|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BOQ FINANCIALS** | | | | |
| **S.No.** | **Software** | **Quantity** | **Unit** | **Price Inc Tax** |
| 1 | Financial Accounting Solution as per SOW | 1 | Each License |  |
| 2 | **ERP HRCM as per SOW** | 1 | Each License |  |
| 3 | **CMS for Call Center as per SOW** | 1 | Solution |  |
| 4 | Human Resource Management as per SOW | 1 | Solution |  |
| 5 | Integrations Services | 1 | Services |  |
| 6 | **Microsoft Dynamics CRM client license (Professional Cals)** | **1** | No |  |
| 7 | **Configuration, Customization and integration of existing Microsoft Dynamics CRM customer care module.** | **1** | Job |  |
|  |  |  |  |  |
| **Main Data Center Site BoQ** | | | | |
| **Raised Flooring for Data & Power  Room - Cement Infill Floor Tiles** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** | **Price Inc Tax** |
| 1 | Supply and Installation of Raise Floor inside Data Room and Power Room Area including stringer and pedestals installed at a height of 10". To be charged as per actual | 1 | Sq. Ft |  |
| 2 | Wiring Inlet for Cables entrance for racks | 1 | Nos. |  |
| 3 | Tile Lifter | 1 | Nos. |  |
| 4 | Decontamination Services for Data Center Environment | 1 | Solution |  |
| 5 | Data Center Air Purification System   1. **Airflow: 1000 CFM** 2. **1.5 HP MOTOR** 3. **2" PREFILTER 35%** 4. **4" FINAL FILTER 95%**   **4X MEDIA CARTRIDGES, 1 CUFT EA** | 1 | Solution |  |
| **Data Centre Grounding and Bonding Solution** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
|  | Grounding & Bonding of **04 Racks** inside Data Centre comprising of: |  | |  |
| 1 | Supply and Installation of Copper Bus bar kit (Per Rack) | 1 | Job |  |
| 2 | Supply and installation of U clamps used under the raise floor | 1 | Job |  |
| 3 | Supply and installation of Bonding Kit (for Each Rack and Bus Bar) | 1 | Nos. |  |
| 4 | Supply and installation of Copper Grounding Wire | 1 | Ft |  |
| 5 | Supply and installation of Bus Bar for Wall | 1 | Job |  |
| 6 | Telecommunication Earth pit to be provided inside the Data Center | 1 | Job |  |
| **Room Environment Monitoring System** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Room Environment Monitoring System. The unit shall have a built-in GSM module and shall be equipped with following sensors: | 1 | Nos. |  |
| Temperature and Humidity |  |
| Power |  |
| Water Leakage Sensor, Cable length not more than 5-6 ft |  |
| **Racks for Network and Communication Equipment** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | 42U 800 x 1000 Rack fully loaded with side panels, cable managers, blank panels, etc. having back and front mesh door Rack should have four wheels and casters. | 1 | Nos. |  |
| 2 | 08 Socket PDU, Flat Pin (Same make as that of Cabling Brand) | 1 | Nos. |  |
|  |  |  |  |  |
| **Supply & Installation of Access Control & Video Monitoring Solution** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Supply and Installation of RFID Proximity Access Control System with Ethernet Interface including Magnetic Door Lock. One unit each shall be installed at the entrance for NOC, Data Room and Power Room respectively. Installation should be complete in all respects including data/power cabling | 1 | Nos |  |
| 2 | Supply and Installation of IP Cameras for Monitoring. One unit each Shall be installed for monitoring inside NOC, Data Room and Power Room respectively. Installation should be complete in all respects including data/power cabling. One year warranty. As per RFP specs | 1 | Nos |  |
| **Fire Detection & Suppression System for Data Room** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1  2 | Supply of Fire Detection System for Data Room, comprising of Optical Smoke Detectors, Fire Extinguishing Control Panel and Electrical Wiring | 1  1 | Job  Nos |  |
| Supply of Fire Suppression System, NOVEC 1230 Type for Data Room including Cylinder, Electric & Manual Actuator, Piping for Fire Suppressing System and Nozzles |  |
| **Fire Detection & Suppression System for UPS Room** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1  2 | Supply of Fire Detection System for UPS Room, comprising of Optical Smoke Detectors, Fire Extinguishing Control Panel and Electrical Wiring | 1  1 | Job  Nos |  |
| Supply of Fire Suppression System, NOVEC 1230 Type for UPS Room including Cylinder, Electric & Manual Actuator, Piping for Fire Suppressing System and Nozzles |  |
| **Supply & Installation of Electrical DB & Wiring** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Supply and Installation of Electrical Distribution Box for Incoming Mains & UPS Output Distribution, to be installed inside the UPS Room. DB shall have Ammeter, Volt Meter and LED Indicator. | 1 | Nos. |  |
|  | Raw Power Distribution shall comprise of Circuit Breaker for Incoming Power, UPS Input Power, Input Power for A/C's and Lights, Fire Extinguishing Control Panel and NOC Users. |  |  |  |
| 2 | Supply and Installation of Electrical Distribution Box for UPS Power Distribution to Racks, Cameras, Access Control and other UPS Load, Ammeter, Volt Meter and LED Indicator. | 1 | Nos. |  |
|  | UPS Output Distribution shall comprise of Circuit Breaker for UPS output Power, PS Power for Racks and NOC Users. |  |  |  |
| 3 | Emergency Lights | 1 | Nos. |  |
| 4 | Supply & Installation of 32 Amp Industrial Power Sockets (Single Phase) including Electrical Cabling from UPS DB to each rack. | 1 | Nos. |  |
| 5 | Lights inside  Data Center, UPS Room installed on Ceiling each with 2 x 2 LED | 1 | Nos. |  |
| 6 | Sequential A/C Control for AC's inside Data Room. Control shall be configured so that one split AC remains operational for 12 Hours and the other one of remaining 12 Hours | 1 | Nos. |  |
| 7 | Sequential A/C Control for AC's inside UPS Room. Control shall be configured so that one split AC remains operational for 12 Hours and the other one of remaining 12 Hours | 1 | Nos. |  |
| 8 | Supply & Install branded Electrical Cabling for AC Units, Lights, Access Control, NOC Users, UPS Input and Output from DB's (PAKISTAN CABLE) | 1 | Nos. |  |
| 9 | Supply & Installation of Emergency Shut Down Switch | 1 | Nos. |  |
| 10 | Online UPS 30kVA with Standard Backup Time of at least 15 minutes. Preferable standby time would be 30 minutes. | 1 | Nos. |  |
|  | *Electrical Main Cable shall be provided at the Main DB inside the Datacenter/UPS Room* |  | |  |
| **Supply & Installation of Cable Trays for Data & Electrical Cables** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Supply & Installation of Rack Cable tray 6" x 4" Under Raised Floor for Data Cabling (to be charged as per actual) | 1 | Ft |  |
| 2 | Supply & Installation of Cable tray 12" x 4" for Power Cabling under raised flooring (to be charged as per actual) | 1 | Ft |  |
| **Civil & Glass Works** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Supply & Installation of Glass Door for Entrance inside NOC Room and from NOC Room inside the Data Room Area - dimensions 3' width x 7' height. Glass used shall be 12mm glass. | 1 | Nos. |  |
| 2 | Glass Partitioning Works & Civil Works | 1 | Job |  |
| 3 | Paint Works inside Data Room, UPS Room and NOC Room comprising of Fire Protection paint on all Walls. | 1 | Job |  |
| 4 | PVC 1” for cabling | 1 | Ft |  |
| 5 | Duct / Channel 40 x 40 | 1 | Duct |  |
| 6 | Duct / Channel 16 x 38 | 1 | Duct |  |
| 7 | Duct / Channel 16 x 25 | 1 | Duct |  |
| **Cooling Solution** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Supply and Installation of 4 Tons Perimeter precision HAVC Unit inside Data Room, complete with fixing of outer units and piping | 1 | Nos. |  |
| 2 | Supply and Installation of 2 Tons Wall Mounted Split Air Conditioning Unit inside UPS Room, complete with fixing of outer units and piping | 1 | Nos. |  |
| 3 | Supply and Installation of 2 Tons Wall Mounted Split Air Conditioning Unit inside NOC Room, complete with fixing of outer units and piping | 1 | Nos. |  |
| **Data Cabling** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Rack to Rack Cabling comprising of following: |  | |  |
| *a.* | Cat-6A 10G Compliant Cabling (to be charged as per actual) | 1 | Meters |  |
| *b.* | 24 Port Patch Panels 10G Compliant | 1 | Nos. |  |
| *c.* | Cat-6A 10G Complaint Patch Cords, 1meter | 1 | Nos. |  |
| *d.* | Cat-6A 10G Complaint Patch Cords, 3meter | 1 | Nos. |  |
| *e.* | Cat-6A 10G Complaint Patch Cords, 10meter | 1 | Nos. |  |
