

# **ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER**

**Contract title :** Strengthening the Serbian Statistical System by Upgrading Methodologies and Standards and by the appliance of Good Practice

**Publication reference :** EuropeAid/133785/C/SUP/RS

## **0.1 Minimum requirements and supporting documentation**

- Tenderers are required to demonstrate that the offered specifications are responsive to the Tender Dossier requirements identifying model, manufacturer and country of origin of each individual item in their Technical Offer providing necessary documentation (catalogues, guides, brochures, manuals, booklets, etc.) with detailed technical specifications for all items being offered thus enabling the Contracting Authority to verify the information provided in the offer.
- Technical specifications described in column 2, Table Annex III: the Contractor's technical offer are the minimum requirements. Tenderer may offer better specs, with improved, additional or new features, but must not provide offer not strictly complying with the minimum requirements.

## **0.2 Completeness of the supply**

- Supply delivery, including installation, integration and final customization must include all needed parts, accessories and consumables required for the supplies to be presented for provisional acceptance fully installed, operational and ready for use.
- Consumables, accessories, fixing, fittings, connections, joints, links, extensions, modules, parts, software and legal licenses as well as documentation used during delivery, installation, integration and customization before provisional acceptance must therefore be anticipated and calculated into the offer.
- It shall be the sole responsibility of the Tenderer to ensure that all pre-requisites for the completeness of the supply delivery are met before its commencement.

## **0.3 Supply delivery**

- The locations of installation for each item and group of items are provided in the following tables. Data centre equipment is to be installed in data centre offices at locations receiving such equipment. Office desktop, office printing and imaging equipment are to be installed directly in the individual offices of individual users at each location.
- The Tenderer must provide the necessary measures to prevent any damage during delivery, installation, integration and customization stages. If any damage occurs during delivery, installation, integration and customization stages, the Tenderer must appropriately rectify it.
- The Tenderer must keep the work site(s) clean and safe against any hazard (e.g. fire, etc.) during all supply stages until formal acceptance.
- Installation, operational and regular maintenance manuals in English must be included with the supply.
- Installation, testing, demonstration and training must be completed within the time frame set out in the Special Conditions of Supply Contracts included in the Tender Dossier. At the end of this period, all items supplied, including hardware and accompanying software, must be fully operational and the staff chosen by the Beneficiary will have been given full training for safe and efficient use of the items.
- There will be no partial provisional acceptance. Provisional acceptance will depend on the supply of all the equipment, on the requested software installation, integration and customization, as well as requested training having been satisfactorily completed.

- Successful Tenderer will be provided with defined legal conditions (e.g. Declaration of confidentiality or similar), under which, when signed, access to confidential resources of the Beneficiary needed for successful delivery, installation and integration will be obtained, including physical access to installation locations and individual computer network device settings at locations.
- Each single requirement that describes the specific item feature as well as all requirements describing overall item features have to be considered as describing feature(s) that have to come already pre-installed with or embedded within the item, meaning that they can not be additionally nor externally added

#### 0.4 Place of Delivery

Equipment and software are to be delivered, as follows:

Table 1. Delivery locations

No.	Location	Abbr.	Address	Notice
1	Statistical Office of the Republic of Serbia	SORS	Milana Rakica 5 street (1st floor), 11000 Belgrade	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – all equipment except the equipment that goes to Regional Departments
2	NIŠ	SORS Regional Dept	Kej Mike Paligorića 2	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
3	LESKOVAC	SORS Regional Dept	Pana Đukića 11	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
4	VALJEVO	SORS Regional Dept	Karađorđeva 71	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
5	UŽICE	SORS Regional Dept	Dimitrija Tucovića 52	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
6	PANČEVO	SORS Regional Dept	Zmaj Jovina 2	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
7	NOVI SAD	SORS Regional Dept	Bulevar Mihajla Pupina 16	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)

8	ŠABAC	SORS Regional Dept	Vojvode Mišića 10	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
9	KRAGUJEVAC	SORS Regional Dept	Trg slobode 3	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
10	SUBOTICA	SORS Regional Dept	Park Ferenc Rajhla 1	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
11	KRALJEVO	SORS Regional Dept	Jovana Sarića 1	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
12	SMEDEREVO	SORS Regional Dept	Omladinska 1	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
13	ZRENJANIN	SORS Regional Dept	Narodnog fronta 2	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
14	ZAJEČAR	SORS Regional Dept	Dositejeva 1	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)
15	SREMSKA MITROVICA	SORS Regional Dept	Dositejeva 12	Equipment to be delivered, installed and customized with training accomplished and commissioning finalized – 1 tower server (1.7)

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The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the Contracting Authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words “compliant” or “yes” are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation
- Column 5 is reserved for the Evaluation Committee

