

REVISION 8/26/2000

5.5 Systems Administration

Vendors must indicate whether the function is available or true in the current general release and provide detailed explanations of the functions or capabilities represented in each specification as requested. If a feature is included in a new release, detail the development schedule.

NOTE: All answers must be given within the context of the proposed database and hardware configurations (i.e., 10 separate university databases) as described in Section 1.

5.5.1 General

- 5.5.1.1 Based on the SUS' current system environment and goals of the project specified in this document, is there any aspect of our environment that is not optimal for the effective utilization of your Product? Give specific details
- 5.5.1.2 FCLA has a significant investment in an IBM RS6000/SP2 multiprocessor complex running the AIX operating system. Does your system run on this platform? Are there any reasons why it would not work well on this platform?
- 5.5.1.3 On which platform is initial development done? Is this the platform you recommend for your product? If not, what is?

Describe how the system

- 5.5.1.4 supports distinct bibliographic databases that have separate profiles and security configurations.
- 5.5.1.5 supports separate processing units within a shared bibliographic database if desired by a library.
- 5.5.1.6 supports a separate test environment that duplicates the production database configuration.
- 5.5.1.7 allows individual libraries the option to test new releases with a live database.
- 5.5.1.8 supports the addition of new library catalogs, e.g. for new universities, and new catalog processing units, e.g., new branch or departmental libraries.
- 5.5.1.9 enables bibliographic, authority and other records to be copied or derived from one file to another
- 5.5.1.10 allows for setting session parameters for multiple levels of pre-search "scoping" or qualification for all search types, by individual location, groups of locations, branch library, etc...
- 5.5.1.11 supports UNICODE for import, export, creation, deletion, editing, storage, retrieval and display for CJK and for Arabic, Hebrew and Cyrillic. Outline the timetable for implementation of UNICODE.
- 5.5.1.12 displays the complete ANSEL (i.e., ALA) character set with diacritics positioned correctly over the letter (not before or after). Explain how this is supported in the user OPAC and in technical functional modules.
- 5.5.1.13 provides a Z39.50 server and client. The system must demonstrate compliance with ANSI/NISO Z39.50-1995 by inter-operating over a TCP/IP line with

- another vendor's client software that is Z39.50-1995 compliant. Describe how the system supports the Bath profile; extended services for item order, XML holdings, scan and 'explain'.
- 5.5.1.14 supports the Americans with Disabilities Act (ADA), the W3C's Web Accessibility Initiative (WAI) and other appropriate requirements and standard for access by the disabled and handicapped community.
- 5.5.1.15 imposes no limits on the record length, field length, or subfield length (other than those consistent with MARC21). If any such limits do exist, describe them and indicate whether they are library or system defined.
- 5.5.1.16 operates in a fully integrated manner, with all modules sharing a common bibliographic database (except as libraries sharing the system may choose to maintain separate files) and a consistent staff interface across all functions.
- 5.5.1.17 supports real-time system operations and capabilities to create, update, maintain, and access all data for library materials and patrons.
- 5.5.1.18 updates all indexes dynamically.
- 5.5.1.19 supports OPAC, circulation and patron initiated requests availability for a continual 24 hour schedule seven days per week.
- 5.5.1.20 supports system availability for staff for at least 20 hours per day seven days per week.
- 5.5.1.21 supports continual backup to ensure that no transactions or data are lost.
- 5.5.1.22 allows the option for an unlimited number of concurrent user sessions for all members of university community. If the system limits concurrent user sessions, describe when they are initiated and terminated and how they are counted. *If a staff member opens multiple windows of staff clients, and this uses multiple licensed logons or sessions, describe how many concurrent sessions would be necessary to support the environment outlined in Appendix A.*
- 5.5.1.23 allows easy movement between and among staff applications and OPAC.
- 5.5.1.24 allows for full MARC bibliographic record view from all modules.
- 5.5.1.25 allows menu-driven (GUI) access to the staff side of the system.
- 5.5.1.26 allows the menu-driven approach to be bypassed with shortcut, quick keystrokes.
- 5.5.1.27 supports definition of macros and/or operator-programmed function keys.
- 5.5.1.28 supplies logical system-prompted commands in typical workflow situations.
- 5.5.1.29 records creation date of record entry into system as well as additional date changes to reflect latest update
- 5.5.1.30 allows remote (i.e., not in-library) users to access the public functions of this system. Specifically address the clients available or required and what, if any, limitations on distribution to all eligible users may exist; how IP validation works for the system as a whole, by individual modules and by individual databases; and what method of authenticating patrons from non-valid IP addresses is used.
- 5.5.1.31 indicates the existence of other, related records to staff. Explain the record structure in terms of how the various record types relate to each other. For example, if a title has a bibliographic record, an order record, a holdings

- record, multiple copies, and item records, how are these associated with each other?
- 5.5.1.32 is data-efficient and does not, within the table structure of a single institution, library or "processing unit", permanently store multiple instances of the same data - even when needed for different purposes such as various records, forms, or intermediate displays; alternatively, in cases where multiple instances of the same data is maintained, the system provides mechanisms for dynamic or global maintenance/update of all instances. Describe how your system is data-efficient.
- 5.5.1.33 is data-protective such that data efficiency as described above is not observed when a given instance of data becomes historically or legally important for purposes of auditing or accountability as in the case of acquisitions data (issued purchase orders, invoices, etc.) or circulation data. Describe how your system is data-protective.
- 5.5.1.34 supports full compliance with all MARC21 formats in a timely manner. How are updates implemented?
- 5.5.1.35 allows and displays all current and former MARC21 fields, tags, subfield codes, indicators and delimiters (including all which are repeatable). If not, list any fields, tags, subfield codes, indicators or delimiters not supported.

