

REGISTERED/IMMEDIATE

Heavy Industries Taxila
Marketing and Procurement
Directorate (CP Branch)
Taxila Cantt, Pakistan
Fax / Tel : 051-9315029
No.4997/IT-3033/CP-II/ARDIC/Proc
Dated 14 Mar 2019

To: M/s _____

Subject: **Tender Inquiry - FOR**

1. Supply, installation, configuration, commissioning and support services of software, Hardware, LAN & Server Room Equipment at HIT.

Turnkey Package-1		
S.No	Nomenclature / Description	Qty
a.	Next-Generation Firewall (Hardware, Software installation, configuration & commissioning) (Annexure "A")	01
b.	Core Switch (Layer 3) (Hardware, Software installation, configuration & commissioning) (Annexure "B")	01
c.	Access Switch (48 Ports) (Hardware, Software installation, configuration & commissioning (Annexure "C"))	06
d.	Access Switch (24 Ports) (Hardware, Software installation, configuration & commissioning (Annexure "D"))	09
e.	Access Switch (12 Ports) (Hardware, Software installation, configuration & commissioning) (Annexure "E")	05
f.	Network Management System Software(installation, configuration & commissioning) (Annexure "F")	01
g.	1000 Base LX-SFP Transceiver Module (Annexure "G")	45
h.	42 U Rack (imported) with 4 fans and PDU	01
i.	18 U Switch Cabinet (imported) with fan and PDU	01
j.	12 U Switch Cabinet (imported) with fan and PDU	05
k.	9 U Switch Cabinet (imported) with fan and PDU	10
l.	Passive Network Component (Annexure "H")	237 Nodes
m.	Existing Network Nodes Trouble shooting/ Termination/Fluke Testing/Labeling	70 Nodes
n.	Fiber supply & Laying between ARDIC and ASRF building (Annexure "I")	265 meter
o.	Fiber Laying in APC(F) Admin Block/ APC(F) Tech Shop (Annexure "J")	500 meter
Turnkey Package-2		
a.	Branded Server Machine (Annexure "K")	01
b.	Access Control and Fire alarm system (including installation, configuration and commissioning) (Annexure "L")	01
c.	VMWare vSphere ESXi™ 6.7 (Latest ver) Standard Hypervisor Server consolidation and no planned downtime (Supply, Installation, configuration, training and commissioning) (Annexure "M")	02

d.	Microsoft® Windows® Server 2016 Standard, x64 Sngl OLP 1License No Level 2Proc with 10 CAL (type: open) or Licensed Equivalent OS (Supply, Installation, configuration, training and commissioning) (Annexure "M")	01
e.	Anti Virus Kaspersky Endpoint Security Business Select or Equivalent with 3 year subscription, installation, configuration, training and deployment - latest version (Annexure "N")	250 users
Turnkey Package-3		
a.	Anti Malware / Breach Detection and prevention system (3 years support and subscription) (Supply, Installation, configuration, training and commissioning (Annexure "O")	250 users

Turnkey Package-4

2. Trainings With OEM Certification

<u>S.No</u>	<u>Item</u>	<u>Remarks</u>
a.	Next-Gen Firewall	
b.	Routing and Switching	
c.	Network Management Center	
d.	VMWare vSphere EsXi 6.7 (Latest ver)	

- i. Training cost must be quoted separately with following **options**:-
 - a. Physical OEM certified Instructor lead classroom trainings with **OEM certification** inclusive of labs, books, testing center vouchers.
 - b. Foreign trainings can also be mentioned with requirement justification in quotation where local training with OEM certification is not available.
 - c. Online virtual training with OEM certification
 - d. Online Instructor based training with OEM certification
- ii. Participation in Trainings i.e "**Turnkey Package-4**" is mandatory for bidders of "**Turnkey Package-1 and Turnkey Package-2**". (Lowest bidder of **Turnkey Package 1 and Turnkey Package-2 will be preferred for Training Package**).
- iii. HIT may opt the best suited option as per the available budget and nature of detailed trainings required.

3. INSTRUCTIONS TO THE BIDDERS (Please Read Carefully)

- a. Rates will be quoted on FOR Taxila Cantt basis. Offer best competitive price while submitting your quotation.
- b. Firms are instructed NOT to send Telex and Fax quotations. Such quotation/offers will NOT be accepted.
- c. All papers must be signed and stamped and items not quoted / quoted must be mentioned clearly.

- d. **All clauses/terms mentioned in this inquiry will be considered accepted by the bidding firms, even if no reference to them is given in the respective offers.**
- e. HIT reserves its right to cancel the bidding process with reason but without any obligation to justify such a reason.
- f. This inquiry may not be taken as an indication of subsequent supply order and does not in any way commit HIT to purchase the items offered.
- g. Over writing and cutting of any nature in the quotation will not be accepted.
- h. On demand, the bidder will invariably provide advance sample of the item offered by them within the limit specified by the purchaser. In case advance samples are not provided by due date, their offer will be set-aside/ignored.
- i. **Proof of Concept for active components and software may be called wherever found necessary.**
- j. The net offered price will be **inclusive of 17 % GST** as imposed by Government of Pakistan. **The offers without mentioning of 17% GST will not be considered. The GST will always be mentioned separately to the base price.**
- k. **Integrity pact** will invariably be involved/invoked when the total value of the contract exceeds 10 Million as specified in PPRA Rule 2002-2004. Specimen is placed at **Annexure 'P'**.
- l. In case of failure to supply the stores within the stipulated periods, liquidated damages at the rate of 2% but not less than 1% of amount involved per month and maximum value not more than 10% of contracted store value or a part there-of will be levied.
- m. Bidder is bound to accept all the contract/supply orders issued on the offered rates for supply of required quantities of product within prescribed period after receipt of the contract/supply order. A formal agreement will be signed by the qualified bidder with HIT in this regard.
- n. On job training is mandatory and is required to be provided by the vendor to HIT team for all the equipment being supplied.
- o. A resident engineer from vendor firm (**Turnkey Package-1**) will remain available with HIT for 1 x month for operation, maintenance and training after completion of installation & commissioning work.
- p. Hardware replacement shall be affected within 24 hrs of report and Next Business Day (NBD) support, during the warranty period for the equipment/software solution delivered/provided.
- q. All "Turnkey Package" items will be treated as independent turn key projects for the selected vendor.
- r. Firewall should be with 3 years warranty, support and subscription.
- s. Active components with minimum 1 year warranty and support or as transferred from OEM, whichever is greater.
- t. Server with 3 years warranty and support.

- u. Project implementation plan in Microsoft Project/Primavera (hard & soft copy) would be required and included as part of contract to meet the time lines and monitor progress.
- v. Technical & Commercial Quotations must be provided on CDs in MS EXCEL, MS WORD or MS ACCESS format along with hard-copies. Quotations without CDs will not be entertained. Also ensure following while preparing bids:-
 - (1) Sequence of serial no as given in tender inquiry will not be changed.
 - (2) No serial no will be deleted or shortlisted in the bid/offer.
- w. Hardware and software installation, configuration, commissioning and support services will be solely responsibility of the vendor.
- x. Software bidder will be responsible for the installation, configuration, commissioning and all support services.
- y. Detail Technical specifications of the equipment mentioned above including TORs and Quantity can be obtained **free of cost** from the office of undersigned on any working day during office hours before closing date/time.
- z. General TORs excluding technical specification in Annexure can be downloaded from PPRA www.ppra.gov.pk and Heavy Industries Taxila www.hit.gov.pk websites.
- aa. On site survey is mandatory for the firm parting for **Package-1 and Package-2** items.
- bb. Package will be treated as an independent turn-key project and incase of any discrepancy or less item in any package, bid will be rejected.
- cc. 24 x 7 availability of hotline.
- dd. Product Support Services must be within **24 hours** hardware replacement under warranty period as described in detailed specifications and product life warranty up-to **10 years** for Passive LAN work/components.
- ee. Professional certification instructor based training for two (02) relevant personnel with certificate issued from OEM (IT document Sr. 2).**
- ff. In case of failure or malfunctioning of hardware equipment/component, a free replacement and installation of the device/part will be the responsibility of the vendor and on exchange bases as Free of Cost under warranty.
- gg. Technical Support services should include resolution of complaints related to equipment and configurations.
- hh. All operating system support, compatibility issues and setup/configuration of LAN services are the responsibility of vendor.
- ii. The drivers/applications support CD/media must be provided for hardware equipment for the respective OS.
- jj. EOL and EOS dates from OEM must be mentioned in Technical quote where applicable.
- kk. Hardware devices having end of life must be communicated to HIT, Moreover, nearly end of life hardware devices will not be acceptable.