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
0	<b>General Requirements</b> NOTICE: Following represent common requirements for all items.			
0.1	Conformity to regulations and standards a. Items must conform to relevant regulations and standards, including any ISO, IEC, W3C, domestic or other relevant regulations and standards that apply to each specific item. b. Tenderer must provide a certificate of conformity, issued by a regulatory agency of recognised competence, if and when applicable for each item or category of items. c. Tenderer must provide additional or specific certificates, when required for particular item(s).			
0.2	<b>Working Conditions and Safety Requirements</b> a. Equipment must comply to IEC 60 529 standard for indoor IT equipment: operating under temperature range of 10°C – 40°C, relative humidity range of 20% – 80% and IP 20 protection level. b. Equipment must have safety operational warnings and mechanical interlocks for equipment operating under or generating more than 30V AC or DC, in line with current IEC and EU standards.			
0.3	<b>Power Supply</b> a. Equipment must be able to operate on 230V ± 15V (1-phase) or 400V ± 30V (3-phase), at 50Hz ± 0.5Hz, due to grid voltage fluctuations (Serbia power grid standard supply voltage is 230V AC for 1-phase voltage and 400V AC for 3-phase voltage, with 50Hz nominal frequency).			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	<p>b. Standard office equipment must have ability to be connected to the standard Serbia 1-phase power output connections.</p> <p>c. Standard data centre equipment must have ability to be connected to the UPS power supply output connections.</p>			
0.4	<p><b>Software Licensing</b></p> <p>a. Successful Tenderer must license all software to the Beneficiary allowing designated personnel to perform diagnostics, installation, update/upgrade and repair/debug activities without any external assistance.</p> <p>b. License types offered must be enterprise, business or similar, regardless of the commercial or non-commercial license origin. Home, academic, NGO or similar license types are not allowed.</p> <p>c. The beneficiaries must be entitled to use all provided software licences for unlimited period of time.</p>			
0.5	<p><b>Technical Documentation</b></p> <p>a. Tenderer's offer must include documentation on technical characteristics, functionality, regulatory compliance and conformity to standards, as requested in specifications.</p> <p>b. Tenderer must provide technical documentation in English language.</p> <p>c. Tenderer must provide manufacturers technical specifications (data sheets).</p> <p>d. Tenderer must provide Manufacturer Authorization Form (MAF) for all items, except for items III 20 and 21.</p>			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
	e. Tenderer must provide Manufacturer installation and maintenance certificates for all items, except for items III 20 and 21 and for V 32.			
0.6	<p>Training</p> <p>a. Tenderer must provide sufficient training for designated personnel to ensure they will be able to use the offered equipment without any help from Supplier during operation (list of personnel will be timely provided). Training for items must take place after the delivery and installation is completed, during or after the integration, as on-site training. Training documents can be in Serbian or English language and the language of the training can be Serbian or English. Location of training is at customer premises.</p>			
0.7	<p>Warranty</p> <p>a. Adequate, specialized hardware, related software expertise are already available to ensure that the support services are responsive and the Tenderer will assume responsibility for the fault free operation of hardware during the mandatory 1 year warranty period. The Tenderer shall provide adequate proof of compliance in his offer</p> <p>b. In addition to the 12 months warranty period the Contractor will provide the Beneficiary with the Manufacturer's commercial warranty of at least further 2 years. A description of the Manufacturer's commercial warranty shall be included in the offer.</p>			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
<b>1</b>	<b>19" Rack Enclosure Qty. 3</b>			
	a. 19" rack enclosure, min 42 rack unit height, min 1075 mm rack depth			
	b. Lockable and removable perforated front and back doors must be installed			
	c. Cable management accessories and cable management bracket must be installed			
	d. Min 2 (two) power distribution units with min 40A output connections and extension bars must be installed			
	e. Must be delivered with all consumables and accessories needed for installation, operation and maintenance of relevant items			
	f. Must be compatible (width, depth, cable routing, placement, etc.) with relevant items			
	g. Power bar load capacity min 9000 VA			
<b>2</b>	h. Min Dynamic load 1360kg			
	<b>KVM (keyboard Video Mouse switch) console Qty. 2</b>			
	a. For 19" rack installation, maximum 1U			
	b. Keyboard, touchpad and min 1440 x 900, 17,3", brightness 187 cd/m2, Contrast ratio 500:1 LCD must be installed			

