

# Libraries and the Cloud

From Presentation by

**Marshall Breeding**

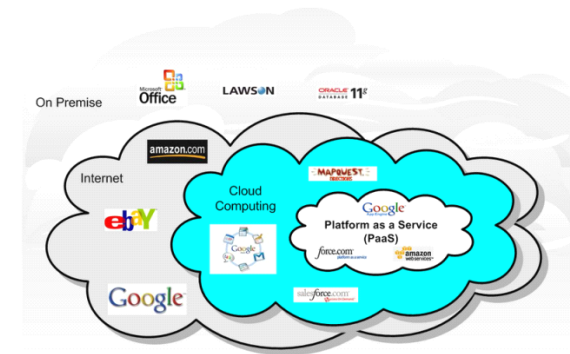
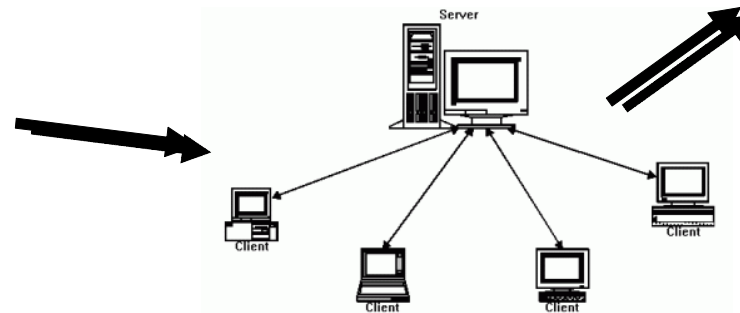
# Cloud Computing



- Major trend in Information Technology
- Term “in the cloud” has devolved into marketing hype, but cloud computing in the form of multi-tenant software as a service offers libraries opportunities to break out of individual silos of automation and engage in widely shared cooperative systems
- Opportunities for libraries to leverage their combined efforts into large-scale systems with more end-user impact and organizational efficiencies

# Fundamental technology shift

- Mainframe computing
- Client/Server
- Cloud Computing



<http://www.flickr.com/photos/carrick/61952845/>

<http://soacloudcomputing.blogspot.com/2008/10/cloud-computing.html>

<http://www.javaworld.com/javaworld/jw-10-2001/jw-1019-jxta.html>



# New-generation Library Management

# Library Automation in the Cloud



- Almost all library automation vendors offer some form of “cloud-based” services
- Server management moves from library to Vendor
- Subscription-based business model
- Comprehensive annual subscription payment
  - ▣ Offsets local server purchase and maintenance
  - ▣ Offsets some local technology support

# Software as a Service



- Multi Tenant SaaS is the modern approach
  - ▣ One copy of the code base serves multiple sites
- Software functionality delivered entirely through Web interfaces
  - ▣ No workstation clients
- Upgrades and fixes deployed universally
  - ▣ Usually in small increments

# Data as a service



- SaaS provides opportunity for highly shared data models
- WorldCat: one globally shared copy that serves all libraries
- Primo Central: central index of articles maintained by Ex Libris shared by all libraries implementing Primo / Primo Central
- KnowledgeWorks database of e-journal holdings shared among all customers of Serials Solutions products
- General opportunity to move away from library-by-library metadata management to globally shared workflows



Search for items in libraries:

Search

[Advanced Search](#)

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[WorldCat](#) » **What is WorldCat?**



## What is WorldCat?

WorldCat is the world's largest network of library content and services. WorldCat libraries are dedicated to providing access to their resources on the Web, where most people start their search for information.

## What am I searching?

WorldCat.org lets you search the collections of libraries in your community and thousands more around the world. WorldCat grows every day thanks to the efforts of librarians and other information professionals.

## What will I find?



Quick Links + En Search at www.exlibrisgroup.c

- Home About Us Solutions Products Collaboration Publisher Program Careers Blogs News Events

Home > Products > Primo Discovery and Delivery > Overview

Products Primo Discovery and Delivery Overview User experience Primo for your library Architecture Primo Central Index Primo

Primo

Empowering Libraries to Address User Needs

Over 1200 institutions worldwide are now using Primo! One of the latest members of the Primo community is King's College London - read more

Meeting user expectations for quick, easy, and effective searching and retrieval, Primo® is a one-stop solution for the discovery and delivery of local and remote resources, such as books, journal articles, and digital objects. Primo assists libraries in exposing the richness of

Customer Center Primo Micro-Site Find out how Primo transforms discovery in this new interactive brochure. ScholarRank plain and simple NEW!

