

Final Report - Future of UC Resource Sharing Project Team

Submitted to the Direction and Oversight Committee

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Background:

In 2015, Online Computer Library Center, Inc. (OCLC) announced that the current University of California interlibrary loan (ILL) management system, Virtual Desktop eXchange (VDX), would be sunsetted within two years. This, in combination with emerging service needs in the resource sharing field and growing dissatisfaction with VDX, created an opportunity to review options for migration to a new resource sharing system. In August 2015, the Strategic Action Group 2: Access, Discovery & Infrastructure (SAG2) established a project team charged with investigating and making a recommendation for a new suite of resource sharing services.¹

Summary:

The project team was charged with the responsibility to think strategically about the shifting landscape for resource sharing and to look for a set of services that will position UC for the future. In particular, the focus from the beginning was on a set of services that would serve the UC's complex resource sharing needs, in terms of local resource delivery / document delivery service (DDS), consortial borrowing (within the UC system), and extra-consortial borrowing (with institutions outside the UC system). While the immediate need was to replace VDX with an appropriate ILL management system, the team also considered the place of CDL-developed and managed Request, the software service that facilitates consortial borrowing. Vended technologies are available to serve as consortial borrowing systems, ILL management systems, both (combined), or neither (auxiliary systems), creating a complex matrix of possible system combinations for the team to consider.

In order to conduct its investigation, the project team reviewed the 2013 Environmental Scan² to determine if the needs and options laid out there were still relevant, and reached out informally to peer institutions for feedback on current resource sharing systems. The team also drafted an initial set of requirements to determine high-priority functionality for a new system. This list was circulated to resource sharing practitioners at every UC campus, at both RLFs, and to a tech team at CDL, and was reviewed, commented upon, added to, and finally prioritized by a points-voting system. The final list of requirements³ was used to inform the creation of a list of 20 questions that were put out in an RFI⁴ in early March 2016. Six vendors responded to the RFI and the results were ranked by the project team in collaboration with UCOP Purchasing staff.

Based on its findings, the team is recommending Atlas System's ILLiad as the ILL management system, and recommends continued investigation of both Request and Relais D2D as candidates for consortial borrowing system components, with strategic consideration of the role of the union catalog and discovery system in the resource sharing ecosystem. The team additionally recommends specific further actions to be taken by the next phase team: the creation of technical and functional requirements for the RFP; continued engagement with UC stakeholders to ensure a positive and inclusive process; strategic consideration of emerging service needs; and a formalized hand-off meeting and process to transfer knowledge from the phase one team to the next.

¹ See Appendix A for the project team membership and Appendix B for the full charge of the Future of UC Resource Sharing Project Team

² See Appendix C: 2013 ILL Environmental Scan

³ See Appendix D: Final List of Requirements

⁴ See Appendix E: RFI Questions and Rankings

Understanding Resource Sharing Systems and Products:

The UC resource sharing system is a complex integration of products that enable:

- borrowing and lending among the UCs (consortial borrowing)
- borrowing and lending with institutions outside of UC (extra-consortial borrowing)

One of the important conclusions of the team was that any purchasing decision must, as much as possible, consider the resource sharing system as a whole. Individual products cannot be effectively evaluated outside this context, as integration points and functionality will differ with different combinations of systems.

Resource Sharing Product Classifications

Although there is some functional overlap, the project team has found it useful to classify resource management products as:

- ILL management systems (ILL Mgt)
- Consortial borrowing systems (CBS)
- Interfaces to external ILL communities (Ext ILL)
- Auxiliary systems and add-ons (Aux)

All requests, whether within the consortium or outside the consortium, need to be managed and tracked using an *ILL management system*. The ILL management system provides the basic ILL functionality for each campus, with features for borrowing, lending, document delivery, and reporting. Most ILL activity at UC campuses is currently managed using VDX, although other systems are used as well for specific types of external requests, including direct use of WorldShare ILL (WSILL) and Clío.