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<b>I - Server Infrastructure, Qty 1</b>				
	c. PS2 and USB connectivity and a USB port on the front of the keyboard for USB pass through with compatible KVM switches			
3	<b>19" Blade enclosure Qty 2</b>			
	a. Blade system enclosure, min 16 half-height or full-height blades			
	b. Min 4 (four) different interconnects fabric types supported simultaneously within the enclosure and min 8 (eight) interconnect bays			
	c. Min 6 (six) 2400W hot plug factory integrated power supply kits			
	d. Redundant blade administration with KVM option			
	e. Min 10 (ten) active cooling fans			
	f. 2 x Blade 1GbE switch, compatibility with relevant blades, min 8 (eight) Network copper uplink ports, min four uplinks can be optionally configured as fiber SX links. Security: VLAN, IBNS, ACS, ACL, 802.1x Port Security			
	g. 4 x Fabric extender, min 16 (sixteen) internal 1/10 Gigabit Ethernet/FibreChannel over Ethernet port, min 8 (eight) external 10 Gigabit Ethernet/FCoE Fabric interfaces. Centralized Management, support for SNMP V1, V2, V3, XML (Netconf) support			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
4	<b>Blade Server Type I Qty 2</b>			
	a. Blade server type, half height			
	b. Min 2 (two) 64-bit processors must be installed, with min 2.9 GHz and min 6 (six) cores per processor, min number of threads 12, and 15MB cache appropriate for chosen processor type.			
	c. Min 256GB DDR3 ECC RAM, min 1333 MHz must be installed			
	d. Min RAID 0 and 1 on-board controller with min 512MB flashed backed write cache memory must be installed			
	e. Min 2 (two) min 10K Hot-Plug SAS min 600GB HDDs			
	f. Min 1 (one) 1Gb NIC card with min 4 (four) ports must be installed			
	g. Min 2 (two) converged NIC 10Gb cards with min 2 (two) ports per card and with FCoE and iSCSI support, must be installed			
	h. Management port that supports complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support with web administration			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
	i. Must support Microsoft Windows Server 2008 and 2012, and various Linux distributions (no OS license shall be installed)			
<b>5</b>	<b>Blade Server Type II Qty. 2</b>			
	a. Blade server type, half height			
	b. Min 1 (one) 64-bit processor must be installed, with min 2.4 GHz and min 4 (four) cores per processor, min number of threads 4, and 10MB cache appropriate for chosen processor			
	c. Min 16GB DDR3 ECC RAM, min 1333 MHz must be installed			
	d. Min RAID 0 and 1 on-board controller with min 512MB flashed backed write cache memory must be installed			
	e. Min 2 (two) min 10K Hot-Plug SAS min 600GB HDDs			
	f. Min 1 (one) converged NIC 10Gb card with min 2 (two) ports and with FCoE and iSCSI support, must be installed			
	g. Management port that supports complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support with web administration			
	h. Must support Microsoft Windows Server			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
	2008 and 2012 and, and various Linux distributions (no OS license shall be installed)			
<b>6</b>	<b>Blade Server Type III Qty. 6</b>			
	a. Blade server type, half height			
	b. Min 2 (two) 64-bit processor must be installed, with min 2.6 GHz and min 8 (eight) cores per processor, min number of threads 16, and 20MB cache appropriate for chosen processor ports			
	c. Min 256GB DDR3 ECC RAM, min 1333 MHz must be installed			
	d. Min RAID 0 and 1 on-board controller with min 512MB cache memory must be installed			
	e. Min 2 (two) min 10K Hot-Plug SAS min 600GB HDDs in RAID1			
	f. Min 1 (one) 1Gb NIC card with min 4 (four) ports must be installed			
	g. Min 2 (two) converged NIC 10Gb cards with min 2 (two) ports per card and with FCoE and iSCSI support, must be installed			
	h. Management port that supports complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support with web administration			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
	i. Must support Microsoft Windows Server 2008 and 2012 and, and various Linux distributions (no OS license shall be installed) as well as Vmware and Citrix virtualization software			
<b>7</b>	<b>Tower server Qty. 15</b>			
	a. Tower server type			
	b. Min 1 (one) 64-bit processors must be installed, with min 2,5 GHz , 6 (six) cores per processor, min number of 12 threads , min 15 MB cache appropriate for chosen processor type			
	c. Min 16GB DDR3 ECC RAM, min 1600 MHz must be installed			
	d. RAID controller must be able to support 0, 1, 1+0, 5, 6			
	e. Min 4 (four), min 7,2K Hot-Plug SATA, min 1TB HDDs in RAID 1+0 must be installed			
	f. Min 4 (four) copper 100Mbps/1000Mbps NIC ports must be pre-installed (embedded)			
	g. DVD-RW drive must be installed in server (there can be no external devices)			
	h. Min 2 (two) min 460W power supplies in redundant configuration must be installed			
	i. Physical Management port that supports complete lifecycle of the server, from initial deployment, through ongoing management,			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
<b>8</b>	to service alerting and remote support with web administration			
	j. Must support Microsoft Windows Server 2008 and 2012 , and various Linux distributions (no OS license shall be installed)			
	<b>19" Rack UPS Type I Qty. 4</b>			
	a. 19" rack, max 4U (6HE)			
	b. Min 6300VA capacity must be installed			
	c. Must support input/output voltage 220, 230, 240 V/50Hz			
	d. Min 1 (one) input connection, min 2 IEC-309 32A (two) and min 6 (six) C19 outlets output connections must be installed			
	e. Installed battery capacity must support min 15 minutes of backup time at half load, and we need min 35 minutes with installed extended runtime modules			
	f. Recharge time <3 hours to 80% usable capacity; <48 hours form complete recharge			
	g. Remote TCP/IP network monitoring and management must be pre-installed (embedded) with relevant software delivered and installed to protect the infrastructure			
<b>9</b>	<b>Personal UPS Qty. 15</b>			
	a. Power out min 980VA/670W			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
<b>10</b>	b. Input connection min 1(one) IEC 320 C14, output connection min 4 (four) IEC 320 C13			
	c. Must support input/output voltage 220, 230, 240 V/50Hz			
	e. Estimated battery runtime at 100% battery charge at 50% load, 15 min			
	f. Manageability through USB and Serial ports			
	g. Hot-Swappable battery			
	h. Intelligent manageability with bundled software			
	<b>Fibre channel tape library Qty. 1</b>			
	a. Number of cartridge slots min 24 (twenty four) enabled			
	b. Min 1 (one) LTO 5 tape drive			
	c. Capacity min 70TB compressed 2:1, 36TB Native			
	e. Min Transfer rate 1.0 TB/hr, compressed 2:1			
	f. Min 2U			
	g. Host interface 8 Gb native Fibre Channel			
	h. Must be delivered with all consumables and accessories needed for installation, operation and maintenance of relevant items			
	i. Min 1 (one) Universal cleaning cartridge			
	j. Min 24 (twenty four) 3TB RW data tape media			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>I - Server Infrastructure, Qty 1</b>				
<b>11</b>	<b>19" Rack UPS Type II Qty. 2</b>			
	a. 19" rack, max 3U			
	b. Min 5000VA capacity must be installed			
	c. Must support input/output voltage 220, 230, 240 V/50Hz			
	d. Min 1 (one) input connection, min 1 (one) IEC-309 30A and min 4 (four) IEC-320 C19 outlets output connections must be installed			
	e. Installed battery capacity must support min 15 minutes of backup time at half load, and we need min 43 minutes with installed 1 (one)extended runtime modules			
	f. Recharge time <3 hours to 80% usable capacity; <48 hours form complete recharge			
