Public Library Technologies:
Challenges in times of Council Amalgamations

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29 November 2016

Workshop for NSW Public Library Services

Summary

Explore the technologies able to help public libraries meet the challenges they face in fulfilling their missions. Describe the current state of the art in library technologies available today.

A view into the future. What is the outlook for libraries and what technologies are needed to meet these aspirations?

Library Technology Guides

Documents, Databases, News, and Commentary

Library Technology Guides provides comprehensive and objective information surrounding the many different types of technology products and services used by libraries. It covers the organizations that develop and support library-oriented software and systems. The site offers extensive databases and document repositories to assist libraries as they consider new systems and is an essential resource for professionals in the field to stay current with new developments and trends. Relevent news items are posted daily on Twitter:

GuidePosts

Perspective and commentary by Marshall Breeding

Blog Archive 📶 RSS

Come see Marshall Breeding at Computers in Libraries 2015

Hear Me Speak at
computers in libraries 2015
APRIL 27-29 2015
Washington, DC
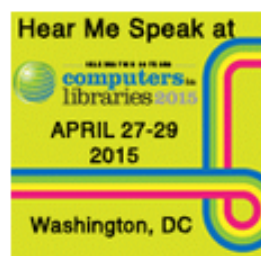
I'll be in Washington, DC soon for the annual Computers in Libraries conference, speaking on a variety of topics. I'm looking forward to seeing lots of friends and colleagues. Please feel free to track me down and introduce yourself or follow me through Twitter (@mbreeding). Here is my speaking schedule for the conference:

W6 – Library Resource Management: Strategies, Technologies, and Practices

Preconference Workshop, Sunday April 26, 2015 9:00 AM – 12:00 Noon

Library collections today have become more complex than ever, with proportions of electronic and digital resources increasing relative to print and other physical materials. To manage these complex, multiformat collections

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Search LTG: [ ]

Industry News

Saturday Apr 25, 2015   📶 RSS

**Full Automation News Report**

20 most recent items:

April 24, 2015. **Scholastic To Sell Educational Technology Business To Houghton Mifflin Harcourt For $575 Million To Focus On Global Core Children's Books And Supplemental Education Businesses.** Scholastic Corporation (NASDAQ: SCHL) today announced that it has entered into a definitive agreement to sell its Educational Technology and Services ("EdTech") business to Houghton Mifflin Harcourt C ... **<<more>>**

April 23, 2015. **Boopsie achieves major milestones with 3 million mobile app downloads to date and 400,000 unique app users per month.** Boopsie announced

Mergers and Acquisitions

http://librarytechnology.org/mergers
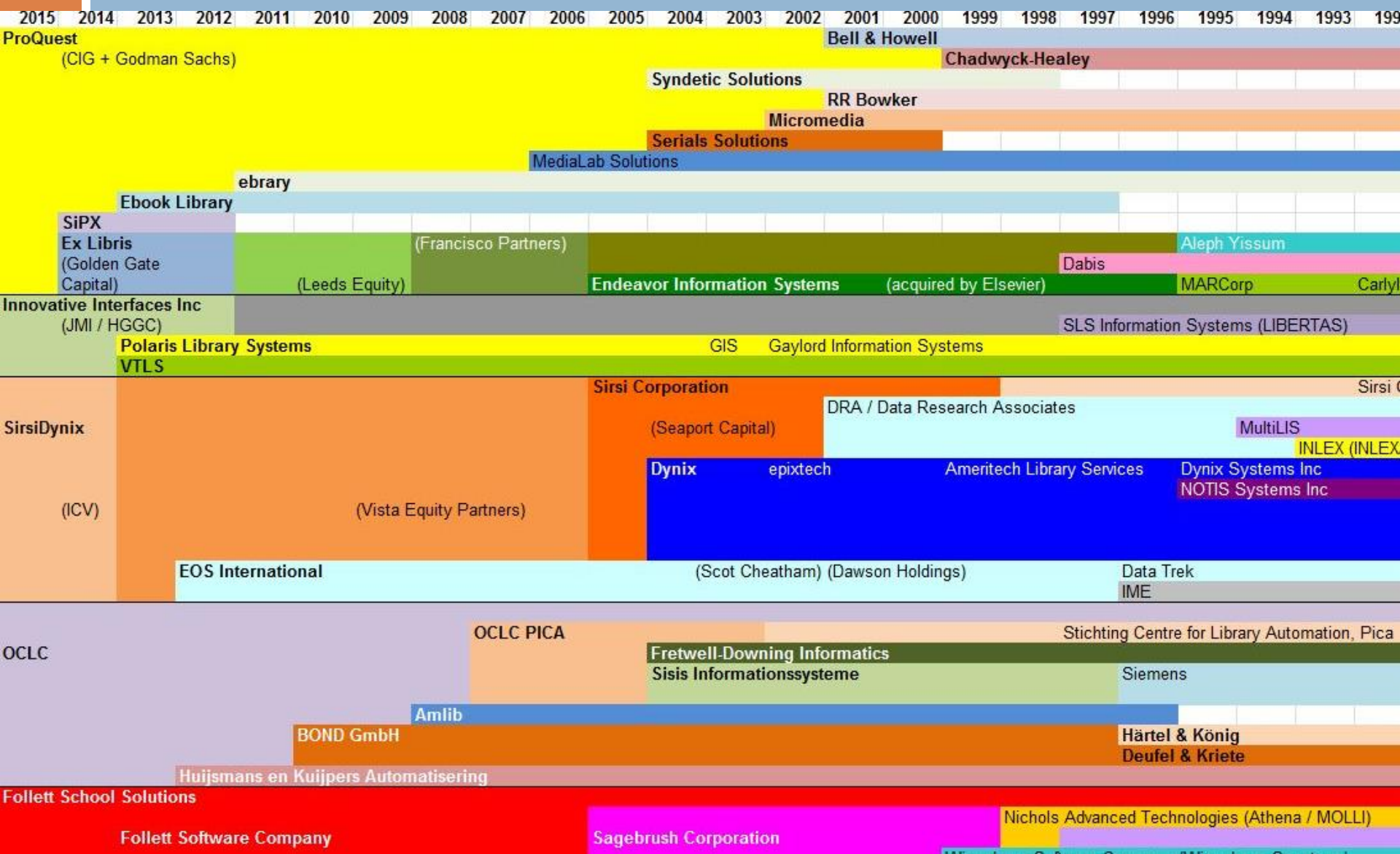
Library Technology Industry Reports

American Libraries

- 2014: Strategic Competition and Cooperation
- 2015: Operationalizing Innovation
- 2016: Power Plays

Library Journal

- 2013: Rush to Innovate
- 2012: Agents of Change
- 2011: New Frontier
- 2010: New Models, Core Systems
- 2009: Investing in the Future
- 2008: Opportunity out of turmoil
- 2007: An industry redefined
- 2006: Reshuffling the deck
- 2005: Gradual evolution
- 2004: Migration down, innovation up
- 2003: The competition heats up
- 2002: Capturing the migrating customer

Library Systems Report 2016

"Power Plays"
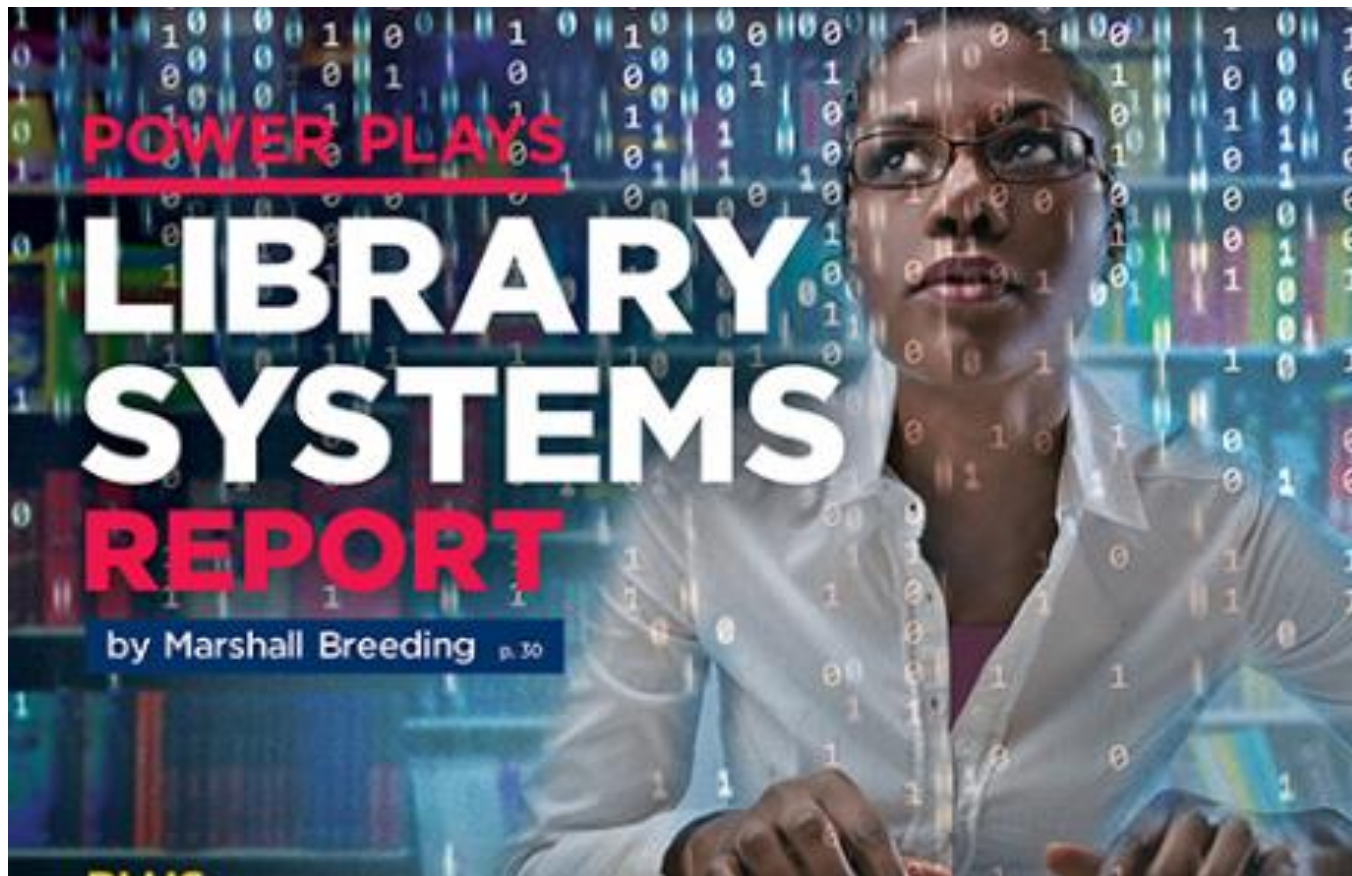
International Perceptions Report