The *consortial borrowing systems* (CBS) work in tandem and integrate directly with the ILL management system to provide the glue needed to conduct resource sharing within the UC group. The most important features of the CBS are the mechanism for searching UC union holdings and the patron request interface. The UCs currently use OCLC WorldCat data (WorldCat Local (WCL)) and services in combination with the CDL-developed and maintained Request system as their CBS.

Outside the consortium, UC participates in ILL by interfacing with *external ILL systems and communities*, most importantly OCLC WorldShare ILL (WSILL) and DOCLINE (National Library of Medicine’s ILL system). The ILL management system can also connect to a number of *auxiliary services* such as scanners, billing systems, electronic document delivery services, and reporting systems. Some systems may be extensible with internal add-ons that can provide additional auxiliary functions.

Products of Interest

The following table lists resource sharing products of interest to the UCs, classified by type, and notes which systems are currently in use and which were investigated as part of the RFI process.

Table 1: Resource Sharing Products of Interest to the UCs

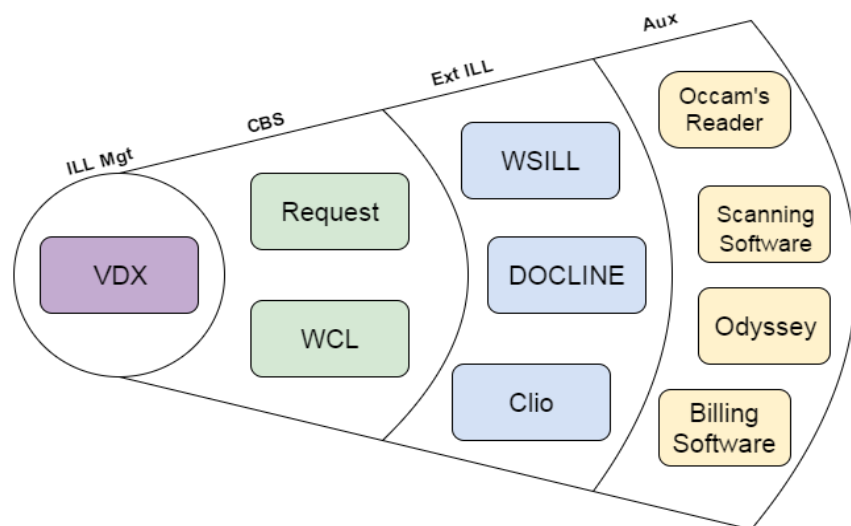
System Name	Vendor	Included in RFI?	CBS	ILL Mgt	Ext ILL	Aux	Currently in use at UC?
Request	CDL	No	*				Yes
INN-Reach	Innovative	Yes	*				No
Relais D2D	Relais	Yes	*				No
VDX	OCLC	No	*	*			Yes
SHAREit	Auto-Graphics	Yes	*	*			No

System Name	Vendor	Included in RFI?	CBS	ILL Mgt	Ext ILL	Aux	Currently in use at UC?
Clio	Clio Software	Yes		*			UCB, UCD, UCI, UCLA
ILLiad	Atlas Systems and OCLC	Yes		*			No
Relais ILL	Relais	Yes		*			No
RapidILL/RapidR	RAPID	Yes			*		UCSC
WorldShare ILL	OCLC	Yes			*		Yes
DOCLINE	NLM	No			*		UCD,UCI,UCLA,UCSD,UCSF
Article Exchange	OCLC	No				*	Yes
Occam's Reader	Texas Tech	No				*	No
Odyssey	Atlas Systems	No				*	UCB
(Various)	IDS Project	Yes				*	No

Products Relationships & Combinations

The following diagram shows the functional relationships between these types of systems, and the relative priority for the scope of the project team. The ILL management system is at the heart of ILL operations - the most necessary component. The CBS layer sits on top of the ILL management system and enables consortial functionality. The external ILL systems interact with the combination of the ILL management system and the CBS layer and enable extra-consortial borrowing activities. The auxiliary systems connect at various points to ILL operations and are typically highly variable per campus.

Diagram 1: System relationships and priorities



Environmental Analysis:

Given the complexity of the resource sharing ecosystem (as outlined above), the project team decided on a multi-prong approach that would allow for broad environmental investigation, as well as a more detailed requirements gathering.

