CURRENT REALITIES AND ONGOING TRENDS IN LIBRARY TECHNOLOGY

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http://librarytechnology.org/
http://twitter.com/mbreeding

May 11, 2015
24th Annual Minitex ILL Conference
As libraries continue to evolve their collections and services to meet the changing realities around them, so also must the technologies upon which they depend for their work. Marshall Breeding will provide his views on the current landscape of the strategic technology products currently available in the field and the companies that develop and support them. The presentation will draw on the Library Systems Report 2015 recently published in American Libraries, the annual Library Automation Perceptions Survey, and other resources and reports. Trends related to the management of library collections, discovery services, and resource sharing will be explored.
Part II: Future of Library Resource Discovery

- I can also incorporate discussion of the Future of Library Resource Discovery white paper in the talk, or could give a separate presentation. At the recent ER&L conference I did an hour-long presentation on the white paper, so I have that ready if there is interest.
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. Relevant news items are posted daily on Twitter.

GuidePosts
Perspective and commentary by Marshall Breeding

Blog Archive

Come see Marshall Breeding at Computers in Libraries 2015

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 (@mbreading). Here is my speaking schedule for the conference:

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...
Recent Reports

- American Libraries Library Systems Report
  - 2015 online edition published May 1
  - “Operationalizing Innovation”

- Future of Library Resource Discovery
  - NISO White Paper commissioned by the Document to Delivery Topic Committee
  - Published Feb 20, 2015

- Perceptions Surveys
  - 2015 edition recently published
  - http://librarytechnology.org/perceptions/2014/
Perceptions 2014

- http://librarytechnology.org/perceptions/2014/
- Annual survey for Libraries
- Satisfaction levels for
  - Company
  - Current ILS
  - Service
  - Loyalty
  - Migration Plans
- 3,141 Responses
- 80 Countries
Libraries Considering Switching Systems

- Percent of libraries considering switching to a new system

- Years: 2007 to 2014

- Systems represented:
  - ALEPH 500
  - Apollo
  - Horizon
  - Library.Solution
  - Millennium
  - Polaris
  - Sierra
  - Symphony
  - Symphony
  - Voyager
Perceptions Survey 2014

- Sample: Large Public Libraries

Statistics related to the question: How complete is the functionality of this ILS relative to the needs of this library? (Library Type: Public) (CollectionSize > 500001) (2014)

<table>
<thead>
<tr>
<th>ILS Functionality Score</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Responses</td>
<td></td>
</tr>
<tr>
<td>Polaris</td>
<td>25</td>
<td>0 1 2 3 4 5 6 10 5</td>
</tr>
<tr>
<td>Symphony</td>
<td>23</td>
<td>1 5 9 7 1</td>
</tr>
<tr>
<td>Sierra</td>
<td>19</td>
<td>2 1 3 2 2 7 1 1</td>
</tr>
<tr>
<td>Horizon</td>
<td>19</td>
<td>1 2 3 2 2 8 1</td>
</tr>
<tr>
<td>All Responses</td>
<td>132</td>
<td>2 2 6 10 8 18 47 29 10</td>
</tr>
<tr>
<td></td>
<td>Mode</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>7.64</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7.00</td>
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<tr>
<td></td>
<td>7</td>
<td>5.63</td>
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<tr>
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<td>7</td>
<td>5.53</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>6.54</td>
</tr>
</tbody>
</table>
Satisfaction levels: Large Public

![Graph showing satisfaction levels by year for different models: Polaris, Symphony, Horizon, and Sierra. The graph indicates trends from 2010 to 2014.]
Perceptions Survey 2014

- **Sample: Large Academic Libraries**

Statistics related to the question: How satisfied is the library with your current Integrated Library System (ILS)? (Library Type: Academic) (CollectionSize > '10000001') (2014)

<table>
<thead>
<tr>
<th>Satisfaction Score for ILS</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Responses</td>
<td>0</td>
</tr>
<tr>
<td>ALEPH 500</td>
<td>32</td>
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</tr>
<tr>
<td>Alma</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Sierra</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Symphony</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Voyager</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Millennium</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td><strong>All Responses</strong></td>
<td><strong>182</strong></td>
<td>8</td>
</tr>
</tbody>
</table>
Satisfaction levels: Large Academic
“Operationalizing innovation”

http://americanlibrariesmagazine.org/2015/05/01/library-systems-report/
American Libraries Library Systems Report

