

Now we're getting somewhere – adventures in trans Tasman interlending

By Debbie Hanington and David Reid

1. History – a decade of it!

a. Decisions, decisions.

In 1997 the National Library of Australia and the National Library of New Zealand both faced the same question. How best to replace an outdated, standalone interlibrary loan system with something from the web-based era. Working separately through an RFP process and without reference to either party, the decision was the same. Both chose Virtual Document eXchange (VDX) to become the interlibrary loan utility for their respective countries. New Zealand went live first on 21 June 1999, and Australia followed in September that year. While the initial weeks were best described as bumpy, the experience now is much different. This paper charts a decade's worth of history as the authors tell the story of implementing and maintaining software in their respective library communities.

Prior to implementing VDX both national libraries used interlibrary loan software from WLN. It was well understood and well regarded by its user community. But with the impending millennium bug the application was not Y2K compliant and never would be. Furthermore it suffered from a lack of upgrades, an outmoded interface and operated only within the national boundaries of each country. In essence it had become a legacy product with no future possibility of growth or development.

Both national libraries went to the market at about the same time, Australia slightly ahead of New Zealand. When it came to the final decision Australia reached it ahead of New Zealand. Even with eager prodding the decision was never leaked to New Zealand and they too reached the decision to implement the same software. This then set the two national libraries down an initial path of mutually beneficial product development, whilst maintaining separate implementation plans and paths. Australia branded its implementation Libraries Australia Document Delivery (LADD) – initially Kinetica Document Delivery – and New Zealand, Te Puna Interloan.

b. Requirements

New Zealand set three requirements for system replacement. Any option must be:

- Off the shelf

- Standards-based, and
- Commercially proven.

This approach must be viewed in light of a previous project failure and the government's desire for a project success.

Australia expressed similar views, as well as having an extra requirement of a system that could manage a large number of concurrent users.

Intertwined with this was the growth and development of the LIDDAS project, originally initiated by a group of university, polytechnic and state libraries in Australia. When it became obvious that all parties were selecting VDX both national libraries and the University of Auckland joined the group. This is the forerunner of what is now VUGANZ, the VDX Users Group in Australia and New Zealand (VUGANZ, n.d.).

c. Risks

In 1997/98 there were few capable interlending products on offer built on the ISO Interlibrary Loan Protocol (ISO-ILL). Furthermore implementations were few and far between. And above all that, selecting a product that could scale up to support national interlending networks was also an unproven. Additionally replacing the existing product with one of similar functionality presented an exacting exercise. Therefore in many respects the territory was uncharted.

In 2009 risks remain, although they are different in nature. In Australasia OCLC's VDX, Ex Libris' Integrated ILL Aleph and Relais International's Relais have proven themselves reliable products and each has its following. VDX has undoubted industrial strength and proven capability in providing a national interlending infrastructure. Where the risk now lies is as a result of market consolidation. Who remembers Pigasus? As mergers and takeovers occur, so has the number of products on offer reduced. Backing what could be the wrong horse can be a costly exercise and we have seen some implementers move from one product to another as a result.

2. Building blocks to success

a. Charging & payments

Australia and New Zealand have configured charging matrixes within their respective systems. This ensures accurate population of supply charges, always provided an exception rule is configured in the

user's browser to over-ride the pop-up blocker. Neither country allows for manual debits or credits of international charges, except where a system correction is required. The complexities of currency exchange and the resource-intensive nature of processing mean libraries must deal with such events on a library-to-library basis.

To administer these payments both countries have a specialised interloan payment service. New Zealand has the Interloan Billing System and International Interloan Billing System administered by the National Library of New Zealand. Funds are held in trust and managed separately from National Library funding and financial systems.

In the case of international supply and billings from New Zealand, a Goods and Services Tax (GST) does not apply. For example an item shipped to an Australian library at NZD14 is converted to the equivalent Australian dollar value and billed through the Libraries Australia Document Delivery Payments Service (LADDPS). New Zealand libraries are most often charged AUD12 for supply. The National Library of New Zealand converts this to an equivalent New Zealand dollar value. To this is added an administration fee of 80 cents along with GST of 12.5% on the entire transaction. The reason for the latter is because of the involvement of the National Library of New Zealand as the billing agency.

