

## STAFF PAPER

# Lock, Stock and Two Administrators

David Ong  
Manager, Libraries Australia  
Customer Services,  
National Library of Australia

George Panagiotidis  
Information Systems Specialist,  
CAVAL Collaborative Solutions

## 1 Abstract

The local customisation and configuration of Inter Library Loan systems hinges on the expertise and experiences that System Administrators have at their disposal. Though much of this can only be gained through time and understanding of the business requirements of an organisation, the gaining and sharing of this knowledge is often underestimated.

Two of Australia's large consortial ILL systems, the CAVAL Library Interlending Consortium (CLIC) and Libraries Australia Document Delivery (LADD), have been interoperating for over 4 years. Though geographically remote, the professional relationship between the staff of the two systems developed, and from that emerged one of the most successful 'offline' communications and knowledge sharing strategies.

A resource sharing 'proof of concept' pioneered between the two organisations in the ILL environment may be applied to other complex library software. The benefits are correlated to future trends in ILL and other library software, for all libraries large and small.

Take a journey of discovery with two of Australia's System Administrators as they share with you the methodology, successes and lessons they learnt through sharing with each other.

## 2 Introduction

Australia has enjoyed a strong resource sharing history, with a number of large institutions such as universities, State and the National Libraries playing key roles in developing the infrastructure that we see today.

For the past 6 years, CAVAL Collaborative Solutions (a provider of services to the information and knowledge sectors throughout Australasia, Asia and beyond), has hosted an Inter Library Loan (ILL) Management system called the CAVAL Inter Library Consortium (CLIC). The CLIC system hosts 5 large academic libraries and the CARM Centre, with over 45000 direct end users.

The National Library of Australia (NLA) has supported inter lending via an automated ILL module since 1989. This early iteration was a module called WLN (Washington/Western

Library Network). In 2000 the NLA implemented Libraries Australia Document Delivery (LADD), previously known as Kinetica Document delivery (KDD). The LADD system hosts more than 700 libraries, an increasing number of whom are offering end user access to the service. LADD hosts a variety of libraries, from large academic libraries and public libraries through to the smallest of special libraries.

To date, the Australian ILL community has spent much time developing and maintaining an ILL Resource Sharing policy. The policy works as a set of guidelines for ILL staff, and a large majority of libraries adhere to this code, ensuring standardised charging and expected response times. The code is also designed to assist libraries in applying 'best practice' workflow and etiquette.

The total traffic between the two systems averages almost 250,000 filled transactions annually.

Both CLIC and LADD provide z39.50 access to a number of databases within Australia and overseas. For ease of use, the two systems utilize a web interface for end users, but also employ a Windows Client and other database interrogation software for Administrator use.

In addition, the LADD system also acts as Australia's Inter Library Loan Payments Gateway. All ISO ILL transactions between Australian libraries are recorded on the Payments Gateway, and LADD acts as an aggregator of these transactions, providing a single invoice/payment for participating libraries. This service is one of the most valuable for users, as it means that individual libraries do not have to process multiple invoices/payments from each transaction partner. The Payments Gateway also provides invoices/payments in Australian Dollars, so individual locations do not have to concern themselves with foreign currency exchange rates for overseas transactions (eg CISTI, Te Puna).

One of the few similarities between LADD and CLIC services is their use of the Virtual Document eXchange (VDX) software. VDX was born from the Library Interlending Document Delivery Administration Software (LIDDAS) project. Recently, OCLC Pica acquired the company which originally developed VDX, Fretwell Downing Informatics.

Although both systems facilitate ILL, and use the same software, they employ radically different business models and have different configurations, reflecting their business needs.

In recent years, the two organisations have realised the benefits of sharing each other's system administration skill sets, knowledge and experiences. Sharing these previously internal resources, via unofficial cooperation, both the NLA and CAVAL have exploited the following tangible benefits:

- Application testing
- Interoperability assessment
- Disaster recovery
- Software upgrade experiences
- Application configuration, and
- Technical challenges.

Ideally, all library system administrators would have the same qualifications, experience, zero annual leave and be expected to remain in the position until retirement. On the contrary, the NLA and CAVAL system administrators have very different qualifications, experiences, enjoy annual leave, and promotions.

David is a qualified Teacher whilst George is a Librarian. Both have different IT skills, many of which are self taught whilst learning and navigating through VDX. Both enjoy annual leave.

