



TENDER

The Bank of Khyber invites two separate sealed envelopes, One for Technical Proposal and One for Financial proposal of the following branded items as per the following specifications:

Lot 1 SAN Storage Compliance Sheet

Vendor must comply to the points below in order to quote the required solution
(FC = Fully Compliant, PC = Partially Compliant, NC = Non-Compliant)

Specifications		
S.No	Block Dual Controller Storage Systems	FC/PC/NC
A).	High Availability	
i.	Must be designed to deliver Proven Five 9s availability (99.999%)	
ii.	Must deliver consistent predictable steady state performance	
iii.	Must keep write cache persistent during controller failure to prevent performance degradation	
iv.	SAN Solution with dual controllers, works in Active/Active mode and redundant hot-swappable controllers, cooling fans and power supplies.	
B).	Functionality	
i.	Must be truly block Storage providing native Block storage capabilities with support for FC, iSCSI, FTP, SFTP, CIFS (SMB 1/2/3)	
ii.	The solution must support all known OS platform (like windows Server 2003, 2008, 2012,2016, Linux, SUN Solaris, MAC, ESX, ESXI etc.) versions with 32/64bit architecture.	
iii.	Must have thin provisioning to allow physical allocation of just the storage that is needed within a defined LUN.	
iv.	Able to connect with Tape Library directly.	
v.	Must provide end-to-end virtualization support that provides VMware/MS Hyper-V administrators a view into storage resources and allows storage administrators to see the virtual server infrastructure	
vi.	System must allow for a single Storage Pool to serve Block LUNs Groups and VVOLs must be supported	
vii.	System must be able to dynamically optimize data placement across not less than 3 tiers of data storage (e.g. Flash, SAS, and NL-SAS) based on user policy and on a Sub-LUN level (Auto-Tiering/Easy-Tiering)	
viii.	System must be able to provision Flash/SSD capacity as a storage tier inside storage pools	
C).	Scalability	
i.	Must be able to scale up to Petabyte usable capacity in a single dual-controller box	
ii.	Total storage array/controller workload must be b/w 67% Read - 33% Write	
iii.	The solution must support 3rd generation SAS 12Gb/s drive connectivity and must be able to support all on-line data storage tiers in order to maximize both system performance and capacity scalability.	
iv.	Must be able to provide additional connectivity to meet existing or future needs for front end port counts and future technologies through hot-pluggable IO modules	
v.	Must support upgrade of hardware resources as capacity of the system grows. Which means port count and cache size.	
vi.	Should be upgradeable Data-in-Place to more powerful models with no forklift upgrades	
vii.	Must allow capacity upgrade with all necessary software licenses at the time of upgrade	
D).	Performance	
i.	Must be based on Dual Active/Active Storage Controllers architecture	
ii.	Must implement a full 64-bit Operating System using advanced multi-core Intel and multi-lane SAS-3 12Gb/s Backend Bus Technology	
iii.	Must be built on Multi-Core Optimization Technology that effectively stripes array-tasks across ALL available CPU cores in the system and vastly improves performance scaling and platform efficiency	
iv.	Must provide native replication capability that should be performed by both storage controllers for better replication performance	