# Leveraging the Cloud

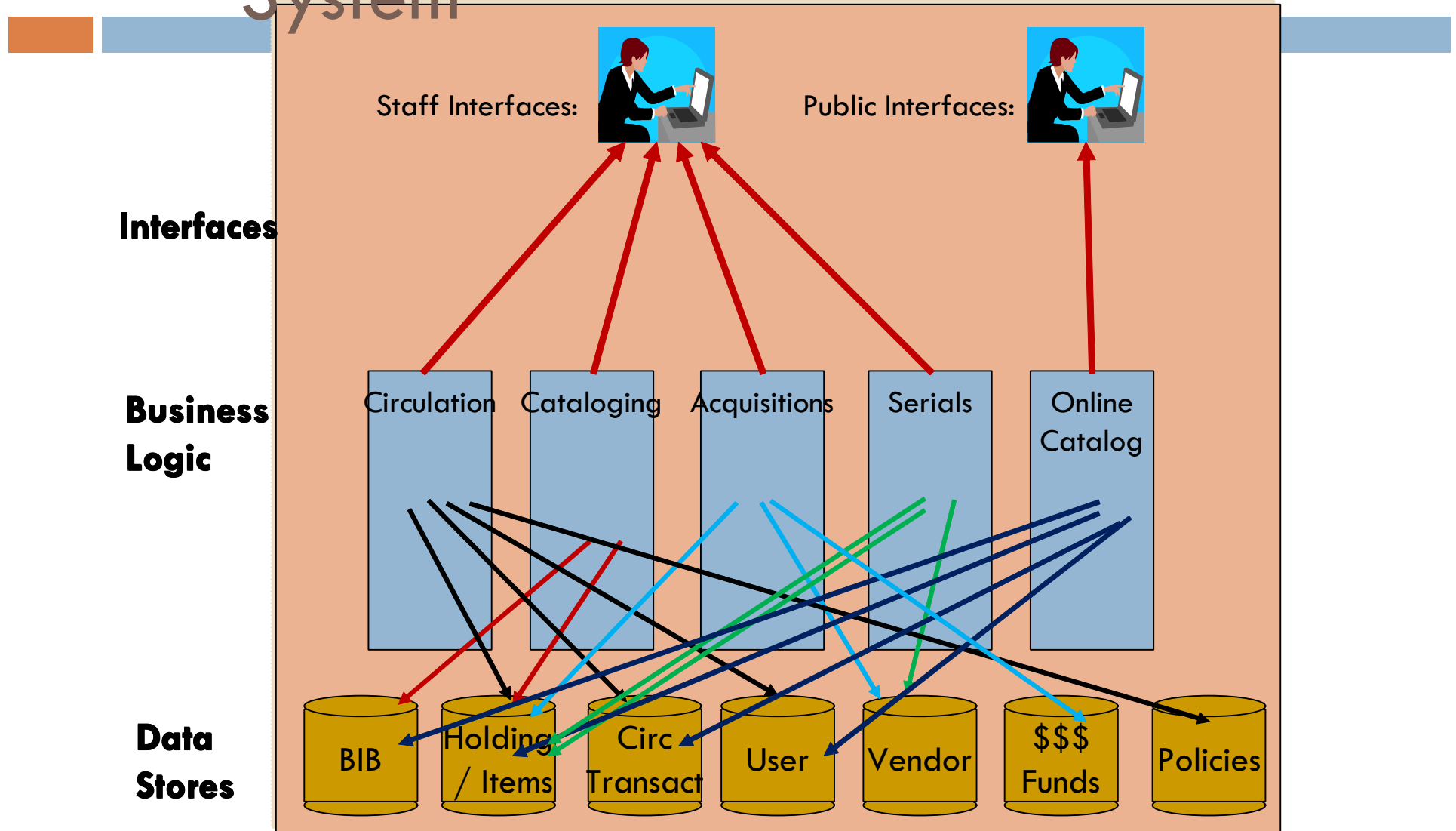


- Moving legacy systems to hosted services provides some savings to individual institutions but does not result in dramatic transformation
- Globally shared data and metadata models have the potential to achieve new levels of operational efficiencies and more powerful discovery and automation scenarios that improve the position of libraries overall.

