

Linking Systems

Transforming Resource Sharing Through ISO ILL and Other Standards

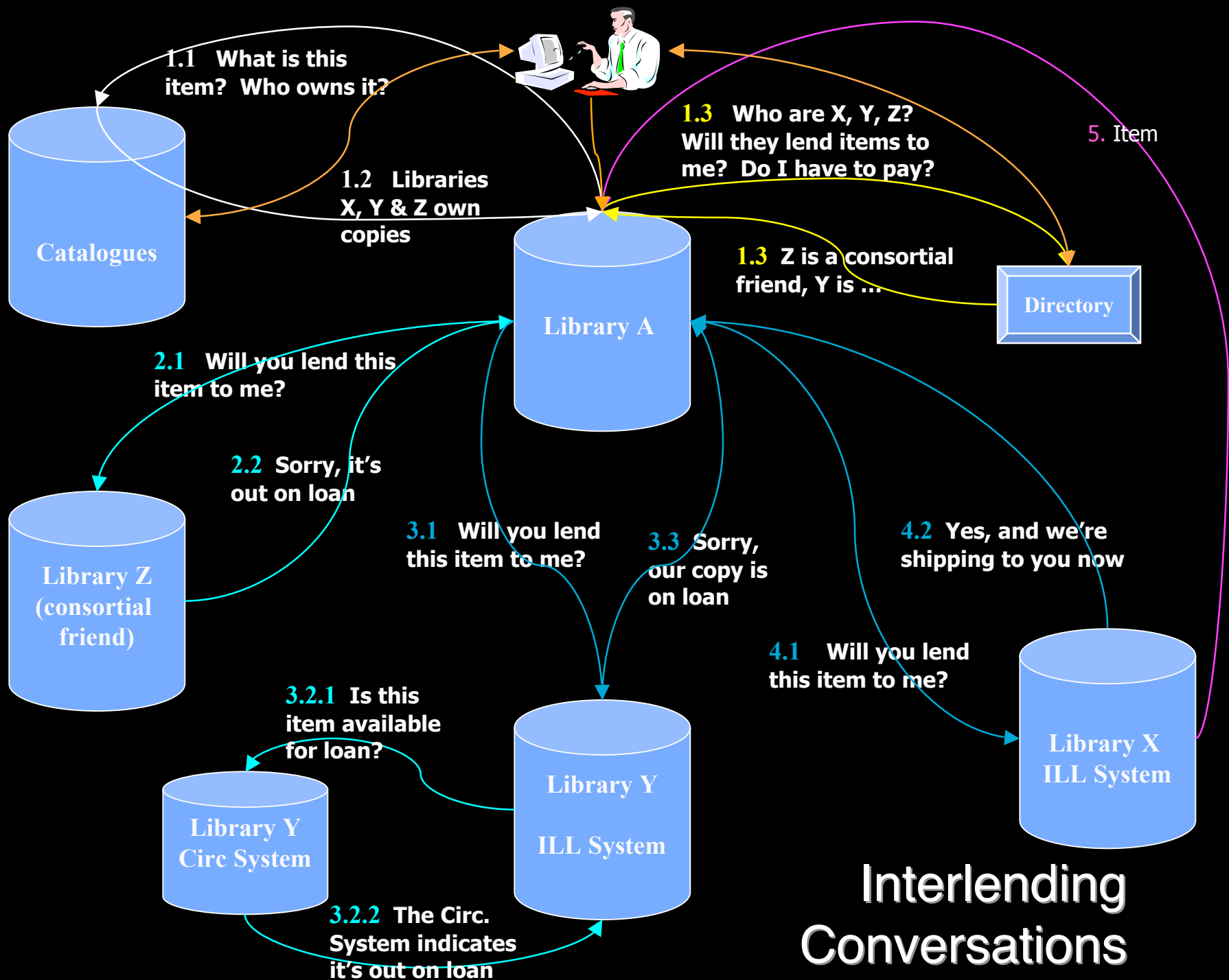
CLA 2004 17 June 2:20 pm Session 206