- ll. Hardware and software versions being offered should be latest, future ready, compatible with windows and Linux environment and must have minimum 3-5 years OEM support.
- mm. Refurbished/gray channel products will not be accepted and products should be verifiable from OEM.
- nn. Bidder is solely responsible to provide the support services for the offered product & period specified, even if the support for the same product would have been discontinued by the OEM.

4. **Documents to be attached by Bidder Firm**

- a. Company profile with list of its recent clients.
- b. Copy of NTN Certificate of the firm.
- c. Copy of Active Sales Tax Registration Certificate of the firm.
- d. Compliance sheet for offered product (For Technical Evaluation).
- e. Official Authorized Partnership Certificate from sole manufacture along with Product Brochures.
- f. **NO DEFAULTER CERTIFICATE as Annexure 'Q' , NO LITIGATION CERTIFICATE as Annexure 'R' and **Undertaking by the bidder as Annexure 'S'.****
- g. Bid authorization letter from OEM in favour of HIT must be attached.
- h. Proof of financial capability and experience certificate. Minimum 2 x projects of same scale or higher value is must.
- i. Proof of after sale Service Centre located in Islamabad / Rawalpindi.
- j. The bidder shall certify through “**Price Reasonability Certificate**” that the offered prices are not more than the prices charged from any agency (Government & Private) in Pakistan and in case of any discrepancy the bidder thereby undertakes to refund the excess amount being over-charged.
 - (1) Bidders must certify that Item quoted is of latest and current production model.
 - (2) Item quoted is bearing the manufacturing batch/serial/code No. for verification.
- k. **Postal order for Rs. 200/-** (Rupees Two Hundred) as a tender fee, in favor of **Assistant Director Procurement, M&P Dte, HIT Taxila Cantt** will invariably be enclosed with the quotation, failing which, the quotation will be ignored.

5. **Opening of Competitive Bids**

- a. A method of Single Stage- Two Envelope will be followed.
- b. Part-I and Part-II quotations will be enclosed in separate sealed envelopes for each tender inquiry. For identification purpose, the words “**TECHNICAL QUOTATION (PART-I) WITHOUT PRICE**” and **COMMERCIAL QUOTATION (PART-II) WITH PRICE**” shall be written in **BLOCK CAPITAL LETTERS** on the

respective sealed envelopes which will be placed in a large envelope bearing complete details of the tender inquiry as under :-

- c. Forward your quotation not later than **1030 hours** on **dated 1 April 2019**.

BID REGISTERED

TENDER INQUIRY NO.4997/IT-3033/CP-II/ ARDIC/Proc/dated 14 Mar 2019

TO BE OPENED ON 1100 Hours on 01 April 2019

**To: ASSISTANT DIRECTOR (PROCUREMENT)
HEAVY INDUSTRIES TAXILA GATE NO.1, HRF (T),**

FROM: M/s _____

- d. **Delivery of Tender.** The tender/bid will be enclosed in a sealed envelope which will be invariably marked with "**Bid against Tender Inquiry No. 4997/IT-3033/CP-II/ ARDIC/Proc/dated 14 Mar 2019** and complete address. The tender if brought by hand, will be handed over to security staff on duty at Heavy Rebuild Factory HRF (T) Gate No.1 for placing the same in the bid box (available at the gate). The bid will not be brought by hand by any firm while visiting the office of Assistant Director (Procurement). Moreover if required endorsements are found missing, the bid will be liable for rejection.
- e. The bid must be dropped in the bid box, latest by **1030 hours on 1 April 2019**, at Heavy Rebuild Factory HRF (T) Gate No.1. The bid will be opened same day at 1100 hours in the presence of the available representative of the firms in Heavy Industries Taxila. No bid will be entertained / considered after **1030 hours**, on the aforementioned date.
- f. All Firms participating in the tender will deposit **5% bid security** of total quoted value in the shape of CDR / bank guarantee addressing to **Director Marketing & Procurement, Heavy Industries Taxila**. The bid security will be provided by the firms in commercial envelope and clear mentioning of the same in the technical quotation will be ensured by the firms, failing which the bid will stand rejected.
- g. The bid securities will be returned as under:-
- i. **Unsuccessful Bidders.** Within 15 days of completion/announcement of the bid evaluation result.
 - ii. **Successful Bidders.** Upon submission of 10% PBG.

6. Performance Bank Guarantee

- a. The successful bidder/firm will be required to furnish **10% performance guarantee** of the total amount of contract in the shape of CDR/Bank Guarantee. It will be released after satisfactory completion of the warranty/ guarantee period.
- b. The Performance Bank Guarantee must be issued by a scheduled bank in Pakistan.
- c. In case, if vendor/contractor fails to complete the given assignment within specified timeframe, the performance bank guarantee/security deposit will be forfeited in favour of HIT.

7. Warranty/ Guarantee

- a. The successful bidder shall provide warranty/guarantee as specified in detailed specifications against each hardware item.
- b. The warranty period will start from the date of Installation and commissioning and Technical inspection clearance whichever is latest.
- c. The qualified bidder must warrant the IT Equipment and ensure availability of Technical support services as informed through electronic & non-electronic means. Each and every complaint should be completely responded and resolved by the competent resource of the firm and visit on-site within 24 hours of its notification.
- d. If any bidder fails to rectify the problem in the provided equipment during warranty period due to any reason, HIT will be authorized to repair or replace the faulty equipment/component thereof and forfeit the Bank Guarantee/retained value.
- e. The Bank Guarantee /security deposit for warranty and guarantee will be released after expiry of the warranty period.

8. Taxes

- a. The offered price quoted must be firm, final and inclusive of all taxes, packing, handling charges etc and delivery at HIT Taxila cantt.
- b. The bidder should provide the Income Tax and Sales Tax Registration Certificates.
- c. The bidder should provide last income tax return from FBR for verification.
- d. The project authorities will deduct the taxes at source as per prevailing rules/regulations of the Government.
- e. In case the supplies or part thereof are exempt from levy of any tax, the bidder shall provide an exemption certificate (SRO) to this effect, otherwise taxes will be deducted.

9. Bidding

- a. Rate quoted for the offered product and training in Pak Rupees.
- b. Installation, commissioning and configuration charges of equipment must be included in the quoted rates.
- c. Tender documents must be filled in, stamped and signed by authorized representative of the firm.
- d. The participated firm must be an official authorized partner from principal for the quoted brand.

10. Bid Evaluation

- a. Bids shall be evaluated in accordance with tender document specifications of equipment, terms & conditions.

- b. Rates offered by the firms.
- c. Supply time, and maintenance of warranty period.
- d. Physical compliance with required specifications and quality conformance for the offered product in demonstration session.
- e. Active part inspection will be carried-out by visiting the site where offered product installed and operational.

11. Supply of Stores

- a. The items mentioned in the list are required to be delivered at HIT within time period mentioned in the tender document.
- b. The store will be packed in standard grade, worthy of transportation by the means adopted.
- c. The stores are required to be delivered to HIT within stipulated date/time. The items/store should **be brand new and in original manufacturers packing.**

12. Payment

All payment for the supplies/stores made to the successful bidder shall be released by CMA HIT upon the receipt of invoice provided that:-

- a. The invoice is complete, accurate and to the entire satisfaction of the procuring agency/client i.e relevant setup of HIT.
- b. Supplies/stores are **delivered/installed** according to the instructions of the HIT.
- c. Firm's Pre- Receipted Bill dully affixed with revenue stamp along with GST Invoice.
- d. Consignee's receipt Certificate and Inspection Report.
- e. To ensure quality conformance, quantity of products delivered and amount of work done successfully, Inspection report for the supplies/stores will also be required along with invoice for release of payment by CMA.
- f. **10% performance guarantee** will be provided immediately after signing of the contract.
- g. Vendor will provide Invoice having validity up to the date of **Warranty period.**
- h. The payment against a contract/supply order shall be made on the completion of the delivery of supplies/stores including installation, commissioning, etc. as mentioned in the contract/supply order.

