

Specificații tehnice

[Acest tabel va fi completat de către ofertant în coloanele 2, 3, 4, 6, 7, iar de către autoritatea contractantă – în coloanele 1, 5,]

Numărul procedurii de achiziție: ocds-b3wdp1-MD-1721217778613
Obiectul achiziției: <i>Servere și sisteme de stocare (perioada 2024-2025)</i>

Denumirea bunurilor/ serviciilor	Denumirea modelului bunului/ serviciului	Țara de origine	Producătorul	Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către ofertant	Standarde de referință																					
1	2	3	4	5	6	7																					
Bunuri/servicii																											
Lotul nr. 1 Enterprise Servere tip 1	Enterprise Server: HPE ProLiant DL380 Gen11	US, CZ	Hewlett Packard Enterprise	Echipament nou și nerecondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcționarea optimă a sistemului în ansamblu. Type: Enterprise Server Form Factor: max. 2U, Rack mounting: rails with full extraction included; CPU: min. 2 x CPU;	Configurația pentru cantitatea solicitată: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Qty</th> <th style="width: 20%;">Product #</th> <th style="width: 70%;">Product Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">8</td> <td>P52534-B21</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server</td> </tr> <tr> <td style="text-align: center;">8</td> <td>P52534-B21 B19</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual</td> </tr> <tr> <td style="text-align: center;">16</td> <td>P67081-B21</td> <td>Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE</td> </tr> <tr> <td style="text-align: center;">16</td> <td>P67081-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td style="text-align: center;">96</td> <td>P64707-B21</td> <td>HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit</td> </tr> <tr> <td style="text-align: center;">96</td> <td>P64707-B21 0D1</td> <td>Factory Integrated</td> </tr> </tbody> </table>	Qty	Product #	Product Description	8	P52534-B21	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server	8	P52534-B21 B19	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual	16	P67081-B21	Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE	16	P67081-B21 0D1	Factory Integrated	96	P64707-B21	HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit	96	P64707-B21 0D1	Factory Integrated	QuickSpecs: https://www.hpe.com/psnow/doc/a50004307enw.pdf?jumpid=in_dp-psnow-qs
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min. 24 core per CPU with hyper-threading;
 CPU launch date starting with Q3'23;
 Cache: min. 40MB;
 Base Frequency: min. 2.4 Ghz;
Total Memory(RAM): min. 24 DDR5 slots;
Memory(RAM) pre-installed: min. 12 x 64GB DDR5;
Min drive bays pre-installed: min. 8 bays 2.5 for data Support Hot-Swappable;
Storage pre-installed: min. 2 x min. 240 Gb SSD SAS;
RAID Controller: Support Pass-through mode;
 RAID 1, 5, 6, 10, 50, 60;
 Cache min. 4GB;
NICs included:
 min. 1 x 1GE management;
 min. 2 x 1GE;
 min. 2 x 10GE SFP+, identical, network virtualization offload, with SFP+ SR MM module included;
 min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included.
Supported operating environments:
 1. Microsoft Windows Server;
 2. Red Hat Enterprise Linux;
 3. VMware (VMware ESXi);
 4. Microsoft Hyper-V;
Interfaces: min. 2 port USB;
Power supplies included: min. 2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);
Front Indicator Status:
 1. Power Status
 2. Health System Status
 3. Drive Status

8	P48813-B21	HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit
8	P48813-B21 0D1	Factory Integrated
8	R2J63A	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter
8	R2J63A 0D1	Factory Integrated
8	P26256-B21	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
8	P26256-B21 0D1	Factory Integrated
8	P51181-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
8	P51181-B21 0D1	Factory Integrated
16	P38995-B21	HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
16	P38995-B21 0D1	Factory Integrated
8	BD505A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features
8	BD505A 0D1	Factory Integrated
8	S1A05A	HPE Compute Cloud Management Server FIO Enablement
8	P51911-B21	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit
8	P51911-B21 0D1	Factory Integrated
8	P48820-B21	HPE ProLiant DL380/DL560 Gen11 2U High Performance Fan Kit
8	P48820-B21 0D1	Factory Integrated
8	P35876-B21	HPE CE Mark Removal FIO Enablement Kit
8	P48183-B21	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
8	P48183-B21 0D1	Factory Integrated
16	P48818-B21	HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit
16	P48818-B21 0D1	Factory Integrated
8	P52152-B21	HPE ProLiant DL380 Gen11 NS204i-u Internal Cable Kit
8	P52152-B21 0D1	Factory Integrated
8	P52341-B21	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit
8	P52341-B21 0D1	Factory Integrated

4. NIC Status
 5. UID Status
Fan Modules: hot-swappable with N+1 redundancy;
Management: A web-based solution for KVM (Kernel-based Virtual Machine) must be included with full functionality for manage and monitoring, including at least:

- View information about the state of the managed server;
- Inventory and monitoring of network adapters and data storage subsystems without software agents in the OS;
- View inventory information;
- View information from sensors;
- Monitoring and control of electricity consumption;
- Turn On/Off the server;
- Remote update of BIOS, firmware of network and RAID controllers;
- Virtual console, virtual media devices;
- OS installation from virtual media devices and through network shared folders.
- Support SNMP min.v2c.

Operating system: no OS pre-installed.

Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare

Termeni și condiții:
 Toate cerințele sunt minime și obligatorii;
 O cerință nu trebuie să limiteze o altă cerință;

8	R7A12AAE	HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS
1	HU4B2A5	HPE 5Y Tech Care Basic Service
8	HU4B2A5 R2M	HPE iLO Advanced Non Blade Support
8	HU4B2A500DK	HPE DL380 Gen11 Support
16	455883-B21	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver

Toate cerințe sunt respectate cu strictețea

				<p>Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață);</p> <p>Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>																																																											
<p>Lotul nr. 2 Enterprise Server tip 2</p>	<p>Enterprise Server: HPE ProLiant DL380 Gen11</p>	<p>US, CZ</p>	<p>Hewlett Packard Enterprise</p>	<p>Echipament nou și nerecondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcționarea optimă a sistemului în ansamblu.</p> <p>Type: Enterprise Server; Form Factor: max. 2U, Rack mounting: rails with full extraction included; CPU: min. 2 x CPU; min. 24 core per CPU with hyper-threading; CPU launch date starting with Q3'23; Cache: min. 40MB; Base Frequency: min. 2.4 Ghz; Total Memory(RAM): min. 24 DDR5 slots; Memory(RAM) pre-installed: min. 8 x 64 GB DDR5; Min. drive bays pre-installed: min. 24 bays 2.5 for data Support Hot-Swappable Storage pre-installed: min. 16 x min. 1,9 Tb SSD, SAS 12Gb/s min. 2 x min. 240 Gb SSD SAS; RAID Controller: Support Pass-through mode; RAID 1, 5, 6, 10, 50, 60; Cache min. 4GB;</p>	<p>Configurația pentru cantitatea solicitată:</p> <table border="1"> <thead> <tr> <th>Qty</th> <th>Product #</th> <th>Product Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P52534-B21</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server</td> </tr> <tr> <td>1</td> <td>P52534-B21 B19</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual</td> </tr> <tr> <td>2</td> <td>P67081-B21</td> <td>Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE</td> </tr> <tr> <td>2</td> <td>P67081-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>8</td> <td>P64707-B21</td> <td>HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit</td> </tr> <tr> <td>8</td> <td>P64707-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>P48813-B21</td> <td>HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit</td> </tr> <tr> <td>2</td> <td>P48813-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>16</td> <td>P40507-B21</td> <td>HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD</td> </tr> <tr> <td>16</td> <td>P40507-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>P26259-B21</td> <td>Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE</td> </tr> <tr> <td>1</td> <td>P26259-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>P01366-B21</td> <td>HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit</td> </tr> <tr> <td>1</td> <td>P01366-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>P48918-B21</td> <td>HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit</td> </tr> <tr> <td>1</td> <td>P48918-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>P47781-B21</td> <td>HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller</td> </tr> <tr> <td>1</td> <td>P47781-B21 0D1</td> <td>Factory Integrated</td> </tr> </tbody> </table>	Qty	Product #	Product Description	1	P52534-B21	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server	1	P52534-B21 B19	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual	2	P67081-B21	Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE	2	P67081-B21 0D1	Factory Integrated	8	P64707-B21	HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit	8	P64707-B21 0D1	Factory Integrated	2	P48813-B21	HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit	2	P48813-B21 0D1	Factory Integrated	16	P40507-B21	HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	16	P40507-B21 0D1	Factory Integrated	1	P26259-B21	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	1	P26259-B21 0D1	Factory Integrated	1	P01366-B21	HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	1	P01366-B21 0D1	Factory Integrated	1	P48918-B21	HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit	1	P48918-B21 0D1	Factory Integrated	1	P47781-B21	HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller	1	P47781-B21 0D1	Factory Integrated	<p>QuickSpecs:</p> <p>https://www.hpe.com/psnow/doc/a50004307enw.pdf?jumpid=in_dp-psnow-qs</p>
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NICs included:min. 1 x 1GE management;
 min. 2 x 1GE;
 min. 2 x 10GE SFP+, identical, network virtualization offload, with SFP+ SR MM module included;
 min. 2 x SFP+ SR MM modules (Cisco Compatible).

Supported operating environments:

1. Microsoft Windows Server;
2. Red Hat Enterprise Linux;
3. VMware (VMware ESXi);
4. Microsoft Hyper-V;

Interfaces: min. 2 port USB;
Power supplies included: 2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);

Front Indicator Status:

1. Power Status
2. Health System Status
3. Drive Status
4. NIC Status
5. UID Status

Fan Modules: hot-swappable with N+1 redundancy;

Management:
 A web-based solution for KVM (Kernel-based Virtual Machine) must be included with full functionality for manage and monitoring, including at least:

- View information about the state of the managed server;
- Inventory and monitoring of network adapters and data storage subsystems without software agents in the OS;
- View inventory information;
- View information from sensors;

1	P51181-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
1	P51181-B21 0D1	Factory Integrated
2	P38995-B21	HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
2	P38995-B21 0D1	Factory Integrated
1	BD505A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features
1	BD505A 0D1	Factory Integrated
1	S1A05A	HPE Compute Cloud Management Server FIO Enablement
1	P51911-B21	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit
1	P51911-B21 0D1	Factory Integrated
1	P48820-B21	HPE ProLiant DL380/DL560 Gen11 2U High Performance Fan Kit
1	P48820-B21 0D1	Factory Integrated
1	P35876-B21	HPE CE Mark Removal FIO Enablement Kit
1	P48183-B21	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
1	P48183-B21 0D1	Factory Integrated
2	P48818-B21	HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit
2	P48818-B21 0D1	Factory Integrated
1	P52152-B21	HPE ProLiant DL380 Gen11 NS204i-u Internal Cable Kit
1	P52152-B21 0D1	Factory Integrated
1	P52341-B21	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit
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1	R7A12AAE	HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS
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1	HU4B2A5 R2M	HPE iLO Advanced Non Blade Support
1	HU4B2A500DK	HPE DL380 Gen11 Support
4	455883-B21	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver

				<ul style="list-style-type: none"> - Monitoring and control of electricity consumption; - Turn on/off the server; - Remote update of BIOS, firmware of network and RAID controllers; - Virtual console, virtual media devices; - OS installation from virtual media devices and through network shared folders; - Support SNMP min. v2c. <p>Operating system: no OS pre-installed;</p> <p>Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare</p> <p>Termeni și condiții: Toate cerințele sunt minime și obligatorii; O cerință nu trebuie să limiteze o altă cerință; Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>	Toate cerințe sunt respectate cu strictețea																
Lotul nr. 3 Enterprise Servere tip 3	Enterprise Server: HPE ProLiant DL380 Gen11	US, CZ	Hewlett Packard Enterprise Microsoft	<p>Echipament nou și ne recondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcționarea optimă a sistemului în ansamblu.</p> <p>Type: Enterprise Server</p>	Configurația pentru cantitatea solicitată:	QuickSpecs: https://www.hpe.com/psnow/doc/a50004307enw.pdf?jumpid=in_dp-psnow-qs															
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Form Factor: max. 2U, Rack mounting; rails with full extraction included;
CPU: min. 2 x CPU;
 min. 24 core per CPU with hyper-threading;
 CPU launch date starting with Q3'23
 Cache: min. 40MB;
 Base Frequency: min. 2.4 Ghz;
Total Memory(RAM): min. 24 DDR5 slots;
Memory(RAM) pre-installed: min. 4 x 64GB DDR5;
Min. drive bays pre-installed: min. 8 bays 2.5 for data Support Hot-Swappable;
Storage pre-installed: min. 2 x min. 240 Gb SSD SAS;
RAID Controller: Support Pass-through mode; RAID 1, 5, 6, 10, 50, 60; Cache min. 4GB;
NICs included: min. 1 x 1GE management;
 min. 2 x 1GE;
 min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included.
Supported operating environments:
 1. Microsoft Windows Server;
 2. Red Hat Enterprise Linux;
 3. VMware (VMware ESXi);
 4. Microsoft Hyper-V;
Interfaces: min. 2 port USB;
Power supplies included:
 2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);
Front Indicator Status:
 1. Power Status
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16	P64707-B21 0D1	Factory Integrated
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4	P48813-B21 0D1	Factory Integrated
4	R2J63A	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter
4	R2J63A 0D1	Factory Integrated
4	P51181-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
4	P51181-B21 0D1	Factory Integrated
8	P38995-B21	HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
8	P38995-B21 0D1	Factory Integrated
4	BD505A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features
4	BD505A 0D1	Factory Integrated
4	P45916-B21	Microsoft Windows Server 2022 16-core Datacenter FIO Not Pre-installed en/fr/it/de/es/nl/pt SW
8	P46212-B21	Microsoft Windows Server 2022 16-core DC Add Lic en/cs/de/es/fr/it/nl/pl/pt/ru/sv/ko/ja/xc SW
8	P46212-B21 0D1	Factory Integrated
4	S1A05A	HPE Compute Cloud Management Server FIO Enablement
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4	P48183-B21 0D1	Factory Integrated
8	P48818-B21	HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit

4. NIC Status
 5. UID Status
Fan Modules: hot-swappable with N+1 redundancy;
Management:
 A web-based solution for KVM(Kernel-based Virtual Machine) must be included with full functionality for manage and monitoring, including at least:

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- View inventory information;
- View information from sensors;
- Monitoring and control of electricity consumption;
- Turn on/off the server;
- Remote update of BIOS, firmware of network and RAID controllers;
- Virtual console, virtual media devices;
- OS installation from virtual media devices and through network shared folders;
- Support SNMP min. v2c.