	g. Remote TCP/IP network monitoring and management must be pre-installed (embedded) with relevant software delivered and installed to protect the infrastructure			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>II - Storage Infrastructure, Qty 1</b>				
12	<b>SAN (Storage Area Network) Storage System Qty. 1</b>			
	a. System must support No Single Point of Failure.			
	b. System must have minimum 2 controller units.			
	c. System should be able to fit into SAN and NAS environment, unified system (with additional HW upgrade).			
	d. System should have possibility to provide FC, iSCSI, FCoE connections for SAN environment, as well as CIFS, NFS and FTP for NAS environment.			
	e. System must have: 8 x 8Gb FC and 4 x 10Gb FCoE front end connections.			
	f. System must have minimum 400 GB usable Read/Write cache memory.			
	g. System must scale up to minimum 1TB GB of Read/Write Cache memory			
	h. System must support: FC or SAS, SATA or FATA or NL SAS and Flash Drives in the same array			
	i. System must have minimum 104 x 300GB SAS 10k rpm 3.5"			
	j. System must support following RAID levels: 0,1,3,5,6,10			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>II - Storage Infrastructure, Qty 1</b>				
	k. System must support minimum 250 HDDs			
	l. System must have licence for Thinprovisioning, registered for the whole capacity of Array			
	m. System must have licence for local instant and full volume copies of production (snap and clone) for the entire RAW offered capacity			
	n. System should be upgradeable with additional licence to provide storage replication (remote replication sync and async) over FC and iSCSI for the entire RAW offered capacity			
	o. System must have software for management with GUI and CLI interface			
	p. System must be installable in offered Rack			
13	<b>SAN VTL (Virtual Tape Library) system Qty. 1</b>			
	a. Disk-based backup device with deduplication supporting both LAN and SAN (FC) connections			
	b. Device should have at least 7TB usable (formatted) capacity and should be scalable to at least 45TB			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>II - Storage Infrastructure, Qty 1</b>				
	c. Device can simultaneously accept data through both Ethernet and Fibre Channel. Tenderers should offer device with at least 2 Ethernet 1Gb/s ports and at least 2 Fibre Channel 8Gb/s ports			
	e. Supported protocols are CIFS, NFS, FibreChannel and these licenses must be included in the offer			
	f. Together with offered backup application, device must support source-based (distributed) deduplication. This licenses doesn't need to be included in the offer			
	g. Device must support global deduplication, ie deduplication must not be limited to individual logical containers (CIFS or NFS file share, VTL etc)			
	i. Through Fibre Channel device is presenting space through so-called Virtual Tape Libraries			
	j. Maximum supported write speed should be at least 5TB/h			
	k. In order to have best capacity utilization and greatest savings device must support variable-block level deduplication			
	l. Besides being deduplicated data must be also compressed by the device			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>II - Storage Infrastructure, Qty 1</b>				
	m. Device must support encryption for data-at-rest, but license doesn't need to be included in the offer			
	n. In order to have data availability, device must use RAID6 for the disk subsystem			
	o. Device must support replication to the same or similar device. Replication license doesn't need to be included in the offer			
	p. Device must support creation of at least 50 snapshots			
	q. Device must have support for data archiving (retention lock functionality)			
14	<b>Backup software Qty. 1</b>			
	a. Backup software supporting heterogeneous operating systems (Windows, Unix, Linux)			
	b. Provide single-point of control			
	c. Support for wide range of backup devices (disk and tape libraries) as well as latest backup technologies (deduplication etc)			
	d. Software must have support for offered disk-backup device and adequate licenses should be offered			
	e. Software should support offered tape library device and Tenderers must supply appropriate license			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>II - Storage Infrastructure, Qty 1</b>				
	f. Tenderers must offer adequate licenses to enable at least 2 servers, besides Backup server itself, to backup directly to offered disk-backup device and tape library.			
	g. Tenderers must offer licenses enabling backup of 2 physical hosts with MS SQL			
	i. Tenderers must offer licenses to enable backup of 8 VMware ESX hosts. Offered licenses must enable both image backup and file backup of individual virtual machines			
	j. Software must have support for autodiscovery of VMware virtual machines and visual mapping of entire VMware topology			
	k. Software must support VMware Data Protection API and feature called "change block tracking" (CBT) for VMware image backup			
	l. Backup application should support Oracle, Microsoft SQL Server, Exchange, SharePoint and Data Protection Manager; IBM DB2 UDB; Informix; Lotus Notes/Domino; SAP R/3; Sybase			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
15	<b>Telepresence Server, qty 1</b>			
	a. Ability to register min. 50 endpoints/soft clients (licenses included if needed)			
	b. Ability for min. 5 concurrent traversal calls (licenses included if needed) with a possibility of additional licence upgrade to 25 concurrent traversal calls			
	c. Support for standard SIP and H.323 protocols with interoperability between SIP and H.323 standards-compliant endpoints			
	d. Support for H.225/Q.931, H.245 call-control routed mode, and non-call routed mode			
	e. Support for H.323-SIP Interworking Encryption			
	f. Support for H.323-SIP Interworking Duo Video			
	g. Support for registration of H.323 ID and E.164 aliases and services			
	h. Support for Uniform Resource Identifier (URI) dialling			
	i. Support for call policy management (RFC 3880)			
	j. H.460.18/19 compliant with H.460.18 client-proxy support			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
III - Network Infrastructure, QTY 1				
	k. Bandwidth Management: - Support for subzone area definition for bandwidth management - Support for registration control (open, specifically allow, and specifically deny) - Support for interzone bandwidth management: Definable call-by-call - Support for intrazone bandwidth management: Definable call-by-call - Maximum bandwidth per call - Maximum aggregate bandwidth - Support for auto-down-speeding if call exceeds per-call maximum - Support for gateway load balancing - Support for automatic network failover l. Registration survivability at system restart m. Presence server: online, offline, or busy n. Management interfaces: RS-232, HTTP/HTTPS, SNMP, SSH o. Support for two independent network interfaces – on for inside and one for outside zone p. Operating temperatures: 0 to 40°C q. Storage temperatures: -20 to 60°C r. Same manufacturer as for: - Telepresence endpoint - Telepresence soft client			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>16</b>	<b>Telepresence endpoint, qty 1</b>			
	a. Support for standard SIP and H.323 protocols			
	b. Bandwidth up to 6 Mbps			
	c. Minimum bandwidth for resolution/frame rate: - 720p30 from 768 kbps - 720p60 from 1152 kbps - 1080p30 from 1472 kbps - 1080p60 from 2560 kbps			
	d. Operational support for 1080p resolution (license included if needed)			
	e. Supported video codecs: H.263, H.263+, H.264			
	f. Native 16:9 widescreen			
	g. H.460.18, H.460.19 firewall traversal			



