



**CORRIGENDUM No. 1**

to the

**TENDER DOSSIER**

**Publication Ref:** EuropeAid/140363/IH/SUP/ME

**Subject:** Supply contract “*Supply of Equipment for Strengthening Capacities of Relevant Institutions involved in Competitiveness and Innovation Sector in Ministry of Economy*”

**Location:** Europe (non-EU), Montenegro (ME)

The Annex II: Technical specifications are modified, as follows:

**Point n° 1**

Section: ANNEX II – B

Instead of:

<u>1.</u> <b>Item number</b>	<u>2.</u> <b>Specifications required</b>	<u>3.</u> <b>Specifications offered</b>	<u>4.</u> <b>Notes, remarks, ref to documentation</b>	<u>5.</u> <b>Evaluation committee’s notes</b>
<b><u>LOT 1:</u></b>	<b><u>IT Hardware</u></b>			
<b><u>1.16.</u></b>	<b>Server<sup>1</sup></b> <b>Quantity: 6</b> <ul style="list-style-type: none"> <li>• CPU with the rating at PassMark CPU benchmark list of at least At least 8880 (<a href="https://www.cpubenchmark.net">https://www.cpubenchmark.net</a>)</li> <li>• Mainboard, Product TypeQuad Socket Rack Server;</li> <li>• Memory 16 GB – 15 TB, DIMM</li> </ul>			

<sup>1</sup> Every Operating System brand name or chipset which is stated in the complete specification is used in a descriptive way because of compatibility with other owned equipment which is needed to be compatible with the new one. All in the way of good functionality.