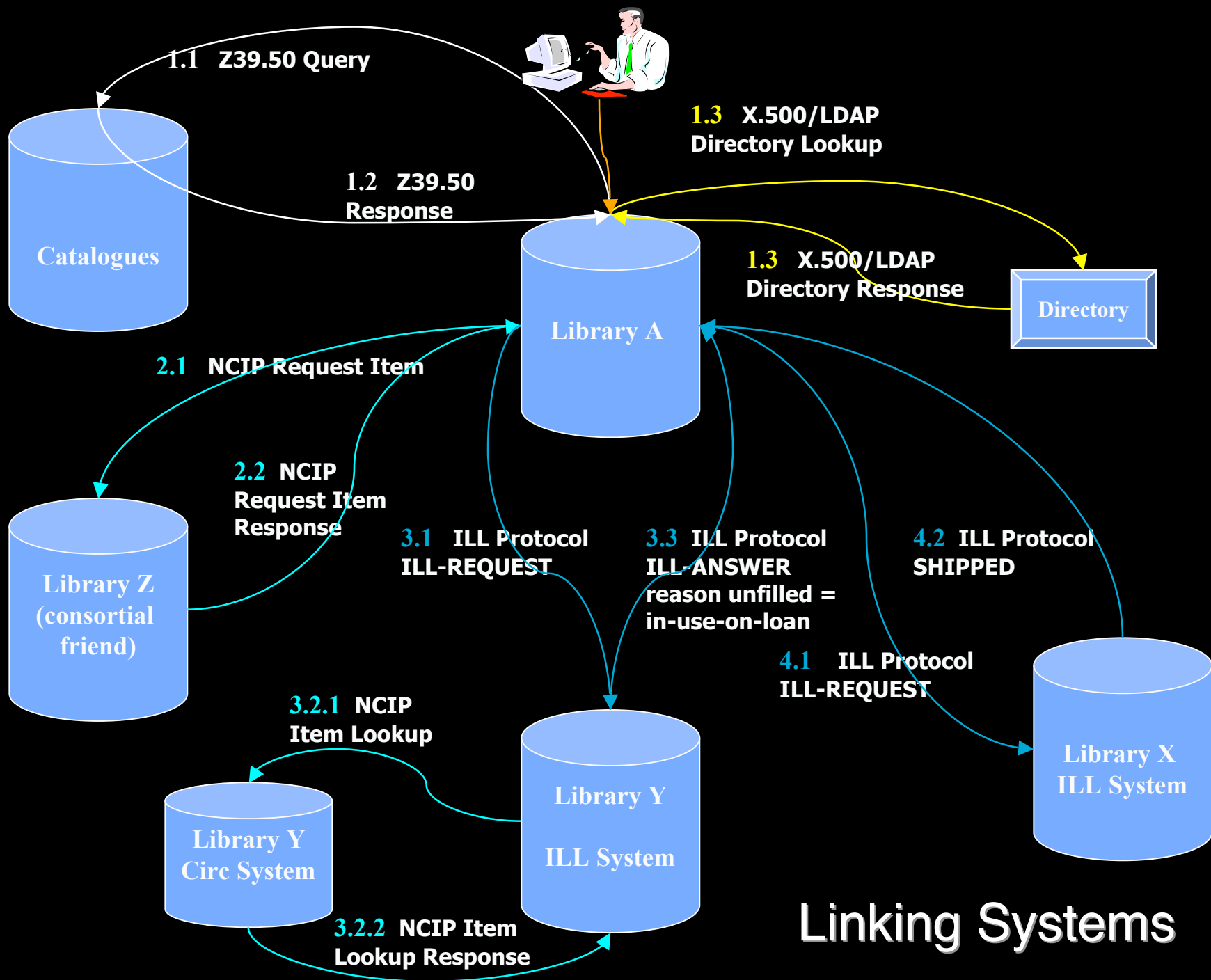
Background on

Library Communications Protocols

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Machine-to-machine conversations

