



**PROJECT: REPLACEMENT OF DATA NODE INFRASTRUCTURE  
AT KSL ISLAMABAD DUE TO AWAMI MARKAZ BLAZE INCIDENT**



**REQUEST FOR PROPOSAL**

- 1. SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF  
THE EQUIPMENT AT DATA NODE KSL STP ISLAMABAD**
- 2. TRAINING ON DNS SECURITY, ROUTING/SWITCHING**

**March 2020**

**PSEB, 2<sup>nd</sup> Floor, Evacuee Trust Complex, F-5/1, Aga Khan Road,  
Islamabad [www.pseb.org.pk](http://www.pseb.org.pk)**



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**PART A – DEFINITIONS, INSTRUCTIONS & INFORMATION FOR  
BIDDERS**



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**1 Mandatory Eligibility Criteria Checklist**

Before the Bidders submit their Proposals, within the stipulated time mentioned in this Request for Proposal document, Bidders are required to make sure that following mandatory requirements of this RFP document are fulfilled. These requirements must be furnished at the time of submission of Proposal. Non-submission of any one of the following applicable requirements shall result in disqualification:

<b>Sr#</b>	<b>Mandatory Eligibility Criteria Checklist</b>	<b>Mark</b> <input type="checkbox"/> / <input type="checkbox"/>
1.	Proof of Certificate of Incorporation or Registration or equivalent	
2.	Proof of NTN Certificate (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column)	
3.	Proof of GST Certificate (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column)	
4.	Manufacturer Origin of Core Network: USA, UK, Europe or equivalent, (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column).	
5.	The firm should have offices in all three major cities of Pakistan (i.e. Lahore, Karachi & Islamabad), (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column).	
6.	GST Statement (paid during last 5 year), (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column).	
7.	Valid Authorization letter / Distribution Letter from the Manufacturers/ Principals, (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column).	
8.	Provide Bank Statement / Audited Financial Statement of Minimum Rs. 100 Million Turnover in last Financial year, (If compliant, please check <input type="checkbox"/> , otherwise put a Cross <input type="checkbox"/> in the Mark Column).	
9.	Original affidavit (not older than one month) on Stamp Paper(s) of worth Rs.100 or more that Bidder is not insolvent, bankrupt and is not blacklisted or debarred by PPRA, Government, Semi-Government, Private, Autonomous body or any other international organization.	
10.	Original affidavit (not older than one month) on Stamp Paper(s) of worth Rs.100 or more that the Bidder is an active tax payer and has submitted its tax return for the preceding fiscal year. <b>Tax payer list serial number (downloadable from FBR's website) is also to be mentioned.</b>	
11.	Bidder must quote all items, otherwise the bid may be rejected.	



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12.	<p><b><u>Two separately sealed envelopes:</u></b></p> <p><b><u>Envelope #1 shall clearly bear the name “TECHNICAL PROPOSAL – Procurement of Data Node Equipment and Trainings and Name of the Bidder”</u></b></p> <p>Two hard copies of Technical Proposal, one marked as Original and one marked as Copy* must be submitted with one soft Copy in flash disk. Bidders are to make sure that Financial Proposal is <b>not</b> part of the Technical Proposal in any form.</p> <p>*Additional hard copy of Technical Proposal is not a mandatory requirement.</p>	
	<p><b><u>Envelope #2 shall clearly bear the name “FINANCAL PROPOSAL - Procurement of Data Node Equipment and Trainings and Name of the Bidder”</u></b></p> <p>Financial Proposal must be submitted in one hard copy and one soft copy Flash Disk in MS Excel format. (The hard copy or soft copy of Financial Proposal must be sealed in Envelope # 2 and should not be part of Technical Proposal in any form).</p>	

**Note:** Bidders are required to submit filled, signed & stamped copy of the above checklist along with the Proposal.

## 2 Definitions

In this Request for Proposal (RFP), unless the context provides otherwise:

- a. **“Bidder”** means a firm, agency or party which will submit Proposal in response to this RFP.
- b. **“Bidding Document”** means set of documents prepared by PSEB, to solicit Proposals, which consists of definitions, instructions for Bidders, ToR, evaluation criteria, forms for providing information and draft contract. Also referred to as “Request For Proposal (RFP).”
- c. **“Date of Issue”** means the date on which the RFP is issued by the Company to solicit bids from potential Bidders for execution of this Project.
- d. **“Day”** means calendar day.
- e. **“Descriptive”** means what is happening now based on incoming data.
- f. **“Diagnostic”** means a look at past performance to determine what happened and why.
- g. **“Successful Bidder”** means a Bidder who has been awarded the contract pursuant to the subject RFP and who shall be responsible for completion of all scope of work as outlined in ToRs.
- h. **“Proposal”** means the entire set of documents, hard and electronic, consisting of Technical and Financial Proposals submitted by Bidder.
- i. **“Project Management Team”** means administration & technical team appointed by the Successful Bidder to manage the subject Project.
- j. **“Regular Staff”** means permanent/full time staff employed by the Successful Bidder to perform the services or any part thereof.
- k. **“Terms of Reference”** (ToR) means that part of Bidding Document which explains the scope of work, activities, tasks to be performed, evaluation criteria, respective responsibilities of the Bidder as well as expected results and deliverables of the assignment.



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### **3 Pakistan Software Export Board**

The Pakistan Software Export Board (PSEB) is the entity within Government charged with the task of accelerating growth in the Information Technology (IT) and Information Technology enabled services (ITeS) industry. PSEB is a guarantee limited company totally owned and funded by the Government of Pakistan. It is under the administrative control of the Federal Ministry of Information Technology and Telecommunications and has a Board of Directors that is chaired by the Federal Minister of IT and Telecommunications. Through its many support programs, PSEB aims to help Pakistani IT companies and IT professionals in obtaining a greater share of the global IT and ITeS marketplace.

### **4 Instructions for Bidders**

This document contains all the information pertinent to this solicitation and governs the preparation and submission of Proposals. The technical & financial forms to be filled by Bidder for this assignment are annexed with this RFP document. Proposals must be submitted by the deadline, completed on the formats provided by the Company, with supporting documents, according to the guidelines given in the section titled **Instructions & Information for Bidders**. Proposals will be evaluated by bid evaluation committees constituted by the Company. Selection of Bidders will be on Quality and Cost Based Selection methodology as provided in the Bidding Document.

### **5 Bidding Document**

#### **5.1 Contents**

The Bidder is expected to examine all instructions, general conditions, forms, terms and specifications contained in the RFP document and its annexures. Failure to comply with instructions will be at the Bidder's risk and may affect the evaluation of the Proposal. Proposals that do not comprehensively address the scope of work/ToR and other requirements may be rejected. Inability to comply with applicable instructions, general conditions of contract, terms and specifications may lead to rejection of Proposal.

### **6 Preparation of Proposal**

#### **6.1 Language of the Proposal**

Proposals prepared by the Bidders and all correspondence and documents relating to the Proposal exchanged between the Bidders and the Company shall be in writing and in English Language.

#### **6.2 Proposal Currency**

All prices shall be quoted in Pakistan Rupees (PKR) and all payments will be made in Pakistan Rupees (PKR.)

#### **6.3 Period of Validity of Proposal**

Proposals shall remain valid for 180 days from the date of advertisement as provided in the RFP document. In exceptional circumstances, Company may solicit the Bidder's consent to an extension of the period of validity without any material changes in the Bidding Document.

#### **6.4 Supporting Documents**

While preparing the Technical Proposal, the Bidder shall ensure that it provides the Company with documentary evidence. Bid evaluation committees will evaluate Proposals solely on the basis of documentary evidence submitted in accordance with evaluation criteria described in this Bidding Document.

#### **6.5 Cost of Preparing Proposal**

All costs of preparing Proposal and of negotiating with Company, including visits for discussion with Company, are not reimbursable.

#### **6.6 Proposal Documents**



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The Proposal, in binder form, with serial number of each page should comprise the following:

<p><b>Technical Proposal</b></p> <p>Technical Proposal must consist of the following:</p> <ol style="list-style-type: none"><li><b>Checklist</b> (Mandatory Documents required with the Proposal)</li><li>Technical Proposal Submission – Form B1</li><li>Firms/Bidders Profile – Form B2</li><li>Relevant Experience of the Firm/Bidder – Form B3</li><li>Qualification, Total Experience and professional Certification/Membership – Form B4-I</li><li>Composition of Proposed Project Management Team with Organogram – Form B4-II</li></ol> <p>Technical Proposal should detail the capability and experience of delivering the services specified in the ToR. Bidder should submit details of maximum ten of their most relevant/similar nature assignments for technical evaluation using the prescribed format. Assignments submitted beyond the given number will not be considered.</p> <p>Team structure proposed by the Bidder for the project (including updated CVs of individuals involved in management and project implementation) in accordance with relevant <i>Forms</i>.</p>
<p><b>Financial Proposal</b></p> <p>Financial Proposal must consist of the following:</p> <ol style="list-style-type: none"><li>Financial Proposal submission Form– <i>Form C1</i></li><li>Summary of costs – <i>Form C2</i></li><li>Breakdown of Major CAPEX &amp; OPEX – <i>Form C3</i></li></ol>

Electronic form of Technical Proposal will also be provided in a **separate** flash disk that will be included in the sealed envelope containing the written hard copy of Technical Proposal.