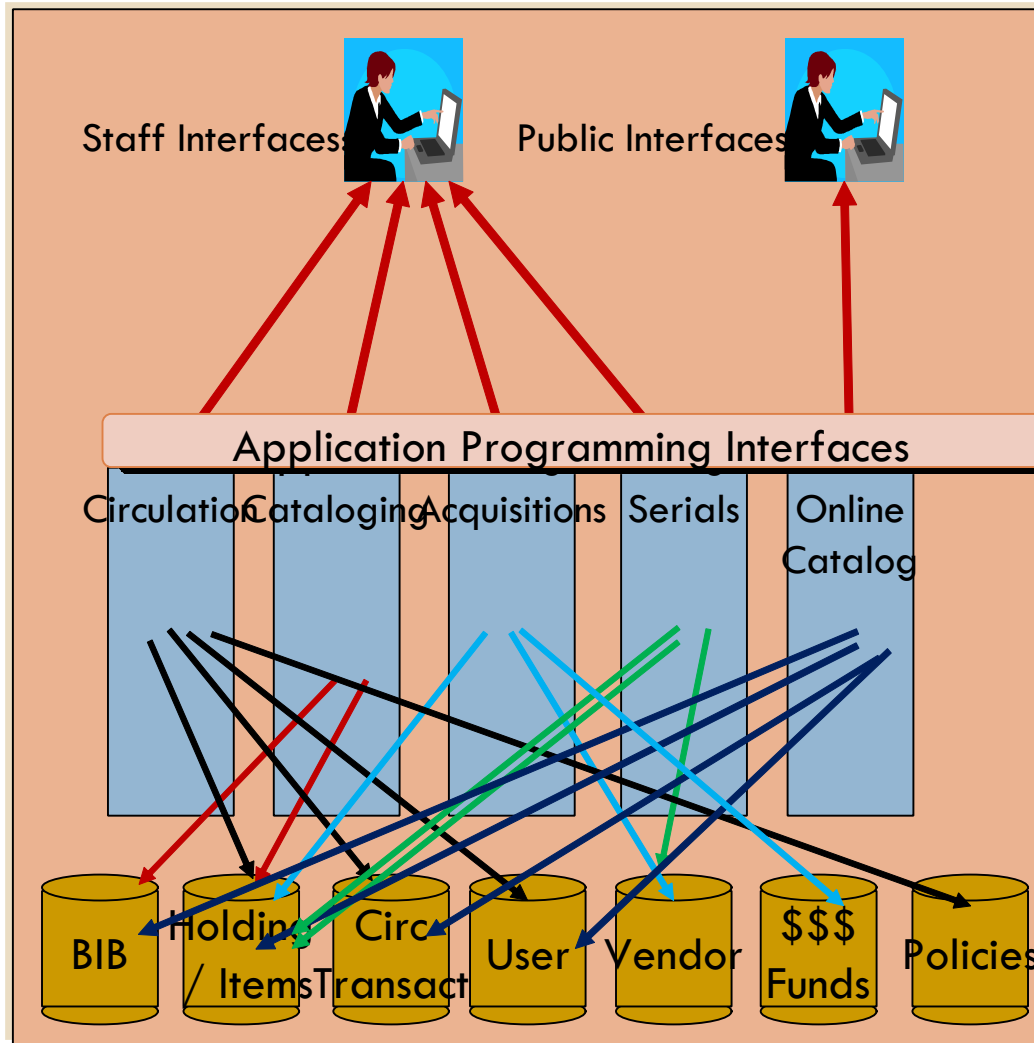
# Is the *status quo* sustainable?