E).	Data Integrity	
i.	The system must ensure and maintained data integrity at all times	
ii.	The platform should implement a no single point of failure (SPOF) architecture model	
iii.	Must include cache de-stage, dedicated cache mirroring channels, proactive sparing and automatic high-speed failover to ensure zero data loss	
iv.	Array must have the optimal quantity of global hot spare disks as recommended by the manufacturer (in addition to the usable capacity)	
F).	Flexibility	
i.	The system should be capable of supporting the following drives:	
ii.	· 200GB, 400GB, 800GB, 1.6TB and 3.84TB or more Flash SSD	
iii.	· 600GB SAS 15K rpm HDD	
iv.	· 600GB, 1.2TB and 1.8TB SAS 10K rpm HDD	
v.	· 2TB, 4TB and 6TB NL-SAS 7.2K rpm HDD	
vi.	The solution should provide flexible RAID configuration options like RAID 0/1, 5, 6 or equivalent	
vii.	Must support an All-Flash pool as well as a Hybrid Flash/HDD option	
viii.	Must support a virtual appliance model with limited capabilities that is able to replicate to full physical storage model	
G).	Security	
i.	Must provide multiple levels of access control including role-based security and auditing capability.	
ii.	Must support Data at Rest Encryption at Storage Controller Level	
H).	Management	
i.	Must provide active system management and user-directed control of system resources.	
ii.	Provide management control of SNMP, email, and phone home notification.	
iii.	Must be able to discover and monitor virtual machines.	
iv.	Management tool must provide a simple, customizable, and rich end-user experience. It must be fast and lightweight and integrates directly with virtual APIs (QoS)	
I).	In built Native Replication and Snapshot Support	
i.	Must support Replication Technology that provides dynamic adaptive Sync-Async replication based on latency and throughput policies leading to enhanced DR functionality and flexibility with the deep LUN Crash Consistency and Built in capabilities at the core such as replication and snapshots.	
ii.	Must support simultaneous local and remote replication for the same volume managed from the same interface	
iii.	The solution must support DVR-like recovery in order to restore Data to any point-in-time	
iv.	Must support replication providing granular recovery to the I/O level for Block storage	
v.	The solution must support replication technology that offers replication bandwidth optimization	
vii.	Must support bi-directional replication as well as many-to-one and one-to-many replication	
viii.	Must support Synchronous Replication over IP link	
ix.	Must support Replication that allows Non-Disruptive Testing at DR site	
x.	Native asynchronous unified replication can be used for all storage resources.	
J).	Warranty and Maintenance Support	
i.	5 years comprehensive warranty including local support and part replacement.	
ii.	24x7x365 high track principle support along with local partner support.	
iii.	Availability of spare parts in Pakistan	
L).	Required Capacity for PR Site	
i.	At Least 100 TB of usable (Tebibytes/Binary) without compression	
ii.	Required 64 GB DRAM Cache for each controller and must be scalable without change of controller hardware.	
iii.	Must support global and extended Read & Extendable Write Cache.	
iv.	3 - Tier Solution is required with SSDs, SAS and NL SAS with 2 Pools; Pool Separate All Flash Pool With 11TBu SSD/Flash Drives (Tebibytes/Binary) Approx. 11+% of Total required usable capacity using RAID5 with one parity disk and remaining with 2 nd Pool (Pool2) with auto-tiering with all 3-Tiers.	
v.	Pool-2: Tier-1 (SSD/FLASH) useable capacity should be Approx. 6.5% of Total Remaining Capacity using RAID 5 with one parity disk.	
vi.	Pool2: Tier-2 (SAS) useable capacity should be Approx. 60+% of Total Remaining Capacity with 10K RPM disks using RAID 5 with one parity disk	

vii.	Pool2: Tier-3 (NL-SAS) remaining useable capacity of total remaining Capacity using RAID 6 with 2 parity disks for every 6 data disks.	
viii.	Should have at least 1 Hot spare disks in all categories	
ix.	Must support CIFS, FC and iSCSI Protocols	
x.	Snap shot / clone functionality	
xi.	Continuous data protection must be ensured by taking copies of changed data and this should be done using a minimal amount of storage capacity for each point-in-time image.	
xii.	Should support at least 2 x 16 Gbps FC ports per controller (to maintain redundancy at all levels; no. of integrated ports and or external cards installed with the controller)	
xiii.	Must support at least 2 x 10 Gbps BaseT RJ45/Optical iSCSI ports (to maintain redundancy)	
xiv.	FC to IP Routers are required if Native IP based replication is not supported	
xv.	Storage Management Software with GUI (Auto tiering software needs to be part of storage management without extra cost)	
FC Switches for SAN - Servers connectivity (Production Site)		
A).	Redundancy	
i.	2x SAN FC Switches with redundancy.	
B).	Total Physical Ports	
i.	Each switch must have a total of 24 x 16Gbps FC ports support	
C).	Enabled Ports	
i.	Each Switch must have 12 x 16Gbps FC ports enabled with all requisite licenses and SFPs	
D).	Installed SFPs	
i.	12 x 16Gbps SFPs per switch	
E).	Supported Port Speeds	
i.	Auto-sensing of 2, 4 ,8 and 16 Gbps port speeds	
F).	Software features	
i.	- Frame-based Trunking	
ii.	- Advanced Performance Monitoring	
iii.	- Adaptive Networking	
iv.	- Proactive Monitoring and Alerting	
v.	- Bottleneck Detection	
vi.	- Advanced Zoning	
G).	Diagnostic mode	
i.	Required for low-level diagnostics of SFP, cable & long distance problems.	
H).	Forward Error Correction (FEC)	
i.	Required	
I).	Power Supply	
i.	Dual, hot-swappable redundant power supplies with integrated system cooling fans	
J).	Buffer Credit Loss	
ii.	ASIC-Enabled Buffer Credit Loss Detection and Automatic Recovery is required	
K).	Enclosure	
i.	1U	
L).	Self-Alert generation	
i.	Each switch must have Self Alert capability (system should generate an alert to the principal support to log a case in case of any critical error)	
M).	Support and Maintenance	
i.	5 years comprehensive warranty including local support and part replacement.	
ii.	24x7x365 high track principle support along with local partner support.	
iii.	The vendor must comply with the compliance points before proposing the following SAN switches.	
N).	Required SAN Switches Cables	
i.	16 x 5m LC-LC cables	
ii.	16 x 10m LC-LC cables	
NOTE:		
A).	Complete Solution	
i.	Proposed solution must be complete in all aspect of installation.	
B).	Training	
i.	3 x OEM international professional class room Training for storage administrator (including boarding lodging TA/DA) on the product before deployment.(FOC).	
C).	Deployment	