- http://librarytechnology.org/perceptions/2015/
- Based on a series of annual surveys addressed to libraries
- Probes levels of satisfaction with their automation systems
- 3,453 responses to 2015 survey
- 1,050 narrative comments
- Conducted since 2007: view trends over time
- Data collected Nov-Dec, published early the following year
- Linked to entries in libraries.org

Perspective

- Increasing divergence among library types regarding requirements for supporting technical infrastructure: Academic, Public, National, School, Special

- Approaches to library service vary according to international region

- Broad range of economic capacity or support across countries and regions and even within some countries. (especially United States)

Each library type distinctive:

- Academic libraries: ever increasing proportions of electronic content, print diminishing rapidly

- National libraries: large unique collections of historical and cultural materials

- Public Libraries: Mostly print collections to meet the reading and research needs of diverse patrons

Size matters

- Large libraries tend to have more resources and better access to technologies

- Small libraries are not well served by current technical and business environment

- Important to focus on ways to make collections, electronic content, and technology available to under-resourced libraries

Stronger Councils | Stronger Communities

New Councils

The Minister has announced that he will proceed with the formation of the following councils:

- **Armidale Regional Council** : The merger of Armidale Dumaresq and Guyra Shire councils
- **Bayside Council** : The merger of City of Botany Bay and Rockdale City councils
- **Canterbury-Bankstown Council** : The merger of Bankstown City and Canterbury City councils
- **Central Coast Council** : The merger of Gosford City and Wyong Shire councils
- **City of Parramatta Council** : The merger of Parramatta City*, The Hills Shire*, Auburn City*, Holroyd City* and Hornsby Shire* councils
- **Cumberland Council** : The merger of Parramatta City*, Auburn City* and Holroyd City* councils
- **Edward River Council** : The merger of Conargo Shire and Deniliquin councils
- **Federation Council** : The merger of Corowa Shire and Urana Shire councils
- **Georges River Council** : The merger of Hurstville City and Kogarah City councils
- **Cootamundra-Gundagai Regional Council** : The merger of Cootamundra Shire and Gundagai Shire councils
- **Hilltops Council** : The merger of Boorowa, Harden Shire and Young Shire councils
- **Inner West Council** : The merger of Ashfield, Leichhardt Municipal and Marrickville councils
- **Mid-Coast Council** : The merger of Gloucester Shire, Great Lakes and Greater Taree City councils
- **Murray River Council** : The merger of Murray Shire and Wakool Shire councils
- **Murrumbidgee Council** : The merger of Jerilderie Shire and Murrumbidgee Shire councils
- **Northern Beaches Council** : The merger of Manly, Pittwater and Warringah councils
- **Queanbeyan-Palerang Regional Council** : The merger of Palerang and Queanbeyan City councils
- **Snowy Monaro Regional Council** : The merger of Bombala, Cooma-Monaro Shire and Snowy River Shire councils
- **Snowy Valleys Council** : The merger of Tumbarumba Shire and Tumut Shire councils
- **Dubbo Regional Council** : The merger of Dubbo City and Wellington councils

Amalgamation of Councils

- Many mergers involve incumbent councils with different library management systems

- Interim strategy to operate multiple systems while selecting new

- Need to assess strategic priorities and find best fit

Organizational consolidation

- Stronger Councils is an example
- Libraries can also gain more impact as they cooperate
- Even the amalgamated councils are well below the potential cooperative levels of libraries.

Considerations beyond current council boundaries

- Possibilities of consortia that span more broadly than new council arrangements

- Full range of options between state-wide one-card systems (South Australia) to individual council implementations

- Current round of forced migrations provide an opportunity to consider other strategies

Consortial benefits

- Larger implementations usually mean more leverage with LMS vendors

- Less burden on library or council IT departments to implement and maintain LMS

- General trend toward collaborative automation infrastructure

- Larger aggregate collections with more resources for customers

Ability to review strategic priorities.

- Management and Circulation of print resources is an essential service

- Very little differentiation among competing LMS products

- Commoditizing print management enables libraries to focus on other services with more impact

Changing models of Resource Sharing

Integrated Library System

Model:
Multi-branch
Independent
Library
System

Holdings

Main Facility

Branch 1	Branch 5
Branch 2	Branch 6
Branch 3	Branch 7
Branch 4	Branch 8

Bibliographic
Database
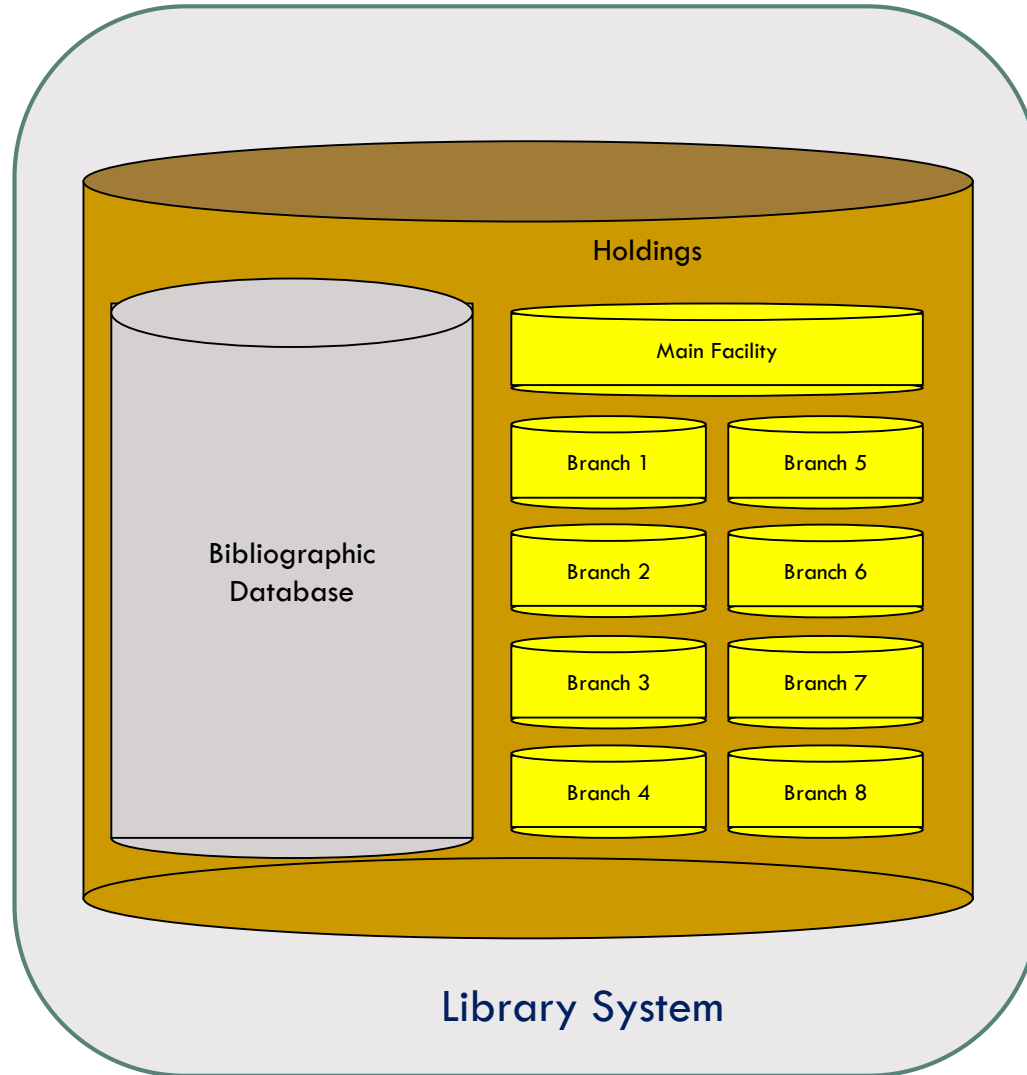
Patrons use
Circulation features
to request items
from other branches