In July 2004 all members of the Libraries Australia Document Delivery service were required to become members of the payments service. The LADDPS:

- Credits the supplying library for the amount of the charge imposed by the supplying library
- Debits the requesting library for the amount of the charge imposed by the supplying library
- Provides a bi-monthly report of all the transactions between the library and other members of the payments scheme during the billing period
- Invoices and/or sends a cheque for the total debit and/or total credit accumulated by the library during the billing period.

b. IPIG/ILRS codes

New Zealand has adopted a subset of IPIG service level codes for normal, priority, rush and express requests. Also adopted were the associated IPIG coding symbols. The basis of the decision was that

they were a de facto standard and likely to ease implementation at the time and interoperability in the future.

Australia took a slightly different approach constructing its own set of service level codes for core, rush and express requests. When interoperating with other ISO-ILL compliant systems a table converts the IPIG code to an Australian code, and vice-versa. This was one aspect of Trans Tasman Interlending during its implementation in 2006 (Ong, 2007b).

c. Multiple Systems

In 2003 two consortia, both using VDX, WAGUL (Archibald, 2003) and CLIC (CLIC, n.d.), began successfully interoperating with the National Library of Australia's LADD system. This effectively marks the commencement of the LADD gateway environment. As at June 2009 there were 71 locations interoperating with the LADD gateway. These consist of individual sites, three consortia, the two commercial suppliers Canadian Institute for Scientific and Technical Information (CISTI) and Infotrieve Australia, and the National Library of New Zealand's Te Puna Interloan. There are also 15 ISO-ILL locations that have commenced interoperability testing with the LADD gateway. These users have access to over 700 LADD locations as well as to 280 Te Puna Interloan locations. Currently there are three different ISO-ILL systems interoperating with the LADD gateway: VDX, Relais and Aleph.

This gateway environment is enabled by LADD supporting the ISO-ILL Protocol. This allows one ILL system to send an ILL transaction to another via the LADD gateway. For example the University of New South Wales can use their Aleph ILL system to request from a standard LADD library, or to request from another ISO-ILL library such as Flinders University that uses the Relais ILL system, via the LADD gateway.

As part of interoperating, there are many ongoing day-to-day system related tasks that ensure successful interoperating. Two such tasks are maintaining locations data and suspension activity.

i. Locations synchronisation

Before a location begins interoperating with the LADD gateway, a full location data load of all locations within the LADD gateway (which includes LADD and Te Puna locations, as well as all ISO-ILL locations) is extracted and set up on the ISO-ILL system. This location data needs to be thoroughly maintained, both on the gateway and individually on all ISO-ILL locations. A location must be set up on both the requesting and responding systems in order to successfully exchange requests. Thus if a

standard LADD library sends a request to an ISO-ILL site, unless this LADD location is successfully set up on the ISO-ILL site this request will not reach the system. While notifications are distributed to a dedicated ISO-ILL discussion list when new locations join LADD, we have also investigated other means of supplying this data to ISO-ILL sites. One such method currently in place is the monthly locations data load service. This supplies an extract of all newly joined as well as cancelled locations in either an .xsl or .dmp format within a set monthly period. Meanwhile we are working on the specifications of a new script, which is discussed in more detail below.

ii. Suspensions

Occasionally libraries cannot accept ILL requests and need to stop requests from being sent to their location. The VDX system currently has three different suspension types; 'cannot be picked for rota', 'cannot make requests' and 'will be skipped when rota moves on'. Within the LADD and Te Puna Interloan environments the suspension type used is 'will be skipped when rota moves on'. Requesters may still add a suspended location to a potential rota of suppliers and when a request reaches a suspended location this request 'skips' over it and moves onto the next location.

ISO-ILL locations need to notify the LADD administrator when they are suspending their location so that they will be suspended on the LADD gateway. If an ISO-ILL location is not suspended on the LADD gateway, requests will still reach their location even when suspended on their own library system.

Likewise, the ISO-ILL administrator for each ISO-ILL satellite site also requires a similar notification when locations are suspended. If an ISO-ILL satellite system has not suspended a location, when they then send a request to a location already suspended on the gateway, the gateway applies a status of 'suspended' on the responder side of the request. However the requester side never receives this message. For the requester, this request remains active on their ISO-ILL satellite system and does not expire.