	<p>(DDR4 / DDR-T for non-volatile memory modules), Memory protection Advanced ECC, Memory Scrubbing, SDDC, DDDC (Double Device Data Correction), Memory Mirroring support, Rank sparing memory support, ADDDC (Adaptive Double DRAM Device Correction);</p> <ul style="list-style-type: none"> <li>• Drives (optional) DVD supermulti, ultraslim, SATA I; PCI-Express 3.0 x16 8 x whereas 4x full height and 4x low profile with up to 167mm length; PCI-Express 3.0 x16 8 x whereas 4x full height and 4x low profile with up to 167mm length;</li> <li>• Slot Notes Important note: 4 PCIe slots are supported with the first and second processor. Additional 4 PCIe slots are supported with the third and fourth processors. Slot 1&amp;2: PCIe Gen3 x16 @CPU1 for low profile cards with up to 167mm length Slot 3&amp;4: PCIe Gen3 x16 @CPU4 for full height cards with up to 167mm length Slot 5: PCIe Gen3 x16 @CPU2 for</li> </ul>			
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	<p>low profile cards with up to 167mm length Slot 6&amp;7: PCIe Gen3 x16 @CPU3 for full height cards with up to 167mm length Slot 8: PCIe Gen3 x16 @CPU2 for low profile cards with up to 167mm length (used for the internal modular RAID controller if selected);</p> <ul style="list-style-type: none"> <li>• Storage drive bays 2.5-inch hot-plug SAS/SATA/PCIe 2 x M.2 slot whereas slot 1 supports 80mm or 110mm and slot 2 supports 42mm or 80mm 16 x 2.5-inch hot-plug SAS/SATA/PCIe 8 x 2.5-inch hot-plug SAS/SATA/PCIe;</li> <li>• Storage drive SSD SATA, 6 Gb/s, 1.92 TB, Mixed-use, hot-plug, 2.5-inch, enterprise, 3 DWPD (drive writes per day for 5 years) x2, HDD SAS, 12 Gb/s, 1.8 TB, 10,000 rpm, 512e, hot-plug, 2.5-inch x 4;</li> <li>• I/O controller onboard Intel® C624 or equivalent, 1 x SATA channel for ODD DynamicLoM based on Intel® C624 (Intel®</li> </ul>			
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	<p>X722) or equivalent;  Optional  DynamicLoM  OCP adaptors:, 2 x 10 Gbit/s Ethernet (RJ45), 2 x 10 Gbit/s SFP+, 4 x 1 Gbit/s Ethernet (RJ45), 4 x 10 Gbit/s SFP+  Integrated Remote Management Controller (IRMC S5, 512 MB attached memory incl. graphics controller), IPMI 2.0 compatible;</p> <ul style="list-style-type: none"> <li>• Power supply configuration 2 hot-plug power supplies (standard), single power supply configuration possible;</li> <li>• <b><u>Sub-component 1.16.1. Virtualization server</u></b></li> </ul> <ul style="list-style-type: none"> <li>- Rack server 1U</li> <li>- Processor 1 x (2.4GHz/10-core/85W)</li> <li>- Memory - 4 x 32GB DDR4-2666</li> <li>- DIMM Slots: 24 DIMM slots for RDIMM, LRDIMM DDR4 Memory</li> <li>- Storage Controller with 2 GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)</li> <li>- 2 x HDD 1.2 TB SAS 12G 10K SFF</li> <li>- Drive Cage: 8 SFF Model with optional 2 SFF SAS/SATA kit</li> <li>- 2 x Ethernet 1Gb 4-port Adapter</li> <li>- FC card: 16Gbps 2-port FC HBA</li> </ul>			
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	<ul style="list-style-type: none"> <li>- Fans: 5 hot plug fans, redundant</li> <li>- USB: - 1 front, 2 internal, 2 rear, SD Connector: 1 micro SD Internal</li> <li>- 2 x Hot Plug Power Supply</li> <li>- Microsoft Windows Server 2016 or equivalent</li> </ul> <ul style="list-style-type: none"> <li>• <b><u>Sub-component</u></b> <b><u>1.16.2. SAN</u></b> <b><u>Storage</u></b></li> </ul> <ul style="list-style-type: none"> <li>- 2 redundant controllers/storage processors, redundant subsystems for power supply and cooling (does not have a Single Point of Failure), operating in the full active-active operation mode ("true active-active");</li> <li>- Dedicated Cache per controller pair - 64 GB;</li> <li>- Host Connectivity - Fibre Channel, iSCSI, FCoE, Direct Connect Fibre Channel, NFS and CIFS;</li> <li>- Supports RAID levels 0, 1, 5, 6;</li> <li>- Has at least 12 x 16 Gb/s FC host ports;</li> <li>- Contains at least 16 pieces - 2.5" SAS 10K, 12G discs of single capacity 1.8TB;</li> <li>- Supports "sub-lun tiering" i.e. LUN storage can have data parts on different disc types and can switch them in real time between different disc types in order to enhance the performance of data access, depending on the frequency of access</li> </ul>			