i.	All Vendors will have to share deployment plan (scope of work, solution designing, and project implementation/deployment plan) before deployment and then vendor will deploy the solution on site with migration complete offered features.	
ii.	All Vendors must have to provide at least 4 deployments for core application (Banking & financial Institution of Pakistan) for the similar product and/or solution with contact information and valid proof.	
iv.	All Vendors are requested to provide sizing reports which are mandatory to be submitted reflecting same requirement and its exact mapping with the specified ratios and workload ratios.	
v.	The valid and current OEM Authorization Letter or Form required to be submitted with the solution.	
vi.	Detailed Project Plan and Scope of Work reflecting each deployment/implementation step required to be submitted with the solution with tentative dates/schedule.	

Lot 2 VOIP

S #	DESCRIPTION	REQUIREMENT	COMPLIANCE
			YES / NO
IP PBX			
	HEAD OFFICE		
1	Approval	Pakistan Telecom Authority - Mandatory	
2	Network Interface	Dual Gigabit RJ45 ports with integrated PoE Plus (IEEE 802.3at-2009)	
3	NAT Router	Router mode and Switch mode	
4	QoS	Layer 3 QoS, Layer 2 QoS	
5	Media Encryption	SRTP, TLS, HTTPS, SSH	
6	DASH board	PBX Status, Configuration Partition, Data Partition, Recourse usage, Disk capacity, Interface Status, Trunk	
7	Provisioning Protocol & Plug-and-Play	TFTP/HTTP/HTTPS, auto-discovery & auto-provisioning IP end points via Zero-Config, event list between local and remote trunk	
8	Network Protocols	TCP/UDP/IP, RTP/RTCP, ICMP, ARP, DNS, DHCP, NTP,TFTP,SSH,HTTP/HTTPS, PPPoE, SIP(RFC3261), STUN, SRTP, TLS, LDAP	
9	SIP Device Registration	Supports up to 800 registered SIP device/Users	
10	Analog Telephone	2 Port (FXS Port), 08 Port (FXO Port)	
11	SIP Trunk	50 SIP trunk	
12	Video codecs	H.264, H.263, H.263+	
13	Voice and Fax Codec	G.711 A-Law/U-Law, G.722, G.723.1 5.3K/6.3K, G.726A/B, iLBC, GSM, AAL2-G.726-32, ADPCM: T.38	
14	Call Feature	Call park, Call forward (Busy, No answer and Unconditional), Call Transfer, DND, Ring/Hunt group. Paging/intercom	
15	Outbound and inbound calls	Internal/Local/Nation wide/International	
16	Maximum Call Capacity	Concurrent SIP Calls: 100 or 66% performance if calls are SRTP encrypted	
17	Universal Power supply	Output: 12 VDC, 1.5A , Input: 100~240 VAC, 50~ 60 Hz	