5.5.2 Maintenance and Support

Based on the environment outlined in Appendix A:

- 5.5.2.1 describe how the system can be administered centrally and in a distributed fashion by staff at FCLA, the university library, other autonomous libraries and at the location/departmental level.
- 5.5.2.2 estimate the total number of FCLA and/or library staff required to manage the system, their required level of expertise, and the tasks that they would perform locally. Vendors should indicate who will perform installations, i.e., what type of library staff member or vendor staff person. Indicate the amount of other staff expertise that might be required, either during implementation or in production: Unix administrator, Oracle (etc.) expert, system operator (day, evening, weekend), backup/batch job staff, etc.
- 5.5.2.3 describe what maintenance procedures FCLA staff should perform and on what frequency, e.g., database integrity checks, file reorganizations, index rebuilds, etc.
- 5.5.2.4 describe client and server software upgrades and frequency of new releases. How are new releases scheduled? Give current schedule of planned new releases. List a history of past release dates and length of downtime for each past release at installations comparable in size to the one being proposed for the SUS.
- 5.5.2.5 describe how new releases can be phased in for one university at a time?
- 5.5.2.6 explain how software is kept up to date with operating system changes. Are the recompiles run by vendor or library personnel?

- 5.5.2.7 what are the downtime requirements for the system configured for this proposal? What accommodations are made for functional operation (e.g., circ, OPAC, etc.) while new releases are installed?
- 5.5.2.8 describe how new system releases are installed. Indicate what may be installed by FCLA staff, library systems personnel and by vendor personnel.
- 5.5.2.9 describe the process for updating the system's software clients. Indicate if they survive server upgrades without being replaced. Indicate if staff clients automatically detect the need for an upgrade and, if so, automatically download upgrades when needed.
- 5.5.2.10 describe the process for handling system's software client configurations. Indicate if the users' configurations survive server and client upgrades without being replaced.
- 5.5.2.11 describe the licensing and/or hardware requirements for insuring that upgrades will not require more than 6 hours of downtime for OPAC; 12 hours downtime for Circulation (with a working circ backup client) and 48 hours for other staff functions on a schedule specified by FCLA and the universities.
- 5.5.2.12 describe the vendor support of installation and troubleshooting of the system software. Estimate installation support days provided.
- 5.5.2.13 describe the vendor support of installation and troubleshooting of required third party software such as a commercial relational database package. Specify packages and support. Indicate potential conflicts with release levels between what is used by the system and what is currently marketed by the third-party vendor.
- 5.5.2.14 describe the vendor support of initial installation, upgrades and troubleshooting of vendor's LMS software
- 5.5.2.15 describe how priorities are assigned to customer support requests.
- 5.5.2.16 Will Vendor guarantee support for current releases of all database and operating systems for the first twelve months after their release.**
- 5.5.2.17 What is Vendor's support mechanism for technical questions?
- 5.5.2.18 What are the hours (Eastern Time) and days of Vendor's live telephone support?
- 5.5.2.19 Technical questions submitted via electronic mail should receive a response within forty-eight hours.
- 5.5.2.20 Vendor should be able to use a remote diagnostic tool to help resolve technical questions.
- 5.5.2.21 Vendor should report any application problems concerning the system (received from or identified by any source) indicating vendor course of action and estimated remedy time by electronic mail to the FCLA technical support administrator.
- 5.5.2.22 Technical support should be available via the Internet, using mechanisms such as Telnet and FTP.
- 5.5.2.23 How are problem fixes/patches distributed to FCLA and implemented?
- 5.5.2.24 What FCLA staff skills are required to maintain the system?

- 5.5.2.25 Vendor should provide an account representative. This person should be technically proficient and familiar with any system customizations made for the SUS.
- 5.5.2.26 Vendor **must** have a documented trouble-reporting procedure outlining guaranteed response times and escalation procedures.
- 5.5.2.27 Any problem remaining open for more than one business day should be addressed in writing, with expected resolution and/or delivery date explicitly outlined.
- 5.5.2.28 Describe Vendor support for emergencies, such as system failures and disaster recoveries.

5.5.3 Software Considerations

- 5.5.3.1 Describe to what extent relational database or object oriented technology is used in the proposed system. Identify any commercial database software and the supported release level used as part of the proposed system. Clarify which aspects use your own proprietary design and which are components of other commercial products.
- 5.5.3.2 Describe the architecture of the proposed system. Explain which system modules are implemented with client-server technology. At which tier are presentation, application and database management handled?
- 5.5.3.3 Indicate if the proposed system offers client-free web OPAC running natively on the leading industry browsers. What are the minimum browser levels supported?
- 5.5.3.4 How does the system support these functions: separate call number systems, separate acquisitions defaults, and ability to profile overlay of imported records by institution, processing unit, location groups or individual locations?
- 5.5.3.5 How does the system support options for either sharing authority control functions within/or among institution, processing unit, location groups or individual locations?
- 5.5.3.6 Describe the capability for unlimited licensing for web OPAC and/or staff clients.
- 5.5.3.7 How are print functions managed through standard operating system calls?
- 5.5.3.8 How are workstation and system-level printing supported?
- 5.5.3.9 To what extent are data available via standard SQL? Identify in plain library terminology all data elements that are not accessible via SQL.
- 5.5.3.10 Does software run as root? Do some modules have to run as root? Explain.
- 5.5.3.11 Customization of Software:
 - 5.5.3.11.1 If customization is necessary to meet SUS needs, how will this customization of the standard system alter warranties, receipt of updates, vendor support, training, etc.?
 - 5.5.3.11.2 How are SUS-specific modifications incorporated into new system releases?
 - 5.5.3.11.3 The Product should have well-defined and documented applications program interfaces (APIs) that allow easy and secure development of additional business logic that will survive new releases of the system.

5.5.4 Union Catalog

5.5.4.1 The union catalog must include all bibliographic, holdings, circulation, serials, and acquisition data. The union search function must have the search capability of the individual catalogs. The union view must be available in both the OPAC and staff functions. A purely virtual union catalog using broadcast searching is not an acceptable alternative. The SUS is open to proposals as to the design of a physical union catalog. Designs might include an actual union catalog database and indexes replicating the content in the institutional databases, or a set of union indexes pointing to institutional database records. Identify how this union searching is accomplished, e.g., whether with a redundant set of indexing files that point to the appropriate bibliographic records in the ten SUS catalogs or by the creation of an 11th database duplicating all necessary data.