- ILS for management of (mostly) print
- Duplicative financial systems between library and campus
- Electronic Resource Management (non-integrated with ILS)
- OpenURL Link Resolver w/ knowledge base for access to full-text electronic articles
- Digital Collections Management platforms (CONTENTdm, DigiTool, etc.)
- Institutional Repositories (DSpace, Fedora, etc.)
- Discovery-layer services for broader access to library collections
- No effective integration services / interoperability among disconnected systems, non-aligned metadata schemes

# Integrated (for print) Library System



# Common approach for ERM



**Budget**



**License Terms**



**Titles / Holdings**



**Vendors**



**Access Details**

# Library Services Platform

- **Library**-specific software. Designed to help libraries automate their internal operations, manage collections, fulfillment requests, and deliver services
- **Services**
  - Service 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

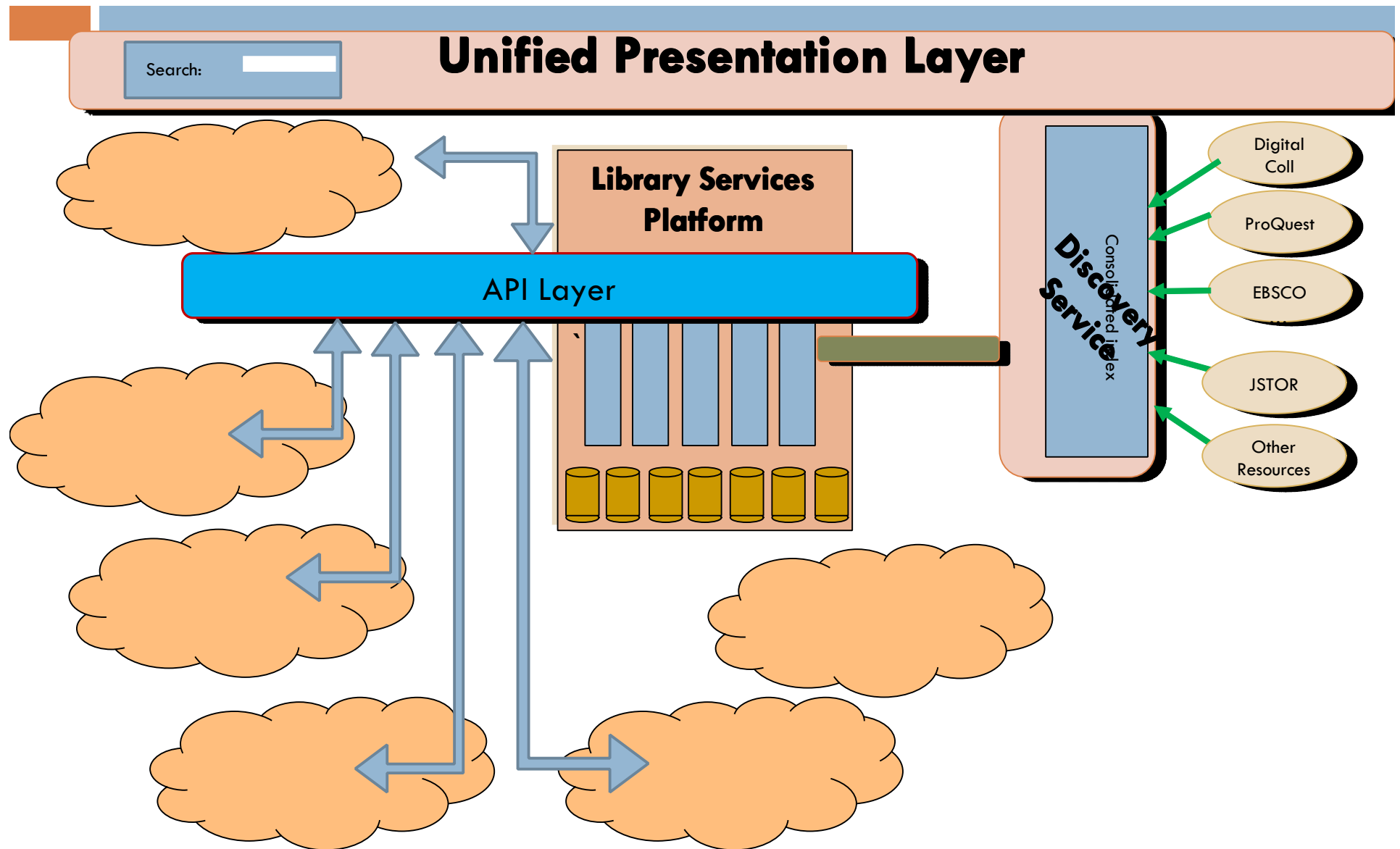
# Library Services Platform

## Characteristics



- Highly Shared data models
  - ▣ Knowledgebase architecture
  - ▣ Some may take hybrid approach to accommodate local data stores
- Delivered through software as a service
  - ▣ Multi-tenant
- Unified workflows across formats and media
- Flexible metadata management
  - ▣ MARC – Dublin Core – VRA – MODS – ONIX
  - ▣ New structures not yet invented
- Open APIs for extensibility and interoperability

