

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 din data de 07.10,2024

Obiectul achiziției: *Servere și sisteme de stocare (perioada 2024-2025)*

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. 5 Sisteme de stocare Full flash tip 1	IBM FlashSystem 9500	SUA	IBM	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 Storage Full Flash Form Factor: min. 2U Rack mounting included;	Echipamentul livrat corespunde: IBM FlashSystem 9500 este nou, nerecondiționat și produs conform standardelor din 2024, de la un producător internațional renumit. Echipamentul livrat corespunde: Toate componentele IBM FlashSystem 9500 sunt compatibile și asigură funcționarea optimă a sistemului. Type: Enterprise Storage Full Flash, IBM FlashSystem 9500 Form Factor: 4U Rack mounting included;	

				<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; - 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. <p>The data must be available in cases of:</p> <ul style="list-style-type: none"> - 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. <p>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.</p> <p>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.</p>	<p>Availability: The equipment its 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; - 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. <p>The data be available in cases of:</p> <ul style="list-style-type: none"> - 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. <p>The equipment allow hot replacement (without stopping access to data) of the following components: controllers, power supplies, fans, front-end and back-end ports, drives.</p> <p>The equipment must have been resistant to a simultaneous failure of a any three(solution has array with DRAID6 + Hot Spare) 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.</p>	
--	--	--	--	---	--	--

			<p>The equipment must allow to safely disable the device that does not cause user data loss.</p> <p>Type Drives: NVMe/Flash;</p> <p>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)).</p> <p>RAID(if the equipment involves the use of RAID): -Support Pass-through mode; -RAID 6, 10.</p> <p>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.</p> <p>Controllers: - The system must include at least 1 node consisting of 2 controllers in HA (high availability) mode.</p> <p>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 protocol. - Synchronous replication must be possible for a minimum of one LUN and at the same type</p>	<p>The equipment allow to safely disable the device that does not cause user data loss.</p> <p>Type Drives: NVMe (IBM FlashCore Module)</p> <p>Capacity: Usable space 600,89 TB (considering min. RAID 6), (37x19.2TB FlashCore Module) 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)).</p> <p>RAID(if the equipment involves the use of RAID): -Support Pass-through mode; -RAID 6, 10.</p> <p>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. 1024GB per node.</p> <p>Controllers: - The system include at least 1 node consisting of 2 controllers in HA (high availability) mode.</p> <p>Cluster requirement and replication: - The equipment 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 protocol. - Synchronous replication its possible for a minimum of one LUN and at the same type for many volumes LUN'S, and a change in the</p>	
--	--	--	---	---	--

			<p>for many volumes LUN'S, and a change in the number of replicated volumes may not require a change in the physical hardware configuration.</p> <ul style="list-style-type: none"> - The contents of the cluster volumes must be identical on both systems at any time of the cluster. <p>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:</p> <ul style="list-style-type: none"> - Read/write ratio - 70/30; - 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. 	<p>number of replicated volumes may not require a change in the physical hardware configuration.</p> <ul style="list-style-type: none"> - The contents of the cluster volumes its be identical on both systems at any time of the cluster. <p>Performance requirement: The combined performance of the equipment provide a performance of 500,000 IOPS. IOPS are calculated according to the following principle:</p> <ul style="list-style-type: none"> - Read/write ratio - 70/30; - 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 include dedicated interfaces for system management (management). <p>Deduplication:</p> <ul style="list-style-type: none"> - The equipment enable deduplication functionality for volumes accessible at block level (iSCSI/FC LUN), volumes and globally for each system. - The equipment 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 have the data deduplication mechanism in In-Line mode. Deduplication 	
--	--	--	---	---	--

			<ul style="list-style-type: none"> - 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. - 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 	<p>cannot be stopped in any way or possible to exclude the system administrator (optional).</p> <ul style="list-style-type: none"> - All of the listed functionalities be licensed & included in offer and supported by the system in its maximum configuration. <p>Compression:</p> <ul style="list-style-type: none"> - The equipment 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 provide snapshot functionality in Safe mode; - Snapshot functionality be applicable at least at the LUN level; - The system must provide maximum of 64999 snapshots per system for more informations see the link (https://www.ibm.com/support/pages/node/7164815) ; - The system 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 difference with original data). - The system include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. 	
--	--	--	---	---	--