| 2 | Data Cabling for NOC Room Users Comprising of Cat-6 UTP Cable, each set of One Face Plate with back box having two Cat-6 UTP I/O's and two multi power socket | 1 | Set |  |
| 3 | Data Cabling for end Users Comprising of Cat-6 UTP Cable, each set of One Face Plate with back box having single Cat-6 UTP I/O's and two multi power socket | 1 | Set |  |
| **NOC Room** | | | |  |
| **S.No** | **Description** | **Quantity** | **Unit** |  |
| 1 | Furniture for NOC Room Users Comprising of 3 Nos. Table Top and 3 Nos. Chairs | 1 | Job. |  |
| 2 | 46" LCD TV for monitoring of NMS and Data Center Alerts | 1 | No. |  |
| **Access Switches** | | | |  |
| 1 | Supply and Installation of access switches having Ethernet ports of : 24 10/100/1000 Ports ,2 Ports for Uplink RJ45 or SFP based 10/100/1000, Switching capacity 12.8 GbpsGbps , Flash Memory 128 and DRAM 256 ,Rack Mounting ,Enterprise Class Intelligent services delivered to the Network Edge ,IOS Support Lan Level and Part Replaced should be on next working day. | 1 | No |  |
| 2 | Supply and Installation of access switches having Ethernet ports of : 12 10/100/1000 Ports ,2 Ports for Uplink RJ45 or SFP based 10/100/1000, Switching capacity 12.8 GbpsGbps , Flash Memory 128 and DRAM 256 ,Rack Mounting ,Enterprise Class Intelligent services delivered to the Network Edge ,IOS Support Lan Level and Part Replaced should be on next working day. | 1 | No |  |
| 3 | Supply and Installation of access switches having Ethernet ports of : 8 10/100/1000 Ports ,2 Ports for Uplink RJ45 or SFP based 10/100/1000, Switching capacity 12.8 GbpsGbps , Flash Memory 128 and DRAM 256 ,Rack Mounting ,Enterprise Class Intelligent services delivered to the Network Edge ,IOS Support Lan Level and Part Replaced should be on next working day. | 1 | No |  |
| **Wireless Access Point** | | | |  |
| 1 | Supply and installation of Access points controller based should support 3x3 MIMO with two spatial stream, MRC, 802.11a/g beamforming, 20 and 40-Mhz Channels, PHY data rates up to 300 Mbps (40 MHz with 5Ghz), Packet Aggregation: A-MPDU(tx/rx) and A-MSDU (tx/Rx), DFS, CSD support and part replacement should be on next working day. | 1 | No |  |
| **Wireless Controller** | | | | |
| 2 | Supply and installation of wireless LAN Controller should support up to 75 access points and up to 1000 clients, quick and easy deployment access point  can be connected directly to wireless LAN controller via two POE ports, High performance, wire Network speed and non-blocking performance of 802.11n And 802.11ac network which support up to 1Gbps throughput, Rack mounting, should include all required software and part replacement should be on next working day. | 1 | No. |  |
| BOQ for Infrastructure | | | | |

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| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Parameter** | **Functionality** | **Unit** | **Qty** | **Price Inc Tax** |
| **1** | Converge / Unified Storage | 1. Offered Storage array shall be a true converge / unified storage with a single Microcode / operating system instead of running different Microcode / Operating system / Controllers for File, block and object services respectively. 2. Offered Storage array shall be end-to end 12Gbps enabled which means that both Front-end Fiber channel ports and Back-end engines shall be operated at minimum 12Gbps speed. | **Each** | **1** |  |
| Operating System & Clustering Support | The storage array should support industry-leading Operating System platforms including: *Windows 2012*, VMware, Sun Solaris, HP-UX, IBM-AIX and Linux. |
| Capacity & Scalability | 1. The Storage Array shall be offered with 48TB Capacity using 1800 GB drives. 2. Storage shall be scalable to minimum of 430TB using 1800GB drives. |
| Cache | 1. Offerd Storage Array shall be given with minimum of 64GB cache in a single unit.  2. Cache shall be used only for Data and Control information. OS overhead shall not be done inside cache.  3. Offered Storage array shall also have additional support for Flash Cache using SSD / Flash drives. Both File services as well as Block operations shall be able to utilize flash cache. Minimum of 500GB Flash cache hall be supported. 4. If Flash cache is not supported inside the storage array then vendor shall ensure that offered storage array shall be scalable to minimum of 128GB DRAM cache without any replacement or upgrade of controllers. |
| Processing Power | 1. Offered Storage architecture shall be based on purpose built ASIC, XOR engine so that there shall be no load on the storage CPU during Raid Parity calculations.  2. In case vendor doesn’t have above ASIC functionality then additional 16GB read and write cache shall be provided per controller pair to balance the performance. |
| Architecture & Processing Power | Controllers shall be true active-active so that a single logical unit can be shared across all offered controllers in symmetrical fashion, while supporting all the major functionalities like Thin Provisioning, Data Tiering etc.. |
| No Single point of Failure | Offered Storage Array shall be configured in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc. |
| Disk Drive Support | Offered Storage Array shall support dual-ported 300 / 900 / 1200 / 1800GB hot-pluggable Enterprise SAS hard drives, Minimum of 400GB SSD Drives along with nearline SAS drives of 2TB / 4TB / 6TB drives. |
| Raid Support & Virtualization | 1. Offered Storage Subsystem shall support Raid 0, 1 , 1+0, 5 and Raid 6.  2. Offered storage array shall have native virtualization support so that Raid 1. Raid 5, Raid 1+0, Raid 6 can be carved out from a logical space instead of dedicating separate physical disks for each application.  3. Every supplied disk shall be able to participate into multiple and different raid sets simultaneously.  4. In case vendor does not have above functionality, then 20% additional raw capacity shall be provided for each type of disk to balance out the capacity utilization. |
| Data Protection | Incase of Power failure, Storage array shall have de-stage feature to avoid any data loss. |
| Protocols | Offered Storage array shall support all well-known protocols like FC, ISCSI, FCOE, SMB 3.0, NFS V4, NDMP etc. |
| Host Ports and Back-end Ports | 1. Offered Storage shall have minimum of 4 host ports for connectivity to servers running at 16Gbps speed.  2. Offered storage shall also support additonal Quad 10Gbps IP ports or 8 x 1Gbps IP ports for file services operations.  3. Offered storage shall have two additional IP ports for the the storage based replication. 4. Offered storage shall have 16 number of SAS Back-end lanes running at 12Gbps speed. |
| Global Hot Spare | 1. offered Storage Array shall support distributed Global hot Spare for offered Disk drives. 2. Global hot spare shall be configure as per industry practice. |
| Performance and Quality of service | 1. Shall have capability to use more than 30 drives per array group or raid group for better performance. 2. Storage shall be provided with Performance Management Software. 3. Offered storage array shall support quality of service for critical applications so that appropriate and required response time can be defined for application logical units at storage. It shall be possible to define different service / response time for different application logical units. 4. Quality of service engine shall allow to define minimum and maximum cap for required IOPS / bandwidth for a given logical units of application running at storage array. 5. It shall be possible to change the quality of service Response time (In both milliseconds as well as Sub-milliseconds), IOPS, bandwidth specification at real time. |
| Thin Provisioning and Space Reclaim | 1. Offered storage array shall be supplied with Thin provisioning and Thin Re-claim to make the volume thin for an extended period of time for complete array supported raw capacity.  2. Thin Re-claim (Zero Page reclaim) inside storage subsystem shall be automatic in nature and there shall be no need to run any utility inside storage for same. 3. Thin Re-claim inside storage shall not cause any overloading of Storage CPU and shall be able to claim the Zero pages even during peak load without any performance impact 4. For effective capacity utilization, thin reclaim maximum unit shall be 16KB. Vendor shall provide the documentary proof for same. 5. Offered storage array shall be tightly integrated with VMware so that Eager zero disks layout can be used with thin provisioning and thin re-claim. |