Floating Collections
may reduce
workload for
Inter-branch
transfers

Library System

Consortial Resource Sharing System

Shared Consortial ILS

Search: _____

Model:
Multiple
independent
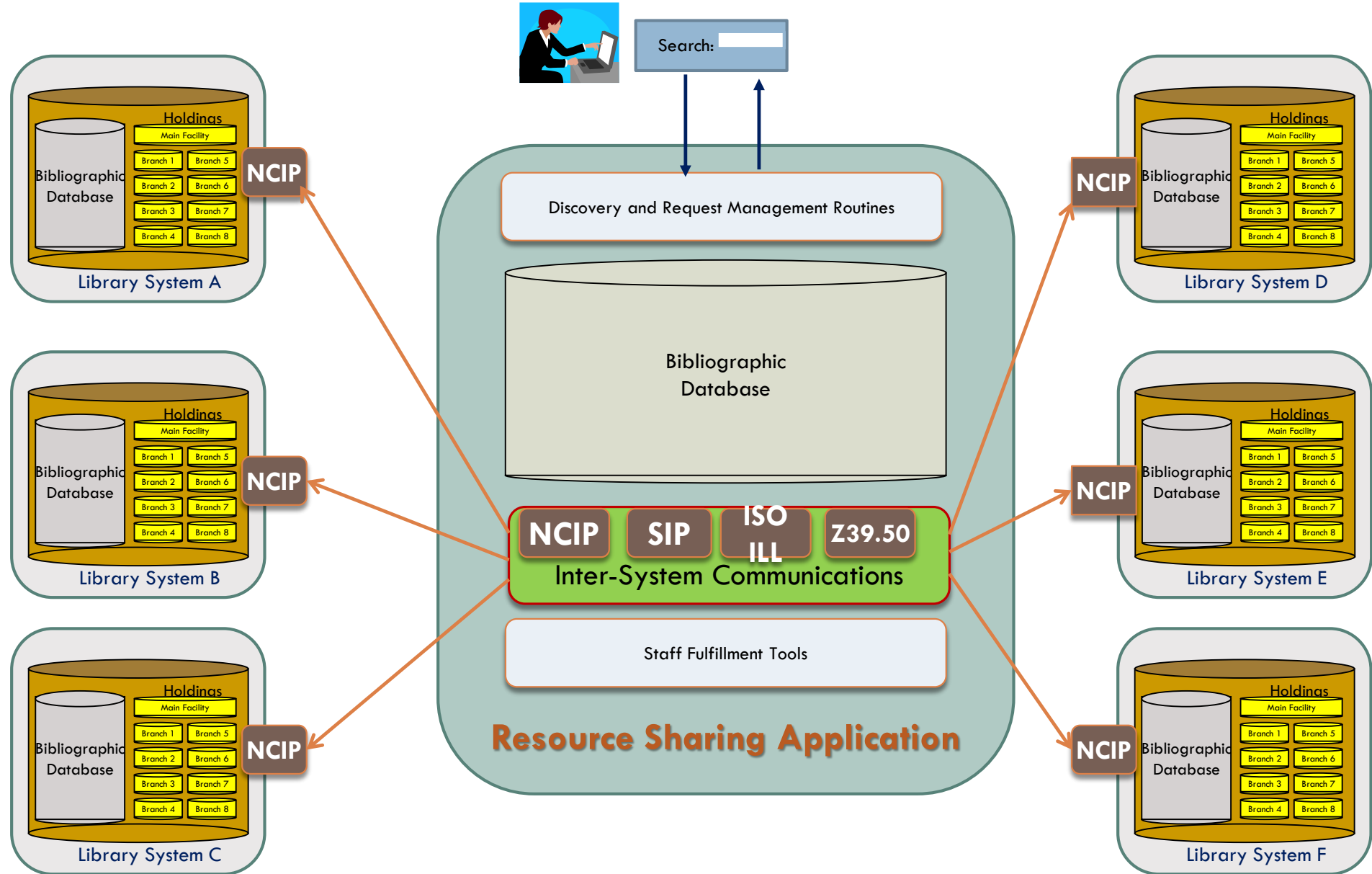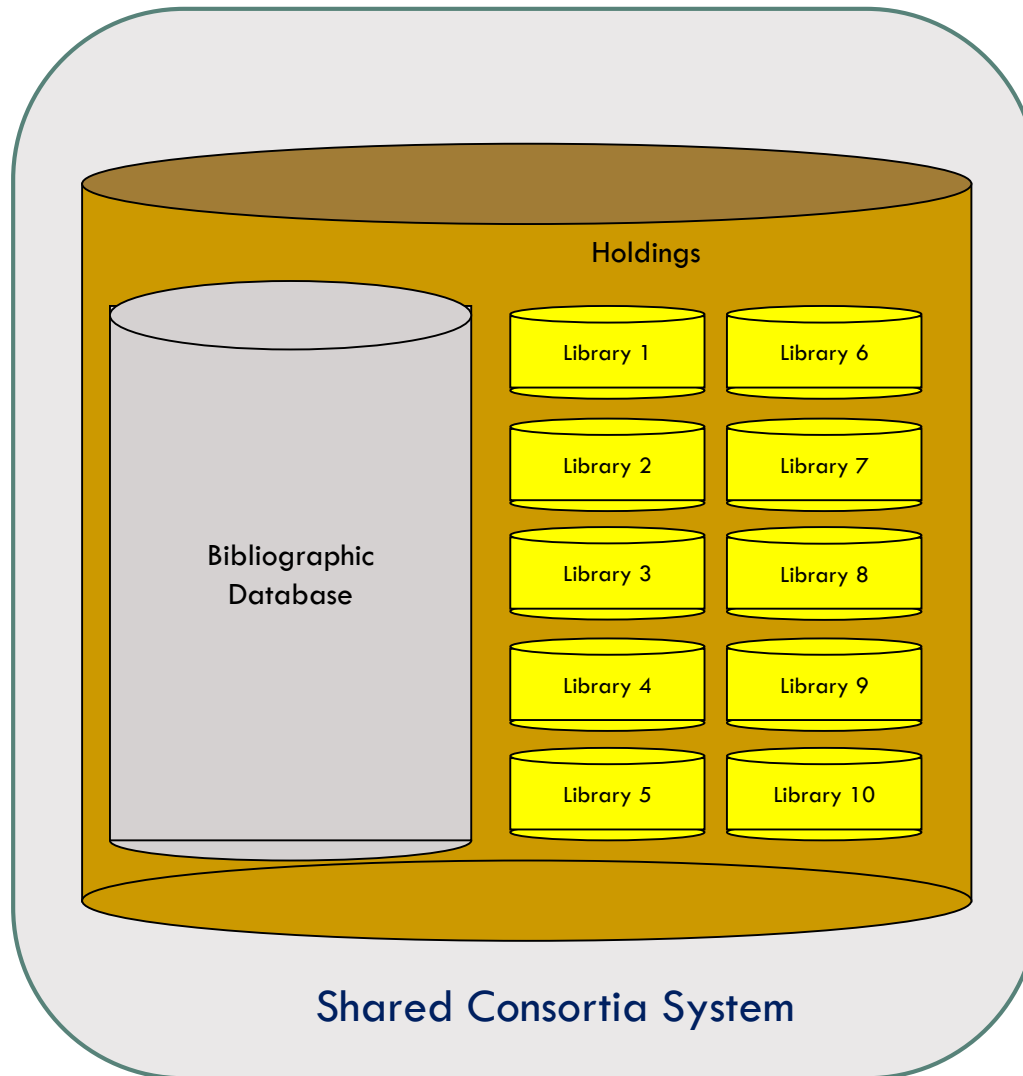libraries in a
Consortium
Share an ILS

ILS configured
To support
Direct consortial
Borrowing through
Circulation Module

Holdings

Bibliographic
Database

Library 1

Library 6

Library 2

Library 7

Library 3

Library 8

Library 4

Library 9

Library 5

Library 10

Shared Consortia System

Levels of Collaboration

- Buying club: libraries agree to use the same system
  - Price leverage, similar training, etc
  - Each collection managed in a separate Local Zone
  - Can implement unified discovery
- System-wide infrastructure
  - Most collections managed in Network Zone
  - Collaborative collection development
  - More efficient direct consortial borrowing
- Global resource sharing
  - Manage collections in Community Zone
  - Similar to OCLC WorldShare Management System model

Benefits of shared infrastructure

- Increased cooperation and resource sharing
- Collaborative collection management
- Lower costs per institution
- Greater universe of content readily available to patrons
- Avoid add-on components for union catalog and resource requests and routing

Increased interest in shared infrastructure

- Single-institution ILS may not be the most efficient automation model
- Increased cooperation and resource sharing
- Collaborative collection management
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Shared infrastructure projects (academic)

- Orbis Cascade
- WHELF (Wales)
- JULAC (Hong Kong)

- California State University
- University System of Georgia
- Complete Florida Plus Program
- University of Wisconsin system

Shared infrastructure Projects (Public)

- Ireland
- Iceland (all types)
- Slovenia (all types)
- Denmark
- Chile

- South Australia
- Illinois Heartland (~600 libraries)

Key Trends in Library Technology

Web-based Interfaces

- Deliver all functionality for staff and patrons through a Web browser

- Eliminate the need for software to be installed on computers of library service desks and those use by library personnel

- Greatly reduces the difficulty of maintaining systems

Hosted Services

- Server software hosted by vendor or other provider
- Eliminates servers and software managed within the library
- Allows a library's technical staff to concentrate on creating or deploying services with more impact

Emphasis on Mobile

- Ever increasing proportions of access by smartphones
- Sales of desktop and laptop computers falling
- Essential for library services to be mobile-friendly:
  - Mobile Apps
  - Responsive Web Design

Multi-tenant Platforms

- Globally distributed environments supporting multiple institutional implementations
- Example: Library Services Platforms
  - Currently oriented to academic libraries
  - Ex Libris Alma; OCLC WorldShare Management Services
- Expected architecture for any newly-developed software
- Multi-tenant platforms not yet created for public libraries

Tech Infrastructure Investments

- Web-based services minimize need for locally owned computers
- Computer equipment becomes obsolete quickly
- Invest in fast and reliable Internet connectivity
  - Benefits libraries
  - Benefits the community

Open Source vs Proprietary Software

- Library software available under both models
- Proprietary software adopted in libraries with more reliable budgets
- Open source software very popular in Latin America
- Commercial support of open source represents a growing portion of ILS implementations in the US

Public Library Perspective

Key Issues for Public Libraries

- Ongoing reliance on print collections
  - Majority of collection budgets allocated for print
  - Minority on electronic materials
- Circulation of physical materials continues at vigorous levels
- Steady if not rising circulation statistics
- New services for e-book lending

Public Library Trends

- Operational strategies distinct from academics
- Vigorous lending services of physical materials
- Emphasis on customer engagement
- Lending of downloadable e-books and audiobooks; streaming of digital content
- Requirements for organically integrated environments which promote the brand and services of the library

Evolutionary Development

- Observation that public libraries continue to rely on evolved ILS products
- Lack of systems built anew for public libraries

Reliance on Integrated Library Systems

- Evolution of traditional ILS viable for public libraries
- Library services platforms not currently optimized for public library business needs
- Public libraries seek more modern technology
  - Many moving to vendor-hosted implementations
  - Interest in fully web-based interfaces
  - Concern for support of high volume transactions

ILS reigns in public libraries

- No re-designed platforms for public libraries
  - Axiell recently announced a library services platform for public libraries (initially for France and Norway): Queria
- ILS model remains in place
- Evolving toward modern platforms
- Integration of e-book functionality

Public Library ILS expectations

- Strong functionality for circulation
  - Far beyond check-outs and returns
  - Maximize the impact of the collection
  - A single collection distributed among multiple facilities
  - Floating collections
  - Manage access to high-demand items

Two vectors of Technology

- Enhance experience within physical facilities
- Deliver library services and collections virtually
- Common goals of customer delight and engagement

Emphasis on Digital Lending Services

- Most public libraries offer some type of e-book lending service
- Ongoing reliance on content provided by OverDrive, Recorded Books, Bibliotheca, Odilo and others
- Interest in library centered e-book lending solutions
  - NYPL: SimplyE App (created as part of the Library Simplified initative)

Support for Service Delivery

- Better tools for all aspects of public service
    - Circulation, Reference, Interlibrary Loan, etc
- Follow a customer relationship management approach
- Ability to measure, assess, and improve service quality
- Tailored to the profile of the patron

Maximize use of Physical Collections

- Provide efficient support for lending materials
- Find the right balance of high-tech versus personal service
- Balance depends on cultural and economic context

Public Library Discovery

- Beyond simple search and retrieval
- Multiple discovery scenarios
  - Serious research: find all relevant materials on a topic
  - Serendipity: Help patrons come across interesting items to read
  - Virtual experience of browsing library shelves
    - Random points of entry
    - Related materials gathered together

Global Public Library LMS Vendors

- Innovative Interfaces: Sierra, Polaris, VTLS (international)

- SirsiDynix: Symphony or Horizon + BLUEcloud (international)

- Civica (international, esp. Australia, Asia, UK)

- Global academic library vendors: ProQuest/Ex Libris, OCLC

Regional / Local Public Library LMS Vendors

- The Library Corporation (US, Singapore)
- Axiell (Scandinavia, UK)
- Baratz (Spain, Latin America)
- Infor (International, esp Europe, Canada)
- Aurora Information Technologies (Australia)
- Insight Informatics (Australia)