Current UC Resource Sharing Environment

The team created a project plan and timeline⁵ detailing the specific tasks necessary for the completion of the project. At the outset, the May 2013 report Interlibrary Loan Environmental Scan⁶ produced by UC ILL and CDL representatives was reviewed. In coordination with resource sharing staff throughout the UC system, the team conducted an inventory of all campus ILL systems, technologies, and equipment and found that the current resource sharing environment was essentially unchanged from the time of the May 2013 report. In addition to VDX, most campuses were still using the same system add-ons to supplement existing processes. The needs of the campuses also stayed largely the same: they desire a user-friendly system with many of the features currently offered in VDX.

User Satisfaction Survey

The team also incorporated the results of the 2015 ILL User Satisfaction Survey,⁷ completed by nine of the campuses, into the investigation. A majority of respondents praised the ILL services provided at their home campus and also had suggestions for improvement, particularly in the user interface, system notifications, and access to ILL management. These suggestions were then incorporated into the system requirements as patron priorities.

Peer Feedback

As the final piece of the broad environmental scan, team members reached out to peer institutions for feedback on their resource sharing systems. Through emails to ILL listservs and personal email contact, the responses indicated several key findings:

- Like the UC, almost all institutions use a combination of systems to achieve broad resource sharing functionality
- Most of the responding institutions use ILLiad and had positive feedback, in particular with regard to overall breadth of function and customer support (through Atlas Systems)
- Many of those not using ILLiad use Relais and had positive feedback, in particular with regard to circulation system integration and consortial functionality

The team also considered documentation comparing various resource sharing systems, most notably a 2013 report by Marshall Breeding,⁸ and two reports (2013, 2014) from the RAILS consortia.⁹

Requirements Gathering:

A key component of this charge was gathering feedback from each of the campuses, RLFs, and CDL to help form an initial set of requirements for a new suite of systems. The charge included the following two areas to consider:

- Survey the campuses to see what additional resource sharing tools they use, and which ones fill needs not met by VDX in order to identify a full set of requirements.
- Gather a list of requirements from both the systemwide and campus perspectives.

The feedback gathering and requirements formulation consisted of several phases, discussions, and surveys.

⁵ See Appendix F: Project Timeline

⁶ See Appendix C: 2013 ILL Environmental Scan

⁷ See Appendix G: 2015 ILL User Satisfaction Survey

⁸ Breeding, Marshall, "Resource Sharing in Libraries: Concepts, Products, Technologies, and Trends", Library Technology Reports vol. 49, no. 1 (2013). Available at: <https://journals.ala.org/ltr/article/view/4411/5113>

⁹ Ayer, Lori Bowen, Rails Overlay Environment Scan, Presentation (2013). Available at: https://www.railslibraries.info/sites/default/files/attach/50014/rails_resource-sharing_project_environmental_scan_presentation_rev1.pdf and Rails Overlay Project Environmental Scan (2014), available at: https://www.railslibraries.info/sites/default/files/attach/50014/rails_resource-sharing_project_environmental_scan_-_final_report_with_attachments_-_final.pdf

Campus Resource Sharing Tools Poll

The team's first step was to poll each campus to gather information on what equipment, supplementary software, or additional programs they each use in their ILL operations. The goal was to 1) determine what a new system or group of systems might need to be compatible with and 2) get an idea of what supplementary tools units are using, which helped shed light on what areas VDX is currently lacking in. All campuses contributed and the most frequently mentioned programs and equipment included DOCLINE, WSILL, OCLC Article Exchange, Clio, and Minolta and Bookeye openbook scanners.¹⁰

Requirements Gathering

The team used the Current Functions and Tasks and Wish List of Functions and Tasks documents from the 2013 Environmental Scan to form the backbone of the priorities for a new system. The lists were reviewed by the Future of UC Resource Sharing team. Based on experience and expertise in various areas (technical, public services, staff processing), the requirements were expanded. Of particular note were the additions of technical and system requirements.