- Library Systems Report 2014: Strategic Competition and Cooperation
  - Online Publication: April 15, 2015
  - Covers 2014+ calendar year activities

- Report produced from:
  - Questionnaire of statistics and narrative completed by each major vendor
  - Press announcements made throughout the year
  - Other background information
Library Journal Automation Marketplace

- Published annually in April 1 issue (2002-201)
- Based on data provided by each vendor
- Focused primarily on North America
  - Context of global library automation market
# Library Technology Industry Reports

<table>
<thead>
<tr>
<th>American Libraries</th>
<th>Library Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 2014: Strategic Competition and Cooperation</td>
<td>□ 2013: Rush to Innovate</td>
</tr>
<tr>
<td>□ 2015: Operationalizing Innovation</td>
<td>□ 2012: Agents of Change</td>
</tr>
<tr>
<td></td>
<td>□ 2011: New Frontier</td>
</tr>
<tr>
<td></td>
<td>□ 2010: New Models, Core Systems</td>
</tr>
<tr>
<td></td>
<td>□ 2009: Investing in the Future</td>
</tr>
<tr>
<td></td>
<td>□ 2008: Opportunity out of turmoil</td>
</tr>
<tr>
<td></td>
<td>□ 2007: An industry redefined</td>
</tr>
<tr>
<td></td>
<td>□ 2006: Reshuffling the deck</td>
</tr>
<tr>
<td></td>
<td>□ 2005: Gradual evolution</td>
</tr>
<tr>
<td></td>
<td>□ 2004: Migration down, innovation up</td>
</tr>
<tr>
<td></td>
<td>□ 2003: The competition heats up</td>
</tr>
<tr>
<td></td>
<td>□ 2002: Capturing the migrating customer</td>
</tr>
</tbody>
</table>
Industry Revenues

- $1.8 billion global industry
- $805 million from companies involved in the US
- $495 million from US Libraries
Industry Giants

- Ex Libris:
  - 565 FTE Employed

- Innovative
  - 416 FTE employed

- SirsiDynix:
  - 421 FTE Employed

- OCLC
  - 1,315 FTE

- EBSCO
  - 2,982
# Personnel Resources 2014

<table>
<thead>
<tr>
<th>Company</th>
<th>Dev</th>
<th>Suprt</th>
<th>Sales</th>
<th>Admn</th>
<th>Other</th>
<th>Total</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBSCO Information Services</td>
<td>547</td>
<td>1076</td>
<td>594</td>
<td>75</td>
<td>1237</td>
<td>2982</td>
<td>2807</td>
<td></td>
</tr>
<tr>
<td>Follett</td>
<td>134</td>
<td>135</td>
<td>347</td>
<td>81</td>
<td>662</td>
<td>1359</td>
<td>361</td>
<td>341</td>
</tr>
<tr>
<td>OCLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1315</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Ex Libris</td>
<td>208</td>
<td>234</td>
<td>65</td>
<td>47</td>
<td>11</td>
<td>565</td>
<td>536</td>
<td>522</td>
</tr>
<tr>
<td>ProQuest</td>
<td>224</td>
<td>107</td>
<td>75</td>
<td>63</td>
<td>11</td>
<td>480</td>
<td>255</td>
<td>256</td>
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<tr>
<td>Civica</td>
<td>18</td>
<td>386</td>
<td>15</td>
<td>31</td>
<td>4</td>
<td>454</td>
<td>438</td>
<td>425</td>
</tr>
<tr>
<td>SirsiDynix</td>
<td>142</td>
<td>172</td>
<td>50</td>
<td>19</td>
<td>39</td>
<td>421</td>
<td>385</td>
<td>369</td>
</tr>
<tr>
<td>Innovative Interfaces, Inc.</td>
<td>130</td>
<td>193</td>
<td>42</td>
<td>39</td>
<td>12</td>
<td>416</td>
<td>410</td>
<td>341</td>
</tr>
<tr>
<td>Axiell</td>
<td>76</td>
<td>68</td>
<td>40</td>
<td>43</td>
<td>49</td>
<td>263</td>
<td>219</td>
<td>198</td>
</tr>
<tr>
<td>The Library Corporation</td>
<td>40</td>
<td>94</td>
<td>25</td>
<td>13</td>
<td>27</td>
<td>199</td>
<td>199</td>
<td>199</td>
</tr>
<tr>
<td>LibLime -- PTFS</td>
<td>5</td>
<td>16</td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>155</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>Infor Library and Information Solutions</td>
<td>20</td>
<td>16</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>87</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>
Personnel Growth / Loss

