Technical Specification of Upgrading of Existing Hyper Converged Infrastructure Solution

1.1. PROJECT OVERVIEW

This document defines the technical specifications for the upgrade of the Dell VxRail-based Hyper-Converged Infrastructure (HCI) Solution for Indhira Gandhi Memorial Hospital (IGMH). The scope of work includes the supply, installation, configuration, and testing of the expanded HCI solution, designed to enhance the hospital's existing VxRail cluster environment.

The proposed expansion will comprise three (3) new VxRail appliance nodes along with the associated software stack required for full HCI integration. The upgraded infrastructure will seamlessly integrate with the existing cluster to deliver improved scalability, performance, resilience, and centralized management within a single, unified platform.

1.2. SPECIFICATION

HCI Solution expansion with 3 x VxRail Nodes and VMware as a Software Stack	
Type	- The proposed HCI solution shall be based on Dell VxRail, which is the existing platform currently deployed within the Cluster environment. The proposed system must function as a single, all-in-one appliance that integrates compute, storage, and virtualization layers under unified management and support. - The HCI architecture must be built on a true software-defined infrastructure, ensuring that no proprietary hardware adapters or accelerators are required for core operations such as data compression, deduplication, or data path optimization. - The proposed solution must utilize VMware vSAN technology integrated with Dell VxRail software stack, ensuring hardware-independent data services. The vSAN-based architecture must eliminate the need for hardware RAID controllers, relying instead on software-defined mechanisms to provide data protection, fault tolerance, and data integrity. - The proposed configuration must be an All-Flash solution, leveraging enterprise-grade SSDs to deliver optimal performance, low latency, and high IOPS suitable for business-critical workloads.
Other	- Detailed Technical Proposal, Design of Solution and Other Support Documents must be submitted with this tender. - Proposed HCI Solution should be aligned to a single product roadmap from a single vender. - Adding of Nodes should be non-disrupting and should not have any impact to production
HCI Node Details: Dell VxRail VP-760	
Form Factor	**2U** Form Factor Nodes
Processor	Intel® Xeon® Platinum 8462Y+ 2.8G, 32C/64T, 16GT/s, 60M Cache, Turbo, HT (300W) DDR5-4800
Memory	**512 GB DDR4** Per Node (32GB RDIMM, 5600MT/s, Dual Rank - HCI x 16 Modules)

Storage	- 3.84TB SSD SAS RI 24Gbps 512e 2.5in Hot-Plug, AG Drive 1DWPD - HCI, x 3 (Capacity) - 800GB SSD SAS, Mixed Use, up to 24Gbps 512e 2.5 Hot Plug, AG Drive, 3DWPD x 1, for Each Node (Cache) - Enterprise Storage Adapter with 3 x NVMe/SSD M.2 480GB cards (RAID1) or Equivalent. - RAID Storage Controller - Continuous data protection
Connectivity	Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0 (**3x 25Gb/s SFP** + Connector with **25Gb/s Transceivers**
HCI Software Stack	Proposed HCI Solution should be 100% based on VMware vSphere
Hypervisor License	**VMware vSphere Enterprise Plus License** per Sockets should be included with proposed solution, separately with 12 months 24x7 Production Support Subscription.
VMware vCenter License	**VMware vCenter Standard License** per Sockets should be included with 12 months 24x7 Production Support Subscription.

Software Defined Storage	- **vSAN Standard License** per Sockets should be included with 12 months 24x7 Production Support Subscription. - Software define storage technology should seamlessly integrate with the vSphere hypervisor without having to pass IO through a dedicated storage virtual controller module. - Software defined storage should precent a VMFS datastore instead of NFS datastore. -
Management Software	- Comprehensive HCI Management Tool to Configure, Manage and Troubleshoot the whole Infrastructure including Hardware and Software Components. - Backup Software for Virtual Machine with synchronized application and rollback capability must be included.
Remote Replication	Solution must come with Replication Technology which should support both Synchronous/Asynchronous Replication - All required licenses should be included; Synchronous Replication of VMs Asynchronous Replication of VMs

Data Protection	- Continuous Data Protection with Roll-Back for VM's;
	  - Should have the ability to provide CDP (Continuous Data Protection) to selected VM's. Required RPO (1 seconds or less).
	  - Should have the ability to roll back and forth to minimize the data loss and to provide operational recovery from any malicious attack or human error.
	- VM level Asynchronous replication should support near zero RPO (less than 5 seconds).
	- Should support both Synchronous and Asynchronous replication of VM's
	- Should include data compression capability to reduce bandwidth consumption.
	- Should include license to replicate to three external targets

	- Proposed data protection software with above features should have tight integration with VMware so that it can be fully manageable through vCenter server without having to use another software interface.
Firmware Code and Patch Management	- Should have the ability to provide automated, intelligent lifecycle management functionality automatically updates cluster with pre-validated, pre-tested software and firmware components, ensuring the HCI stack (Full Software Hardware) is in a Continuously Validated State - Single validated and tested patch level must be available at all time for hardware and software components in the cluster. - All patches for the complete hardware and software solution must come from a single validated source.

3.4. INSTALLATION & PROVISIONING The entire system shall be upgraded as per manufacturer's recommendations and instructions.

Installation and provisioning should be provided by the manufacturer certified engineers.

3.5. WARRANTY & MAINTENANCE

The bidder should provide 3 years comprehensive 24x7x365 Warranty for all Hardware and 1 Year for Software included in the proposed solution.

A comprehensive SLA must be provided with the proposal.

3.6. TRAINING

An on-the-job training should be provided to personnel's responsible in operations & management of the system/appliance. The training should include mainly day to day operation and troubleshooting of the system/appliance.

3.7. EXPERIENCE AND DOCUMENTS REQUIRED

- The supplier must have minimum 3 (Three) project experience of Hyperconverged Infrastructure Solutions delivered locally (Letter from the client confirming the completion of the project).
- Manufactures Authorization letter stating that the entire scope of the project is backed by the Manufacturer for the partner.
- 2 Engineers Certificates must be attached
    - Dell VxRail Deploy 2023 x 2
    - Specialist - Implementation Engineer, VxRail x 2
    - VxRail and VMware Data Center Virtualization Implementor x 1
- Technical Proposal should include, solution design diagram and specification.

3.8. POST DEPLOYMENT

- Hardware specific deployment guidelines from the manufacturer should be provided.
- Detailed deployment diagrams along with the manufacturer standards should be produced on completion of the project.
- All equipment in the project should be registered in the name of IGMH in the relevant Manufacturer portals.