Public Library Discovery Strategies

- Emphasis on engagement and user experience
- Key providers
  - BiblioCommons: BiblioCore, BiblioCMS
  - AIT: Montage
  - Axiell: Arena
  - Infor: Iguana
  - Innovative: Encore
  - SirsiDynix: Enterprise

The Virtual Branch

- More than a Web site, but a vehicle for remote delivery of services and fulfillment of content

- Requirements for organically integrated environments which promote the brand and services of the library
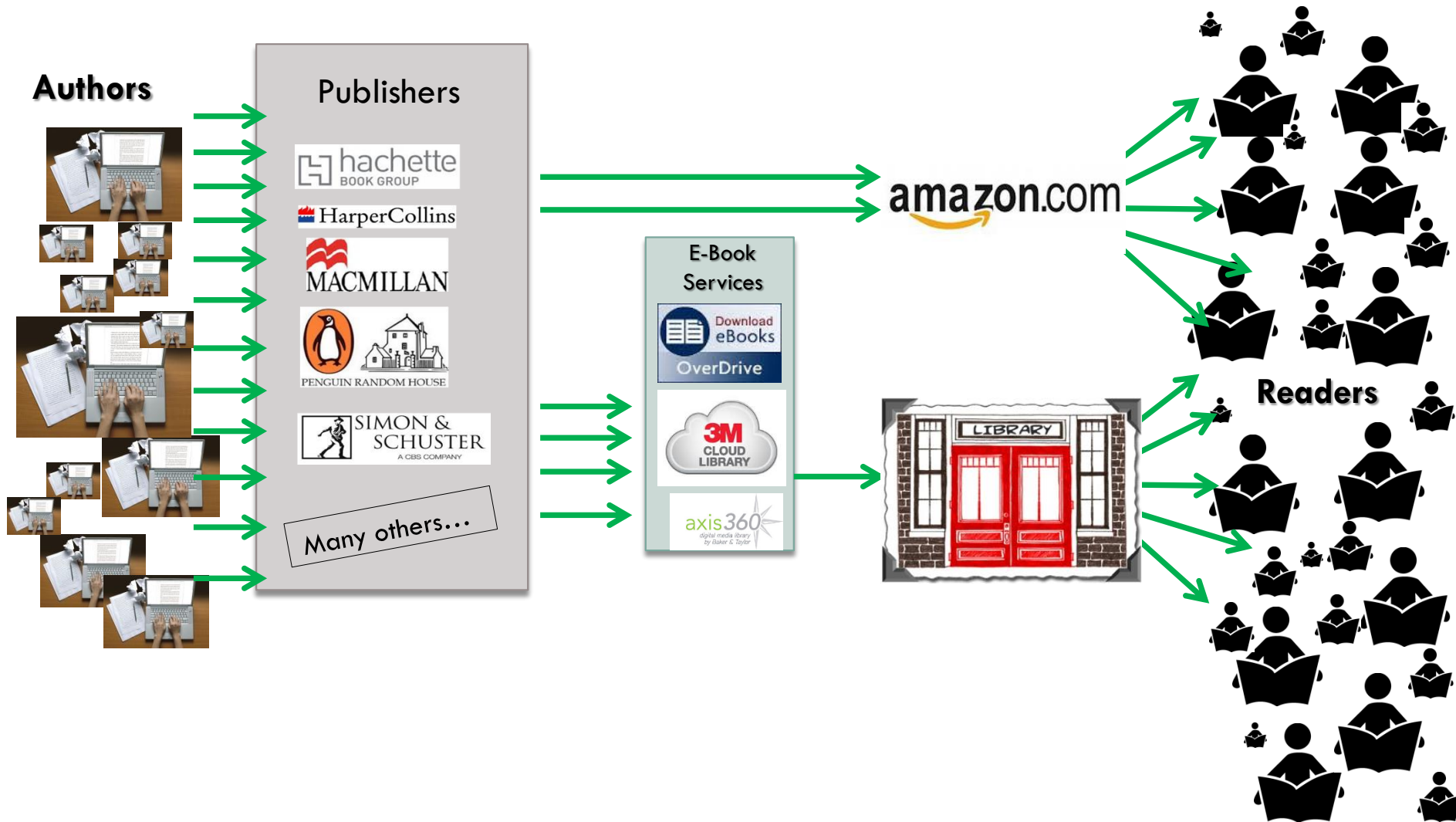
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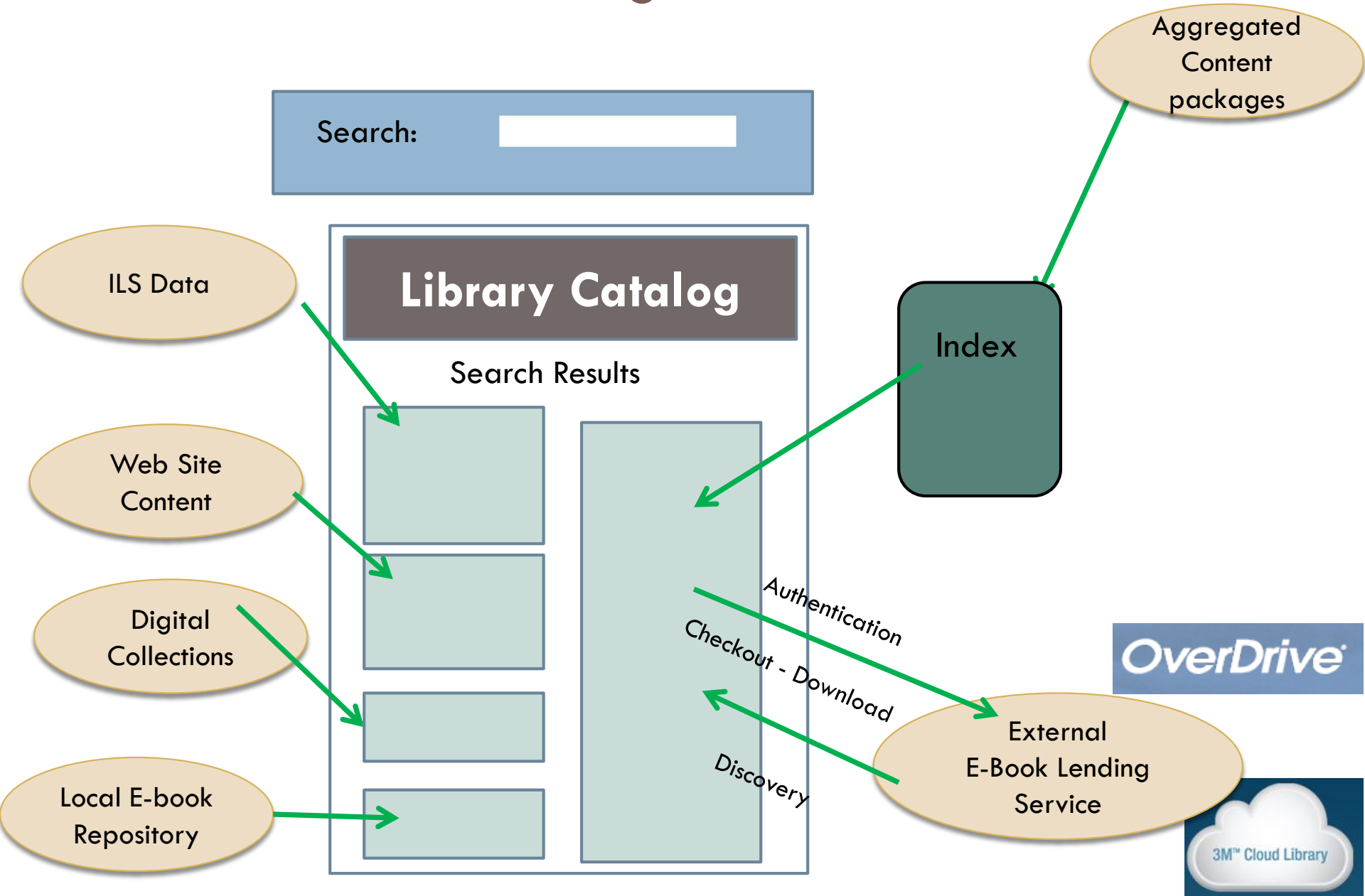   - ☐ NYPL: SimplyE App (created as part of the Library Simplified initative)

E-book integration

1. link to provider's platform
2. Load bibliographic records in catalog
3. API integration to enable full discovery, search, and download from library catalog
4. Full library-based digital lending platform

Connecting e-books to readers

E-Book Integration Model

Aggregated Content packages

Search:

Library Catalog

Search Results

Index

ILS Data

Web Site Content

Digital Collections

Local E-book Repository

Authentication

Checkout - Download

Discovery

External E-Book Lending Service

OverDrive

3M™ Cloud Library

Support for small libraries

- Significant differences in tech needs for small libraries
- Most lack resources for full range of technology
- Pricing of commercial systems does not scale downward
- Cooperative networks can help elevate capacity

Public Library Futures

Public Libraries will Thrive

- No expectation that public libraries will eventually decline

- Shape of library collections will evolve

- Public libraries continue to be loved by their communities

- Funding will see peaks and valleys, but communities will not tolerate the demise of libraries

Missions must accommodate societal needs:

- Leisure reading,
- Education
- Promotion of Literacy
- Life skills: especially technology
- Points of creativity and collaboration
- Moderate the impact of poverty and societal disruptions

Future of public library Technology

- Fulfillment of many of the emerging tech trends in play today
- Modernized platforms that go beyond the current ILS products
- Designed for the Web, not ported from earlier architectures
- More emphasis on user experience

Personalized Services

- More sophisticated approach to patron services
- Enrich patron profiles many types of data which can become the basis of customized services
- Anticipate needs based on previous interactions
- Collect and leverage use data (Opt-in?)
- Recognizing that patrons have multiple simultaneous roles and interests

Integration of collections and services

- Break out of the mode of the traditional catalog
- Scope of discovery with broader scope:
    - Physical materials
    - Electronic content
    - Programs and services
    - Community content

Incorporation of Social concepts

- Bring some of the paradigm of social networks to library interfaces
- Patrons guide each other to items of interest
- Create and share reading lists
- Concern with protecting privacy

Future of e-book lending

- Ever improving technologies for discovery, lending, and fulfillment of e-books, audiobooks and other digital content
- Optimistic about better business terms between publishers and libraries
- Library-managed e-book platforms will moderate position of vendor-provided platforms

Future of ILS in Public Libraries

- Ongoing mix of proprietary and open source options
- Number of proprietary systems will narrow
  - New platforms will emerge to compete with current slate of evolved legacy systems
  - Some legacy systems will see dramatic improvement
  - Costs unlikely to drop: challenge for libraries with limited funds
- Sophistication of open source systems will increase incrementally