5.5.4.2 If a union set of indexes linking to the institutional catalogs is proposed, indicate how institutional catalog index updates are reflected in the union indexes.

5.5.4.3 If a separate, 11th database is proposed:

5.5.4.3.1 Indicate whether or not bibliographic records are deduped, and if so, describe the algorithms for deduping.

5.5.4.3.2 If the database uses a master record, is content from duplicate records merged? If so, what are the merge algorithms? Is it possible to keep variant fields contributed by different institutions? Or to have different views of the merged records based on the user's associated institution?

5.5.4.3.3 Identify how institutional catalog updates are synchronized with the union catalog. Any proposal requiring double human maintenance of bibliographic records in both individual and union databases is unacceptable, i.e., changes to a record in a university catalog should be automatically reflected in the union catalog.

Describe how the system:

5.5.4.4 provides for union OPAC searching with the same capabilities as the individual OPACs.

5.5.4.5 retrieves bibliographic records that show real-time holdings detail and circulation status as they would appear in the individual OPACs.

5.5.4.6 enables the union catalog to keep "in synch" with the individual library databases so that the data displayed is as accurate as the local database.

5.5.4.7 allows local libraries to define a specific library or group of libraries as the default to be searched or excluded at a given workstation. Indicate if the system would allow the user to easily change this default.

If the union catalog returns all of the holdings of the institutions in a single result set,

5.5.4.8 are the holdings attached to a single bibliographic record or are each institution's holdings attached to the institution's bibliographic record? If the

former, how are duplicate bib records 'collapsed' i.e., what data elements are used for matching: OCLC number, ISBN, ISSN, LCCN, etc.?

5.5.4.9 are the holdings presented in any particular order? Is the order configurable by the installation? Is this configurability the same if the holdings are attached to a single bibliographic record or if they are connected to separate, individual institution bibliographic records?

5.5.5 Report Generation

5.5.5.1 State the name of the reporting system used within your Product and indicate whether it is written and or maintained by a third party.

5.5.5.2 If report generation is SQL, do you provide a complete and understandable database description? Include a sample of the patron table(s) and the bibliographic data table(s).

5.5.5.3 If the method of report generation is not standard SQL, document this in detail.

5.5.5.4 The system **must** provide a comprehensive and flexible report-writing function that supports library-staff generation of reports. Describe how your system meets this requirement and indicate to what extent it can handle any data element used by the system or created by functional activity, singly or in combination, for standard or customized time periods.

5.5.5.5 Library staff **must** be able to define and format specific reports without having to explicitly write SQL commands. Describe how staff use your report writer.

5.5.5.6 The reporting system should be able to access and integrate data elements across functions, fiscal years, participating libraries, and time (i.e., the system should access archived as well as current data). Describe.

5.5.5.7 The reporting system should support reports that can be sorted by library location, sublocation, cataloger, cataloging level, and user-defined time period.

5.5.5.8 Staff report definitions should be savable for easy future rerun. Describe.

5.5.5.9 The system should be able to provide a wide variety of system use and performance data to authorized users including, but not limited to, terminal use statistics (by location, time period, type of transaction, etc.), response time for each type of basic function, and database-access statistics. Describe how your system meets this requirement, what system-performance data your system provides, and its format.

5.5.5.10 The system should support pre-programming and scheduling of standard reports.

5.5.5.11 The system should support a wide variety of statistical-analysis and data-manipulation capabilities, including the ability to calculate sums, differences, percents of change, and means. Describe your system's abilities in this area.

5.5.5.12 A variety of output options should be available for reports including, but not limited to, printed in batch, printed to local printer, printed on demand, viewable online, and sent to e-mail, word processor, spreadsheet, or other database software.

5.5.5.13 The system should provide a wide range of options for report formatting. Describe your system's abilities in this area.

5.5.5.14 The system should provide the ability to count titles, copies, and volumes by format types, call number ranges and other criteria. Describe how your system does this.

Describe how the system:

- 5.5.5.15 includes a wide range of standard reports. Provide descriptions (including the periodicity) and samples of all pre-defined reports.
- 5.5.5.16 supports report generation to be immediate or to be scheduled in background.
- 5.5.5.17 supports extraction of entire database in a flat, MARC or ASCII defined format.
- 5.5.5.18 allows for reports creating "what if" scenarios, projecting future trends from current data.
- 5.5.5.19 produces graphical statistical reports.
- 5.5.5.20 generates location-based reports.
- 5.5.5.21 reports by date and record ID parameters.
- 5.5.5.22 allows for selection of data for report generation at the system and institutional levels as well as by administrative unit, circulation unit and other levels.
- 5.5.5.23 supports methods of distribution including web displays.
- 5.5.5.24 handles security on creation of and access to reports.
- 5.5.5.25 supports flexible 'triggers' or 'flags' for future review/action on records in all staff modules, in addition to predefined action date reports. Are items with triggers searchable? Describe how reports can be run on these.

5.5.6 Security, Authentication and Authorization

The system should include a flexible, multilevel, library staff security authorization control capability with granularity by specific functions.

Describe how the system:

- 5.5.6.1 enables FCLA and library administrative staff to set functions, database and screen access rights by individual or group. Describe granularity of customized functional authorization privileges allowed at the library level
- 5.5.6.2 consists of integrated logical and functional subsystems that allow for a single point of authentication and authorization (i.e., one secured logon for all authorized functions). Describe.
- 5.5.6.3 provides staff user authentication and authorization on an individual basis.
- 5.5.6.4 has the ability to specify authentication and authorization for specific record types and field groups within records. The system **must** provide the ability for authorized staff to create, edit, and delete all types of records.
- 5.5.6.5 allows an appropriately authorized staff person at each library to examine and alter the authorization levels for other staff persons at that library without needing the assistance or involvement of the vendor or FCLA personnel.
- 5.5.6.6 allows each library or department manager to establish and maintain a separate set of passwords and authorized functions for their staff.
- 5.5.6.7 allows only authorized staff to view and modify security definitions.