13. Arbitration

Any disputed situation/condition between the bidder and HIT regarding this bid or any other matter ancillary thereto whatsoever, the same shall be referred to the sole arbitrator i.e. CHAIRMAN HIT. The decision of CHAIRMAN HITB will be firm and final, binding on both the parties and can't be challenged in any court of law.

14. **Penalty on failure and termination**

Should the supplier fail to deliver the stores within the period prescribed, then the expiry of 21 days after such period the purchaser shall be entitled at his option to take either of the following action:-

- a. To cancel the contract and/or purchase else-where store not delivered at risk and expense of the supplier and without notice to him, the supplier shall also be liable for any loss which the purchaser may sustain on this account, but shall not be entitled to any gain on repurchase.
- b. To make the supplier pay agreed liquidated damages for the period of delay up to the rate of 2% but not less than 1% of the value of the late supplied items per month or part for the period exceeding original delivery period subject to the provision that total liquidated damages levied will not exceed 10% of the total contract value.

15. **Eligibility Criteria**

Following confirmations will be endorsed by all bidders in their quotations:-

- a. Only registered suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to supply goods / services to Government departments.
- b. The payment to the registered persons may be linked with the active taxpayer status of the suppliers as per FBR database. If any registered supplier is not in ATL his payment should be stopped till he files his mandatory returns and appears on ATL of FBR.
- c. Firms should not be blacklisted or defaulted anywhere within or outside Pakistan. In this regard firm should provide "No Blacklisting / Defaulting Certificate" (affidavit on judicial stamp paper duly attested by Notary Public to be provided).
- d. **Country of Origin: All countries except India, Israel and Taiwan.**
- e. Inspection of the store will be carried out at ARDIC, HIT Taxila Cantt.
- f. Availability of the advance sample "It is confirmed that advance sample (if asked by HIT) of the items mentioned in the quotation are readily available".
- g. **Store offered as per technical specifications mentioned in the IT.**
- h. In the case of FOR imported items, the firms are responsible to provide **evidence of the agency agreement/certificate** of conformance, principal proforma invoice (in original and without price) and OEM certificates of all the items being quoted against this tender inquiry along with countries of origin.

Separate OEM certificate for each / major assembly/item will be provided by the firms. The firms will clearly indicate that all the parts are brand new from current production. Confirmation to fulfill technical specifications related to imported items on FOR basis must be highlighted in the **Technical Bid**.

- i. Confirmation of the numbers and nomenclatures of required items along with soft copy of same in MS Excel format. The confirmation to fulfill the technical specifications related to each item must be highlighted in the technical bid.
- j. Confirmation of the validity period of the quote, delivery period and warranty period.
- k. Confirmation of the willingness of the firms to arrange the visit of a two member HIT team (ex HIT ARDIC) on firms' expenses for ascertaining / validating the technical competence, quality of work performed and financial capabilities quoted. Any offer not compliant with the terms & conditions of the tender enquiry document is liable to be rejected under provision of PP Rules-2004.
- l. Any offer will not be entertained if:
 - (1) Firm/bidder is black listed/suspended by any Government department.
 - (2) Firm is not official partner for hardware, OS & software from principal.**
 - (3) Offer with shorter duration of price validity than required in the tender enquiry documents.
 - (4) Not compliant with the required specifications, terms & conditions.
 - (5) Bid offering less items as defined in respective Turnkey Package.
 - (6) Bid submission after the time and date fixed for its receipt.
 - (7) Received without earnest money.
 - (8) Tender/offer is un-signed.
 - (9) Offer is ambiguous.
 - (10) Offer is conditional.

16. Evaluation Criteria

- a. **Qualification Criteria**. Participating firms should meet the following criteria with:-
 - (1) 50% score in every individual category/sub category (except para 16 a 4(b) (iii) whereby even zero score will not affect the qualification).
 - (2) 70% aggregate score of all categories.
 - (3) The scoring would be done as under:-

Ser	Description	Maximum Points
(a)	Financial Soundness	30
(b)	Past Experience / Record	25
(c)	Past Performance	10
(d)	Project's Technical Evaluation Criteria	35
Total		100

(4) Further details of criteria for each of the above categories are as follows:-

- (a) **Financial soundness.** Credit marks for financial soundness of the firm shall be on the basis of following qualifications:-

Ser	Description	Max Points	Explanation for Marks Obtained
(i)	Annual turnover of last 3 x Financial Years (Third Party generated verifiable audit reports for last three financial years to be provided).	10	Marks will be calculated as per the formula:- Formula Score = $\frac{(Y1+Y2+Y3)}{3X} \times 10$ *(Y1,Y2,Y3 respective annual turnovers of last three years) X= Last purchased rate / estimated value of each quoted turnkey package available with HIT. Note: All calculation will be done in Pak Rs, other currency (if any) will be converted into Pak Rs with applicable conversion rate.
(ii)	Working Capital of last three years (Third Party generated verifiable audit report to be provided).	10	Marks will be calculated as per the formula:- Formula Score= $\frac{(Y1+Y2+Y3)}{3X} \times 10$ Y1, Y2 and Y3 being respective working capitals of last three years. X= Last purchased rate / estimated value of each quoted turnkey package available with HIT. Note: All calculation will be done in Pak Rs, other currency (if any) will be converted into Pak Rs with applicable conversion rate.
(iii)	Bank Credit Line (verifiable certificate from Bank with clearly mentioning bank credit line to be provided) (Specimen as per Anx 'T').	5	Marks will be calculated as per the formula:- Formula:- Score= $\frac{X1}{3X} \times 05$ X1= Bank Credit Line X= Last purchased rate / estimated value of each quoted turnkey package available with HIT. Note: All calculation will be done in Rs, other currency. (If any) will be converted into Rs with applicable conversion rate.
(iv)	Litigation History where decision	5	5 Marks for firms with no litigation history.

	went against the firm (affidavit on judicial stamp paper as per Annexure 'R' to be provided).		One mark will be deducted for each litigation where decision went against the firm.
Total		30	

(b) **Past Experience/ Previous Record**. Credit marks for experience shall be awarded on the basis of following qualifications:-

Ser	Description	Max Points	Explanation for Marks Obtained
(i)	Projects of similar nature and complexity i.e. Information communication Technologies (ICT) completed in last 05 years. (Attested and verifiable copies of related contracts be attached).	10	0.5 marks will be awarded on the number of contracts per year of having value 2 Million or more. Maximum 2 marks per year will be granted.
(ii)	Projects of ongoing similar nature and complexity in hand i.e. Information communication Technologies (ICT) (Attested and verifiable copies of contracts be attached).	10	Marks will be calculated as per the formula:- Formula Score= $\frac{C}{X} \times 10$ C= Total amount of contracts in hand. X= Last purchased rate / estimated value of each quoted turnkey package available with HIT. Note: All calculations will be done in Pak Rs, other currency (if any) will be converted into Pak Rs with applicable conversion rate.
(iii)	Status of enlistment with Government Organizations (Attested copies of Registration certificates to be enclosed). OR At least two Govt sector similar nature Customers	5	Full marks will be given on provision of at least 1x certificate. Or 02x satisfied government sector similar nature customers with documentary evidence.

	along with their Satisfaction Report (documentary proofs must be attached)		
Total		25	

(c) **Past Performance.** Credit Marks for past performance shall be awarded on the basis of following criteria:-