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	<p>to parts of such data;</p> <ul style="list-style-type: none"> <li>- Expandable to at least 240 HDD;</li> <li>- Sa LC/LC Multi-mode Fiber Cable, 10 pieces, OM4 length of 5m</li> <li>- Supported drive types: Solid State Drives (SSDs), HDD - High Performance Enterprise 10K rpm and 15K rpm SAS drives and 7.2K rpm Mid-line SAS drives;</li> <li>- RAW capacity - 1000 TiB;</li> <li>- Has the possibility of mixing fast (10 and 15krpm) and slow (7.2 krpm) discs with the same disc enclosure;</li> <li>- Licensed for using the offered storage capacity system;</li> <li>- It has thin provisioning function licensed for the offered storage capacity system;</li> <li>- Has the possibility of creating local point in time copies of data (snapshot, clone), with additional licenses;</li> <li>- Has the ability of online change of the RAID levels and types of discs (fast and slow) where the logic disc is located (LUN), with additional licenses (online change assumes the ability of changing of the stated parameters of LUN is transparent for the servers which access that LUN).</li> </ul> <p><b>Sub-component 1.16.3. Virtualization software</b></p>			
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	<p>Delivery of software licenses for virtualization. Virtualization Software should enable the virtualization of server systems which are planned for virtualization, and which will consist of three physical hypervisors with two CPU units each. The stated software must fulfil the following characteristics:</p> <ul style="list-style-type: none"> <li>- To be a bare metal hypervisor, which allows virtualization and centralized management of up to 3 host server systems;</li> <li>- Central management of virtualization hosts from one virtual device-appliance;</li> <li>- To be compatible with a wide spectre of 32 and 64-bit servers and operative systems;</li> <li>- To support the functionality of dynamic allocation of storage resources without the degradation of performances, and to increase the efficiency of using the available storage in such manner;</li> <li>- To enable the replication of virtual devices to a secondary location with the objective of disaster recovery;</li> <li>- To ensure high availability in case</li> </ul>			
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	<p>of a malfunction of the native host by enabling an automatic restart of the virtual device on another physical host, thus minimizing the time of disruption of work;</p> <ul style="list-style-type: none"> <li>- To enable migration of virtual devices between hosts and in such a way eliminate the disruption of operations of applications (downtime) due to the planned maintenance of servers.</li> <li>- To enable the functioning of other backup software solutions without the disruption of operations.</li> <li>- To provide anti-virus and anti-malware protection for virtual devices, without the necessity of using agents.</li> </ul> <p>Support for the stated software lasting for a minimum of one year.</p> <p><b><u>Sub-component 1.16.4.</u></b>  <b><u>Backup Server</u></b></p> <ul style="list-style-type: none"> <li>- Rack server 1U;</li> <li>- Processor 1 x (2.1GHz/8-core/85W), with option to add other software;</li> <li>- Memory: 2 x 16GB DDR4-2666;</li> <li>- DIMM Slots: 24 DIMM slots for</li> </ul>			
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	<p>RDIMM, LRDIMM DDR4 Memory;</p> <ul style="list-style-type: none"> <li>- Storage Controller with 2 GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0);</li> <li>- 2 x HDD 600GB SAS 12G 10K SFF;</li> <li>- FC card: 16Gbps 2-port FC HBA;</li> <li>- Drive Cage: 8 SFF Model with optional 2 SFF SAS/SATA kit;</li> <li>- 1 x Ethernet 1Gb 4-port Adapter</li> <li>- Fans: 5 hot plug fans, redundant;</li> <li>- USB: 1 front, 2 internal, 2 rear, SD Connector: 1 micro SD Internal;</li> <li>- 2 x Hot Plug Power Supply;</li> <li>- Microsoft Windows Server 2016 Standard or equivalent;</li> </ul> <p><b><u>Sub-component 1.16.5.</u></b></p> <p><b><u>Backup device</u></b></p> <ul style="list-style-type: none"> <li>- De-duplication device for storing of backup data with the following minimum requirements:</li> <li>- Capacity - 24 TB raw, 16 TB useable, expandable to 31.5 TB useable;</li> <li>- Drive description - 6 x 4 TB disks;</li> <li>- Host interface -1 Gb Ethernet 4 ports standard, 10GbE SFP, 10GbE-T, 16 Gb FC or 32 Gb Deduplication Yes;</li> <li>- Storage expansion options - 24 TB capacity upgrade kit;</li> <li>- Replication support provided;</li> <li>- RAID support - Hardware RAID 6;</li> <li>- Number of virtual tape libraries and NAS targets – 24</li> <li>- 1-year warranty for the device with the</li> </ul>			