Ex Libris
SirsiDynix
Follett Software Company
Innovative Interfaces, Inc.
Product Selections

Symphony Selections by Year
Product De-selections

Symphony De-selections by Year

## Library Services Platform Installations

### Production installations as of December 2014

<table>
<thead>
<tr>
<th>Product</th>
<th>Installations</th>
<th>2014 Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alma</td>
<td>406</td>
<td>43</td>
</tr>
<tr>
<td>WorldShare Management Services</td>
<td>303</td>
<td>79</td>
</tr>
<tr>
<td>Kuali OLE</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Intota</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Sierra</td>
<td>495</td>
<td>123</td>
</tr>
</tbody>
</table>
WorldShare implementations by Size

Distribution of WorldShare Management Services implementations by Size

- Very Large (7)
- Large (40)
- Medium (129)
- Small (10)

Medium (129)
129 (69.4%)
WorldShare Management Services by Type

Distribution of 224 WorldShare Management Services implementations by Type

- Academic (171) - 76.3%
- Public (9) - 11.6%
- School (7) - 4%
- Special (11)
- Other (26)
Alma – Implementations by Type

Distribution of 366 Alma implementations by Type

- Academic (271), 74%
- Public (1), 17.2%
- Special (31), 8.5%
- Other (63)
Alma – Implementations by Size

Distribution of Alma implementations by Size

- Very Large (51)
- Large (78)
- Medium (37)
- Small (4)

Large (78)
78 (45.9%)
Sierra implementations by Type

Distribution of 1625 Sierra implementations by Type

- Academic (367), 6.2%
- Public (1135), 22.6%
- School (9)
- Special (13)
- Other (101), 69.8%
Sierra implementations by Size

Distribution of Sierra implementations by Size

- Very Large (114)
- Large (248)
- Medium (747)
- Small (218)

56.3%
18.7%
16.4%
8.6%
Sierra migration Patterns

Previous systems used by the 1680 libraries migrating to Sierra

- Millennium (1342)
- Symphony (101)
- Horizon (94)
- AGent VERSO (34)
- Dynix (20)
- Voyager (17)
- Library.Solution (7)
- Koha -- LibLime (7)
- OpenGalaxy (4)
- Polaris (4)
- Circulation Plus (3)
- Innopac (3)
- Alto (3)
- Other
Evergreen implementations by Type

Distribution of 783 Evergreen implementations by Type

- Academic (38)
- Public (690)
- School (12)
- Special (8)
- Other (35)

88.1%
Evolutionary development toward the creation of a Library Services Platform

New BLUEcloud modules consistent with Library Services Platform

Symphony and Horizon belong to the ILS category

Overall deployment = Interim Hybrid model

BLUEcloud components expand

Dependence on ILS component shrinks
SirsiDynix Implementations by Type

Distribution of 3550 Symphony implementations by Type

- Academic (614) 17.3%
- Public (2016) 56.8%
- School (574) 16.2%
- Special (65) 7.9%
- Other (281)
Mergers and Acquisitions Activity
Majority acquisition by 2 private Equity Firms:
- Huntsman Gay Global Capital + JMI Equity
- New C-level management
  - Kim Massana, CEO
- Subsequent Transaction: Kline sells remaining shares and exits
- Global expansion
  - Dublin, Ireland
  - Noida, India
- Strategic acquisitions: Polaris, VTLS
Innovative Interfaces 2014