Operating System: MS Windows Server 2022 Datacenter OEM preinstalled for each server, covering all Cores in accordance with offered model.

Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare.

Termeni și condiții:
 Toate cerințele sunt minime și obligatorii;

8	P48818-B21 0D1	Factory Integrated
4	P52152-B21	HPE ProLiant DL380 Gen11 NS204i-u Internal Cable Kit
4	P52152-B21 0D1	Factory Integrated
4	P52341-B21	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit
4	P52341-B21 0D1	Factory Integrated
4	R7A12AAE	HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS
1	HU4B2A5	HPE 5Y Tech Care Basic Service
4	HU4B2A5 R2M	HPE iLO Advanced Non Blade Support
4	HU4B2A500DK	HPE DL380 Gen11 Support

Toate cerințe sunt respectate cu strictețea

			<p>O cerință nu trebuie să limiteze o altă cerință; Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>																																																					
<p>Lotul nr. 4 Enterprise Servere tip 4</p>	<p>Enterprise Server: HPE ProLiant DL380 Gen11</p>	<p>US, CZ</p>	<p>Hewlett Packard Enterprise</p> <p>Echipment nou și ne reconșionat, produs minim trim. I anul 2024, corespunșator tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internașional). Configurașia echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcșionarea optimă a sistemului în ansamblu. Type: Enterprise Server Form Factor: max. 2U, Rack mounting: rails with full extraction included; CPU: min. 2 x CPU; min. 24 core per CPU with hyper-threading; CPU launch date starting with Q3'23; Cache: min. 40MB; Base Frequency: min. 2.4 Ghz; Total Memory(RAM): min. 24 DDR5 slots; Memory(RAM) pre-installed: min. 4 x 64GB DDR5; Min. drive bays pre-installed: min. 8 bays 2.5 for data Support Hot-Swappable, Storage pre-installed: min. 2 x min. 240 Gb SSD SAS RAID Controller: Support Pass-through mode; RAID 1, 5, 6, 10, 50, 60;</p>	<p>Configurașia pentru cantitatea solicitată:</p> <table border="1"> <thead> <tr> <th>Qty</th> <th>Product #</th> <th>Product Description</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>P52534-B21</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server</td> </tr> <tr> <td>2</td> <td>P52534-B21 B19</td> <td>HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual</td> </tr> <tr> <td>4</td> <td>P67081-B21</td> <td>Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE</td> </tr> <tr> <td>4</td> <td>P67081-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>8</td> <td>P64707-B21</td> <td>HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit</td> </tr> <tr> <td>8</td> <td>P64707-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>P48813-B21</td> <td>HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit</td> </tr> <tr> <td>2</td> <td>P48813-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>R2J63A</td> <td>HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter</td> </tr> <tr> <td>2</td> <td>R2J63A 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>P26256-B21</td> <td>Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE</td> </tr> <tr> <td>2</td> <td>P26256-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>P51181-B21</td> <td>Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE</td> </tr> <tr> <td>2</td> <td>P51181-B21 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>4</td> <td>P38995-B21</td> <td>HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit</td> </tr> <tr> <td>4</td> <td>P38995-B21 0D1</td> <td>Factory Integrated</td> </tr> </tbody> </table>	Qty	Product #	Product Description	2	P52534-B21	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server	2	P52534-B21 B19	HPE ProLiant DL380 Gen11 8SFF NC Configure-to-order Server Europe Multilingual	4	P67081-B21	Intel Xeon-Gold 6542Y 2.9GHz 24-core 250W Processor for HPE	4	P67081-B21 0D1	Factory Integrated	8	P64707-B21	HPE 64GB (1x64GB) Dual Rank x4 DDR5-5600 CAS-46-45-45 EC8 Registered Smart Memory Kit	8	P64707-B21 0D1	Factory Integrated	2	P48813-B21	HPE ProLiant DL380 Gen11 2U 8SFF x1 Tri-Mode U.3 Drive Cage Kit	2	P48813-B21 0D1	Factory Integrated	2	R2J63A	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	2	R2J63A 0D1	Factory Integrated	2	P26256-B21	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	2	P26256-B21 0D1	Factory Integrated	2	P51181-B21	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	2	P51181-B21 0D1	Factory Integrated	4	P38995-B21	HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	4	P38995-B21 0D1	Factory Integrated	<p>QuickSpecs:</p> <p>https://www.hpe.com/psnow/doc/a50004307enw.pdf?jumpid=in_dp-psnow-qs</p>
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Cache min. 4GB;
NICs included:
 min. 1 x 1GE management;
 min. 2 x 1GE;
 min. 2 x 10GE SFP+, identical, network virtualization offload, with SFP+ SR MM module included;
 min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included.
Supported operating environments:
 1. Microsoft Windows Server;
 2. Red Hat Enterprise Linux;
 3. VMware (VMware ESXi);
 4. Microsoft Hyper-V;
Interfaces: min. 2 port USB
Power supplies included:
 2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);
Front Indicator Status:
 1. Power Status
 2. Health System Status
 3. Drive Status
 4. NIC Status
 5. UID Status
Fan Modules: hot-swappable with N+1 redundancy;
Management:
 A web-based solution for KVM (Kernel-based Virtual Machine) must be included with full functionality for manage and monitoring, including at least:
 - View information about the state of the managed server;
 - Inventory and monitoring of network adapters and data storage subsystems without software agents in the OS;

2	BD505A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features
2	BD505A 0D1	Factory Integrated
2	S1A05A	HPE Compute Cloud Management Server FIO Enablement
2	P51911-B21	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit
2	P51911-B21 0D1	Factory Integrated
2	P48820-B21	HPE ProLiant DL380/DL560 Gen11 2U High Performance Fan Kit
2	P48820-B21 0D1	Factory Integrated
2	P35876-B21	HPE CE Mark Removal FIO Enablement Kit
2	P48183-B21	HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
2	P48183-B21 0D1	Factory Integrated
4	P48818-B21	HPE ProLiant DL380/DL560 Gen11 High Performance 2U Heat Sink Kit
4	P48818-B21 0D1	Factory Integrated
2	P52152-B21	HPE ProLiant DL380 Gen11 NS204i-u Internal Cable Kit
2	P52152-B21 0D1	Factory Integrated
2	P52341-B21	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit
2	P52341-B21 0D1	Factory Integrated
2	R7A12AAE	HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS
1	HU4B2A5	HPE 5Y Tech Care Basic Service
2	HU4B2A5 R2M	HPE iLO Advanced Non Blade Support
2	HU4B2A500DK	HPE DL380 Gen11 Support
8	455883-B21	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver

Toate cerințe sunt respectate cu strictețea

			<ul style="list-style-type: none"> - View inventory information; - View information from sensors; - Monitoring and control of electricity consumption; - Turn on/off the server; - Remote update of BIOS, firmware of network and RAID controllers; - Virtual console, virtual media devices; - OS installation from virtual media devices and through network shared folders; - Support SNMP min. v2c. <p>Operating system: no OS pre-installed.</p> <p>Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare</p> <p>Termeni și condiții: Toate cerințele sunt minime și obligatorii; O cerință nu trebuie să limiteze o altă cerință; Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>								
<p>Lotul nr. 5 Sisteme de stocare Full flash tip 1</p>	<p>Enterprise Storage: HPE GreenLake for Block Storage MP</p>	<p>US, CZ</p>	<p>Hewlett Packard Enterprise</p> <p>Echipament nou și nerecondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să</p>	<p>HPE GreenLake for Block Storage is the industry's first disaggregated, scale-out block storage with 100% availability guaranteed.</p> <p>Configurația pentru unitatea solicitată:</p> <table border="1" data-bbox="1332 1412 1944 1453"> <thead> <tr> <th>Qty</th> <th>Product #</th> <th>Product Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Qty	Product #	Product Description				<p>QuickSpecs:</p> <p>https://www.hpe.com/psnow/doc/a50006985enw.pdf</p>
Qty	Product #	Product Description									

asigure funcționarea optimă a sistemului în ansamblu.
Type: Enterprise Storage Full Flash
Form Factor: min. 2U Rack mounting included;
Availability:
 The equipment must be working in Symmetric Active-Active mode, which means that in the case of 100% utilization, ensures:
 - obtaining high availability at 99,9999%;
 - lack of decrease in the required equipment efficiency in the event of a failure of half of the controllers;
 - lack of decrease in the required performance in the event of a failure of half of the controllers;
 - 100% full capacity reading;
 - The system must have built-in mechanisms for updating program versions without compromising its availability and loss of access to data.
 The data must be available in cases of:
 - failure of one power supply line,
 - failure of any controller,
 - failures of any two user data carriers,
 - failures of any port of FC/ISCSI,
 - failure of any RAM module or any controller processor.
 The equipment must allow hot replacement (without stopping access to data) of the following components: controllers, power supplies, fans, front-end and back-end ports, drives.
 The equipment must have been resistant to a simultaneous failure of a minimum of any two drives/NVMe/flash, regardless of the scale and configuration of the solution.

1	ZU715A	HPE Virtual Rack Service
1	S1R06A	HPE GreenLake for Block Storage MP Base Cluster Configuration
1	S1R06A 0D1	Factory Integrated
1	S3Q02A	HPE GreenLake for Block Storage MP OS 5-year LTU
1	S3Q02A 0D1	Factory Integrated
1	581817-B21	HPE Configurator Defined Build Instruction Option
1	R7C75A	HPE Alletra Storage MP 2U Chassis
1	R7C75A 0D1	Factory Integrated
1	R7D03A	HPE Alletra Storage MP 512GB 32-core Cluster Block Controller Node
1	R7D03A 0D1	Factory Integrated
2	S2A68A	HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter
2	S2A68A 0D1	Factory Integrated
1	S2S64A	HPE Alletra Storage MP 32Gb 4-port Fibre Channel OCP LPm37004 Host Bus Adapter
1	S2S64A 0D1	Factory Integrated
2	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
2	R7C76A 0D1	Factory Integrated
1	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
1	R9R52A 0D1	Factory Integrated
1	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
1	R9S00A 0D1	Factory Integrated
1	R7C75A	HPE Alletra Storage MP 2U Chassis
1	R7C75A 0D1	Factory Integrated
2	R7D03A	HPE Alletra Storage MP 512GB 32-core Cluster Block Controller Node
2	R7D03A 0D1	Factory Integrated
4	S2A68A	HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter
4	S2A68A 0D1	Factory Integrated
2	S2S64A	HPE Alletra Storage MP 32Gb 4-port Fibre Channel OCP LPm37004 Host Bus Adapter

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HPE GreenLake for Block Storage architecture:

https://www.hpe.com/psnow/doc/a50008302enw.pdf?JumpID=in_mobile-html2pdf

Data Reduction Garantie – anexed

In the event of a breakdown of two carriers, the device must provide uninterrupted access to all data on the device.

The equipment must allow to safely disable the device that does not cause user **data** loss.

Type Drives:
NVMe/Flash;

Capacity:
Min. usable space 600 TB (considering min. RAID 6)
Hot Spare optional (If the equipment may not contain spare components that are not used during the operation of the device (e.g. spare controller, Hot Spare disk)).

RAID(if the equipment involves the use of RAID):
-Support Pass-through mode;
-RAID 6, 10.

Cache requirement:
- If the technology/equipment vendor provides for the presence of a cache in the operation of the storage system, then minimum requirements are the following min. 128GB per node.

Controllers:
- The system must include at least 1 node consisting of 2 controllers in HA (high availability) mode.

Cluster requirement and replication:
- The equipment must have the functionality of synchronous replication enabling the creation of the Active-Active cluster from both equipments (between two server rooms located in separate buildings) and provide all hardware components necessary to implement the

2	S2S64A 0D1	Factory Integrated
2	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
2	R7C76A 0D1	Factory Integrated
1	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
1	R9R52A 0D1	Factory Integrated
1	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
1	R9S00A 0D1	Factory Integrated
3	S1J10A	HPE Alletra Storage MP NVMe Configure-to-order Block Expansion Shelf
3	S1J10A 0D1	Factory Integrated
6	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
6	R7C76A 0D1	Factory Integrated
6	S1R28A	HPE Alletra Storage MP Block Expansion Shelf Node
6	S1R28A 0D1	Factory Integrated
6	S2A68A	HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter
6	S2A68A 0D1	Factory Integrated
54	R9H69A	HPE Alletra Storage MP 15.36TB NVMe SFF Self-encrypting SSD
54	R9H69A 0D1	Factory Integrated
3	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
3	R9R52A 0D1	Factory Integrated
3	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
3	R9S00A 0D1	Factory Integrated
2	S1R08A	HPE Alletra Storage MP 32-port 100GbE Switch Bundle
2	S1R08A 0D1	Factory Integrated
2	S3L68A	HPE C13 - C14 250V 10Amp Black 2m WW Power Cord
2	S3L68A 0D1	Factory Integrated
2	S3L69A	HPE C13 - C14 250V 10Amp Gray 2m WW Power Cord
2	S3L69A 0D1	Factory Integrated

functionality of replication with utilization FC protocol.

- Synchronous replication must be possible for a minimum of one LUN and at the same type for many volumes LUN'S, and a change in the number of replicated volumes may not require a change in the physical hardware configuration.
- The contents of the cluster volumes must be identical on both systems at any time of the cluster.

Performance requirement:
The combined performance of the equipment must provide a performance of Min. 500,000 IOPS.
IOPS are calculated according to the following principle:

- Read/write ratio - 70/30;
- Block size - 16K/32K/64K;
- Sequential and random I/O;
- Delay – 0.001 s;

Supported protocols:

- FC,
- iSCSI;

Futures:

- The system must include dedicated interfaces for system management (management).