### **3 Results of ILL System Administrator Sharing**

#### **Application Testing:**

Recent sharing of testing scripts between system administrators hasn't totally distributed the testing load, but has helped significantly to fully understand and test both the existing and new functionality of their systems. Due to major configuration and interface variations, testing overlap is unavoidable, however, by sharing the testing scripts, localized configuration and functional concepts have added to the sharing and learning experience.

Traditionally, testing results have been an internal organisation document. Throughout the years, LADD and CLIC administrators have documented and shared testing results with one another. The outcome is an extremely powerful tool, allowing a more thorough testing regime than it would be possible than by conducting testing alone.

Simultaneous or 'joint logging' of issues with vendors is another tool being fine tuned by LADD and CLIC. 'Jointly' logging these issues with the vendor increases the chances of rapid fixes. The vendor need not investigate twice, and, it is made clear to the vendor the importance of issues, as a large user base is affected. The authors' peers share the notion that many users who deal with vendors often feel that they are left 'in the wild', especially as many software user groups do not meet regularly, nor is communication (either amongst the group or between the vendors and the group) necessarily smooth.

As the level of trust between the two system administrators developed, the benefits of sharing increased exponentially, from the testing environments into production environments. Where one system administrator developed a local fix, corrected a problem or exploited a workaround, it is shared with the other system administrator. Often, this sharing eliminates the double handling that is inherent when logging an issue with the vendor. A definite time management advantage was realised here.

#### **Interoperability assessment**

The ISO ILL protocol used by LADD and CLIC's software can be the cause of headaches when interoperating between systems. Adding other ISO ILL compliant software packages into the equation most often exacerbates the problems.

The NLA is responsible for the interoperability between ISO ILL compliant systems in Australia, in that it conducts initial testing with the newly configured system. During interoperability testing, local ILL policy and the ILRS Code also need to be adhered to.

Cooperation at this point is paramount, not only at the system level. Liaison between systems and local ILL staff/management ensures that local policy and relevant resource sharing commitments are not lost when interoperating between systems.

From our experiences, interoperation assessment between systems is an ongoing task, requiring adjustments on the fly. The system administrator most often becomes the liaison between their own ILL Staff/Management and the opposing system administrator.

We have noted that often smaller institutions employ the ILL manager as the ILL System Administrator, which can be problematic, especially if the employee is unfamiliar with the capabilities of their software, or are not particularly technically minded. There are also more common issues of staff movement, (for example, parental leave, secondments), where the incoming employee may not have the relevant knowledge or skill sets required. Because of this the authors believe that it is of great importance to have a backup employee on hand to allow a more smooth transition.

The relationship between LADD and CLIC system administrators has allowed thorough and swift changes to system configuration. Often, testing and implementation can be completed in a short time as each party understands the importance of maintaining a stable, robust production system and the inherent difficulties in testing a widely networked system in isolation.

Ill effects of upgrades/configuration on a networked environment have ramifications with other partners, as well as direct implications on the users of the local system.

In a perfect world, resource sharing policies, local ILL policy and the various codes and standards we adhere to would be static, however, in the real world, adjustments to these polices are dynamic. The system administrator task becomes pivotal to the success of the ILL system. Often too, the timelines proposed for interoperability are unrealistic, especially for 'new players' on the market, who often have a limited understanding of the Australian environment and requirements, and lack the detailed knowledge of system configuration issues.

### **Disaster recovery**

At times, the helpdesk will get the dreaded phone call, saying "I can't see my requests". In an resource sharing environment, the symptoms of a system failure may require a fix on multiple ISO ILL systems.

In today's online environment, there isn't much room for downtime, therefore, a fix requiring the cooperation between several ISO ILL system administrators needs to be speedy and accurate.

The local system administrator is often the best person to identify the cause and implement a solution as they are the most intimate with the system's configuration and transactions. However, that solution must take into consideration the system and transactions on the 'other side'. Again, collaboration between system administrators is essential.

On one occasion in 2006, a large consortium system was resurrected from a major hardware failure with input from several system administrators. The vendor was copied into communications, but was not required to provide any auxiliary, fee based advice.

In this example, the system administrators identified those transactions lost during the down time, and limit the amount of lost requests by preventing requests from being sent to the effected server. Although it took over 24 hours to repair hardware and fully restore services from a backup, only a small percentage of requests and transactions where lost.