Future of public library discovery

- Online catalogs will morph into discovery services
- Challenge to carry forward advanced online catalog features into new discovery paradigm
- Discovery services will morph into comprehensive portals
- More cohesive environment not fragmented into traditional service interfaces

Future of in-library technologies

- More efficient circulation and fulfillment
- More sophisticated self-service:
  - Comprehensive customer service kiosk
  - Convergence of physical and e-book services
- Technologies to gather data about use to assess and improve services and design spaces
- Beacons and other mechanisms to feature services

Functionality Trends

Legacy: Fragmented Environment

- Integrated Library System for management of (mostly) print
- Duplicative financial systems between library and parent institution
- Electronic Resource Management
- Events Management
- Web Content Management System
- A-Z e-journal lists and other finding aids
- Interlibrary loan (borrowing and lending)
- Digital Collections Management platforms (CONTENTdm, DigiTool, etc.)
- Separate systems for archival materials and special collections
- Discovery-layer services for broader access to library collections
- No effective integration services / interoperability among disconnected systems, non-aligned metadata schemes

Cycles of fragmentation > unification

- Early Phase: Modular automation
- Integrated Library Systems
- Proliferation of systems to manage electronic resources and digital collections
- Current unification phase: library services platforms bring together print and electronic resource management
- Portal products bring together discovery and web site
- Next phase? Bring archival and digital assets under common management platform

Library Services Platform

- **Library**-specific software. Technical infrastructure to help libraries automate their internal operations, manage collections, fulfillment requests, and deliver services
- **Services**
  - Services-oriented architecture
  - Exposes Web services and other API's
  - Facilitates the services libraries offer to their users
- **Platform**
  - General infrastructure for library automation
  - Consistent with the concept of Platform as a Service
  - Library programmers address the APIs of the platform to extend functionality, create connections with other systems, dynamically interact with data

Library Services Platforms – Functional

- Manages electronic and print formats of materials
- Replaces multiple incumbent products
- Extensive Metadata Management
- Multiple procurement workflows
- Knowledgebases
- Built-in collection analytics
- Decision support for collection development

Integrated Discovery?

- The concept of Library Services Platform does not necessarily encompass discovery or patron-facing interfaces

- Focuses on Resource Management

- Some Library Services bundle discovery service with built-in integration

- Many libraries prefer providing discovery separately

Library Services Platforms – Technical

- Beyond Client/Server Computing
- Multi-tenant platforms
- Web-based interfaces
- Services-oriented architecture
- Exposes APIs for extensibility and interoperability
- Interoperable

Actionable analytics

- Previous generation of ILS offered reports

- Libraries now expect sophisticated analytics

- Make data-driven collection decisions
  - Anticipate interest and use levels
  - Cost per use

New Library Management Model
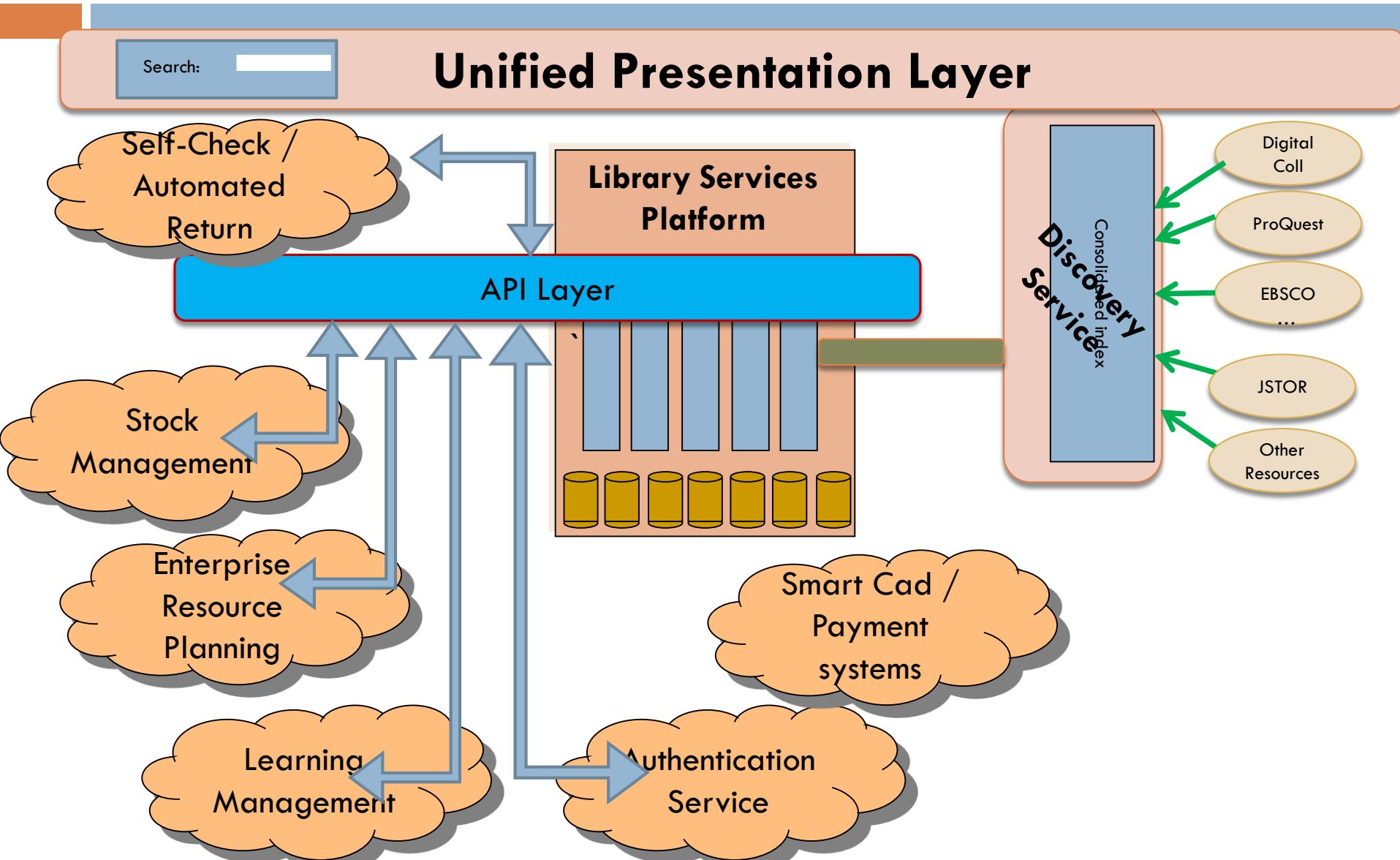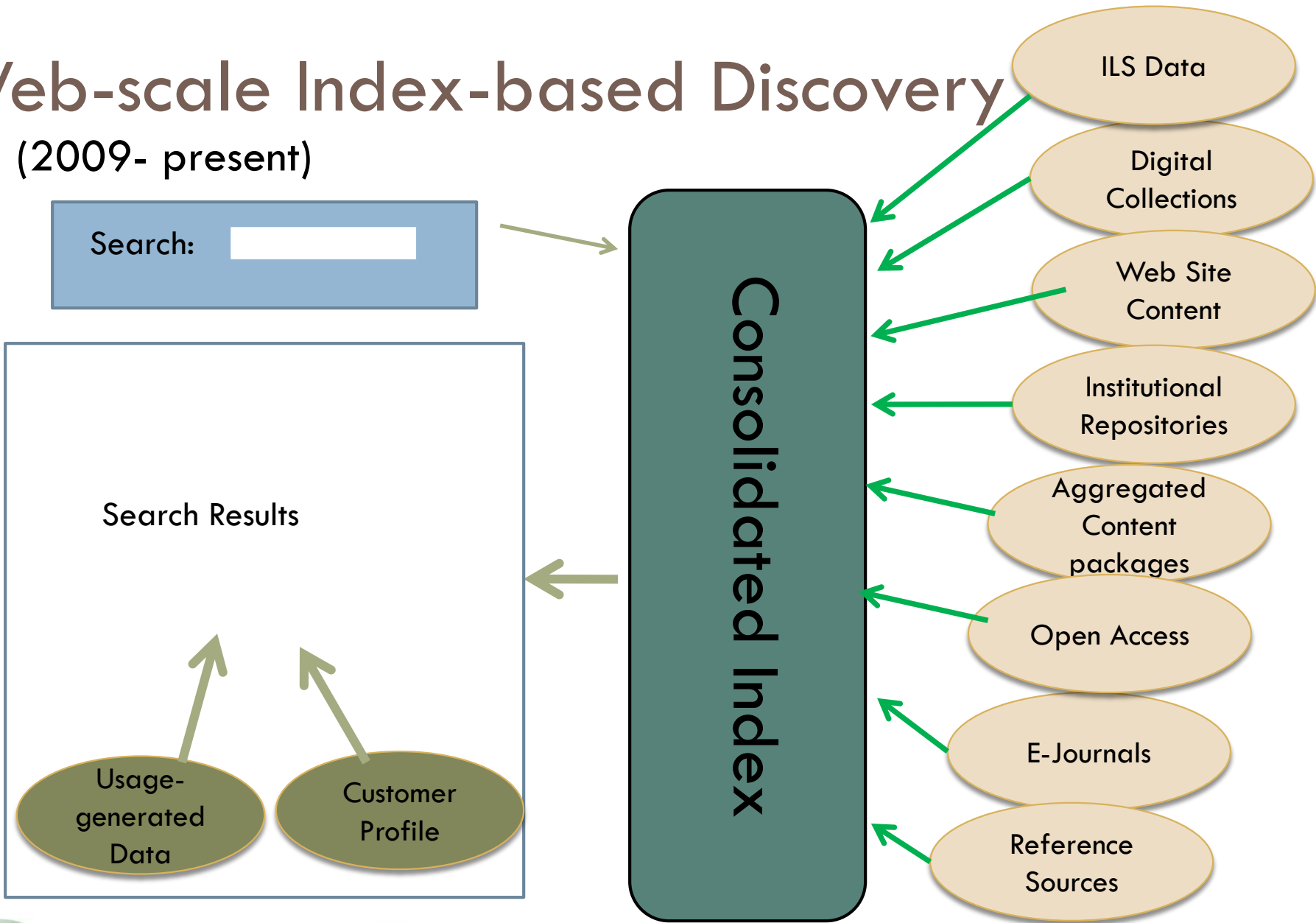
Resource Management Models