- System to system, application to application
 - not person to person
- Human users only interact with local application
 - never directly with remote system
- Protocols invisible to the human users of the application
 - ... when applications are well designed

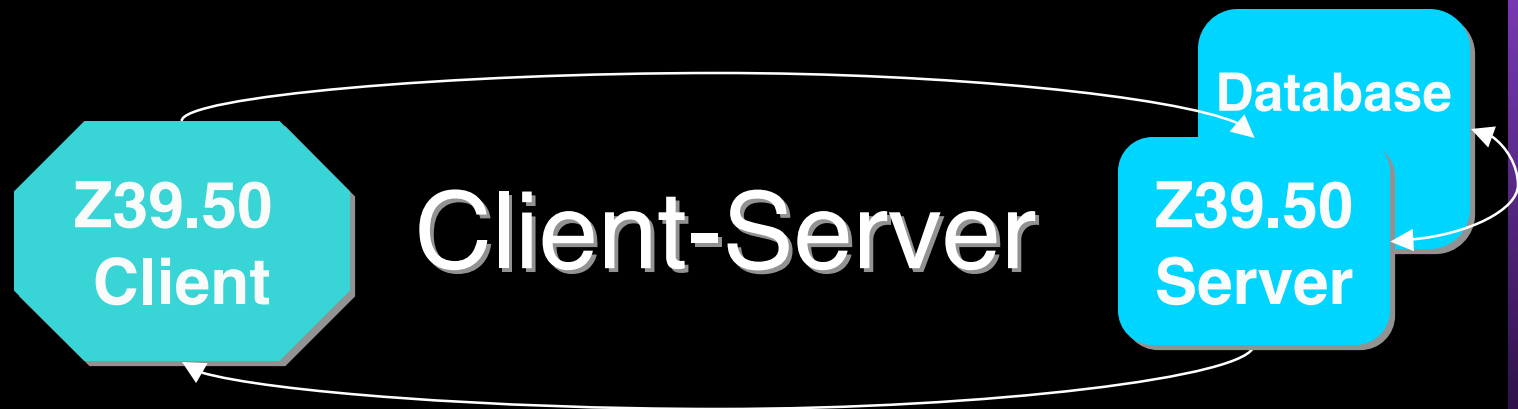
Library Communication Protocols

- Provide rules for sets of messages and associated behaviour for use by libraries to perform resource-sharing activities
 - in a distributed network environment, i.e.,
 - from different manufacturers
 - under different managements
 - of different levels of complexity
 - of different technologies
 - text from intro of ISO 10161-1 and X39.50

Peer to Peer



Vs.