Electronic form of Financial Proposal will be provided in a **separate** flash disk that will be included in the sealed envelope containing the written hard copy of Financial Proposal.

**6.7 Taxes**

Quoted costs should be inclusive of all applicable (direct & indirect) taxes. Financial Proposal will be scored based upon the bid amount inclusive of all taxes.

**6.8 Format and signing of Proposal**

The Proposal shall contain no interlineations, erasures, or overwriting, except, as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by Bidder's authorized person. The Proposals shall be clear and elaborate. Different parts of Proposals shall be separated using color separators, flags or tags.

**Note:** *The Technical Proposal must not contain any pricing information whatsoever. Non-compliance will lead to rejection of the Proposal.*

**7 Submission, Receipt, and Opening of Proposal**

7.1 Proposals will be accepted and evaluated using Single Stage, Two Envelope Procedure. (Separate sealed envelopes for Technical and Financial Proposals). The process is further defined at Annexure-A.

7.2 The original Proposal shall contain no interlineations or overwriting. All pages of the Proposals (Technical & Financial) must be numbered. Submission letters for both Technical and Financial Proposals, must be in



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the attached format (Form B1 & C1) in separate envelopes.

- 7.3 The Bidder's Organization Head or an authorized representative on his/her behalf shall initial and stamp all pages of the original Technical and Financial Proposals. In case of authorized representative, an authorization shall be provided which shall be in the form of a written power of attorney accompanying the Proposal or in any other form demonstrating that the representative has been duly authorized to sign.
- 7.4 Hard copies of Technical Proposal shall be sent to the address listed in this Bidding Document. All required copies of the Technical Proposal are to be exact replicas of the original. If there are discrepancies between the original and copies of the Technical Proposal, the original governs.
- 7.5 Bidder is required to submit one original and one copy of Technical Proposal along with all supporting documents.
- 7.6 One flash disk containing an electronic copy (labelled 'Electronic Copy') of all Proposal documents in PDF format (excluding the Financial Proposal), must be provided with the Technical Proposal. In the event of any discrepancy between the Original Proposal and the Electronic Copy, the former shall be deemed as the accurate Proposal. If Financial Proposal is copied to the flash disk containing Technical Proposal, the entire Proposal shall stand rejected.
- 7.7 The Technical Proposal shall be placed in a sealed envelope clearly marked "TECHNICAL PROPOSAL" followed by the project name "Replacement of Data Node Infrastructure at KSL STP Islamabad Due To Awami Markaz Blaze Incident" and the name of Bidder. Similarly, the Financial Proposal shall be placed in a separate sealed envelope clearly marked "FINANCIAL PROPOSAL" followed by the project name "Replacement of Data Node Infrastructure at KSL STP Islamabad Due To Awami Markaz Blaze Incident" and the name of Bidder, with a warning "DO NOT OPEN WITH THE TECHNICAL PROPOSAL". The envelopes containing Technical and Financial Proposals shall be placed into an outer envelope and sealed. This outer envelope shall bear the submission address and title of the project mentioned in this document, and the name of the Bidder, and clearly marked "DO NOT OPEN BEFORE SUBMISSION DEADLINE". Company shall not be responsible for misplacement, losing or premature opening of the outer envelope if not properly sealed and marked as stipulated. Such negligence may result in rejection of the Proposal. If the Financial Proposal is not submitted in a separate sealed envelope duly marked as indicated above, this will constitute grounds for rejection of the Proposal.
- 7.8 Bidders must submit 2% of the total tender value as an earnest money in the shape of Pay Order/Demand Draft in the name of Pakistan Software Export Board; Bids without/short in earnest money will be rejected. Bid security /Earnest money SHOULD BE INCLUDED WITH FINANCIAL PROPOSAL. Technical proposal should clearly state that a bid bond has been included in the financial proposal. Please do not disclose the amount of the bid or the bid bond in the technical proposal.
- 7.9 The successful firm(s) will have to provide performance bond equal to 10% of the contract value against the items after receiving the purchase order and supply of items which will be retained till the warranty period of the equipment's. The earnest money of unsuccessful bidders will be refunded after completion of all the procedural requirements and to successful bidders after submission of 10 % performance bond of total contract value.





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7.10 The Proposal must be sent to the following address and received by the Company not later than the time and the date specified elsewhere in this Bidding Document:

<b>Title/Position:</b>	Manager Administration
<b>Telephone:</b>	+92-51-111 333 666
<b>Facsimile:</b>	+92-51-9219075
<b>Email address:</b>	<a href="mailto:kbangash@pseb.org.pk">kbangash@pseb.org.pk</a>
<b>Official Postal address:</b>	<b>Pakistan Software Export Board</b> 2 <sup>nd</sup> Floor, Evacuee Trust Complex, F-5/1, Islamabad-44000, Pakistan

- 7.11 Bidders must submit their Proposal to the Company by registered post/courier or by hand to the official postal address of the Company before or on the submission deadline specified elsewhere in this Bidding Document.
- 7.12 Any Proposal received by the Company after the deadline for submission shall be returned unopened.
- 7.13 Company reserves the right to accept or reject any or all of the Proposals submitted at any time in accordance with applicable PPRA rules and the stipulations contained in this document.
- 7.14 Company shall open Technical Proposal thirty minutes after the submission deadline. The envelopes with the Financial Proposal shall remain sealed and securely stored in the custody of Company and will be opened as per the tentative timeline separately communicated to bidder qualifying Technical Evaluation.

## **8 Proposal Evaluation**

- 8.1 From the time the Proposals are opened to the time the evaluation report is announced, Bidders should not contact the Company on any matter related to its Technical and/or Financial Proposal. Any effort by the Bidder to influence the Company in the examination, evaluation, ranking of Proposals, and recommendation for award of Agreement may result in the rejection of the Bidder's Proposal. However, the Company may contact the Bidder for seeking clarification of any aspect of Technical Proposal or demand any missing information.
- 8.2 Evaluators of Technical Proposals shall have no access to Financial Proposals until the technical evaluation is concluded.
- 8.3 Overall evaluation shall be carried out based on weighted average methodology wherein technical evaluation will carry 70% and financial evaluation will carry 30% weightage respectively.
- 8.4 PSEB reserves the right to request submission of additional information from the bidders to clarify any aspect of RFP document, if required.

## **9 Evaluation of Technical Proposals**

- 9.1 During the technical evaluation no amendments in the Proposals shall be permitted. Being turnkey project Bidders who obtain at least 75% marks in company profile and capacity assessment and 100% marks in **Conformity to Tender Specification** in technical evaluation criteria will qualify and Financial Proposals will be opened only for technically qualified Bidders.
- 9.2 An evaluation committee appointed by the Company will evaluate Technical Proposals based on their compliance with the RFP and by applying the evaluation criteria and the point system, specified below:



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Sr. #	Company Profile and Capacity Assessment	Sub Marks	Total Marks
I.	<b>Firm/Bidder Profile (Registered age, and Financial position) – (Form B2)</b>  1. Registered Age a. 15 + Years (4 Marks) b. 7 to 15 Years (2 Marks) c. Less than 7 Years (1 Mark) 2. Financial Position	4    6	<b>10</b>
II.	<b>Relevant Experience of the Firm/Bidder - (Form B3)</b>  1. Successfully completed Project of similar nature. (1 Project= 1.5 Marks) 2. Experience of providing similar trainings to Customer. (1 project = 1 mark)	15  05	<b>20</b>
III	<b>Qualification and Competence of the proposed Team Members–Full Time/Part time/ On-call (Form B4-I &amp; B4-II)</b>  1. Qualification, Total experience, and Professional Certifications /Memberships 2. Relevant Work Experience 3. Composition of the team	15  10 5	<b>30</b>
IV	Proposed Methodology: <b>1.</b> Equipment delivery, installation, testing and Commissioning. <b>2.</b> Provisioning of Trainings as outlined in RFP (Annex-A)	20  10	<b>30</b>
V	<b>Understanding of Requirements</b>	10	<b>10</b>
	<b>Total Marks</b>		<b>100</b>
	<b>Minimum Qualification Marks Required</b>		<b>75%</b>

6886Conformity to Tender Specification			Total Marks = 212
Sr. #	Equipment Name	Specifications	Marks Assigned