| Maintenance | Offered storage shall support online non-disruptive firmware upgrade for both Controller and disk drives. |
| Snapshot / Point in time copy / Clone | 1. Offered Storage shall have support to make the snapshot and full copy (Clone) on the thin volumes if original volume is created on thick or vice-versa. 2. The storage array should have support for both controller-based as well as file system based snapshots functionality (At-least 1024 copies for a given volume or a file store). 3. Storage array shall have functionality to re-claim the space from Thin Provisioned Deleted snapshot automatically. Vendors shall provision at-least 20% additional space over and above the actual requirements, if space re-claim from thin provisioned deleted snapshot is not possible automatically. |
| Quota Management and Antivirus Scanning | 1. For file services operations, offered storage shall support both user level as well as file level hard and soft quota.  2. For file services operations, offered storage shall support integration with industry leading antivirus vendors like Symantec and MacAfee. |
| Storage Array Configuration & Management Software | 1. Vendor shall provide Storage Array configuration and Management software.  2. Software shall be able to manage more than one array of same family. |
| Storage Tiering | 1. Offered storage shall support dynamic migration of Volume from one Raid set to another set while keeping the application online.  2. For effective data tiering, Storage subsystem shall support automatically Policy based Sub-Lun Data Migration from one Set of drive Tier to another set of drive tier. |
| Remote Replication | 1. The storage array should support hardware based data replication at the array controller level across all models of the offered family. 2. The Storage array shall also support three ways (3 Data Centers) replication to ensure zero RPO in native fashion without using any additional replication appliance.  3. Replication shall support incremental replication after resumption from Link Failure or failback situations. |
| **2** | **SAN Switch** | Minimum Dual SAN switches shall be configured where each SAN switch shall be configured with minimum of 8 Ports scalable to 24 ports, Required scalability shall not be achieved by cascading the number of switches and shall be offered within the common chassis only, Should deliver 8 Gbit/Sec Non-blocking architecture with 1:1 performance for up to 24 ports in a energy-efficient fashion, Should protect existing device investments with auto-sensing 4, 8, and 16 Gbit/sec capabilities,  The switch shall support different port types such as FL\_Port, F\_Port, E\_Port, EX\_Port. Should provide enterprise-class availability features such as redundant and hot pluggable components like power supply and FAN, Non disruptive Microcode/ firmware Upgrades and hot code activation. The switch shall provide Aggregate bandwidth of 768 Gbit/sec end to end. Switch shall have support for web based management and should also support CLI. The switch should have USB port for firmware download, support save, and configuration upload/download. Offered SAN switches shall be highly efficient in power consumption. Bidder shall ensure that each offered SAN switch shall consume less than 100 Watt of power. Switch shall support POST and online/offline diagnostics, including RAStrace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port). Switch shall support POST and online/offline diagnostics, including RAStrace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port)., Offered SAN switch shall support services such as Quality of Service (QoS) to help optimize application performance in consolidated, virtual environments. It should be possible to define high, medium and low priority QOS zones to expidite high-priority traffic , The switch shall be able to support ISL trunk up to 128 Gbit/sec between a pair of switches for optimal bandwidth utilization and load balancing. SAN switch shall support to restrict data flow from less critical hosts at preset bandwidths. It should be possible to isolate the high bandwidth data flows traffic to specific ISLs by using simple zoning, The Switch should be configured with the Zoning and shall support ISL Trunking features when cascading more than 2 numbers of SAN switches into a single fabric. Offered SAN switches shall support to measure the top bandwidth-consuming traffic in real time for a specific port or a fabric which should detail the physical or virtual device. | **Each** | **1** |  |
| **3** | **Blade Chassis** | Blade Chassis with capacity to holds up to 16 server or higher blades with redundant network and storage interconnects. Should include a shared, multi-terabit high-speed midplane for wire-once connectivity of Up to 4 redundant interconnect I/O fabrics (Ethernet, Fibre Channel, InfiniBand, iSCSI, SAS, etc.) supported simultaneously within the enclosure. With Thermal Logic technology to minimize power consumption and reduce cooling. With 8 hot-plug Active Cool 200 Fans and 4 Active Cool 200 Fan kits. With Onboard Administrator management module.server blades to network and shared storage with power through a pooled power backplane. Onboard Administrator Module should be capable of Robust, multiple enclosure setup and control. Reports asset and inventory information for the devices in the enclosure. Reports thermal and power information, including real-time actual power usage per server and per enclosure. Front-mounted Insight Display for easy management within the unnelling. Should Provide integrated access to interconnect bay device management ports from the single Blade System Onboard Administrator cable. Single sign-on capability for all devices in the enclosure Role-based security locally and/or with LDAP directory services. Provides a wizard-based initial setup process for easy configuration. | **Each** | **1** |  |
| **4** | **Blade Servers** | Blade Server with Intel® C610 Series Chipset and dual Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W with 128GB (4 x 32GB) DDR4 2133MHz RDIMMs, 1 x 10Gb 2-port Ethernet FLB, Two (2) I/O expansion mezzanine slots, 1 x smart array with 1GB Flash-Backed Write Cache (FBWC) supporting RAID 0 and RAID 1, 2 x 1.6TB SAS SSD, Redundant Power and Cooling | **Each** | **1** |  |
| **5** | **Antivirus Solution** | VirusScan Enterprise, VirusScan Command Line, Endpoint Protection for MAC, Host Intrusion Prevention for Desktops, Desktop Firewall, SiteAdvisor Enterprise with Web Filtering, Device Control, Drive Encryption, File & Removable Media Protection, Management of Native Encryption, VirusScan for Linux, Security for Email Servers with AntiSpam, Security for Microsoft SharePoint, VirusScan Enterprise for Storage, Enterprise Mobility management and Endpoint Intelligence Agent. Enterprise Mobility Management to be used on one additional mobile device. Management system included: Policy Orchestrator. | **Each** | **1** |  |
| **6** | **Microsoft Server** | Microsoft Windows 2012 Standard Server License | **Each** | **1** |  |
| **6.1** | **Microsoft Server DataCenter** | Microsoft Windows 2012 Datacenter edition | **Each** | **1** |  |
| **7** | **Main Firewall** | Firewall having at least memory of 2 GB or higher, with 2 or higher 10 GbE SFP+ interfaces,1 GbE SFP interfaces, 12 or more 1 GbE Copper interfaces, 1 x 1GbE Copper Management interfaces, Expansion Slot (Rear), SD Card, USB, Firewall inspection throughput 3.4 Gbps or higher, Full DPI throughput 500 Mbps or higher, Application inspection throughput 1.1 Gbps, IPS throughput 1.1 Gbps or higher, Anti-malware inspection throughput 600 Mbps or higher, IMIX throughput 900 Mbps or higher, SSL Inspection and Decryption (DPI SSL) 300 Mbps or higher, VPN throughput 1.5 Gbps or higher, Connections per second 20,000 per second or lower, Maximum connections (SPI) 325000 or higher. 50 VPN Software clients | **Each** | **1** |  |
| **8** | **Branch Firewall** | Firewall having at least memory of 1 GB or higher, 10 or more 1 GbE Copper interfaces, 1 x 1GbE Copper Management interfaces, Expansion Slot (Rear), 2 USB, Firewall inspection throughput 1.5 Gbps or higher, Full DPI throughput 500 Mbps or higher, Application inspection throughput 1.1 Gbps, IPS throughput 1.1 Gbps or higher, Anti-malware inspection throughput 500 Mbps or higher, IMIX throughput 900 Mbps or higher, SSL Inspection and Decryption (DPI SSL) 300 Mbps or higher, VPN throughput 1.5 Gbps or higher | **Each** | **1** |  |