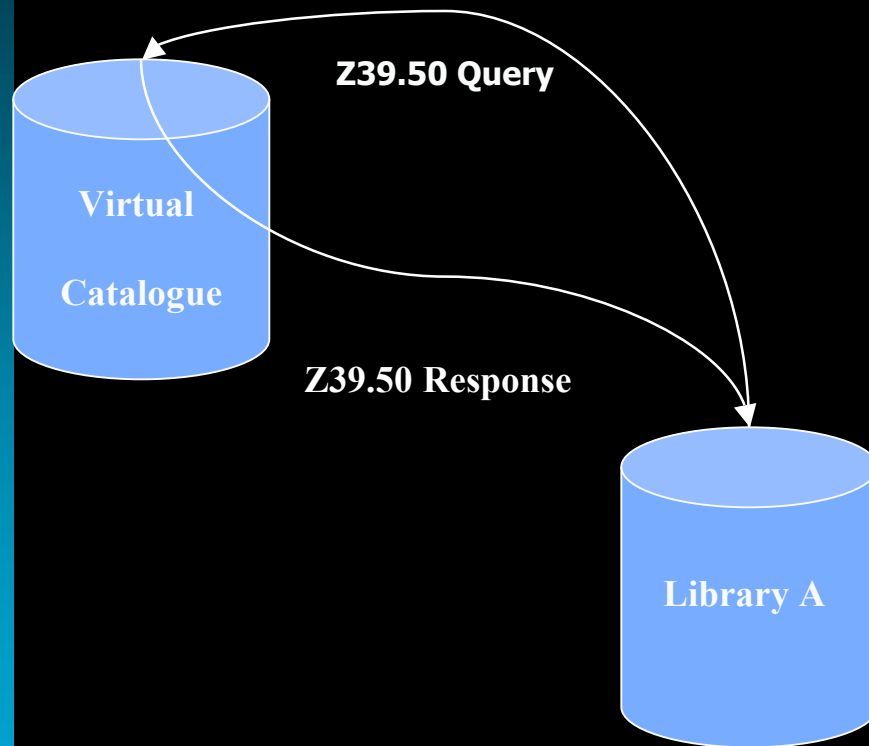




Vs.



Z39.50



- Search and Retrieval
 - NISO Z39.50 - 2003
 - ISO 23950
- Maintenance Agency at the Library of Congress
- Used for
 - Verification of bibliographic data
 - Identification of locations

Z39.50

- Is an international standard which
 - Is a computer-to-computer protocol for communication between different systems to search & retrieve information
 - Provides an abstract model of information retrieval
 - Language for expressing searches (attributes)
 - Means to encode searches and results
- Is not:
 - User interface
 - Local application functionality
 - Solution to cataloguing & systems differences

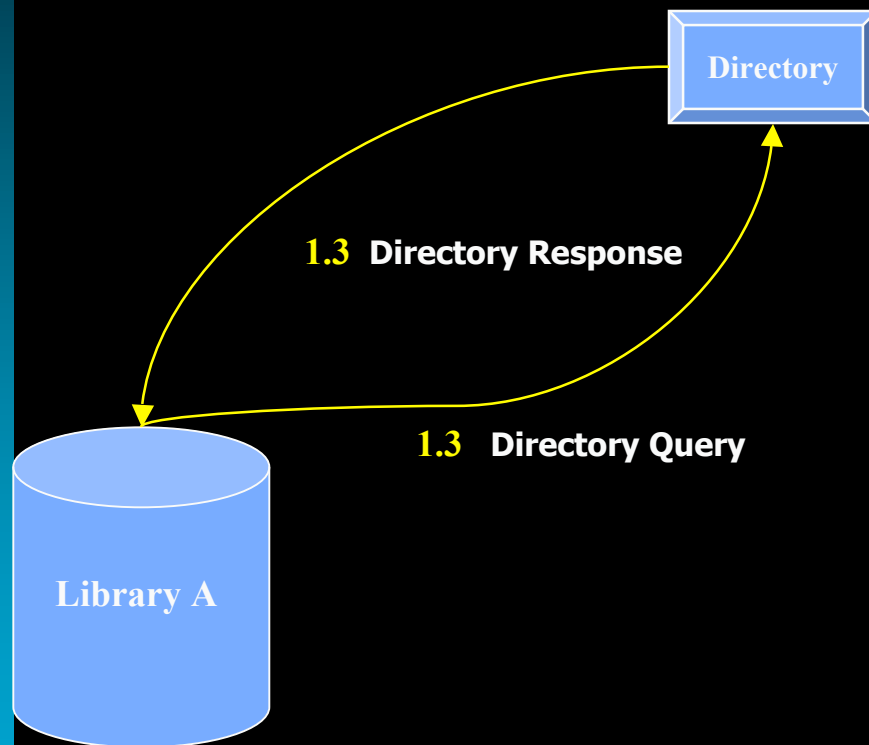
Z39.50 Issues

- Choices
 - Support different attributes
 - Vendors have selected different options or interpretations
 - Support different record syntaxes
 - Standard does not provide clear product specifications for developers
- Can be complex to implement
- Until recently no definition for exchange of holdings
- Cataloguing, semantic, systems & firewall issues
- Partial solution = Profiles
 - Bath Profile
 - NISO Z39.89 - 2003