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	<p>response to the malfunction report up to 24 hours since reporting the problem.</p> <p><b><u>Sub-component 1.16.6.</u></b>  <b><u>Licenses for the backup software</u></b></p> <ul style="list-style-type: none"> <li>- Backup Software needs to have a possibility to be installed to the following operative systems: <ul style="list-style-type: none"> <li>✓ Windows Server 2012 or equivalent;</li> <li>✓ Windows Server 2012 R2 or equivalent;</li> <li>✓ Windows Server 2016 or equivalent;</li> <li>✓ Windows Server 2019 or equivalent;</li> </ul> </li> <li>- Must enable the automated, sequential backup to the disk, or to the tape. To store backup image on one device, and then to copy it to another device (disk to tape; tape to disk);</li> <li>- Must contain the mechanism for the replication of data backed-up to the secondary location with the goal of restoring those servers on a secondary location. This functionality must be optimized to copy only new de-duplicated data with the goal of less workload of the link between those two locations;</li> <li>- The solution should have a possibility of performing backup live (running) of virtual devices;</li> </ul>			
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	<ul style="list-style-type: none"> <li>- The software should allow the quick recovery of all Microsoft Exchange 2007 SP3, 2010 SP3, 2013 SP1, 2016 elements without the need for starting the virtual device;</li> <li>- The software should allow the quick recovery of all Microsoft SharePoint Server 2010 SP2, 2013 SP1 objects directly from the SharePoint Database without the need for starting the virtual device;</li> <li>- The software should allow the quick recovery of all Microsoft SQL 2005 SP4, 2008 SP4, 2008 R2 SP3, 2012 SP3, 2014 SP2, 2016 SP1 objects directly from the SQL Database without the need for starting the virtual device;</li> <li>- The software should allow the indexing of files within the Microsoft Windows VM in order to enable the quick search of files in the backup;</li> <li>- The software should use VMware vStorage API for Data Protection and to use the advantages of Change Block Tracking;</li> <li>- The software should use VSS mechanisms implemented in Microsoft Windows OS;</li> <li>- The software should have de-duplication and compression mechanisms which result in reducing the storage needed for the</li> </ul>			
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	<p>backup of files;</p> <ul style="list-style-type: none"> <li>- The software must have a possibility to copy files to tapes;</li> <li>- A system for generating the daily reports of performed backup, analysis of the duration of backup tasks, the amount of backed-up data and the analysis of success of the backup itself are all the required components;</li> <li>- The software should have a possibility of informing of successful or unsuccessful backup through e-mail or an SNMP message;</li> <li>- The software should allow any script to be added to the task which needs to be performed after the backup;</li> <li>- The software needs to ensure an information plug-in for the vSphere Web Client consoles;</li> <li>- The solution should have an ability of automatic system recovery to a different hardware, in physical, virtual and cloud forms;</li> <li>- The possibility of global setting of the read and write connection on storage and in a cloud;</li> <li>- Direct-To-Cloud backup option;</li> <li>- The backup solution license must be supported by the producer for a period of one year;</li> <li>- The de-duplication option must have a possibility to use different types of storage devices such as the local disk storage, SAN storage and</li> </ul>			
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	<p>iSCSI storage;</p> <ul style="list-style-type: none"> <li>- The software should enable the granular return of application objects with the VM hosted on ESX servers without the need for starting the virtual device. The supported applications must be Active Directory (users and groups), Microsoft Exchange (e-mail messages and contacts), Microsoft SharePoint and Microsoft SQL (base) and Oracle (base);</li> <li>- The software must enable the recovery of the virtual device by virtualized host from where the backup was performed, or to some other virtualized host;</li> <li>- The software must have the mechanisms of access controls for different users;</li> <li>- The software for the backup of the virtual surrounding must support the work with the VMware infrastructure based on the version 5.1, 5.5, 6.0 and 6.5 and Microsoft Hyper-V 2008 R2, Hyper-V 2012 and Microsoft® Hyper-V 2016 or equivalent.<sup>2</sup>;</li> <li>- The software should support the Hyper-V hosts managed by the System Center Virtual Machine Manager, hosts within a cluster as well as individual hosts.</li> </ul> <p>The license should cover the creation of the backup virtual devices and</p>			
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<sup>2</sup> Every Operating System brand name or chipset which is stated in the complete specification is used in a desriptional way because of compatibility with other owned equipment which is needed to be compatible with the new one. All in the way of good functionality.