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1	Data Centre Core Switch / Router	<p><b>Technical Specifications of Layer 3 Core Switch are as follows:</b> The core switch must be modular and comprised of but not limited to the following minimum specifications:</p>		48																											
		<table border="1"> <thead> <tr> <th>Sr. No</th> <th>Part Description</th> <th>Qty</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Modular Chassis</td> <td>1</td> <td>2</td> </tr> <tr> <td>b.</td> <td>Supervisor Module</td> <td>1</td> <td>2</td> </tr> <tr> <td>c.</td> <td>Line Card 48 port for Copper (be quoted separately)</td> <td>1</td> <td>2</td> </tr> <tr> <td>d.</td> <td>Line Card 24 port for Fiber (be quoted separately)</td> <td>2</td> <td>2</td> </tr> <tr> <td>e.</td> <td>Power Supply</td> <td>2</td> <td>2</td> </tr> <tr> <td>f.</td> <td>Country specific power cable, accessories and mounting kit</td> <td>1</td> <td>2</td> </tr> </tbody> </table>	Sr. No		Part Description	Qty	Marks	a.	Modular Chassis	1	2	b.	Supervisor Module	1	2	c.	Line Card 48 port for Copper (be quoted separately)	1	2	d.	Line Card 24 port for Fiber (be quoted separately)	2	2	e.	Power Supply	2	2	f.	Country specific power cable, accessories and mounting kit	1	2
		Sr. No	Part Description		Qty	Marks																									
		a.	Modular Chassis		1	2																									
		b.	Supervisor Module		1	2																									
		c.	Line Card 48 port for Copper (be quoted separately)		1	2																									
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		e.	Power Supply		2	2																									
		f.	Country specific power cable, accessories and mounting kit		1	2																									
		<p><b>Modular Chassis</b> <b>Features and capabilities that must be supported:</b></p>																													
		<p><b>Supervisor Module</b></p>																													
		At least 6 slots, 2 for supervisory and 4 for line cards.	1																												
		Fan tray.	1																												
		Redundant power supply	1																												
		Multi-chassis stacking to allow load balancing.	1																												
		Allow hot swapping cards and modules.	1																												
		<p><b>Supervisor Module</b></p>																													
		High Availability (HA) with capabilities like SSO/NSF, uplink resiliency	1																												
		Backplane capacity 1 Tbps or higher.	1																												
		Switching capacity at least 370 Gbps combined.	1																												
		Capable to Support LAN automation Analysis of Encrypted traffic.	1																												
		Support for netflow.	1																												
		Support for built-in troubleshooting tools.	1																												
		Capable to support Programmability and automation using Netconf/RESTconf/YANG etc.	1																												
		<p><b>Line Card 48 port for Copper</b></p>																													
		Supports up to 48 ports non-blocking	1																												
		10/100/1000 module (RJ-45)	1																												
		Hot swappable	1																												
<p><b>Line Card 24 port for Fiber</b></p>																															
Supports up to 24 ports of 1/10 GE or higher	1																														
Supported SFP+ and SFP can be used simultaneously on the same line card without any restrictions	1																														
Hot swappable	1																														



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2	Layer 2 Switch	<p><b>Technical Specifications of Layer 2 Access Switch as Below:</b> The access switch must be fixed and comprised of but not limited to the following minimum specification:</p> <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Part Description</th> <th>Qty</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td align="center">a.</td> <td>24 x 10/100/1000 Mbps Gigabit Ethernet ports (POE preferred)</td> <td align="center">1</td> <td align="center">2</td> </tr> <tr> <td align="center">b.</td> <td>4 x 1/10G fiber uplink ports &amp; support modular uplink module</td> <td align="center">1</td> <td align="center">2</td> </tr> <tr> <td align="center">c.</td> <td>Power Supply</td> <td align="center">1</td> <td align="center">2</td> </tr> <tr> <td align="center">d.</td> <td>Multimode 10G (SFP+) up to 300M</td> <td align="center">4</td> <td align="center">2</td> </tr> </tbody> </table>	Sr. No	Part Description	Qty	Marks	a.	24 x 10/100/1000 Mbps Gigabit Ethernet ports (POE preferred)	1	2	b.	4 x 1/10G fiber uplink ports & support modular uplink module	1	2	c.	Power Supply	1	2	d.	Multimode 10G (SFP+) up to 300M	4	2	27																																																																				
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		e. Country specific power cable, accessories and mounting kit	1	2
		<b>Features and capabilities that must be supported:</b>		
		<b>L2 Switching Features:</b>		
		Switching capacity 124Gbps or higher	1	
		Bandwidth capacity 95+ Mbps	1	
		Support for software image management and patch life cycle management	1	
		At least 8K MAC Addresses	1	
		Support 4000+ VLAN	1	
		Quality of services	1	
		Support for netflow	1	
		Port mirroring support for Network traffic monitoring	1	
		<b>Network Security</b>		
		Port Security	1	
		Dynamic ARP Inspection (DAI), and IP Source Guard	1	
		Shaped Round Robin (SRR)	1	
		<b>Management:</b>		
		Stacking master configuration	1	
		Easy device onboarding, configuration, monitoring, and troubleshooting	1	
		Network virtualization and segmentation	1	
		<b>Warranty and Support</b>		
		1 Year comprehensive hardware & software support and regular updates.	1	
		Equipment model must be latest, and end-of-life of the equipment must be at least 5 years after starting from the bidding date.	1	
		In case of hardware or software failure the replacement must be delivered on next business day basis.	1	
3	10 KVA UPS	<b>Technical Specifications of 10KVA UPS as Below:</b> The branded UPS must be rack mount with following minimum specification:		18



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4	3 KVA UPS	<p><b>Technical Specifications of 3KVA UPS as Below:</b> The branded UPS must be rack mount with following minimum specification: <b>Features and capabilities that must be supported:</b></p> <table border="1"> <tr> <td>3KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load?</td> <td align="center">5</td> </tr> <tr> <td>Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load</td> <td align="center">1</td> </tr> <tr> <td>Double Conversion Online</td> <td align="center">1</td> </tr> <tr> <td>SNMP Monitoring card/software</td> <td align="center">1</td> </tr> <tr> <td>Emergency Power Off (EPO)</td> <td align="center">1</td> </tr> <tr> <td>Temperature 0° to 40°C at rated load</td> <td align="center">1</td> </tr> <tr> <td>Internal and external battery packs must be Maintenance-free &amp; leak-proof.</td> <td align="center">1</td> </tr> </table>	3KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load?	5	Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load	1	Double Conversion Online	1	SNMP Monitoring card/software	1	Emergency Power Off (EPO)	1	Temperature 0° to 40°C at rated load	1	Internal and external battery packs must be Maintenance-free & leak-proof.	1	17						
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		1-year warranty	1	
5	RFI Security Lock	<p><b>Technical Specifications of ACS as Below:</b> Access Control panel shall be provided monitoring entry and exit from the office. Access control panel shall comprise of the following as minimum but not limited to.</p> <p><b>Features and capabilities that must be supported:</b></p>		7
		Centralized login application	1	
		Support Proximity HID or MIFARE card & manual pin code acceptance	1	
		Door contacts	1	
		Push button/Exit switch	1	
		Electromagnetic lock	1	
		Smart cards.	1	
		1-year Standard warranty	1	
6	IP Camera	<p><b>Technical Specifications of PTZ IP Cam as Below:</b> IP Camera must be of following minimum specification:</p> <p><b>Features and capabilities that must be supported:</b></p>		12
		2MP 25x Network IR PTZ Camera	1	
		Up to 1920 × 1080 resolution	1	
		Ultra-low light	1	
		25x Optical zoom	1	
		0 Lux with IR	1	
		BLC & HLC supported	1	
		IR distance 50M or higher	1	
		12 VDC & PoE+ (802.3at, class4)	1	
		16× Digital zoom	1	
		Support H.265+/H.265 video compression	1	
		IPv6	1	
		1-year warranty	1	