- 5.5.6.8 restricts work on authority records, bibliographic records, holdings records, acquisitions records, serial control records, fund records, item records, and circulation records by library, by a group of libraries or by processing unit.
- 5.5.6.9 prevents and reports unauthorized access (either external or internal) to system management functions and files.
- 5.5.6.10 prevents and reports unauthorized access and/or attempts to override system limitations (e.g., circulation blocks)
- 5.5.6.11 provides audit reports for user and administrator activity. Include samples.
- 5.5.6.12 ensures that multiple users are blocked from destructive concurrent editing of a given record
- 5.5.6.13 handles security on circulation functions (specifically is it operator ID only or a combination of operator ID and workstation ID?)
- 5.5.6.14 allows the libraries to require patron authentication on entry to the web-based catalog should this be desired. Is this configurable, in the multi-institution model, by institution? By independent library? Is there a guest option?
- 5.5.6.15 authenticates a staff member and a public user. Does security for remote and campus users include the following features: Anonymous login (no authentication required); User-specific authentication using login ID and/or password; Group-level authentication?
- 5.5.6.16 handles security for remote staff use; e.g., what provision is made for client deployment on home PCs?
- 5.5.6.17 provides a login API to allow access by a separate authentication and authorization system.
- 5.5.6.18 offers templates to support the creation of user-authentication profiles (basic definitions which can be copied into new user profiles).
- 5.5.6.19 how the security system is role/attribute based (i.e., a single user can have multiple roles without needing multiple IDs).
- 5.5.6.20 how the security system is compliant with other authentication and authorization systems that support industry standards, including, but not necessarily limited to, DCE-based authentication.
- 5.5.6.21 how the system allows for data to be encrypted while transmitting over the network.
- 5.5.6.22 is kept current with changes in the security environment and industry standards.
- 5.5.6.23 handles root access; specifically what provisions are made for authorized systems staff to have root access?

5.5.7 System Migration and Implementation

5.5.7.1 Data Conversion

The SUS expects to convert as many record types as are feasible in terms of technical and cost considerations. All of the libraries have data in FCLA-modified NOTIS VSAM files and in FCLA-created DB2 files. UCF also has acquisitions and serials data in Innopac. UF has serial pattern and check-in data in FCLA-created DB2 files. UF and FIU have ILL

transaction data in FCLA-created DB2 files. Address the responses to the specifications listed in this section within the context of these record types. Note that it is expected that data conversion specifications will be negotiated between the vendor and appropriate, designated individuals at each university. FCLA's role in the process will be advisory not intermediary. Each university will require and write its own conversion specification.

- 5.5.7.1.1 Describe the Vendor, FCLA and SUS library roles and responsibilities in data migration.
- 5.5.7.1.2 Can vendor provide conversion software for these record types? All are in FCLA-modified NOTIS VSAM files unless other wise noted. Describe how conversion is handled for each record type.
 - Authority
 - Bibliographic
 - Holdings (including local copy holdings and MARC holdings data)
 - Items linked to holdings records
 - Unlinked items
 - Order/Pay/Receipt (NOTIS and Innopac)
 - Fund (NOTIS and Innopac)
 - Invoice (NOTIS and Innopac)
 - Patron
 - Patron financial (bill and fine)
 - Circulation transactions (including checkout, due dates, holds, recalls)
 - Circulation history
 - Serials current receipts (NOTIS VSAM; well-defined DB2 tables; Innopac)
 - Serials control pattern data: (well-defined DB2 tables; Innopac)
 - Vendor (NOTIS and Innopac)
- 5.5.7.1.3 Specify the information required in order to carry out conversion tasks.
- 5.5.7.1.4 Outline typical steps in the conversion process, including procedures for library review of test files. Are there any limits on the number of test loads that can be done per institution?
- 5.5.7.1.5 Indicate if data can be converted directly from the sources listed above to the internal data structures required by the proposed system.
- 5.5.7.1.6 Indicate if conversion of the record type is part of a standard conversion program.
- 5.5.7.1.7 Indicate if conversion of the record type will require a customized conversion program. If so, indicate timeframe for making the customization.
- 5.5.7.1.8 Indicate if location of the data elements within the proposed system may be specified by the SUS libraries.
- 5.5.7.1.9 Indicate the extent to which any data will be modified as part of the conversion process.
- 5.5.7.1.10 Indicate how local data entered into bibliographic and authority holdings 9XX fields will be preserved.
- 5.5.7.1.11 Indicate if any obsolete and/or unique MARC based fields (OCLC MARC, RLIN MARC, or vendor specific MARC fields) cannot transfer as valid fields.
- 5.5.7.1.12 Indicate the ability to migrate to and retain in the proposed system records that are marked as suppressed from view in the OPAC of the current system.

- 5.5.7.1.13 Indicate the process that will be used to update the initial database file with a subsequent load of all transactions occurring after the initial data extract and before that institution cuts over to the new system. Indicate if two data conversions are used for each database: one for verifying all site-specific parameters and requirements and the second to accommodate the cutover period (e.g., a gap tape).
- 5.5.7.1.14 How much elapsed time does a data load require for 500,000, 2 million and 3 million bibliographic record databases?
- 5.5.7.1.15 How much elapsed time does indexing require for 500,000, 2 million and 3 million bibliographic records? It is understood that total indexing time depends on the number of indexes established. Provide estimates for author, title, subject headings, keyword and call number indexes.
- 5.5.7.1.16 What and how many “out of the box” indexes are there (provide a list)? How long does it take to generate this initial index set for 500,000, 2 million and 3 million bibliographic records?