- Innovative acquires Polaris Library Systems
- Jim Carrick and partners sell shares and exit
- No longer a separate company
  - Bill Schickling now VP for Public Library Products
  - Polaris office East Coast Operations center
  - LEAP: Web-based staff clients
- Innovative acquires VTLS
  - Vinod Chachra: Transitional role > exit
  - Misc Products and Technologies
  - Queens Public, Hong Kong Public libraries
SirsiDynix changes Ownership

- Acquired EOS International in 2013
- Vista Equity Partners sells to ICV Partners
  - Much smaller private equity firm
    - ICV: $440 Million
    - Vista: $14 Billion
  - Minority owned and managed
  - Interest in companies that serve underprivileged communities
  - First high-tech investment for ICV
  - Company execs also invested
  - Vista retains some equity
Acquisition of Coutts

- OASIS
- MyiLibrary
EBSCO Information Services

- Investment in Kuali OLE
- Investment in Koha
- Acquisition of YBP / GOBI3
For-profit company launched to develop and provide services to selected projects

- Kuali Student
- Kuali Financial
- Kuali Coeus

KualiCo led by Joel Dehlin and CEO

- CTO for Instructure, developers of Canvas LMS

Acquired rSmart in Aug 2014
Kuali OLE?

- Kuali OLE has not engaged with KualiCo
- Independent boards and funding
  - Multiple grants from the Andrew W. Mellon Foundation
- Kuali OLE based on Kuali Rice, single-tenant middleware infrastructure
- Libraries now in production:
  - Lehigh University (Aug 4, 2014)
  - University of Chicago (Aug 20, 2014)
  - SOAS University College London (Apr 22, 2015)
Development Timeline for Library Services Platforms

<table>
<thead>
<tr>
<th>Platform</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>Phase 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuali OLE</td>
<td>Planning</td>
<td>Build</td>
<td>Build</td>
<td>Production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phase</td>
<td>Phase I</td>
<td>Phase II</td>
<td></td>
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<tr>
<td></td>
<td>HTC</td>
<td>Selected</td>
<td>First</td>
<td>2 in</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Installation</td>
<td>Production</td>
<td></td>
</tr>
<tr>
<td>Alma</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>150 in Production</td>
<td></td>
</tr>
<tr>
<td>Intota</td>
<td>Development</td>
<td>Production</td>
<td>0 in Production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCLC WMS</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>270 in Production</td>
<td></td>
</tr>
<tr>
<td>Sierra</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>495 in Production</td>
<td></td>
</tr>
</tbody>
</table>
Web-scale Index-based Discovery
(2009- present)

Search:

Search Results

Usage-generated Data

Customer Profile

Consolidated Index

Pre-built harvesting and indexing

ILS Data

Digital Collections

Web Site Content

Institutional Repositories

Aggregated Content packages

E-Journals

Reference Sources
## Discovery Service Statistics

<table>
<thead>
<tr>
<th>Discovery Product</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBSCO Discovery Service</td>
<td></td>
<td></td>
<td></td>
<td>1774</td>
<td>2634</td>
<td>8246</td>
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<tr>
<td>Primo</td>
<td>506</td>
<td>111</td>
<td>101</td>
<td>98</td>
<td>88</td>
<td>1529</td>
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<tr>
<td>Encore</td>
<td>56</td>
<td>72</td>
<td>36</td>
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<tr>
<td>Summon</td>
<td>164</td>
<td>214</td>
<td>158</td>
<td>195</td>
<td></td>
<td>697</td>
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<tr>
<td>WorldCat Discovery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2085</td>
</tr>
</tbody>
</table>
Transition to Library Services Platforms

- New platforms take the stage
  - Ex Libris Alma, OCLC WorldShare Management Services, Serials Solutions Intota, Kuali OLE, Innovative Interfaces Sierra (others?)
  - Basic design to manage resources of all formats and media
  - Reliance on collaboratively built and shared data models
  - Deployed through cloud technologies
## Resource Management Models