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7	Hardware Firewall with content filtering capability	<p><b>Technical Specifications of Firewall as Below:</b></p> <p>Firewall must be of following minimum specification:</p> <p><b>Firewall performance</b></p> <table border="1"> <tr> <td>Firewall should support UTM features: IPS, antivirus, URL filtering, Web content filtering, Web Application Protection, Email Protection, Encryption</td> <td align="center">5</td> </tr> <tr> <td>Firewall Throughput: 6.6 Mpps or higher</td> <td align="center">1</td> </tr> <tr> <td>Concurrent Sessions: 1 Million or higher</td> <td align="center">1</td> </tr> <tr> <td>New Sessions/Second: 30,000</td> <td align="center">1</td> </tr> <tr> <td>IPsec VPN Throughput (512 byte): 4 Gbps</td> <td align="center">1</td> </tr> <tr> <td>SSL-VPN Throughput: 250 Mbps</td> <td align="center">1</td> </tr> <tr> <td>IPS Throughput: 500 Mbps</td> <td align="center">1</td> </tr> <tr> <td>NGFW Throughput: 360 Mbps</td> <td align="center">1</td> </tr> <tr> <td>Threat Protection Throughput: 250 Mbps</td> <td align="center">1</td> </tr> <tr> <td>1 Year comprehensive hardware &amp; software support and regular updates.</td> <td align="center">2</td> </tr> </table>	Firewall should support UTM features: IPS, antivirus, URL filtering, Web content filtering, Web Application Protection, Email Protection, Encryption	5	Firewall Throughput: 6.6 Mpps or higher	1	Concurrent Sessions: 1 Million or higher	1	New Sessions/Second: 30,000	1	IPsec VPN Throughput (512 byte): 4 Gbps	1	SSL-VPN Throughput: 250 Mbps	1	IPS Throughput: 500 Mbps	1	NGFW Throughput: 360 Mbps	1	Threat Protection Throughput: 250 Mbps	1	1 Year comprehensive hardware & software support and regular updates.	2	15		
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8		Laptop PC																							
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10	Split Unit (Inverter based)	<p><b>Technical Specifications of Air Conditioner as Below:</b> Air Conditioner must be of following minimum specifications:</p> <p><b>Specification's</b></p> <table border="1"> <tr> <td>Cooling Capacity 2 Ton or higher</td> <td align="right">1</td> </tr> <tr> <td>Cooling Capacity (BTU) 24000 or higher</td> <td align="right">1</td> </tr> <tr> <td>Inverter based</td> <td align="right">1</td> </tr> <tr> <td>Floor Standing</td> <td align="right">1</td> </tr> <tr> <td>1 Year parts warranty</td> <td align="right">1</td> </tr> <tr> <td>3 Year compressor warranty (at least)</td> <td align="right">1</td> </tr> </table>	Cooling Capacity 2 Ton or higher	1	Cooling Capacity (BTU) 24000 or higher	1	Inverter based	1	Floor Standing	1	1 Year parts warranty	1	3 Year compressor warranty (at least)	1	6				
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Wall mount kit	1																		
1 Year Official warranty	1																		
12	Wireless equipment	<p><b>Technical Specifications of wireless equipment as Below:</b> Wireless equipment with 30Dbi solid dishes to support 60Mbps above on 2 KM Arial distance</p> <p><b>Specification's</b></p> <table border="1"> <tr> <td>Frequency 5GHz</td> <td align="right">1</td> </tr> <tr> <td>Throughput 150Mbps or higher</td> <td align="right">1</td> </tr> <tr> <td>Memory: 128MB SDRAM, 8MB Flash</td> <td align="right">1</td> </tr> <tr> <td>Networking Interface: 1 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet Interface</td> <td align="right">1</td> </tr> <tr> <td>RF Connector: 2x RP-SMA (Waterproof)</td> <td align="right">1</td> </tr> <tr> <td>24V PoE Adapter and Power Cord</td> <td align="right">1</td> </tr> <tr> <td>Supported 5GHz 30dbi parabolic dish antenna</td> <td align="right">1</td> </tr> </table>	Frequency 5GHz	1	Throughput 150Mbps or higher	1	Memory: 128MB SDRAM, 8MB Flash	1	Networking Interface: 1 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet Interface	1	RF Connector: 2x RP-SMA (Waterproof)	1	24V PoE Adapter and Power Cord	1	Supported 5GHz 30dbi parabolic dish antenna	1	12		
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		Beamwidth 5.8° (3 dB)	1	
		Frequency Range 5.1 - 5.9 GHz	1	
		Wind Loading 790 N @ 200 km/h	1	
		Dimensions 160 x 80 x 30 mm	1	
		1 Year Official warranty	1	
		<b>Technical Specifications of Network Tool Kit as Below:</b>		
		<b>Specification's</b>		
		Cable tracer	1	
		Cable tester	1	
		Cable Cutter	1	
		Wire punch down tool	1	
		Wire stripper	1	
		Network crimper	1	
		Screwdriver	1	
		Air blower	1	
		Set of spanners	1	
13	Tool kit (Networking)			
		<b>DNS Security, Routing/Switching (Outlined in Annexure-A)</b>		
		Training of 50 resources as outlined in Annexure-A details as follows:		
		Trainers shall have expert level certification in the respective field(s)	5	
		Training sessions shall be held in Lahore, Karachi and Islamabad	1	
		Up to 20 participants per session	1	
		Lunch and refreshments and venue will be vendor's responsibility	1	
		Training material to be provided in soft and hard forms	1	
14	Trainings			
		<b>G. Total</b>		

## 10 Financial Proposals

- 101 After the evaluation of technical proposal, the Company shall announce technical scores and opening of financial proposals as per details provided in clause 7.13.
- 102 Bidders whose technical scores do not meet minimum qualifying score, will be informed accordingly and their Financial Proposal will be returned unopened to them, after announcement of technical scores.
- 103 A Financial Evaluation Committee shall evaluate the Financial Proposal. If any discrepancy arises between the "total" amount and the partial amount, the "total" amount shall prevail. If any discrepancy arises



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between “word” representation of amount and numerical representation of amount, then the word representation shall prevail. The prices of all items listed in the Technical Proposal shall be assumed to be included in the Financial Proposal, whether or not they are individually listed and priced in the Financial Proposal.

104 Quality and Cost Based Selection (QCBS) method will be used for evaluation of Proposal. The lowest evaluated Financial Proposal will be given the maximum financial score of 30 points.

## **11 Combined Score**

11.1 Technical Score (St) shall be calculated as follows: (Technical score obtained by the Bidder/Total Technical score) x 70.

11.2 Financial Score (Sf) shall be calculated as follows: (Lowest Bidder’s total cost/Bidder’s total cost) x 30.

11.3 Combined Score(Total Score) = St + Sf

11.4 All Bidders will be ranked based upon the combined technical and financial score.

## **12 Availability of Proposed Team**

The Successful Bidder is bound to provide the services of proposed team in Technical Proposal. In case of non-availability of any member of proposed team during the contract period, the Bidder will provide valid reason and documentary justification. The Bidder is bound to provide the substitute staff with same experience, capability and technical strength with no delay after mutual agreement of both parties i.e. the Bidder and the Company. In such a case, it is at the discretion of the Company to accept or reject the Bid.

## **13 Award of Contract**

After completing negotiations, the Company shall award Contract to the selected Bidder (highest ranked). After award of contract, the Company shall return the unopened Financial Proposals of the non-responsive Bidders.

## **14 Confidentiality**

The Company shall keep all information regarding the bid evaluation confidential until the announcement of the evaluation report under PPRA Rule no. 41.

## **15 Fraud and Corruption:**

15.1 The Company requires the Bidder/s participating in provision of Service/s to adhere to the highest ethical standards, both during the selection process and throughout the execution of an agreement. In pursuance of this policy, Company defines, for the purpose of this paragraph, the terms set forth below as follows:

- a. “Corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any employee of the Company in the selection process or in agreement execution;
- b. “Fraudulent practice” means a misrepresentation or omission of facts in order to influence a selection process or the execution of an agreement;
- c. “Collusive practices” means a scheme or arrangement between two or more Bidders with or without the knowledge of the Client, designed to establish prices at artificial, non-competitive levels, etc.;
- d. “Coercive practices” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of an agreement.



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152 The Company will reject a Proposal for award if it determines that the Bidder recommended for award has directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the award of contract to be executed pursuant to RFP. The

**16 Clarification Request/Amendment**

16.1 The Bidder can request a clarification in the RFP document up to the date indicated in the RFP document. Any request for clarification must be sent in writing, or by standard electronic means to the Company's e-mail address indicated in the RFP document. The Company will respond in writing or by standard electronic.

16.2 At any time before the submission of Proposals, the Company may amend the RFP document by issuing an addendum in writing or by standard electronic means. The addendum shall be published in the local newspaper and uploaded at PPRA & Company's website, and revised RFP document will be uploaded on Company's and PPRA website.



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**PART B - TERMS OF REFERENCE**



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## **17 Background & Introduction of Project**

### **17.1 Data Node Infrastructure Upgradation:**

To facilitate the development of the local IT industry by extending all possible help to prospective foreign and domestic investors, Pakistan Software Export Board (PSEB) has established Software Technology Parks. PSEB has also established Data Network Nodes at STP Islamabad in 1999 and STP Lahore in the year 2001 with a concept of One Stop Shop to provide IT-enabled office space to help IT&ITeS companies to start the operations in shortest possible time frame.

This Data Node Network was really helpful in the growth of IT industry. The companies acquiring space in the STP(s) really appreciate PSEB efforts in establishing these data nodes as they get high speed connectivity according to their requirements within 24 hours. This helped great to populate the STP(s) within shortest time span and indirectly generating a huge number of job opportunities as well.