5.5.7.2 Installation

- 5.5.7.2.1 Describe your expected order and schedule of events in the installation process. Include a timetable, beginning at Month 0, and continuing to full implementation.
- 5.5.7.2.2 How much advanced notice is needed to schedule installation?
- 5.5.7.2.3 What technical skills are required of the SUS to implement the Product on the server? What technical skills are required of the SUS to implement the Product on a client workstation?
- 5.5.7.2.4 Does the system come with APIs enabled, or does the vendor or FCLA have to make a system configuration change to enable them?
- 5.5.7.2.5 Do vendor staff visit FCLA during initial installation?
- 5.5.7.2.6 How are vendor technical staff involved in the local installation of the system?

5.5.8 Training and Documentation

Training for the proposed system will follow a train the trainer model for each university and FCLA. Three types of designated staff will be trained: FCLA system administration staff who will operate and maintain the system hardware and software; functional area staff at each library and FCLA who will provide on-going support to other staff; and library system administration staff who will be responsible for selected portions of software administration for their respective libraries. It is FCLA's intention to distribute as much of the university-level system administrative functions as possible. The amount may vary by university. Training should be done at FCLA, individual libraries and/or vendor's site at SUS' discretion.

- 5.5.8.1 Describe any functional and/or systems administration support training the vendor requires of library staff.

Describe the courses of training provided to enable the staff to become familiar with system functions and operations, including, but not limited to:

- 5.5.8.2 a list of all training modules.
- 5.5.8.3 whether instructors are available to train on-site.
- 5.5.8.4 maximum number of trainees per class and the total number of days of training for each module.
- 5.5.8.5 number of training hours typically required before staff have mastered initial use of the product.
- 5.5.8.6 whether it is possible to purchase additional training days.
- 5.5.8.7 whether training programs can be modified based on SUS' needs. Give examples.
- 5.5.8.8 availability of other training aids such as videos, software tutorials, or Web-based instruction.
- 5.5.8.9 availability of computer-based training.
- 5.5.8.10 how training for new releases or versions is handled.

Indicate if training sessions for systems administration cover topics, including, but not limited to:

- 5.5.8.11 appropriate administrative functions such as data backup and restoration.
- 5.5.8.12 common causes of system failure and the remedy for each.
- 5.5.8.13 how to obtain telephone support for the correction of system problems.
- 5.5.8.14 how to identify and perform all elements of preventive maintenance of the system not routinely performed by the vendor, e.g., index rebuilds or file reorganizations.
- 5.5.8.15 installation and support of client software applications.
- 5.5.8.16 how vendor tracks problems and assigns severity priorities.
- 5.5.8.17 how to use SQL to produce reports.

Describe the documentation provided with this product:

- 5.5.8.18 all necessary documentation should be included with the Product and should not be purchased separately.
- 5.5.8.19 full and current system documentation should be supplied in machine readable form suitable for online distribution. Describe the documentation, e.g., is it online with pop-up lists, menu choices, help screens that are context sensitive or is it a static version of what could be found in paper form?.
- 5.5.8.20 how is user documentation updated in a timely manner with each Product change or update. Describe the process over the past two years.

If documentation is not available in electronic form, state the number of copies of Product's

- 5.5.8.21 user documentation that is normally provided at time of purchase.
- 5.5.8.22 configuration and application administration documentation that is normally provided at time of purchase.
- 5.5.8.23 technical documentation that is normally provided at time of purchase.

5.5.9 Performance

Database sizes, user population and workload information is presented in Appendix A for the SUS Libraries. The SUS databases range in size from 250,000 to 3,000,000 bibliographic records, with an expected union catalog size of 6,000,000 unique bibliographic records. The student populations range from 2,000 FTE to 31,000 FTE, with a combined FTE of 142,000. Total monthly OPAC transaction volume peaks at 7.5 million CICs transactions or 2 million searches ranging from 20,000 to 400,000 searches per catalog. Total OPAC and staff transactions combined peak at about 13 million transactions where a ‘transaction’ is any message sent to the server, e.g., search, display, request, help. Annual growth for records and online usage is projected at ten percent. Annual growth for student FTE is projected at 3 percent.

- 5.5.9.1 Given these data, explain how this system would scale to meet the needs of such databases and user populations, with particular emphasis on
 - 5.5.9.1.1 what limits might exist for concurrent use levels
 - 5.5.9.1.2 total number of records that can be supported by the system
 - 5.5.9.1.3 total number of records or rows that can be supported per file or table
 - 5.5.9.1.4 total number of index entries or size of index file or table
 - 5.5.9.1.5 any other limits that might be known that would affect expansion of hardware (CPUs, disks, memory, etc.).
- 5.5.9.2 The system is expected to perform the following categories of online transactions with the indicated response times. Response time is defined as the total amount of time between a ‘send’ command (pressing of a key to initiate the input to the computer) and the completed display of the response on the screen. In the following response time requirements, network time is assumed to take 0.5 seconds of the time allowed.
 - 5.5.9.2.1 Charge, renewal and discharge commands are expected to have an average response time of 1 second or less and have a response time during peak hours of less than 5 seconds 99% of the time.
 - 5.5.9.2.2 Serials check-ins during peak times are expected to have an average response time of 3 seconds or less and have a response time of less than 6 seconds 99% of the time.
 - 5.5.9.2.3 Non-Boolean (i.e., heading) public access catalog searches are expected to have an average response time of 2 seconds or less and be less than 6 seconds 98% of the time.
 - 5.5.9.2.4 Boolean (i.e., multi-term searches using one or more AND, OR, or NOT connectors) searches during peak hours are expected to have an average response time of no more than 6 seconds, except that one additional second may be allowed for each 5,000 matching records.
 - 5.5.9.2.5 Input and update functions during peak hours are expected to have an average response time of 3 seconds or less and be less than 8 seconds at least 99% of the time.
- 5.5.9.3 The system is expected to provide a ‘transaction in progress’ visual indication for transactions that exceed 6 seconds response time at 2 second intervals until the response is provided.