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

<table>
<thead>
<tr>
<th>Category</th>
<th>WorldShare Management Services</th>
<th>Alma</th>
<th>Intota</th>
<th>Sierra Services Platform</th>
<th>Kuali OLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Organization</td>
<td>OCLC.</td>
<td>Ex Libris</td>
<td>Serials Solutions</td>
<td>Innovative Interfaces, Inc</td>
<td>Kuali Foundation</td>
</tr>
<tr>
<td>Key precepts</td>
<td>Global network-level approach to management and discovery.</td>
<td>Consolidate workflows, unified management: print, electronic, digital; Hybrid data model</td>
<td>Knowledgebase driven. Pure multi-tenant SaaS</td>
<td>Service-oriented architecture Technology uplift for Millennium ILS. More open source components, consolidated modules and workflows</td>
<td>Manage library resources in a format agnostic approach. Integration into the broader academic enterprise infrastructure</td>
</tr>
<tr>
<td>Software model</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Open Source</td>
</tr>
</tbody>
</table>
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
  - Bibframe
  - New structures not yet invented
- Open APIs for extensibility and interoperability
## Development Timeline

<table>
<thead>
<tr>
<th>Library</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>Phase 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuali OLE</td>
<td>Planning</td>
<td>Build</td>
<td>Build</td>
<td>Build</td>
<td>Production</td>
</tr>
<tr>
<td></td>
<td>HTC Selected</td>
<td>Phase</td>
<td>Phase</td>
<td>Phase</td>
<td>First Installation</td>
</tr>
<tr>
<td>Alma</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>150 in Production</td>
<td></td>
</tr>
<tr>
<td>Intota</td>
<td>Development</td>
<td>Production</td>
<td>0 in Production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCLC WMS</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>270 in Production</td>
<td></td>
</tr>
<tr>
<td>Sierra</td>
<td>Development</td>
<td>Production</td>
<td>First Installation</td>
<td>495 in Production</td>
<td></td>
</tr>
</tbody>
</table>

[http://librarytechnology.org/chron/libraryservicesplatforms.pl](http://librarytechnology.org/chron/libraryservicesplatforms.pl)
Relationship with Discovery

- Discovery and Management solutions will increasingly be implemented as matched sets
  - Ex Libris: Primo / Alma
  - ProQuest: Summon / Intota
  - OCLC: WorldCat Discovery Service / WorldShare Platform
  - Except: Kuali OLE,
  - EBSCO Discovery Service: Works with any Resource management system

- Both depend on an ecosystem of interrelated knowledge bases

- API’s exposed to mix and match, but efficiencies and synergies are lost
Demise of the local catalog

- Many library services platforms do not include the concept of an online catalog dedicated to local physical inventory
- Designed for discovery services as public-facing interface
- Implication: Discovery service must incorporate detailed functionality for local materials and related services
Discovery Strategy Options

- Integrated suite: discovery and management systems from the same provider
- Open source discovery + Library Services Platform
  - VuFind or Blacklight
- Discovery layer + ERM with separate ILS for print collection
Fully Integrated Strategy

- Library services Platform
- Index-based discovery service
- Integrated link resolution
- Shared e-resource knowledgebase
- Analytics available from back-end and discovery perspective
Split Management / Discovery Strategy

- Library Services Platform for management of print and electronic resources
- Separate index-based discovery
- Knowledge base probably provided through Library Services Platform
- Link Resolution separate from Discovery: how to perform smart linking?
- Export and sync resource records from management to discovery service
- API look-ups for resource availability and status
- Patron profile and services request split between discovery and resource management components
Changing models of Resource Sharing
Progressive consolidation of library services

- Centralization of technical infrastructure of multiple libraries within a campus
- Resource sharing support
  - Direct borrowing among partner institutions
- Shared infrastructure between institutions
  - Examples: 2CUL (Columbia University / Cornell University)
  - Orbis Cascade Alliance (37 independent colleges and universities to merge into shared LSP)
Patrons use Circulation features to request items from other branches.

Floating Collections may reduce workload for Inter-branch transfers.