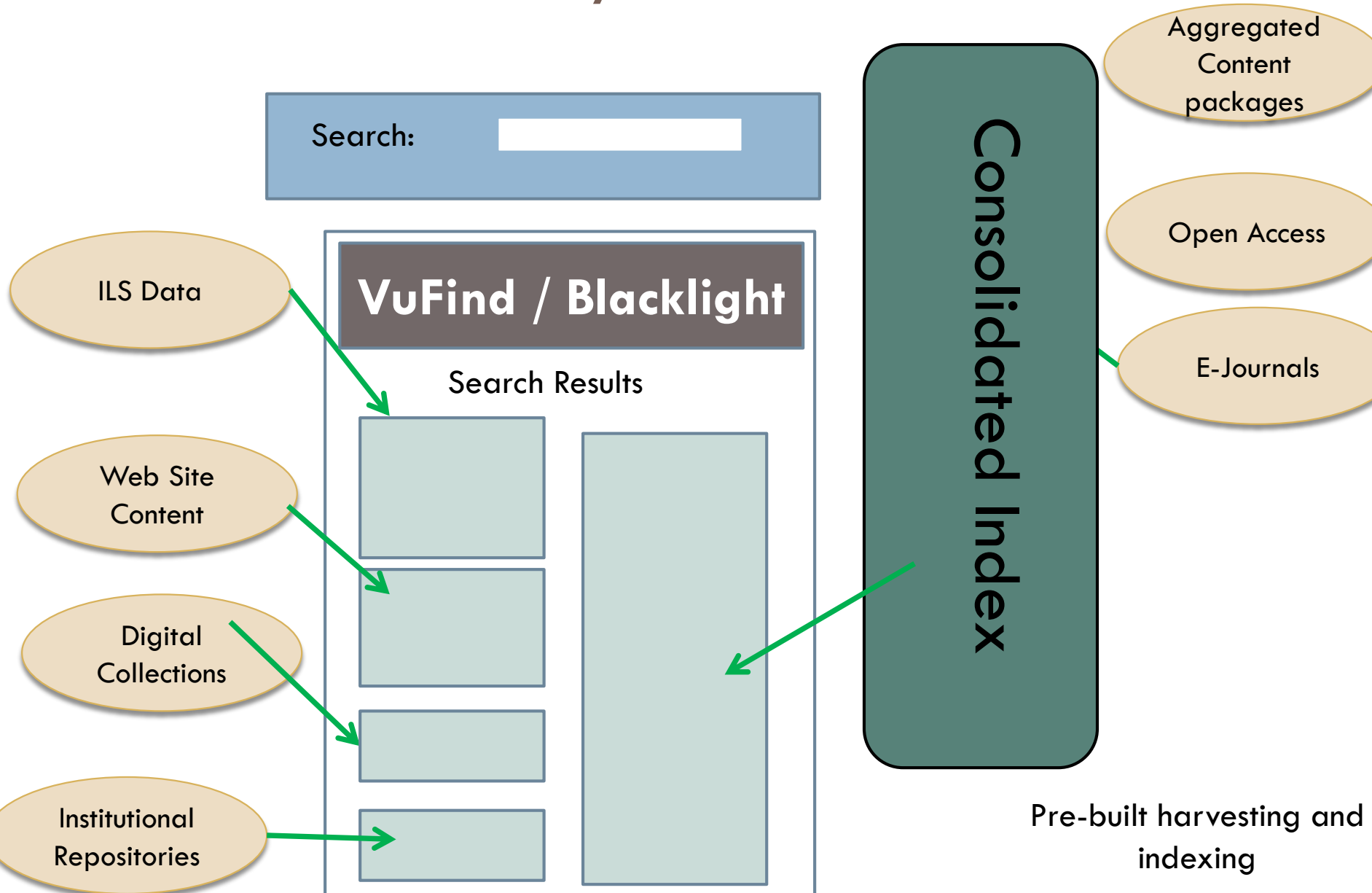| Category	Integrated Library System	Progressive integrated library System	Library Services Platform
Resources managed	Physical	Print, electronic	Electronic, Physical
Technology platform	Server-based	Server-based	Multi-tenant SaaS
Knowledgebases	None	None	e-holdings, bibliographic
Patron interfaces	Browser-based	Browser-based	Browser-based
Staff interfaces	Graphical Desktop (Java Swing, Windows, Mac OS)	Browser-based	Browser-based
Procurement models	Purchase	Purchase, license	license
Hosting option	Local install, ASP	Local install, ASP	Saas Only
Interoperability	Batch transfer, proprietary API	Batch transfer, RESTful APIs,	APIs (mostly RESTful)
Products	SirsiDynix Symphony, Millennium, Polaris	Sierra, SirsiDynix Symphony/BLUEcloud, Polaris, Apollo	WorldShare Management Services, Alma, ProQuest Intota, Sierra, Kuali OLE

Resource Discovery Trends

Web-scale Index-based Discovery
(2009- present)

Search:

Search Results

Usage-generated Data

Customer Profile

Consolidated Index

ILS Data

Digital Collections

Web Site Content

Institutional Repositories

Aggregated Content packages

Open Access

E-Journals

Reference Sources

EBSCO Discovery Service

Summon Web Scale Discovery

ExLibris Primo

WorldCat

Pre-built harvesting and indexing

Bento Box Discovery Model

Search:

VuFind / Blacklight

Search Results

ILS Data

Web Site Content

Digital Collections

Institutional Repositories

Consolidated Index

Aggregated Content packages

Open Access

E-Journals

Pre-built harvesting and indexing

Trends in Open Source

- Open source now a routine segment of strategic library automation
- Implementation models:
  - Commercial support
  - Independent with community support
  - Support through governmental organizations
- Development models
  - Mostly centralized within a commercial community
  - Distributed community

Koha

- Open source ILS available since 1999
- Continuous development
- Widespread deployment in all regions and library types
- Small to mid-sized libraries; some large implementations

Evergreen

- Open source ILS originally developed for PINES consortium in Georgia

- Optimized for large consortia comprised of small to mid-sized public libraries

- Mostly implemented within United States and Canada

FOLIO (Future of the library is Open)

- New open source library services platform sponsored by EBSCO

- Early in development phase; developer's framework expected to be available in October 2016

- Taps into community created via Kuali OLE

VuFind

- Open source discovery interface

- Based on Apache SOLR with PHP programming framework

- Relevancy-based retrieval, faceted navigation

- Widespread implementations globally

- Several variants and customizations

Blacklight

- Open source discovery interface
- Based on Apache SOLR and Ruby on Rails programming framework
- Relevancy based retrieval, faceted navigation
- Allied with Project Hydra
- More tightly-knit development community

Observations and Conclusions

- Narrowing Budgets drive need for Strategic Tech
- Industry consolidation has narrowed Product Options
- Remaining options increasingly powerful
- Targeted Innovation: Libraries must focus on technology services with the most customer impact

Public Library Shared Automation

- South Australia (SirsiDynix Symphony)

- Northern Territory: OCLC WorldShare

- New Zealand (SirsiDynix Symphony)
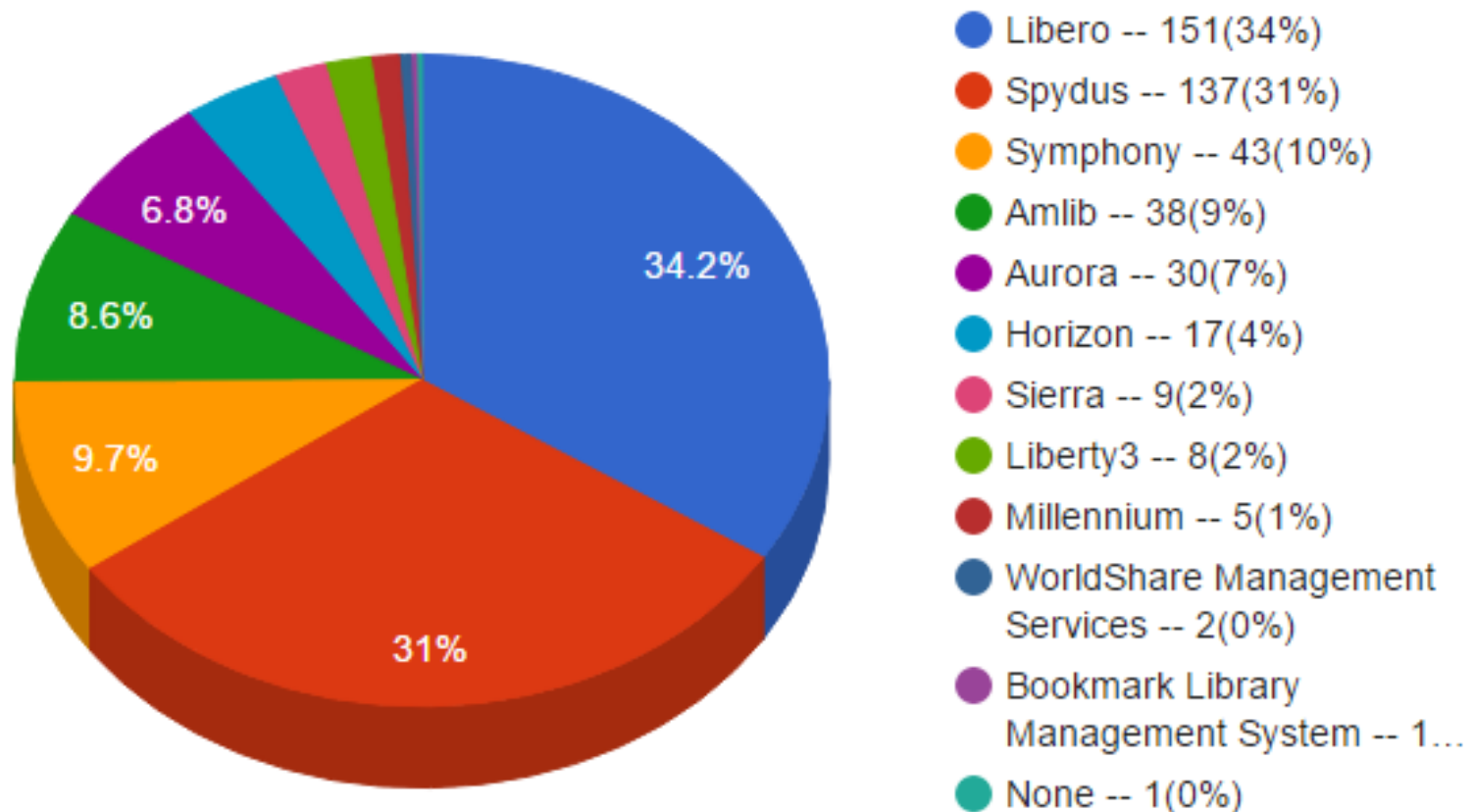
- Ireland: (Innovative Sierra)

Vendors

NSW LMS Market share

ILS implementations in Public Libraries in New South Wales by Library Facilities ()

