LRFP-2024-9190496

As for : **The provision and Installation of the Network Infrastructure for the Ministry of Education and Higher Education – Lebanon LOT 4.4**

We need to clarify the below points :

1. **Distribution Switch DC– SW02**
* What are the needed SFP s per switch ( Qty and type ) ?
MEHE:> 2 x 40G per switch (4 in total)
1. **Server Farm switches (Fiber) – SW03**
* What are the needed SFP s per switch ( Qty and type ) ?
MEHE:> 4 x 40G per switch (8 in total)

1. **Server Farm switches (copper) – SW04**
* What are the needed SFP s for the uplinks ?

 MEHE:> 4 x 40G per switch (8 in total)

1. **Management Switch – SW05**
* Do you need any stacking cable ?

MEHE:>No need for stacking cable

* Do you need any uplinks modules ?

MEHE:> Yes

* Any needed SFPS ?

MEHE:> 2 x 40G per switch (4 in total)

1. **Access switches**
* What are the needed SFP uplinks for the access Switches (Qty and type per switch )

MEHE:> Regarding the needed SFP uplinks for the access switches, as per our initial design and to save costs, we are using the existing SFP-10G modules. Each access switch will have 1 SFP-10G uplink, and similarly, there will be 1 SFP-10G uplink per core or distribution switch.

It is expected that there will be enough 10G SFPs to cater for 2 links from each stack of switches.

1. **IP Telephony – Licenses - Flex– SW09**
* 12.5 version will reach its end of life on 31-Aug-2025 , the latest version is 15 ,so please advise if we can provide the latest version or you need 12.5 version .
MEHE:> The latest version (version 15 or higher) is required with the new appliances. Therefore, migration configuration from the current appliances to the new ones is necessary to ensure a smooth transition. It is also mandatory to ensure that the existing IP phones at MEHE will continue to function after the migration.

* **Page 29 for HCI Item1**

 Warranty & Support for the software components should be provided for 3 years, 24/7. The support should be done by a local partner for the first intervention and to escalate with the vendor if any

**Page 30 for GPU  Node Item 2**

Software and Licenses:

 An enterprise-grade HCI software solution with ultimate feature set, supported by a 48-month software support service for CPU cores.

 HCI management software with a starter license and 48-month support term.

 Perpetual and production-level licenses for GPU virtualization software, with a minimum of 5 years of update and support management services

MEHE:> The software and licenses update and support services for the GPU node are different from the other 6 nodes. To keep the support services uniform when renewing, bidders can adopt:

* + An enterprise-grade HCI software solution with a 3-year software support service for CPU cores.
	+ HCI management software with a starter license and a 3-year support term.
	+ Perpetual and production-level licenses for GPU virtualization software, with a minimum of 3 years of update and support management services.

This approach ensures uniformity in support services and simplifies future renewals.

* **How many sites/ DCs should the HCI solution be deployed? Are they Active/ Active or Active/ Passive?**MEHE:> Regarding the HCI solution deployment, currently, there is one site planned for the deployment for MEHE main data center. However, the solution should be designed and ready to support multiple sites in both Active/Active or Active/Passive configurations to allow for future expansion
* **What is the number of Clusters per site?**MEHE:> only one cluster for all nodes
* **Is it a Green or Brown deployment? Please provide the existing workloads if Migration is required for the existing environment.**MEHE:> We require a Blue-Green deployment for this project. This approach will ensure a seamless transition between the current infrastructure and the new HCI infrastructure, with minimal downtime and a quick rollback plan in case of failures.

The workloads to be migrated are listed in the attached Excel sheet titled "Current Workloads to be migrated.xlsx". This list is preliminary and may be updated by adding or removing some VMs.
* **If there’s Migration from existing virtualization, we need to collect data such as the number of VMs, ESXi Version, etc...**MEHE:> Concerning the VMS and ESXi versions, please refer to the attached Excel sheet titled 'Current Workloads to be Migrated.xlsx'. This list is preliminary and can be updated by adding or deleting some VMs. Regarding the ESXi migration, it is not mandatory for the new HCI environment.