Dedicated high-speed data connectivity acts as catalyst for rapid development of software and IT enabled service companies. The Data Node Network is capable to offer the following services:

- All STP(s) are connected to PTCL infrastructure through Optic Fiber.
- International Bandwidth from 64kbps to 155Mbps on optical fiber backbone through state-of-the-art infrastructure under a Bandwidth Reselling Agreement with PTCL.
- Provision of IP connectivity to the IT&ITeS companies within 24 hours including Site Survey, Feasibility Report and issuance of D/Note.
- Infrastructure for the termination of PRI(s)/E1(s) through optical fiber.
- Data Desk service for data upload/download for small IT&ITeS companies.
- Graphical Traffic monitoring system available for the subscribers to monitor the bandwidth utilization.
- Round the clock technical support through an automated e-ServiceDesk to provide an efficient and customer oriented service.
- Last mile through optic fiber and redundancy over DRS links.

Due to Awami Markaz blaze incident PSEB desires the services of vendors to upgrade the Data Node Infrastructure at KSL STP Islamabad.

### **17.2 Training Project**

Threats to information security as well cyber security are exponentially increasing and there is no better time than this to remain updated with latest tools and skill sets to fight against these threats and keep ICT infrastructure of secure. The training program as outlined in **Annex-A** will impart most required skill set info/cyber security techniques to technical staff of not only Data Nodes Network deputed in Islamabad, Lahore, Karachi, Peshawar and Abbottabad and the most relevant technical staff IT companies connected with Data Nodes Network. The Successful Bidder will be responsible arrange suitable venues at Islamabad, Lahore and Karachi to deliver these trainings including, *inter alia*:

- development of high quality trainings material in line with outlines given under Annex-A and include the digital copy of the same with technical proposal.
- The provided trainers shall be on company's payroll.
- arrange venues as mentioned above.

## **18 Terms of Reference**

The Successful Bidder is expected to provide the following services: -

### **18.1 Principal Vendor's 24x7x365 Online Technical Support**



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Principal vendor should provide “Online Technical Assistance” to PSEB Data Node Network 24 hours a day, 365 days per year that includes, when requested, the following technical assistance:

- 24/7 technical assistance
- Technical information service
- Software support
- Answering technical queries
- Fault diagnostic service and problem identification, including generic design faults.
- Vendor shall provide PSEB Data Node Network with Internet access to technical information service for all designated representatives of the Data Node Network.
- Vendor shall ensure that Principle Hardware/Software contact numbers are provided to PSEB before or immediately after the contract start date of the service
- PSEB shall have access to download software updates or upgrades to licensed software purchased from Principle. These releases or upgrades shall be applied at the discretion of PSEB, when PSEB requires them.
- Vendor shall quote the warranty of the required items on annual basis for a total period not more than three (3) years and on yearly basis for Router/Switch & Firewall. (Quote with 1, 2 and 3-year warranty)
- Warranty for other items exclusive of Router/Switch & Firewall will be 1 year. (Hardware & Software wherever applicable)

### **182 Details of Maintenance & Support Services**

The bidder shall clearly indicate the points of presence in Pakistan for maintenance purpose. Maintenance/Part Replacement/Technical Support charges under the warranty period shall be included in the bid. The vendor will submit an SLA to carry out the activities such as equipment maintenance, faulty part replacement and technical support during the warranty period without any cost.

### **183 Trainings**

- a. The successful bidder will conduct a training program mentioned under section#17.2.
- b. The successful bidder shall provide the hands-on training to the technical staff of the Data Nodes against the equipment delivered and installed/upgraded in Data Nodes Infrastructures at KSL STP Islamabad.
- c. The bidder shall provide a complete training program for System functions, maintenance and diagnostics for all installed Equipment.
- d. The instructors shall be experienced and certified in their respective subjects; profile of the instructors is a must in the Training Plan.
- e. The selected bidders will not charge any cost against providing training mentioned above in 18.3 (b&c)

## **19 Payment Plan**

All payments will be made on;

- i) The delivery of hardware and its successful installation and commissioning.
- ii) Successful completion of trainings components in line with program outlined in Section 17.2.



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**PART C – FORMS TO BE SUBMITTED WITH THE PROPOSAL**





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**Technical Proposal - Standard Forms**

B1 - Technical Proposal Submission

B2 - Firms/Bidders Profile

B3 - Relevant Experience of the Firm/Bidder,

B4-I - Qualification, Total Experience and professional Certification/Membership

B4-II- Composition of Proposed Project Management Team with Organogram



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**B1. Technical Proposal - Submission Form**

To Manager Administration  
Pakistan Software Export Board  
2<sup>nd</sup> Floor ETC Building, F-5/1, Aga Khan Road  
Tel: +92-51- 111 333 666  
Fax: +92-51- 921-9075  
[Email: kbangash@pseb.org.pk](mailto:kbangash@pseb.org.pk)  
Islamabad, Pakistan

[Location, Date]

Sir,

We, the undersigned, offer to provide the services for execution of “**Replacement of Data Node Infrastructure at KSL STP Islamabad Due To Awami Markaz Blaze Incident**” in accordance with your Request for Proposal dated [ADVERTISEMENT DATE]. We are hereby submitting our Proposal, which includes this Technical Proposal and Financial Proposal sealed under a separate envelope.

Our Technical Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, which is 180 calendar days from the date of advertisement.

We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

Authorized Signature:

**Name and Title of Signatory:**

Name of Firm: Addresss:



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**B2. Firms/Bidders Profile**

Sr. #	Criteria	Response
1	<b>Profile of the agency:</b> i. Registered age of Firm ii. Names of Managers/ Owners/ CEO/ Directors/ Partners	
2	i. Location of Firm office/sub office ii. Number of relevant employees including their Names & Designations, Contact Numbers & Branch contact numbers	
3	<b>Financial Position</b> i. Name of Banks ii. Certificate of Financial position iii. Copy of audited Annual Accounts (of last 3 years) iv. Tax Registration (NTN/STN/FTN)	



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**B3. Relevant Experience of the firm/Bidder**

**Experience of Providing Data Center setting up solutions and trainings to Customer.**

<b>Title &amp; Project Synopsis</b>	<b>Name and contact details of Focal Person of Bidder</b>	<b>Client Name, Organization, Focal Person Name &amp; Phone Numbers</b>	<b>Project Worth</b>	<b>Project Duration</b>

\*Please attach relevant documents to corroborate your information.



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**B4-I. – Qualification, Total Experience and professional Certification/Membership Personnel**

**Summary (Complete for each Team Member)**

<b>Name of Employee:</b>
--------------------------

Position		
General Information	Name:	Date of Birth:
	Telephone:	
	Fax:	
	Years with Present Employer:	

**Employment Record:**

Summarize overall professional experience in reverse chronological order.

DD/MM/YY		Company/Project/Position/Specific Tech experience
From	To	

**Relevant Experience:**

Summarize relevant experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project:

DD/MM/YY		Company/Project/Position/Specific Tech experience
From	To	

**Education:**

Highest Level of Degree	Relevance of Degree to the Assignment
MPhil	
Masters	
Bachelors	

Certification:

Memberships:



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**Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

\_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_  
*[Signature of staff member and authorized representative of the firm] Day/Month/Year*

Full name of staff member: \_\_\_\_\_

Full name of authorized representative: \_\_\_\_\_



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**B4-II – Composition of Proposed Project Management Team with Organogram**

<b>Sr. #</b>	<b>Name/ Designation</b>	<b>Experience/ No. of years</b>	<b>Relevant Experience in Previous Assignments</b>	<b>Proposed Role in this Project</b>



**PROJECT: REPLACEMENT OF DATA NODE INFRASTRUCTURE  
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**Financial Proposal - Standard Forms**

- C1. Financial Proposal submission form
- C2. Summary of costs
- C3. Breakdown of Major CAPEX & OPEX





**PROJECT: REPLACEMENT OF DATA NODE INFRASTRUCTURE  
AT KSL ISLAMABAD DUE TO AWAMI MARKAZ BLAZE INCIDENT**



**C1. – Financial Proposal Submission Form**

[Location, Date]

To: Manager Administration  
Pakistan Software Export Board  
2<sup>nd</sup> Floor ETC Building, F-5/1, Aga Khan Road  
Islamabad, Pakistan  
Tel: +92-51- 111 333 666  
Fax: +92-51- 921-9075  
[Email: kbangash@pseb.org.pk](mailto:kbangash@pseb.org.pk)

Sir,

We, the undersigned, offer to provide services for execution of “**Replacement of Data Node Infrastructure at KSL STP Islamabad Due To Awami Markaz Blaze Incident**” project in accordance with your Request for Proposal dated [ADVERTISEMENT DATE] and our Proposal (Technical and Financial Proposals). Our attached Financial Proposal is for the sum of [Amount in words and figures]. This amount is inclusive of all the local taxes, duties, fees, levies and other charges applicable on our company, our sub-contractors and collaborations under the Pakistani law.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, which is 180 calendar days from the date of advertisement.