1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	h. Support for one HDMI and one DVI-I (Analog and Digital) with supported formats: <ul style="list-style-type: none"> <li>- 640x480</li> <li>- 720x480</li> <li>- 720x576</li> <li>- 800x600</li> <li>- 848x480</li> <li>- 1024x768</li> <li>- 1152x864</li> <li>- 1280x720</li> <li>- 1280x1024</li> <li>- 1280x768</li> <li>- 1280x800</li> <li>- 1280x960</li> <li>- 1360x768</li> <li>- 1366x768</li> <li>- 1400x1050</li> <li>- 1440x900</li> <li>- 1680x1050</li> <li>- 1920x1080</li> </ul>			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	i. Support for two HDMI outputs with supported formats: <ul style="list-style-type: none"> <li>- 1920 x 1080@60 fps (1080p60)</li> <li>- 1920 x 1080@50 fps (1080p50)</li> <li>- 1280 x 720@60 fps (720p60)</li> <li>- 1280 x 720@50 fps (720p50)</li> <li>- 1366 x 768@60 fps (WXGA)</li> <li>- 1360 x 768@60 fps(WXGA)</li> <li>- 1280 x 768@60 fps (WXGA)</li> </ul>			
	j. Audio codec support: G.711, G.722, G.722.1, 64 kbps MPEG4 AAC-LD			
	k. Automatic Gain Control (AGC)			
	l. Automatic noise reduction			
	m. Support for two microphones			
	n. Two acoustic echo cancellers			
	o. Support for min. one stereo line-in			
	p. Support for min. one stereo line-out			
	q. Support for Dual Stream: <ul style="list-style-type: none"> <li>- H.239 (H.323) dual stream</li> <li>- BFCP (SIP) dual stream</li> <li>- Support resolutions up to 1080p (1920 x 1080)</li> </ul>			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	r. Built-in min. 4 channel multipoint switch: <ul style="list-style-type: none"> <li>- SIP/H.323 with resolution up to 576p30</li> <li>- Full individual audio and video transcoding</li> <li>- Individual layouts in multisite continuous presence</li> <li>- H.323/SIP/VoIP in the same conference</li> <li>- Support for Presentation (H.239/BFCP) from any participant at resolutions up to 1080p15/SXGA</li> <li>- Conference rates up to 6 Mbps</li> <li>- Operational support (license included if needed)</li> </ul> a.			
	s. Support for operation with external MCU (Multipoint Control Unit)			
	t. Encryption Support: <ul style="list-style-type: none"> <li>- H.323 and SIP point-to-point</li> <li>- Standards-based: H.235 v3 and Advanced Encryption Standard (AES)</li> <li>- Automatic key generation and exchange</li> <li>- Supported in dual stream</li> </ul>			
	u. Support for 802.1X			