Deduplication:

- The equipment must enable deduplication functionality for volumes accessible at block level (iSCSI/FC LUN), volumes and globally for each system.
- The equipment must enable compression functionality for block-level volumes (iSCSI/FC LUN);

24	R9F76A	HPE Aruba Networking 100G QSFP28 to QSFP28 2m Active Optical Cable
24	R9F76A B01	HPE Aruba Networking 100G QSFP28 to QSFP28 2m Active Optical Cable
1	S0U79A	HPE Alletra Storage MP CDM Bluetooth Connect Kit
1	S0U79A B01	HPE Alletra Storage MP CDM Bluetooth Connect Kit
1	S0A98A	HPE Storage Data Encryption LTU
1	S0A98A 0D1	Factory Integrated
1	S0A95A	HPE Switch Pair Installation Kit with 4U Cable Tray
1	S0A95A 0D1	Factory Integrated
##	S3Q02AAE	HPE GreenLake for Block Storage MP OS per TB 5-year Software and Support SaaS
1	H38NHAS	HPE GreenLake for Block Storage SVC
1	HU4B2A5	HPE 5Y Tech Care Basic Service
1	HU4B2A5008W	HPE Alletra Stg MP Base Config Supp
2	HU4B2A5008L	HPE Alletra Storage MP 2U Chassis Supp
54	HU4B2A5008U	HPE Alletra Stg MP 15.36TB NVMe SSD Supp
6	HU4B2A5008X	HPE Alletra STG MP Block Shelf Node Supp
3	HU4B2A5008Z	HPE Alletra STG MP NVMe CTO Shelf Supp
12	HU4B2A5009A	HPE Alletra STG MP 100GbE 2p OCPHBA Supp
3	HU4B2A500GN	HPE AL STG MP 32c Clstr BlkCntrl Nd Supp
3	HU4B2A500GQ	HPE Alletra STG MP 4p FC OCP HBA Support
2	HU4B2A500HV	HPE Alletra STG MP 32p 100G SwH Bdl Supp
1	HA124A1	HPE Technical Installation Startup SVC
3	HA124A1 VZJ	HPE GreenLake Blk Strg Drv Encl Fld SVC
1	HA124A1 V1Q	HPE GreenLake Blk Strg Swi Fld Srtup SVC
1	HA124A1 VZW	HPE GreenLake Blk Strg OS Srtup SVC
1	HA124A1 V26	HPE GL Blk Stor Swi 3N Fld Startup SVC

			<ul style="list-style-type: none"> - The deduplication and compression functionality will not impose restrictions on the simultaneous use of other functions, such as: data replication, thin provisioning, backups, volume cloning. - The equipment must have the data deduplication mechanism in In-Line mode. Deduplication cannot be stopped in any way or possible to exclude the system administrator (optional). - All of the listed functionalities must be licensed (if applicable by vendor provisions) & included in offer and supported by the system in its maximum configuration. <p>Compression:</p> <ul style="list-style-type: none"> - The equipment must have a data compression mechanism in In-Line mode. - Compression must be an integral part of the device and cannot be in any way possible to be turned off or the manufacturer's service (optional). <p>Snapshot</p> <ul style="list-style-type: none"> - The system must provide snapshot functionality in Safe mode; - Snapshot functionality must be applicable at least at the LUN level; - The system must provide at least 300 snapshots for each shared volume; - The system must provide efficient snapshot functionality so that its use does not impact system performance by more than 10%. - Snapshot functionality should be applicable to at least LUNs, without imposing restrictions on the use of other functions. 	<p>Toate cerințe sunt respectate cu strictețea.</p> <p>Calcularea performantei si volumului disponibil este calculate cu https://ninjaonline.ext.hpe.com/ si este anexata.</p>	
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			<ul style="list-style-type: none"> - Snapshot functionality should be cost-effective so that snapshot copies take up minimal space when created (only difference with original data). - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. <p>Encryption: The solution must encrypt all stored data with the minimum with the AES-256 or stronger algorithm and encrypt all drives/NVMe/flash supported in the device. Data encryption cannot affect the performance of the solution. The encryption key must be stored by default on the equipment and generated in a way that prevents the data from reading from the drives/NVMe/flash removed from the device.</p> <p>Monitoring: The equipment must have an analytical platform or VM in the form of a portal available by a web browser.</p> <ul style="list-style-type: none"> - The platform should automatically collect logs from the device and present them in the form of graphs and reports. - Monitoring of the used space with a data reduction indicator based on deduplication algorithms and compression without thin provisioning if it's used; globally for the device and locally for the LUN's. - The platform must enable the prediction of space growth along with the analysis of future expansion. 		
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			<ul style="list-style-type: none"> - The system must include an application component and/or hardware, as appropriate, for monitoring, reporting and detailed event collection of at least the following physical and logical components: <ul style="list-style-type: none"> - The portal must have the performance history and real time data of individual resources, taking into account the parameters: latency, Read & Write IOPS, and bandwidth; globally for the device and locally for the LUN. - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. - The portal must have function to create reports from capacity, performance, prediction of future space, authorization logs to the device, level and technical support time. - Displaying the status of performed operations such as snapshots, synchronous replication etc. - Displaying warnings about threats to information about logging users and performed executing commands. - The portal must enable the simulation of capacity increase depending on the type of application. - Algorithm for verifying the correct configuration and the possibilities of upgrading device/cluster. - Displaying system consumption with optimization guidelines. <p>NICs included: Min. x 1GE management;</p>		
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			<p>min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included.</p> <p>Supported operating environments: Microsoft Windows Server; Red Hat Enterprise Linux; VMware (VMware ESXi);</p> <p>Interfaces:</p> <p>Power supplies included: Min. 2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);</p> <p>Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare.</p> <p>Termeni și condiții: Toate cerințele sunt minime și obligatorii; O cerință nu trebuie să limiteze o altă cerință; Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>											
<p>Lotul nr. 6 Sisteme de stocare SAS SSD tip 2</p>	<p>Enterprise Storage: HPE GreenLake for Block Storage MP</p>	<p>US, CZ</p>	<p>Hewlett Packard Enterprise</p> <p>Echipament nou și nerecondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcționarea optimă a sistemului în ansamblu.</p> <p>Type: Enterprise Storage SAS SSD</p>	<p>HPE GreenLake for Block Storage is the industry's first disaggregated, scale-out block storage with 100% availability guaranteed.</p> <p>Configurația pentru unitatea solicitată:</p> <table border="1" data-bbox="1335 1345 1944 1476"> <thead> <tr> <th>Qty</th> <th>Product #</th> <th>Product Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ZU715A</td> <td>HPE Virtual Rack Service</td> </tr> <tr> <td>1</td> <td>S0B84A</td> <td>HPE GreenLake for Block Storage MP Base Configuration</td> </tr> </tbody> </table>	Qty	Product #	Product Description	1	ZU715A	HPE Virtual Rack Service	1	S0B84A	HPE GreenLake for Block Storage MP Base Configuration	<p>QuickSpecs:</p> <p>https://www.hpe.com/psnow/doc/a50006985enw.pdf?jumpid=in_dp-psnow-qs</p>
Qty	Product #	Product Description												
1	ZU715A	HPE Virtual Rack Service												
1	S0B84A	HPE GreenLake for Block Storage MP Base Configuration												

Form Factor: min. 2U Rack mounting included;

Availability:
 The equipment must be working in Symmetric Active-Active mode, which means that in the case of 100% utilization, ensures:

- obtaining high availability at 99,9999%,
- lack of decrease in the required equipment efficiency in the event of a failure of half of the controllers,
- lack of decrease in the required performance in the event of a failure of half of the controllers,
- 100% full capacity reading,
- The system must have built-in mechanisms for updating program versions without compromising its availability and loss of access to data.

The data must be available in cases of:

- failure of one power supply line,
- failure of any controller,
- failures of any two user data carriers,
- failures of any port of FC/ISCSI,
- failure of any RAM module or any controller processor.