Ser	Description	Max Points	Maximum Points
(a) Past performance to be evaluated on under mentioned parameters:-			
	i. Contracted store supplied beyond DP in last ten years (data will be attached duly verified from the concerned procurement agency).	2.5	Marks of bidders will be calculated as per given formula:- $X1 = \text{Total value of last ten years' contracts.}$ $X2 = \text{Total value of last ten years' contracts completed within DP.}$ Formula: $\text{Score} = \frac{X2 \times 2.5}{X1}$
	ii. Quantum of rejections of items in the last ten years contracts (data will be attached duly verified from the concerned procurement agency).	2.5	$X1 = \text{Total value of last ten years contracts.}$ $X2 = \text{Total value of the passed items in first go in the last ten years' contracts.}$ Formula: $\text{Score} = \frac{X2 \times 2.5}{X1}$
	iii. Timely provision of docus/ bank guaranties / bid security money (data will be attached duly verified from the concerned procurement agency).	2.5	$X1 = \text{Total no of contracts concluded in last ten years' .}$ $X2 = \text{Total number of timely provided bank guarantees/ bid securities against the total no of contracts in last ten years.}$ Formula: $\text{Score} = \frac{X2 \times 2.5}{X1}$

	iv. No of contracts / items still pending beyond DP (data will be attached duly verified from the concerned procurement agency).	2.5	0.25 marks would be deducted for each contract in hand, which is pending beyond DP.
Total		10	

(d) **Project's Technical Evaluation Criteria.** Technical compliance to the specifications mentioned in tender document is mandatory. Acquiring less than 95% score against technical evaluation criteria despite have over all scores above the given thresholds vide paras 16 a 4(a),(b),(c) will be considered disqualified. Credit Marks on technical specification parameters will be granted as per following:-

Ser	Description	Max Points	
(i)	Technical Compliance Sheet as per Annexure 'A' to Annexure 'O' for respective Turnkey Package items.	35	
	<u>Turnkey Package-1</u> Annex 'A' 30% Annex 'B','C','D'&'E' 30% Annex 'F','G' 20% Annex 'H','I','J' 20%		X1 = Total no of parameters mentioned in respective Anx X2 = Total parameters compliance by bidder. Formula: Score= $\frac{X2}{X1} \times \text{age}$
	<u>Turnkey Package-2</u> Annex 'K' 30% , 'L' 10%, 'M' 30%, 'N' 30%		X1 = Total no of parameters mentioned in respective Anx from 'K' to 'N'. X2 = Total parameters compliance by bidder. Formula: Score= $\frac{X2}{X1} \times \text{age}$
	<u>Turnkey Package-3</u> Annex 'O' 100%		Anx 'O' parameters with Formula same as above

	<p>Turnkey Package-4 Serial 2 of tender document 100%</p> <p>Note: Technical evaluation marking will be performed only for the bidder meeting mandatory requirements including compliance sheet.</p>		<p>Lowest bidder of Turnkey Package 1 and Turnkey Package-2 will be preferred for Training Package</p>
Total		35	

17. Only affidavits and authorised third parties' (having no conflict of interest with either HIT or the bidder) generated / verified documents will be treated as credible evidences for scoring.

18. A pre bid meeting will be held a week prior to opening of IT on 25 Mar 2019 at 1000 hours in Marketing & Procurement Directorate (Tender opening room). All desirous firms are requested to attend the subject meeting before submission of bid and clarification require if any by the firm be obtained by the firms in the said meeting.

19. Contracts will be awarded to **best evaluated bidder** with highest overall score based on **weightage which will be worked out as under:-**

- | | | | |
|----|--------------------------|---|------------|
| a. | Qualification Criteria | - | 70% |
| b. | Commercial offer / Price | - | 30% |

Note: Technical/Commercial quotation must conform to IT parameters specified in this tender. The offer will be rejected there in if the said parameters are not complied with.

Lieutenant Colonel
Assistant Director Procurement
(Riaz Fida)

TECHNICAL SPECIFICATIONS**1. Next-Generation Firewall****a. Firewall General Features**

- (1) 1Gbps or more Application Control firewall throughput (including User-ID & File Filtering)
- (2) 700 Mbps or more of threat prevention throughput with IPS, Antivirus, Antispyware, & Application Filtering enabled
- (3) 400 Mbps or more IPSec VPN throughput (App-ID and User-ID features enabled)
- (4) 125,000 max sessions
- (5) 8,000 or more new sessions per second
- (6) 1,000 or more IPSec VPN tunnels/tunnel interfaces
- (7) 12000 or more max concurrent decryption sessions
- (8) 2 x 10/100/1000 out of band management interface
- (9) 240GB SSD storage capacity for local storage of logs and reports (no external storage / reporting tool).
- (10) Interfaces: 4 x 10/100/1000, 8 x 1 Gigabit SFP, 6 x Maximum aggregate interfaces
- (11) Built-in Reporting for Applications, User activities, and Threats (IPS, AV, AntiSpyware) (no external reporting solution)
- (12) To have the ability generate a report per user, application, network protocol etc. with different combinations
- (13) No information should be send to 3rd party cloud for malware analysis.
- (14) Platform should be optimized for layer 7 application level content processing
- (15) IPS, scanning, single stream scanning with 5M+ signature applied at the same time
- (16) Ability to stop credential theft through tracking the Credential Submission on certain websites/categories
- (17) Ability to do Clientless VPN
- (18) QoS based on Application (L7)
- (19) Being able to do path and link monitoring and failover accordingly
- (20) SSL Decryption
- (21) SSH Decryption
- (22) SSL Decryption Port mirroring
- (23) Per policy SSL decryption
- (24) Per policy SSH decryption
- (25) Block files by type: bat, cab, dll, exe, pif, and reg

- (26) Data filtering: Custom Data Patterns
- (27) Custom application signatures
- (28) Should identify at least 2100+ popular applications
- (29) Ability to create custom user-defined signatures
- (30) Syslog receiver (Firewall should accept Syslog messages to identify user IDs and their associated IP addresses)
- (31) Should read Exchange and Active directory logs to identify User IDs and their associated IP addresses
- (32) Supports the creation of security policy based on Active Directory Users and Groups in addition to source/destination IP
- (33) Users from Citrix and terminal services environments should be supported in policy and logs
- (34) Built-in DNS Security for DNS Tunneling and Domain Generation Algorithm (DGA) attacks
- (35) Populate all logs with user identity (traffic, IPS, URL, data, etc.)
- (36) Built-in Firewall Portal for user authentication and identification
- (37) Analysis of files transferred within SSL Encrypted traffic (irrelevant to the TCP port number)
- (38) 5-10 minutes Automatic Signature generation after malware analysis' to clarify that this is the case for unknown malwares
- (39) Generate Anti-Malware signatures
- (40) Generate DNS (malware domain) signatures
- (41) Generate Malicious Command & Control Signatures
- (42) Windows platform (10,8,7,XP), Linux, Ubuntu LTS latest ver and Android Sandboxing OS (32 bit and 64 bit)
- (43) Data Leakage Prevention (scan for keywords)
- (44) Block DoS/DDoS attacks
- (45) Customizable allow and block lists, block pages
- (46) & coaching pages
- (47) Custom categories
- (48) Database located locally on the device
- (49) Supports block and continue (i.e. allowing a user to access a web-site which potentially violates policy by presenting them a block page with a warning & continue option allowing them to proceed for a certain time)
- (50) The Proposed Solution should be an integrated platform with NGFW, Sandboxing/APT and Advance Endpoint Protection for 250 users. Working with a feedback loop between the three in order to have automated response to security incidents.
- (51) End point protection must block security breaches and successful ransomware attacks that leverage malware and exploits for known or unknown.