| **9** | **Branch Server** | 1 u rack mount server with Intel® C610 Series Chipset and dual E5-2643v3 or higher processor, 32 GB RAM, dual power supply, 2 TB useable capacity on RAID 5 | **Each** | **1** |  |
| **10** | **Core Switch** | Interface Requirements:   * Should support atleast 96 x 1G(Copper/Fiber) ports * Should support atleast 32 x SFP+ ports * Should support atleast 24 x 40G ports * Should support atleast 4 x 100G ports * Should support virtual switching fabrics, where two or more switches perform as a single L2 switch and L3 router; switches do not have to be co-located and can be part of a disaster-recovery system. Should support minimum 4 switches * Should support minimum switching capacity of 7.7 Tbps   General Requirements   * Should support ISSU to provide an upgrade of the entire chassis or an individual task or process, with zero packet loss * Should virtualize a physical switch into multiple logical devices, with each logical switch having its own processes, configuration, and administration * All switching and routing should be performed in the I/O module * Should support Jumbo Frames * Should protect against unknown broadcast, unknown multicast, or unicast storms with user-defined thresholds * Should provide back pressure using standard IEEE 802.3x, reducing congestion in heavy traffic situations * Should support IEEE 802.1p prioritization * Should support Class of Service (CoS), setting the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ * Should support Bandwidth shaping * Port-based rate limiting, provides per-port ingress-/egress-enforced increased bandwidth * Classifier-based rate limiting, uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port * Traffic policing * Weighted random early detection (WRED)/random early detection (RED) * supports strict priority (SP) queuing, weighted round robin (WRR), weighted fair queuing (WFQ), and WRED * All hot-swappable modules * Virtual Router Redundancy Protocol (VRRP) * Device Link Detection Protocol (DLDP) * IEEE 802.3ad LACP * supports graceful restart for OSPF, IS-IS, BGP, LDP, and RSVP * Ultrafast protocol convergence (sub second) with standard-based failure detection—Bidirectional Forwarding Detection (BFD) * IPSec – provides secure unnelling over an untrusted network such as the Internet or a wireless network; offers data confidentiality, authenticity, and integrity between two network endpoints * Generic Routing Encapsulation (GRE) * SNMPv1, v2, and v3 * Netflow/sFlow/jFlow * Remote monitoring (RMON) * FTP, TFTP, and SFTP support * Network Time Protocol (NTP) * Monitoring tools that unnell network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays and file transfer rates; allows a network manager to determine overall network performance and to diagnose and locate network congestion points or failures * IEEE 802.1AB Link Layer Discovery Protocol (LLDP) * provides independent primary and secondary operating system files for backup while upgrading * Supports up to 4,096 port-based or IEEE 802.1Q-based VLANs * Bridge Protocol Data Unit (BPDU) unnelling * Port mirroring * supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) * Internet Group Management Protocol (IGMP) and Multicast * IEEE 802.1ad QinQ and selective QinQ * Isolation at data link layer with private VLANs * Should support Staci/RIP/OSPF/BGP/IS-IS * Should support RIPng/OSPFv3/IS-IS for Ipv6/BGP+ * Should support Policy based routing * Unicast Reverse Path Forwarding (uRPF) * Multiprotocol Label Switching (MPLS) * Multiprotocol Label Switching (MPLS) Layer 3 VPN * Multiprotocol Label Switching (MPLS) Layer 2 VPN * Virtual Private LAN Service (VPLS) * Super VLAN * Provides an important element for the transition from Ipv4 to Ipv6; allows Ipv6 packets to traverse Ipv4-only networks by encapsulating the Ipv6 packet into a standard Ipv4 packet; supports manually configured, 6-to-4, intra-site-automatic-tunnel-addressing-protocol (ISATAP) tunnels, and Ipv6 VPN provider-edge router tunnel * supports ACLs for both Ipv4 and Ipv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times * RADIUS/TACACS+ * Secure shell (SSHv2) * DHCP snooping * IP Source Guard * ARP attack protection * Port security * IEEE 802.1X – provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP with choice of AES, TKIP, and static or dynamic WEP encryption for protecting wireless traffic between authenticated clients and the access point * provides simple authentication based on a user’s MAC address; supports local or RADIUS-based authentication * LLDP-MED (Media Endpoint Discovery) * Protocol Independent Multicast (PIM) * Multicast Source Discovery Protocol (MSDP) * Internet Group Management Protocol (IGMP) * Multicast Border Gateway Protocol (MBGP) * Multicast Listener Discovery (MLD) protocol * Multicast VLAN, Voice VLAN | **Each** | **1** |  |
| **12** | **Tape Library** | Offered Tape Library shall support Native data capacity of 120TB (uncompressed) expandable to 300TB 2.5:1compressed).  Tape Library shall provide web based remote monitoring capability. The Tape Library unit shall be configured with FC LTO Gen6 Tape Drives. Tape Library shall be configured with Single FC LTO6 drive scalable to Six FC LTO6 drives either within the same frame or by cascading another frame. Offered tape library shall be offered with minimum of 48 Cartridge slots and shall be further scalable to 140 slots either within the same frame or by cascading another frame.Tape Drive Architecture in the Library shall conform to Ultra3 SCSI standards. Offered LTO6 drive in the Library shall conform to the Continuous and Data rate matching technique for higher reliability. Offered LTO6 drive in the library shall offer optional WORM support and embedded AES 256 bit encryption. Offered Library shall be provided with a hardware device like USB key, separate appliance etc. to keep all the encrypted keys in a redundant fashion. Offered LTO6 drive shall have native speed of 160MB/sec and a compressed speed of 400 MB/sec for 2.5:1 compression. Offered tape Library shall have partitioning support so that each configured drive can have their owned partition and slots. Tape Library shall provide native Fiber connectivity to SAN Environment. For optimal Performance. Tape Library shall provide native 8Gbps FC interface connectivity to SAN switches. Tape Library shall be offered with minimum of 48 slots and barcode reader. Tape library shall support removable magazine and mail slot. Tape Library shall have GUI Front panel. Tape Library shall have option for redundant power supply. Tape Library shall be supplied with software which can predict and prevent failures through early warning and shall also suggest the required service action.  Offered Software shall also have the capability to determine when to retire the tape cartridges and what compression ratio is being achieved. | **Each** | **1** |  |
| **13** | **Backup Software** | The proposed Backup Solution should be available on various OS platforms such as Windows and UNIX platforms and be capable of supporting SAN based backup / restore from various platforms including TRU64 UNIX, HP-UX, Linux, Open VMS, NetWare and Windows.   1. Proposed backup solution shall be offered with Cluster license of server. 2. Proposed backup solution shall support industry leading cluster solution such as MSCS, MC Service Guard, Veritas Cluster etc. 3. Proposed backup solution shall have same GUI across heterogeneous platform to ensure easy administration. 4. The proposed Backup Solution should support tape Mirroring running concurrently with primary backup. e.g. With the primary volume Backup 4 additional tape copies can be created simultaneously without the need to duplicate 4 copies after the main backup. 5. The proposed backup solution should allow creation of additional backup copies, run concurrently with primary backup, within the same Library or over the network to another tape library/stand alone drive of different format medium (e.g. Ultrium to SDLT etc..) to allow easy valuating operation. 6. The proposed Backup Solution supports the capability to write up to 32 data streams to a single tape device or multiple tape devices in parallel from multiple clients to leverage the throughput of the Drives using Multiplexing technology. 