	<p>applications for 3 virtualized hosts without restrictions to the number of virtual devices and the size of backed-up data.</p> <p><b><u>Sub-component 1.16.7. Implementation and migration services</u></b></p> <ul style="list-style-type: none"> <li>- Service of delivery to the user location;</li> <li>- Service of physical installation of equipment to a designated rack switchboard with the connection to the electricity network and network infrastructure;</li> <li>- Service of initialization of network switches, upgrading of firmware, configuring of network stack, creating 5 VLANs with the connection to the core networks;</li> <li>- Service of initialization of switches, upgrading of firmware, zoning;</li> <li>- Service of initialization of servers, upgrade of firmware and installation of virtualization platform, and connecting to the SAN infrastructure;</li> <li>- Service of initialization of storage, upgrading of firmware, infrastructure, configuration of the storage system by presenting of the virtualization disks with the virtualization hosts;</li> <li>- Service of creating the new virtualization cluster with the migration of 4 virtual devices from the existing cluster;</li> </ul>			
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	<ul style="list-style-type: none"> <li>- Service of verification of the functionality a new platform;</li> <li>- Services of installation and configuration of the backup system with the creation and testing of the backup plan and releasing the system into production;</li> <li>- Service of preparation of the system platform for hosting of server components of the new information system;</li> </ul> <p>Service of technical support for the migration of other information systems</p>			
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Read:

<u>1.</u> <u>Item number</u>	<u>2.</u> <u>Specifications required</u>	<u>3.</u> <u>Specifications offered</u>	<u>4.</u> <u>Notes, remarks, ref to documentation</u>	<u>5.</u> <u>Evaluation committee's notes</u>
<b><u>LOT 1:</u></b>	<b><u>IT Hardware</u></b>			
<b><u>1.16.</u></b>	<p>Server<sup>3</sup>- <b>Virtualization platform</b></p> <p><b>For the particular item the following sub-components in stipulated quantities are requested in the following order:</b></p> <ul style="list-style-type: none"> <li>• <b><u>Sub-component 1.16.1. Virtualization server</u></b></li> </ul> <ul style="list-style-type: none"> <li>- <b><u>Quantity 3</u></b></li> <li>- <b><u>Rack server 1U</u></b></li> <li>- <b><u>Processor 1 x (2.4GHz/10-core/85W)</u></b></li> </ul>			

<sup>4</sup> Every Operating System brand name or chipset which is stated in the complete specification is used in a descriptive way because of compatibility with other owned equipment which is needed to be compatible with the new one. All in the way of good functionality.

	<ul style="list-style-type: none"> <li>- Memory - 4 x 32GB DDR4-2666</li> <li>- DIMM Slots: 24 DIMM slots for RDIMM, LRDIMM DDR4 Memory</li> <li>- Storage Controller with 2 GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0)</li> <li>- 2 x HDD 1.2 TB SAS 12G 10K SFF</li> <li>- Drive Cage: 8 SFF Model with optional 2 SFF SAS/SATA kit</li> <li>- 2 x Ethernet 1Gb 4-port Adapter</li> <li>- FC card: 16Gbps 2-port FC HBA</li> <li>- Fans: 5 hot plug fans, redundant</li> <li>- USB: - 1 front, 2 internal, 2 rear, SD Connector: 1 micro SD Internal</li> <li>- 2 x Hot Plug Power Supply</li> <li>- Microsoft Windows Server 2016 or equivalent</li> </ul> <ul style="list-style-type: none"> <li>• <b><u>Sub-component</u></b> <b><u>1.16.2. SAN</u></b> <b><u>Storage</u></b></li> </ul> <ul style="list-style-type: none"> <li>- <b>Quantity: 1</b></li> <li>- 2 redundant controllers/storage processors, redundant subsystems for power supply and cooling (does not have a Single Point of Failure), operating in the full active-active operation mode ("true active-active");</li> <li>- Dedicated Cache per controller pair - 64 GB;</li> <li>- Host Connectivity - Fibre Channel, iSCSI, FCoE, Direct Connect Fibre Channel, NFS and CIFS;</li> <li>- Supports RAID levels 0, 1, 5, 6;</li> </ul>			
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	<ul style="list-style-type: none"> <li>- Has at least 12 x 16 Gb/s FC host ports;</li> <li>- Contains at least 16 pieces - 2.5" SAS 10K, 12G discs of single capacity 1.8TB;</li> <li>- Supports "sub-lun tiering" i.e. LUN storage can have data parts on different disc types and can switch them in real time between different disc types in order to enhance the performance of data access, depending on the frequency of access to parts of such data;</li> <li>- Expandable to at least 240 HDD;</li> <li>- Sa LC/LC Multi-mode Fiber Cable, 10 pieces, OM4 length of 5m</li> <li>- Supported drive types: Solid State Drives (SSDs), HDD - High Performance Enterprise 10K rpm and 15K rpm SAS drives and 7.2K rpm Mid-line SAS drives;</li> <li>- RAW capacity - 1000 TiB;</li> <li>- Has the possibility of mixing fast (10 and 15krpm) and slow (7.2 krpm) discs with the same disc enclosure;</li> <li>- Licensed for using the offered storage capacity system;</li> <li>- It has thin provisioning function licensed for the offered storage capacity system;</li> <li>- Has the possibility of creating local point in time copies of data (snapshot, clone), with additional licenses;</li> <li>- Has the ability of</li> </ul>			
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	<p>online change of the RAID levels and types of discs (fast and slow) where the logic disc is located (LUN), with additional licenses (online change assumes the ability of changing of the stated parameters of LUN is transparent for the servers which access that LUN).</p> <p><b>Sub-component 1.16.3. Virtualization software</b>  <b>Quantity: 1</b>  Delivery of software licenses for virtualization. Virtualization Software should enable the virtualization of server systems which are planned for virtualization, and which will consist of three physical hypervisors with two CPU units each. The stated software must fulfil the following characteristics:</p> <ul style="list-style-type: none"> <li>- To be a bare metal hypervisor, which allows virtualization and centralized management of up to 3 host server systems;</li> <li>- Central management of virtualization hosts from one virtual device-appliance;</li> <li>- To be compatible with a wide spectre of 32 and 64-bit servers and operative systems;</li> <li>- To support the functionality of dynamic allocation</li> </ul>			
