To	:	Distribution List
Subject	:	Amendment 4 – RFQ-CO-115152-BMD
		NCI Agency Ballistic Missile Defence – Integration Test Bed Build 6 (ITB 6) Hardware Upgrades
References	: A.	AC/4-2261 (1996 Edition)
	B.	Issuance of RFQ-CO-115152-BMD dated 06 April 2021
	C.	Issuance of RFQ-CO-115152-BMD Amendment 1 dated 21 April 2021
	D.	Issuance of RFQ-CO-115152-BMD Amendment 2 dated 28 April 2021
	E.	Issuance of RFQ-CO-115152-BMD Amendment 3 dated 04 May 2021

1. In accordance with Reference A, the purpose of this Amendment 4 to RFQ-CO-115152-BMD is to respond to the Clarification Requests (CRs) received from Prospective Bidders (Attachment A).

2. For ease of reference, the answers published by this Amendment 4 have been marked using the "track changes" function. The answers to CRs do not result in revision of any the RFQ document.

3. By virtue of this amendment, Attachment A cancels and supersedes any previous version issued in the context of the Request for Quotation in subject.

4. Except as provided in the paragraphs above, all other terms and conditions of the Request for Quotation remain unchanged.

5. The Bid Closing Date for RFQ-CO-115152-BMD, as stated in reference E, remains unchanged as reflected hereafter.

   Bid Closing Time for RFQ-CO-115152-BMD is 14:00 (Brussels time) on 20 May 2021.

6. The Purchaser Point of Contact for this procurement is Elif Bailey, who can be contacted on tel. number +32 2 707 2259 or by e-mail: **Elif.Bailey@ncia.nato.int**.

FOR THE DIRECTOR OF ACQUISITION:

Elif Bailey

Senior Contracting Assistant

Enclosure:

Attachment A: RFQ-CO-115152-BMD – Amendment 4– Answers to Clarification Requests

Distribution List for Amendment 4 to RFQ-CO-115152-BMD

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Attachment A. Answers to Clarification Requests

RFQ-CO-115152-BMD Amendment 4

10 May 2021

ADMINISTRATION or CONTRACTING					
Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
A.1	Book I	2.11.	Are bidders allowed to furnish the Bid guarantee also by direct bank deposit? If so, could you please provide necessary data for international bank transfer?	NCI Agency confirms that Bidders are allowed to provide the Bid Guarantee by bank deposit. BANK HOLDER NAME: NCI Agency IBAN: BE98 2100 8194 0093 SWIFT: GEBABEBB BANK NAME: BNP PARIBAS FORTIS. BANK ADDRESS: 3 MONTAGNE DU PARC 1000 BRUSSELS BELGIUM	1
A.2	Book II	Part II Article 11	Will the performance guarantee be kept for the entire period of the contract, which would be the second semester of 2022?	The Agency intends to keep the Performance Guarantee until the expiration of the warranty period (including the optional periods if exercised).	3
A.3	Book I	2.11.2	Could the amount of the Bid guarantee be adjusted or could the Bid guarantee be removed?	NCI Agency confirms that the amount of Bid guarantee is at the level of assessed risk on the scope of this project and it shall remain.	3

TECHNICAL					
Serial #	**RFQ Book**	**RFQ Section Ref.**	**Question:**	**Answer:**	**Published by Amendment #**
T.1	Book II	SOW	Can you confirm whether the onsite installation and testing of items is requested or is this the responsibility of the Purchaser?	NCI Agency confirms that the Purchaser will perform installation and testing for Acceptance. There is no Contractor responsibility to install or to test the material at the NCI Agency Site; The Hague.	1
T.2	Book II	SOW Appendix C ITB 6, Table 9	Data Transfer Desktop with CD burner and USB Do you require additional equipment below and if so, its minimal specification: monitor form factor how many ports what kind of fiber optic 1 TB SSD – could you please specify, if self-encrypting, fips, eclypt?	NCI Agency confirms that the Contractor shall deliver tempest tested (B) regular desktop, with QWERTY Keyboard and mouse. Monitor is not required. The desktop shall have : - 4 x USB 3.0 ports - 2 x HDMI or Display Port. - Multi-Mode 1GB. Fiber Optic Port: LC Connector - SSD without encryption	1
T.3	Book II	SOW Appendix C ITB 6, Table 9	Laptop with CD burner Do you require additional equipment below and if so, its minimal specification: • screen size • ports • any additional hardware - monitor / kb / mouse / dock	NCI Agency confirms that the Contractor shall deliver a Laptop of 17", IPS, 4K. Keyboard and mouse are not required. The laptop shall have: - 4 x USB 3.0 Port - 1 x HDMI or Display Port - WIFI - Ethernet - Docking Station - Camera	1