Potentially, many thousands of transactions could have been lost if the sharing of knowledge between several system administrators, trust, or an effective communications strategy was lacking.

Collaboration between system administrators changes the dependence between the customer/vendor relationship. Complex, non urgent issues are often communicated between system administrators before involving the vendor. The vendor is well equipped to deal with bugs and development requests, however, system administrators are better placed to discuss and solve software configuration and its implementation.

### **System Admin knowledge sharing**

CLIC and NLA's system administrators have collaborated on many occasions to fix problems and simplify administrative tasks.

An example of knowledge sharing was the 'Suspensions Script'. A small program developed by the two administrators and their relative internal IT departments, allowed library suspensions to automatically propagate to other ISO ILL servers within Australia. Apart from providing user benefits such as a faster turnaround time, the 'Suspensions Script' was made available to other VDX system administrators, free of charge.

In this instance, CAVAL developed the SQL and the automation scripts, and the NLA developed and made available the file that propagates between servers.

Ideally, other ISO ILL compliant system administrators could adapt the existing scripts for their software. We must emphasise that, in the ISO ILL systems environment, sharing knowledge, ideas and resources is not always vendor specific, rather, it should be assumed that gains can be applied to any ISO ILL compliant software, and are to the benefit to all our users.

## 4 Resource Sharing Costs & future trends

The collaboration between system administrators is still in its infancy. The immediate, tangible costs are:

- Staff salary and
- Technological equipment (computer, email, bandwidth, telephone).

It seems the current active system administrators benefiting from the joint resource sharing, is a full time ISO ILL system administrator role. Unfortunately the nature of the ISO ILL protocol and ISO ILL systems is a complex one, leaving little time for sharing and developing relationships for part time (stand alone) ISO ILL system administrators.

The cost of purchasing ILL Software is a hurdle for most libraries. To avoid this, the LADD service is used by many hundreds of small to medium sized libraries as their ISO ILL tool. Australian libraries are provided this service free of charge if they are a Libraries Australia customer. A number of libraries are collaborating to purchase a single set of hardware and support personnel. CLIC is one example of such a consortium, and a number of others are emerging.

Both systems have been established on 'sharing' models. Sharing hardware, software and most importantly, the system administrator role are examples of this model. There is no doubt, from our experience, sharing system costs, by amortizing them over several libraries is the most cost effective ILL system.

The Australian ILL community has been an ambassador for resource sharing for the previous 20 years. As existing consortia establish themselves and the benefits of such arrangements are realized, it is expected that more libraries will join existing consortia rather than purchase their own ISO ILL compliant systems. The entry and uptake of new ISO ILL systems may see a decline in price, though expertise in system administration is an overhead not to be underestimated.

The next generation of VDX administrators will be well served if technologies such as blogs or wikis are employed. In these instances, VDX administrators are encouraged to keep notes of problems, fixes and workarounds, and made available to the next person in that position, and ideally, to the rest of the VDX System Administrators. Additionally, the results of helpdesk queries may also be a valuable source for current and future system administrators.

## 5 Conclusion

ILL system administration is inherently complex because the ILL manager/system administrator needs to liaise and thoroughly understand several internal and external stakeholders. It seems to make financial and practical sense to pool resources between several libraries into one ISO ILL system. Additionally, system administrator knowledge sharing between consortia enhances the possibilities of the software and provides rapid problem/discussion turnaround time.

The example of collaboration between the LADD and CLIC system administrators is a successful 'proof of concept' for ILL and other library related systems. The building of relationships at this level ultimately saves time and reduces a reliance on the vendor.

Application testing, interoperation assessment, disaster recovery and knowledge sharing are areas of tangible benefits between full time ILL system administrators. Stand alone system administrators don't have time to participate and benefit from the sharing. The evidence presented suits not only one ILL software package, rather it would work with any ILL software and apply to other library software.

Consortial ILL systems make financial and practical sense, sharing server hardware, staff and software license costs over several or several hundred libraries. The future trend is the creation of new consortia or single libraries joining existing consortia, rather than stand alone ILL systems.

All of the advantages presented are possible with simple communication between ILL system administrators. Together, the systems have evolved through the sharing of knowledge that had previously been kept behind doors. Cooperation and collaboration between other ILL system administrators can only lead to better systems in Australia, and the rest of the world.

## 6 Bibliography

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