- (52) End point protection must support Windows®, macOS® or Linux endpoints, such as laptops, desktops, servers, virtual machines or cloud workloads.
- (53) End point protection must block vulnerability-profiling techniques before launching exploitation attacks, prevents known and zero-day exploits.
- (54) Three years' subscription for the following must be quoted in two options i-e full bundle and itemized cost for each subscription/license so that HIT may procure the subscription/license as per the available budget.**
 - (a) IPS
 - (b) Antivirus/Anti-malware
 - (c) Anti-Spyware
 - (d) Anti-botnet
 - (e) File-blocking
 - (f) File-filtering (DLP)
 - (g) DNS-security
 - (h) Sandboxing
 - (i) App-ID
 - (j) User-ID
 - (k) URL filtering
 - (l) Threat Prevention
 - (m) End Point Protection (250 users)

1. Core Switch (Layer 3)

a. General Requirements

- i. The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan, and valid manufacturer authorization letter in favor of Heavy Industries Taxila.
- ii. All equipment must be covered with official guarantee of the manufacturer on the territory of Pakistan for a period of not less than one year.
- iii. The switch must be equipped with 10/100/1000BaseT ports, not less than 8
- iv. The switch must be equipped with SFP ports, not less than 24
- v. The switch must support up to 6 10Gbit ports
- vi. The switch should preferably support up to 2 40Gbit QSFP ports
- vii. The switch must have 1 expansion slot for additional modules
- viii. The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- ix. The switch must support two or more redundant power supplies
- x. The switch must support the simultaneous use of two different power sources: AC and DC
- xi. The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.
- xii. To ensure interoperability between network protocols on the switches should be a single version of the operating system.
- xiii. The switch must be able to mount in 19" Rack. Required rack mount kit must be included.

b. Performance

- i. The switch bandwidth must be not less than 296 Gbps
- ii. The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- iii. The maximum number of stored MAC addresses in the switching table the switch shall be not less than 98000
- iv. The routing table of the switch must store up to 12000 of IPv4 routes
- v. The switch must support the up to 4096 Multicast groups

c. Stacking

- i. The switch must support stacking with other families switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports
- ii. The switch must support stacking with other families switches from the same manufacturer and stack bandwidth must be not less than 160Gbps in ring topology through 40 Gigabit Ethernet ports.
- iii. The failure of any switch in the stack should not cause stack outage more than 50ms.
- iv. The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.
- v. The failover configuration must be supported for two separate switches and two separate stacks of switches.

d. Ethernet L2

- i. The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- ii. The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- iii. The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- iv. The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching
- v. The switch must support 802.1w, 802.1s, PVST+ protocols
- vi. The switch must support Link Aggregation Group (LAG). Maximum number of ports in one LAG must be not less than 8
- vii. "The switch must support the following mechanisms for traffic balancing in LAG:
- viii. The combination of the MAC addresses of source and destination;
- ix. The combination of IP addresses of source and destination;
- x. The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
- xi. The combination of MPLS first, second and backup labels;
- xii. The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model."
- xiii. The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number
- xiv. The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

e. Routing IPv4/IPv6

- i. "Then switch must support following routing protocols: BGP, IS-IS, OSPF,
- ii. RIP v1/v2, PIM, MSDP"
- iii. The switch must support Policy-based Routing
- iv. "The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3
- v. BGP"

f. L2/L3 Multicast

- i. Then switch must support Multicast VLAN registration (MVR) protocol
- ii. The switch must support IGMPv1 / v2 / v3 protocols;
- iii. The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- iv. The switch must support the protocol PIM Snooping;

g. User authorization and QoS

- i. Each interface for connecting user devices must support at least 8-x hardware queues.
- ii. Access control lists that are configured on the switch port must operate at line speed available on port.
- iii. The switch must support the IEEE 802.1x protocol.
- iv. The switch should provide dynamic assignment of user access policies L2-L4 on ports
- v. The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.
- vi. The switch must have the ability to track user authentication in Microsoft Active Directory and automatically manage access to network resources without the use of certificates connected devices or additional software.
- vii. The switch should support a mechanism to automatically change the configuration (access control lists, QoS rules) when moving virtual machines between switch ports or between switches. For the functioning of this solution should not require an external control system or monitor.
- viii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 64 KB / s for 1 Gigabit Ethernet ports.
- ix. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 1 Mb / s to 10 Gigabit Ethernet ports.

h. MPLS

- i. The switch must support MPLS
- ii. The switch must support BFD for MPLS/LDP
- iii. The switch must support VPLS/H-VPLS.

i. Management

- i. The switch must support standard SNMP versions 2c and 3, Syslog.
- ii. The switch must support NTP Server and NTP Client;
- iii. The switch must support ITU-T G.8262 Synchronous Ethernet protocol
- iv. The switch must support IEEE 1588v2 Precision Time Protocol
- v. The switch must support sFlow version 5.
- vi. The switch must support RFC 3917 (IPFIX).
- vii. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.
- viii. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command \$TCL language.
- ix. The switch must support the XML language for a simple embedding procedures for the management switch into external systems
- x. The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.
- xi. The switch must support ITU-T Y.1731 protocol.

1. Access Switch (48 Ports)**a. General requirements**

- i. Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 1 years
- ii. The switch must be equipped with 10/100/1000BaseT ports, not less than 48
- iii. The switch must be equipped with SFP ports, not less than 8 (2+6 combo)
- iv. The switch must be equipped with SFP+ ports, not less than 4
- v. The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- vi. The switch must have the capability of connecting external backup power supply
- vii. The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.
- viii. To ensure interoperability between network protocols on the switches should be a single version of the operating system.
- ix. The switch must be able to mount in 19" Rack. Required rackmount kit must be included.

b. Performance

- i. The switch bandwidth must be not less than 176 Gbps
- ii. The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- iii. The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000
- iv. The routing table of the switch must store not less 480 IPv4 routes
- v. The switch must support 256 or more Multicast groups

c. Stacking

- i. The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports for a distance up to 40km.
- ii. The failure of any switch in the stack should not cause stack outage more than 50ms.
- iii. The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active

simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.

- iv. The failover configuration must be supported for two separate switches and two separate stacks of switches.

d. Ethernet L2

- i. The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- ii. The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- iii. The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- iv. The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching
- v. The switch must support 802.1w, 802.1s, PVST+ protocols
- vi. The switch must support Link Aggregation Group (LAG). Number of ports in one LAG must be not less than 8
- vii. "The switch must support the following mechanisms for traffic balancing in LAG: The combination of the MAC addresses of source and destination;
- viii. The combination of IP addresses of source and destination;
- ix. The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
- x. The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model."
- xi. The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number
- xii. The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

e. Routing IPv4/IPv6

- i. The switch must support Policy-based Routing
- ii. The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

f. L2/L3 Multicast

- i. The switch must support Multicast VLAN registration (MVR) protocol
- ii. The switch must support IGMPv1 / v2 / v3 protocols;
- iii. The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- iv. The switch must support the protocol PIM Snooping;

g. User authorization and QoS

- i. Each interface for connecting user devices must support at least 8-x hardware queues.
- ii. Access control lists that are configured on the switch port must operate at line speed available on port.
- iii. The switch must support the IEEE 802.1x protocol.
- iv. The switch should provide dynamic assignment of user access policies L2-L4 on ports
- v. The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.
- vi. The switch must have the ability to track user authentication in Microsoft Active Directory and automatically manage access to network resources without the use of certificates connected devices or additional software.
- vii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 64 KB / s for 1 Gigabit Ethernet ports.
- viii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 1 Mb / s to 10 Gigabit Ethernet ports.

h. Management

- i. The switch must support standard SNMP versions 2c and 3, Syslog.
- ii. The switch must support NTP Server and NTP Client;
- iii. The switch must support sFlow version 5.
- iv. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.
- v. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command \$TCL language.
- vi. The switch must support the XML language for a simple embedding procedures for the management switch into external systems
- vii. The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.
- viii. The switch must support ITU-T Y.1731 protocol
- ix. The switch must support Cloud Management System

1. Access Switch (24 Ports)**a. General requirements**

- i. Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 1 years
- ii. The switch must be equipped with 10/100/1000BaseT ports, not less than 24
- iii. The switch must be equipped with SFP ports, not less than 8 (4+4 combo)
- iv. The switch must be equipped with SFP+ ports, not less than 4
- v. The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- vi. The switch must have the capability of connecting external backup power supply
- vii. The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.
- viii. To ensure interoperability between network protocols on the switches should be a single version of the operating system.
- ix. The switch must be able to mount in 19" Rack. Required rackmount kit must be included.

b. Performance

- i. The switch bandwidth must be not less than 128 Gbps
- ii. The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- iii. The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000
- iv. The routing table of the switch must store not less 480 IPv4 routes
- v. The switch must support 256 or more Multicast groups

c. Stacking

- i. The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports for a distance up to 40km.
- ii. The failure of any switch in the stack should not cause stack outage more than 50ms.
- iii. The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active

simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.