In 2005 CAVAL VDX Support and the National Library of Australia worked together to develop a 'VDX suspensions script' (Ong 2007a). Suspension data is extracted from the LADD gateway three times a day and placed at an FTP site for collection by VDX ISO-ILL sites. After file collection, the VDX sites run the script, which is a series of SQL statements, on their satellite system. This script is only for VDX ISO-ILL sites. There is no such script for Relais or Aleph ISO-ILL sites.

We are however, working on the specifications of a new script, as alluded to earlier. These specifications aim for a new VDX suspension script, which includes a location script, which polls data from both the LADD gateway and VDX ISO-ILL sites daily. The current 'VDX suspension script' does not have the ability for ISO-ILL sites to automate the update of their own suspension status. The LADD administrator manually applies location suspensions on the LADD gateway. The plan is that the new location and suspension script will address this and provide ISO-ILL sites the ability to suspend their own location, with this suspension information being updated on the LADD gateway. This work is also investigating the possibility of updating location information on ISO-ILL sites.

While this location and suspension script will be for VDX sites, other ISO-ILL systems will benefit. With VDX sites, this formatted data will transfer automatically to remote VDX sites. For other ISO-ILL systems, system administrators will have the option to receive data as a formatted email. Thus we are investigating a new script that will enable ISO-ILL sites to receive updated location and suspended information when changes are made on VDX ISO-ILL sites and on the LADD gateway.

d. Commercial suppliers

LADD customers are able to search and request items from the two commercial suppliers Infotrieve Australia and CISTI. To use these commercial suppliers, the requesting location needs to be registered on both the commercial supplier's system and on the LADD system. Once registered, users are able to search the commercial supplier's z39.50 search target and submit requests via the LADD system, as with standard requesting to any LADD or ISO-ILL location.

Requesting with CISTI began as a trial between June and September 2003, with 46 users registered as participants. During this period 1050 requests were sent to CISTI, with more than 78% supplied. Based on the success of this trial, CISTI was established as a commercial supplier within LADD, open for all LADD and ISO-ILL users wishing to subscribe. CISTI invoice the National Library of Australia in American dollars, and for the ease of LADD customers, the NLA converts this amount to Australian dollars.

Requesting with Infotrieve Australia began as a similar trial in 2004 and also met with success. In June 2007 the Infotrieve Australia z39.50 search target was released as a trial to customers registered for requesting to Infotrieve Australia. Requesting to Infotrieve Australia via the LADD system has steadily increased.

Fig. 1 LADD requests to Infotrieve Australia

Period	Total requests	Percent change
May 2006-April 2007	4,110	
May 2007-April 2008	11,279	174%
May 2008-April 2009	16,801	19%

As of June 2009 Infotrieve Australia is currently performing ISO-ILL interoperability testing with LADD from their own VDX system.

e. Enhanced requesting

Since December 2004 the Libraries Australia Search service has offered an Enhanced Requesting option. This provides users the ability to submit interlibrary loan or copy non-returnable requests directly from search results. There are two different Enhanced Request forms available on the Libraries Australia Search interface - one for library clients and one for library/ILL staff.

For LADD member libraries that have signed up for the Enhanced Requesting option, data is mapped to a formatted email and then processed into LADD. New outgoing ILL requests submitted via the Libraries Australia Search interface arrive in the library's LADD account as idle requests. These requests require further processing within the LADD account before moving on to locations on the rota. Libraries, which use the ISO-ILL system VDX to interoperate with LADD, are also able to utilise the Enhanced Requesting functionality.

New Zealand offers an option of creating a request within Te Puna Search, a web interface using the Voyager software. The process has two stages. It allows mostly staff, although some end-users as well, to search and create requests that are transmitted as a formatted email to Te Puna Interloan (McCartin, 2004). Library staff intervene and process the request along the rota. At least one other New Zealand university is considering how this approach could meet some of its workflow needs.

The University of Auckland uses the ZPortal interface of VDX to deliver an end-user requesting mechanism. Operating since December 2006, monograph requests containing an ISBN may pass through the system unmediated. All other requests require staff intervention. Analysis identifies savings of at least NZD14,000 on an annual basis as a result of the move to end user requesting (Irwin, 2009).

