I/O Module	v3 40G Module: Dual ARM Cortex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal	
Mounting		
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
Performance		

100 Mb Latency	[no data]	
1000 Mb Latency	< 2.8 µs (FIFO 64-byte packets)	
10 Gbps Latency	< 1.8 µs (FIFO 64-byte packets)	
40 Gbps Latency	< 1.5 µs (FIFO 64-byte packets)	
Throughput	up to 571.4 Mpps	
Switching Capacity	960 Gbps	
Switch Fabric Speed	1015 Gbps	
Routing Table Size	10000 entries (IPv4), 5000 entries (IPv6)	
MAC Address Table Size	64000 entries	
Electrical Characteristics		
Description	N/A	
Voltage	100-127 / 200-240 VAC	
Current	[no data]	
Frequency	50/60 Hz	
Maximum Power Consumption	[no data]	
Maximum Heat Dissipation	2450 BTU/hr (2584 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE) Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.	
PoE power	* Each 700W power supply provides 630 W chassis power and up to 275 W of PoE/PoE+ power. * Each 1100W power supply provides up to 630 W chassis power and up to 900 W of PoE/PoE+ power. * Each 2750W power supply provides up to 630 W system power and up to 2500 W of PoE/PoE+ power with both line cords.	
Management		
Management	IMC - Intelligent Management Center, command-line interface, Web browser, configuration menu, out-of-band management (RJ-45 Ethernet), out-of-band management (serial RS-232), SNMP Manager	
Other Accessories		
	* Must include 4U/7U Univ 4-post Rackmount Kit	**1 Unit**
	* Must include 1 x 8p 1G/10GbE SFP+ v3 zl2 Module	**1 Unit**
	* Must include 1 x 24p 1000BASE-T PoE+ v3 zl2 Module	**1 Unit**
	* Must include 1 x 24p 1000BASE-T v3 zl2 Module	**1 Unit**
	* Must include 4 x 10G SFP+ LC SR Transceiver	**4 Units**
Warranty and Support	* Must be limited lifetime warranty on parts	
	* Must include 1 Year Foundation Care Next Business Day on site support	
Certification	* Must belong to the Leaders Magic Quadrant for the Wired and Wireless LAN Access Infrastructure (please attach certificate)	

24 PORT LAYER 3 WITH 4SFP+ SWITCH		1 Unit
Switch Type	Must be Fixed Port	
Routing / Switching	Must be Layer 3 Dynamic	
Management	Must be Fully Managed	
Features		
	* Must be Layer 3 switch series with VSF stacking, static, Rip and Access OSPF Routing, Tunnel Node, ACLs, and robust QoS	
	* Must be Consistent wired/wireless experience with AirWave and ClearPass Policy Manager	
	* Must be Ready for the software defined network with REST APIs and OpenFlow support	
	* Must be Simple deployment with Zero Touch Provisioning and cloud-based Aruba Central support	
	* Must Supports multiple programmatic interfaces, including REST APIs and Openflow 1.0 and 1.3, to enable automation of network operations, monitoring, and troubleshooting	
Management		
	* SNMPv1, v2, and v3 provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption	
	* Central cloud-based management platform offers a simple, secure and cost-effective way to manage switches	
	* Zero Touch Provisioning (ZTP) simplifies installation of the switch infrastructure using the Aruba Activate-based or a DHCP-based process with AirWave Network Management	
	* Supports multiple programmatic interfaces, including REST APIs and Openflow 1.0 and 1.3, to enable automation of network operations, monitoring, and troubleshooting	
Layer 2 switching		
	• VLAN support and tagging support IEEE 802.1Q (4,094 VLAN IDs) and 2K VLANs simultaneously	
	• Jumbo packet support improves the performance of large data transfers; supports frame size of up to 9,220 bytes	
	• IEEE 802.1v protocol VLANs isolate select non-IPv4 protocols automatically into their own VLANs	
	• Rapid Per-VLAN Spanning Tree (RPVST+) allows each VLAN to build a separate spanning tree to improve link bandwidth usage; is compatible with PVST+	
	• GVRP and MVRP allows automatic learning and dynamic assignment of VLANs	
	• VxLAN encapsulation (tunneling) protocol for overlay network that enables a more scalable virtual network deployment	
Layer 3 services		

	• DHCP server centralizes and reduces the cost of IPv4 address management	
Layer 3 routing		
	• Static IP routing provides manually configured routing; includes ECMP capability	
	• 256 static and 10,000 RIP routes facilitate segregation of user data, without adding external hardware	
	• Routing Information Protocol (RIP) provides RIPv1, RIPv2, and RIPng routing	
	• Access OSPF - Provide OSPFv2 and OSPFv3 protocols for routing between access and the next layer on the LAN. Only one OSPF area and up to 8 interfaces are supported	
	• Policy-based routing uses a classifier to select traffic that can be forwarded based on policy set by the network administrator (limited to 16 next hop routes)	
Physical Properties		
Dimensions	17.42(w) x 7.88(d) x 1.73(h) in (44.25 x 20.02 x 4.39 cm) (1U height)	
Weight	5.31 lb (2.41 kg)	
I/O Ports and Slots		
	* 24 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T:full only	
	* 4 SFP+ 1/10GbE ports; PHY-less	
Additional Ports and Slots		
	* 1 dual-personality (RJ-45 or USB micro-B) serial console port	
Port Types		
LAN Ports	24 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T:full only	
SFP+ Ports	4 SFP+ 1/10GbE ports; PHY-less	
Console Port	1 dual-personality (RJ-45 or USB micro-B) serial console port	
Memory and Processor		
Memory and Processor	Dual Core ARM Coretex A9 @ 1016 MHz, 1 GB DDR3 SDRAM; Packet buffer size: 12.38 MB, 4.5MB Ingress/7.785 Egress, 4 GB eMMC	
Mounting		
Mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet (rack-mounting kit available); horizontal surface mounting; wall mounting.	
Performance		