# New Library Management Model



# Library Services Platforms

<b>Category</b>	<b>WorldShare Management Services</b>	<b>Alma</b>	<b>Intota</b>	<b>Sierra Services Platform</b>	<b>Kuali OLE</b>
<b>Responsible Organization</b>	OCLC.	Ex Libris	Serials Solutions	Innovative Interfaces, Inc	Kuali Foundation
<b>Key precepts</b>	Global network-level approach to management and discovery.	Consolidate workflows, unified management: print, electronic, digital; Hybrid data model	Knowledgebase driven. Pure multi-tenant SaaS	Service-oriented architecture Technology uplift for Millennium ILS. More open source components, consolidated modules and workflows	Manage library resources in a format agnostic approach. Integration into the broader academic enterprise infrastructure
<b>Software model</b>	Proprietary	Proprietary	Proprietary	Proprietary	Open Source

# Competing Models of Library Automation

- Traditional Proprietary Commercial ILS
  - ▣ Aleph, Voyager, Millennium, Symphony, Polaris,
  - ▣ BOOK-IT, DDELibra, Libra.se
  - ▣ LIBERO, Amlib, Spydus, TOTALS II, Talis Alto, OpenGalaxy
- Traditional Open Source ILS
  - ▣ Evergreen, Koha
- New generation Library Services Platforms
  - ▣ Ex Libris Alma
  - ▣ Kuali OLE (Enterprise, not cloud)
  - ▣ OCLC WorldShare Management Services,
  - ▣ Serials Solutions Intota
  - ▣ Innovative Interfaces Sierra (evolving)



# A New Generation of Resource Discovery

# Online Catalog

Search:

Search Results

## Scope of Search

- Books, Journals, and Media at the Title Level
- Not in scope:
  - ▣ Articles
  - ▣ Book Chapters
  - ▣ Digital objects