18	Conference calls	8 way conference, conference Schedule , Google calendar integration, Google service setting	
19	Voice mail	Voice mail	
20	Call Recording	USB, SD card	
21	Call Detail Record	CDR, Download setting (All record, Search, Automatic download), CDR statistic, API Configuration	
22	Call Center	Multiple configurable, call queues, automatic call distribution (ACD) based on agent Skills/availability/busy level, in-queue announcement	
IP PHONE			
High Management Phone (Video Phone)			
1	Approval	Pakistan Telecom authority (Mandatory)	
2	Screen Size	7" (1024×600) capacitive (5 points) touch screen TFT LCD, mega pixel CMOS sensor camera with privacy shutter	
3	Gigabit Ethernet Switch	Dual switched auto-sensing 10/100/1000Mbps network ports, Wi-Fi (802.11b/g/n), PoE+	
4	IEEE 802.3af PoE	Supports IEEE 802.3af PoE	
5	SIP Account	6 lines with up to 6 SIP accounts including up to 6-way audio conference and 3-way video conference, phonebook with up to 1000 contacts, call history with up to 1000 record	
6	Multipurpose Key	Speed dial, BLF key ,	
7	Multiplatform Intgration	Offers a multi-platorm video conferencing solution (Skype, Microsoft Lync, Skype for Business and more)	
8	Video Codec	H.264 BP/MP/HP, video resolution up to 720p HD, frame rate up to 30 fps, bitrate up to 2Mbps, 3-way video conference, anti-flickering, auto focus and auto exposure, PIP (Picture-in-Picture), on-screen-display, camera block, still picture capture/store, video recording, visual voice message indicator	
9	Voice Codec	Support for G.711μ/a, G.722 (wide-band), G.726-32, iLBC, Opus (pending), in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO)	
10	Telephone Feature	Hold, transfer, forward (unconditional/no-answer/busy), call park/pickup, 6-way audio conference, shared-call-appearance (SCA) / bridged-line-appearance (BLA), virtual MPK, downloadable phone book (XML, LDAP), call waiting, call history, boss-secretary virtual button, flexible dial plan, hot desking, personalized music ringtones, server redundancy & fail-over	
11	QoS	Layer 2 QoS (802.1Q, 802.1p) and Layer 3 (ToS, DiffServ, MPLS) QoS	
12	Security	User and administrator level access control, MD5 and MD5-sess based authentication, 256-bit AES encrypted configuration file, TLS, SRTP, HTTPS, 802.1x media access control	
Telephone Operator / PA (SIP Phone) with Extension details			
1	Approval	Pakistan Telecom authority	
2	Gigabit Ethernet Switch	Dual switched auto-sensing 10/100/1000Mbps network ports, Wi-Fi (802.11b/g/n), PoE+	
3	IEEE 802.3af PoE	Supports IEEE 802.3af PoE	
4	SIP Account	4 SIP accounts, 5-way audio conference	
5	Multipurpose Key	40 Busy Lamp Field Keys	

6	Voice Codec	Support for G.711μ/a, G.722 (wide-band), G.726-32, iLBC, Opus (pending), in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO)	
7	Telephone Feature	Hold, transfer, forward (unconditional/no-answer/busy), call park/pickup, 6-way audio conference, shared-call-appearance (SCA) / bridged-line-appearance (BLA), virtual MPK, downloadable phone book (XML, LDAP), call waiting, call history, boss-secretary virtual button, flexible dial plan, hot desking, personalized music ringtones, server redundancy & fail-over	
8	QoS	Layer 2 QoS (802.1Q, 802.1p) and Layer 3 (ToS, DiffServ, MPLS) QoS	
9	Security	User and administrator level access control, MD5 and MD5-sess based authentication, 256-bit AES encrypted configuration file, TLS, SRTP, HTTPS, 802.1x media access control	
Normal Users (SIP Phone)			
1	Approval	Pakistan Telecom authority	
2	Ethernet Switch	Dual switched auto-sensing 10/100 Mbps network ports, Wi-Fi (802.11b/g/n), PoE+	
3	IEEE 802.3af PoE	Supports IEEE 802.3af PoE	
4	SIP Account	2 line with up to 1 SIP accounts, 3-way audio conference	
5	Voice Codec	Support for G.711μ/a, G.722 (wide-band), G.726-32, iLBC, Opus (pending), in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO)	
6	Telephone Feature	Hold, transfer, forward (unconditional/no-answer/busy), call park/pickup, 6-way audio conference, shared-call-appearance (SCA) / bridged-line-appearance (BLA), virtual MPK, downloadable phone book (XML, LDAP), call waiting, call history, boss-secretary virtual button, flexible dial plan, hot desking, personalized music ringtones, server redundancy & fail-over	
7	QoS	Layer 2 QoS (802.1Q, 802.1p) and Layer 3 (ToS, DiffServ, MPLS) QoS	
8	Security	User and administrator level access control, MD5 and MD5-sess based authentication, 256-bit AES encrypted configuration file, TLS, SRTP, HTTPS, 802.1x media access control	
	Warranty	one year	