Current Status/Future

- Z39.50 widely implemented
 - Internationally
 - 1819 servers
 - Canada
 - 115 catalogues represented
- Profiles not widely implemented
- Z39.50 & the Web
 - SRU/SRW

Directories



- Directory Services for Interlibrary Loan (IPIG)
- X.500 / LDAP
- ISO 2146
- proof-of-concept:
 - OCLC/NLA/NLC-OpenILL

Directory Scenarios

- Who is this Library, will it lend to me and if so, how much will it cost?
- Which libraries holding this item will lend to me at a price I can afford and using request methods that I support?
- What level of protocol support does this library have and which address should I use?

Global ILL Directory

Network: Long-term Benefits

- Access to standards-based ILL policy data
 - help ILL systems work better
 - ultimately serve the patron better
 - help globalize community of Interlending partners
- Maintain lending policies in a shared directory
 - Reduce work and improve accuracy of directory information

Global ILL Directory

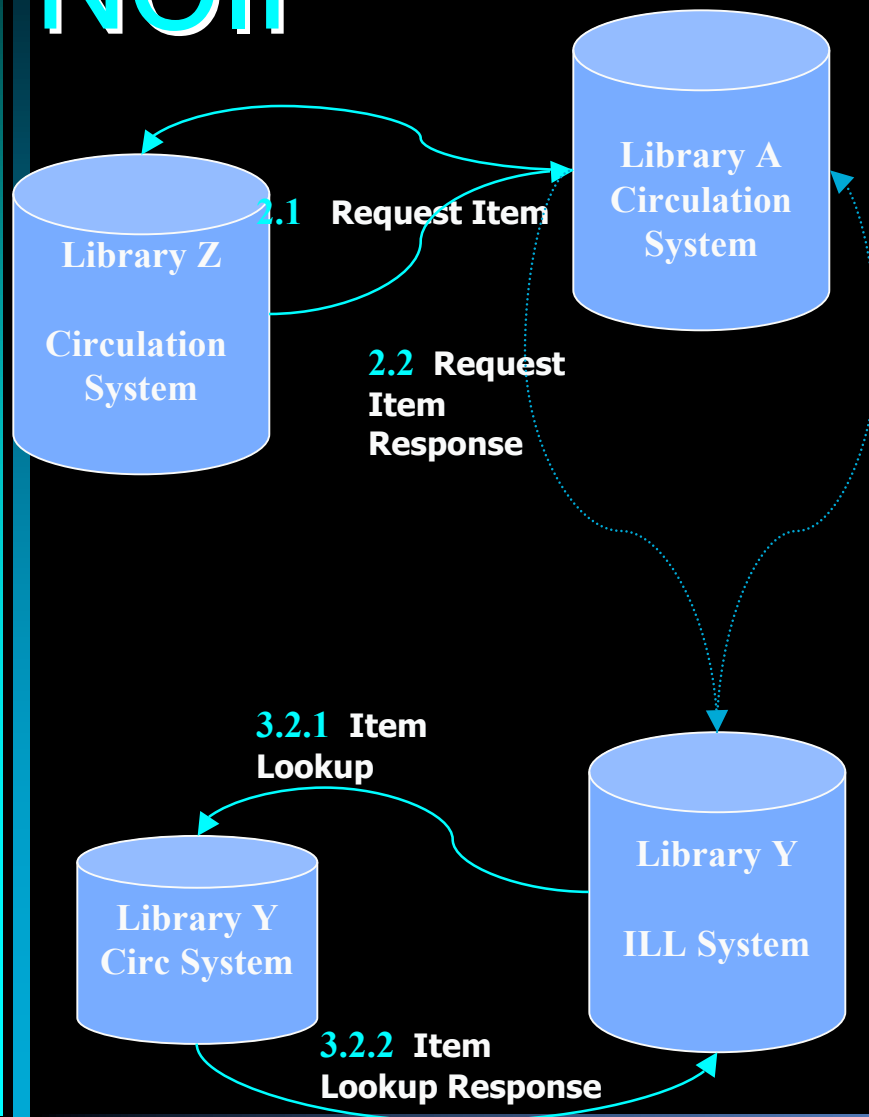
Network: A Vision

- International framework facilitating the sharing of ILL policies and automated ILL requests
- Proof-of-concept directory network
 - National Library of Australia/Fretwell-Downing
 - OCLC
 - LAC/OpenILL
- Using X.500/LDAP
 - Client-server protocol used to retrieve and manage ILL directory information
 - Directory schema based on the IPIG Directory Services Information Model