We understand you are not bound to accept any Proposal you receive.  
We remain,

Yours sincerely,

Authorized Signature:

Name and Title of Signatory: Name of Firm:

Address:



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**C2. – Summary of Costs**

<b>Particulars</b>	<b>Pak Rupees</b>
Total	
All applicable Taxes	
Grand Total of Financial Proposal	



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**C3: Breakdown of Major CAPEX & OPEX**

Sr #	Equipment Name	Specifications	Qty	Unit Cost	GST	Total Cost																																								
1	Data Centre Core Switch / Router	<p><b>Technical Specifications of Layer 3 Core Switch are as follows:</b> The core switch must be modular and comprised of but not limited to the following minimum specifications:</p> <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Part Description</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>g.</td> <td>Modular Chassis</td> <td>1</td> </tr> <tr> <td>h.</td> <td>Supervisor Module</td> <td>1</td> </tr> <tr> <td>i.</td> <td>Line Card 48 port for Copper (be quoted separately)</td> <td>1</td> </tr> <tr> <td>j.</td> <td>Line Card 24 port for Fiber (be quoted separately)</td> <td>2</td> </tr> <tr> <td>k.</td> <td>Power Supply</td> <td>2</td> </tr> <tr> <td>l.</td> <td>Country specific power cable, accessories and mounting kit</td> <td>1</td> </tr> </tbody> </table> <p><b>Modular Chassis</b> <b>Features and capabilities that must be supported:</b></p> <p><b>Supervisor Module</b></p> <table border="1"> <tr><td>At least 6 slots, 2 for supervisory and 4 for line cards.</td></tr> <tr><td>Fan tray.</td></tr> <tr><td>Redundant power supply</td></tr> <tr><td>Multi-chassis stacking to allow load balancing.</td></tr> <tr><td>Allow hot swapping cards and modules.</td></tr> <tr><td><b>Supervisor Module</b></td></tr> <tr><td>High Availability (HA) with capabilities like SSO/NSF, uplink resiliency</td></tr> <tr><td>Backplane capacity 1 Tbps or higher.</td></tr> <tr><td>Switching capacity at least 370 Gbps combined.</td></tr> <tr><td>Capable to Support LAN automation Analysis of Encrypted traffic.</td></tr> <tr><td>Support for netflow.</td></tr> <tr><td>Support for built-in troubleshooting tools.</td></tr> <tr><td>Capable to support Programmability and automation using Netconf/RESTconf/YANG etc.</td></tr> <tr><td><b>Line Card 48 port for Copper</b></td></tr> <tr><td>Supports up to 48 ports non-blocking</td></tr> <tr><td>10/100/1000 module (RJ-45)</td></tr> <tr><td>Hot swappable</td></tr> <tr><td><b>Line Card 24 port for Fiber</b></td></tr> <tr><td>Supports up to 24 ports of 1/10 GE or higher</td></tr> </table>	Sr. No	Part Description	Qty	g.	Modular Chassis	1	h.	Supervisor Module	1	i.	Line Card 48 port for Copper (be quoted separately)	1	j.	Line Card 24 port for Fiber (be quoted separately)	2	k.	Power Supply	2	l.	Country specific power cable, accessories and mounting kit	1	At least 6 slots, 2 for supervisory and 4 for line cards.	Fan tray.	Redundant power supply	Multi-chassis stacking to allow load balancing.	Allow hot swapping cards and modules.	<b>Supervisor Module</b>	High Availability (HA) with capabilities like SSO/NSF, uplink resiliency	Backplane capacity 1 Tbps or higher.	Switching capacity at least 370 Gbps combined.	Capable to Support LAN automation Analysis of Encrypted traffic.	Support for netflow.	Support for built-in troubleshooting tools.	Capable to support Programmability and automation using Netconf/RESTconf/YANG etc.	<b>Line Card 48 port for Copper</b>	Supports up to 48 ports non-blocking	10/100/1000 module (RJ-45)	Hot swappable	<b>Line Card 24 port for Fiber</b>	Supports up to 24 ports of 1/10 GE or higher	2			
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Supported SFP+ and SFP can be used simultaneously on the same line card without any restrictions				
Hot swappable				
<b>Power Supply Module</b>				
N+N Redundancy				
Hot Swappable				
<b>Operating System/Software Features:</b>				
Real-time data stream telemetry from core switch to provide monitoring of the network.				
Assurance & Analytics for problem resolution and capacity planning.				
Must support IP unicast routing protocols such as static, RIPv1&2 OSPF Routed Access.				
Allow equal-cost routing for Layer 3 load balancing and redundancy across the stack.				
Flexibility and scalability.				
<b>Other necessary features and protocols that must include</b>				
Upgradable and down gradable operating system.				
Full support of IPv4 & IPv6 protocols				
Multiple Spanning Tree Protocol (MSTP)				
Per-VLAN Rapid Spanning Tree Plus (PVRST+)				
Switch port auto recovery				
Advanced switch capabilities and scale				
BGP, IS-IS, BSR, MSDP, OSPF, MPLS				
Private VLAN Edge to provide security and isolation between switch ports				
<b>Warranty and Support</b>				
1 Year comprehensive hardware & software support and regular updates.				
Equipment model must be latest, and end-of-life of the equipment must be at least 5 years after starting from the bidding date.				
In case of hardware or software failure the replacement must be delivered on next business day basis. Principal must provide technical support for 4 hours response, 24 hours a day, 7 days a week including holidays, basic configuration, diagnosis, and troubleshooting of device-level problems for up to 1 year.				



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2	Layer 2 Switch	<p><b>Technical Specifications of Layer 2 Access Switch as Below:</b></p> <p>The access switch must be fixed and comprised of but not limited to the following minimum specification:</p> <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Part Description</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>f.</td> <td>24 x 10/100/1000 Mbps Gigabit Ethernet ports (POE preferred)</td> <td>1</td> </tr> <tr> <td>g.</td> <td>4 x 1/10G fiber uplink ports &amp; support modular uplink module</td> <td>1</td> </tr> <tr> <td>h.</td> <td>Power Supply</td> <td>1</td> </tr> <tr> <td>i.</td> <td>Multimode 10G (SFP+) up to 300M</td> <td>4</td> </tr> <tr> <td>j.</td> <td>Country specific power cable, accessories and mounting kit</td> <td>1</td> </tr> </tbody> </table>	Sr. No	Part Description	Qty	f.	24 x 10/100/1000 Mbps Gigabit Ethernet ports (POE preferred)	1	g.	4 x 1/10G fiber uplink ports & support modular uplink module	1	h.	Power Supply	1	i.	Multimode 10G (SFP+) up to 300M	4	j.	Country specific power cable, accessories and mounting kit	1	1		
		Sr. No	Part Description	Qty																			
		f.	24 x 10/100/1000 Mbps Gigabit Ethernet ports (POE preferred)	1																			
		g.	4 x 1/10G fiber uplink ports & support modular uplink module	1																			
		h.	Power Supply	1																			
		i.	Multimode 10G (SFP+) up to 300M	4																			
		j.	Country specific power cable, accessories and mounting kit	1																			
		<p><b>Features and capabilities that must be supported:</b></p> <p><b>L2 Switching Features:</b></p> <table border="1"> <tr><td>Switching capacity 124Gbps or higher</td></tr> <tr><td>Bandwidth capacity 95+ Mbps</td></tr> <tr><td>Support for software image management and patch life cycle management</td></tr> <tr><td>At least 8K MAC Addresses</td></tr> <tr><td>Support 4000+ VLAN</td></tr> <tr><td>Quality of services</td></tr> <tr><td>Support for netflow</td></tr> <tr><td>Port mirroring support for Network traffic monitoring</td></tr> </table>	Switching capacity 124Gbps or higher	Bandwidth capacity 95+ Mbps	Support for software image management and patch life cycle management	At least 8K MAC Addresses	Support 4000+ VLAN	Quality of services	Support for netflow	Port mirroring support for Network traffic monitoring													
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<p><b>Warranty and Support</b></p>																							