* Regarding the Firewalls specs in NS01, NS02, NS03 – kindly confirm if the number of ports mentioned should be included from Day 1, or will be needed as future expansion

MEHE:> Regarding the firewall specifications for NS01, NS02, and NS03, the number of ports mentioned should be included from Day 1. Specifically, the requirements are as follows:
	+ **NS01 (Perimeter Next Generation Firewall)**:
		- 2 x 10GE SFP+ slots
		- 10 x GE RJ45 ports (including 1 x MGMT port, 1 x HA port)
		- 8 x GE SFP slots
	+ **NS02 (Data Center Next Generation Firewall)**:
		- 2 x 10GE SFP+ slots
		- 10 x GE RJ45 ports (including 1 x MGMT port, 1 x HA port)
		- 8 x GE SFP slots
	+ **NS03 (WAN Next Generation Firewall)**:
		- 18 x GE RJ45 ports (including 1 x MGMT port, 1 x HA port)
		- 8 x GE SFP slots
		- 8 x 10GE SFP+ slots

Additionally, the connectivity to the infrastructure, including cables and SFPs at the level of the infrastructure as well as the appliances, should be provided by the bidder as part of a turnkey solution. For detailed information, please refer to the technical specifications document. If further clarification is needed, feel free to contact us.

* Regarding the DMZ switch, should 40G ports be included? As it will be connected to the firewall, and the firewall will not hold 40G ports.
MEHE:> Regarding the DMZ switch, it is not necessary to include 40G ports since it will be connected to the firewall, and the firewall does not support 40G ports. Instead, a 10G port should be included for connectivity. The bidder should provide the necessary cables and SFPs to ensure proper integration with the firewall and other infrastructure components as part of a turnkey solution.
* Regarding the Wireless LAN Controller for the AP, Kindy confirm that we can quote the virtual WLC
MEHE:> Regarding the Wireless LAN Controller for the Access Points (APs), it can be virtual. However the virtual WLC should meet the technical specifications and requirements outlined in the Technical Specifications, ensuring it provides the necessary features and capabilities for managing the wireless network infrastructure effectively.
* Regarding the SW05 in lot 4.4 – pls confirm that the switches should be stacked, Layer 3, with 40G uplinks to the core – since the core only has 40G ports
MEHE:> Regarding the SW05 in Lot 4.4, we confirm that the switches should be stacked, Layer 3, with 40G uplinks to the core. Each switch should have 2 x 40G uplinks with their relevant SFPs, ensuring connectivity to the core or distribution switch. This totals 4 x 40G uplinks for all switches combined. Additionally, the necessary SFPs and cables should be provided by the bidder to ensure proper integration and connectivity.
* Another question please regarding SW10 - Load Balancer

Is the Support for DDos attack prevention, Web Application Firewall (WAF) – needed for Day 1 – or do we need the possibility to upgrade through license later on?

MEHE:> Regarding the SW10 Load Balancer, the support for DDoS attack prevention and Web Application Firewall (WAF) features should be available from Day 1.

 1) **Replication requirements**:  Is there an existing DR site or assumption for a new DR site. since the replication should be on same type of storage

MEHE:> As part of the first phase of the project, there is currently no existing Disaster Recovery (DR) site. However, the system design should anticipate future expansion, allowing for seamless integration of a DR site in a subsequent phase. Therefore, the replication setup should be compatible with the same type of storage to ensure consistency and ease of scalability when the DR site is established from day 0.

 2) **HCI software:** can we use the fusion cube which is huawei HCI software; meets  and exceeds all requirements with a competitive price Instead of esx and Microsoft and nutanix

MEHE:> Please refer to the detailed technical specifications provided

3) **GPU node :**is stand alone or should be integrate with HCI?

MEHE:> the GPU Node should be part of the HCI cluster

4)  **NAS storage** should be for back or production?

MEHE:> The NAS Storage will be used for backup purposes only.