3. A community of users

a. Mentoring and advice

An unexpected outcome in both environments is the number of occasions other implementing sites seek our views and advice. In the early years it was customers of the respective utilities seeking advice and confirmation of how best to use the application. Latterly our views are sought across a range of topics. These can include discussions relating to service levels or diagnosis of error reports. The latter frequently end up in three and four-way conversations. A request error visible in New Zealand can have a counterpart on LADD and on one of the local ILL systems out beyond that. Such conversations may discuss how relative systems are dealing with status-or-error-report messages or determining why note fields replicate themselves and the impact for each system. Over the decade most organisations have experienced staff turnover and with each new appointee follows a stream of questions. Often it's, "I want to run such and such. How have you done it?" Or it can be the long-running topic of parent/child relationships.

While such contact is most often among implementers of the same product, there remains the need to maintain contact with our own vendor plus the vendors of other products. Topics have included electronic delivery mechanisms, the use of ISO-ILL actions and the way in which one application generates responses to another. In these cases it is vital these discussions are in the context of the workflow involved. While both LADD and Te Puna Interloan may use a particular product, contact with other ISO-ILL system administrators and vendors is vital to the maintenance of sound interoperability practices and harmonious relationships.

b. Enhancements

Australasian VDX users have an enhancement process managed by VUGANZ. This involves the various implementation sites logging enhancement suggestions. Frequently enhancements are based on system administrators' use of the product and feedback from users. The vendor vets enhancements to ensure they are not included in forthcoming releases before consideration by an Enhancements Sub-committee made up of users. The suggestions that make it through this process go to the user group each year for voting. Based on the results the vendor accepts a certain number for inclusion in future releases, often the top ten items. VUGANZ has a process for tracking these enhancements and reporting against them, especially the release they're likely to appear in. Recent suggestions include

alerts for urgent requests and dealing with requests active on one system yet archived from another, both due in the future release VDX 5. Using this mechanism VUGANZ can also identify enhancements already delivered.

4. Upgrade themes

a. Upgrade time line

The National Library of New Zealand and the National Library of Australia both allow a lead-in time to all upgrades of up to three months elapsed time. This is to allow for preparing system environments, testing (see below) and release to the user community. While it sounds like a long period of time, it is characterised by periods of intense activity and some of almost no activity at all. The effort expended during this period has benefits later during the production upgrade. It allows us to build knowledge of the application and what to expect from it.

For the National Library of New Zealand, the early years of upgrades saw the process commence at lunchtime on a Thursday with completion on the following Sunday. This took the national utility out of core production time for 1½ days and the upgrade generally took all of this time. There was heavy reliance on the vendor, even to the point where we chased support through time zones around the world. How things have changed. Upgrades now commence on a Saturday morning and are complete by late afternoon on Sunday. Yes, some odd working hours may still occur, but no core production time is lost. Daily operations incorporate regular routines, like backup and archiving, ensuring downtime is minimised.

b. Co-operation

The 2008 upgrade of both national libraries to VDX 3.2.1 was characterised by a high degree of co-operation. The vendor played a part by setting up a fortnightly conference call with both national libraries. This allowed the sharing of experiences and test results. As upgrade dates got closer the calls became weekly and at the point of upgrade, specific to the national library involved. By sharing test results all parties were able to describe the result they wanted, assign an importance to its resolution and agree a timeline for delivery. These calls also provided the opportunity to highlight issues the other national library had not previously raised. This occurs where workflows might vary or the emphasis on a feature is more important for one party than the other. Outside of these calls there

continued a steady stream of emails and reporting between the national libraries. This was particularly effective when resolving issues with the vendor.

Also during these calls the actual upgrade dates were agreed. The national libraries usually upgrade in tandem, although the period between each is often of some weeks duration. This time the agreement was that they be a fortnight apart, and got in before both national libraries instituted their annual software freeze over the Christmas/New Year period. This met the vendor's requirements to have support staff on-call and provided sufficient time to address post-upgrade issues before the next upgrade occurred.

c. Testing

Both national libraries expend a significant amount of effort in testing new software releases. This work is essential when deploying the product as a national utility. The intention is to eliminate, as far as practicable, all faults and, if not eliminated, to mitigate against their impact. While some may consider this unnecessary because of the vendor's quality control mechanisms, the impact of a fault in a national utility can be widespread. The test routines we run also ensure a far stronger product when other sites start their implementation.

