

## 26-27.010 (SAN) Solution

### Questions and Answers

1. What virtualization platform(s) will be connected to the SAN?

- VMware vSphere version?
- Hyper-V version?
- Mixed environment? This will be a mixed environment where students will experiment with VMware, Hyper-V, ProxMox, and Nutanix.

2. How many virtualization hosts will connect to the SAN initially?

- Current host count - Up to 12 servers max with minimal IOPs usage.
- Planned host count over next 3 years - 15 servers

3. What server hardware is currently deployed? - On the RFP under Services Required any of these options will be satisfactory:

- Minimum dual 10Gb network connectivity (SFP+ or RJ45) with options for network expansion.
- A separate interface for Management would be good.

4. Is this a new deployment or a replacement of an existing SAN? New

5. If replacing an existing system:

- What SAN is currently in use? N/A
- Current capacity utilization? N/A
- Current performance bottlenecks? N/A

6. The RFP requires 12TB usable storage.

Can you clarify:

- Current storage consumption? None. This is for instructional use. Initially, 12 servers with 1TB allocated each is sufficient for learning.
- Expected annual growth rate? The classroom has 24 students, and the assignments are done in groups of 2 so 12 servers total. If the classroom size groups then max expected servers in use is 15.
- Preferred day-one usable capacity beyond the minimum? 12TBs total usage on day one. Initially if I need more space beyond the minimum 12TB I can allocate 500GBs to each server instead of 1TB.

7. What types of workloads will reside on the SAN?

Examples:

- Student lab VMs
- Windows servers
- Linux servers
- Cybersecurity labs
- Database workloads

8. How many virtual machines are expected concurrently? 20-40 VMs

Examples:

- 20 VMs
- 50 VMs
- 100+ VMs

This helps properly size disks and controllers.

9. Would the College prefer:

On the RFP under Services Required any of these options will be satisfactory:

- SAS, SATA SSD, hybrid SSD/HDD, or equivalent storage architecture designed to support virtualization workloads, with optional support for future SSD or NVMe expansion.

- All-flash storage
- Hybrid storage
- Lowest-cost solution meeting requirements

10. The specification calls for dual 10Gb connectivity.

Can you confirm preferred connectivity type:

We can accept either type and have no preference.

- 10Gb SFP+
- 10GBASE-T (RJ45)

11. Will additional storage networking switches be required as part of the proposal? No

12. Are existing 10Gb switches already available? Yes, SFP and BASE-T capable.

13. How are virtual machines currently backed up? No backups needed.

14. Will SAN snapshots be used only for recovery or also for backup workflows? Snapshots will be used for demonstration so the students can see what taking a snapshot does and what reverting a snapshot does.

15. Is integration with existing backup software required? No

- If yes:
  - Veeam
  - Microsoft DPM
  - Commvault
  - Other
- Does the college have an expectation of IOPS required for this solution? Around 12 servers will be connected with a mix of Vmware, Proxmox, Hyper-V, and Nutanix. No critical production loads will happen. We may create up to two VMs per server and do light file creation and students will experiment with the snapshot features of the SAN. This device is more for learning instead of production use.
- Will a SAN with dual-controller redundancy/auto-failover be a minimum requirement? No redundancy is needed. This unit can be powered off for multiple days, and it would not be a big deal. Cost is more important than enterprise features.

Can multiple bids be submitted, identifying the differences? Yes

16. Does the College expect:

**Under Scope of Work on the RFP:**

- Delivery of all hardware, software, licensing, and accessories required for operation.
- Documentation necessary for installation, configuration, and ongoing administration.

- Equipment delivery only
- Remote implementation assistance
- Full on-site installation and configuration

17. Should vendor implementation services be included in the base bid or quoted separately? **No**

18. Will College IT staff perform day-to-day administration? **Yes, the CNS department will administer the device.**

19. Is administrator training desired? **No, documentation on usage is required.**

**The SAN unit is for student learning use, not production. With that in mind, cost is more of a factor instead of any enterprise features.**

20. Can Hypertec offer a remote workload assessment tool (such as Dell Live Optics or an equivalent diagnostic platform) to Crowder College to capture real-time IOPS, read/write patterns, and actual storage utilization? **Not needed.**

21. Do engineering or technical resources exist to support running and analyzing a telemetry scan if the college agrees to share performance data? **Not needed.**

22. Obtaining an empirical workload profile will help determine whether a hybrid array or an all-flash array represents the optimal fit before finalizing the bill of materials? **Not needed.**

23. If you have a report like Live optics already, can you please share it with us - **N/A**