7. The proposed backup solution support de-multiplexing of data cartridge to another set of cartridge for selective set of data for faster restores operation to client/servers. 8. The proposed backup solution should allow creating tape clone facility after the backup process. 9. Offered Backup software shall support granular recovery for Microsoft share point 2007 so that single document, Directories or entire site directly from the share-point GUI without taking the help of backup administrator. 10. The proposed Backup Solution has in-built calendar based scheduling system and supports Clustering the Backup Server and Media Server on Windows and Unix. 11. Backup solution shall be configured in such a fashion that no extra license for Client and media servers is required while moving from LAN to SAN based backup. 12. The proposed backup solution shall be offered with unlimited client and Media (Both Cluster and standalone) or at least 100 Client and Media license (Both Cluster and standalone) for SAN based backup and LAN based backup. 13. The proposed Backup Solution Software has inbuilt Java / Web based GUI for centralized management of backup domain. 14. Backup Software shall support encryption and all encryption keys shall be stored on to backup server for effective management. 15. Backup software shall provide import and export facility of encryption keys for protection. 16. The proposed solution also supports advanced Disk staging. 17. The proposed Backup Solution has in-built media management and supports cross platform Device & Media sharing in SAN environment. It provides a centralized scratched pool thus ensuring backups never fail for media. 18. Backup Software shall support Synthetic backup so that Full backup can be constructed directly from the disk based incremental backups. 19. Backup software shall also support disk based Incremental Forever or Virtual full backup whereas every incremental backup shall be equivalent to Full backup without actually copying the actual data blocks of previous full backup. 20. Backup Software is able to rebuild the Backup Database/Catalog from tapes in the event of catalog loss/corruption. 21. The proposed Backup Software shall offer OPEN File Support for windows. 22. The proposed Backup Solution has certified “Hot-Online” backup solution for different type of Databases such as Oracle, MS SQL, Sybase etc 23. Backup software shall also support Microsoft Share point Portal server & shall have integration with Microsoft Data Protection Manager. 24. The solution shall provide with the unlimited or at-least 100 licenses for Bare Metal restore for windows servers. 25. The Proposed backup solution shall provide granularity of single file restore. 26. The Proposed backup solution shall be designed in such a fashion so that every client/server in a SAN can share the robotic. 27. Backup Solution shall be able to copy data across firewall. 28. Backup Solution shall support automatic skipping of backup during holidays. | **Each** | **1** |  |
| **14** | **Bulk Paper Scanner** | |  |  | | --- | --- | | Scan Speed | Up to 60 ppm/120 ipm (black and white, grayscale, color 200 ppi; black and white, grayscale 300 ppi); up to 45 ppm/90 ipm (color 300 ppi) | | ADF Capacity | Up to 100 Pages | | Scanning Type | Flatbed, ADF | | Scan Resolution, Hardware | Up to 600 x 600 dpi | | Scan Resolution, Optical | Up to 600 dpi | | Bit Depth | 24 bit | | Duty Cycle, Daily | Up to 5,000 pages | | Scan Size, Max | 8.5 x 34 in | | Single Pass Duplex Scanning | Yes | | Multifeed detection | Ultrasonic | | File Formats | JPG, TIFF, MTIFF, PDF (image-only, searchable, high-compressed and AES encrypted), PDF/A, TXT, Unicode TXT, RTF, HTML | | Digital Sending Features | Embedded OCR software; Send to Email; Send to Internet and LAN Fax; Save to Network Folder; Save to USB drive; Address Book Management: network (LDAP), local, personal; Quick Sets; Image Preview and Page Edit; Job Notification; Send to Me; Admin-controlled email fields | | Connectivity | Hi-Speed USB Host (rear), Hi-Speed USB Host (walk-up), 10/100/1000 Ethernet, Hardware Integration Pocket (HIP) Hi-Speed USB | | **Each** | **01** |  |
| **15** | **Data Archiving** | Provide both scanning and media conversion services in an efficient and accurate manner. The objective for these services is to:   Provide media conversion services and records retention  Provide for on-line access to electronic records  Eliminate the cost associated with the storage of the original “hard copy” media  Contractor shall provide all labour, materials, tools and equipment required for Scanning, Indexing and Imaging Service for SESSI requesting services. | **Per Page** | **1** |  |
| **16** | **RFID Cards Printer, Laminator & Cleaning Kit** | Dual Sided Card Printing Capacity ,HDP Dye Sublimation, Resin Thermal Transfer300 dpi ( 11.8 dots /mm ), Up to 16.7 million/256 shades per pixel, Full Color, YMCK, Standard Holographic with Thermal transfer over laminate, .25 mil thick, Print Speed ; 38seconds per card/95 cards per hour ( YMC with transfer ), Accepted Card Sizes CR80 (3.375"L x 2.125"W/85.6mmLx 54mm W), Print Area ,over the edge on CR80 cards, Input Hopper Card capacity 100 Cards(.030"/.762mm),Output Hopper Card 200 cards, Memory 16MB RAM. Accessories should include printing material of RFID Cards | **Each** | **1** |  |
| **17** | **RFID Cards** | Contactless Smart Card Access Control Credential  The contactless smart card shall be a passive device, with an operating frequency of 13.56 MHz, and shall meet ISO 15693 and ISO 14443B2.  The card shall contain a 64 bit unique serial number.  The contactless smart card shall have the following available memory configurations:  **16 Kbits (2 Kbytes) EEPROM memory configured with 16**  The contactless smart card shall support programming and updating of custom applications  The contactless smart card shall meet the following physical characteristics:  Dimensions, per ISO 7810: 2.125” x 3.375” x 0.030” (53.98mm x 85.60mm x 0.76mm). Weight: 0.20 oz. (5.7 g)  Material and construction: PVC card materials. Card surface shall be glossy and of a material compatible with direct to card dye-sublimation or thermal transfer printing. Card construction shall meet durability requirements of ISO 7810.  Internal antenna configuration shall allow a single slot punch on the vertical (short) side of card.  The card may be marked with an external ID number, either in inkjet or laser-etched numbering, that may match the internal programmed ID number. If the external number does not match the internal number, a cross-reference list is provided to detail the internal/external numbering sequences.  Operating Temperature: -40oF to 158oF (-40oC to 70oC)  Operating Humidity: 5% to 95% relative humidity non-condensing.  Warranty of contactless smart cards shall be lifetime against defects in material and workmanship.  PVC material, weight 5.5g  Must have unique communication protocol with RFID Readers | **Each** | **1** |  |
| **18** | **Personal Biometric Plus RFID Reader** | Read & Write Contactless Bio Smart Card Reader  Provide surface mounting style 13.56 MHz contactless smart card readers suitable for minimal space mounting configurations as shown on the project plans.  Contactless smart card readers shall comply with ISO 15693, ISO 14443A (CSN), and ISO 14443B and shall read credentials that comply with these standards.  The fingerprint reader shall read a fingerprint template(s) from an ***iCLASS*** credential and verify with a live finger placed on the fingerprint sensor, once verified, a pre-programmed access control identification number is transmitted back to the host panel, giving an audible and visual indication of a successful authentication.  The fingerprint module shall have the ability to withstand up to 10 k volts of EDS and continue uninterrupted operation  Using serial communication lines the reader shall have the ability to write transactions to ***iCLASS*** credentials.  A 3x4 keypad which can provide supplemental PIN operation. The keypad shall provide the most popular industry formats including 4 bit or 8 bit bursts for every key press.  Contactless smart card readers shall output credential data in compliance with the SIA AC-01 Wiegand standard as follows:  Reads standard proximity format data from cards and outputs data as encoded.  