This initial list of campus requirements was sent out to all campus ILL units with an invitation to review and comment on the list and especially to add new "must-haves" and "wishlist" requests. The participants were instructed to not vote on priority at this stage. Each campus responded in detail, with most adding several new suggestions. The team also followed up with each campus individually via a conference call to ask follow-up questions about the requirements and solicit additional feedback. This portion proved especially useful, as the team was able to work with each campus individually, find out more about their specific needs, and to discuss any questions and concerns that might have come up. Many thoughtful discussions occurred and it also allowed each individual to be heard on a one-on-one basis.

Prioritization Voting & RFI Questions

The next phase was compiling the responses into one master list of requirements for prioritization voting. The goal was to find out what items were of the utmost importance to UC ILL. The master list was divided into several sections: general requirements, borrowing, lending, document delivery services, patron request processing, reporting/statistics, and technical requirements. Duplicate entries were deleted. The team opted to conduct the priority voting via an electronic survey. The survey was administered via Qualtrics out of UC Merced. Each campus was asked to vote for what was most important to them by assigning points to each requirement. Voting was specific to each section and three times as many points were allotted as the number of items. For example, in the reporting/statistics section, there were 9 requirements compiled and 27 points allotted per voting campus/RLF. The directions in the survey stated: *This document lists the requirements and wishlist items for a future ILL suite of systems, based on your previous feedback. Please vote for the requirements that you think are the highest priority when choosing a new system. Voting will be handled by assigning points to requirements - you can assign any number of points to a requirement, from zero to the maximum number allocated. Each section has a total maximum number of points you can "spend," and you cannot exceed this max.*¹¹

199 requirements in seven categories were submitted and voted on.¹² There were few surprises in the results and very few "stand out" items. Priorities that received the highest points proportionally to their specific categories AND that were voted on by most campuses included:

¹⁰ See Appendix H: UC Supplementary Tools and Equipment

¹¹ See Appendix I: Requirements Voting Instructions

¹² See Appendix J: Compiled Requirements Survey Responses

General Requirements

2A2. Consortial Reqs: System is able to check UC-system availability before checking worldwide availability. (73 points; 12% of total)

Borrowing

8A2. Request Handling: System can receive electronic articles from lending institutions and notify campus borrowers of availability (50 points; 8% of total)

Document Delivery

9A1. Request Handling: System supports processing borrowing and lending requests from the same campus (that is, processing of DDS requests within ILL system) (45 points; 14% of total)

9B1. Request Creation: System supports integration with various manual and automated DDS processing systems. (42 points; 13% of total)

Patron Request Processing

10B17. Patron request ordering: System enables patrons to request multiple items at one time without having to re-enter patron data (67 points; 6% of total)

Reporting

11A1. Reports/Stats: The system includes a dynamic, intelligent and flexible statistical package (e.g. advanced dynamic filtering options of request and bibliographic data fields, not limited to Request Date, Date Part, Year, Copyright compliance (i.e. CCG, CCL), Title, page numbers, library location etc, and ability to customize date ranges with date operators such as earlier than, later than, equal to, between inclusive) (94 points; 29% of total)

Ultimately, the team was able to surface a number of high priority requirements, which then informed the selection and ranking of systems in the RFI process:

- UC consortial borrowing functionality must be retained, if not improved.
- Maximal integration with the various UC ILS systems, as well as integration with other external ILL and auxiliary systems are high priorities.
- Reducing the number of systems that both staff and patrons interact with is highly desirable.
- A system which is maximally customizable and/or configurable is highly desirable.
- A system which allows access to its functions and data through standards-based or RESTful APIs is highly desirable.

Requirements Conclusions

The committee drew the following conclusions regarding the Final List of Requirements:

- The RFI questions were formed to find out the basic functionality of each system and to obtain information about most of the higher prioritized requirements.
- Because the needs were suggested by 12 different units with different processes, priorities, and styles, the line items are not consistent in form or level of detail. Other than eliminating duplicates, removing vendor-specific language, editing for clarity, and removing items that appeared to be based on misunderstandings, the requirements remain as submitted.
- The requirements are not completely inclusive or exhaustive and should be reviewed and edited for additional clarity before the next process.