	IPv6 Ready Certified	
1000 Mb Latency	< 3.8 µs (64-byte packets)	
10 Gbps Latency	< 1.6 µs (64-byte packets)	
Throughput	up to 95.2 Mpps	
Switching Capacity	128 Gbps	
Routing Table Size	10,000 entries (IPv4), 5,000 entries (IPv6)	
MAC Address Table Size	32,768 entries	
Electrical Characteristics		
Voltage	100 - 127 / 200 - 240 VAC, rated	
Current	0.6/0.4 A	
Frequency	50/60 Hz	
Maximum Power Consumption	29.3 W (idle power: 19.5 W)	
Maximum Heat Dissipation	100 BTU/hr (105.5 kJ/hr)	
Warranty and Support		
	Must be limited lifetime on parts	
	Must include 1 Year Foundation Care Next Business Day on site support	
Certification	Must belong to the Leaders Magic Quadrant for the Wired and Wireless LAN Access Infrastructure (please attach certificate)	
MANAGED NETWORK SWITCH POE L2 (24-PORT)		**6 Units**
Technology	Must be basic smart-managed, fixed-configuration Gigabit Ethernet Layer 2 switches	
	Must provide non-blocking Gigabit per port performance	
	Must include SFP ports for fiber connectivity	
	Must be Power over Ethernet Switch	
	Must be customizable operation using intuitive Web interface	
	Must supports HTTP and HTTP Secure (HTTPS)	
	Flexible deployment options including wall, under table and desktop mounting	
	Must be latest energy-saving capabilities, including Energy Efficient Ethernet (EEE) and idle-port power down.	
	Must have Port Mirroring and Dual Flash Images	
	Must have Default DHCP client mode	
	Must be 1U Height	
Connectivity	Auto-MDI/MDIX	
	IEEE 802.3X flow control	
	Loop protection	
	IEEE 802.3at Power over Ethernet (PoE+)	
	PoE+ port availability	
	Auto PoE power configuration	
	PoE shut down mode	
I/O ports and slots	12 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASET/100BASE-TX: half or full; 1000BASE-T: full only	
	12 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type	

	1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	2 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)	
Memory and processor	ARM Cortex-A9 @ 400 MHz, 128 MB SDRAM; Packet buffer size: 1.5 MB, 16 MB flash	
Performance	100 Mb Latency: < 7 µs (LIFO 64-byte packets)	
	1000 Mb Latency: < 2 µs (LIFO 64-byte packets)	
	Throughput up to 38.6 Mpps (64-byte packets)	
	Switching capacity: 52 Gbps	
	MAC address table size 8000 entries	
Security	Encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch	
	Monitors nine types of malicious attacks and protects the network by blocking these attacks	
	Provides security so that only authorized access to the Web browser interface is allowed	
Performance	Half-/full-duplex auto-negotiating capability on every port	
	IGMP snooping	
Resiliency and high availability	IEEE 802.1D STP and IEEE 802.1W RSTP that Provides redundant links while preventing network loops	
	Link aggregation (trunking)	
Warranty	Limited Lifetime Warranty	
	The bidder must be and authorized reseller of the brand being offered	
SERVICES		
INSTALL, START-UP and CONFIGURATION OF CORE SWITCHES		
	Scope of Works	
A. Physical Checking Installation	i. Pre-staging	
	ii. Hardware Testing	
	iii. Rack mounting	
	iv. Inserting/connecting power supplies	
	v. Power-up	
B. Management	i. Creation of management VLAN	
	ii. Assigning of management IP address per switch or per stacked of switches	
C. VLAN Configuration	i. Configuration of VLANS	
	ii. Configuration of Tagged port (VLAN up links)	
	iii. Configuration of inter-VLAN routing	
D. Testing	i. Perform Inter VLAN connection	
	CONFIGURATION OF CONTROLLER LICENSES	
	A. System name	
	B. Country Code	
	C. Admin Password	
	D. Date and Time	

	E. Connectivity Settings	
	F. Authentication Settings	
	G. Management VLAN configuration	
	H. Configuring Default Gateway	
	I. License installation and activation	
	INSTALLATION AND CONFIGURATION OF ACCESS POINTS	
A. Access Point Controller Discovery	i. Layer 2 Network Discovery	
	ii. DHCP Server Configuration	
	DOCUMENTATION	
	A. Electronic documentation as built	
Knowledge Transfer	Include 1 Day Knowledge Transfers based on Implementation	
CORE SWITCH ADDITIONAL MODULE		
INSTALL, START-UP and CONFIGURATION OF CORE SWITCH ADDITIONAL MODULE AND 24 PORTS LAYER 3 SWITCH		
A. Physical Checking Installation	i. Pre-staging	
	ii. Hardware Testing	
	iii. Rack mounting	
	iv. Inserting/connecting power supplies	
	v. Power-up	
B. Management	i. Creation of management VLAN	
	ii. Assigning of management IP address per switch or per stacked of switches	
C. VLAN Configuration	i. Configuration of VLANS	
	ii. Configuration of Tagged port (VLAN up links)	
	iii. Configuration of inter-VLAN routing	
D. Testing	i. Perform Inter VLAN connection	
	DOCUMENTATION	
	A. Electronic documentation as built	
Knowledge Transfer	Include 1 Day Knowledge Transfers based on Implementation	

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