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	<p>of storage resources without the degradation of performances, and to increase the efficiency of using the available storage in such manner;</p> <ul style="list-style-type: none"> <li>- To enable the replication of virtual devices to a secondary location with the objective of disaster recovery;</li> <li>- To ensure high availability in case of a malfunction of the native host by enabling an automatic restart of the virtual device on another physical host, thus minimizing the time of disruption of work;</li> <li>- To enable migration of virtual devices between hosts and in such a way eliminate the disruption of operations of applications (downtime) due to the planned maintenance of servers.</li> <li>- To enable the functioning of other backup software solutions without the disruption of operations.</li> <li>- To provide anti-virus and anti-malware protection for virtual devices,</li> </ul>			
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	<p>without the necessity of using agents.</p> <p>Support for the stated software lasting for a minimum of one year.</p> <p><b><u>Sub-component 1.16.4.</u></b>  <b><u>Backup Server</u></b>  <b><u>Quantity: 1</u></b></p> <ul style="list-style-type: none"> <li>- Rack server 1U;</li> <li>- Processor 1 x (2.1GHz/8-core/85W), with option to add other software;</li> <li>- Memory: 2 x 16GB DDR4-2666;</li> <li>- DIMM Slots: 24 DIMM slots for RDIMM, LRDIMM DDR4 Memory;</li> <li>- Storage Controller with 2 GB FBWC (RAID 0/1/1+0/5/5+0/6/6+0);</li> <li>- 2 x HDD 600GB SAS 12G 10K SFF;</li> <li>- FC card: 16Gbps 2-port FC HBA;</li> <li>- Drive Cage: 8 SFF Model with optional 2 SFF SAS/SATA kit;</li> <li>- 1 x Ethernet 1Gb 4-port Adapter</li> <li>- Fans: 5 hot plug fans, redundant;</li> <li>- USB: 1 front, 2 internal, 2 rear, SD Connector: 1 micro SD Internal;</li> <li>- 2 x Hot Plug Power Supply;</li> <li>- Microsoft Windows Server 2016 Standard or equivalent;</li> </ul> <p><b><u>Sub-component 1.16.5.</u></b>  <b><u>Backup device</u></b>  <b><u>Quantity: 1</u></b></p> <ul style="list-style-type: none"> <li>- De-duplication device for storing of backup data with the following minimum requirements:</li> <li>- Capacity - 24 TB raw, 16 TB useable,</li> </ul>			
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	<p>expandable to 31.5 TB useable;</p> <ul style="list-style-type: none"> <li>- Drive description - 6 x 4 TB disks;</li> <li>- Host interface -1 Gb Ethernet 4 ports standard, 10GbE SFP, 10GbE-T, 16 Gb FC or 32 Gb Deduplication Yes;</li> <li>- Storage expansion options - 24 TB capacity upgrade kit;</li> <li>- Replication support provided;</li> <li>- RAID support - Hardware RAID 6;</li> <li>- Number of virtual tape libraries and NAS targets – 24</li> <li>- 1-year warranty for the device with the response to the malfunction report up to 24 hours since reporting the problem.</li> </ul> <p><b><u>Sub-component 1.16.6.</u></b>  <b><u>Licenses for the backup software</u></b>  <b><u>Quantity: 1</u></b></p> <ul style="list-style-type: none"> <li>- Backup Software needs to have a possibility to be installed to the following operative systems: <ul style="list-style-type: none"> <li>✓ Windows Server 2012 or equivalent;</li> <li>✓ Windows Server 2012 R2 or equivalent;</li> <li>✓ Windows Server 2016 or equivalent;</li> <li>✓ Windows Server 2019 or equivalent;</li> </ul> </li> <li>- Must enable the automated, sequential backup to the disk, or to the tape. To store backup image on one device, and then to copy it to another</li> </ul>			
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	<p>device (disk to tape; tape to disk);</p> <ul style="list-style-type: none"> <li>- Must contain the mechanism for the replication of data backed-up to the secondary location with the goal of restoring those servers on a secondary location. This functionality must be optimized to copy only new de-duplicated data with the goal of less workload of the link between those two locations;</li> <li>- The solution should have a possibility of performing backup live (running) of virtual devices;</li> <li>- The software should allow the quick recovery of all Microsoft Exchange 2007 SP3, 2010 SP3, 2013 SP1, 2016 elements without the need for starting the virtual device;</li> <li>- The software should allow the quick recovery of all Microsoft SharePoint Server 2010 SP2, 2013 SP1 objects directly from the SharePoint Database without the need for starting the virtual device;</li> <li>- The software should allow the quick recovery of all Microsoft SQL 2005 SP4, 2008 SP4, 2008 R2 SP3, 2012 SP3, 2014 SP2, 2016 SP1 objects directly from the SQL Database without the need for starting the virtual device;</li> <li>- The software should allow the indexing of</li> </ul>			