3

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	v. Support for both IPv4 and IPv6			
	w. Management interfaces: HTTPS, SNMP, SSH			
	x. Network interfaces - Ethernet 10/100/1000 Mbit			
	y. Operating temperatures: 0 to 35°C			
	z. Storage temperatures: -20 to 60°C			
	aa. Included table microphone			
	bb. Included remote control			
	cc. Camera:			
	- Min. 12x zoom			
	- +15°/-25° tilt, +/- 90° pan			
	- 43.5° vertical field of view			
	- 72° horizontal field of view			
	- Focus distance 0.3 m - infinity			
	- 1920 x 1080 pixels progressive @60 fps			
	- Other formats supported: 1920 x 1080@60 fps (HDMI only), 1920 x 1080@50 fps (HDMI only), 1920 x 1080@30 fps, 1920 x 1080@25 fps, 1280 x 720@60 fps, 1280 x 720@50 fps, 1280 x 720@30 fps, 1280 x 720@25 fps			
	- Automatic or manual focus, brightness, and white balance			
	- Far-end camera control			
	- Dual HDMI and HD-SDI output			
	- Upside-down mounting with automatic flipping of picture			

3

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	dd. Same manufacturer as for: - Telepresence server - Telepresence softclient			
17	<b>Telepresence soft clients for Microsoft Windows, software, qty 1</b> a. Supported operating systems: - Windows XP - Windows Vista - Windows 7 b. Support for Web Cameras c. Support for desktop and application share d. Interoperability with SIP and H.323 standards-compliant endpoints e. Support for bandwidths from 24 kbps up to 8 Mbps f. Supported video codecs: H.263, H.263+, H.264 g. Support up to 1080p HD resolution at 30 frames per second (fps) h. Audio codec support: G.711, G.722, G.722.1, 64 kbps MPEG4 AAC-LD i. Firewall traversal support j. Same manufacturer as for: - Telepresence server - Telepresence endpoint			
18	<b>Telepresence soft clients for Apple IPAD, software, qty 1 (or downloadable from AppleStore)</b> a. Interoperability with SIP and H.323 standards-compliant endpoints			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>19</b>	b. Supported video codec: H.264			
	c. Supported resolutions: receive up to 448p quality and transmit up to 360p quality			
	d. Audio codec support: G.711, G.722, G.722.1			
	e. Firewall traversal support			
	f. Same manufacturer as for:			
	- Telepresence server			
	- Telepresence endpoint			
	<b>USB Web Cameras, qty 5</b>			
	a. Support for max. resolution 1280 x 720 @30fps (720p)			
	b. Focus distance 0.1m-infinity			
<b>20</b>	c. 50° Horizontal field of view			
	d. 29° Vertical field of view (plus manual tilt)			
	e. Wideband microphone			
	f. Supported resolutions:			
	- 1280x720 (w720p)			
	- 1024x576 (w576p)			
	- 768x448 (w448p)			
	- 512x288 (w288p)			
	- 352 x288 (CIF)			
	- 640x480 (VGA)			
<b>20</b>	- 320x240 (QVGA)			
	-160x120 (1/16 VGA)			
	<b>LCD TV, qty 1</b>			
	a. Screen size: 42"			
<b>20</b>	b. Native resolution: 1,920 x 1,080			
	c. Aspect Ratio: 16:9			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>21</b>	d. HDMI inputs min. 2			
	e. PC SubD input min.1			
	f. VESA mount capable			
	<b>LCD TV Floor Stand, qty 1</b>			
	a. Support for LCD screens from 30" to 50"			
<b>22</b>	b. Support for weight up to 60kg			
	c. Wheels for easy mobility			
	<b>Network Switch, qty 42</b>			
	a. 24 Ethernet 10/100/1000 ports and 4 SFP based Gigabit Ethernet ports			
	b. Support for at least 80 Gbps of Forwarding bandwidth			
	c. Forwarding rate at least 40 Mpps (based on 64-Byte packets)			
	d. Support for 128 MB Memory DRAM and 64 MB Flash Memory			
	b. Support for stacking module with 20 Gbps of throughput (cables and modules necessary for stacking don't have to be included in the offer)			
	c. Support for 8000 MAC addresses			
	d. Support for 255 VLANs and 4000 VLAN IDs			
	e. Support for Voice and private VLAN			
	f. Support for 255 IPv4 IGMP groups			
	g. Support for per-port broadcast, multicast and unicast storm control			