Data security with ***iCLASS*** cards shall use 64-bit authentication keys to reduce the risk of compromised data or duplicate cards. The contactless smart card reader and ***iCLASS*** cards shall require matching keys in order to function together. All RF data transmission between the card and the reader shall be encrypted, using a secure algorithm. Card readers shall be provided with keys that are compatible with the ***iCLASS*** cards.  The contactless smart card reader shall provide the ability to change operational features in the field through the use of a factory-programmed command card. Additionally, firmware may be updated by flashing the reader. Command card operational programming options shall include:  Output configurations  LED & Audio configurations  Keypad configurations  Contactless smart card readers shall provide the following programmable audio/visual indication:  LCD display provides user feedback of reader operation  An audio transducer shall provide various tone sequences to signify: access granted, access denied, power up, and diagnostics.  A high-intensity light bar shall provide clear visual status (red/green/amber) that is visible even in bright sunlight.  Typical contactless smart card read range shall be:  2” – 3” (5.0 – 7.6 cm) using ***iCLASS*** card.  1” (2.5 cm) using ***iCLASS*** Key  1” (2.5 cm) using ***iCLASS*** Tag  1” – 1.5” (2.5 – 3.8 cm) using ***iCLASS*** Prox  1” – 2” (2.5 – 5.0 cm) using MIFARE Card (card serial number only)  Contactless LCD smart card reader shall meet the following physical specifications:  Dimensions: 8.34” x 4.17” x 2.30” (21.18cm x 10.59 cm x 5.84 cm)  Weight: 20oz (283.4 g)  Material: UL94 Polycarbonate  Two-part design with separate mounting plate and reader body.  Color: Black  Contactless smart card readers shall meet the following electrical specifications:  Operating voltage: 9 – 12 VDC, reverse voltage protected. Linear power supply recommended.  Current requirements: (average/peak) 350/520mA @ 12 VDC  Contactless smart card readers shall meet the following certifications:  UL 294  Canada/UL 294  FCC Certification  Canada Radio Certification  EU and CB Scheme Electrical Safety  EU – R&TTE Directive  CE Mark (Europe)  C-Tick (New Zealand/Australia/Taiwan)  Contactless smart card readers shall meet the following environmental specifications:  Operating temperature: 32 to 113 degrees F (0 to 45 degrees C)  Operating humidity: 5% to 95% relative humidity non-condensing  Cable type: 5-conductor #22 AWG w/overall shield  Standard reader termination: Double row terminal strip  Warranty of contactless smart card bio reader shall be one year warrantee against defects in materials and workmanship.  Country of Origin: USA or EURO only | **Each** | **1** |  |
| **19** | **Camera for taking workers pictures** | |  |  | | --- | --- | | Interface | USB 2.0 | | Image properties | Digital zoom | | File format (still) | JPEG | | Frame rate | 30 fps | | Maximum resolution (still) | 5184x3456 pixels | | Maximum resolution (video) | 1920x1080 | |  |  | | **Each** | **1** |  |
| **20** | **Laptop** | Processor Intel® Core™ i5 (3.10/2.1 GHz, 6 MB L3 cache, 4 cores)  Chipset Mobile Intel® HM76 Express  Memory 4 GB 1333 MHz DDR3 SDRAM upgradeable to 16 GB  Memory slots 2 SODIMM  Internal drive 750 GB SATA II (7200 rpm)  Optical drive DVD+/-RW SuperMulti DL  Display 15.6" diagonal LED-backlit HD anti-glare (1366 x 768)  Graphics Integrated: Intel® HD Graphics 4000  I/O ports 2 USB 2.0 or higher  1 HDMI 1 stereo microphone in 1 AC power 1 RJ-45 1 headphone/line-out 1 VGA  Slots 1 Media Card Reader  Function keys for volume mute, volume up, volume down, play, rewind, and fast-forward of video and audio files; Stereo headphone/line out, Stereo microphone in  Network interface Realtek Ethernet (10/100/1000)  Wireless Intel 802.11a/b/g/n with Bluetooth 4.0 Combo  Battery 65W Smart AC adapter (integrated)  Battery type 9-cell Li-Ion  Warranty 1-year warranty  Operating system Windows 8 | **Each** | **1** |  |
| **21** | **Portable Fingerprint registration device** | |  |  | | --- | --- | | Display | 3.5-inch TFT Screen | | Fingerprint Capacity | 10,000 | | Card Capacity | 30,000 (ID Card) | | Transaction Capacity | 200,000 | | Fingerprint Sensor | Optical Sensor | | Communication | TCP/IP, USB-host ; Optional with Wi-Fi, GPRS,3G (WCDMA) | | Standard Functions | ADMS, Work-code, DST, Self-Service Query, Automatic Status Switch,  T9 Input, Photo-ID, 9 Digit User ID, SMS, ID Card | | Optional Functions | HID /Mifare Card | | Protection Grade | IP65 | | Power Supply | 12V 3A DC; Built-in Backup 7600 mAh Battery | | Operating Temperature | 0 oC- 45 oC | | Operating Humidity | 20%-80% | | Dimension | 225 x235x125(mm) HxWxD | | **Each** | **1** |  |
| **23** | **RFID device for exit only** | 2.8-inch touch screen, color display with graphical UI for easy operation •Shall have Up to 24 user-defined schedules that can be activated on a daily bell alert (optional) • Shall offer Prompt audio acceptance or rejection signals for valid or invalid fingers • Shall be Compact and lightweight, small size for 86mm (L) x 86mm (H) socket installation • Shall have TCP/IP or RS485 communication for various networking environments • Shall Supports USB flash drive for offline data management  • Shall have Built-in auxiliary input with enhanced flexibility to link with wired detector or emergency switch • Shall offer Up to 15 multi-verification methods to enhance security level • Shall offer Standard access control features such as Time zone, Holiday, A&C Group, Unlock combination etc. • Shall be with Duress Alarm offers effective protection against duress by threats • Shall be Tamper proof switch and multiple alarm outputs | **Each** | **1** |  |
| **24** | **Communication Rack** | Capacity: 42U  Width x Depth: 800 x 800  Static loading: 1000 Kg  Degree of protection:IP20  Double-section rear door  Pedestal with 4 removable panels  Side door lock and high-density vented door  Mounting rail with U mark  Silver cable ring installed in the mounting ring  Welded frame with strong structure  2 x PDU - Socket Quantity: 8, Cable with plug: 13A plug, Control Function: 16A master switch, Cable Specification: 3 x 1.5 mm2 x 2M, Mounting Length: 459 mm / 573 mm | **Each** | **1** |  |
|  |  |  |  |  |  |
| **Experience Center Solution** | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Item** | **Unit** | **Qty** | **Price Inc Tax** |
| 1. | **Experience Center Solution**  **Core Component:**   1. Inbound Voice with Computer Telephony Integration (CTI) Application = 5 Nos., Web Chat/Email/SMS = 2 Nos., Supervisor/Team Lead = 2. Quality Monitoring (Call Recording, Archive, Search and replay, Real-time monitoring, Recorded calls to be retained for a period of six months. 200 Calls per day, Screen capture data to be retailed for 60 days, Recording can be saved on network storage or DVD and Retention period is 6 months.) 3. 30 Channel SIP Trunk PRI with all required modem will be responsibility of RO 4. Wallboard Display including 48 Inch LED with required software application and mounting accessories = 1 Nos. 5. Call Center Hardware consist of Server for CMS/CRM/SMS Application’s (having Processor: 2.93 GHz 6-core, RAM: 32 GB, HDD: 2 TB Usable Space, DVD-RW and LAN: Dual NIC 10/100/1000 Mbps) with License Operating System (OS) and Server for Call Recording/Archiving (having Processor: 2.93 GHz 6-core, RAM: 32 GB, HDD: 2 TB Usable Space, DVD-RW and LAN: Dual NIC 10/100/1000 Mbps) with License Operating System (OS) including six month retention. Contractor should provide Operating System (OS), Database, supported virtualization if required and appropriate & compatible solution with proposed Call Center. 