- iv. The failover configuration must be supported for two separate switches and two separate stacks of switches.

d. Ethernet L2

- i. The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- ii. The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- iii. The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- iv. The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching
- v. The switch must support 802.1w, 802.1s, PVST+ protocols
- vi. The switch must support Link Aggregation Group (LAG). Number of ports in one LAG must be not less than 8
- vii. "The switch must support the following mechanisms for traffic balancing in LAG: The combination of the MAC addresses of source and destination;
- viii. The combination of IP addresses of source and destination;
- ix. The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
- x. The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model."
- xi. The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number
- xii. The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

e. Routing IPv4/IPv6

- i. The switch must support Policy-based Routing
- ii. The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

f. L2/L3 Multicast

- i. The switch must support Multicast VLAN registration (MVR) protocol
- ii. The switch must support IGMPv1 / v2 / v3 protocols;
- iii. The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- iv. The switch must support the protocol PIM Snooping;

g. User authorization and QoS

- i. Each interface for connecting user devices must support at least 8-x hardware queues.
- ii. Access control lists that are configured on the switch port must operate at line speed available on port.
- iii. The switch must support the IEEE 802.1x protocol.
- iv. The switch should provide dynamic assignment of user access policies L2-L4 on ports
- v. The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.
- vi. The switch must have the ability to track user authentication in Microsoft Active Directory and automatically manage access to network resources without the use of certificates connected devices or additional software.
- vii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 64 KB / s for 1 Gigabit Ethernet ports.
- viii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 1 Mb / s to 10 Gigabit Ethernet ports.

h. Management

- i. The switch must support standard SNMP versions 2c and 3, Syslog.
- ii. The switch must support NTP Server and NTP Client;
- iii. The switch must support sFlow version 5.
- iv. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.
- v. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command \$TCL language.
- vi. The switch must support the XML language for a simple embedding procedures for the management switch into external systems
- vii. The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.
- viii. The switch must support ITU-T Y.1731 protocol
- ix. The switch must support Cloud Management System

1. Access Switch (12 Ports)**a. General requirements**

- i. The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan
- ii. All equipment must be covered with official guarantee of the manufacturer on the territory of Pakistan for a period of not less than one year
- iii. The switch must be equipped with 10/100/1000BaseT ports, not less than 12
- iv. The switch must be equipped with SFP ports, not less than 4
- v. The switch must support installation of 10Gbit ports, not less than 4
- vi. The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management:
- vii. The switch must have the capability of connecting external backup power supply
- viii. The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.
- ix. To ensure interoperability between network protocols on the switches should be a single version of the operating system.
- x. The switch must be able to mount in 19" Rack. Required rackmount kit must be included.

b. Performance

- i. The switch bandwidth must be not less than 104 Gbps
- ii. The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- iii. The maximum number of stored MAC addresses in the switching table should be not less than 16000
- iv. The routing table of the switch must store up to 480 of IPv4 routes
- v. The switch must support the up to 256 Multicast groups

c. Stacking

- i. The switch must support stacking with other families switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports for a distance up to 40km.
- ii. The failure of any switch in the stack should not cause stack outage more than 50ms.
- iii. The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active

simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.

- iv. The failover configuration must be supported for two separate switches and two separate stacks of switches.

d. Ethernet L2

- i. The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- ii. The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- iii. The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- iv. The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching
- v. The switch must support 802.1w, 802.1s, PVST+ protocols
- vi. The switch must support Link Aggregation Group (LAG). Maximum number of ports in one LAG must be not less than 8
- vii. "The switch must support the following mechanisms for traffic balancing in LAG:
- viii. The combination of the MAC addresses of source and destination;
- ix. The combination of IP addresses of source and destination;
- x. The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
- xi. The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model."
- xii. The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number
- xiii. The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

e. Routing IPv4/IPv6

- i. The switch must support Policy-based Routing
- ii. The switch must support Static routing and OSPFv2/ OSPFv3

f. L2/L3 Multicast

- i. The switch must support Multicast VLAN registration (MVR) protocol
- ii. The switch must support IGMPv1 / v2 / v3 protocols;
- iii. The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- iv. The switch must support the protocol PIM Snooping;

g. User authorization and QoS

- i. Each interface for connecting user devices must support at least 8-x hardware queues.
- ii. Access control lists that are configured on the switch port must operate at line speed available on port.
- iii. The switch must support the IEEE 802.1x protocol.
- iv. The switch should provide dynamic assignment of user access policies L2-L4 on ports
- v. The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.
- vi. The switch must have the ability to track user authentication in Microsoft Active Directory and automatically manage access to network resources without the use of certificates connected devices or additional software.
- vii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 64 KB / s for 1 Gigabit Ethernet ports.
- viii. The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 1 Mb / s to 10 Gigabit Ethernet ports.
- ix. The switch must support standard SNMP versions 2c and 3, Syslog.
- x. The switch must support NTP Server and NTP Client;
- xi. The switch must support sFlow version 5.
- xii. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.
- xiii. The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command \$TCL language.
- xiv. The switch must support the XML language for a simple embedding procedures for the management switch into external systems
- xv. The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.
- xvi. The switch must support ITU-T Y.1731 protocol

1. Network Management System

The proposed solution **must** provide a complete centralized Network Management solution that meets the requirements provided below:

- a. Must provide single pane of glass console management of the entire infrastructure including 25-wired and 150-wireless devices.
- b. Management application must include:
- c. Dashboards with drill down ability
- d. Customized reporting for historical and real-time data
- e. Interactive topology maps
- f. Device views
- g. Events logs
- h. Device search functionality
- i. Must provide the capabilities to modify, filter, and create your own flexible views of the network
- j. Must allow for graphing or viewing in table format and multiple OIDs that are user selectable.
- k. Must provide a tool to find the physical location of systems and end users, and where they are connected, quickly and easily.
- l. Must allow scheduled events or tasks that the user can perform behind the scenes or schedule an event for another time in the future.
- m. Must provide a utility to view and select MIB objects from a tree-based representation and include a compiler for new or third-party MIBs.
- n. Must support the ability to define policies once and enforce the policies automatically on the proposed devices.
- o. Must be able to deploy policies across the wireless network, with a single click.
- p. Must allow IT administrators to easily define a number of pre-configured network policies, and designate select personnel to activate/deactivate these policies as appropriate
- q. Must provide a detailed inventory of products organized by device type
- r. Must provide the ability to track device attributes such as serial number, asset tag, firmware version, etc.
- s. Must be able to schedule download BootROM and firmware images to single or multiple devices simultaneously
- t. Must be able to generate valuable, in-depth reports for network inventory planning purposes.
- u. Must be able to provide a history of firmware and configuration changes made to a device along with a baseline comparison.
- v. Must record a history of device attributes, and reports any changes made to the device.

- w. Must support the ability to present detailed configuration information including date and time of configuration saves, firmware version, and file size.
- x. Must be able to schedule routine device configuration back-ups.
- y. Should provide a solution that can be installed on a virtual appliance. Please detail the requirements for the virtual appliance.
- z. Should support multiple client/server OS (Windows 64-bit, Linux 64-bit, VMware®, Hyper-V, MS Edge and Internet Explorer, Mozilla Firefox, Google Chrome, ...)

(Annexure 'G')

1. SFP Transceiver Module

- a. 1000BASE-LX SFP

2. Rack and cabinet

- a. 42 U Rack (imported) with 4 fans and PDU
- b. 18 U Switch Cabinet (imported) with fan and PDU
- c. 12 U Switch Cabinet (imported) with fan and PDU
- d. 9 U Switch Cabinet (imported) with fan and PDU

(Annexure 'H')

1. Passive Network Component

Passive Work including ducting, copper/ fiber laying, termination and fluke testing.