Installation and Provision of IP Telephonic Equipment

S #	Equipment	Qty. Appox.
A	IP PBX (Head Office)	1
D	IP Phone (Higher Management - Video Phone)	15
G	IP Phone (Normal Users - SIP Phone)	100
H	IP Phone (Operator Phone / PA) with Extensions detail Model	4

TERMS & CONDITIONS

1. The Procurement shall be conducted in accordance with the Khyber Pakhtunkhwa Procurement Rules 2014 on **Single Stage Two Envelope Procedure**.
2. The Bank of Khyber invites two separate sealed envelopes, One for Technical Proposal and One for Financial proposal from TR1 partner for the supply, delivery and installation.
3. The Technical bid should clearly mention Make, Model and Brand, (Specification of bid) without quoting the price and must mention the warranty period.
4. The bidder can apply for the whole Tender or for any one specific **LOT** as per his expertise.
5. Company seal / stamp must be fixed on Technical Specification and Financial Proposal.
6. **If any firm fails to qualify the Technical Evaluation Criteria based upon Mandatory Requirements, then financial bid of the same will not be opened.**
7. **Mandatory Requirements are as follows:-**
 - a. The bidder should provide the item manufacture's **TR1** authorization certificate.
 - b. Approval from Pakistan Telecom Authority for VOIP telephone system
 - c. The bidder should provide **KPPRA/PPRA/SPPRA** registration Certificate with Technical Proposal.
 - d. The bidder should provide **FBR** registration certificate with Technical Proposal.
 - e. The bidder should provide an **undertaking** on stamp paper that it is not blacklisted by any of the Provincial / Federal Government or organization of the state / Federal Government in Pakistan.

- f. The bidder must submit **Annual Audited Report** for the last three years.
 - g. The firm preferably has office in Peshawar and must submit a **List of Offices** across Pakistan.
 - h. The bidder shall give at least **Five Relevant References** (Purchase Order) of similar equipment delivery / installation by their firm.
 - i. The bidder shall have at least **Five Year Relevant Experience** for the supply of similar equipment.
 - j. **Call Deposit** of Two percent (2%) of the total bid amount must be attached with financial proposal in separate sealed envelope in favor of Head IT Division, The Bank of Khyber **on or before 10:00 AM, 26-12-2017.**
8. **Tender bid opening will be held on Tuesday, 26-12-2017 at 11:00AM at BOK I.T Division.**
 9. **Any bid submitted after due date and time will not be entertained.**
 10. The Bank of Khyber will not be responsible for any costs or expenses incurred by bidders in connection with the preparation or delivery of bids.
 11. The prices quoted shall remain valid for **120 days**, after the date of opening the tender.
 12. Delivery of all items must be made within **(6 – 8)** weeks of issuance of purchase order.
 13. All prices quoted must be inclusive of all Taxes applicable, such as GST, Income Tax, etc.
 14. Rate should be quoted in words and figures.
 15. **In case of failure to supply the item under specified time. The work order should be awarded to second lowest.**
 16. Failure to supply items within **(6 - 8)** weeks' time period will invoke. In addition to that, two percent (2%) Call Deposit (CDR) amount will be forfeited.
 17. Bidders must submit at least one bid that matches or is better than the required specifications and are free to quote more options each clearly marked as option 1, option 2 in separate envelopes.
 18. **No negotiations and revised bids will be allowed.**

I T Division, Head Office
The Bank of Khyber
4th Floor,
State Life Building, Peshawar.
Phone: 091-5279690, 091-5274399



The Bank of Khyber

Tender

The Bank of Khyber invites two separate sealed envelopes, One for Technical Proposal and One for Financial proposal from TR1 partner for the supply and delivery of the following items:-

- 1) **SAN Storage**
- 2) **VOIP Telephone System**

The Procurement shall be conducted in accordance with the Khyber Pakhtunkhwa Procurement Rules 2014 on **Single Stage Two Envelope Procedure**.

Terms and conditions for the above purchase equipment can be seen on website <http://www.bok.com.pk/downloads/>

All bids must be accompanied by a call deposit of two percent (2%) of the total bid amount in favor of The Bank and must be delivered to the HEAD IT DIVISION, THE BANK of KHYBER on **26-12-2017 Tuesday at 10:00AM** and the opening timings is **11:00AM** on same day at **BOK I.T Division**.

IT Division, Head office
The Bank of Khyber
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