TECHNICAL					
Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
T.4	Book II	SOW Appendix C ITB 6, Table 9	Network Switches. How many ports are required for connections to other systems?	NCI Agency confirms that the Contractor shall deliver: - 4 x Switches, Layer 3, with minimum 24 Port SFP+ 10GB. - 2 x Stackable (including cables). - 4 x Redundant Power Supply, Hot Swappable. Number of SFP+: Uplinks : 4 SFP+ FO Single-Mode Client side: number and type depends on Contractor's solution. E.g. Rackable Server based solution: - 12 SFP+ Copper or FO Multi-Mode - The number and type of SFP+ depends on Contractor's SAN solution E.g. Enclosure/blades based solution - 4 x SFP+ Copper or FO Multi-Mode - The number and type of SFP+ depends on Contractor's SAN solution	1
T.5	Book II	SOW Appendix B TS-30	Do the USB ports need to be USB-A or will USB-C be sufficient on the laptop?	NCI Agency confirms that the Contractor shall deliver the laptop with following USB ports: - 2 x USB-C - 2 x USB-A.	2

TECHNICAL					
Serial #	**RFQ Book**	**RFQ Section Ref.**	**Question:**	**Answer:**	**Published by Amendment #**
T.6	Book II	SOW Appendix B TS-30	On the laptop is UHD+ (3840 x 2160) acceptable or is 4k (4096 × 2160) absolutely required?	NCI Agency confirms that 4K is absolutely required.	2
T.7	Book II	SOW Appendix C ITB 6, Table 9 and T.4	The tender asks for Layer 2, whereas the clarifications specify Layer 3, this would mean servers would not connect to the switches. Can you clarify please?	As a Layer 3 switch, the Agency intends a switch that can perform also (Limited) routing functions in addition to the standard Layer 2 switching functionalities. Servers shall connect to the switches.	2
T.8	Book II	SOW Appendix B TS-14	What is the required method of data redundancy mode? Is mirroring only allowed or is it possible to use erasure coding mode?	NCI Agency confirms that Replication (Mirroring) is the preferred method.	2
T.9	Book II	SOW Appendix C ITB 6 Infrastructure Specification / Table 8 Id #3	48 TB VSAN Redundant configuration means 48 TB of RAW capacity or usable capacity?	NCI Agency confirms that 48 TB VSAN Redundant configuration means 48TB RAW capacity.	2

TECHNICAL					
Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
T.10	Book II	SOW Appendix A PFI	Encrypted data at rest is a part of the NetApp PFI specification. Based on this and our previous experiences with NCIA requirements – can we assume that Data Encryption at rest is a requirement for offered storage or VSAN infrastructure? If yes, what layer of the system have to support the encryption required – disk based encryption only (e.g. self-encrypting drives) or encryption at storage/VSAN level?	NCI Agency confirms that no data encryption at rest required.	2
T.11	Book II	SOW Appendix C ITB 6 Infrastructure Specification	What types and quantity of uplinks are used to connect NSWAN, NS CFBLNet and other systems into switches? (Copper, Fiber, Speed, Qty) Referencing to Figure 1 in Section 1.2.1.1	NCI Agency confirms: - 2 x 10 GB per Network. - Copper or Fibber (Multi Mode) up to the Contractor, provided the SFPs for the switches are chosen accordingly.	2
T.12	Book II	SOW Appendix C ITB 6 Infrastructure Specification / Table 9 ITB 6	Laptop with CD burner – would you accept laptop with external CD / DVD burner?	NCI Agency confirms that external CD/DVD is acceptable.	2

TECHNICAL					
Serial #	**RFQ Book**	**RFQ Section Ref.**	**Question:**	**Answer:**	**Published by Amendment #**
T.13	Book II	SOW Appendix B TS-16.	Would 2x hot-swappable power supplies (with N+1 redundancy) be acceptable per server enclosure?	NCI Agency confirms: -If the Contractor chooses to offer hypervisors as Rackable Servers, each server must have 2 redundant & hot swappable Powers Supplies. -If the Contractor chooses to offer hypervisors as Blades Servers, the enclosure as a whole must have 4 redundant & how swappable power supplies.	2
T.14	Book II	SOW Appendix B TS-15.	If leveraging vsan: 1. Would having 1 disk group per node [4 nodes in total], with a total raw capacity of 46TB RAW be acceptable? 2. Ref CPUs. Are single socket servers with an appropriate core count and frequency of 2.7GHz, be acceptable?	NCI Agency confirms: 1. We need to stay consistent with the SOW and be able to compare a VSAN solution to a SAN, so 48 RAW space is the minimum. It is understandable that in a VSAN solution 48TB might not be exactly achievable so the upper next value will be acceptable 2. For the Hypervisors NO, dual sockets are required. For the Domain controller a single socket is acceptable.	2

	Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
TECHNICAL						
	T.15	Book II	SOW Appendix B	How should Data transfer desktops be connected to network? What level of redundancy do you require? There are 5 possible options: 1. Each desktop connected to each switch , which means 4 network cards per desktop. 2. One desktop connected to OPS ITB to each switch. Second desktop connected to Core ITB to each switch. This means 2 network cards per desktop. 3. Each desktop connected to OPS and Core to only one switch. This means 2 network cards per desktop. 4. One desktop connected to OPS ITB to one switch. Second desktop connected to Core ITB to one switch. This means 1 network card per desktop. 5. No direct connection between desktop and ITB. Desktops are connected to switch on other site and only 1 network card per desktop is needed.	NCI Agency confirms 1 FO Network Card. Secops require ITB to use an approved "break before make" switch to switch the machine from NSWAN to CFBLNet. No redundancy is required.	4
	T.16	Book II	SOW Appendix B	Is there an existing Out Of Band management (OOB) network for OPS and Core ITB ? Do contractor need to provide OOB solution?	NCI Agency confirms ITB 5.3 being based on HP hardware, it uses ILO Standard on a separate VLAN. ITB 6 HW should provide a similar functionality.	4

TECHNICAL					
Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
T.17	RFQ Amdt 2	Attachment A, T4	T.4 says that there has to be 4x 10GB SM uplinks and T.11 says 2x10GB per network and type is up to contractor. Does this mean that we should use 1x SFP+ uplink in each Ops switch for NSWAN and 1 SFP+ uplink in each Core switch for NS CFBLNet and another 4 uplinks for other systems as shown in Figure 1 ITB HW Overview?	NCI Agency confirms ITB6 HW for NSWAN (a.k.a OPS) and CFBLNet (a.k.a CORE) are physically & networking separated instances, but **required to be identical copy of each other**. Each configuration (OPS or CORE) will have 2 Top of the Rack switches with uplinks towards ITB Lab (2X10GB SM FO). This is fixed. For the virtualization side, be either rackable servers or Blade chassis, up to the Contractor to choose, a number of client ports will have to be provided on the switches and on the servers according to the specs in T4. E.g. Hypervisors Rackable Server based solution: - 12 SFP+ Copper or FO Multi-Mode (3 hypervisors with 4 network cards) E.g. Enclosure/blades based solution - 4 x SFP+ Copper or FO Multi-Mode. For the storage, if the Contractor chooses to offer a SAN, a number of SPF+ and ports on the servers and top of the rack switches will have to be accounted for. If the Contractor chooses a VSAN, being VSAN built into the hypervisors' servers it does not require additional network connectivity.	4

TECHNICAL					
Serial #	RFQ Book	RFQ Section Ref.	Question:	Answer:	Published by Amendment #
T.18	Book II	SOW Figure 1 ITB HW Overview	How should BMD Integration Test Bed be connected? In Figure 1 ITB HW Overview , we can see at least 4 connections between MER and BMD ITB.	NCI Agency confirms. MER is connected to ITB with 2x10GB links per network.	4
T.19	Book II	SOW Appendix B TS	Do VDI clients need 3D hardware acceleration? If yes, what kind of acceleration is requested (shared, pass-trough, dedicated) and what kind of VDI is used (for compatibility check)?	Virtual Shared Pass-Through Graphics Acceleration. DELL WYSE 5070 - VDI Thin Client MFG model number: 202000528-B6 • Processor: Intel® Pentium Silver J5005 (Quad Core 1.5GHz, up to 2.8GHz burst) • Memory: 8GB, 2666MHz DDR4 and 64GB SSD included in Chassis • Resolution: up to 3840 x 2160 @60Hz [2x displays] • Interfaces: Front - 2x USB 2.0 ports, 1x USB 3.1 TYPE C port and 1x USB 3.0 TYPE A port. Rear - 4x USB 3.0 ports, 2x DisplayPort 1.2a video connectors • No wireless LAN, no Bluetooth • Network: 1x SFP LAN interface port with 1Gbps Fibre SFP - LC connectors • 90-264VAC 50/60Hz auto operation C/w 1.8m shielded power cable SCHUKO mains plug • Dimensions: 35.6w x 184d x 184h mm • MS3220 3 button mouse • Dell KB216 Keyboard	4