- Libero -- 151(34%)
- Spydus -- 137(31%)
- Symphony -- 43(10%)
- Amlib -- 38(9%)
- Aurora -- 30(7%)
- Horizon -- 17(4%)
- Sierra -- 9(2%)
- Liberty3 -- 8(2%)
- Millennium -- 5(1%)
- WorldShare Management Services -- 2(0%)
- Bookmark Library Management System -- 1…
- None -- 1(0%)

34.2%
31%
9.7%
8.6%
6.8%

https://librarytechnology.org/products/marketshare.pl?Country=Australia&State=New%20South%20Wales

LMS Selection Priorities

☐ Most systems continue to be viable and see ongoing development

☐ Points of differentiation are subtle in regard to traditional functionality

☐ Look for strengths in other strategic priorities
  ◻ Digital lending
  ◻ Other virtual services
  ◻ Strategic cooperative arrangements

SirsiDynix

- Global LMS Vendor
  - Strong presence in Australia / NZ
  - All types of libraries: public, academic, special
- Owned by ICV private equity firm
- Key Products
  - Symphony
  - Horizon
  - BLUEcloud

Symphony

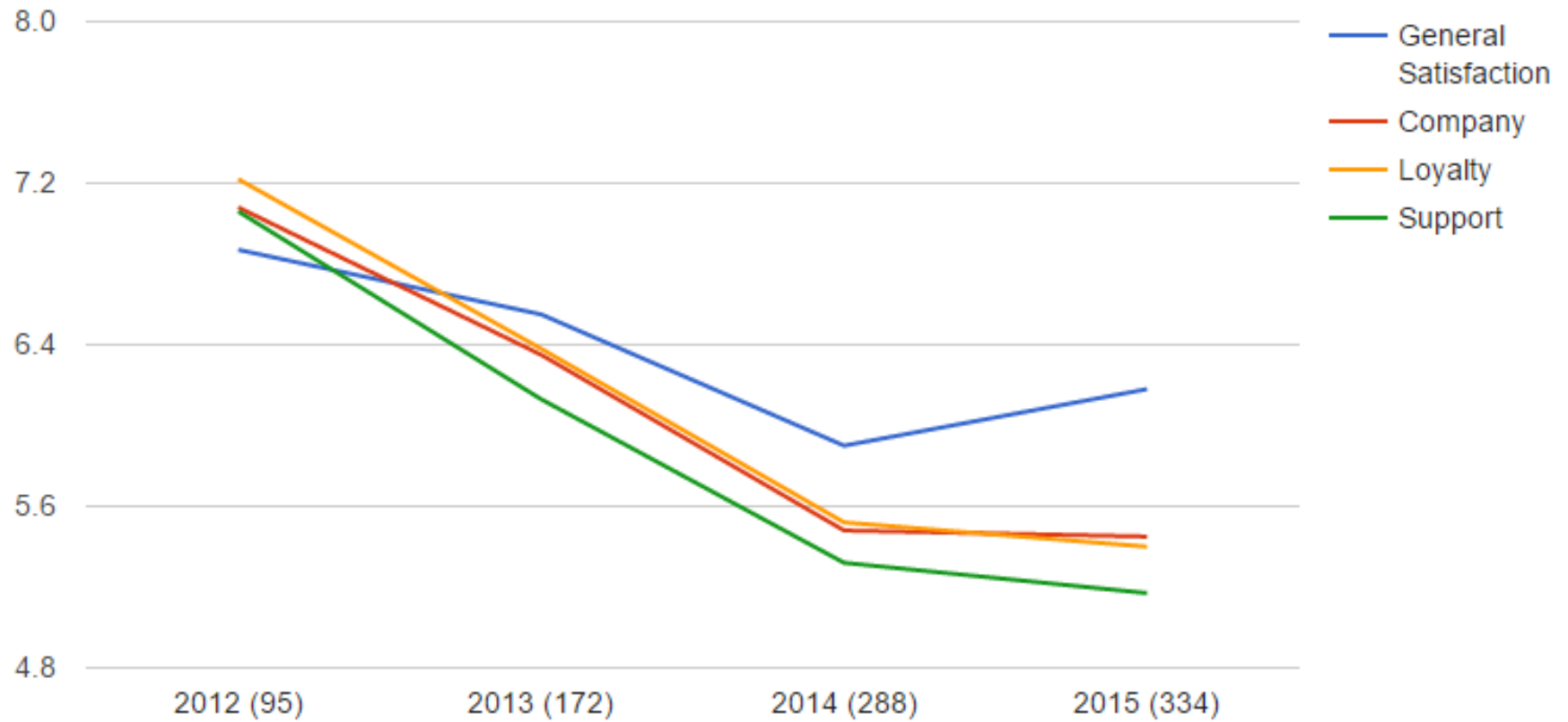Satisfaction Scores by Year for Symphony
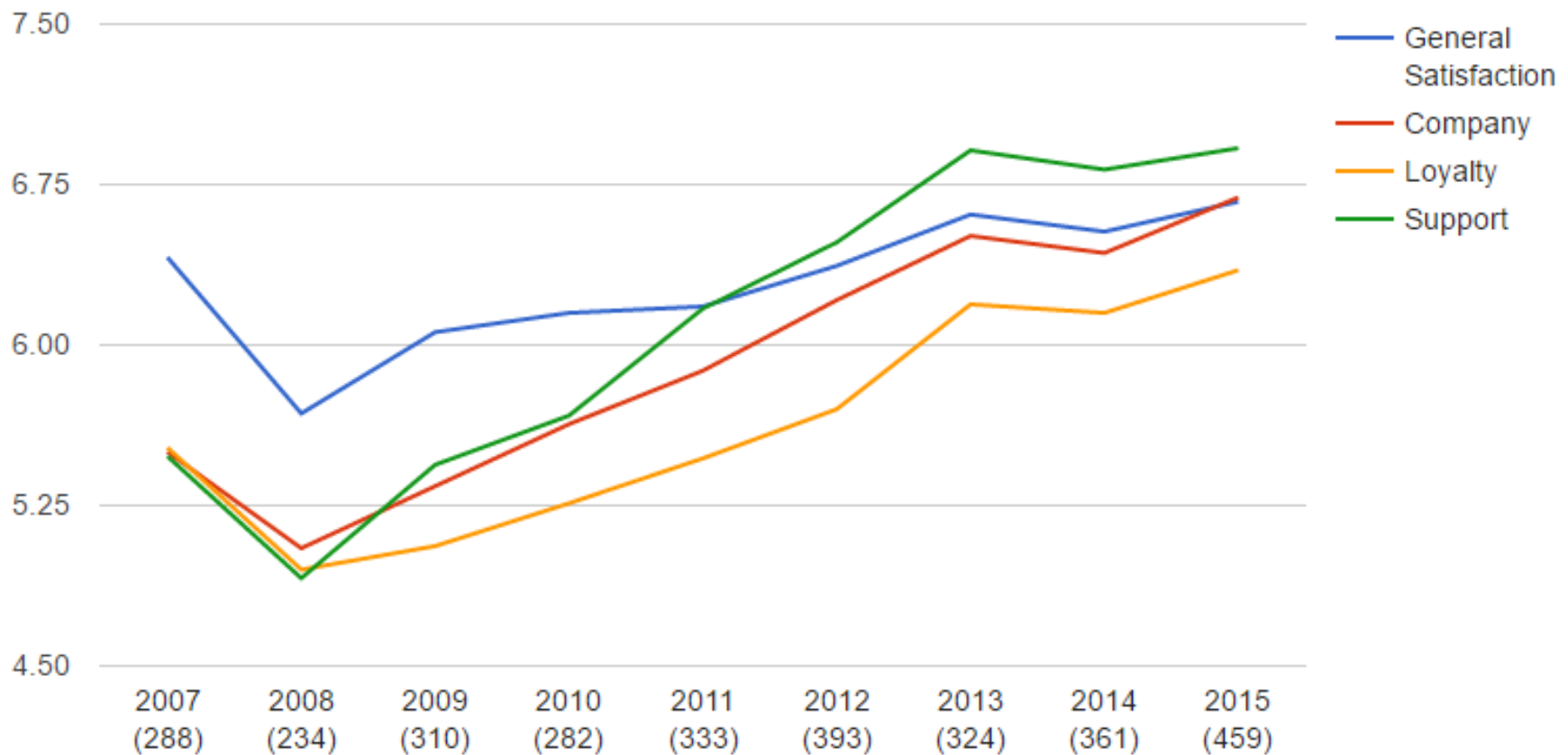
Aurora Information Technology

- Australian LMS Vendor
- Key Products
  - Aurora
  - Montage
- https://www.auroracloud.com.au/

Innovative

- Global Vendor
  - All types of libraries: public, academic, special
- Owned by to private equity firms: HGGC and JMI
- Key Products
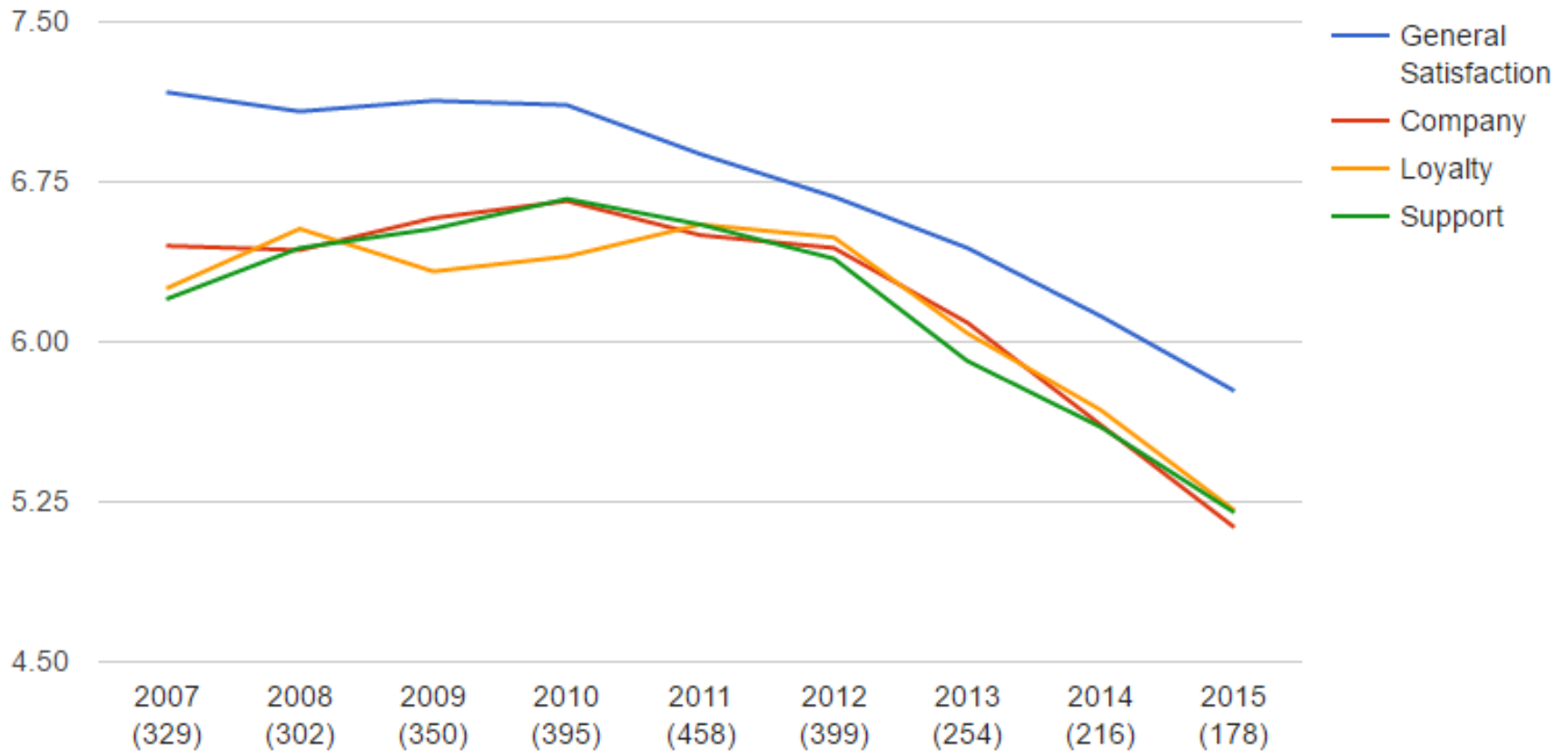 - Sierra
    - Millennium (legacy LMS)
  - Polaris
  - Encore