- 5.5.9.4 The vendor is expected to provide adequate sizing and scalability information in this and other responses to validate the proposed sizing and scalability of their system. The SUS libraries will prefer solutions with demonstrated evidence regarding sizing information, such as existing productions sites, available benchmarks, and the like. Actual customer sizing examples are preferred over extrapolation from smaller sites or simulations in arriving at estimated capacity.
- 5.5.9.4.1 Describe and provide schematic diagrams of your computer system architecture to demonstrate how the proposed system will be able to handle a greater capacity for processing online transactions over the initial configuration.
- 5.5.9.4.2 Describe and provide supporting documentation and test results for any benchmarking of any configuration of hardware and vendor software that indicates that the proposed system configuration is appropriately scaled and configured.
- 5.5.9.5 Do you have staff dedicated to capacity and performance testing, benchmarking and system configuration tweaking? If so, how many?
- 5.5.9.6 Describe how you expect this system to meet performance expectations for 7 day X 24 hour online operations
- 5.5.9.7 How do we measure performance of the application and predict capacity changes?
- 5.5.9.8 What is the maximum number of multiple simultaneous update users and inquiry users (local and/or remote) that the Product can handle?
- 5.5.9.9 The system should have a time-out feature that can be adjusted by the Application Administrator by function. Describe.
- 5.5.9.10 Describe how it would be possible to run multiple reports simultaneously at peak periods without system performance degradation. State whether an additional copy of the data would be required.
- 5.5.9.11 Describe any operation that may cause a noticeable performance degradation to other users on the system.
- 5.5.9.12 Does the system ensure that batch update processing has successfully completed before allowing the related online update system to become functional?
- 5.5.9.13 Tools should be available to monitor and tune performance to ensure that users are receiving proper response time from the database. These tools should be online and non-disruptive.

5.5.10 Backup/Archive Processing

- 5.5.10.1 Backup process **must** notify system operator if process was unsuccessful. Describe.
- 5.5.10.2 It should be possible to initiate backup process automatically, unattended, and pre-scheduled.
- 5.5.10.3 Backup process should be able to run concurrently with online users with appropriate locking mechanisms.

- 5.5.10.4 Backup process should be selectable for entire system or for an appropriate subset such as a single table or an institution's entire database.
- 5.5.10.5 Backup process should have transaction logging by user ID, date, and time to allow the application of incremental changes since last backup.
- 5.5.10.6 Product should include a guided restore utility.
- 5.5.10.7 Describe any utilities provided for backup/archive.
- 5.5.10.8 What parameters of the archival process are user-defined or controlled? Describe.
- 5.5.10.9 What benchmarks are available to predict time required for backups?

5.5.11 Restart/Recovery

- 5.5.11.1 The Product **must** allow recovery and roll back of transactions in the event of hardware or software failures, or errors caused by humans.
- 5.5.11.2 The Product should use standard database functionality to handle true roll back/roll forward transaction recovery.
- 5.5.11.3 The Product should not inhibit the use of operating system implementations of RAID 1 (mirroring) or RAID 5 technologies.
- 5.5.11.4 Batch jobs should participate in roll-back / roll-forward recovery process.
- 5.5.11.5 The system should be able to restart and complete interrupted batch jobs without having to restart the process from the beginning. Explain how this would be accomplished.
- 5.5.11.6 Describe the recovery and restart procedures for system failure and program failure.
- 5.5.11.7 In the event of file corruption, what is the minimum level of restore (table, database, server, entire system)?
- 5.5.11.8 The system should report its uptime, providing monthly total and averages.

5.5.12 Auditing

- 5.5.12.1 The Product will retain indefinitely all data necessary for auditing purposes.
- 5.5.12.2 The Product should provide an audit trail across all modules by associating a user ID, date, and time stamp with all adds, changes, and deletes throughout Product.
- 5.5.12.3 There should be a special audit trail for all functions involving encumbrances, payments and fund management that meets state auditor standards.
- 5.5.12.4 The audit trail should include all batch changes.
- 5.5.12.5 The audit trail should include all import and export file actions.
- 5.5.12.6 The audit trail should be readable by a vendor-supplied or third-party query tool. Describe how this is done.
- 5.5.12.7 The system should identify operator for audit path of database changes
- 5.5.12.8 What functions are logged, what information about each function is recorded and how is that information read when needed?
- 5.5.12.9 Is any audit information encrypted? If so, how.

5.5.13 Workstation Client

- 5.5.13.1 Product clients should run concurrently with other common applications on a single workstation. Common applications are such things as MS Office, Adobe, various email clients and multiple browsers.
- 5.5.13.2 List supported client platforms. Describe minimum and recommended configurations. Include CPU model and speed, RAM usage, OS version, and disk space. Any Windows 95 client should be 32-bit compliant.
- 5.5.13.3 The system should support a user-friendly graphical interface.
- 5.5.13.4 Is a browser version of the client supported? How does its functionality compare to your other clients?
- 5.5.13.5 What additional client system software is recommended or required to run in conjunction with Product? E.g., ODBC layer.
- 5.5.13.6 What client system hardware is recommended or required to optimize performance of Product?
- 5.5.13.7 Multiple copies of the same client should run simultaneously from a single workstation.
- 5.5.13.8 Staff clients should have non-mouse alternatives for all operations.
- 5.5.13.9 Clients should be certified to run on the most current production release or version of the workstation operating system.
- 5.5.13.10 Clients should run on two back releases or versions of the workstation operating system.
- 5.5.13.11 Describe the number of clicks needed to check out a book and to check in a serial issue.
- 5.5.13.12 The Web interface to the system and the system itself should operate in a consistent and expected manner regardless of the use of the browser's native navigational features, such as the back and forward button.
- 5.5.13.13 The Web interface to the system and the system itself should allow the user to bookmark a URL in their browser and request it later. When a bookmarked URL is used, the system should operate in a consistent and expected manner.

5.5.14 Presentation

5.5.14.1 Online Help

- 5.5.14.1.1 The Product should have complete context-sensitive online help documentation across all subsystems. Online help should be searchable.
- 5.5.14.1.2 Updates to the online help should be delivered with changes and updates to the Product.
- 5.5.14.1.3 Online help should be easily modified by the SUS through an editing interface built into the Product.
- 5.5.14.1.4 Locally modified online help should be protected from overlay by Product updates.