- The equipment must allow hot replacement (without stopping access to data) of the following components: controllers, power supplies, fans, front-end and back-end ports, drives.

- The equipment must have been resistant to a simultaneous failure of a minimum of any two drives/NVMe/flash, regardless of the scale and configuration of the solution. In the event of a breakdown of two carriers, the device must provide uninterrupted access to all data on the device.

1	S0B84A 0D1	Factory Integrated
1	S3Q02A	HPE GreenLake for Block Storage MP OS 5-year LTU
1	S3Q02A 0D1	Factory Integrated
1	581817-B21	HPE Configurator Defined Build Instruction Option
1	R7C75A	HPE Alletra Storage MP 2U Chassis
1	R7C75A 0D1	Factory Integrated
2	S0S39A	HPE Alletra Storage MP 512GB 32-core Block Controller Node
2	S0S39A 0D1	Factory Integrated
4	S2A68A	HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter
4	S2A68A 0D1	Factory Integrated
2	S2S64A	HPE Alletra Storage MP 32Gb 4-port Fibre Channel OCP LPM37004 Host Bus Adapter
2	S2S64A 0D1	Factory Integrated
2	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
2	R7C76A 0D1	Factory Integrated
18	R9H68A	HPE Alletra Storage MP 7.68TB NVMe SFF Self-encrypting SSD
18	R9H68A 0D1	Factory Integrated
1	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
1	R9R52A 0D1	Factory Integrated
1	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
1	R9S00A 0D1	Factory Integrated
1	S1J10A	HPE Alletra Storage MP NVMe Configure-to-order Block Expansion Shelf
1	S1J10A 0D1	Factory Integrated
2	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
2	R7C76A 0D1	Factory Integrated
2	S1R28A	HPE Alletra Storage MP Block Expansion Shelf Node
2	S1R28A 0D1	Factory Integrated

HPE GreenLake for Block Storage architecture:

https://www.hpe.com/psnow/doc/a50008302enw.pdf?JumpID=in_mobile-html2pdf

Data Reduction Guarantee – annexed

- The equipment must allow to safely disable the device that does not cause user **data** loss.

Type Drives: SAS SSD.

Capacity: min. usable space 200 TB (considering min. RAID 6)

Hot Spare optional (If the equipment may not contain spare components that are not used during the operation of the device (e.g. spare controller, Hot Spare disk).

RAID (if the equipment involves the use of RAID):

- Support Pass-through mode;
- RAID 6, 10.

Cache requirement:

- If the technology/equipment vendor provides the presence of a cache in the operation of the storage system, then its minimum requirements are the following min. 128GB per node.

Controllers:

- The system must include at least 1 node consisting of min.2 controllers in HA (high availability) mode.

Cluster requirement and replication:

- The equipment must have the functionality of synchronous replication enabling the creation of the Active-Active cluster from both equipments (between two server rooms located in separate buildings) and provide all hardware components necessary to implement the functionality of replication with utilization FC protocols.
- Synchronous replication must be possible for a minimum of one LUN and at the same type for many volumes LUN'S, and a change in the number of replicated

2	S2A68A	HPE Alletra Storage MP 100GbE 2-port OCP Host Bus Adapter
2	S2A68A 0D1	Factory Integrated
18	R9H68A	HPE Alletra Storage MP 7.68TB NVMe SFF Self-encrypting SSD
18	R9H68A 0D1	Factory Integrated
1	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
1	R9R52A 0D1	Factory Integrated
1	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
1	R9S00A 0D1	Factory Integrated
2	R8M59A	HPE 100Gb QSFP28 to QSFP28 0.5m Direct Attach Copper Cable
2	R8M59A 0D1	Factory Integrated
1	S0U79A	HPE Alletra Storage MP CDM Bluetooth Connect Kit
1	S0U79A B01	HPE Alletra Storage MP CDM Bluetooth Connect Kit
2	R9F77A	HPE Aruba Networking 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable
2	R9F77A B01	HPE Aruba Networking 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable
1	S0A98A	HPE Storage Data Encryption LTU
1	S0A98A 0D1	Factory Integrated
##	S3Q02AAE	HPE GreenLake for Block Storage MP OS per TB 5-year Software and Support SaaS
1	H38NHAS	HPE GreenLake for Block Storage SVC
1	HU4B2A5	HPE 5Y Tech Care Basic Service
1	HU4B2A5008W	HPE Alletra Stg MP Base Config Supp
1	HU4B2A5008L	HPE Alletra Storage MP 2U Chassis Supp
36	HU4B2A5008T	HPE Alletra Stg MP 7.68TB NVMe SSD Supp
2	HU4B2A5008X	HPE Alletra STG MP Block Shelf Node Supp
2	HU4B2A5008Y	HPE Alletra STG MP 32c Blck CntrlNd Supp
1	HU4B2A5008Z	HPE Alletra STG MP NVMe CTO Shelf Supp

volumes may not require a change in the physical hardware configuration.

- The contents of the cluster volumes must be identical on both systems at any time of the cluster.

Performance requirement:
The combined performance of the equipment must provide a performance of Min. 300,000 IOPS.
IOPS are calculated according to the following principle:

- Read/write ratio - 70/30;
- Block size - 16K/32K/64K;
- Sequential and random I/O;
- Delay – 0.001 s;

Supported protocols:

- FC,
- iSCSI,

Futures:

- The system must include dedicated interfaces for system management (management).

Deduplication:

- The equipment must enable deduplication functionality for volumes accessible at block level (iSCSI/FC LUN) volumes and globally for each system.
- The equipment must enable compression functionality for block-level volumes (iSCSI/FC LUN).
- The deduplication and compression functionality will not impose restrictions on the simultaneous use of other functions, such as: data replication, thin provisioning, backups, volume cloning.
- The equipment must have the data deduplication mechanism in In-Line mode. Deduplication cannot be stopped in any

6	HU4B2A5009A	HPE Alletra STG MP 100GbE 2p OCPHBA Supp
2	HU4B2A500G Q	HPE Alletra STG MP 4p FC OCP HBA Support
1	HA124A1	HPE Technical Installation Startup SVC
1	HA124A1 VZJ	HPE GreenLake Blk Strg Drv Encl Fld SVC
1	HA124A1 VZW	HPE GreenLake Blk Strg OS Srtup SVC
1	HA124A1 VZS	HPE GreenLake Blk Strg 2N Fld Srtup SVC

Toate cerințe sunt respectate cu strictețea.

Calcularea performantei si volumului disponibil este calculate cu <https://ninjaonline.ext.hpe.com/> si este anexata.