Sierra

Satisfaction Scores by Year for Sierra

Millennium

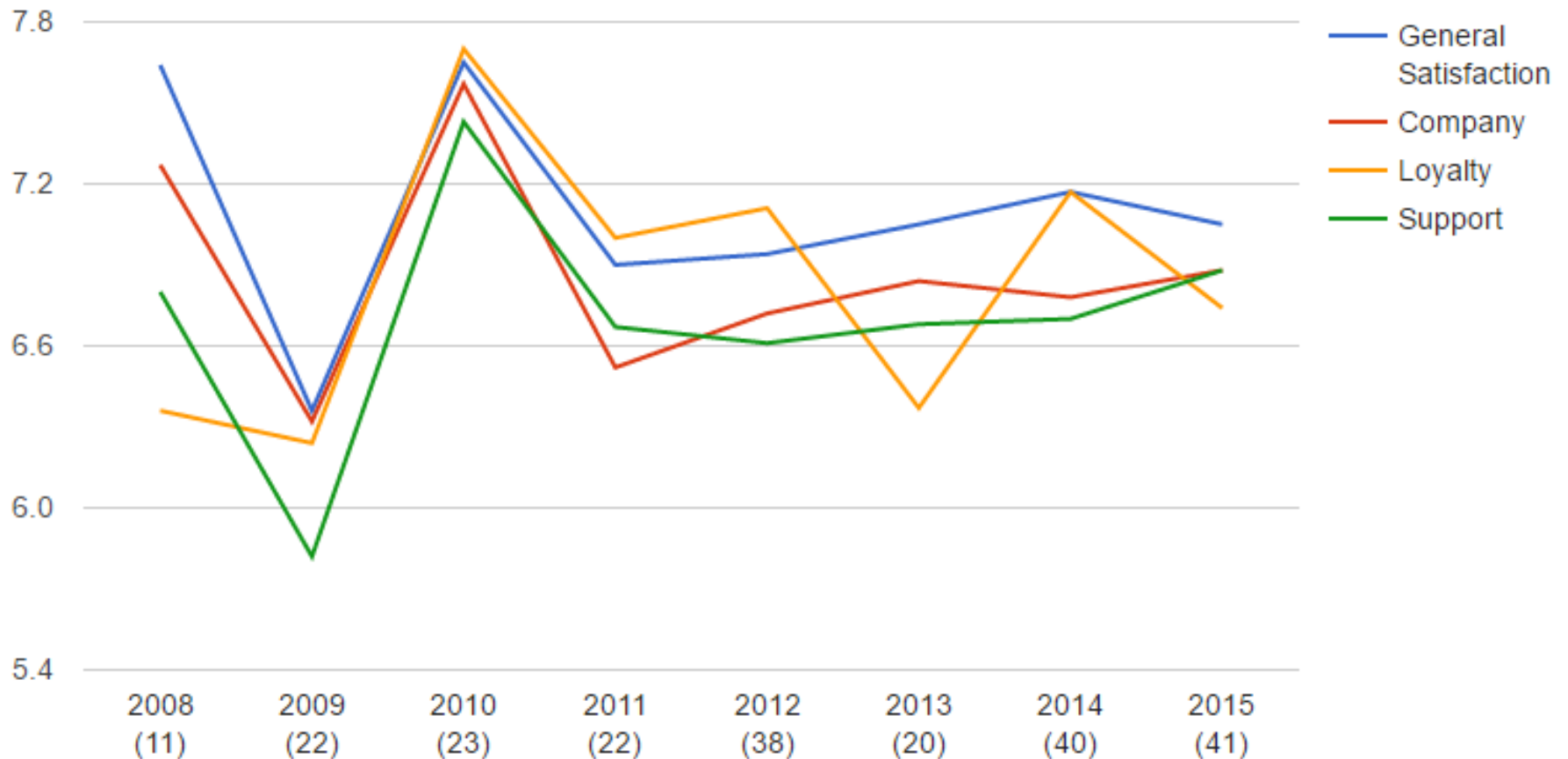Satisfaction Scores by Year for Millennium

Insight Informatics

- Regional vendor

- Key Products
  - Libero

Civica

- Global vendor of local government tech
  - LMS varies by region: UK, Asia, Australia/NZ
- Mostly public libraries
- Key products
  - Spydus 10 (and previous versions)

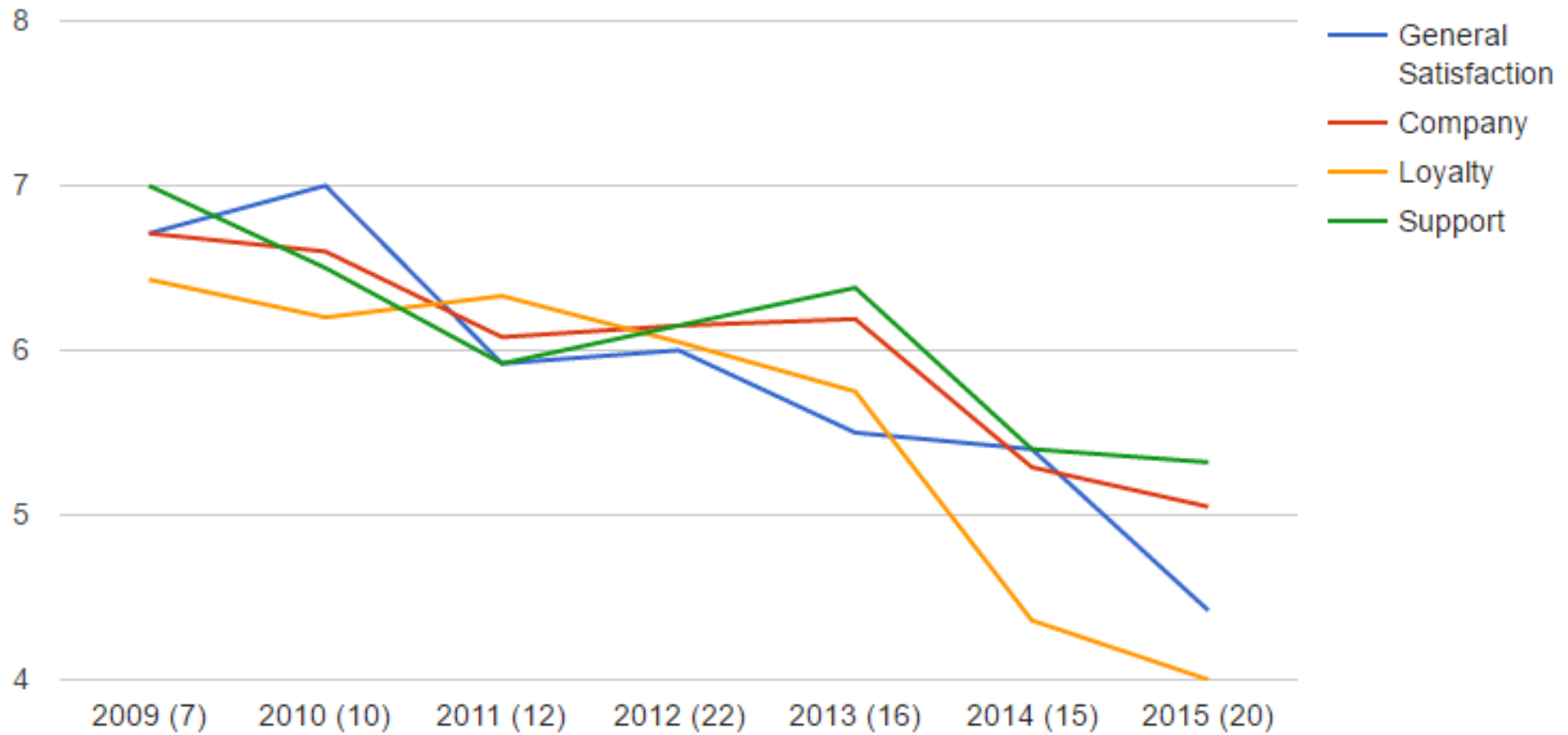# Spydus

Satisfaction Scores by Year for Spydus

OCLC

- Global non-profit library services organization
- Key Products
  - WorldShare Management Services (mostly academic so far)
    - Amlib: legacy: public, schools

Amlib

Satisfaction Scores by Year for Amlib

Tech for the Physical Library

Self-service

- Many patrons prefer self-service options
- Enables the library to reallocate personnel
- Pro: Shift from routine tasks at circulation desk to more meaningful services
- Con: Missed opportunities for positive interactions with patrons
- A good fit for libraries with high personnel costs with

Role of RFID?

- More functionality than barcodes

- Tags more expensive

- Appropriate for very high volume operations

- Additional layer of automation to increase efficiency and reduce human resources

Sorting Automated Material Handling

- Especially oriented to very high-volume libraries
- Reduces manual involvement with check-ins and sorting
- Can use Barcodes or RFID
- Must assess cost effictiveness

Automated return and sorting

Questions and discussion