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		<p>1 Year comprehensive hardware &amp; software support and regular updates.</p> <p>Equipment model must be latest, and end-of-life of the equipment must be at least 5 years after starting from the bidding date.</p> <p>In case of hardware or software failure the replacement must be delivered on next business day basis.</p>														
3	10 KVA UPS	<p><b>Technical Specifications of 10KVA UPS as Below:</b> The branded UPS must be rack mount with following minimum specification:</p> <p><b>Features and capabilities that must be supported:</b></p> <table border="1"> <tr> <td>10KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load</td> </tr> <tr> <td>Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load</td> </tr> <tr> <td>Double Conversion Online</td> </tr> <tr> <td>SNMP Monitoring card/software</td> </tr> <tr> <td>Emergency Power Off (EPO)</td> </tr> <tr> <td>Output Frequency: Line Interactive at Sine waveform</td> </tr> <tr> <td>Temperature 0° to 40°C at rated load</td> </tr> <tr> <td>Internal and external battery packs must be Maintenance-free &amp; leak-proof.</td> </tr> <tr> <td>UPS LED should display information like: <ul style="list-style-type: none"> <li>• Operating mode</li> <li>• Switched Outlet status</li> <li>• Efficiency of the UPS</li> <li>• Information about the load</li> <li>• Battery capacity</li> <li>• Estimated runtime</li> <li>• Alarm Indicator</li> <li>• Input and output voltage and frequency,</li> <li>• battery power and Self-test results</li> </ul> </td> </tr> <tr> <td>1-year warranty</td> </tr> </table>	10KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load	Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load	Double Conversion Online	SNMP Monitoring card/software	Emergency Power Off (EPO)	Output Frequency: Line Interactive at Sine waveform	Temperature 0° to 40°C at rated load	Internal and external battery packs must be Maintenance-free & leak-proof.	UPS LED should display information like: <ul style="list-style-type: none"> <li>• Operating mode</li> <li>• Switched Outlet status</li> <li>• Efficiency of the UPS</li> <li>• Information about the load</li> <li>• Battery capacity</li> <li>• Estimated runtime</li> <li>• Alarm Indicator</li> <li>• Input and output voltage and frequency,</li> <li>• battery power and Self-test results</li> </ul>	1-year warranty	2			
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4	3 KVA UPS	<p><b>Technical Specifications of 3KVA UPS as Below:</b> The branded UPS must be rack mount with following minimum specification: <b>Features and capabilities that must be supported:</b></p> <table border="1"> <tr> <td>3KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load?</td> </tr> <tr> <td>Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load</td> </tr> <tr> <td>Double Conversion Online</td> </tr> <tr> <td>SNMP Monitoring card/software</td> </tr> <tr> <td>Emergency Power Off (EPO)</td> </tr> <tr> <td>Temperature 0° to 40°C at rated load</td> </tr> <tr> <td>Internal and external battery packs must be Maintenance-free &amp; leak-proof.</td> </tr> <tr> <td>UPS LED should display information like: <ul style="list-style-type: none"> <li>• Operating mode</li> <li>• Switched Outlet status</li> <li>• Efficiency of the UPS</li> <li>• Information about the load</li> <li>• Battery capacity</li> <li>• Estimated runtime</li> <li>• Alarm Indicator</li> <li>• Input and output voltage and frequency</li> <li>• battery power and Self-test results</li> </ul> </td> </tr> </table>	3KVA UPS with additional battery bank to provide 1.5 Hour Backup time at 70% load?	Input Voltage Range 110 Vac – 300 Vac ± 3% @ 60% Load	Double Conversion Online	SNMP Monitoring card/software	Emergency Power Off (EPO)	Temperature 0° to 40°C at rated load	Internal and external battery packs must be Maintenance-free & leak-proof.	UPS LED should display information like: <ul style="list-style-type: none"> <li>• Operating mode</li> <li>• Switched Outlet status</li> <li>• Efficiency of the UPS</li> <li>• Information about the load</li> <li>• Battery capacity</li> <li>• Estimated runtime</li> <li>• Alarm Indicator</li> <li>• Input and output voltage and frequency</li> <li>• battery power and Self-test results</li> </ul>	2			
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5	RFI Security Lock	<p><b>Technical Specifications of ACS as Below:</b> Access Control panel shall be provided monitoring entry and exit from the office. Access control panel shall comprise of the following as minimum but not limited to. <b>Features and capabilities that must be supported:</b></p> <table border="1"> <tr> <td>Centralized login application</td> </tr> <tr> <td>Support Proximity HID or MIFARE card &amp; manual pin code acceptance</td> </tr> <tr> <td>Door contacts</td> </tr> <tr> <td>Push button/Exit switch</td> </tr> <tr> <td>Electromagnetic lock</td> </tr> <tr> <td>Smart cards.</td> </tr> <tr> <td>1-year Standard warranty</td> </tr> </table>	Centralized login application	Support Proximity HID or MIFARE card & manual pin code acceptance	Door contacts	Push button/Exit switch	Electromagnetic lock	Smart cards.	1-year Standard warranty	1				
Centralized login application														
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6	IP Camera	<p><b>Technical Specifications of PTZ IP Cam as Below:</b> IP Camera must be of following minimum specification: <b>Features and capabilities that must be supported:</b></p> <table border="1"> <tr> <td>2MP 25x Network IR PTZ Camera</td> </tr> <tr> <td>Up to 1920 × 1080 resolution</td> </tr> </table>	2MP 25x Network IR PTZ Camera	Up to 1920 × 1080 resolution	2									
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		Ultra-low light 25x Optical zoom 0 Lux with IR BLC & HLC supported IR distance 50M or higher 12 VDC & PoE+ (802.3at, class4) 16x Digital zoom Support H.265+/H.265 video compression IPv6 1-year warranty				
7	Hardware Firewall with content filtering capability	<b>Technical Specifications of Firewall as Below:</b>  Firewall must be of following minimum specification:  <b>Firewall performance</b>  Firewall should support UTM features: IPS, antivirus, URL filtering, Web content filtering, Web Application Protection, Email Protection, Encryption Firewall Throughput: 6.6 Mpps or higher Concurrent Sessions: 1 Million or higher New Sessions/Second: 30,000 IPsec VPN Throughput (512 byte): 4 Gbps SSL-VPN Throughput: 250 Mbps IPS Throughput: 500 Mbps NGFW Throughput: 360 Mbps Threat Protection Throughput: 250 Mbps  1 Year comprehensive hardware & software support and regular updates.	1			
8	Laptop PC	<b>Technical Specifications of Laptop as Below:</b>  Laptop must be of following minimum specification:  <b>Specification's</b> Processor: Intel® Core™ i5 8th generation or higher RAM DDR4 8GB or above Solid State Drive 150 GB or above Hard Disk Drive 750GB or above 2 USB 2.0/3.0 Port VGA Port/HDMI, Built-in HD Camera Wireless 802.11a/g/n/ac Battery pack with estimated 2hour battery life or higher 15.4-inch LCD display	1			





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		<table border="1"> <tr><td>Licensed Windows 10 Pro</td></tr> <tr><td>Branded carry bag</td></tr> <tr><td>1 Year Official warranty</td></tr> </table>	Licensed Windows 10 Pro	Branded carry bag	1 Year Official warranty									
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9	Desktop PC	<p><b>Technical Specifications of Desktop PC as Below:</b></p> <p>Desktop PC must be of following minimum specifications:</p> <p><b>Specification's</b></p> <table border="1"> <tr><td>Processor: Intel® Core™ i5 8th generation or above</td></tr> <tr><td>RAM DDR4 8GB or above</td></tr> <tr><td>Hard Disk Drive 750GB or above</td></tr> <tr><td>Drive DVD/RW</td></tr> <tr><td>Intel Integrated Graphics</td></tr> <tr><td>Dell LED Monitor Display 20 inch or above</td></tr> <tr><td>Licensed Windows 10 Pro</td></tr> <tr><td>1 Year Official warranty</td></tr> </table>	Processor: Intel® Core™ i5 8th generation or above	RAM DDR4 8GB or above	Hard Disk Drive 750GB or above	Drive DVD/RW	Intel Integrated Graphics	Dell LED Monitor Display 20 inch or above	Licensed Windows 10 Pro	1 Year Official warranty	2			
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10	Split Unit (Inverter based)	<p><b>Technical Specifications of Air Conditioner as Below:</b></p> <p>Air Conditioner must be of following minimum specifications:</p> <p><b>Specification's</b></p> <table border="1"> <tr><td>Cooling Capacity 2 Ton or higher</td></tr> <tr><td>Cooling Capacity (BTU) 24000 or higher</td></tr> <tr><td>Inverter based</td></tr> <tr><td>Floor Standing</td></tr> <tr><td>1 Year parts warranty</td></tr> <tr><td>3 Year compressor warranty (at least)</td></tr> </table>	Cooling Capacity 2 Ton or higher	Cooling Capacity (BTU) 24000 or higher	Inverter based	Floor Standing	1 Year parts warranty	3 Year compressor warranty (at least)	2					
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11	LED Screen	<p><b>Technical Specifications of LED Screen as Below:</b></p> <p>LED Screen must be of following minimum specifications:</p> <p><b>Specification's</b></p> <table border="1"> <tr><td>Screen Size 40inch LED</td></tr> <tr><td>Full HD 1920 x 1080</td></tr> <tr><td>Smart + DTV</td></tr> <tr><td>Digital Audio, 2 or higher</td></tr> <tr><td>HDMI Ports, 2 USB Ports or higher, Digital audio out</td></tr> <tr><td>Wall mount kit</td></tr> <tr><td>1 Year Official warranty</td></tr> </table>	Screen Size 40inch LED	Full HD 1920 x 1080	Smart + DTV	Digital Audio, 2 or higher	HDMI Ports, 2 USB Ports or higher, Digital audio out	Wall mount kit	1 Year Official warranty	1				
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Smart + DTV														
Digital Audio, 2 or higher														
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Wall mount kit														
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12	Wireless equipment	<p><b>Technical Specifications of wireless equipment as Below:</b></p> <p>Wireless equipment with 30Dbi solid dishes to support</p>	8											