6. Call Center Requirement,  * Branded call center solution – American or European origin. * Support SIP/ H.323 protocol * Proposed Server hardware should be capable of supporting up to 20 agents, without requiring additional RAM / HDD etc. * Design should provide 99.9 percent uptime * Virtualization support desired * Proposed solution should not have any third party component for core contact center functionality. All components of Contact Center Solution must of same brand, except Servers/ switches or customized application * All Licenses should be permanent and need not to renew subscription periodically. * Skill-based routing of voice, email, web chat, SMS and support for video interactions. * System is required to provide flexible call treatment like Queue Music, Music on hold, expected wait time and position in queue. * Unified Real-time reporting display * Unified historical reporting of all media types * Should offer tools to create customized reports * Context sensitive user interface capable of delivering customer contextual data * Single point of web-based administration of entire contact center * Graphical Contact Center and Self-Service Workflow designer * Third party application integration through a combination of CTI, SOA and Web Services  1. Agent Hardware consist of Personal Computer (having Processor: Intel Core i3 2.4 Ghz, RAM: 4 GB, LAN: 10/100/1000 Mbps, DVD/RW & HDD: 500 GB) with License Operating System (OS), Keyboard, Mouse, 21 Inch LED Display & Headset (Good Quality) = 5 Nos; UPS for Agent Hardware (having Rectifier Type: IGBT, Input Voltage Range: Single Phase 120 VAC to 276 VAC, Input Power Factor: Single Phase 0.99, Communication Interface: USB, Form Factor: Mini tower, Capacity (kVA/kW): 6 / 4.8, Transfer Time (Power Failure): No transfer time and on-line operation, Surge Protection: IEC / EN 61000-4-5, Protection Level: IP20, Backup Time: Standard (5 to 10 mins.) and includes all allied software’s.) = 1 Nos; Wall mounted 4U Communication Rack with fans = 1 Nos; Networking Switch 16 Port with allied peripheral and essential LAN Cabling = 2 Nos. Contractor should provide the appropriate and compatible solution with proposed Call Center. | Solution | 1 |  |
| 2. | **Complaint Management System (CMS)/ Customer Resource Management (CRM)**   1. Complaint Management System (CMS) should consist of,  * Complaint logging interface - with possible integration with 3rd party application should be opened in one window * Complaint handling agent interface * Complaint handling Team Lead interface * Complaint Management system Administration Module * Reporting Module with flexibility to add / subtract components on reports * Complaint Management Agent interface:   + Should have record of login time, complaints handled, average complaint time etc.   + Complaint resolving and comments text fields.   + Complaint forwarding, pushing / pull controls * Complaint Handling Team Lead Interface:   + Over view of all active agents   + Performance KPI performance and complete reporting   + Ability to transfer a complaint   + Chat ability with in the agents * Complaint Management System - Administration Module   + Work code defining screen   + Custom work code forms   + Work flow defining screen   + TAT define & TAT for respective nodes in work flow   + User Management * Reporting Module   + Real time reporting for every KPI   + Modelled standard reports for quality and performance evaluations * Integration with 3rd party software should be available via web services, or standard communication protocols.  1. Customer Resource Management (CRM) should consist of,  * Connectivity and interface with provisioning and fulfilment systems * Connectivity and interface with 3rd Party services and offerings * Customer and Visitor leads and Complaints * Management and Supply Chain Management System * Inventory Management * Dashboard for central tracking systems * Customer central repository * Web services and connectivity, cross communication via standard protocols * Central Reporting Screen, with ability to customize and export reports and data for sourcing to warehouse/ reporting platforms. * Ability to have custom forms for information gathering * Ability to create and maintain separate forms for different purposes within the organization. * Ability to have custom rules and work flows for all actions that can be triggered * Hardware flexibility and ability to add nodes depending on nodes and load * Mobile devices interfaces * User Management * Integration with Email server * Integration with SMS Gateway and server * Project Management Module * Social Media Integration * Ability to integrate with modern day APIs, such as Google Maps etc. * Single Window operations * Enterprise architecture compliant and standard maintenance * Flexible to have multiple backend databases | Solution | 1 |  |
| 3. | **Glass Partition and Allied Work**  Glass Partition consist of fixing of glass partition with glass door size 10' x 7' x 10' with labor and material. Furniture and fixture of L shape counter for 4 persons having size 10’ x 7’ with 4 x executive chairs and 1 x 1.5 Ton Air Conditioner with voltage stabilizer. | Solution | 1 |  |
| 4. | **Training**  Local training on proposed solution for 12 persons (Please quote on each individual basis) | Job | 1 |  |
|  |  |  |  |  |
| **Bill of Quantity for IP Surveillance** | | | | |
| **S.No.** | **Description** | **Unit** | **Quantity** | **Price Inc Tax** |
|  | **Dome Camera**  2.1 Megapixel full HD  Image Sensor 6.4 mm (1/2.8 Type) CMOS Mount Type / Lens 4 mm F2.0 Min. Illumination Colour: 0.07 lux @F2.0 (1/30 sec, 50 IRE) B/W : 0 lux @ IR LED on Day / Night ICR (Auto / Day / Night) WDR Digital (Dynamic Range Enhancer) IR LEDs 14 IR Distance 20 m  Focus Manual, Image Enhancement Mirror / V-Flip / BLC / DRE / AGC / Brightness / White balance / DNR / Color saturation / Sharpness / Privacy mask Video Compression H.264 (High profile supported) / MJPE Max. Resolution 1920 x 1080 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240) Max. Frame Rate 30 fps @ 1920 x 1080 Video Analytics Motion detection, Tampering detection Ethernet RJ-45 10/100BASE-T Security Password protection, HTTPS (SSL, TLS), IP filtering, IEEE 802.1X Protocol IPv4/6 - TCP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS, UPnP IPv4 - FTP, SMTP, NTP, ARP, SNMPv1/v2c/v3, DDNS(LG) Power Source DC12V / PoE | Each | 1 |  |
|  | **Indoor Bullet Camera**  2.1 Megapixel HD 30 fps  Image Sensor 6.4 mm (1/2.8 Type) CMOS Mount Type / Lens 4 mm F2.0 Min. Illumination Colour: 0.07 lux @F2.0 (1/30 sec, 50 IRE) B/W : 0 lux @ IR LED on Day / Night ICR (Auto / Day / Night) WDR Digital (Dynamic Range Enhancer) IR LEDs 24 IR Distance 30 m  Focus Manual, Image Enhancement Mirror / V-Flip / BLC / DRE / AGC / Brightness / White balance / DNR / Color saturation / Sharpness / Privacy mask Video Compression H.264 (High profile supported) / MJPE Max. Resolution 1920 x 1080 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240) Max. Frame Rate 30 fps @ 1920 x 1080 Video Analytics Motion detection, Tampering detection Ethernet RJ-45 10/100BASE-T Security Password protection, HTTPS (SSL, TLS), IP filtering, IEEE 802.1X Protocol IPv4/6 - TCP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS, UPnP IPv4 - FTP, SMTP, NTP, ARP, SNMPv1/v2c/v3, DDNS(LG) Power Source DC12V / PoE | Each | 1 |  |
|  | **Outdoor Bullet Camera**  2 Megapixel Outdoor Bullet Camera Image Sensor 6.4 mm (1/2.8 Type) CMOS Mount Type / Lens 4 mm F2.0 Min. Illumination Colour: 0.05 lux @ F1.2 (1/30 sec, 50 IRE) B/W : 0 lux @ IR LED on Day / Night ICR (Auto / Day / Night) WDR Max. 108 dB IR LEDs 32 IR Distance 30 m  Focus Auto, Image Enhancement Mirror / V-Flip / BLC / DRE / AGC / Brightness / White balance / DNR / Color saturation / Sharpness / Privacy mask Video Compression H.264 (High profile supported) / MJPE Max. Resolution 1920 x 1080 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240) Max. Frame Rate 60 fps @ 1920 x 1080 Video Analytics Motion detection, Tampering detection Ethernet RJ-45 10/100BASE-T Security Password protection, HTTPS (SSL, TLS), IP filtering, IEEE 802.1X Protocol IPv4/6 - TCP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS, UPnP IPv4 - FTP, SMTP, NTP, ARP, SNMPv1/v2c/v3, DDNS(LG) Power Source PoE / AC24V / DC12V | Each | 1 |  |
|  | **PTZ Dome Camera**  2.1 Megapixel Full HD 30x IR Network PTZ Dome Camera Image Sensor 1/2.8" Progressive Scan CMOS  Pixels 2.0 Mega  Min. Illumination Color : 0.05 Lux @ (F1.4, AGC ON) B/W : 0.005 Lux @ (F1.4, AGC ON) ; 0 Lux with IR Shutter Speed 1/10 ~ 1/10,000  Day/Night Auto (ICR) / Color / B/W  WDR Digital WDR , S/N Ratio >55dB  White Balance Auto / Manual , Gain Control Auto / Manual  Backlight Compensation Off / BLC / WDR, Focal Length 4.3~129mm, 30x  Zoom Speed Approx 3s (Optical)  Angle of View 58.9˚~2.1˚ (Wide~Tele)  Min. Object Distance 300~1500mm (Wide~Tele)  Max. Aperture Ratio F1.4 (Wide) / F4.6 (Tele)  Focus Control Auto / Manual / Semi-Automatic  IR LED 12pcs, IR LED Array IR Distance 120~180m  IR Intensity Automatically adjust according to zoom ratio Pan/Tilt Range 360˚ Endless / -20˚~90˚ (Auto Flip)  Pan/Tilt Speed Pan Manual speed : 0.1˚~200˚/s ;  Pan Preset speed : 220˚/s Tilt Manual speed : 0.1˚~150˚/s, Pan Preset speed : 200˚/s  Proportional Zoom Pan / Tilt speed can be adjusted automatically according to zoom multiples, Preset 255, Patrol 8 Patrols scheme, up to 32 presets per patrol  Power-off Memory Power-off memory / Power-on recovery Auto Guard Patrol / Preset / Pan scan / Tilt scan / Frame scan / Random scan / Panorama scan PT Limit Manual / Scan / Pan  3D Positioning PTZ control with mouse click and drag Compression Format H.264Video Image Resolution Main stream : 1080p / Secondary stream : D1  Frame Rate Main stream : 1080p@30fps / Secondary stream : D1@30fps Bitrate 64kbps~8Mbps Network Protocol TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, VSIP  User Interface IPC Control Client / Web IPC Control Ethernet 10/100M, RJ45 Interface Power 24VAC / 3A (Power Adaptor included Stand PTZ Dome Camera Stand for Pole | Each | 1 |  |