5.5.14.2 User Interface

- 5.5.14.2.1 Client should adhere to common industry human-interface guidelines for windows, pull-down menus, toolbars, and mouse operations.

- 5.5.14.2.2 Screen layout/design should be clear and consistent across all functions. Terminology, function keys, icons, etc., should be consistently applied across all functions.
- 5.5.14.2.3 It should be possible to access any record (for which the user has authorization) without the need to exit a particular function.
- 5.5.14.2.4 Users and staff should be able to simply and quickly switch between different client windows. The system should support ease of movement for staff between public and technical mode and between technical clients and functions without re-keying of search information as needed. Quick and simple movement between all staff functions and OPAC views of the same records should be supported.
- 5.5.14.2.5 Users and staff should be able to switch between the client and another application using standard operating system procedures.
- 5.5.14.3 The client should allow for queries from additional windows, while maintaining the current input screen.
- 5.5.14.4 The system should support a non-graphical text-based interface for staff and OPAC functions. Describe.
- 5.5.14.5 Customization of Interface**
- 5.5.14.5.1 Staff and users should be able to define and save for future use presentations (screen displays) built from any database elements based on their access rights.
- 5.5.14.5.2 FCLA or authorized library staff members should be able to set customization rights for individuals and groups.
- 5.5.14.5.3 Describe how users can set basic environmental parameters such as screen colors. What are these parameters?
- 5.5.14.5.4 System should support customization of the number of records displayed, as a result of a search, at the client level for both staff and OPAC workstations.
- 5.5.14.5.5 Describe options for customizing web OPAC pages. Describe any limits and restrictions. Identify any use of client-side processing such as dynamic html, VB Script, and/or JavaScript.
- 5.5.14.5.6 Describe options for customizing workstations at the individual, group and institutional level.
- 5.5.14.5.7 Describe ability to turn off frames if desired.
- 5.5.14.6 Input and Editing**
- 5.5.14.6.1 Describe any editing tools your system provides including but not limited to:
- a) ability to cut and paste across separate files or databases
 - b) ability to move among associated or linked records while editing
 - c) ability to display, re-size, move, cut and paste among multiple windows
 - d) key-stroke, command line, or button-bar equivalents for editing and processing functions
 - e) special record-editing functions such as erase-end-of-field, word wrap, add/insert line, reformat, end-of-field mark
- 5.5.14.6.2 The client should support one or multiple levels of undo
- 5.5.14.6.3 Data entry should facilitate minimal keystrokes, including the optional selection of input from a list.

5.5.14.6.4 Does the system provide the ability to create and store input templates for use in record creation?

Describe the process for entering and editing:

5.5.14.6.5 Roman language accent marks and non-English special characters.

5.5.14.6.6 non-Roman language alphabetic languages.

5.5.14.6.7 ideographic characters.

5.5.14.7 Data Entry Error Detection and Correction

5.5.14.7.1 Warnings should be given for improbable data.

5.5.14.7.2 Warnings should be given for chronologically ambiguous data.

5.5.14.7.3 Error alerts should be obvious and clearly explain problem.

5.5.14.7.4 Describe the system's general approach to validation of records and data within records. Specify whether validation routines change according to input method (e.g., import of a record vs. direct input by staff).

5.5.14.7.5 Does the system provide online, contextual help for all data validation tests?

5.5.14.7.6 The text of standard error messages should be customizable by library staff.

5.5.15 Searching

Please specify if a feature discussed below is different between the OPAC and staff functions.

5.5.15.1 Search Engine

5.5.15.1.1 Describe the elements that are or can be indexed in your system providing lists or other documentation as appropriate.

5.5.15.1.2 The system should allow locally defined data elements to be indexed in each index.

5.5.15.1.3 The system should allow for search 'ticklers' or triggers to be programmatically and manually set in all record types for the purposes of retrieving subsets of records that match the tickler or trigger content. This function supports database management by staff.

5.5.15.1.4 Is it possible for an authorized staff member to define specialized indexes and store those index definitions and corresponding search keys on an as-needed basis? Across all data or limited only to some records?

5.5.15.1.5 Is it possible to define search features based on user categories and staff authorizations?

5.5.15.1.6 Is it possible to use, without rekeying, any part of a displayed record as the search argument for the next search?

5.5.15.1.7 It should be possible to index, display and search for information using any data in the 856 field but specifically the URL subfield (u).

5.5.15.1.8 It should be possible to use the URL stored in the 856 field subfield u as an actionable link to the electronic object being referenced.

5.5.15.1.9 Which character sets and writing systems are supported for indexing?

5.5.15.1.10 A keyword search **must** cover all bibliographic fields designated in the local keyword index configuration, but there **must** be the option to limit the search to

