



LabVantage 8: Hardware Requirements

LabVantage has experience implementing thousands of LIMS throughout the world.

To simplify configuration in enterprise environments and to minimize costs, we recommend calculating hardware needs based on a Base Computing Unit (BCU) model. A single BCU consists of:

Processor: 4 Cores | Memory: 16 GB RAM | 50 GB HDD minimum | 100 Mbit NIC network minimum

Required BCUs

One BCU¹ supports approximately 25 click-concurrent HTTP sessions. LabVantage suggests 40% click concurrency for an application server and 10% for a report server. For example, if a laboratory has 125 licensed users, it will require 50 click-concurrent HTTP sessions ($125 \times 40\% = 50$). Accordingly, the laboratory needs 2 BCUs to support the application server. For reporting it will require 12.5 click concurrent HTTP sessions ($125 \times 10\% = 12.5$) and needs one BCU to support the report server. The above estimated numbers may vary based upon concurrent users, data storage, the complexity of the LabVantage configuration and workflows, and the intricacy of reports.

Note that these requirements incorporate the minimum hardware specifications recommended by the manufacturer of the third-party software products running on each of the LabVantage tiers. Note further, the hardware requirements are for a standard LabVantage implementation and may not be representative of the hardware required for an organization's specific implementation².

With the emergence of high performance blade and other low-density systems, simplifying the hardware specification using BCUs eases the task of identifying and procuring systems for an implementation. Additional storage—as in the case of the database server—should be a high performance external disk subsystem such as a U320 array or SAN.

In a non-clustered environment, a basic configuration would require several separate systems. Individual systems may be used for the database server, application server, and optionally, report server. Storage for the database might be provided separately via SAN or an external storage array. In a clustered environment, if load or performance requirements increase for any tier, an organization can simply add another BCU to that tier in the appropriate cluster configuration. Clustering one tier has no requirement of clustering any other tier. Each tier could be independently clustered according to vendor specific clustering technologies.

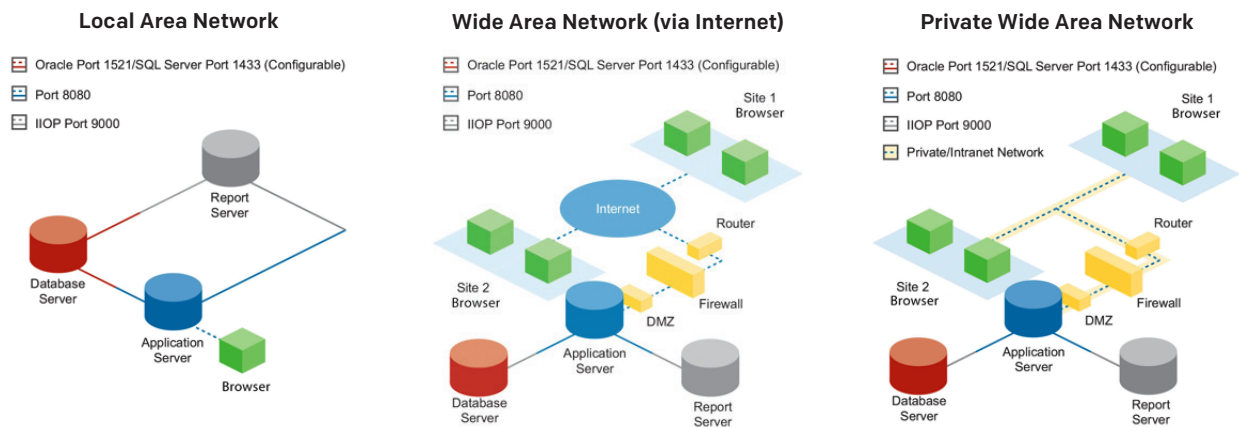


At minimum, we recommend the following base systems to be used:

Total Users	Concurrent HTTP Sessions	Application Server	Database Server	Report Server
62.5	25	1 BCU	1 BCU	1 BCU
125	50	2 BCU (cluster)	1 BCU	1 BCU
187.5	75	3 BCU (cluster)	1 BCU	1 BCU

Network Configuration

Whether running on a local area network (LAN) or a wide area network (WAN), LabVantage can be configured to provide the appropriate network security. The following diagrams provide examples of possible configurations.



¹ As of February 2016, Lenovo estimated the following cost for a BCU in the minimum configuration: Lenovo System x3250 M5, Xeon E3-1220, 16GB RAM, and 500GB HDD (\$1,673.01); Lenovo System x3250 M5 - 5458AC1; Base LFF Hardware with 80 Plus certified Fixed PSU (300W); Intel Xeon Processor E3-1220 v3 3.1GHz 8MB cache 1600MHz 4C (80W); 8GB (1x8GB, 2Rx8, 1.35V) PC3L-12800 CL11 ECC DDR3 1600MHz LP UDIMM x3250 M5 SS LFF SATA DRIVE KIT; Select Storage devices - no configured RAID required 500GB 7.2K 6Gbps NL SATA 3.5" G2SS HDD; ServerRAID C100 for System x 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable

² It is imperative that a thorough scope of work is performed before deciding on the final configuration. Organizations may contact their account representative to request a hardware configuration recommendation tailored to their needs.

About LabVantage

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