Model: Multi-branch Independent Library System

Integrated Library System

Bibliographic Database

Holdings

Main Facility

Branch 1

Branch 5

Branch 2

Branch 6

Branch 3

Branch 7

Branch 4

Branch 8
Consortial Resource Sharing System

Discovery and Request Management Routines

Inter-System Communications

Staff Fulfillment Tools

Resource Sharing Application

NCIP  SIP  ISO  ILL  Z39.50
Shared Consortial ILS

Model:
Multiple independent libraries in a Consortium Share an ILS

ILS configured
To support Direct consortial Borrowing through Circulation Module
Library Consortia

- Groups of libraries want to work together to share an automation system
- Number of participants limited by the perceived capacities of the automation system
Shared Infrastructure

- Common discovery
  - Retention of local automation systems
  - Technical complex with moderate operational benefits
- Common discovery + Resource Management Systems
- Shared Resource management with local discovery options
Support for Collaborative Infrastructure
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
Large-scale Implementations

- Scale of any given project is no longer limited
- Multi-tenant systems are already supporting very large numbers of sites
- Shared implementation does not necessarily require more resources than separate ones
## Wales Higher Education Libraries Forum

<table>
<thead>
<tr>
<th>Institution</th>
<th>Prior ILS</th>
<th>Bib Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberystwyth University</td>
<td>Voyager</td>
<td>677,846</td>
</tr>
<tr>
<td>Bangor &amp; Glyndwr University</td>
<td>Sierra</td>
<td>591,673</td>
</tr>
<tr>
<td>Cardiff University &amp; Welsh National Health Service</td>
<td>Voyager</td>
<td>856,381</td>
</tr>
<tr>
<td>Cardiff Metropolitan University</td>
<td>Alto</td>
<td>269,965</td>
</tr>
<tr>
<td>National Library of Wales</td>
<td>Virtua</td>
<td>6,643,696</td>
</tr>
<tr>
<td>Royal Welsh College of Music and Drama</td>
<td>Voyager</td>
<td>53,544</td>
</tr>
<tr>
<td>Swansea University</td>
<td>Voyager</td>
<td>738,399</td>
</tr>
<tr>
<td>University of South Wales</td>
<td>Symphony</td>
<td>365,602</td>
</tr>
<tr>
<td>University of Wales Trinity St. David</td>
<td>Horizon</td>
<td>637,326</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>10,834,432</strong></td>
</tr>
</tbody>
</table>
### Orbis Cascade Alliance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Campus Libraries</strong></td>
<td>37</td>
</tr>
<tr>
<td><strong>Aggregated Enrollment</strong></td>
<td>258,000</td>
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<tr>
<td><strong>Total Titles</strong></td>
<td>9 million</td>
</tr>
<tr>
<td><strong>Total Items</strong></td>
<td>28 million</td>
</tr>
<tr>
<td>Institution</td>
<td>Titles</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Bakersfield</td>
<td>473,134</td>
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<tr>
<td>Channel Islands</td>
<td>100,433</td>
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<tr>
<td>Chico</td>
<td>850,000</td>
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<tr>
<td>Dominguez Hills</td>
<td>628,193</td>
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<tr>
<td>East Bay</td>
<td>944,415</td>
</tr>
<tr>
<td>Fresno</td>
<td>1,928,624</td>
</tr>
<tr>
<td>Fullerton</td>
<td>1,153,714</td>
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<tr>
<td>Humboldt</td>
<td>692,017</td>
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<tr>
<td>Long Beach</td>
<td>1,198,788</td>
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<tr>
<td>Los Angeles</td>
<td>926,498</td>
</tr>
<tr>
<td>Maritime Academy</td>
<td>42,854</td>
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<tr>
<td>Monterey Bay</td>
<td>277,228</td>
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<tr>
<td>Northridge</td>
<td>1,575,695</td>
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<tr>
<td>Pomona</td>
<td>776,251</td>
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<tr>
<td>Sacramento</td>
<td>1,189,093</td>
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<td>San Bernardino</td>
<td>935,366</td>
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<td>San Diego</td>
<td>2,340,641</td>
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<td>San Francisco</td>
<td>1,524,464</td>
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<td>San Jose</td>
<td>1,505,676</td>
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<td>San Luis Obispo</td>
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<td>San Marcos</td>
<td>441,812</td>
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<tr>
<td>Sonoma</td>
<td>506,040</td>
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<td>Stanislaus</td>
<td>344,311</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21,160,755</strong></td>
</tr>
</tbody>
</table>
The University of California system is in an earlier stage of consideration regarding the possibility of a shared resource management system.
## Comparison of Projects