- a specific field (e.g., a specific MARC field such as 100) and category of fields (e.g., all author name fields).
- 5.5.15.1.11 The system should support both command- and menu-driven searching. Describe how your system meets this objective.
- 5.5.15.1.12 The system should provide the ability to perform a Boolean search of like (e.g., two author) or different (e.g., author and keyword; keyword and call number) searches types of indexes. Explain.
- 5.5.15.1.13 The system should allow the user to select multiple headings from a search result screen or browse list for a combined search.
- 5.5.15.1.14 The system should provide the ability to index the presence of a given MARC tag (and subfield code) for use in limiting results (for instance, the presence of a MARC tag 856 with a |u would index so that results could be limited by "format=electronic resource" -- i.e., available electronically).
- 5.5.15.1.15 The system should provide the ability to limit/discriminate search results which are available electronically (have a MARC 856 field) from other formats.
- 5.5.15.1.16 What is the maximum number of records that can be retrieved and displayed for the different search types?
- 5.5.15.1.17 What are the intermediate limits on Boolean searches?
- 5.5.15.1.18 Can searches be saved as result sets for later use within the current session? If so, how are temp files managed? If not, how are searches saved for later use?
- 5.5.15.1.19 Is it possible to create and combine searches for later manipulation, including the capability of saving searches and using as a component for a later search, i.e., search history within the current session?
- 5.5.15.1.20 Can saved search profiles be created and saved for user-initiated or system-initiated SDI? If so, can they be saved on the users' browsers or do they have to be saved on the server? If the former, can this feature be disabled at public workstations? If the latter, how much resources are required for each profile?
- 5.5.15.1.21 Can session defaults be set? If so, can they be saved and used in future sessions?
- 5.5.15.2 Display of Search Results**
- 5.5.15.2.1 Provide examples of screens that demonstrate your system's approach to the display of search results.
- 5.5.15.2.2 It should be possible to display, print and download any specific bibliographic record, range of records, or results set.
- 5.5.15.2.3 The system should provide the ability to move forward and backward within an ordered list of data elements or list of records.
- 5.5.15.2.4 It should be possible to identify the bibliographic format of an item from the index display.
- 5.5.15.2.5 Multiple users and staff should be able to view a given record simultaneously.
- 5.5.15.2.6 Technical and public information should display in the same view as appropriate.
- 5.5.15.2.7 Describe how your system permits the ability to suppress a record from public view.

- 5.5.15.2.8 How does your system handle the retrieval of duplicate records within one database?
- 5.5.15.2.9 The search interface normally should be case insensitive but have a configuration option where needed.
- 5.5.15.2.10 Does the system allow a user to return through previous search stages using a single keystroke?
- 5.5.15.2.11 Search results displays should include the number of hits associated with each term or phrase. Items retrieved in a search result set display should be numbered in one list across all screens.
- 5.5.15.2.12 Is relevancy ranking integrated with both OPAC and staff search result displays?

5.5.15.3 Sorting

- 5.5.15.3.1 What sort criteria are supported by the system (e.g., author, title, date, other)?
- 5.5.15.3.2 How many levels of sorting can be requested?
- 5.5.15.3.3 Is sorting ability controlled by size of result set? Is there an upper limit?
- 5.5.15.3.4 In the sizing section, size the system to allow this type of sorting for at least 5000 hits. What is the impact of sorting such a on the client and the server?
- 5.5.15.3.5 Does the system allow the user to request ad hoc sorting criteria? If so, describe options available.

5.5.16 Database

- 5.5.16.1 The Product **must** be able to process input from multiple workstations, applying appropriate record locking to insure data integrity.
- 5.5.16.2 If a change is made to the database, the Product **must** automatically update all affected records. Explain how this is accomplished.
- 5.5.16.3 List and define all record types used in your system. Include screen prints. Include diagrams that show how all record types are linked or associated with each other.
- 5.5.16.4 The product **must** allow multiple bibliographic records with identical standard numbers. Describe how this is handled.
- 5.5.16.5 The Product **must** use a relational database that is ANSI SQL compliant.
- 5.5.16.6 The Product should provide ODBC connectivity (Open Data Base Connectivity).
- 5.5.16.7 Tools should be available to diagnose and troubleshoot the database. These tools should be online and non-disruptive.
- 5.5.16.8 Tools should be available to check system database integrity in both exclusive and shared-access modes.
- 5.5.16.9 It should be possible to physically delete records from the database.

5.5.17 Data Exchange

- 5.5.17.1 The Product should have well-defined and -documented applications program interfaces (APIs) that allow easy and secure import and export of data without

program modifications to the Product. Attach a list of all documented APIs in your product.

- 5.5.17.2 The system **must** support batch loading and export of bibliographic, authority, holdings, and patron records by tape, disk, CD-ROM, FTP or other electronic file transfer methods. Describe.
- 5.5.17.3 How (such as by APIs and utilities) does your Product transfer data to external systems and databases?
- 5.5.17.4 How (such as by APIs and utilities) does your Product accept data from external systems and databases?
- 5.5.17.5 Does the system provide a facility for downloading or otherwise extracting data at a workstation in a standard format that is exchangeable for standard client products (e.g., MS Access or a POP client e-mail system)?
- 5.5.17.6 The Product should be able to export any file or portion of a file to ASCII format.
- 5.5.17.7 Data should be exchangeable with external SQL systems.
- 5.5.17.8 Describe how the system supports import of complete bibliographic, holdings and authority records in MARC format for an entire database, for individual and selected records, and for batches of records from a variety of sources.
- 5.5.17.9 How much programmer effort is required to support data loading?
- 5.5.17.10 What type of data loading can be controlled by non-programmer staff? Can non-programmer library staff add new loader types?
- 5.5.17.11 Describe how the system supports export of complete bibliographic, holdings and authority records in MARC format for an entire database, for selected records, and for records added in a specified timeframe

5.5.18 Gateways

Describe how the system supports:

- 5.5.18.1 proxy servers
- 5.5.18.2 linking to other web sites
- 5.5.18.3 URL-checking software for reporting and fixing obsolete or invalid URLs
- 5.5.18.4 hook-to-holdings, i.e., links to library catalogs from external systems. List external systems where such links have been established. How is this done, Z39.50, search URLs, other? How are holdings transferred?
- 5.5.18.5 user-customized institutional web portals, a la MyUCLA.
- 5.5.18.6 user-customized web portals, a la MyLibrary.

5.5.19 Electronic Databases

The SUS may choose to support some number of indexing and abstracting databases on the system being acquired. Appendix A, Table 5 identifies these databases and their current record sizes.

Describe how the system supports

- 5.5.19.1 configuration and profiling
- 5.5.19.2 data loading; are their generic or custom loaders?; pricing for loaders;
- 5.5.19.3 hook-to-holdings
- 5.5.19.4 conforming the user interface to provide the look and feel of the OPACs

- 5.5.19.5 thesauri and authority files
- 5.5.19.6 print/download/email
- 5.5.19.7 authentication at the institutional level
- 5.5.19.8 sizing and performance