The RFI Process:

Vendor Selection

Based on the environmental analysis and the high priority requirements, and in collaboration with the UCOP Purchasing Department staff, the team selected 7 vendors and crafted a set of 20 questions to ask them in an RFI process.¹³ The initial set of vendors and products are as follows:

- Clio Software: Clio System & ClioBasic (<http://www.cliosoftware.com>)
- Atlas: ILLiad (<http://www.atlas-sys.com/illiad>) (Marketed through OCLC)
- OCLC: WorldShare ILL (<https://www.oclc.org/worldshare-ill.en.html>)
- Innovative: INN-REACH (<https://www.iii.com/products/innreach>)
- Relais: Relais ILL & Relais D2D (<http://www.relais-intl.com>)
- Rapid: Rapid ILL (<http://rapidill.org>)
- IDS Project: various products (<http://www.idsproject.org>)
- Auto-graphics: SHAREit - <http://www4.auto-graphics.com/products-shareit-inter-library-loan-ill.asp>

RFI Questions

The questions cover a variety of high-priority topics in order to weed out unsuitable products in the first round; they are broad and elicited narrative responses for the most part. As such, ranking the responses was a qualitative process, rather than a strict elimination. Responses were ranked on how well the product seemed able to satisfy the need in question, from a 1 (not at all) to a 10 (exceeds ability to satisfy). The detailed ranking is available in Appendix E, and the overall results were as follows.

Eliminated Products

These systems did not sufficiently meet the fundamental needs of the UC system, and should not be considered further:

- VDX: While OCLC did submit information for VDX in their response, the known limitations of VDX functionality and the lack of clarity around OCLC's continuing support for the product disqualify it from further consideration.
- Clio: Declined to submit a response, as they currently "do not have the bandwidth" to respond to UC resource sharing needs.
- WorldShare ILL: OCLC declined to submit information for WorldShare ILL.
- INN-Reach: INN-Reach is designed as a consortial borrowing system that is highly integrated with the Innovative ILSes (Sierra and Millennium), though is insufficiently compatible with other ILSes in use in the UC system.
- SHAREit: SHAREit is both an ILL management system and consortial borrowing system in one. The team is concerned that while the system could be customized by the vendor, it does not expose an API that would enable flexible integration with external systems. Further, Share-It lacks NCIP support for Voyager, which is critically needed for ILL integration with the UCLA and SRLF ILS.

Products for Add-on Consideration

These systems are neither ILL management systems nor a consortial borrowing systems, but have enough merit as auxiliary systems to be considered part of the UC resource sharing ecosystem at a future point, perhaps for purchase by individual UC campuses:

- RapidILL: RapidILL's fundamental service is to expedite the borrowing and lending of non-returnables, and integrates with various other ILL management systems.
- IDS Project, various software: The IDS Project is a technology cooperative in New York which produces a series of "efficiency tools" - add-ons designed to augment ILLiad functionality.

¹³ See Appendix E : RFI Questions and Rankings

Recommended Products

These systems ranked highly and should be considered for a place in the UC resource sharing suite of services:

ILLiad:

- Ranked highest in the RFI ratings.
- The areas it outscored other products include having a large, robust user base, interoperability with other systems, customization and add-on availability, document delivery facilitation, integration with Ex Libris SFX, and web-based APIs.
- ILLiad has several features and functions that would increase request processing efficiency.
 - All forms and messages are customizable at the unit level.
 - All interaction with OCLC can take place directly through ILLiad.
 - Full integration with DOCLINE and Rapid means there is no need for separate DOCLINE and Rapid workflows. All workflow for OCLC, DOCLINE, and Rapid requests can be managed within ILLiad.
 - A billing component as complete as the one offered by ILLiad's Billing Manager is not something that is available in any other system. Integration with Electronic Fund Transfer System (EFTS) and ability to invoice other types of transactions would save a lot of staff time related to request processing and communicating with billing departments.
- Is very limited in its support for consortial borrowing, which would necessitate a separate consortial borrowing layer to maintain current fundamental functionality.