- a. Giga Cable UTP CAT6 (Imported)
- b. CAT 6 Patch Panel (Imported)
- c. CAT6 I/O (Imported)
- d. Faceplate dual /single
- e. Patch Cords CAT 6, 1 meter
- f. Fiber Backbone Cable for Uplink the network switches.
- g. Optical Distribution Frame.
- h. Dura Duct, Pipe and Accessories

PASSIVE NETWORK SPECIFICATIONS
<p>1. <u>CAT 6 Cable</u> Cat 6 Cable, UTP, PVC, 4 pairs, 305 meter / Box Gigabit original copper cable Category 6 U/UTP Cable (with cross-shaped separator) offer the possibility to deploy unshielded Category 6/Class E systems when installed with Cat-6 RJ45 Jacks.</p> <ul style="list-style-type: none"> a. Conductor Diameter: AWG 24 (Ø 0.525 +/- 0.015mm) b. Insulation Diameter: PE Ø 0.95 +/- 0.05 mm c. Cable assemblies: pairs

d. Sheath material: PVC

2. **Mechanical Features:**

Maximum cable diameter (mm) 5.40 +/- 0.30

Bending Radius (mm)

Dynamic (installation) / Static (installed) $\geq 8x$ outer diameter / $\geq 4x$ outer diameter

Temperature Range In service / Installation, Transport and Storage -20°C $+60^{\circ}\text{C}$ / 0°C $+50^{\circ}\text{C}$

3. **Electrical Features at 20°C:**

DC Resistance	max 9.38 Ω /100m
Resistance Unbalance	$\leq 2\%$
Insulation Resistance (500 V)	≥ 5000 M Ω /km
Mutual capacitance	nom. 5.1 nf / 100 m at 1 kHz
Test Voltage (DC, 1 min)	1 kV / 1m
Capacitance Unbalance (pair to ground)	max. 160 pf / 100 m at 1 kHz

4. **StandardsCables**

IEC 61156-5 ed. 2

ANSI/TIA 568-C.2

ISO/IEC11801 ed.2

5. **Fire Rating**

LSZH: IEC 60332-1

PVC: IEC 60332-1

6. **Patch Panel**

Classic Patch Panel, 24 ports, , black aluminum Modular loaded with RJ45 K6 Jack, Cat 6, UTP, Shuttered (tool-less termination), with rear cable manager

1U 19" panels must be available to take a minimum of 24 copper fully shuttered jacks. Other

Connections densities must be available. The panels must be designed for keystone fitting of the fully shuttered jacks/sockets. For efficiency of the termination and performance tool less terminate able keystone jacks must be used.

The copper panel panels must have cable management and tie down points (where required) for copper cable. Panels must have the facility to label each fully shuttered socket/jack.

7. **CAT6 I/O**

RJ45 K6 Jack, Cat 6, UTP, Shuttered (tool-less termination)

Category 6/Class E system, fully compliant with Category 6 ISO/IEC, EN and TIA standards

for hardware performance, confirmed by independent laboratory certifications (Delta, GHMT).

The jacks have the following features:

- a. Category 6 UTP
- b. Keystone fixing;
- c. Tool less assembly (mandatory)
- d. Capable of being wired to both 568B and 568A
- e. three cable entry points

<p>f. Integral shutter/shuttered jack</p> <p>g. Jacks must be reusable i.e it must support multiple termination.</p> <p>8. Applications</p> <p>a. IEEE 802.3 1GBASE-T</p> <p>b. PoE – IEEE 802.3at</p> <p>9. Standards</p> <p>a. ISO/ IEC 11801 Edition 2, Am 1-2</p> <p>b. ISO/ IEC 60603-7-5</p> <p>c. EN 50173-1</p> <p>d. ANSI/ TIA/ EIA-568-C.2-2009</p> <p>e. IEC 60512-99-001</p>
<p>10. Faceplate</p> <p>Single/Dual shuttered</p>
<p>11. Patch Cord</p> <p>Cat 6 RJ45 to RJ45 Patch Cable, UTP, PVC, 1m</p> <p>Patch cables must be available in either LSOH or PVC jackets. 100 Ohm RJ-45 copper patch cords shall be Category 6. The EMC level should also match – for UTP cables UTP patch cords should be use, for shielded systems shielded patch cords should be used.</p> <p>The copper patch cords must be made from stranded wires for full flexibility. They must comply with ISO 11801.</p> <p>The copper patch cords should never be hand punched; they should be of factory fitted RJ-45 connectors.</p> <p>The patch cords must be available in a range of lengths to facilitate easy patch cord management</p>
<p>12. Optical Distribution Frame</p> <p>along with supporting accessories</p> <p>Rack mount with sliding tray pre-loaded with SC Duplex couplers</p> <p>Fluke Testing of Copper Nodes & OTDR testing of fiber links.</p>
<p>13. Optical Fiber Backbone</p> <p>12 Core Single Mode branded LTE/FC/Premier or equivalent</p>
<p>14. Dura Duct</p> <p>Duct, Pipe and accessories 16x25mm, 16x38mm, 40x40mm, 60x60 ,1 inch pipe etc.- with Adamjee or equivalent ducting and flexible PVC pipe fiber termination unit/ODF</p> <p>25 years of OEM performance warranty of Passive system in favor of Heavy Industries Taxila and OEM presence in Pakistan is must.</p> <p>Note: The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan, and valid manufacturer authorization letter in favor of Heavy Industries Taxila.</p>
<p>Existing Network Nodes Trouble shooting (repair/replace I/O. faceplate, CAT 6 Cable), Termination, labeling, fluke testing and Nodes make operational, patch panel/nodes shifting.</p>

(Annexure 'I')**1. Fiber supply and Laying between ARDIC and ASRF building- 265 Meter**

S.No	Description
a.	Supply and Laying of Outdoor Fiber Cable 12 Core SM Branded (branded LTE/FC/Premier or equivalent) with Bandwidth support upto 40 Gig
b.	Excavation of trench 3' depth and back filling with sand and bricks
c.	Fiber ODF 12 Port Loaded (Origin USA/Europe or equivalent standard)
d.	Fiber ODF 24 Port Loaded (Origin USA/Europe or equivalent standard)
e.	Fiber Patch Cord SC/LC 3 Meter MM (Origin USA/Europe or equivalent standard)
f.	PVC Pipe 1 Inch Adamjee or equivalent
g.	Fiber Splicing
h.	Hard 'Digging and Refilling
i.	Soft Digging and Refilling
j.	Fiber Rot Marker

(Annexure 'J')**3. Fiber supply and Laying in APC Admin Block/ Tech Shop – 500 Meter**

S.No	Description
1.	Supply and Laying of Outdoor Fiber Cable 12 Core SM (branded LTE/FC/Premier or equivalent) with Bandwidth support upto 40 Gig
2.	Excavation of trench 3' depth and back filling with sand and brick
3.	Fiber ODF 12 Port Loaded (Origin USA/Europe or equivalent standard)
4.	Fiber ODF 24 Port Loaded (Origin USA/Europe or equivalent standard)
5.	Fiber Patch Cord SC/LC 3 Meter MM (Origin USA/Europe or equivalent standard)
6.	PVC Pipe 1 Inch Adamjee or equivalent
7.	Fiber Splicing
8.	Hard 'Digging and Refilling
9.	Soft Digging and Refilling
10.	Fiber Rot Marker

(Annexure 'K')**1. Branded Server Machine**

- a. **Form Factor:** 1U Rack
- b. **Processor:** Intel® Xeon® Bronze 3104 1.7G, 6C/6T, 9.6GT/s 2UPI, 8M Cache, No Turbo, No HT (85W) DDR4-2133 or equivalent brand and standard
- c. **Memory:** 128 (4 x 32GB) RDIMM 2666MT/s Dual Rank
- d. **Internal Storage:** 2 1.2TB 10K RPM SAS 12Gbps 512n 2.5in Hot-plug Hard Drive, 3.5in HYB CARR
- e. **Raid controller:** PERC H730P RAID Controller, 2GB NV Cache, Adapter,
- f. **PCI Express slots:** 6 PCI Express 3.0 Slots
- g. **Network controller:** Ethernet 2 x 1GE adapter
- h. **Optical Drive:** DVD+/-RW ROM, SATA,
- i. **Bezel:** security bezel
- j. **Power Supplies:** Dual, Hot Plug, Redundant Power Supply (1+1), 550W
- k. **Power cord:** 2 x Jumper Cord - C13/C14
- l. **Rack kit:** rails sliding kit with cable management arm
- m. **Remote management:** Integrated Remote Access Controller
- n. **Supported operating systems:** Canonical® Ubuntu® LTS, Citrix® XenServer®, Microsoft Windows Server® with Hyper-V, Red Hat® Enterprise Linux, SUSE® Linux Enterprise Server, VMware® ESXi
- o. **Network card:** Intel Ethernet I350 Quad-Port 1Gb Server Adapter
- p. **Warranty:** 3 years On-site Parts & Labor Warranty