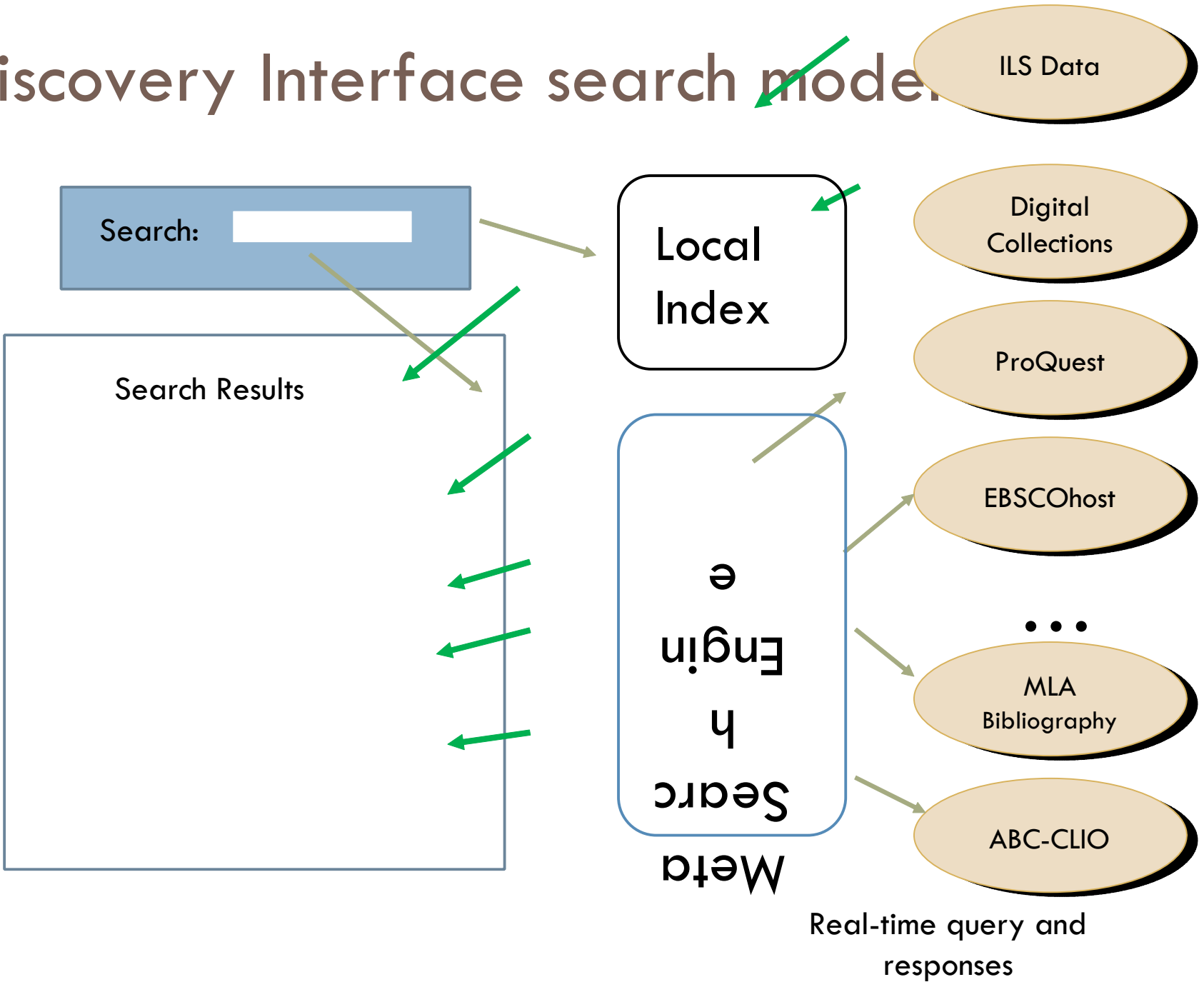
# Next-gen Catalogs or Discovery Interface

- Single search box
- Query tools
  - ▣ Did you mean
  - ▣ Type-ahead
- Relevance ranked results
- Faceted navigation
- Enhanced visual displays
  - ▣ Cover art
  - ▣ Summaries, reviews,
- Recommendation services

## □ Scope of Search

- Books, Journals, and Media at the Title Level
- Other local and open access content
- Not in scope:
  - ▣ Articles
  - ▣ Book Chapters
  - ▣ Digital objects

# Discovery Interface search model



# Discovery Products

AquaBrowser Library<sup>®</sup>  
search, discover, refine.