			<p>Storage QoS applied at the volume and LUN levels.</p> <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. - 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, 	<p>Encryption: The solution 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 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 (internal monitoring and IBM Spectrum Control / IBM Storage Insights PRO): 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. - The system 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 have the performance history and real time data of individual resources, taking 	
--	--	--	--	--	--

			<p>taking into account the parameters: latency, Read & Write IOPS, 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. 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>Interfaces:</p> <p>Power supplies included:</p>	<p>into account the parameters: latency, Read & Write IOPS, and bandwidth; globally for the device and locally for the LUN.</p> <ul style="list-style-type: none"> - The system include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. - The portal 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: 1GE management; 16 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:</p>	
--	--	--	---	---	--

				<p>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>2 hot-plug PSU with support for 1+1 redundancy with power cables c13-c14(0.6 m);</p> <p>Prestarea garanției și a serviciilor de suport (deservire) – 5 ani conform NBD (Next Business Day)</p> <p>Termeni și condiții: Toate cerințele sunt respectate; O cerință nu trebuie să limiteze o altă cerință; Toate componentele sunt actuale și nu sunt promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare - nu are limitări.</p>	
<p>Lotul nr. 6 Sisteme de stocare SAS SSD tip 2</p>	<p>IBM FlashSystem 9500</p>	<p>SUA</p>	<p>IBM</p>	<p>Echipament nou și nereconstruit, 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 Storage SAS SSD 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%,</p>	<p>Echipament este nou și nereconstruit, produs trim. III anul 2024 (produsele se asamblează după plasarea comenzii), 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 Storage IBM FlashSystem 9500 Form Factor: min. 4U Rack mounting included; Availability: The equipment be working in Symmetric Active-Active mode, which means that in the case of 100% utilization, ensures: - obtaining high availability at 99,9999%,</p>	

			<ul style="list-style-type: none"> - 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. <p>The data must be available in cases of:</p> <ul style="list-style-type: none"> - 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. <ul style="list-style-type: none"> - 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 to safely disable the device that does not cause user data loss. <p>Type Drives: SAS SSD. Capacity: min. usable space 200 TB (considering min. RAID 6)</p>	<ul style="list-style-type: none"> - 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 have built-in mechanisms for updating program versions without compromising its availability and loss of access to data. <p>The data its be available in cases of:</p> <ul style="list-style-type: none"> - 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. <ul style="list-style-type: none"> - The equipment irs 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 have been resistant to a simultaneous failure of a minimum of any three(solution has array with DRAID6 + Hot Spare) 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 allow to safely disable the device that does not cause user data loss. <p>Type Drives: NVMe (IBM FlashCore Module). Capacity: usable space 200.02 TB (considering RAID 6) (25X 9.6TB FlashCore Module)</p>	
--	--	--	--	---	--

				<p>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).</p> <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. 128GB 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>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).</p> <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"> - Equipment vendor provides the presence of a cache in the operation of the storage system, then its minimum requirements are the following min. 1024GB per node. <p>Controllers:</p> <ul style="list-style-type: none"> - The system its 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 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: 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;</p> <p>Supported protocols: - FC, - iSCSI,</p> <p>Futures: - The system must include dedicated interfaces for system management (management).</p> <p>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 way or possible to exclude the system administrator (optional).</p>	<p>Performance requirement: The combined performance of the equipment must provide a performance of 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;</p> <p>Supported protocols: - FC, - iSCSI,</p> <p>Futures: - The system its include dedicated interfaces for system management (management).</p> <p>Deduplication: - The equipment 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 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 be licensed (if applicable by vendor provisions) & included in</p>	
--	--	--	--	--	---	--

			<p>- 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> <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. 	<p>offer and supported by the storage system in its maximum configuration level.</p> <p>Compression:</p> <ul style="list-style-type: none"> - The equipment have a data compression mechanism in In-Line mode. - Compression 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 provide snapshot functionality in Safe mode; - Snapshot functionality e applicable at least at the LUN level; - The system provide maximum of 64999 snpahots per system, for more informations see the link (https://www.ibm.com/support/pages/node/7164815) ; - The system 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 its include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. 	
--	--	--	---	---	--