“Directory” Issues for Canadian Libraries

- Canadian model of ILL directory
 - What data elements and services are required?
- Authoritative Master File
 - Who will own the Master directory?
 - Centralized or distributed?
 - Who will maintain the data?
 - Centralized or distributed?
 - What are the security requirements?
- Why X.500 or LDAP?

NCIP



- Circulation Interchange Protocol
- ANSI/NISO Z39.83-2002
- Connection-oriented, sessionless
- Talks "XML"

NCIP

- Protocol specifies 45 services
 - Each service comprised of a pair of messages
 - Initiation message
 - Response message
 - Each service is independent of any other service

NCIP Objects

- Agency Object
 - Library or other organization that lends items from its collection(s) or provides related services to one or more classes of users
- Item Object
 - Physical or logical (electronic) entity within an Agency's collection that may be lent or to which access may be provided to a User
- User Object
 - Person or organization that is or may become an authorized user of items owned by an Agency

NCIP Services

- Lookup
 - Tell me something about...
 - an Agency, an Item or a User
- Update
 - Please take an action
 - Typical circulation activities, maintaining Object info, tracking items
- Notification
 - I have taken an action
 - Notification of actions taken
 - One for each update...

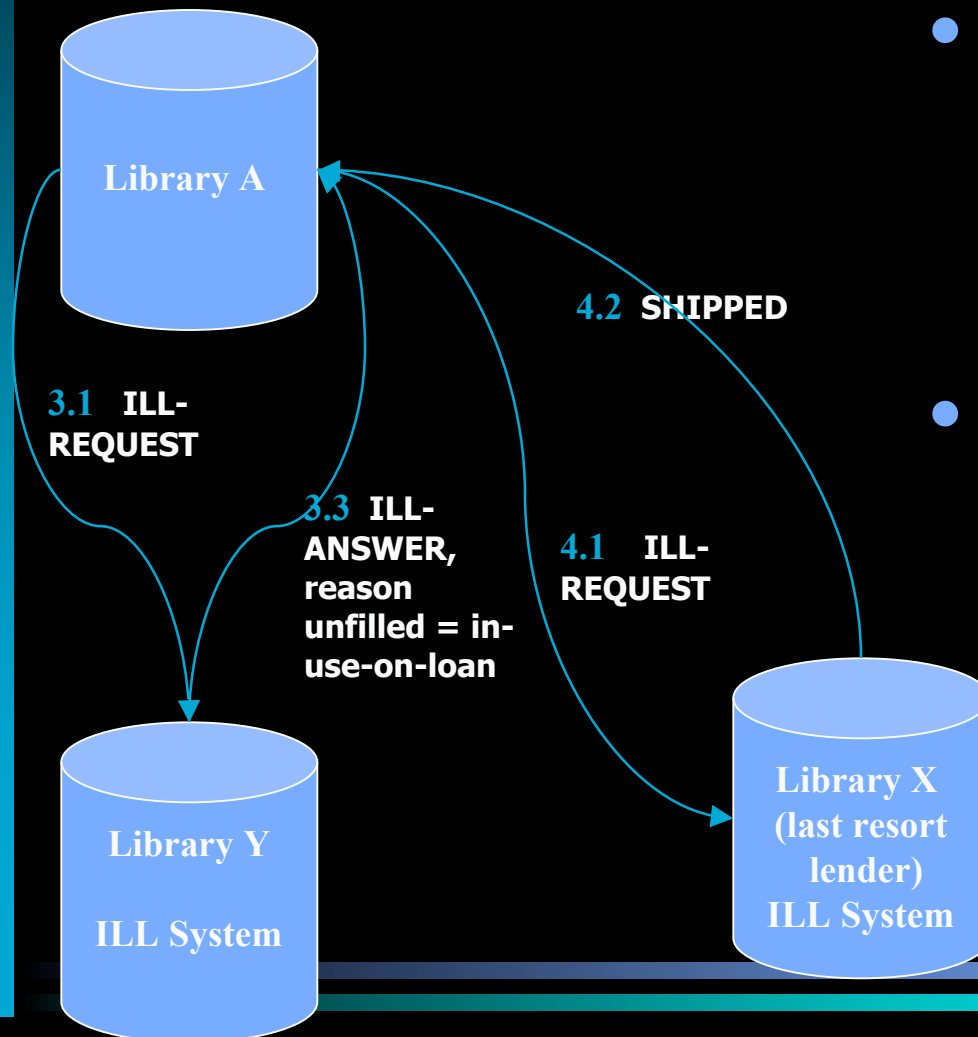
Current Status:

- Potential to support:
 - Direct Consortial Borrowing
 - Circulation/Interlibrary Loan Interaction
 - Self-Service Circulation
- Has an active implementors group
 - A sign that implementations are progressing?
- Most applications still under development;
- Watch for announcements from vendors this summer

NCIP Issues

- Many choices allow implementation of many models
- No required messages; implementors can pick and choose
- Still not stable; Implementor's Group is tweaking the standard.

ILL Protocol



- Interlibrary Loan Application
 - ISO 10160:1997
 - ISO 10161-1:1997
- Uses either
 - Internet connections
 - E-mail
- “Talks” ASN.1 BER

ILL Protocol

- Protocol specifies 20 messaging services
 - Covers activities during life of an ILL-Transaction
 - Always starts with the ILL-REQUEST for an item
 - Continues with an ILL-ANSWER or SHIPPED
 - Tracks the stages of a Loan (RECEIVED, RETURNED, CHECKED-IN, LOST, DAMAGED, etc.)
- Helps applications track ILL activities
 - Record the current state of each ILL transaction
 - Maintain a history of ILL activities

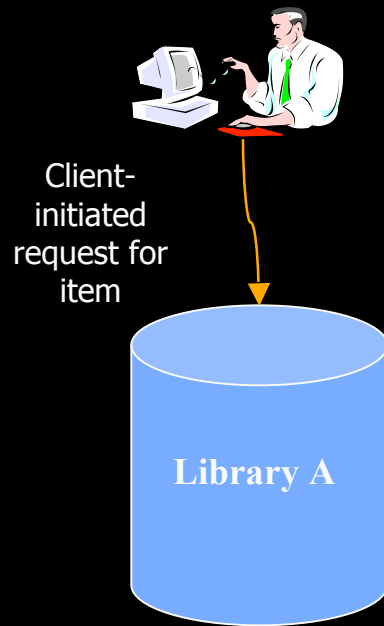
ILL Protocol: IPIG Profile

- Limits use of some messages
 - Forwarding handled outside the protocol
 - Role of intermediary outside scope of profile
 - Provides structures for some information to facilitate machine parsing
 - Allows for uses of both E-mail (mandatory) and Internet connections (optional)

ILL Protocol: Status of Implementation

- Interoperability Testing
 - Market-driven conformance
- Implementors:
 - National Libraries
 - Canada, Australia, New Zealand, UK
 - Bibliographic Utilities
 - RLG (Shares), OCLC
 - Lending partners outside consortial boundaries
 - Universities & other large research libraries
- Version 3

Request Submission Message



- Message used by a client to submit a request for an item
- Developed by IPIG
- “Talks” XML
- Not yet widely implemented
- Being registered as an OpenURL

Interlending Conversations

- Question and Answer Period