encore



SirsiDynix  
Enterprise™

ExLibris Primo



vufind



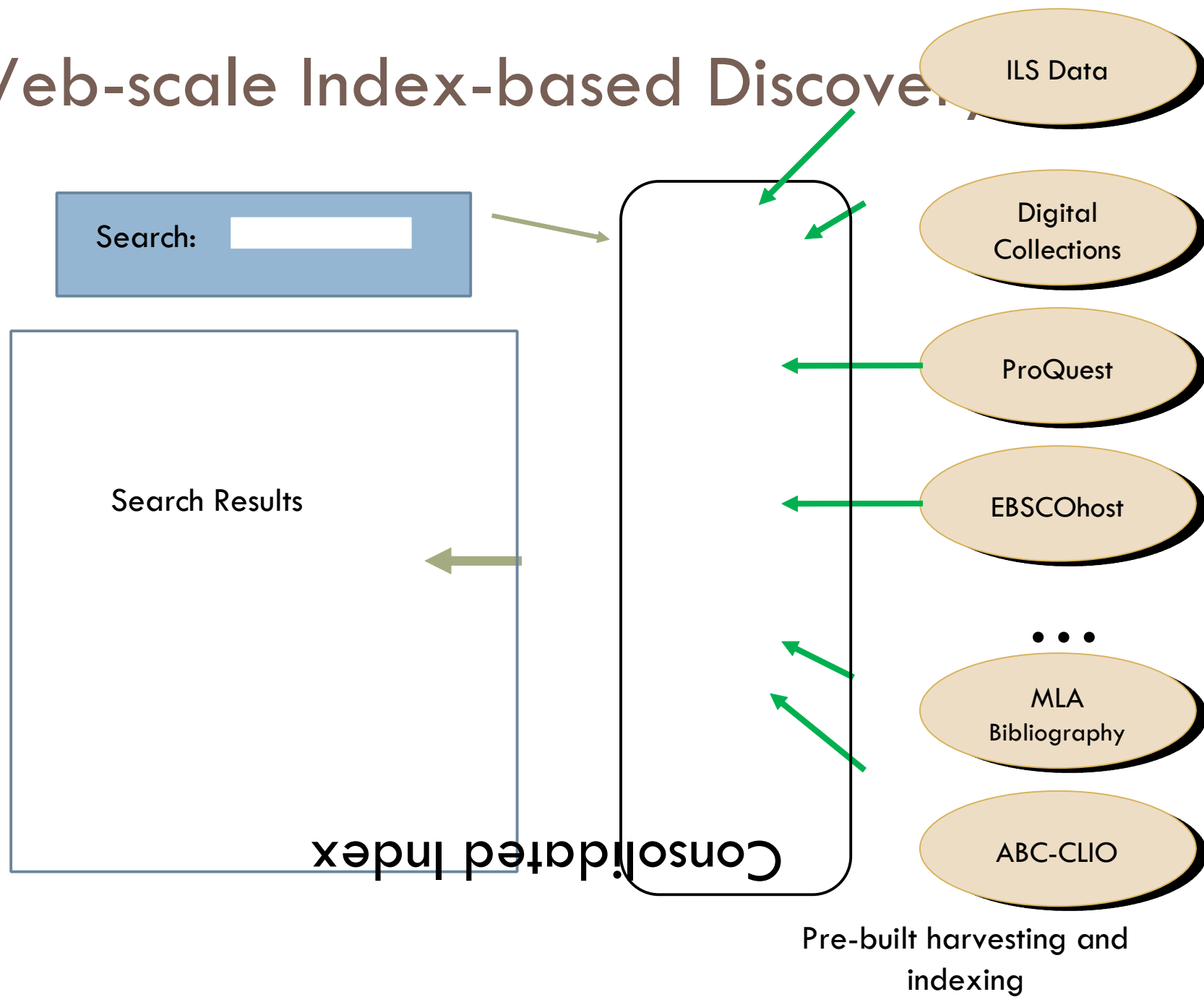
<http://www.librarytechnology.org/discovery.pl>

# Discovery from Local to Web-scale



- Initial products focused on interface improvements
  - ▣ AquaBrowser, Endeca, Primo, Encore, VuFind,
  - ▣ LIBERO Uno, Civica Sorcer, Axiell Arena
  - ▣ Mostly locally-installed software
- Current phase is focused on pre-populated indexes that aim to deliver Web-scale discovery
  - ▣ Primo Central (Ex Libris)
  - ▣ Summon (Serials Solutions)
  - ▣ WorldCat Local (OCLC)
  - ▣ EBSCO Discovery Service (EBSCO)
  - ▣ Encore with Article Integration (no index, though)

# Web-scale Index-based Discovery



# Convergence



- Discovery and Management solutions will increasingly be implemented as matched sets
  - ▣ Ex Libris: Primo / Alma
  - ▣ Serials Solutions: Summon / Intota
  - ▣ OCLC: WorldCat Local / WorldShare Platform
  - ▣ Except: Kuali OLE, EBSCO Discovery Service
- Both depend on an ecosystem of interrelated knowledge bases
- API's exposed to mix and match, but efficiencies and synergies are lost



# Questions and discussion