3

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	h. Support for spanning-tree standards IEEE 802.1d, 802.1s, 802.1w			
	i. Support for standards 802.3ad and 802.1x			
	j. Support for 802.1p class of service (CoS) and differentiated services code point (DSCP) field classification, using marking and reclassification on a per-packet basis by source and destination IP address, MAC address, or Layer 4 TCP/UDP port number			
	k. Support for four egress queues per port and Strict priority queuing			
	l. Support for securing the access to an access or trunk port based on MAC address			
	m. Support for Dynamic ARP Inspection (DAI), Port-based ACLs, DHCP Snooping and IP Source Guard			
	n. IPv4 and IPv6 support			
	o. Support for SSHv2, RMON, SNMP v1,v2c,v3 and telnet			
	p. Support for measuring and managing power consumption			
<b>23</b>	<b>Network Firewall, qty 2</b>			
	a. 8 GE Copper integrated ports			
	b. Maximum Firewall Throughput 2 Gbps			
	c. 3DES/AES VPN Throughput 300 Mbps			
	d. Support for 500,000 concurrent connections			
	e. Support for maximum 750 IPsec VPN Peers			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
f.	Memory 12 GB, Minimum System Flash 8GB			
g.	Support for 200 Virtual Interfaces (VLANs)			
h.	Support for firewall virtualization (minimum 2 virtual firewall included)			
i.	Support for Active/Active and Active/Standby redundancy			
j.	Support for L2 transparent and L3 routing modes			
k.	IPv4 and IPv6 support			
l.	Support for RFC 6379 cryptographic algorithms			
m.	Support for static routes, RIP v1 and v2, OSPF, OSPF v3 routing			
n.	Support for Redundant interface and EtherChannel interface			
o.	Support for controlling applications and security services for HTTP, FTP, ESMTP, DNS, SNMP v.2/v.3, ICMP, H.323 Versions 1-4, SIP, MGCP, RTSP, GTP, LDAP protocols.			
p.	Support to group multiple firewalls together as a single logical Device			
q.	Support for dedicated management port			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>24</b>	r. Support do detection and optional locking of IM, peer-to-peer file sharing and other application whilhc are tunneling through Web applications ports			
	s. Support for service inspection: protocol anomaly detection, stateful application inspection,NAT/PAT support, dynamic opening/closing ports for applications			
	<b>Data Center switch, qty 2</b>			
	a. 19" switch with 48 fixed ports (possibility to configure the port as 1/10Gbps Ethernet, 10Gbps FCoE or 8/4/2/1Gbps FC)			
	b. Number of ports requirements: 80 port with above functionality			
	c. 3 expansion slots for additional ports (maximum 96 ports)			
	d. Must support Layer 2 hardware forwarding: 1920 Gbps или 1428 mpps			
	e. Must support Layer 3 forwarding of 160 Gbps or 240 mpps			
	f. Must support VLAN ACLs (VACLs)			
	g. Must support Port ACLs (PACLs)			
	h. Must support MAC table size of 32,000 entries			
	i. Must support 1000 VRF entries			
	j. Must support jumbo frame (up to 9216)			
	k. Must support Routing protocols: Static, Routing Information Protocol Version2			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	(RIPv2), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First Version 2 (OSPFv2), and Border Gateway Protocol (BGP)			
	l. Must support IPv6 Routing Protocols: Static, Open Shortest Path First Version 3 (OSPFv3), Border Gateway Protocol (BGPv6), Enhanced Interior Gateway Routing Protocol (EIGRPv6)			
	m. Must support , T11 FCoE Initialization Protocol (FIP) (FC-BB-5), Any 10 Gigabit Ethernet fixed port configurable as FCoE, SAN administration separate from LAN administration, Fibre Channel forwarding (FCF), Fibre Channel standard port types: E, F, and NP, Fibre Channel enhanced port types: VE, TE, and VF, F-port trunking, F-port channeling, Direct attachment of FCoE and Fibre Channel targets, N-port identifier virtualization (NPV), Zoning, Fibre Channel traceroute, Fibre Channel ping, Fibre Channel debugging			
	n. Must support hot-swappable field-replaceable power supply, fans and expansions modules			
	o. Must support for up to 4096 VLANs			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	p. Must support Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible)			
	q. Must support CLI, RMON and Secure Shell Version 2 (SSHv2)			
	r. Must support SNMPv1, v2, v3 IPv4 & IPv6			
	s. Must support for Link Aggregation Control Protocol (LACP): IEEE 802.3ad			
	q. Must support Storm control (unicast, multicast, and broadcast)			
	r. Must support Private VLAN over trunks (isolated and promiscuous)			
<b>25</b>	<b>Network Router, qty 1</b>			
	a. Must support 3 integrated 10/100/1000 Ethernet ports with 2 ports capable of RJ-45 or SFP connectivity			
	b. Must support additional two WAN serial ports, up to 8 Mbps on each port with EIA-232, EIA-449, V.35, and X.21 support in DTE or DCE mode, and EIA-530 and EIA-530A support in DTE mode.			
	c. Must support 1 GB DRAM memory with possibility to upgrade up to 2GB			
	d. Must support 256 MB Flash memory with possibility to upgrade up to 4GB			
	e. Must support IPv4 and IPv6 protocols			
	f. Must support routing protocols:static, RIP,			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
	RIPng, OSPF, OSPFv3, ISIS, BGP.			
	g. Must support IEEE protocols: 802.1p, 802.1Q, 802.1x, 802.3ah, 802.3x Flow			
	h. Must support additional redundant power supply			
	i. Must support VRRP protocol			
	j. Must support management via SNMPv3, SSHv2			
	k. Must support recognition and classification for application and protocols: Peer-to-Peer File-Sharing, Skype, SIP, RTP, H.323, HTTP, etc.			
	l. Must support expansions with additional modules that support port expansion and additional functionality/application expansion			
26	<b>10GBASE SFP+ modules, qty 4</b> a. supports a link length of 26m on standard Fiber Distributed Data Interface (FDDI)-grade multimode fiber (MMF) b. Distance with OM4 optic cable: up to 400m c. Distance with OM3 optic cable: up to 300m d. Wavelength: 850nm e. Cable type: Multimode f. Average Transmit Power: Maximum - 1.2dBm; Minimum -7.3dBm			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>27</b>	<b>Twinax SFP+ copper cable, qty 20</b>			
	a. Length: 5m			
	b. Fiber type: multimode			
	c. Distance: on OM4 max 190m; on OM2 max 300m			
	d. Wavelength: 850nm			
<b>28</b>	<b>Fibre Channel SFP+, qty 4</b>			
	a. Fibre Channel connectivity for the 2/4/8-Gbps ports			
	b. Fiber type: multimode			
	c. Distance: on OM4 max 190m; on OM2 max 300m			
	d. Wavelength: 850nm			
<b>29</b>	<b>Copper SFP, qty 200</b>			
	a. 1000BASE-T SFP operates on standard Category 5 unshielded twisted pair copper cabling of up to 100m (328 ft) link length.			
	b. support 10/100/1000 auto negotiation and Auto MDI/MDIX			
	c. Distance: up to 100m link length			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>III - Network Infrastructure, QTY 1</b>				
<b>30</b>	<b>1GBASE SFP modules, qty 4</b>			
	a. compatible with the IEEE 802.3z 100BASE-SX standard, It can support up to 1km over laser-optimized 50 $\mu$ m multimode fiber cable.			
	b. operates on legacy 50 $\mu$ m multimode fiber links up to 550 m and on 62.5 $\mu$ m Fiber Distributed Data Interface (FDDI)-grade multimode fibers up to 220 m.			
	c. transmit Power Range (dBm) -3 to -9.5			
	d. receive Power Range (dBm) 0 to -17			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>IV - Virtualization Infrastructure, Qty 1</b>				
31	<p>a. Must support following Guest Operating Systems:</p> <ul style="list-style-type: none"> <li>- Windows NT 4.0</li> <li>- Windows 2000</li> <li>- Windows Server 2003 64-bit</li> <li>- Windows Server 2003</li> <li>- Windows Server 2008 64-bit</li> <li>- Windows Server 2008</li> <li>- Windows 7 64-bit</li> <li>- Windows 7</li> <li>- Windows XP 64-bit</li> <li>- Windows XP</li> <li>- Windows Vista 64-bit</li> <li>- Windows Vista</li> <li>- Windows 98</li> <li>- Windows 95</li> <li>- Windows 3.1</li> <li>- MS-DOS 6.22</li> <li>- Windows Preinstallation Environment 2 64-bit</li> <li>- Windows Preinstallation Environment 2</li> <li>- Red Hat Enterprise Linux 6 64-bit</li> <li>- Red Hat Enterprise Linux 6</li> <li>- Red Hat Enterprise Linux 5 64-bit</li> <li>- Red Hat Enterprise Linux 5</li> <li>- Red Hat Enterprise Linux 4 64-bit</li> <li>- Red Hat Enterprise Linux 4</li> <li>- Red Hat Enterprise Linux 3 64-bit</li> <li>- Red Hat Enterprise Linux 3</li> <li>- Red Hat Enterprise Linux 2.1</li> <li>- SUSE Linux Enterprise Server 11 64-bit</li> <li>- SUSE Linux Enterprise Server 11</li> <li>- SUSE Linux Enterprise Server 10 64-bit</li> <li>- SUSE Linux Enterprise Server 10</li> <li>- SUSE Linux Enterprise Server 9 64-bit</li> <li>- SUSE Linux Enterprise Server 9</li> <li>- SUSE Linux Enterprise Server 8</li> <li>- Ubuntu 11 Linux 64-bit</li> <li>- Ubuntu 11 Linux</li> <li>- Ubuntu 10 Linux 64-bit</li> <li>- Ubuntu 10 Linux</li> <li>- Ubuntu 9 Linux 64-bit</li> <li>- Ubuntu 9 Linux</li> <li>- Ubuntu 8 Linux 64-bit</li> <li>- Ubuntu 8 Linux</li> </ul>			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>IV - Virtualization Infrastructure, Qty 1</b>				
-	Ubuntu 7 Linux			
-	Novell NetWare 6			
-	Novell NetWare 5			
-	OS/2 Warp 4			
-	Oracle (Sun) Solaris 10 x86 64-bit			
-	Oracle Solaris 10 x86			
-	Oracle Solaris 9 x86			
-	Oracle Solaris 8 x86			
-	SCO OpenServer 5			
-	SCO UnixWare 7			
-	CentOS 6 64-bit			
-	CentOS 6			
-	CentOS 5 64-bit			
-	CentOS 5			
-	CentOS 4 64-bit			
-	CentOS 4			
-	Oracle Linux 6 64-bit			
-	Oracle Linux 6			
-	Oracle Enterprise Linux 5 64-bit			
-	Oracle Enterprise Linux 5			
-	Oracle Enterprise Linux 4 64-bit			
-	Oracle Enterprise Linux 4			
-	Debian 6 64-bit			
-	Debian 6			
-	Debian 5 64-bit			
-	Debian 5			
-	Debian 4 64-bit			
-	Debian 4			
-	FreeBSD 8 64-bit			
-	FreeBSD 8			
-	FreeBSD 7 64-bit			
-	FreeBSD 7			
-	FreeBSD 6 64-bit			
-	FreeBSD 6			
-	Asianux 4 64-bit			
-	Asianux 4			
-	Asianux 3 64-bit			
-	Asianux 3			
-	Serenity Systems eComStation 2			
-	Serenity Systems eComStation 1.2R			
-	Apple Mac OS X 10 64-bit			
-	Apple Mac OS X 10			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>IV - Virtualization Infrastructure, Qty 1</b>				
	b. Solution must be based on bare metal hypervisor architecture			
	c. Must support Virtual Symmetric Multiprocessing (SMP) technology up to 64 virtual CPUs			
	d. Virtual hardware must support 1TB of RAM and a variety of next-generation hardware.			
	e. Must provide integration with supported third-party data-protection, multipathing and disk-array solutions.			
	f. Must provide dynamic, hardware-independent load balancing and resource allocation for virtual machines in a cluster, using policy-driven automation.			
	g. Must support solution for continuously optimizing server power consumption within each cluster.			
	h. Must support dynamic allocation of shared storage capacity.			
	i. Must provide continuous availability of any application in the event of a hardware failure—with no data loss or downtime.			
	j. Must support backup and recovery solution for virtual machines.			
	k. Must support array-agnostic replication of virtual machine data over the LAN or WAN.			
	l. Must provide technology to add CPU, disk, NIC and memory to virtual machines when needed without disruption or downtime.			