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		60Mbps above on 2 KM Arial distance																
		<b>Specification's</b> <table border="1"> <tr><td>Frequency 5GHz</td></tr> <tr><td>Throughput 150Mbps or higher</td></tr> <tr><td>Memory: 128MB SDRAM, 8MB Flash</td></tr> <tr><td>Networking Interface: 1 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet Interface</td></tr> <tr><td>RF Connector: 2x RP-SMA (Waterproof)</td></tr> <tr><td>24V PoE Adapter and Power Cord</td></tr> <tr><td>Supported 5GHz 30dBi parabolic dish antenna</td></tr> <tr><td>Beamwidth 5.8° (3 dB)</td></tr> <tr><td>Frequency Range 5.1 - 5.9 GHz</td></tr> <tr><td>Wind Loading 790 N @ 200 km/h</td></tr> <tr><td>Dimensions 160 x 80 x 30 mm</td></tr> <tr><td>1 Year Official warranty</td></tr> </table>	Frequency 5GHz	Throughput 150Mbps or higher	Memory: 128MB SDRAM, 8MB Flash	Networking Interface: 1 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet Interface	RF Connector: 2x RP-SMA (Waterproof)	24V PoE Adapter and Power Cord	Supported 5GHz 30dBi parabolic dish antenna	Beamwidth 5.8° (3 dB)	Frequency Range 5.1 - 5.9 GHz	Wind Loading 790 N @ 200 km/h	Dimensions 160 x 80 x 30 mm	1 Year Official warranty				
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13	Tool kit (Networking)	<b>Technical Specifications of Network Tool Kit as Below:</b>  <b>Specification's</b> <table border="1"> <tr><td>Cable tracer</td></tr> <tr><td>Cable tester</td></tr> <tr><td>Cable Cutter</td></tr> <tr><td>Wire punch down tool</td></tr> <tr><td>Wire stripper</td></tr> <tr><td>Network crimper</td></tr> <tr><td>Screwdriver</td></tr> <tr><td>Air blower</td></tr> <tr><td>Set of spanners</td></tr> </table>	Cable tracer	Cable tester	Cable Cutter	Wire punch down tool	Wire stripper	Network crimper	Screwdriver	Air blower	Set of spanners	1						
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14	Trainings	DNS Security, Routing/Switching ( <b>Outlined in Annexure-A</b> )  Training of 50 resources as outlined in Annexure-A details as follows:  <table border="1"> <tr><td>Trainers shall have expert level certification in the respective field(s)</td></tr> <tr><td>Training sessions shall be held in Lahore, Karachi and Islamabad</td></tr> <tr><td>Up to 20 participants per session</td></tr> <tr><td>Lunch and refreshments and venue will be vendor's responsibility</td></tr> </table>	Trainers shall have expert level certification in the respective field(s)	Training sessions shall be held in Lahore, Karachi and Islamabad	Up to 20 participants per session	Lunch and refreshments and venue will be vendor's responsibility	1											
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**Annexure A**

**Trainings: Trainings on DNS/DNSSEC, InfoSec, Routing/Switching**

**Contents Outline for Professional Trainings On**

1. Network Management, Routing & Switching
2. DNS & DNSSEC
3. Network Security & Ethical Hacking

**Module -1: NETWORK MANAGEMENT, ROUTING & SWITCHING (02 Days)**

**NETWORK MANAGEMENT**

- General network management and planning principles
- Network analysis and performance measurement
- Practical Cisco router configuration tips for network monitoring
- Network Operations Center concepts, including documenting your network and the use of network documentation systems such as Netdot
- SNMP and SNMP security consideration
- Nagios, Cacti, SmokePing and Observium network monitoring tools
- Ticketing systems (RT) and integration with other tools
- Change control including Subversion, RANCID and web tools NetFlow and NFSen
- Log management and monitoring with Tenshi and rsyslog
- Configuration change log/record against user credentials

**ROUTING & SWITCHING**

- OSPFv2 & OSPFv3 concepts and practical implementation
- IS-IS design and best practices for Service Provider networks
- IPv6 Protocol, Addressing and Routing
- BGP protocol, attributes and policy control
- BGP scalability (including Route Reflectors and Communities)
- BGP Best Practices, including Aggregation
- BGP multihoming techniques (redundancy and load balancing)
- BGP Communities as used by Network Operators
- ISP Best Practices

**Module-2: DNS/DNSSEC (02 Days)**

DNS Security Extensions (DNSSEC) protects DNS Data by validating the signatures associated to DNS records. PSEB technical staff shall be provided in depth technical training workshop on name server configurations, managing forward and reverse zones, mechanisms to establish authenticity, and integrity of DNS data and mechanisms to delegate trust in the DNS.

- DNS Concepts
- Root Servers, Authoritative Servers, Recursive Servers
- Setting up and Configuring Forward and Reverse DNS
- DNS Debugging Tools and Utilities
- DNS Troubleshooting
- DNS and IPv6
- DNS Security
- Protecting DNS Servers and Data
- Transaction Signatures (TSIG)
- Configuring DNSSEC and Securing Zones
- Distributing Secure Data with DNSSEC
- Troubleshooting DNSSEC
- DNSSEC Key management and Key rollovers



**PROJECT: REPLACEMENT OF DATA NODE INFRASTRUCTURE  
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**Module-3: NETWORK SECURITY & ETHICAL HACKING (02 Days)**

**A. NETWORK SECURITY**

1. TYPES OF ATTACKERS
  - i. Network Infrastructure
  - ii. Service Infrastructure (e.g. DNS, email)
  - iii. Users
2. NETWORK INFRASTRUCTURE
  - i. Router and Switch Protection
  - ii. Routing Protocol Protection
  - iii. Detecting Sick Hosts and Walling Them
3. INFRASTRUCTURE SERVICES
  - i. IDS
  - ii. Firewalls
  - iii. Anomaly Detection
4. END USER HOSTS
  - i. Mac, Unix, and Linux
  - ii. Keeping Up to Date - Patching
  - iii. Host Based Firewalls
  - iv. Authentication Services
  - v. PKI Services
  - vi. Checking for Disease: Scanners
  - vii. Preventing Disease: Anti-virus
  - viii. Safe Mail Practices
  - ix. Safe Browsing Practices in Firefox, Chrome, Safari
  - x. Safe Inter-host Protocols: SSH, RSVC, SFTP and more
  - xi. Personal Encryption of Files and Communication

**B. THREAT MODEL**

**ETHICAL HACKING**

- Key issues plaguing the information security world, incident management process, and penetration testing.
- Various types of footprinting, footprinting tools, and countermeasures.
- Network scanning techniques and scanning countermeasures.
- Enumeration techniques and enumeration countermeasures.
- System hacking methodology, steganography, steganalysis attacks, and covering tracks.
- Different types of Trojans, Trojan analysis, and Trojan countermeasures.
- Working of viruses, virus analysis, computer worms, malware analysis procedure, and countermeasures.
- Packet sniffing techniques and how to defend against sniffing.
- Social Engineering techniques identify theft, and social engineering countermeasures.
- DoS/DDoS attack techniques, botnets, DDoS attack tools, and DoS/DDoS countermeasures.
- Session hijacking techniques and countermeasures.
- Different types of webserver attacks, attack methodology, and countermeasures.
- Different types of web application attacks, web application hacking methodology, and countermeasures.
- SQL injection attacks and injection detection tools
- Wireless Encryption, wireless hacking methodology, wireless hacking tools, and wi-- security tools.
- Mobile platform attack vector, android vulnerabilities, jailbreaking iOS, windows phone 8 vulnerabilities, mobile security guidelines, and tools.
- Firewall, IDS and honeypot evasion techniques, evasion tools, and countermeasures
- Various cloud computing concepts, threats, attacks, and security techniques and tools.
- Different types of cryptography ciphers, Public Key Infrastructure (PKI), cryptography attacks, and cryptanalysis tools.
- Various types of penetration testing, security audit, vulnerability assessment, and penetration testing roadmap.