(Annexure'L')**1. Fire Alarm System**

- a. **Device Type:** Controller Based
- b. **Mounting:** 1U Screw
- c. **Support:** 8 sensors minimum
- d. **Type of Monitoring Sensors:** Smoke
- e. **Alert Type:** Analog Alarm
- f. **Analog Alarm Size:** 6"
- g. **Alarm Installation at:** 3 locations (2 points at Ground Floor and 1point at 1st Floor)

2. Door Access Control System

- a. 2-In-1 Fingerprint + RFID Door Access Control System
- b. Min 2.8" TFT Color Display
- c. Authentication type: Fingerprint, RFID Card, Password
- d. RF Card Type: EM or EM compatible card
- e. RFID Magnetic Lock Door Access Control and Attendance System
- f. Door Exit Switch, Power Supply, Door Bell, Min 10 x RFID Access Token, 1 x User Manual (English) along with allied accessories for installation.

(Annexure'M')

1. VMWare

VMWare vSphere ESXi™ 6.7 (Latest ver) Standard Hypervisor Server consolidation and no planned downtime or advanced + 1-2 persons certification level training with certificate issued by OEM

2. Microsoft® Windows® Server 2016 Standard

x64 Sngl OLP 1License NoLevel 2 Proc with 10 CAL (type: open) or advanced

(Supply, Installation, configuration, training and commissioning including complete Active Directory detailed policy implementation and LAN services)

(Annexure'N')

1. Kaspersky Endpoint Security Business Select or Equivalent

Latest version with 3 year subscription

Services: Installation, configuration, commissioning, training and deployment of Kaspersky security center/ Administration server

(Annexure'O')

Breach Detection and prevention system (3 years support and subscription)

1. Licensing

- a. Solution must be licensed per user with unlimited installation of all the software components
- b. License must not restrict or be priced based on bandwidth utilization
- c. Full functionality should be included in the base price per user with no add-ons or activation keys sold separately

2. Architecture and components

- a. Distributed architecture with the file (malware) capture, management and sandbox modules installed on different servers
- b. The software stack should be based on a non-proprietary OS e.g. Linux, etc.
- c. A single installation should be able to scale to 100,000's of active users.

- d. The file (malware) capture module should scan all the applicable protocols (web, email, SMTP, FTP, etc.) in a single box, instead of requiring a box for each protocol
- e. The solution should provide an open API and all the solution components should communicate using the API
- f. The API must instrument the full functionality of the solution
- g. The API should be able to import Threat Intelligence from 3rd-party sources

3. Deployment flexibility and Low Operation Costs

- a. The solution must be delivered as software only
- b. The software should be certified for standard HP or Dell servers
- c. The installation of the file (malware) capture module should be supported both on physical and virtual servers
- d. Software updates should be automated or semi-automated with no need to reboot the components

4. Detonation technology (sandboxing)

- a. The sandbox should provide full hardware emulation to gain visibility of CPU instructions
- b. Full kernel visibility is also required
- c. There should be no need for the user to upload gold images i.e. detection should be version less
- d. The sandbox should be able to independently analyze and categories Windows/Java/Script-based malware without uploading files to the cloud for automatic or manual analysis
- e. Use of signatures should be limited to optimization techniques e.g. avoid rescanning known files

5. Anti-evasion techniques

- a. The sandbox should be able to detect environmental checks e.g. malware checking for number of CPU cores, specific applications, user or application activity, etc.
- b. The sandbox should be able to handle time delaying loops used by malware to bypass other security solutions
- c. Analysis of dormant code i.e. instructions that might not have been executed by the malware

6. Additional functionality

- a. The solution should be able to detect existing breaches by identifying and analyzing Command & Control sessions
- b. Blocking of Command and Control session should possible suing DNS sink holing, IP blacklisting, etc.

7. Integration

- a. Out of the box integration with client-based security solutions
- b. Out of the box integration with firewalls and IPS/IDS
- c. Out of the box integration with Threat Intelligence solutions
- d. Out of the box integration with SIEMs
- e. Out of the box integration with SSL termination solutions
- f. Syslog support

(Annexure 'P')

INTEGRITY PACT

1. The seller and purchaser hereby declare that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency there for or any other entity owned or controlled by it (Government of Pakistan) through any corrupt business practice.
2. Without limiting the generality of the foregoing, the seller and purchaser represents and warrants that it has fully declared the brokerage, commission, fees etc, paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finders fee or kickback, whether described as consultation fee or other obligation or otherwise, with the object of obtaining or including the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever from Government of Pakistan, except that which has been expressly declared pursuant hereto.
3. The seller and purchaser certified that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with Government of Pakistan and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.
4. The seller and purchaser accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to Government of Pakistan under any law, contract or other instrument, be avoidable at the option of Government of Pakistan.
5. Notwithstanding any rights and remedies exercised by Government of Pakistan in this regard, the seller and purchaser agrees to indemnify Government of Pakistan for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation Government of Pakistan in an amount equivalent to ten time the sum of any commission, gratification, bribe, finders fee or kickback given by the seller and purchaser as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever from Government of Pakistan.

Purchaser

Supplier

AFFIDAVIT**NO DEFAULTER CERTIFICATE**

It is certified that M/s _____ have never been defaulted or blacklisted with any Govt / Semi Govt / Defence Organization / PPRA / KPK PPRA / Punjab PPRA / Sindh PPRA within or outside Pakistan.

(Designation, Signature & Stamp)

(Signature & Stamp of Notary Public)

AFFIDAVIT**NO LITIGATION CERTIFICATE**

It is certified that M/s _____ have no litigation history where decision went against the firm anywhere within or outside Pakistan.

OR

It is certified that M/s _____ have following litigation history:-

- a.
- b.
- c.

(Designation, Signature & Stamp)

(Signature & Stamp of Notary Public)

Certificate signed by Bidder**Undertaking By the Bidder**

We undertake and declare that

- a. The prices quoted including of all taxes, transportation and cost of installation etc. The quantity of above items can be increased/decreased.
- b. The offered prices must be valid up to 90 days starting from the date of tender opening.
- c. All products are covered under warranty issued by manufacturer/principal starting from the date of installation and in case of any defect and malfunctioning we shall be responsible for repair/replacement as per guarantee/warranty.
- d. The supplier is responsible to arrange replacement/technical support during warranty/guarantee period.

We understand that:-

HIT reserves the right to accept or reject our bid and we undertake not to question the decision in this regard.

The earnest money amounting Rs. submitted by us is liable to forfeiture in case our firm fails to abide by the terms and conditions given in the advertisement/tender document referred above.

Signing Authority

SPECIMEN OF BANK CREDIT LINE

It is certified that we _____ (Bank's name) commit to provide M/s _____ (Firm's name) a credit line amounting _____ (amount in figures as well as words) exclusively for the supply of items against pre-qualification IT no IT No. 4997/IT-3033/CP-II/ARDIC/Proc dated 14 March 2019 of HIT, Taxila (if required / demanded by M/s _____ (Firm's name), as per our terms and conditions.

The said credit line shall be available within fifteen (15) calendar days after receipt of demand notice from the supplier i.e. M/s _____ (Name of the supplier) and such credit line shall be maintained until the supply against the contract/project awarded is fully completed by the above said contractor/ supplier.

This certification is being issued in favour of above said supplier i.e. M/s _____ (Name of the supplier / contractor) in connection with the bidding requirement of HIT, Taxila against their pre-qualification IT number. 4997/IT-3033/CP-II/ARDIC/Proc dated 14 March 2019. We are aware that any false statement issued by us shall make us liable for perjury.

Name and Signature of Authorized : _____
 Officer of the Bank
 Official Designation : _____
 Date/Seal of Bank : _____

Note: - The amount committed should be machine validated.

 (Seal/sign of the concerned bank)