Relais:

- Relais ILL and Relais D2D ranked second.
- ILL management functionality appears weaker than that of ILLiad, but the team remains intrigued by the consortial borrowing system potential of Relais D2D, especially considering its RESTful API and robust NCIP support.
- Relais D2D uses its own federated search to provide holdings and availability data for consortial borrowing. If selected, this functionality would be redundant with services currently provided by WorldCat Local.
- Relais D2D has its own patron discovery interface, which would be redundant with some discovery services provided through Melvyl (WorldCat Local), and would have implications for the patron experience.

Request:

- Request is currently the consortial borrowing system for the UC system, and successfully provides essential functionality in the resource sharing ecosystem. Unlike VDX, there is no pressing need to immediately replace this piece.
- Request uses union holdings and availability data from WorldCat Local services, and is also integrated with the Melvyl (WorldCat Local) discovery layer.

Potential Product Combinations

There are multiple possibilities for systems that could be used for the consortial borrowing layer which sits on top of the ILL management system.¹⁴ Request has the advantage of being already fully developed, in place, and successfully filling consortial borrowing requirements; it currently necessitates integration with WorldCat Local. Relais D2D has potential with its APIs and NCIP support, and also comes with its own services for a union catalog. It is also possible that Request and Relais D2D could be combined to leverage the technologies of both.

¹⁴ Many of the conclusions in this section are drawn from a more detailed report on the the comparison of consortial borrowing systems conducted at CDL: [The Future of Consortial Borrowing Among the UC Libraries](#).

The role of the union catalog should be explored thoughtfully in the next phase of this project. Request’s current integration with WorldCat Local has many technical advantages, but could be seen as a disadvantage if UC ever wanted to move away from OCLC services. Relais D2D’s federated union catalog has the potential to replace WorldCat Local as the union catalog and to simplify integration with the ILL management system; running both Relais D2D and WorldCat Local would complicate the patron experience. A third possibility is to invest resources in the creation of a central union catalog, separate from either of these technologies, which would cost time and money, but give the UCs full access to and control of the union catalog data.

Therefore, the following three options should be investigated when considering consortial borrowing product combinations:

- Keep Request as-is, continuing to use WorldCat as the UC union catalog, and investigate integrating with the OCLC NCIP gateway and integration with ILLiad.
- Integrate Request with Relais D2D and ILLiad (or replace Request with Relais D2D), enabling use of the federated union catalog provided by Relais D2D.
- Keep Request, and explore possible synergies with collection analysis needs and leverage existing ingest and data management tools at CDL to create and maintain a central union catalog.

The following table visualizes the possible combinations of these candidate systems:

Table 2: Recommended Possible Combinations of Resource Sharing Products for UC Environment

CBS	Request + WCL	Relais D2D	Request + Relais D2D	Request + Central union catalog
ILL mgt	ILLiad	ILLiad	ILLiad	ILLiad

Final Recommendations:

In light of the complex ecosystem of services in resource sharing, the project team recommends the following:

Recommendation 1

The team strongly recommends pursuing ILLiad as the ILL management system, replacing VDX. It clearly outperformed the other contenders in the initial RFI ranking, and was the most lauded system in the feedback from peer institutions.

Recommendation 2:

The team recommends further investigation of both Request and Relais D2D (or the combination thereof) as candidates for the consortial borrowing system. Because of the tight integration with the consortial borrowing system, particular attention should be paid to the place of the union catalog and the discovery layer in the UC resource sharing ecosystem. Changes in either will have significant ramifications for the other.

Recommendation 3

The team recommends that the next phase include the following activities:

- The creation of a final set of thorough technical and functional requirements for a UC solution for resource sharing services, that is suitable for systematically evaluating products in the RFP phase. The Final List of Requirements is an excellent start and the team recommends incorporating this into the next set of requirements.
- Continued engagement of UC stakeholders in information-gathering and testing.

- A hand-over meeting between the current project team and the next phase team, to transfer knowledge, convey remaining concerns, and pass on relevant documents.
- Strategic consideration of emerging services, such as ebook lending and shared print services among others.