<table>
<thead>
<tr>
<th>Institution</th>
<th>Volumes</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvard University</td>
<td>18,900,000</td>
<td>79</td>
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<tr>
<td>Orbis Cascade Alliance</td>
<td>28,000,000</td>
<td>66</td>
</tr>
<tr>
<td>WHELF</td>
<td>10,834,432</td>
<td>32</td>
</tr>
<tr>
<td>California State University</td>
<td>25,396,798</td>
<td>25</td>
</tr>
<tr>
<td>University of California</td>
<td>45,000,000</td>
<td>100</td>
</tr>
</tbody>
</table>
Progressive consolidation of library services

- Centralization of technical infrastructure of multiple libraries within a campus
- Resource sharing support
  - Direct borrowing among partner institutions
- Shared infrastructure between institutions
  - Examples: 2CUL (Columbia University / Cornell University)
  - Orbis Cascade Alliance (37 independent colleges and universities to merge into shared LSP)
Orbis Cascade Alliance

- 37 Academic Libraries
- Combined enrollment of 258,000
- 9 million titles
- 1997: implemented dual INN-Reach systems
- Orbis and Cascade consortia merged in 2003
- Currently working on implementation of shared system
Norway: BIBSYS

- Provides automation services for:
  - National Library of Norway
  - 105 Academic and Special Libraries
- History of local system development
- Originally selected WorldShare Platform for new generation system development (Nov 2010) and later withdrew (Oct 2012)
- Primo implemented for Discovery (May 2013)
- Alma selected for new shared infrastructure (Jan 2014)
Notable Companies
OCLC

- Non-profit corporation based in Dublin Ohio
- $203.5 million revenue 2011/12 fiscal year
- $57 million in scope of automation industry
- Owned and Governed by membership: Board of Trustees, Global and Regional Councils
- Lawsuit between SkyRiver / Innovative vs OCLC withdrawn
- Annual Reports available:
Ex Libris

- Largest company in the industry
- Formidable competition for Academic Libraries
- Global marketing strength
  - Europe, Asia, North America
  - Latin American distributor
- Longstanding business strategy based on research and development
  - 194 personnel in development out of 536
Ex Libris Product Strategy

- Legacy ILS remain viable and profitable
  - Aleph – Many national and large research library installations
  - Voyager – Many national and academic research
    - Customer base seeing some erosion to competing systems
- Alma developed as replacement for Aleph, Voyager and to attract new academic clients
  - Academic libraries running non-specialized ILS targets for Alma
Innovative Interfaces

- Global company: Based in Emeryville, CA
- Markets to all library types
- Owned by HGGC and JMI Equity
- 361 employees, 120 in development
- International expansion
Polaris

- Acquired by Innovative in 2014
- Major competitor for public libraries
- Mid-sized company (97 employees)
- Focus:
  - Market: US Public Libraries
  - Technology: MS Windows platform
- Strong customer service performance
ProQuest: (Workflow Solutions)

- Focus on Academic Libraries
- Summon: first Web-scale Discovery Service
  - Summon 2.0 announced for summer 2013
- Intota: Planned Library Services Platform (2015)
SirsiDynix

- Continues to see new sales, especially internationally
- Two flagship ILS products: Horizon and Symphony
  - Symphony winning new sites, mostly outside the US
  - Revival of development and support for Horizon
SirsDynix Product Strategy

- Layer new technologies on the old
- Web Services layer for Horizon and Symphony
- New “BLUE Cloud” suite
  - Enterprise
  - Portfolio
  - BookMyne
  - Social Library (Facebook app)
- eResource Central
  - e-resource management and discovery (mostly e-books)
  - 1-click check-out and download of e-books
Open Source Integrated Library Systems

- Major thread in library systems development
  - Koha
  - Evergreen
  - Kuali OLE
Evergreen Libraries Worldwide
Koha Worldwide
Questions and discussion