|  | **Network Video Recorder 64 Channel**  IP Camera Input 64 channel  Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF Compression Format H.264  Protocols Onvif, RTSP, KEDACOM  Incoming Bandwidth Max 640Mbps Local Display 2 x HDMI, 1 x VGA, simultaneously output different content Multi Screen Display Local monitor (Main/Secondary) Function E-PTZ / Scheme / Polling / TV-Wall (optional with decoder) Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF Mode Manual / Continuous / Schedule / Event (Pre / Post) Search Mode Date & Time (Calendar) / Event Playback Local monitor : 16 x 1080p@30fps Client : 8 x 1080p@30fps  Function Slow forward / Fast forward / Loop / Single Frame / E-PTZ Max. Internal HDDs 16 x 3.5’’ HDD (up to 4TB/each) Raid RAID 0 / 1 / 5 / 6 / 10 , External IP SAN (iSCSI), up to 10 x IP SAN, Max. 100T Audio Function Bi-directional audio / Dumb / Mute / Broadcasting Operation System Embedded Linux , User Management Admin / User Log Management User login / User operation / Alarm / Backup / Update Network Protocol TCP / IP, UDP, HTTP, DHCP, DNS / DDNS, RTP / RTCP, RTSP, PPPoE, FTP, SNTP, VSIP Output Bandwidth 512Mbps Function NAT / Socks5 / Multiple network access / Packet loss recovery / Auto network organizing Ethernet 3 x Gigabite network port, RJ45, interface Video Out 2 x HMDI (1 HDMI up to 4K x 2k, 1 HDMI up to1920 x 1080@60Hz) 1 x VGA (up to 1920 x 1080@60Hz)  Audio In / Out 1 x RCA Line in / 1 x RCA Line out, Alarm In / Out 2 x Inputs / 2 x Outputs  Control 2 x RS485, USB 2 x USB 2.0, 2 x USB 3.0  Power 100 ~ 240V AC, 50 ~ 60Hz / Redundant Power Supply (the second power is option) 4TB x 8 Surveillance SATA Hard Disk Software Video Management Suite (VMS) Cameras KVM Switcher 16 Ports KVM Switch | Each | 1 |  |
|  | **Network Video Recorder 24 Channel**  IP Camera Input 24 channel  4CIF camera 8ea Analog-IP Switch condition - Basic : Analog 16ch + IP 8ch/4CIF, Minimum Analog Video Input : 8ea -, IP Camera Input : (Min) 8ea/4CIF, (Max) 16ea/4CIF Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF Function E-PTZ / Scheme / Polling / TV-Wall (optional with decoder) Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF,  Mode Manual / Continuous / Schedule / Event (Pre / Post) Search Mode Date & Time (Calendar) / Event Playback Local monitor : 16 x 1080p@30fps Client : 8 x 1080p@30fps  Function Slow forward / Fast forward / Loop / Single Frame / E-PTZ Max. Internal HDDs 16 x 3.5’’ HDD (up to 2TB/each) Network Protocol TCP / IP, UDP, HTTP, DHCP, DNS / DDNS, RTP / RTCP, RTSP, PPPoE, FTP, SNTP, VSIP Output Bandwidth 512Mbps Function NAT / Socks5 / Multiple network access / Packet loss recovery / Auto network organizing Ethernet 3 x Gigabite network port, RJ45, interface Video Out 2 x  Control 2 x RS485, USB 2 x USB 2.0, 2 x USB 3.0  Power 100 ~ 240V AC, 50 ~ 60Hz / Redundant Power Supply (the second power is option) 2TB x 4 Surveillance SATA Hard Disk Software Video Management Suite (VMS) Cameras KVM Switcher 8 Ports KVM Switch | Each | 1 |  |
|  | **Network Video Recorder 12 Channel**  4CIF camera 8ea Analog-IP Switch condition - Basic : Analog 8ch + IP 8ch/4CIF , Minimum Analog Video Input : 4ea -, IP Camera Input : (Min) 8ea/4CIF, (Max) 12ea/4CIF Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF Function E-PTZ / Scheme / Polling / TV-Wall (optional with decoder) Resolution QXGA, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF,  Mode Manual / Continuous / Schedule / Event (Pre / Post) Search Mode Date & Time (Calendar) / Event Playback Local monitor : 16 x 1080p@30fps Client : 8 x 1080p@30fps  Function Slow forward / Fast forward / Loop / Single Frame / E-PTZ Max. Internal HDDs 16 x 3.5’’ HDD (up to 2TB/each) Network Protocol TCP / IP, UDP, HTTP, DHCP, DNS / DDNS, RTP / RTCP, RTSP, PPPoE, FTP, SNTP, VSIP Output Bandwidth 512Mbps Function NAT / Socks5 / Multiple network access / Packet loss recovery / Auto network organizing Ethernet 3 x Gigabite network port, RJ45, interface Video Out 2 x  Control 2 x RS485, USB 2 x USB 2.0, 2 x USB 3.0  Power 100 ~ 240V AC, 50 ~ 60Hz / Redundant Power Supply (the second power is option) 2TB x 4 Surveillance SATA Hard Disk Software Video Management Suite (VMS) Cameras KVM Switcher 8 Ports KVM Switch | Each | 1 |  |
|  | **Digital Video Recorder 8 Channel**  4CIF CAMERA 8EA \* ANALOG-IP SWITCH CONDITION - BASIC : ANALOG 8CH + IP 8CH/4CIF - MINIMUM ANALOG VIDEO INPUT, IP CAMERA INPUT : 8EA/4CIF, 12EA/4CIF \* MAX. RESOLUTION - UP-TO 3, Max. HDD Capacity up to 2TB per HDD | Each | 1 |  |
|  | **SMART LED TV 48**”  Type Smart LED TV  Screen Size48 Inch  Resolution 1,080 Full HD  Full HD Resolution, Wide Color Enhancer Plus, Clear Motion Rate 120  Smart TV, Smart Hub, Smart Apps, S-Recommendation  Quad Core Processor, Full Web Browser, Smart View 2.0  Screen Mirroring, Anynet+, ConnectShare™ Movie,  DIRECTV® Ready, Eco Senso In / Out HDMI x 4 / USB x 3 / Component / Composite / Digital Audio | Each | 1 |  |
|  | **SMART LED TV55**”  Type Smart LED TV  Screen Size 55 Inch  Resolution 1,080 Full HD  Full HD Resolution, Wide Color Enhancer Plus, Clear Motion Rate 120  Smart TV, Smart Hub, Smart Apps, S-Recommendation  Quad Core Processor, Full Web Browser, Smart View 2.0  Screen Mirroring, Anynet+, ConnectShare™ Movie,  DIRECTV® Ready, Eco Senso In / Out HDMI x 4 / USB x 3 / Component / Composite / Digital Audio | Each | 1 |  |
|  | **SMART LED TV65**”  Type Smart LED TV  Screen Size 65 Inch  Resolution 1,080 Full HD  Full HD Resolution, Wide Color Enhancer Plus, Clear Motion Rate 120  Smart TV, Smart Hub, Smart Apps, S-Recommendation  Quad Core Processor, Full Web Browser, Smart View 2.0  Screen Mirroring, Anynet+, ConnectShare™ Movie,  DIRECTV® Ready, Eco Senso In / Out HDMI x 4 / USB x 3 / Component / Composite / Digital Audio | Each | 1 |  |
|  | **SMART UPS 5KVA** Smart-UPS On-Line 5 kVA Power rating 5,000 VA/4,500 W Nominal output voltage 230 V (220 V, 240 V, 208 V user selectable) Output frequency 50/60 Hz ± 3 Hz (auto sense) Topology Double-conversion Online Output connections Hardwire three-wire (1 PH + N + G) or (2 PH + G) Battery type Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof Interface ports Embedded Network Management with Environmental Monitoring which includes an RJ-45 with Status LEDs (10/100 Base-T), Serial (RJ45), USB (Type B), and Smart Slot Control panel High Resolution Graphical LCD display. | Each | 1 |  |
|  | **SMART UPS 2KVA**  Smart-UPS On-Line 2 kVA Nominal output voltage 230 V (220 V, 240 V, 208 V user selectable) Output frequency 50/60 Hz ± 3 Hz (auto sense) Topology Double-conversion Online Output connections Hardwire three-wire (1 PH + N + G) or (2 PH + G) Battery type Maintenance-free sealed lead-acid battery with suspended electrolyte, leak proof Interface ports Embedded Network Management with Environmental Monitoring which includes an RJ-45 with Status LEDs (10/100 Base-T), Serial (RJ45), USB (Type B) | Each | 1 |  |
|  |  |  |  |  |
| **Service level Agreement** | | | | |
| **S. No.** | **Description** | **Quantity** | **Unit** | **Rate Inc Tax** |
| 1 | **Support and Maintenance**  Three year support, warranty and maintenance of whole BoQ from date of commissioning which is extendable upon mutual agreement. | Job | 1 |  |
|  |  |  |  |  |
| ICT Services / HR | | | | |
| **S. No.** | **Description** | **Quantity** | **Unit** | **Rate Inc Tax** |
| 1 | **I.T. Support Engineer** | 1 | Each |  |
| 2 | **Database Administrator** | 1 | Each |  |
| 3 | **Data Entry Operator** | 1 | Each |  |
| 4 | **Network Engineer** | 1 | Each |  |
| 5 | **System Engineer** | 1 | Each |  |
| 6 | **System Administrator** | 1 | Each |  |