During the 2008 upgrade the National Library of Australia ran the upgrade across their own test server. New Zealand provided its test database to the vendor for installation on their server in Melbourne. It's from here that New Zealand ran its initial tests. The benefits to the National Library of New Zealand of this approach included:

- Bugs were easily identified and readily available for investigation
- Fixes were delivered more rapidly
- The process was continual and eliminated delays
- The final cut (well almost) delivered was the go-live version.

Following this process New Zealand applied the upgrade to its own test environment and, once signed off, to its training system. Both of these events enabled the gathering of knowledge and timings that fed into the final upgrade schedule. Remarkably the estimated timings and actual timings were very similar.

5. Looking Forward

a. General release web interface

At the next upgrade the National Library of New Zealand proposes adopting the VDX general release web interface. A number of considerations figure in this thinking. Currently the National Library of New Zealand and the National Library of Australia use a customised web interface. Adopting the general release version hopefully eliminates any implementation delays waiting for the national libraries' specific release. Upgrades should become simpler and support is easier for the vendor – only one interface to support. There is the expectation that this will reduce support requirements and support costs. National Library of New Zealand staff tested this interface in October 2007, albeit one version back from what operates now. The resulting report recommended moving to the general release upgrade, with two provisos. The first is to address achieving optimum performance from the application and the enterprise space. The second seeks to work with the vendor and user group to achieve display of preferred actions at specified points within the application. VDX 4 addresses this latter proviso when delivered this year.

The other side to consider is customer reaction and acceptance. Our last upgrade confirmed for us the need to get a test version out to customers early and “walk the talk”. New Zealand was fortunate to showcase the new version at the annual LIANZA conference. This created confidence among users about what we were doing and acceptance of where we were taking the implementation.

Documentation followed shortly after, along with continual updates detailing features to expect. So the customer base was prepared for the upgrade, and a successful one at that!

b. Service enhancement

The acceptance of any system has as much to do with its customer support and interaction as it does with its interface and operation. Annual research results show continual improvements in satisfaction ratings from users of Te Puna Interloan. While the results for support staff are gratifying, there remains a desire to deliver ongoing system and service improvements that allow the maintenance of these high levels of satisfaction. Because, let's face it, the possibility of them going much higher is limited.

Fig. 2 Te Puna Interloan satisfaction ratings

	2007	2008	2009
System reliability	84%	84%	93%
Layout & clarity	70%	68%	82%
Individual attention	76%	82%	90%
Reliability of response	80%	87%	95%
Willingness to respond	73%	86%	97%
Service in general	83%	87%	98%

Enhancing the service offering appears the best way to achieve this goal. When Trans Tasman Interlending went live in March 2006 there was an immediate increase in request traffic of 8.9%. This subsequently tailed off and Te Puna Interloan, while having a 4% increase in traffic in 2008/09, is at a lower level now than in 2006/07. Interestingly during this same period LADD has witnessed a steady increase in subscribers and items requested.

Fig. 3 Trans Tasman statistics

	LADD subscribers	LADD items requested	Te Puna Interloan items requested
2005/6	677	230,000	107,978
2006/7	716	277,700	117,615
2007/8	730	307,000	110,141

In New Zealand the rollout of a linked electronic delivery mechanism in March 2007 had no apparent positive impact on request traffic. To remain viable and relevant this traditional interlending and document supply service must enhance its service offering. Connections with other networks and commercial document suppliers are the most obvious paths to take. To this extent work is underway in New Zealand to provide a link to the commercial supplier Infotrieve Australia. Tentative discussions have also occurred with CISTI.

6. Final thoughts

Over the decade numerous things have changed. That upgrades now take less time reflects product maturity and the growth in product understanding of the individuals involved. The development of the ISO-ILL community means we're now all speaking a similar language and contributing to product development and interconnectivity on an equal footing. We have also seen steady improvements in customer satisfaction ratings built on exceptional customer support and the addition of value-added features. While risks continue to exist as market forces consolidate product offerings, implementing sites can take the next step with some surety for the future. Now we're getting somewhere (Crowded House, 1986).

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