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	<p>files within the Microsoft Windows VM in order to enable the quick search of files in the backup;</p> <ul style="list-style-type: none"> <li>- The software should use VMware vStorage API for Data Protection and to use the advantages of Change Block Tracking;</li> <li>- The software should use VSS mechanisms implemented in Microsoft Windows OS;</li> <li>- The software should have de-duplication and compression mechanisms which result in reducing the storage needed for the backup of files;</li> <li>- The software must have a possibility to copy files to tapes;</li> <li>- A system for generating the daily reports of performed backup, analysis of the duration of backup tasks, the amount of backed-up data and the analysis of success of the backup itself are all the required components;</li> <li>- The software should have a possibility of informing of successful or unsuccessful backup through e-mail or an SNMP message;</li> <li>- The software should allow any script to be added to the task which needs to be performed after the backup;</li> <li>- The software needs to ensure an information plug-in for the vSphere Web Client consoles;</li> <li>- The solution should have an ability of automatic system</li> </ul>			
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	<p>recovery to a different hardware, in physical, virtual and cloud forms;</p> <ul style="list-style-type: none"> <li>- The possibility of global setting of the read and write connection on storage and in a cloud;</li> <li>- Direct-To-Cloud backup option;</li> <li>- The backup solution license must be supported by the producer for a period of one year;</li> <li>- The de-duplication option must have a possibility to use different types of storage devices such as the local disk storage, SAN storage and iSCSI storage;</li> <li>- The software should enable the granular return of application objects with the VM hosted on ESX servers without the need for starting the virtual device. The supported applications must be Active Directory (users and groups), Microsoft Exchange (e-mail messages and contacts), Microsoft SharePoint and Microsoft SQL (base) and Oracle (base);</li> <li>- The software must enable the recovery of the virtual device by virtualized host from where the backup was performed, or to some other virtualized host;</li> <li>- The software must have the mechanisms of access controls for different users;</li> <li>- The software for the backup of the virtual surrounding must support the work with</li> </ul>			
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	<p>the VMware infrastructure based on the version 5.1, 5.5, 6.0 and 6.5 and Microsoft Hyper-V 2008 R2, Hyper-V 2012 and Microsoft® Hyper-V 2016 or equivalent.<sup>4</sup>;</p> <ul style="list-style-type: none"> <li>- The software should support the Hyper-V hosts managed by the System Center Virtual Machine Manager, hosts within a cluster as well as individual hosts.</li> </ul> <p>The license should cover the creation of the backup virtual devices and applications for 3 virtualized hosts without restrictions to the number of virtual devices and the size of backed-up data.</p> <p><b><u>Sub-component 1.16.7. Implementation and migration services</u></b></p> <ul style="list-style-type: none"> <li>- <b>Quantity: 1</b></li> <li>- Service of delivery to the user location;</li> <li>- Service of physical installation of equipment to a designated rack switchboard with the connection to the electricity network and network infrastructure;</li> <li>- Service of initialization of network switches, upgrading of firmware, configuring of network stack, creating 5 VLANs with the connection to the core networks;</li> <li>- Service of initialization of switches, upgrading of firmware, zoning;</li> </ul>			
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<sup>4</sup> Every Operating System brand name or chipset which is stated in the complete specification is used in a desriptional way because of compatibility with other owned equipment which is needed to be compatible with the new one. All in the way of good functionality.

	<ul style="list-style-type: none"> <li>- Service of initialization of servers, upgrade of firmware and installation of virtualization platform, and connecting to the SAN infrastructure;</li> <li>- Service of initialization of storage, upgrading of firmware, infrastructure, configuration of the storage system by presenting of the virtualization disks with the virtualization hosts;</li> <li>- Service of creating the new virtualization cluster with the migration of 4 virtual devices from the existing cluster;</li> <li>- Service of verification of the functionality a new platform;</li> <li>- Services of installation and configuration of the backup system with the creation and testing of the backup plan and releasing the system into production;</li> <li>- Service of preparation of the system platform for hosting of server components of the new information system;</li> </ul> <p>Service of technical support for the migration of other information systems</p>			
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**Point n° 2**

The new version of the Attachment 2 to the Technical Specifications (TS) is enclosed to this Corrigendum.

All other terms and conditions of the Technical Specifications and the entire Tender dossier remain unchanged. The above modifications to the Technical Specifications are an integral part of the Technical Specifications and the Tender dossier.