				<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: - 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: - The portal must have the performance history and real time data of individual resources, taking into account the parameters: latency, Read &</p>	<p>Encryption: The solution 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 (internal monitoring and IBM Spectrum Control / IBM Storage Insights PRO): The equipment 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: - 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 enable the prediction of space growth along with the analysis of future expansion. - The system 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: - The portal have the performance history and real time data of individual resources, taking into account the parameters: latency, Read & Write</p>	
--	--	--	--	--	---	--

			<p>Write IOPS, 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.â <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>	<p>IOPS, and bandwidth; globally for the device and locally for the LUN.</p> <ul style="list-style-type: none"> - The system include a performance monitoring and prioritization mechanism for Storage QoS applied at the volume and LUN levels. - The portal 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 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; 16 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>	
--	--	--	--	--	--

				<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>Prestarea garanției și a serviciilor de suport (deservire) – 5 ani conform NBD (Next Business Day)</p> <p>Termeni și condiții: Toate cerințele sunt respectate; O cerință nu trebuie să limiteze o altă cerință; Toate componentele sunt actuale și nu sunt promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare - nu are limitări.</p>	
<p>Lotul nr. 7 Sisteme de stocare SAS SSD tip 3</p>	<p>IBM FlashSystem 7300</p>	<p>SUA</p>	<p>IBM</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: - 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>	<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 IBM FlashSystem 7300</p> <p>Form Factor: 2U Rack mounting included;</p> <p>Availability: The equipment its 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,</p>	

			<ul style="list-style-type: none"> - 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. <p>The data must be available in cases of:</p> <ul style="list-style-type: none"> - 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. <ul style="list-style-type: none"> - 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. <p>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</p>	<ul style="list-style-type: none"> - lack of decrease in the required performance in the event of a failure of half of the controllers, - 100% full capacity reading, - The system have built-in mechanisms for updating program versions without compromising its availability and loss of access to data. <p>The data must be available in cases of:</p> <ul style="list-style-type: none"> - 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. <ul style="list-style-type: none"> - The equipment 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 have been resistant to a simultaneous failure of a minimum of any three(solution has array with DRAID6 + Hot Spare) 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 allow you to safely disable the device that does not cause user data loss. <p>Type Drives: NVMe (IBM FlashCore Module) Capacity: Usable space 33.07 TB (considering min. RAID 6), (10 x 4.8TB FlashCore Module) Hot Spare optional (If the equipment may not contain spare components that are not used</p>	
--	--	--	---	--	--

			<p>during the operation of the device (e.g. spare controller, Hot Spare disk).</p> <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>during the operation of the device (e.g. spare controller, Hot Spare disk).</p> <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. 256GB per node. <p>Controllers:</p> <ul style="list-style-type: none"> - The system 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 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 its 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 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 200,000 IOPS.</p>	
--	--	--	---	---	--

			<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>	<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. - 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. <p>Encryption:</p> <p>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.</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; <p>The system must provide maximum of 32099 snapshots per system (https://www.ibm.com/support/pages/node/7164815);</p> <ul style="list-style-type: none"> - 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. <p>Encryption:</p> <p>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.</p>	
--	--	--	---	--	--

			<p>Data encryption cannot affect the performance of the solution.</p> <p>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:</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: - 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; 	<p>Data encryption cannot affect the performance of the solution.</p> <p>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 (internal monitoring and IBM Spectrum Control / IBM Storage Insights PRO):</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: - 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 	
--	--	--	---	---	--

			<ul style="list-style-type: none"> - 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:</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>Storage QoS applied at the volume and LUN levels;</p> <ul style="list-style-type: none"> - 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; 16 x 32Gb FC SFP+, identical, with SFP+ SR MM module included;</p> <p>Supported operating environments:</p> <ol style="list-style-type: none"> 4. Microsoft Windows Server; 5. Red Hat Enterprise Linux; 6. 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>Prestarea garanției și a serviciilor de suport (deservire) – 5 ani conform NBD (Next Business Day)</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>Termeni și condiții: Toate cerințele sunt respectate; O cerință nu trebuie să limiteze o altă cerință; Toate componentele sunt actuale și nu sunt promovate ca EOS (sfârșitul vânzării/suportului) / EOL (sfârșitul duratei de viață); Extinderea memoriei (ram) și a capacității de stocare - nu are limitări.</p>	
--	--	--	--	---	---	--

Numele, Prenumele: Vasilache Dionisie
În calitate de: Administrator

Ofertantul: TXD IT Solutions SRL.