3

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>IV - Virtualization Infrastructure, Qty 1</b>				
	m. Must support automate tracking, patching and updating for hosts, and for applications and operating systems running in virtual machines.			
	n. Must provide views into health, risk and scores of Virtual environment infrastructure. Quickly drill down to see what's causing current workload conditions, pinpoint potential problems in the future and identify areas with inefficient use of resources.			
	o. Must support solution for quick convert physical servers and third-party virtual machines into virtual machines.			
	p. Must support backup and recovery solution for virtual machines.			
	q. Must support backup and recovery solution for virtual machines.			
	r. Must provide monitoring and control storage quality-of-service priorities for guaranteed access to storage resources.			
	s. Must support automated load balancing for storage characteristics to determine the best place for a virtual machine's data to reside both when it is created and when it is used over time.			
	t. Must support solution for reduces the steps in the selection of storage resources by grouping storage according to a user defined policy.			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>IV - Virtualization Infrastructure, Qty 1</b>				
	u. Must provide mechanism for manage network quality-of-service priorities for guaranteed access to network resources.			
	s. Must provide management feature for Auto storage placement while running and at start-up.			
	t. Tenderer must provide adequate licenses for offered solution in regard to item 6 on which solution will be installed			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>V – Workstations, Qty 20pcs</b>				
32	<b>Workstation</b>			
	a. Form Factor: SFF Desktop			
	b. Chipset: Min. Intel B75			
	c. CPU: BAPCO Sysmark 2012 Rating: 125			
	d. RAM: 4GB DDR3 1600MHz (min. 4 DIMM slots)			
	e. HDD: 500 GB 7.2k SATA III (6Gb/s)			
	f. Optical data drive: DVD-RW SATA			
	g. Graphic adapter: Integrated, Dual display support			
	h. Mainboard Interfaces: 8x USB 2.0, 4x USB 3.0, 1xVGA, 1xDVI, 2xPS/2 1xRJ-45 (1Gbit), 1xserial port(RS-232), 1xparallel			
	i. Drive bays: 3.5-inch internal bay, 3.5 inch external bay, 5.25-inch external bay			
	j. Free expansion slots: 1xPCI, 2xPCIe x1, 1xPCIe x16 3.0			
	k. Power supply: 280W			

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1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
<b>V – Workstations, Qty 20pcs</b>				
33	l. Input Devices: keyboard (Serbian), standard optical mouse			
	m. Compliance: RoHS, WEEE, Energy Star® 5.0, EPEAT® Gold			
	n. Operating System: Win7 Pro			
	o. Recovery: HDD based recovery to factory settings			
	<b>Display (same manufacturer as for workstation):</b>			
	a. Backlight technology: LED			
	b. Diagonal size: 20"			
	c. Resolution: 1600x900			
	d. Contrast - Standard: 1000:1			
	e. Brightness : 250 cd/m2			
	f. Response time: 5 ms			
	g. Video input: VGA, DVI			
	h. Speakers: integrated			
	i. Compliance: TCO Displays 5.0, EnergyStar® 5.0, EPEAT Silver			