			<p>way or possible to exclude the system administrator (optional).</p> <ul style="list-style-type: none"> - All of the listed functionality must be licensed (if applicable by vendor provisions) & included in offer and supported by the storage system in its maximum configuration level. <p>Compression:</p> <ul style="list-style-type: none"> - The equipment must have a data compression mechanism in In-Line mode. - Compression must be an integral part of the device and cannot be in any way possible to be turned off by the administrator or the manufacturer's service (optional). <p>Snapshot:</p> <ul style="list-style-type: none"> - The system must provide snapshot functionality in Safe mode; - Snapshot functionality must be applicable at least at the LUN level; - The system must provide at least 300 snapshots for each shared volume; - The system must provide efficient snapshot functionality so that its use does not impact system performance by more than 10%. - Snapshot functionality should be applicable to at least LUNs, without imposing restrictions on the use of other functions. - Snapshot functionality should be cost-effective so that snapshot copies take up minimal space when created (only on the difference with original data). - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. 		
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			<p>Encryption: The solution must be able to encrypt all stored data with the minimum the AES-256 or stronger algorithm and encrypt all drives/NVMe/flash supported in the device. Data encryption cannot affect the performance of the solution. The encryption key must be stored by default on the equipment and generated in a way that prevents the data from reading from the drives/NVMe/flash removed from the device.</p> <p>Monitoring: The equipment must have an analytical platform or VM in the form of a portal available via a web browser. The platform should automatically collect logs from the device and present them in the form of graphs and reports:</p> <ul style="list-style-type: none"> - Monitoring of the used space with a data reduction indicator based on deduplication algorithms and compression without thin provisioning if is used; globally for the device and locally for the LUN's. - The platform must enable the prediction of space growth along with the analysis of future expansion. - The system must include an application component and/or hardware, as appropriate, for monitoring, reporting and detailed event collection of at least the following physical and logical components: <ul style="list-style-type: none"> - The portal must have the performance history and real time data of individual resources, taking into account the parameters: latency, Read & Write IOPS, 		
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			<p>and bandwidth; globally for the device and locally for the LUN.</p> <ul style="list-style-type: none"> - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. - The portal must have function to create reports from capacity, performance, prediction of future space, authorization logs to the device, level and technical support time. - Displaying the status of performed operations such as snapshots, synchronous replication etc. - Displaying warnings about threats to information about logging users and performed executing commands. - The portal must enable the simulation of capacity increase depending on the type of application. - Algorithm for verifying the correct configuration and the possibilities of upgrading device/cluster. - Displaying system consumption with optimization guidelines. <p>NICs included: Min 1 x 1GE management; min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included;</p> <p>Supported operating environments: Microsoft Windows Server; Red Hat Enterprise Linux; VMware (VMware ESXi);</p> <p>Power supplies included: Min. 2 hot-plug PSU with support for min. 1+1 redundancy with power cables c13-c14(0.6 m);</p>		
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			<p>Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare.</p> <p>Termeni și condiții:</p> <p>Toate cerințele sunt minime și obligatorii; O cerință nu trebuie să limiteze o altă cerință;</p> <p>Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață);</p> <p>Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>																																			
<p>Lotul nr. 7 Sisteme de stocare SAS SSD tip 3</p>	<p>Enterprise Storage: HPE GreenLake for Block Storage MP</p>	<p>US, CZ</p>	<p>Hewlett Packard Enterprise</p> <p>Echipament nou și nerecondiționat, produs minim trim. I anul 2024, corespunzător tipului de dispozitive de nivel Enterprise, produs de producători renumiți (Brand name internațional). Configurația echipamentului trebuie să fie compusă din componente reciproc compatibile și să asigure funcționarea optimă a sistemului în ansamblu.</p> <p>Type: Enterprise Storage SAS SSD</p> <p>Form Factor: min. 2U Rack mounting included;</p> <p>Availability: The equipment must be working in Symmetric Active-Active mode, which means that in the case of 100% utilization, ensures:</p> <ul style="list-style-type: none"> - obtaining high availability at 99,9999%, - lack of decrease in the required equipment efficiency in the event of a failure of half of the controllers, 	<p>HPE GreenLake for Block Storage is the industry's first disaggregated, scale-out block storage with 100% availability guaranteed.</p> <p>Configurația pentru unitatea solicitată:</p> <table border="1" data-bbox="1335 938 1944 1433"> <thead> <tr> <th>Qty</th> <th>Product #</th> <th>Product Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ZU715A</td> <td>HPE Virtual Rack Service</td> </tr> <tr> <td>1</td> <td>S0B84A</td> <td>HPE GreenLake for Block Storage MP Base Configuration</td> </tr> <tr> <td>1</td> <td>S0B84A 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>S3Q02A</td> <td>HPE GreenLake for Block Storage MP OS 5-year LTU</td> </tr> <tr> <td>1</td> <td>S3Q02A 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>1</td> <td>581817-B21</td> <td>HPE Configurator Defined Build Instruction Option</td> </tr> <tr> <td>1</td> <td>R7C75A</td> <td>HPE Alletra Storage MP 2U Chassis</td> </tr> <tr> <td>1</td> <td>R7C75A 0D1</td> <td>Factory Integrated</td> </tr> <tr> <td>2</td> <td>S0R21A</td> <td>HPE Alletra Storage MP 256GB 16-core Block Controller Node</td> </tr> <tr> <td>2</td> <td>S0R21A 0D1</td> <td>Factory Integrated</td> </tr> </tbody> </table>	Qty	Product #	Product Description	1	ZU715A	HPE Virtual Rack Service	1	S0B84A	HPE GreenLake for Block Storage MP Base Configuration	1	S0B84A 0D1	Factory Integrated	1	S3Q02A	HPE GreenLake for Block Storage MP OS 5-year LTU	1	S3Q02A 0D1	Factory Integrated	1	581817-B21	HPE Configurator Defined Build Instruction Option	1	R7C75A	HPE Alletra Storage MP 2U Chassis	1	R7C75A 0D1	Factory Integrated	2	S0R21A	HPE Alletra Storage MP 256GB 16-core Block Controller Node	2	S0R21A 0D1	Factory Integrated	<p>QuickSpecs:</p> <p>https://www.hpe.com/psnow/doc/a50006985enw.pdf?jumpid=in_dp-psnow-qs</p> <p>HPE GreenLake for Block Storage architecture:</p> <p>https://www.hpe.com/psnow/doc/a50008302enw.pdf</p>
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- lack of decrease in the required performance in the event of a failure of half of the controllers,
- 100% full capacity reading,
- The system must have built-in mechanisms for updating program versions without compromising its availability and loss of access to data.

The data must be available in cases of:

- failure of one power supply line,
- failure of any controller,
- failures of any two user data carriers,
- failures of any port of FC/ISCSI,
- failure of any RAM module or any controller processor.
- The equipment must allow hot replacement (without stopping access to data) of the following components: controllers, power supplies, fans, front-end and back-end ports, drives.
- The equipment must have been resistant to a simultaneous failure of a minimum of any two drives/NVMe/flash, regardless of the scale and configuration of the solution. In the event of a breakdown of two carriers, the device must provide uninterrupted access to all data on the device.
- The equipment must allow you to safely disable the device that does not cause user **data** loss.

Type Drives: SAS SSD.
Capacity:
 Min. usable space 30 TB (considering min. RAID 6),
 Hot Spare optional (If the equipment may not contain spare components that are not used during the operation of the device (e.g. spare controller, Hot Spare disk).

