

A Laboratory Information Management System Based on Network Integration

Abstract: There have been great developments in laboratory informationization construction. However, with the informationization of testing instruments, there exist obstacles in unified management and comprehensive data analysis, which would bring heavy burdens for operators and researchers, impede technological advancement and produce hidden dangers in testing quality. The article introduces a new type of laboratory data sharing system to solve the above-mentioned obstacles in an effective way and promote development of laboratory informationization construction.

Key Words: informationization construction, system integration, data safety, data management

With the rapid development of IT technologies, the informationization standard of testing instruments is higher than before. More and more testing instruments are beginning to apply high performance computer system to monitor instruments and analyze testing data. Yet, problems come after it: laboratory is generally equipped with different kinds of testing instruments for varied tests and analyses. Those expensive, sophisticated and powerful testing instruments, after completing their individual tasks, would produce many useful testing data and reports individually. However, the technological data of each sample or each instrument is isolated; further technological analysis and data evaluation based on different testing reports can not be realized. Researchers have to analyze by themselves again. Such tangible low efficiency would put operators and analyzers into the puzzling piles of paper reports busy inquiring varied information, and would set obstacles for technological developments and test quality.

At present, how to monitor all the testing data comprehensively for convenient inquiry and profound data analysis is the focus and trend for informationization. That is, laboratory informationization construction can be further perfected: each tester can be linked to provide real-time data summaries automatically, which is the most important step in laboratory informationization construction.

By proposing a sectional computing and processing plan for laboratory informationization construction, Labthink innovatively introduces the net-based system integration technology to laboratory informationization construction: Lystem™ Laboratory Data Sharing System, a practical technological solution for the above-mentioned obstacles in laboratory informationization. The plan of the system is shown as in Fig. 1:

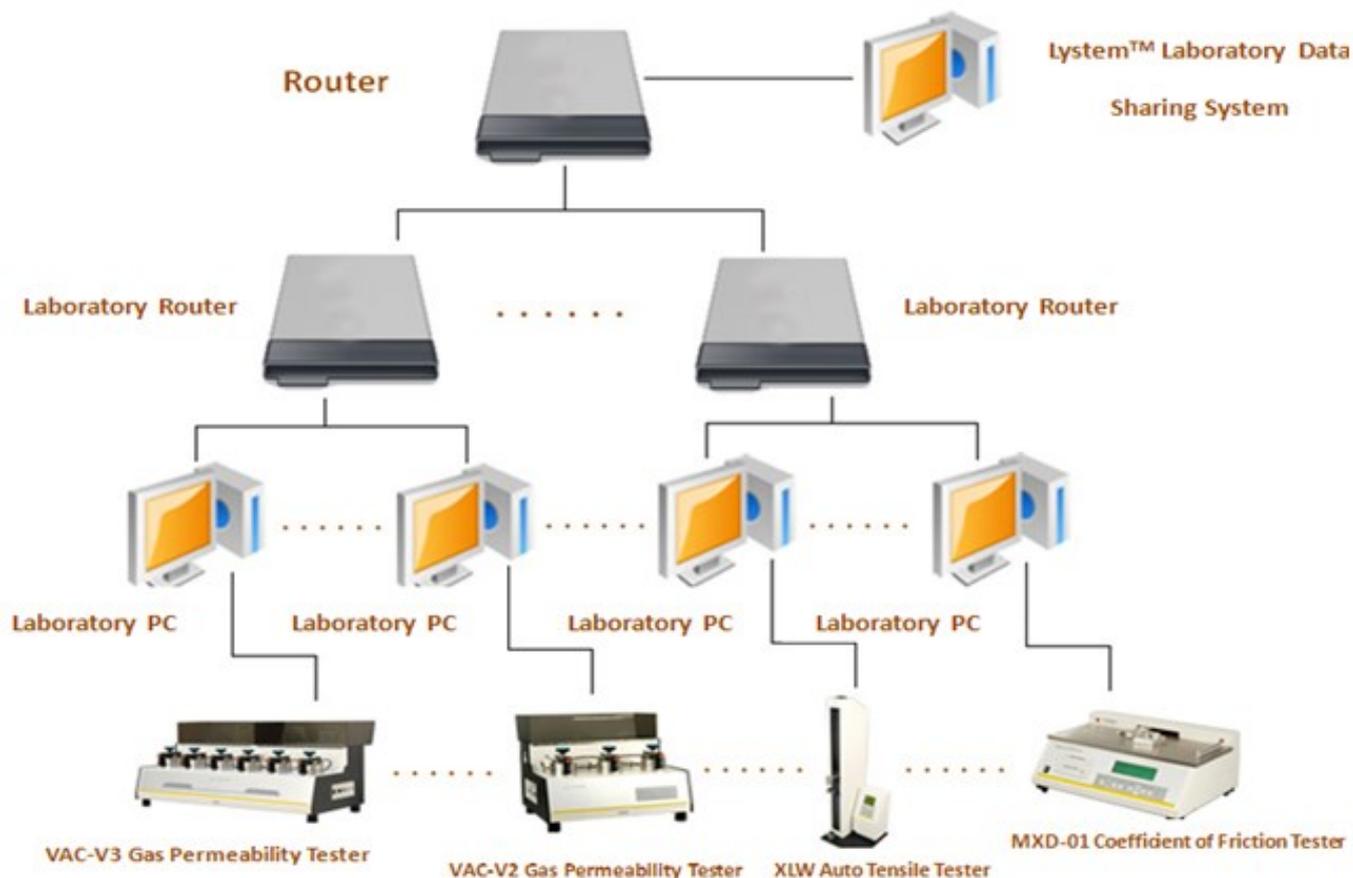


Fig.1 Layout of Lystem™ Laboratory Data Sharing System

Lystem™ Laboratory Data Sharing System applies existing computer network of the laboratory, as well as high performance data communication engine and data analysis engine to intelligently connect the informationized instruments and software for data analysis. Users only need to install client-end in the workstation for data analysis and processing. The high performance net-based data communication engine and data analysis engine would intake the instruments into Lystem™ Laboratory Data Sharing System with centralized 24-hour monitoring and management. Lystem™ Laboratory Data Sharing System would monitor various workstations without human interferences, and collect real-time instrumental information and testing reports for further unified management and preservation. Operators only need simple operations at the client-end to have a complete and all-round study of the instrument status and detailed testing data, which can provide future work with powerful data support. The system can provide the management and researchers with complete data analysis, inquiry and statistical summaries of different samples in a unified manner. It's a highly efficient means for laboratory informationization, and a highly effective method for research and management.

Lystem™ Laboratory Data Sharing System would provide relevant information to the corresponding users. That is, based on configuration, the system can provide corresponding information for different ID according to the authorities given to it.

As to comprehensive laboratories for multi-fields, Lystem™ Laboratory Data Sharing System can provide broad range data integrating interface, so that varied data workstations, or instruments can be brought under the direct

management of the system. Based on Labthink's instrumentation expertise, even the non-Labthink testing instruments, can be brought into the system through the reliable instrument integrating engine. Thus, instruments of various manufacturers can be analyzed comprehensively with unified data collection and management. The investment of laboratory informationization can be guaranteed; laboratory efficiency and performance can be further improved.

Lystem™ Laboratory Data Sharing System, combining the advantageous features of informationized testing instruments and workstations, innovatively performs sectional computing and integrated management of testing data. With rational resource allocation, the workstations can efficiently analyze the data, which would, then, be collected, stored and managed by the system. That is, each testing instrument would bring its technological advantages into full play, and the integrated management for data can be realized simultaneously. On the other hand, Lystem™ Laboratory Data Sharing System can help the management obtain a complete and detailed command of the instrumental status, such as working status of the instruments and progress of operators, and obtain testing report at the earliest possible time. Thus, the management can better arrange operators and instruments, so as to improve working efficiency of the laboratory onto a far more efficient level. The advanced data analysis and inquiry function can help sieve and analyze the data from thousands of samples. Thus, working load for researchers can be greatly reduced. At the same time, intelligent data inquiry and sorting function can promote working efficiency of researchers, and correspondingly, testing progress can be accelerated.

Based on Labthink's profound expertise in the field of testing instruments, Lystem™ Laboratory Data Sharing System can effectively solve testing information isolation, the problem long perplexing laboratory informationization. Users can analyze samples and evaluate testing reports on a new stage. Operators and researchers will no longer be obsessed with follow-up paper reports. The system is the support for technology development and guarantee for testing quality.