2	S2S64A	HPE Alletra Storage MP 32Gb 4-port Fibre Channel OCP LPm37004 Host Bus Adapter
2	S2S64A 0D1	Factory Integrated
2	R7C76A	HPE Alletra Storage MP C14 1600W AC Power Supply
2	R7C76A 0D1	Factory Integrated
24	R9H66A	HPE Alletra Storage MP 1.92TB NVMe SFF Self-encrypting SSD
24	R9H66A 0D1	Factory Integrated
1	R9R52A	HPE C13 - C14 250V 10Amp Black 1.4m WW Power Cord
1	R9R52A 0D1	Factory Integrated
1	R9S00A	HPE C13 - C14 250V 10Amp Gray 1.4m WW Power Cord
1	R9S00A 0D1	Factory Integrated
1	S0A98A	HPE Storage Data Encryption LTU
1	S0A98A 0D1	Factory Integrated
1	S0U79A	HPE Alletra Storage MP CDM Bluetooth Connect Kit
1	S0U79A B01	HPE Alletra Storage MP CDM Bluetooth Connect Kit
46	S3Q02AAE	HPE GreenLake for Block Storage MP OS per TB 5-year Software and Support SaaS
1	H38NHAS	HPE GreenLake for Block Storage SVC
1	HU4B2A5	HPE 5Y Tech Care Basic Service
1	HU4B2A5008W	HPE Alletra Stg MP Base Config Supp
1	HU4B2A5008L	HPE Alletra Storage MP 2U Chassis Supp
2	HU4B2A5008N	HPE Alletra StgMP 16C Swtchles Node Supp
24	HU4B2A5008R	HPE Alletra Stg MP 1.92TB NVMe SSD Supp
2	HU4B2A500GQ	HPE Alletra STG MP 4p FC OCP HBA Support
1	HA124A1	HPE Technical Installation Startup SVC
1	HA124A1 VZW	HPE GreenLake Blk Strg OS Srtup SVC
1	HA124A1 VZS	HPE GreenLake Blk Strg 2N Fld Srtup SVC

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Data Reduction Guarantee – annexed

			<p>RAID(if the equipment involves the use of RAID):</p> <ul style="list-style-type: none"> - Support Pass-through mode; - RAID 6, 10. <p>Cache requirement:</p> <ul style="list-style-type: none"> - If the technology/equipment vendor provides the presence of a cache in the operation of the storage system, then its minimum requirements are the following min. 64GB per node. <p>Controllers:</p> <ul style="list-style-type: none"> - The system must include at least 1 node consisting of min.2 controllers in HA (high availability) mode. <p>Cluster requirement and replication:</p> <ul style="list-style-type: none"> - The equipment must have the functionality of synchronous replication enabling the creation of the Active-Active cluster from both equipments (between two server rooms located in separate buildings) and provide all hardware components necessary to implement the functionality of replication with utilization FC protocols. - Synchronous replication must be possible for a minimum of one LUN and at the same type for many volumes LUN'S, and a change in the number of replicated volumes may not require a change in the physical hardware configuration. - The contents of the cluster volumes must be identical on both systems at any time of the cluster. <p>Performance requirement:</p> <p>The combined performance of the equipment must provide a performance of Min. 200,000 IOPS.</p>	<p>Toate cerințe sunt respectate cu strictetea.</p> <p>Calcularea performantei si volumului disponibil este calculate cu https://ninjaonline.ext.hpe.com/ si este anexata.</p>	
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			<p>IOPS are calculated according to the following principle:</p> <ul style="list-style-type: none"> - Read/write ratio - 80/20; - Block size - 16K/32K/64K; - Sequential and random I/O; - Delay – 0.001 s; <p>Supported protocols:</p> <ul style="list-style-type: none"> - FC, - iSCSI <p>Futures:</p> <ul style="list-style-type: none"> - The system must include dedicated interfaces for system management (management). <p>Deduplication:</p> <ul style="list-style-type: none"> - The equipment must enable deduplication functionality for volumes accessible at block level (iSCSI/FC LUN) volumes and globally for each system. - The equipment must enable compression functionality for block-level volumes (iSCSI/FC LUN). - The deduplication and compression functionality will not impose restrictions on the simultaneous use of other functions, such as: data replication, thin provisioning, backups, volume cloning. - The equipment must have the data deduplication mechanism in In-Line mode. Deduplication cannot be stopped in any way or possible to exclude the system administrator (optional). - All of the listed functionality must be licensed (if any) & included in offer and supported by the storage system in its maximum configuration level. <p>Compression:</p> <ul style="list-style-type: none"> - The equipment must have a data compression mechanism in In-Line mode. 		
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			<ul style="list-style-type: none"> - Compression must be an integral part of the device and cannot be in any way possible to be turned off by the administrator or the manufacturer's service (optional). Snapshot: - The system must provide snapshot functionality in Safe mode; - Snapshot functionality must be applicable at least at the LUN level; - The system must provide at least 300 snapshots for each shared volume; - The system must provide efficient snapshot functionality so that its use does not impact system performance by more than 10%. - Snapshot functionality should be applicable to at least LUNs, without imposing restrictions on the use of other functions. - Snapshot functionality should be cost-effective so that snapshot copies take up minimal space when created (only on the difference with original data). - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. Encryption: The solution must be able to encrypt all stored data with the minimum the AES-256 or stronger algorithm and encrypt all drives/NVMe/flash supported in the device. Data encryption cannot affect the performance of the solution. The encryption key must be stored by default on the equipment and generated in 		
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			<p>a way that prevents the data from reading from the drives/NVMe/flash removed from the device.</p> <p>Monitoring:</p> <p>The equipment must have an analytical platform or VM in the form of a portal available via a web browser.</p> <ul style="list-style-type: none"> - The platform should automatically collect logs from the device and present them in the form of graphs and reports: - Monitoring of the used space with a data reduction indicator based on deduplication algorithms and compression without thin provisioning if is used; globally for the device and locally for the LUN's. - The platform must enable the prediction of space growth along with the analysis of future expansion. - The system must include an application component and/or hardware, as appropriate, for monitoring, reporting and detailed event collection of at least the following physical and logical components: <ul style="list-style-type: none"> - The portal must have the performance history and real time data of individual resources, taking into account the parameters: latency, Read & Write IOPS, and bandwidth; globally for the device and locally for the LUN; - The system must include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels; - The portal must have function to create reports from capacity, performance, prediction of future space, authorization 		
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			<p>logs to the device, level and technical support time.</p> <ul style="list-style-type: none"> - Displaying the status of performed operations such as snapshots, synchronous replication etc. - Displaying warnings about threats to information about logging users and performed executing commands. - The portal must enable the simulation of capacity increase depending on the type of application. - Algorithm for verifying the correct configuration and the possibilities of upgrading device/cluster. - Displaying system consumption with optimization guidelines. <p>NICs included: Min. 1 x 1GE management; min. 2 x 32Gb FC SFP+, identical, with SFP+ SR MM module included;</p> <p>Supported operating environments:</p> <ol style="list-style-type: none"> 1. Microsoft Windows Server; 2. Red Hat Enterprise Linux; 3. VMware (VMware ESXi); <p>Power supplies included: min. 2 hot-plug PSU with support for min. 1+1 redundancy with power cables c13-c14(0.6 m);</p> <p>Cerințe obligatorii pentru prestarea garanției și a serviciilor de suport (deservire) - conform Anexei la Anunțul de participare.</p> <p>Termeni și condiții: Toate cerințele sunt minime și obligatorii; O cerință nu trebuie să limiteze o altă cerință;</p>		
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				<p>Toate componentele trebuie să fie actuale și să nu fie promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață);</p> <p>Extinderea memoriei (ram) și a capacității de stocare nu trebuie să includă limitări hardware sau software.</p>		
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Cu stimă,
Andrei Cojocari, Chief Commercial Officer
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Data completării: 03.10.2024
Semnat: _____